

Latest Products from...

Environmentally Sealed (IP67) Toggle Switches



See page 602

R13 Style Rocker Switches



See page 614

Illuminated Tactile Push Button Switches



See page 636

Stainless Steel Vandal Proof Switches



See page 651

Contents

Page

Air Switching Systems	677
Detect Switches	623
Digital Switches	665
DIL Switches	659
Foot Switches	676
Industrial Push Button	640
Joystick / Direction Controllers	666
Key Operated Switches	657
Keyboard Switches and Accessories	626
Keyboards	640
Keypads	636
Microswitches	669
Navigation Switches	624
Push Button Switches	615
Reed Switches & Magnets	678
Rocker Switches	609
Rotary Switches	652
SIL Switches	659
Slide Switches	605
Tactile Push Button Switches	629
Toggle Switches & Accessories	594
Vandal Resistant Switches	647
Voltage Selectors	608

Thousands more products from our extended range



Take advantage of Farnell's global network
and access an additional 200,000 products

Products direct from our US warehouse

- ▶ Over 110,000 products with associated technical datasheets
- ▶ No minimum order sizes
- ▶ Delivered in just 3 working days

Over 30,000 MIL SPEC connectors



- ▶ Easily source thousands of high-quality connectors from ITT Cannon and Amphenol
- ▶ Uniquely assembled and delivered in just 5 working days
- ▶ Full attribute data and technical datasheets

If you design in these brands, we've got it covered!

- ▶ Additional products from high performance analog, logic, microcontroller and DSP components to capacitors, resistors, filters and inductors - browse the ranges online
- ▶ All available on an accurate manufacturer lead-time



We've got products covered;
visit www.farnell.com for fast, efficient
ordering from just one source.

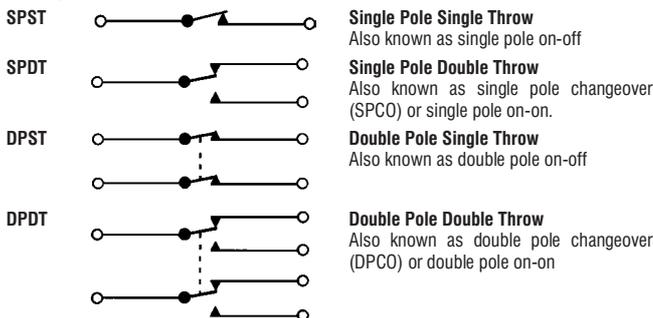


Switch Selection

Ratings

All voltage, current and power ratings quoted are for switching resistive loads unless otherwise stated or bracketed.
ie. 16(4)A @ 250V ac = 16A resistive, 4A inductive at 250V ac.

Configurations



3P, 4P NO, NC Multi-pole switches, 3 pole, 4 pole etc.
'Normally Open' contacts are operated to 'make' (turn on).
'Normally Closed' contacts are operated to 'break' (turn off).

Characteristics

Momentary Action The state of the switch will change only whilst the operating force is applied. When released the switch will return to its original state.

Latching Action The state of the switch changes when an operating force is applied. It will change back to its original state when an additional force is applied. Also known as maintained action.

Examples of Alternative Descriptions

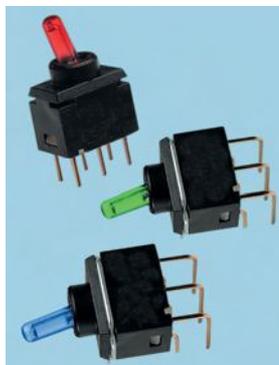
SPDT	Single pole on-on	(2 position)
SPDT - centre off	Single pole on-off-on	(3 position)
SPDT - biased	Single pole on-mom	(2 position)
SPDT - centre off, two ways bias	Single pole mom-off-mom	(3 position)
SPDT - centre off, one way bias	Single pole on-off-mom	(3 position)

213136

Illuminated Toggle Switches

Ultraminiature Illuminated Toggle Switches

Process sealed - 0.4VA, 28V(AC/DC) max



- Visible status indication - toggle illuminated by bright LED
- Red and green toggle single colour switches
- Red/green bi-colour versions
- Straight and right angle PCB terminals
- Wide angle of throw at 28°

Switch Specifications
Electrical capacity 0.4VA max. 28V(AC/DC) max
Electrical life 100000 Cycles
Contact resistance 80mohm
Insulation resistance 500Mohm
Dielectric strength 500 V rms @ sea level
Operating temperature -25°C to 55°C

Body H=7, W=7, D=4.5, Lever L=3.8
Pin spacing=2.54, bush dia=4

LED Specifications

LED type	Single Colour		Bicolour	
	Red	Green	Red	Green
Peak forward current (mA)	25	25	25	25
Forward current (mA)	20	20	20	20
Forward voltage (V)	2.0	2.1	2.0	2.1
Reverse peak voltage (V)	4	4	4	4

Mfrs. List No. G12JPC=118-7628
G12JPF=118-7748
G12JPCF=118-7749
G13JPCF=118-7754

G12JHC=118-7750
G12JHF=118-7751
G12JHCF=118-7753
G13JHCF=118-7755

311415

Straight Terminals	Order Code	Price Each				
		1+	25+	100+	250+	500+
SPDT On-On red	118-7628	2.55	2.40	2.29	2.19	2.09
SPDT On-On green	118-7748	2.55	2.40	2.29	2.19	2.09
SPDT On-On red/green	118-7749	3.12	2.93	2.81	2.68	2.55
SPDT On-Off-On red/green	118-7754	3.30	3.10	2.97	2.84	2.70
Right Angle Terminals						
SPDT On-On red	118-7750	2.95	2.77	2.65	2.53	2.42
SPDT On-On green	118-7751	2.95	2.77	2.65	2.53	2.42
SPDT On-On red/green	118-7753	3.53	3.32	3.19	3.03	2.89
SPDT On-Off-On red/green	118-7755	2.05	1.95	1.86	1.76	1.67

Illuminated Toggle Switches



- Visible status indicator - toggle illuminated by LED
- Two toggle lengths - 11mm and 17.5mm
- Available in bright red and green and super bright blue and green
- Sealing to IP65 with panel seal
- DPDT on-on configuration

Body H=25.6, W=18, D=18
Cut-out dia=12.5, Panel thickness=4 max.

Switch Specifications

Electrical capacity 3A@250V ac
Electrical life 50000 Cycles
Contact resistance 10mohm
Insulation resistance 1000Mohm
Operating temperature -10°C to 55°C

LED Specifications

LED type	Super Bright LED		Bright LED	
	Green	Blue	Red	Green
LED colour	30	30	30	50
Peak forward current (mA)	20	20	20	20
Forward current (mA)	3.3	3.4	2.0	2.27
Forward voltage (V)	5	5	4	4
Reverse peak voltage (V)				

Mfrs. List No.

TL22DCAW015C =
TL22DNAW016F =
TL22DNAW016G =

Mfrs. List No.

118-7756 =
118-7759 TL22SNAG016F =
118-7760 TL22SNAG016G =
AT401P =

118-7763
118-7765
118-7766

311416

	Order Code	Price Each				
		1+	25+	100+	250+	500+
17.5mm Toggle						
Red	118-7756	4.89	4.60	4.22	4.01	3.81
Red	118-7756	4.89	4.60	4.22	4.01	3.81
Hi-Blue	118-7760	6.29	5.91	5.41	5.14	4.88
11.0mm Toggle						
Red	118-7761	5.59	5.25	4.80	4.56	4.33
Hi-Green	118-7763	6.92	6.50	5.95	5.65	5.37
Hi-Blue	118-7765	6.92	6.50	5.95	5.65	5.37
Panel seal						
AT401P	118-7766	0.32	0.28	0.24	0.22	0.20

Illuminated Toggle Switches

Subminiature Sealed - 0.4VA @ 28V(AC/DC) maximum



- Internal LED provides illumination to both bushing and actuator.
- Totally sealed construction to prevent contamination
- Molded in epoxy sealed terminals
- STC contact mechanism for positive detent action and reliability
- 2.54mm x 2.54mm terminal spacing

Switch Specifications

Electrical capacity (Resistive load) 0.4VA @ 28V ac/dc (Max.)
Electrical life 50000 Cycles
Contact resistance 50mohm
Insulation resistance 500Mohm
Dielectric strength 500V ac for 1 minute minimum
Operating temperature -30°C to 55°C



498297

Bushing and Actuator Colour	Mfrs. List No.	Order Code	Price Each				
			1+	10+	25+	50+	100+
Straight PCB Terminals							
Red	B12JPC	152-4216	5.94	5.48	5.00	4.76	4.52
Amber	B12JPD	152-4217	5.94	5.48	5.00	4.76	4.52
Green	B12JPF	152-4218	8.42	7.74	7.08	6.74	6.40
Red / Green	B12JPCF	152-4219	10.64	9.80	8.94	8.52	8.10
Right Angle PCB Terminals							
Red	B12JHC	152-4220	6.36	5.86	5.36	5.10	4.84
Amber	B12JHD	152-4221	6.36	5.86	5.36	5.10	4.84
Green	B12JHF	152-4222	8.84	8.14	7.42	7.08	6.72
Red / Green	B12JHCF	152-4223	11.06	10.18	9.30	8.86	8.42
Vertical PCB Terminals							
Red	B12JVC	152-4224	6.36	5.86	5.36	5.10	4.84
Amber	B12JVD	152-4225	6.36	5.86	5.36	5.10	4.84
Green	B12JVF	152-4226	8.84	8.14	7.42	7.08	6.72
Red / Green	B12JVCF	152-4228	11.06	10.18	9.30	8.86	8.42

Over 480,000 products online



Over 480,000 products online



Illuminated Toggle Switches - continued

LED-tipped Toggle Switches

6A@125V ac, 3A@250V ac, 3A@30V dc



- Industry's first LED-tipped toggle switch
- Single or bicolor LEDs to meet varied design requirements
- Stainless steel frame
- Solder lug terminals moulded in and epoxy sealed

LED Specifications

LED type	Single Colour	Bicoulor
LED colour	Red Green	Red/Green
Peak forward current (mA)	25 30	25
Forward current (mA)	20 20	20
Forward voltage (V)	2.1 2.1	2.1

Gehäuse H=20.3, B=12.7(SP), 17.5(DP), T=13
Hebel L=14.7, Plattenabstand=6.5, Dicke=2.6 max.

Switch Specifications

Electrical capacity 6A@125V ac, 3A@250V ac, 3A@30V dc
 Electrical life 25000 Cycles
 Contact resistance 10mohm
 Insulation resistance 1000Mohm
 Dielectric strength 1000 V rms between contacts
 Operating temperature -10°C to 55°C

Mfrs. List No.

M2112TCW01 =	118-7767
M2112TFW01 =	118-7768
M2112TCFW01 =	118-7769
M2122TCW01 =	118-7770
M2122TFW01 =	118-7771
M2122TCFW01 =	118-7772
M2113TCFW01 =	118-7775
M2123TCFW01 =	118-7779

311417

Switch Function	Colour	Order Code	1+	25+	100+	250+	500+
SPDT On-On	Red	118-7767	5.23	5.06	4.66	4.34	4.12
SPDT On-On	Green	118-7768	5.23	5.06	4.66	4.34	4.12
SPDT On-On	Red / Green	118-7769	5.74	5.55	5.12	4.76	4.52
DPDT On-On	Red	118-7770	6.47	6.17	5.68	5.35	5.08
DPDT On-On	Green	118-7771	6.47	6.17	5.68	5.35	5.08
DPDT On-On	Red / Green	118-7772	7.08	6.49	5.99	5.56	5.28
SPDT On-Off-On	Red / Green	118-7775	6.27	6.06	5.59	5.20	4.94
DPDT On-Off-On	Red / Green	118-7779	7.43	7.10	6.41	6.15	5.84

Subminiature Toggle Switches

Ultraminiature Sealed

0.4 VA @ 20V ac or dc



- Gold contacts
- Glass filled nylon body, UL 94V-0 Rated
- Epoxy sealed terminations
- IP 67 Sealed

Body Dimensions (mm)	H	W	D
SPDT - Vertical Vertical	7	7	4.5
DPDT - Vertical Vertical	7	7	4.5
SPDT - Solder	4.9	7.8	5.08
DPDT - Solder	4.9	7.8	5.08
SPDT - Vertical Right Angle	7	5.3	5.08
DPDT - Vertical Right Angle	7	5.3	5.08

Contact Rating 0.4VAMax. @ 20V ac/dc Bush length 1.6mm
 Mechanical life 40000 operations Lever length 3.8mm
 Contact resistance <100mohm Operating temperature -30°C to +85°C

501404

Switch Function	Mfrs. List No.	Order Code	1+	50+	100+	500+
Vertical Mount - Vertical Body						
SPDT - On-Mom	2US2T1A1M2RE	155-0198	1.37	1.21	1.07	0.99
SPDT - On-On	2US1T1A1M2RE	155-0199	1.23	1.10	0.97	0.89
SPDT - On-Off-On	2US3T1A1M2RE	155-0200	1.60	1.43	1.25	1.14
DPDT - On-Mom	2UD2T1A1M2RE	155-0201	1.60	1.43	1.25	1.14
DPDT - On-On	2UD1T1A1M2RE	155-0203	1.37	1.21	1.07	0.99
DPDT - On-Off-On	2UD3T1A1M2RE	155-0204	1.87	1.66	1.46	1.34
Horizontal Mount, Right Angle Body						
SPDT - On-Mom	2US2T1A1M6RE	155-0205	1.47	1.29	1.13	1.04
SPDT - On-On	2US1T1A1M6RE	155-0206	1.28	1.13	1.00	0.92
SPDT - On-Off-On	2US3T1A1M6RE	155-0207	1.69	1.50	1.31	1.20
DPDT - On-Mom	2UD2T1A1M6RE	155-0208	1.74	1.55	1.35	1.23
DPDT - On-On	2UD1T1A1M6RE	155-0209	1.52	1.34	1.17	1.08
DPDT - On-Off-On	2UD3T1A1M6RE	155-0210	1.96	1.74	1.53	1.41
Vertical Mount, Right Angle Body						
SPDT - On-Mom	2US2T1A1M7RE	155-0211	1.47	1.29	1.13	1.04
SPDT - On-On	2US1T1A1M7RE	155-0212	1.28	1.13	1.00	0.92
SPDT - On-Off-On	2US3T1A1M7RE	155-0213	1.69	1.50	1.31	1.20
DPDT - On-Mom	2UD2T1A1M7RE	155-0215	1.74	1.55	1.35	1.23
DPDT - On-On	2UD1T1A1M7RE	155-0216	1.52	1.34	1.17	1.08
DPDT - On-Off-On	2UD3T1A1M7RE	155-0217	1.96	1.74	1.53	1.41

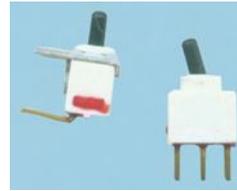
15

RL Re-reeling available

Farnell

Ultraminiature Sealed

0.4VA @ 20V ac/dc



- Sealed against solder and cleaning processes
- Smallest footprint available
- Through Hole and Surface Mount versions
- High temperature materials (UL 94V-0)

Contact Rating 0.4VA @ 20V ac/dc
 Operational Life 40000 make-and-break cycles
 Contact Resistance 50mohm
 Insulation Resistance 1000Mohm
 Dielectric Strength 500V_{RMS}
 Operating Temperature -30 to 85°C

483103

Vertical	Mfrs. List No.	Order Code	1+	25+	100+	250+
Vertical Mount						
SPDT- On-On	GT11MCBE	143-7674	3.20	3.03	2.88	2.73
SPDT- On-Off-On	GT13MCBE	143-7675	3.70	3.50	3.31	3.15
DPDT- On-On	GT21MCBE	143-7676	4.30	4.07	3.86	3.67
DPDT- On-Off-On	GT23MCBE	143-7678	4.64	4.38	4.15	3.96
Horizontal Actuation						
SPDT- On-On	GT11MABE	143-7683	2.84	2.65	2.53	2.41
SPDT- On-Off-On	GT13MABE	143-7684	4.11	3.89	3.68	3.52
DPDT- On-Off-On	GT23MABE	143-7686	5.20	4.91	4.65	4.44
SPDT- On-On	GT11MSABETR	SMD 143-7687	2.61	2.47	2.35	2.22
SPDT- On-Off-On	GT13MSABETR	SMD 143-7688	3.04	2.87	2.72	2.59

Ultra Miniature Toggle Switches

Process Sealed - 0.4VA @ 28V(AC/DC) maximum



- Ultra-miniature size
- Heat resistant resin housing, base and lever for vapor phase and infrared convection reflow soldering
- Molded-in epoxy sealed terminals
- Totally sealed construction to prevent contamination
- STC contact mechanism for positive detent action and reliability
- Gull-wing terminals provide mechanical stability during soldering



Switch Specifications

Electrical capacity (Resistive load) 0.4VA @ 28V ac/dc (Max.)
 Electrical life 50000 Cycles
 Contact resistance 80mohm
 Insulation resistance 500Mohm
 Dielectric strength 500V ac for 1 minute minimum
 Operating temperature -30°C to 85°C

498300

Switch Type	Mfrs. List No.	Order Code	1+	25+	50+	100+	500+
Upright Mounting							
SPDT - On-On	G3T12AP	SMD 152-4243	3.56	3.28	3.00	2.86	2.70
SPDT - On-Off-On	G3T13AP	SMD 152-4244	3.86	3.54	3.24	3.08	2.92
DPDT - On-On	G3T22AP	SMD 152-4247	4.54	4.18	3.82	3.64	3.46
DPDT - On-Off-On	G3T23AP	SMD 152-4248	4.78	4.40	4.02	3.84	3.64
Right Angle Mounting							
SPDT - On-On	G3T12AH	SMD 152-4245	4.06	3.72	3.40	3.24	3.08
SPDT - On-Off-On	G3T13AH	SMD 152-4246	4.34	4.00	3.64	3.48	3.30
DPDT - On-On	G3T22AH	SMD 152-4249	5.04	4.64	4.22	4.02	3.82
DPDT - On-Off-On	G3T23AH	SMD 152-4250	5.28	4.86	4.44	4.22	4.02

Ultra Miniature Toggle Switches

Process Sealed - 0.4VA @ 28V(AC/DC) maximum



- Ultra-miniature size
- Specifically designed for logic level switching
- Molded-in epoxy sealed terminals
- Totally sealed construction to prevent contamination
- STC contact mechanism for positive detent action and reliability
- 2.54mm x 2.54mm terminal spacing



Switch Specifications

Electrical capacity (Resistive load) 0.4VA @ 28V ac/dc (Max.)
 Electrical life 50000 Cycles
 Contact resistance 80mohm
 Insulation resistance 500Mohm
 Dielectric strength 500V ac for 1 minute minimum
 Operating temperature -25°C to 85°C

498287

Switch Type	Mfrs. List No.	Order Code	1+	25+	50+	100+	500+
Straight PCB Terminals							
SPDT - On-On	G12AP	152-4229	3.38	3.12	2.84	2.70	2.58
SPDT - On-Off-On	G13AP	152-4230	3.64	3.34	3.04	2.90	2.76
DPDT - On-On	G22AP	152-4235	4.12	3.80	3.46	3.30	3.14
DPDT - On-Off-On	G23AP	152-4236	4.36	4.02	3.66	3.50	3.32
Right Angle PCB Terminals							
SPDT - On-On	G12AH	152-4231	3.72	3.42	3.12	2.98	2.82
SPDT - On-On	G13AH	152-4232	3.96	3.64	3.32	3.18	3.02
DPDT - On-On	G22AH	152-4237	4.66	4.28	3.90	3.72	3.54
DPDT - On-On	G23AH	152-4238	4.90	4.50	4.12	3.92	3.72



Switch Type	Mfrs. List No.	Order Code	Price Each				
			1+	25+	50+	100+	500+
Vertical PCB Terminals							
SPDT - On-On	G12AV	152-4233	3.72	3.42	3.12	2.98	2.82
SPDT - On-On	G13AV	152-4234	3.96	3.64	3.32	3.18	3.02
DPDT - On-On	G22AV	152-4241	4.66	4.28	3.90	3.72	3.54
DPDT - On-On	G23AV	152-4242	4.90	4.50	4.12	3.92	3.72

For Sealing Boots see page 604

PCB Mounting
0.4VA @ 20V ac/dc



Vertical Body H=8.64 W=5 (SPDT), 9.1 (DPDT) D=8.13
 Horizontal Body H=5 (SPDT), 9.1 (DPDT) W=8.1, D=9.1 (SPDT), 11.6 (DPDT)
 Vertical Threaded Bush Body H=8.64 W=5 (SPDT), 9.1 (DPDT) D=8.13

- Gold plated contacts allow low level switching
- Epoxy sealed terminations
- Threaded bush types for panel mounting

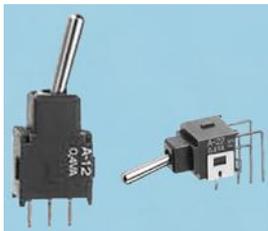
Electrical life 60000 2 position, 30,000 3 position
 Operating temperature -30°C to +85°C
 Contact resistance 20mohm @ 4V dc

213278

Configuration	Mfrs. List No.	Order Code	Price Each			
			1+	25+	100+	250+
Vertical Mounting						
SPDT On-On	T101MH9CBE	957-5634	3.20	2.86	2.20	1.65
SPDT On-Off-On	T103MH9CBE	957-5642	2.97	2.64	2.30	2.13
SPDT Mom-Off-Mom	T105MH9CBE	143-7718	3.91	3.59	3.30	3.11
SPDT On-Mom	T108MH9CBE	957-5650	3.53	3.14	2.73	2.55
DPDT On-On	T201MH9CBE	957-5669	5.18	4.61	4.01	3.73
DPDT On-Off-On	T203MH9CBE	957-5677	3.79	3.38	2.95	2.74
Horizontal Mounting						
SPDT On-On	T101MH9ABE	957-5685	3.96	3.21	2.44	1.84
SPDT On-Off-On	T103MH9ABE	957-5693	4.38	3.79	2.88	2.16
SPDT Mom-Off-Mom	T105MH9ABE	143-7725	4.13	3.79	3.51	3.30
SPDT On-Mom	T108MH9ABE	143-7727	4.48	4.12	3.79	3.58
DPDT On-On	T201MH9ABE	957-5707	6.87	5.04	3.81	2.87
Vertical Mounting - Threaded Bush						
SPDT On-On	T101STDCE	957-5715	4.89	4.35	3.78	3.52
SPDT On-Off-On	T103STDCE	957-5723	4.76	4.23	3.70	3.44
SPDT On-Mom	T108STDCE	957-5731	5.39	4.78	4.17	3.90
SPDT Mom-Off-Mom	T105STDCE	143-7733	3.91	3.59	3.30	3.11
DPDT On-On	T201STDCE	957-5740	6.61	5.88	5.10	4.76
DPDT On-Off-On	T203STDCE	957-5758	2.80	2.49	2.16	2.02

Subminiature - Process Sealed

0.4VA @ 28V ac/dc



- Subminiature size saves space on PCB's
- PCB Mounting terminals
- 2.54 x 2.54mm terminal spacing
- Specifically developed for logic-level applications
- Totally sealed body construction
- Award winning Sliding Twin Contact mechanism
- 10mm long nickel plated brass toggle

Contact Resistance 50mohm (Max.) Contact Timing Nonshorting (break before make)
 Insulation Resistance 500Mohm @ 500V dc Angle of Throw 26°
 Dielectric Strength 500V ac Operating temperature -30 to 85°C
 Electrical Life 50000 ops

Mfrs. List No.	A12AP=135-7620	A29AP=135-7630	A2RAH=135-7639	A18AV=135-7649
A15AP=135-7622	A24AP=135-7631	A23AH=135-7640	A19AV=135-7650	
A13AP=135-7623	A12AH=135-7632	A28AH=135-7641	A22AV=135-7651	
A18AP=135-7624	A1RAH=135-7634	A29AH=135-7643	A1RAV=135-7652	
A19AP=135-7625	A13AH=135-7635	A24AH=135-7644	A23AV=135-7653	
A22AP=135-7626	A18AH=135-7636	A12AV=135-7646	A28AV=135-7654	
A25AP=135-7627	A19AH=135-7637	A1RAV=135-7647	A29AV=135-7655	
A23AP=135-7628	A22AH=135-7638	A13AV=135-7648	A24AV=135-7656	
A28AP=135-7629				

473566

Switch Function	Order Code	Price Each				
		1+	25+	50+	100+	500+
Vertical Mounting - Straight Terminals						
SPDT On-On	135-7620	2.48	2.22	2.10	2.00	1.84
SPDT On-Mom	135-7622	2.58	2.28	2.18	2.06	1.90
SPDT On-Off-On	135-7623	2.58	2.28	2.18	2.06	1.90
SPDT Mom-Off-Mom	135-7624	2.92	2.60	2.48	2.34	2.16
SPDT On-Off-Mom	135-7625	2.92	2.60	2.48	2.34	2.16
DPDT On-On	135-7626	3.40	3.02	2.88	2.72	2.52
DPDT On-Mom	135-7627	1.49	1.32	1.26	1.18	1.10
DPDT On-Off-On	135-7628	3.64	3.24	3.08	2.90	2.70
DPDT Mom-Off-Mom	135-7629	4.00	3.56	3.38	3.20	2.96
DPDT On-Off-Mom	135-7630	1.63	1.46	1.38	1.30	1.21
DPDT On-On-On	135-7631	4.42	3.92	3.74	3.52	3.26
Horizontal Mounting - Right angle Terminals - Horizontal Actuation						
SPDT On-On	135-7632	2.88	2.56	2.44	2.30	2.14
SPDT Mom-On	135-7634	2.96	2.64	2.52	2.38	2.20
SPDT On-Off-On	135-7635	2.96	2.64	2.52	2.38	2.20
SPDT Mom-Off-On	135-7636	1.35	1.21	1.15	1.09	1.01
SPDT On-Off-Mom	135-7637	3.32	2.96	2.82	2.66	2.46
DPDT On-On	135-7638	4.02	3.56	3.40	3.22	2.98
DPDT Mom-On	135-7639	1.73	1.54	1.47	1.38	1.28
DPDT On-Off-On	135-7640	1.73	1.54	1.47	1.38	1.28
DPDT Mom-Off-Mom	135-7641	1.88	1.66	1.59	1.50	1.38
DPDT On-Off-Mom	135-7643	1.88	1.66	1.59	1.50	1.38
DPDT On-On-On	135-7644	5.02	4.46	4.26	4.02	3.72
Horizontal Mounting - Right angled Terminals - Vertical Actuation						
SPDT On-On	135-7646	2.88	2.56	2.44	2.30	2.14
SPDT Mom-On	135-7647	1.21	1.08	1.03	0.97	0.90
SPDT On-Off-On	135-7648	1.21	1.08	1.03	0.97	0.90
SPDT Mom-Off-Mom	135-7649	1.35	1.21	1.15	1.09	1.01
SPDT On-Off-Mom	135-7650	3.32	2.96	2.82	2.66	2.46
DPDT On-On	135-7651	4.02	3.56	3.40	3.22	2.98
DPDT Mom-On	135-7652	1.73	1.54	1.47	1.38	1.28
DPDT On-Off-On	135-7653	1.73	1.54	1.47	1.38	1.28
DPDT Mom-Off-Mom	135-7654	1.88	1.66	1.59	1.50	1.38
DPDT On-Off-Mom	135-7655	1.88	1.66	1.59	1.50	1.38
DPDT On-On-On	135-7656	2.13	1.90	1.81	1.70	1.58

Antistatic Toggle Switches

Process Sealed - 0.4VA @ 28V(AC/DC) maximum



- Subminiature size
- Specifically designed for logic level switching
- Antistatic superstructure - Static from operator travels from actuator to the PCB
- Totally sealed construction to prevent contamination
- STC contact mechanism for positive detent action and reliability
- 2.54mm x 2.54mm terminal spacing



Switch Specifications

Electrical capacity (Resistive load) 0.4VA @ 28V ac/dc (Max.)
 Electrical life 50000 Cycles
 Contact resistance 50mohm
 Insulation resistance 500Mohm
 Dielectric strength 500V ac for 1 minute minimum
 Operating temperature -30°C to 85°C

498273

Switch Type	Mfrs. List No.	Order Code	Price Each				
			1+	25+	50+	100+	500+
Straight PCB Terminals - Bracket							
B12AB	152-4182	2.98	2.74	2.50	2.38	2.26	
SPDT - On-Off-On	B13AB 152-4183	3.08	2.82	2.58	2.46	2.34	
SPDT - On-Mom	B15AB 152-4184	3.08	2.82	2.58	2.46	2.34	
SPDT - Mom-Off-Mom	B18AB 152-4186	3.46	3.18	2.90	2.76	2.62	
SPDT - On-Off-Mom	B19AB 152-4187	3.46	3.18	2.90	2.76	2.62	
DPDT - On-On	B22AB 152-4188	4.06	3.72	3.40	3.24	3.08	
DPDT - On-Off-On	B23AB 152-4189	4.30	3.96	3.62	3.44	3.26	
DPDT - On-Mom	B25AB 152-4190	4.30	3.96	3.62	3.44	3.26	
DPDT - Mom-Off-Mom	B28AB 152-4191	4.68	4.30	3.92	3.74	3.56	
DPDT - On-Off-Mom	B29AB 152-4192	4.68	4.30	3.92	3.74	3.56	
Right Angle PCB Terminals							
SPDT - On-On	B12AH 152-4193	3.08	2.82	2.58	2.46	2.34	
SPDT - On-Off-On	B13AH 152-4194	3.16	2.90	2.66	2.52	2.40	
SPDT - On-Mom	B15AH 152-4195	3.16	2.90	2.66	2.52	2.40	
SPDT - Mom-Off-Mom	B18AH 152-4196	3.54	3.26	2.98	2.84	2.70	
SPDT - On-Off-Mom	B19AH 152-4198	3.54	3.26	2.98	2.84	2.70	
DPDT - On-On	B22AH 152-4199	4.28	3.94	3.60	3.42	3.24	
DPDT - On-Off-On	B23AH 152-4200	4.52	4.16	3.80	3.62	3.44	
DPDT - On-Mom	B25AH 152-4201	4.52	4.16	3.80	3.62	3.44	
DPDT - Mom-Off-Mom	B28AH 152-4202	4.90	4.50	4.12	3.92	3.72	
DPDT - On-Off-Mom	B29AH 152-4204	4.90	4.50	4.12	3.92	3.72	
Vertical PCB Terminals							
SPDT - On-On	B12AV 152-4205	3.08	2.82	2.58	2.46	2.34	
SPDT - On-Off-On	B13AV 152-4206	3.16	2.90	2.66	2.52	2.40	
SPDT - On-Mom	B15AV 152-4207	3.16	2.90	2.66	2.52	2.40	
SPDT - Mom-Off-Mom	B18AV 152-4208	3.54	3.26	2.98	2.84	2.70	
SPDT - On-Off-Mom	B19AV 152-4209	3.54	3.26	2.98	2.84	2.70	
DPDT - On-On	B22AV 152-4210	4.28	3.94	3.60	3.42	3.24	
DPDT - On-Off-On	B23AV 152-4211	4.52	4.16	3.80	3.62	3.44	
DPDT - On-Mom	B25AV 152-4212	4.52	4.16	3.80	3.62	3.44	
DPDT - Mom-Off-Mom	B28AV 152-4213	4.90	4.50	4.12	3.92	3.72	
DPDT - On-Off-Mom	B29AV 152-4214	4.90	4.50	4.12	3.92	3.72	

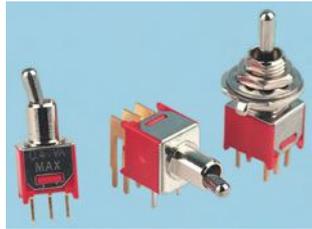
15

Re-reeling available



Subminiature Toggle Switches - continued

Subminiature, PCB Mounting
0.4VA @ 20V ac/dc



Vertical
Body H=8.3
W=5.08 (SPDT),
9.14 (DPDT)
D=8.13

Vertical Threaded
Bush
Body H=8.64
W=5.08 (SPDT),
9.14 (DPDT)
D=8.13

Horizontal
Body H=5.8 (SPDT), 9.14 (DPDT)
W=8.13, D=9.09

- Gold plated contacts allow low level switching
- Epoxy sealed terminations
- Threaded bush types for panel mounting
- UL Recognised

Electrical life 30000 2 position, 30,000 3 position
Operating temperature -30°C to +85°C
Contact resistance 20mohm @ 4V dc

311893.343134

Switch Function	Mfrs. List No.	Order Code	1+	25+	100+	250+
Vertical Mounting						
SPDT On-On	2MS1T2B2M2RE	947-2967	0.76	0.67	0.60	0.54
SPDT On-Off-On	2MS3T2B2M2RE	947-2975	1.08	0.95	0.83	0.76
SPDT On-Mom	2MS2T2B2M2RE	947-2983	0.90	0.80	0.70	0.64
SPDT Mom-Off-Mom	2MS4T2B2M2RE	NEW 155-0082	1.19	1.06	0.93	0.85
SPDT On-Off-Mom	2MS5T2B2M2RE	NEW 155-0083	1.28	1.13	1.00	0.92
DPDT On-On	2MD1T2B2M2RE	947-2991	1.03	0.91	0.80	0.74
DPDT On-Off-On	2MD3T2B2M2RE	947-3009	0.91	0.81	0.71	0.65
DPDT On-Mom	2MD2T2B2M2RE	NEW 155-0084	1.23	1.10	0.97	0.89
DPDT On-On-On	2MD6T2B2M2RE	NEW 155-0085	1.69	1.50	1.31	1.20
Horizontal Mounting - R/A						
SPDT On-On	2MS1T2B2M6RE	947-3017	0.99	0.88	0.76	0.71
SPDT On-Off-On	2MS3T2B2M6RE	947-3025	1.21	1.08	0.94	0.86
SPDT Mom-Off-Mom	2MS4T2B2M6RE	NEW 155-0087	1.28	1.13	1.00	0.92
SPDT On-Off-Mom	2MS5T2B2M6RE	NEW 155-0089	1.32	1.18	1.03	0.95
DPDT On-On	2MD1T2B2M6RE	947-3033	1.21	1.08	0.94	0.86
DPDT On-Mom	2MD2T2B2M6RE	NEW 155-0090	1.32	1.18	1.03	0.95
DPDT On-Off-On	2MD3T2B2M6RE	NEW 155-0091	1.52	1.34	1.17	1.08
DPDT On-On-On	2MD6T2B2M6RE	NEW 155-0092	1.83	1.63	1.43	1.30
Vertical Mounting - R/A						
SPDT On-Mom	2MS2T2B2M7RE	NEW 155-0094	1.10	0.98	0.85	0.77
SPDT On-On	2MS1T2B2M7RE	NEW 155-0095	1.01	0.90	0.77	0.72
SPDT Mom-Off-Mom	2MS4T2B2M7RE	NEW 155-0096	1.28	1.13	1.00	0.92
SPDT On-Off-On	2MS3T2B2M7RE	NEW 155-0097	1.19	1.06	0.93	0.85
SPDT On-Off-Mom	2MS5T2B2M7RE	NEW 155-0098	1.32	1.18	1.03	0.95
DPDT On-Mom	2MD2T2B2M7RE	NEW 155-0099	1.32	1.18	1.03	0.95
DPDT On-On	2MD1T2B2M7RE	NEW 155-0101	1.19	1.06	0.93	0.85
DPDT On-Off-On	2MD3T2B2M7RE	NEW 155-0102	1.52	1.34	1.17	1.08
DPDT On-On-On	2MD6T2B2M7RE	NEW 155-0103	1.83	1.63	1.43	1.30
Vertical Mounting - Threaded Bush						
SPDT On-On	2MS1T1B5M2RE	947-3041	0.90	0.80	0.70	0.64
SPDT On-Off-On	2MS3T1B5M2RE	947-3050	1.17	1.03	0.91	0.83
SPDT On-Mom	2MS2T1B5M2RE	NEW 155-0104	1.14	1.02	0.90	0.81
SPDT Mom-Off-Mom	2MS4T1B5M2RE	NEW 155-0105	1.28	1.13	1.00	0.92
SPDT On-Off-Mom	2MS5T1B5M2RE	NEW 155-0106	1.37	1.21	1.07	0.99
DPDT On-Off-On	2MD3T1B5M2RE	947-3076	1.35	1.19	1.04	0.97
DPDT On-On	2MD1T1B5M2RE	947-3068	1.12	1.00	0.88	0.80
DPDT On-Mom	2MD2T1B5M2RE	NEW 155-0107	1.28	1.13	1.00	0.92
DPDT On-On-On	2MD6T1B5M2RE	NEW 155-0108	1.78	1.58	1.38	1.27

Herst.-Nr.	Order Code	1+	25+	50+	
Type 1 - Horizontal Mounting					
SPDT On-On	ET01MD1ABE	957-4590	2.96	2.91	2.73
SPDT On-Off-On	ET03MD1ABE	957-4603	2.99	2.94	2.90
SPDT On-Mom	ET08MD1ABE	957-4611	4.18	3.07	2.32
SPDT Mom-Off-Mom	ET05MD1ABE	143-7743	4.16	3.84	3.59
SPDT On-Off-Mom	ET07MD1ABE	143-7745	4.16	3.84	3.59
DPDT On-Off-On	ET23MD1ABE	957-4620	6.25	4.58	3.65
DPDT On-On	ET21MD1ABE	143-7746	5.64	5.19	4.86
Type 2 - Horizontal Mounting					
SPDT On-On	ET01MD1AVBE	957-4638	2.84	2.76	2.54
SPDT On-Off-On	ET03MD1AVBE	957-4646	3.33	3.14	3.02
SPDT Mom-Off-Mom	ET05MD1AVBE	143-7750	4.38	4.04	3.77
SPDT On-Mom	ET08MD1AVBE	143-7751	4.38	4.04	3.77
DPDT On-On	ET21MD1AVBE	143-7752	5.82	5.37	5.03
DPDT On-Off-On	ET23MD1AVBE	143-7753	6.56	6.03	5.63

Subminiature, PCB Mounting - Washable
0.4VA @ 20V ac/dc



Horizontal mounting - type 1 Vertical mounting

Horizontal mounting - type 2

- Process sealed - withstands machine soldering and pressure wash processes
- Epoxy sealed terminations
- UL Recognised

Operating temperature -30°C to +85°C
Contact resistance ≤20mohm
Electrical life 50000 ops

311894

Switch Function	Mfrs. List No.	Order Code	1+	25+	100+	250+
Vertical Mounting						
SPDT On-On	2AS1T2A1M2RE	947-3084	1.26	1.11	0.98	0.90
SPDT On-Off-On	2AS3T2A1M2RE	947-3092	1.30	1.16	1.01	0.93
SPDT Mom-Off-Mom	2AS4T2A1M2RE	947-3106	1.48	1.31	1.14	1.06
SPDT On-Off-Mom	2AS5T2A1M2RE	947-3114	1.48	1.31	1.14	1.06
SPDT On-Mom	2AS2T2A1M2RE	947-3122	1.30	1.16	1.01	0.93
DPDT On-Mom	2AD2T2A2M2RE	NEW 155-0109	1.47	1.29	1.13	1.04
DPDT On-On	2AD1T2A2M2RE	NEW 155-0110	1.32	1.18	1.03	0.95
DPDT On-Off-On	2AD3T2A2M2RE	NEW 155-0112	1.56	1.37	1.20	1.11
DPDT On-On-On	2AD6T2A2M2RE	NEW 155-0113	1.78	1.58	1.38	1.27
Horizontal Mounting - Type 1						
SPDT On-On	2AS1T2A1M6RE	947-3130	1.30	1.16	1.01	0.93
SPDT On-Off-Mom	2AS5T2A1M6RE	947-3149	1.62	1.43	1.26	1.16
SPDT Mom-Off-Mom	2AS4T2A1M6RE	NEW 155-0114	1.52	1.34	1.17	1.08
DPDT On-Off-On	2AD3T2A2M6RE	947-3157	1.89	1.67	1.46	1.35
DPDT On-Mom	2AD2T2A2M6RE	NEW 155-0115	1.56	1.37	1.20	1.11
DPDT On-On	2AD1T2A2M6RE	NEW 155-0116	1.43	1.26	1.10	1.01
DPDT On-On-On	2AD6T2A2M6RE	NEW 155-0117	1.87	1.66	1.46	1.34
Horizontal Mounting - Type 2						
SPDT On-On	2AS1T2A1M7RE	947-3165	1.39	1.23	1.08	0.99
SPDT On-Off-On	2AS3T2A1M7RE	947-3173	1.48	1.31	1.14	1.06
SPST On-Mom	2AS2T2A1M7RE	NEW 155-0118	1.32	1.18	1.03	0.95
SPST Mom-Off-Mom	2AS4T2A1M7RE	NEW 155-0119	1.52	1.34	1.17	1.08
SPST On-Off-Mom	2AS5T2A1M7RE	NEW 155-0120	1.56	1.37	1.20	1.11
DPDT On-Mom	2AD2T2A2M7RE	NEW 155-0121	1.56	1.37	1.20	1.11
DPDT On-On	2AD1T2A2M7RE	NEW 155-0122	1.43	1.26	1.10	1.01
DPDT On-Off-On	2AD3T2A2M7RE	NEW 155-0124	1.65	1.46	1.28	1.18
DPDT On-On-On	2AD6T2A2M7RE	NEW 155-0125	1.87	1.66	1.46	1.34

Washable PCB Mounting
0.4VA @ 20V ac/dc



Vertical Mounting

Type 1
Horizontal Mounting

Type 2
Horizontal Mounting

- Process sealed - withstands machine soldering and pressure wash processes
- Epoxy sealed terminations

Operating temperature -30°C to +85°C
Contact resistance ≤10mohm
Electrical life 40000 ops

213227

Herst.-Nr.	Order Code	1+	25+	50+	
Vertical Mounting					
SPDT On-On	ET01MD1CBE	957-4530	2.28	2.16	2.02
SPDT On-Off-On	ET03MD1CBE	957-4557	2.99	2.89	2.79
SPDT Mom-Off-Mom	ET05MD1CBE	957-4565	3.28	2.93	2.55
SPDT On-Off-Mom	ET07MD1CBE	957-4573	1.92	1.71	1.49
DPDT On-On	ET21MD1CBE	143-7738	5.20	4.77	4.47
DPDT On-Off-On	ET23MD1CBE	143-7739	5.91	5.45	5.09

Washable PCB Mounting
0.4VA @ 20V ac/dc



Vertical
H=19.6, W=8.1 (SPDT)
9.1 (DPDT), D=5 (SPDT)
9.1 (DPDT)

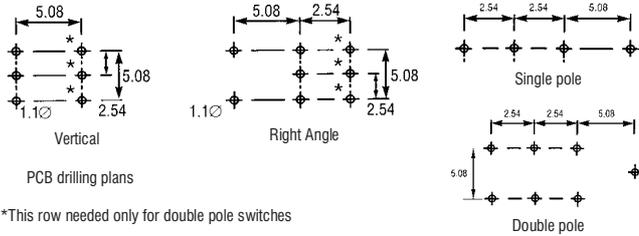
Right Angle -
horizontal toggle
H=6 (SPDT), 9.1, (DPDT)
W=8.1 (SPDT), 9.1, (DPDT),
D=19.9

Right Angle -
vertical toggle
H=8.1, W=5, (SPDT),
9.1 (DPDT), D=24.9

15

Re-reeling available

Farnell



*This row needed only for double pole switches

- Case material **UL** recognised
- Gold plated contacts allow low current switching
- Fully sealed by 'O' ring within bush
- Suitable for wave soldering at 260°C for 5 seconds

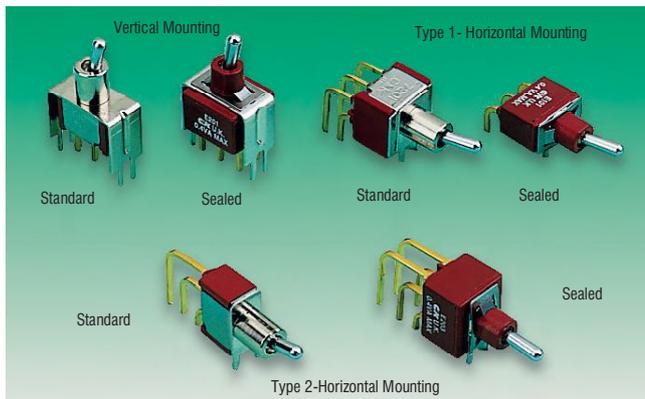
Initial contact resistance	<10mohm	Electrical life	2 position 60000 ops 3 position 50000 Ops
Insulation resistance	10mA, 50mV/10µA, 5V	Operating force	220gf
Dielectric strength	1000V rms @ 50Hz	Operating temperature	-20°C to +85°C

Mfrs. List No	TL36P0050 = 108-2496	TL49P0050 = 108-2506	TL36WW050 = 108-2499
	TL39P0050 = 108-2500	TL36W0050 = 108-2497	TL46WW050 = 108-2505
	TL39W0050 = 108-2501	TL46W0050 = 108-2503	TL49WW050 = 108-2507
	TL46P0050 = 108-2502		

213119

	Order Code	1+	25+	Price Each	100+	250+	500+
Vertical Mounting							
SPDT On-On	108-2496	1.92	1.81	1.73	1.65	1.58	
SPDT On-Off-On	108-2500	2.13	2.02	1.92	1.83	1.74	
SPDT On-Off-Off	108-2501	2.30	2.16	1.99	1.90	1.86	
DPDT On-On	108-2502	2.67	2.51	2.42	2.30	2.20	
DPDT Centre Off	108-2506	2.65	2.50	2.30	2.29	2.17	
Right Angle - Horizontal Toggle							
SPDT On-On	108-2497	2.14	2.01	1.83	1.73	1.53	
DPDT On-On	108-2503	3.20	3.01	2.89	2.78	2.62	
Right Angle - Vertical Toggle							
SPDT On-On	108-2499	2.14	2.03	1.86	1.84	1.77	
DPDT On-On	108-2505	3.20	3.01	2.89	2.78	2.62	
DPDT Centre Off	108-2507	3.15	2.95	2.68	2.54	2.49	

PCB Mounting - Standard and Sealed
0.4VA @ 20V ac/dc



- Gold plated contacts for low level switching
- Mounting bracket solders directly to PCB
- Plain bush for easy front panel removal
- Standard series have epoxy terminal seal, compatible with bottom-wash cleaning
- Sealed series are process sealed to withstand machine soldering and pressure wash cleaning

Mechanical life	40000 ops	Lever length	7.0
Contact resistance	<10mohm @ 4V dc	Operating temperature	-20°C to +65°C

213102

	Order Code	1+	Price Each	50+	100+
Vertical Mounting - Standard					
SPDT On-On	7101MD9V3BE	957-4743	3.53	2.95	2.63
SPDT On-Off-On	7103MD9V3BE	957-4751	4.42	3.68	2.86
SPDT Mom-Off-Mom	7105MD9V3BE	957-5456	2.53	2.11	1.90
SPDT On-Off-Mom	7107MD9V3BE	957-5464	2.22	1.86	1.66
DPDT On-On	7201MD9V3BE	957-4778	5.65	4.70	3.75
DPDT Mom-Off-Mom	7205MD9V3BE	957-5472	2.90	2.40	2.16
Type 1 - Horizontal Mounting - Standard					
SPDT On-On	7101MD9ABE	957-4786	4.05	3.17	2.41
SPDT On-Off-On	7103MD9ABE	957-4794	4.70	3.46	2.61
SPDT Mom-Off-Mom	7105MD9ABE	957-5480	4.78	3.52	2.65
DPDT On-On	7201MD9ABE	957-4808	6.55	4.79	3.63
DPDT On-Off-On	7203MD9ABE	957-5499	7.22	5.58	4.23
Type 2 - Horizontal Mounting - Standard					
SPDT On-On	7101MD9AV2BE	957-5502	4.16	3.34	2.52
SPDT On-Off-On	7103MD9AV2BE	957-5510	3.40	2.49	1.88
DPDT On-On	7201MD9AV2BE	957-5529	5.18	4.33	3.91

	Order Code	1+	Price Each	50+	100+
Vertical Mounting - Sealed - Short Bushing (6.35mm)					
SPDT On-On	E101MD1V3BE	957-5375	4.30	3.59	2.87
SPDT On-Off-On	E103MD1V3BE	957-5383	2.23	1.86	1.67
DPDT On-On	E201MD1V3BE	143-7777	5.71	5.25	4.93
DPDT On-Off-On	E203MD1V3BE	143-7778	6.37	5.85	5.48
Type 1 - Horizontal Mounting - Sealed - Short Bushing (6.35mm)					
SPDT On-On	E101MD1ABE	957-5391	4.38	3.21	2.44
SPDT On-Off-On	E103MD1ABE	957-5405	4.98	3.81	2.88
DPDT On-On	E201MD1ABE	143-7785	5.34	4.91	4.58
DPDT On-Off-On	E203MD1ABE	143-7786	5.99	5.51	5.15
Type 2 - Horizontal Mounting - Sealed - Short Bushing (6.35mm)					
SPDT On-On	E101MD1AV2BE	957-5537	3.12	2.59	2.34
SPDT On-Off-On	E103MD1AV2BE	143-7790	4.28	3.95	3.69
DPDT On-On	E201MD1AV2BE	143-7795	5.59	5.14	4.79
DPDT On-Off-On	E203MD1AV2BE	143-7796	6.24	5.74	5.37

Miniature, PCB Mounting - Standard and Sealed
0.4VA @ 20V ac/dc



- Gold plated contacts for low level switching
- Mounting bracket solders directly to PCB
- Plain bush for easy front panel removal
- Standard series have epoxy terminal seal, compatible with bottom-wash cleaning
- Sealed series are process sealed to withstand machine soldering and pressure wash cleaning
- **UL** Recognised

Mechanical life	30000 ops	Lever length	6.46
Contact resistance	<10mohm @ 4V dc	Operating temperature	-30°C to +85°C

311895

	Order Code	1+	Price Each	50+	100+	250+
Vertical Mounting - Standard						
SPDT On-On	1MS1T2B4V2RE	947-3181	1.21	1.08	0.94	0.86
SPDT On-Off-On	1MS3T2B4V2RE	947-3190	1.35	1.19	1.04	0.97
SPDT On-Mom	1MS2T2B4V2RE	947-3203	1.26	1.11	0.98	0.90
SPDT Mom-Off-Mom	1MS4T2B4V2RE	947-3211	1.39	1.23	1.08	0.99
SPDT On-Off-Mom	1MS5T2B4V2RE	947-3220	1.39	1.23	1.08	0.99
DPDT On-On	1MD1T2B4V3RE	947-3238	1.44	1.27	1.11	1.02
DPDT On-Mom	1MD2T2B4V3RE	NEW 155-0126	1.23	1.10	0.97	0.89
DPDT Mom-Off-Mom	1MD4T2B4V3RE	NEW 155-0127	1.37	1.21	1.07	0.99
DPDT On-Off-On	1MD3T2B4V3RE	NEW 155-0128	1.28	1.13	1.00	0.92
DPDT On-Off-Mom	1MD5T2B4V3RE	NEW 155-0129	1.47	1.29	1.13	1.04
DPDT On-On-On	1MD6T2B4V3RE	NEW 155-0130	1.69	1.50	1.31	1.20
Type 1 - Horizontal Mounting - Standard						
SPDT On-On	1MS1T2B4M6RE	947-3246	0.94	0.83	0.73	0.67
SPDT On-Off-On	1MS3T2B4M6RE	947-3254	1.12	1.00	0.88	0.80
SPDT Mom-Off-Mom	1MS4T2B4M6RE	947-3262	1.26	1.11	0.98	0.90
SPDT On-Mom	1MS2T2B4M6RE	NEW 155-0131	1.01	0.90	0.77	0.72
SPDT On-Off-Mom	1MS5T2B4M6RE	NEW 155-0132	1.28	1.13	1.00	0.92
DPDT On-On	1MD1T2B4M6RE	947-3270	1.26	1.11	0.98	0.90
DPDT On-Off-On	1MD3T2B4M6RE	947-3289	1.53	1.35	1.18	1.09
DPDT On-Mom	1MD2T2B4M6RE	NEW 155-0133	1.19	1.06	0.93	0.85
DPDT Mom-Off-Mom	1MD4T2B4M6RE	NEW 155-0134	1.32	1.18	1.03	0.95
DPDT On-Off-Mom	1MD5T2B4M6RE	NEW 155-0136	1.43	1.26	1.10	1.01
DPDT On-On-On	1MD6T2B4M6RE	NEW 155-0137	1.65	1.46	1.28	1.18
Type 2 - Horizontal Mounting - Standard						
SPDT On-On	1MS1T2B4M7RE	947-3297	0.94	0.83	0.73	0.67
SPDT On-Off-On	1MS3T2B4M7RE	947-3300	1.12	1.00	0.88	0.80
SPDT On-Mom	1MS2T2B4M7RE	NEW 155-0138	1.01	0.90	0.77	0.72
SPDT Mom-Off-Mom	1MS4T2B4M7RE	NEW 155-0139	1.19	1.06	0.93	0.85
SPDT On-Off-Mom	1MS5T2B4M7RE	NEW 155-0140	1.28	1.13	1.00	0.92
DPDT On-On	1MD1T2B4M7RE	947-3319	1.39	1.23	1.08	0.99
DPDT On-Mom	1MD2T2B4M7RE	NEW 155-0141	1.19	1.06	0.93	0.85
DPDT Mom-Off-Mom	1MD4T2B4M7RE	NEW 155-0142	1.32	1.18	1.03	0.95
DPDT On-Off-On	1MD3T2B4M7RE	NEW 155-0143	1.28	1.13	1.00	0.92
DPDT On-Off-Mom	1MD5T2B4M7RE	NEW 155-0144	1.43	1.26	1.10	1.01
DPDT On-On-On	1MD6T2B4M7RE	NEW 155-0145	1.65	1.46	1.28	1.18
Vertical Mounting - Sealed						
SPDT On-On	1AS1T2B4V2RE	947-3327	1.39	1.23	1.08	0.99
SPDT On-Mom	1AS2T2B4M2RE	NEW 155-0146	1.19	1.06	0.93	0.85
SPDT Mom-Off-Mom	1AS4T2B4M2RE	NEW 155-0148	1.37	1.21	1.07	0.99
SPDT On-Off-On	1AS3T2B4M2RE	NEW 155-0149	1.28	1.13	1.00	0.92
SPDT On-Off-Mom	1AS5T2B4M2RE	NEW 155-0150	1.43	1.26	1.10	1.01
DPDT On-Mom	1AD2T2B4M2RE	NEW 155-0151	1.32	1.18	1.03	0.95
DPDT On-On	1AD1T2B4M2RE	NEW 155-0152	1.23	1.10	0.97	0.89
DPDT Mom-Off-Mom	1AD4T2B4M2RE	NEW 155-0153	1.56	1.37	1.20	1.11
DPDT On-Off-On	1AD3T2B4M2RE	NEW 155-0154	1.47	1.29	1.13	1.04
DPDT On-Off-Mom	1AD5T2B4M2RE	NEW 155-0155	1.78	1.58	1.38	1.27
DPDT On-On-On	1AD6T2B4M2RE	NEW 155-0156	2.06	1.82	1.60	1.47
Type 1 - Horizontal Mounting - Sealed						
SPDT On-On	1AS1T2B4M6RE	947-3335	1.39	1.23	1.08	0.99
SPDT On-Off-On	1AS3T2B4M6RE	947-3343	1.48	1.31	1.14	1.06
SPDT On-Mom	1AS2T2B4M6RE	947-3351	1.44	1.27	1.11	1.02
SPDT Mom-Off-Mom	1AS4T2B4M6RE	NEW 155-0157	1.43	1.26	1.10	1.01
SPDT On-Off-Mom	1AS5T2B4M6RE	NEW 155-0158	1.52	1.34	1.17	1.08
DPDT On-Mom	1AD2T2B4M6RE	NEW 155-0161	1.43	1.26	1.10	1.01
DPDT On-On	1AD1T2B4M6RE	NEW 155-0162	1.37	1.21	1.07	0.99
DPDT Mom-Off-Mom	1AD4T2B4M6RE	NEW 155-0163	1.65	1.46	1.28	1.18

Subminiature Toggle Switches - continued

Miniature, PCB Mounting - Standard and Sealed - continued

0.4VA @ 20V ac/dc - continued

Order Code	Price Each				
	1+	50+	100+	250+	
Type 1 - Horizontal Mounting - Sealed					
DPDT On-Off-On 1AD3T2B4M6RE	NEW 155-0164	1.56	1.37	1.20	1.11
DPDT On-Off-Mom 1AD5T2B4M6RE	NEW 155-0165	1.87	1.66	1.46	1.34
DPDT On-On-On 1AD6T2B4M6RE	NEW 155-0166	2.20	1.94	1.71	1.57
Type 2 - Horizontal Mounting - Sealed					
SPDT On-On 1AS1T2B4M7RE	947-3360	1.39	1.23	1.08	0.99
SPST On-Mom 1AS2T2B4M7RE	NEW 155-0167	1.28	1.13	1.00	0.92
SPST Mom-Off-Mom 1AS4T2B4M7RE	NEW 155-0168	1.43	1.26	1.10	1.01
SPST On-Off-On 1AS3T2B4M7RE	NEW 155-0169	1.32	1.18	1.03	0.95
SPST On-Off-Mom 1AS5T2B4M7RE	NEW 155-0170	1.52	1.34	1.17	1.08
DPDT On-Mom 1AD2T2B4M7RE	NEW 155-0171	1.43	1.26	1.10	1.01
DPDT On-On 1AD1T2B4M7RE	NEW 155-0173	1.37	1.21	1.07	0.99
DPDT Mom-Off-Mom 1AD4T2B4M7RE	NEW 155-0174	1.65	1.46	1.28	1.18
DPDT On-Off-On 1AD3T2B4M7RE	NEW 155-0175	1.56	1.37	1.20	1.11
DPDT On-Off-Mom 1AD5T2B4M7RE	NEW 155-0176	1.87	1.66	1.46	1.34
DPDT On-On-On 1AD6T2B4M7RE	NEW 155-0177	2.20	1.94	1.71	1.57

Miniature - PCB Mount

0.4VA @ 48V ac/dc



- Miniature size to maximise space on PCB's
- PCB Mounting terminals
- 5.08 x 5.08mm terminal spacing
- 0.8mm diameter PCB terminals
- Molded-in terminals prevent entry of flux, solvents and other contaminants
- Award winning Sliding Twin Contact mechanism
- 10.5mm long nickel plated brass toggle

Contact Resistance 50mohm (Max.) Contact Timing Nonshorting (break before make)
 Insulation Resistance 1000Mohm @ 500V dc Angle of Throw 24°
 Dielectric Strength 1000V ac Operating temperature -10 to 70°C
 Electrical Life 50000 ops

Mfrs. List No. D22012P=135-7658 D22018P=135-7661 D22025P=135-7664 D22028P=135-7666
 D22015P=135-7659 D22019P=135-7662 D22023P=135-7665 D22029P=135-7667
 D22013P=135-7660 D22022P=135-7663

473895

Switch Function	Order Code	Price Each				
		1+	25+	50+	100+	500+
Vertical Mounting - Straight Terminals						
SPDT On-On	135-7658	3.42	3.04	2.88	2.74	2.54
SPDT On-On	135-7659	3.70	3.28	3.10	2.96	2.74
SPDT On-Off-On	135-7660	3.70	3.28	3.10	2.96	2.74
SPDT (On) - Off - (On)	135-7661	3.90	3.48	3.28	3.12	2.90
SPDT On-Off-On	135-7662	3.90	3.48	3.28	3.12	2.90
DPDT On-On	135-7663	4.34	3.86	3.66	3.48	3.22
DPDT On-On	135-7664	5.12	4.56	4.30	4.10	3.80
DPDT On-Off-On	135-7665	5.12	4.56	4.30	4.10	3.80
DPDT (On) - Off - (On)	135-7666	5.52	4.90	4.64	4.42	4.10
DPDT On-Off-On	135-7667	2.26	2.00	1.90	1.80	1.67

Miniature - PCB Mount

6A @ 125V ac, 3A @ 250V ac



- 6.35mm straight PCB terminals
- Antirotaion design with mated toggle and bushing
- Antijamming system protects contacts from damage from excessive downward force on actuator
- Bushing construction prevents rotation or seperation from frame during installation
- Epoxy sealed terminals prevent entry of flux and other contaminants
- ¼"-40 Threaded bushing with keyway
- Supplied with 2 x hex locking nuts, locking ring and lock washer

- **UL94V-0** moulded diallyl phthalate case
- **CSA** Certified and **UL** Recognised

Contact Resistance 10mohm (Max.) Electrical Life 25000 ops
 Insulation Resistance 1000Mohm @ 500V dc Angle of Throw 25°
 Dielectric Strength (Contact/Contact) 1000V ac Operating temperature -30 to 85°C
 Dielectric Strength (Contact/Case) 1500V ac

Mfrs. List No. M2012SS1W03=135-7668 M2019SS1W03=135-7675 M2023SS1W03=135-7678
 M2015SS1W03=135-7671 M2022SS1W03=135-7676 M2028SS1W03=135-7679
 M2013SS1W03=135-7672 M2025SS1W03=135-7677 M2029SS1W03=135-7680
 M2018SS1W03=135-7674

473971

Switch Function	Order Code	Price Each				
		1+	25+	50+	100+	500+
Vertical Mounting - Straight PCB Terminals						
SPDT On-On	135-7668	2.42	2.16	2.02	1.94	1.80
SPDT On-On	135-7671	2.92	2.60	2.44	2.34	2.18
SPDT On-Off-On	135-7672	2.92	2.60	2.44	2.34	2.18
SPDT (On) - Off - (On)	135-7674	3.18	2.82	2.66	2.54	2.36
SPDT On-Off-On	135-7675	3.18	2.82	2.66	2.54	2.36

Switch Function	Order Code	Price Each				
		1+	25+	50+	100+	500+
Vertical Mounting - Straight PCB Terminals						
DPDT On-On	135-7676	3.08	2.74	2.56	2.46	2.28
DPDT On-On	135-7677	3.60	3.20	3.00	2.88	2.68
DPDT On-Off-On	135-7678	3.60	3.20	3.00	2.88	2.68
DPDT (On) - Off - (On)	135-7679	3.84	3.42	3.22	3.08	2.86
DPDT On-Off-On	135-7680	3.84	3.42	3.22	3.08	2.86

Gemini A Series

0.4VA @ 20V ac/dc



Supplied with 2 x hex nuts, 1 x internal tooth locking washer and 1 x locking ring

- Epoxy sealed terminals
- Break before make contacts
- 10.4mm long toggle
- **UL** recognised

Contact rating - Gold contacts 0.4VA @ 20V ac/dc Insulation resistance 30Mohm
 Contact rating - Silver contacts 2A @ 250V ac/ 30V dc Dielectric strength 1000 V rms @ sea level
 Electrical life 30000 Operating temperature -20°C to 85°C
 Contact resistance 30mohm

248723

Switch function	Contact material	Mfrs. List No.	Order Code	Price Each			
				1+	25+	100+	250+
Vertical mount - PCB Pin terminals - Threaded							
SPDT On-On	Gold	A101SYCB	119-7675	2.81	2.64	2.47	2.13
SPDT On-Off-On	Gold	A103SYCB	119-7676	2.90	2.73	2.55	2.20
SPDT On-Mom	Gold	A108SYCB04	143-6225	3.05	2.87	2.68	2.31
SPDT Mom-Off-Mom	Gold	A105SYCB04	143-6226	3.05	2.87	2.68	2.31
SPDT On-Off-Mom	Gold	A107SYCB04	143-6227	3.05	2.87	2.68	2.31
DPDT On-On	Gold	A201SYCB	119-7677	3.37	3.16	2.96	2.55
DPDT On-Off-On	Gold	A203SYCB04	126-4572	3.07	2.88	2.70	2.33
DPDT On-Mom	Gold	A208SYCB04	143-6228	3.23	3.03	2.84	2.44
DPDT Mom-Off-Mom	Gold	A205SYCB04	143-6229	3.23	3.03	2.84	2.44
DPDT On-Off-Mom	Gold	A207SYCB04	143-6230	3.23	3.03	2.84	2.44
Vertical mount - Wire Lug Terminals - Threaded							
SPDT On-Mom	Silver	A108SYZQ04	143-6233	2.84	2.67	2.49	2.15
DPDT On-Mom	Silver	A208SYZQ04	143-6234	3.17	2.98	2.78	2.40
DPDT Mom-Off-Mom	Silver	A205SYZQ04	143-6236	3.53	3.32	3.10	2.68

Miniature, Panel Mounting

5A@120V ac/28V dc, 2A@250V ac



- Silver plated copper contacts
- Solder tag connections
- **UL** Recognised

Electrical life 40000 ops.
 Contact resistance <10mohm @ 4V, 100mA
 Operating temperature -30°C to +85°C
 Bush thread 14/4-40 UNS-2A
 Lever length 10.25
 Panel cut out=6.35
 H=12.7, W=6.9

311897

Mfrs. List No.	Order Code	Price Each			
		1+	100+	250+	
SPDT On-On	1MS1T1B5M1QE	947-3378	0.90	0.80	0.70
SPDT On-Off-On	1MS3T1B5M1QE	947-3386	0.99	0.88	0.76
SPDT On-Mom	1MS2T1B5M1QE	NEW 155-0178	0.97	0.85	0.74
SPDT Mom-Off-Mom	1MS4T1B5M1QE	NEW 155-0179	1.10	0.98	0.85
SPDT On-Off-Mom	1MS5T1B5M1QE	NEW 155-0180	1.19	1.06	0.93
DPDT On-On	1MD1T1B5M1QE	947-3394	1.03	0.91	0.80
DPDT On-Off-On	1MD3T1B5M1QE	947-3408	1.21	1.08	0.94
DPDT On-Mom	1MD2T1B5M1QE	NEW 155-0181	1.06	0.93	0.81
DPDT Mom-Off-Mom	1MD4T1B5M1QE	NEW 155-0182	1.23	1.10	0.97
DPDT On-Off-Mom	1MD5T1B5M1QE	NEW 155-0183	1.28	1.13	1.00
DPDT On-On-On	1MD6T1B5M1QE	NEW 155-0185	1.56	1.37	1.20
3PDT On-Mom	1M32T1B5M1QE	NEW 155-0186	1.87	1.66	1.46
3PDT On-On	1M31T1B5M1QE	NEW 155-0187	1.78	1.58	1.38
3PDT Mom-Off-Mom	1M34T1B5M1QE	NEW 155-0188	2.38	2.11	1.84
3PDT On-Off-On	1M33T1B5M1QE	NEW 155-0189	2.06	1.82	1.60
3PDT On-Off-Mom	1M35T1B5M1QE	NEW 155-0190	2.51	2.23	1.95
4PDT On-Mom	1M42T1B5M1QE	NEW 155-0191	2.66	2.35	2.06
4PDT On-On	1M41T1B5M1QE	NEW 155-0192	2.57	2.27	2.00
4PDT Mom-Off-Mom	1M44T1B5M1QE	NEW 155-0193	3.21	2.84	2.48
4PDT On-Off-On	1M43T1B5M1QE	NEW 155-0194	3.02	2.68	2.35
4PDT On-Off-Mom	1M45T1B5M1QE	NEW 155-0195	3.43	3.04	2.67
4PDT On-On-On	1M46T1B5M1QE	NEW 155-0197	3.71	3.29	2.87

700 products added online every week

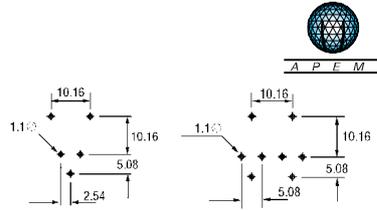


See our pick of the hottest products and latest technologies in 'What's New?' at www.farnell.co.uk

PCB/Panel Mounting
4A @ 30V dc 2A @ 250V ac



108-2282 108-2283
(Toggle action from side to side)
H=8, D=17, W=11 (SPDT),
W=21 (DPDT) Panel cut-out=6.4 dia,
Pin length=5, Bush thread=5" x 40 NS



Pins on 2.54mm (0.1") grid
Initial contact resistance <20mohm
Lever length 11
Mfrs. List No 21136NA = 108-2282 21146NA = 108-2283

213114

	Order Code	1+	25+	50+	100+	250+
SPDT On-On	108-2282	3.62	3.40	3.27	3.12	2.99
DPDT On-On	108-2283	4.97	4.71	4.48	4.30	4.21

Panel Mounting

0.4VA @ 20V ac/dc (Push Button)

5A @ 28V dc or 115V ac, 2A @ 250V ac (Rocker and Lever)



Switch fitted with lever actuator and plain bezel
Switch fitted with rocker actuator and plain bezel
Switch fitted with button actuator and bezel with LED

Body dimensions
Single pole: H=12.7, W=6.86, D=8.89
Double pole: H=12.7, W=11.43, D=8.89

Bezel: without LED=15.62 x 19.43 x 2.29
with LED=15.62 x 27.94 x 2.29
Panel cut-out: 15.24 x 12.7
(LED hole 8.71, 13.21 centres)

- Switch bodies, bezels and actuators available separately to allow flexibility of design
- Switch body may be fitted with either rocker, lever or push button actuator
- Bezels and actuators available in range of 6 colours, with textured finish
- Bezels available either plain or to accept T1/4/5mm LED (not supplied)
- Switch bodies for rocker and lever are epoxy sealed

Mechanical life 40000 ops
Contact resistance 10mR @ 4V dc
Operating temperature -20°C to +65°C

	Mfrs. List No.	Order Code
Switch Bodies for Rocker or Lever		
SPDT On-On	7101J50 ZQE++	957-4930
SPDT On-Off-On	7103J50ZQE++	957-4948
SPDT Mom-Off-Mom	7105J50 ZQE++	957-4956
SPDT On-Off-Mom	7107J50 ZQE++	957-4964
DPDT On-On	7201J50 ZQE++	957-4980
DPDT On-Off-On	7203J50 ZQE++	957-4999
DPDT Mom-Off-Mom	7205J50 ZQE++	957-5006
DPDT On-Off-Mom	7207J50 ZQE++	957-5014
Switch Bodies for Push Button		
SPDT Mom	8125J80ZBE++	957-4727
DPDT Momentary	8255J80ZBE++	957-4735

Actuators

Colour	Rocker		Lever		Push Button	
	Mfrs. List No.	Order No	Mfrs. List No.	Order No	Mfrs. List No.	Order No
Black	775A02263	120-1344	613802263	120-1351	7982.02.263	120-1358
Red	775A03000	120-1345	598103000	120-1352	7982.03.000	120-1361
Orange	775A04000	120-1346	598104000	120-1353	7982.04.000	120-1362
Yellow	775A05000	120-1348	598105000	120-1354	7982.05.000	120-1363
Green	775A06000	120-1349	591806000	120-1355	7982.06.000	120-1364
Blue	7751907000	120-1350	598107000	120-1356	7982.07.000	120-1365

Bezels

Colour	Plain		With LED Position (T1/4)	
	Mfrs. List No.	Order No	Mfrs. List No.	Order No
Black	615602263	120-1357	613302263	120-1366

213088

	Order Code	1+	50+	100+	250+	1K+
Switch Bodies for Rocker or Lever						
SPDT On-On	957-4930	3.86	3.67	3.22	2.81	2.43
SPDT On-Off-On	957-4948	3.92	3.71	3.24	2.85	2.45
SPDT Mom-Off-Mom	957-4956	4.09	3.90	3.42	2.96	2.56
SPDT On-Off-Mom	957-4964	4.06	3.86	3.38	2.94	2.53
DPDT On-On	957-4980	3.73	2.92	2.58	2.19	2.00
DPDT On-Off-On	957-4999	5.26	5.00	4.38	3.82	3.28
DPDT Mom-Off-Mom	957-5006	4.39	3.33	2.83	2.40	2.17
DPDT On-Off-Mom	957-5014	6.57	6.24	5.49	4.76	4.11
Switch Bodies for Push Button						
SPDT Mom	957-4727	5.25	4.98	4.72	4.49	4.14
DPDT Momentary	957-4735	2.77	2.62	2.50	2.37	2.25

Order Multiple=1	Order Code	1+	50+	100+	250+	1K+
Order Multiple=5						
Actuators		5+	50+	100+	250+	
Rocker	All Colours	0.89	0.84	0.80	0.73	
Lever	All Colours	0.85	0.81	0.77	0.70	
Push button	All Colours	0.91	0.87	0.83	0.77	
Bezels						
Plain	All Colours	0.68	0.64	0.60	0.54	
With LED position	All Colours	0.70	0.66	0.61	0.56	

Subminiature, Snap-In Switch Components



Panel Mounting

Push Button, Rocker and Lever



Body dimensions, SPDT
H=12.7, W=6.86, D=9.56



Body dimensions, DPDT
H=12.7, W=11.43, D=9.56



Bezel H=1.96 W=15.66 D=19.5
Panel cut-out: 12.1 x 12.1

- Separate bodies, bezels and actuators for increased versatility
- One body type for rocker and lever actuators, one body type for push buttons
- Choice of bezels and actuator colours
- Epoxy sealed rocker and lever switch bodies
- UL Recognised

Contact rating (Push Button) 0.4VA @ 20V ac/dc
Contact rating (Rocker/Lever) 5A@28Vdc or 115Vac, 2A@250Vac
Electrical life 50000 ops
Contact resistance 20mR @ 4V dc
Operating temperature -30°C to +85°C

Actuators

Colour	Rocker	Lever	Push Button
	Order Codes		
Black	981-2172	981-2229	981-2270
	981-2180	981-2237	981-2288
Yellow	981-2199	981-2245	981-2296
Green	981-2202	981-2253	
Blue	981-2210	981-2261	—

311854

Order Multiple=1	Order Code	1+	50+	100+	250+	1K+
Switch Bodies for Rocker and Lever						
SPDT On-On	947-3742	2.880	2.280	1.950	1.680	1.630
SPDT On-Off-On	947-3750	2.790	2.170	1.920	1.580	1.470
SPDT Mom-Off-Mom	947-3769	3.300	2.500	2.270	2.010	1.770
SPDT On-Off-Mom	947-3777	3.290	2.580	2.190	1.890	1.740
SPDT On-Mom	947-3785	0.770	0.600	0.520	0.450	0.410
DPDT On-On	947-3793	4.030	3.100	2.720	2.300	2.110
DPDT On-Off-On	947-3807	4.050	3.250	2.780	2.380	2.150
DPDT Mom-Off-Mom	947-3815	4.740	3.550	3.000	2.520	2.290
DPDT On-Off-Mom	947-3823	5.520	4.240	3.340	2.870	2.590
DPDT On-Mom	947-3831	2.760	2.130	1.670	1.440	1.290
Switch Bodies for Push Button						
SPDT Mom	947-3840	3.570	2.510	2.150	1.830	1.670
DPDT	947-3858	2.580	1.730	1.560	1.340	1.200
Order Multiple=5						
Actuators		5+	50+	100+	250+	
Rocker	All Colours	0.154	0.140	0.116	0.091	
Lever	All Colours	0.390	0.330	0.280	0.220	
Push button	All Colours	0.340	0.300	0.250	0.200	
Black bezel	981-2318	0.390	0.330	0.280	0.220	

Coming soon



Register your interest for items that are 'Coming Soon' at www.farnell.co.uk and we'll email you to let you know that they're in stock.

15

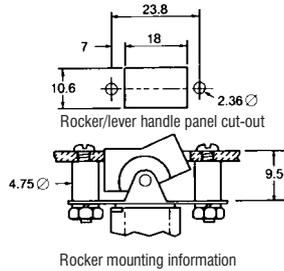
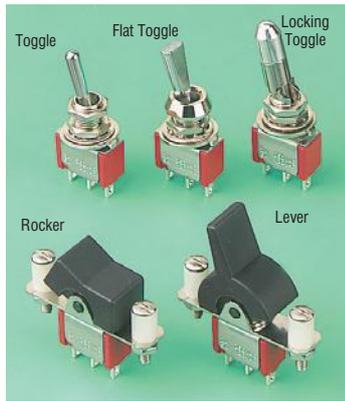
Re-reeling available



Subminiature Toggle Switches - continued

Panel Mounting

5A @ 28V dc or 125V dc, 2A @ 250Vac (Silver)
0.4VA @ 20V ac/dc (Gold)



		Body Dimensions		
		H	W	D
Toggles	SPDT	12.7	6.86	10.54
	DPDT	12.7	11.43	10.54
	3PDT	12.7	16.51	10.54
	4PDT	12.7	21.59	10.54
Rocker/ Lever handle	SPDT	12.7	6.86	9.56
	DPDT	12.7	11.43	9.56

Toggle panel cut-out=6.35 dia

- Half-hard brass contacts available with either gold-on-nickel or coin silver plating
- Epoxy sealed terminations

Coin silver contacts 5A @ 28V dc or 115V ac resistive load, 2A @ 250V ac
Brass contacts: gold on silver 0.4VA max @ 20V max ac/dc
Mechanical life 40000 operations
Contact resistance <10mohm @ 4Vdc 1A
Bush thread 1/4" x 40 NS
Lever length 11
Operating temperature -55°C to +85°C

Mfrs. List No	Order Code	Mfrs. List No	Order Code	Mfrs. List No	Order Code
7101J1ZQE2 =	957-4913	7201SYZBE =	957-4867	7105P3YZQE =	957-5057
7101SYZBE =	957-4824	7201SYZQE =	957-4859	7107P3YZQE =	957-5065
7101SYZQE =	957-4816	7203SYZBE =	957-4883	7201P3YZQE =	957-5081
7103SYZBE =	957-4840	7203SYZQE =	957-4875	7301P3YZQE =	957-5103
7103SYZQE =	957-4832	7205SYZBE =	957-5600	7401P3YZQE =	957-5111
7105SYZBE =	957-5553	7207SYZBE =	957-5626	7101K2ZQE =	120-1382
7105SYZQE =	957-5545	7207SYZQE =	957-5618	7103K2ZQE =	120-1383
7107SYZBE =	957-5570	7301SYZQE =	957-4891	7201K2KQE =	120-1385
7107SYZQE =	957-5561	7401SYZQE =	957-4905	7203K2ZQE =	120-1386
7108SYZQE =	957-5588	7101P3YZQE =	957-5030	7201J1ZQE2 =	957-4921
7108SYZBE =	957-5596	7103P3YZQE =	957-5049		
7201J1ZQE2 =	957-4921				

213133

Toggle	Switch Contacts	Order Code	Price Each			
			1+	25+	100+	250+
SPDT On-On	Silver	957-4816	2.86	2.56	2.11	1.58
SPDT On-On	Gold	957-4824	2.92	2.62	2.11	1.58
SPDT On-Off-On	Silver	957-4832	2.93	2.72	2.48	2.37
SPDT On-Off-On	Gold	957-4840	3.37	3.03	2.33	1.74
DPDT On-On	Silver	957-4859	3.30	3.17	3.04	2.82
DPDT On-On	Gold	957-4867	4.08	3.67	3.10	2.34
DPDT Centre Off	Silver	957-4875	3.45	3.31	3.21	2.96
DPDT Centre Off	Gold	957-4883	3.83	3.45	3.21	2.99
3PDT On-On	Silver	957-4891	6.36	5.71	5.35	4.96
4PDT On-On	Silver	957-4905	7.58	6.00	4.82	4.16
SPDT Mom-Off-Mom	Silver	957-5545	3.70	3.14	2.37	1.78
SPDT Mom-Off-Mom	Gold	957-5553	2.99	2.69	2.51	2.34
SPDT On-Off-Mom	Silver	957-5561	3.02	2.71	2.53	2.36
SPDT On-Off-Mom	Gold	957-5570	3.65	3.14	2.37	1.78
SPDT On-Mom	Silver	957-5588	3.65	3.14	2.37	1.78
SPDT On-Mom	Gold	957-5596	2.55	2.16	1.91	1.66
DPDT Mom-Off-Mom	Silver	957-5600	4.21	3.61	2.73	2.05
DPDT On-Off-Mom	Silver	957-5618	6.22	4.72	3.57	2.67
DPDT On-Off-Mom	Gold	957-5626	5.02	4.52	4.21	3.92
Flat Toggle						
SPDT On-On	Silver	957-5030	4.26	3.82	2.89	2.17
SPDT On-Off-On	Silver	957-5049	3.27	2.92	2.59	2.16
SPDT Mom-Off-Mom	Silver	957-5057	4.55	4.10	3.15	2.37
SPDT On-Off-Mom	Silver	957-5065	2.98	2.67	2.50	2.32
DPDT On-On	Silver	957-5081	3.55	3.34	3.20	3.06
3PDT On-On	Silver	957-5103	8.01	6.34	5.10	4.41
4PDT On-On	Silver	957-5111	10.13	8.46	6.80	5.87
Locking Toggle						
SPDT On-On	Silver	120-1382	5.60	4.75	3.59	2.70
SPDT On-Off-On	Silver	120-1383	4.60	3.72	2.81	2.11
DPDT On-On	Silver	120-1385	6.81	6.13	5.72	5.32
DPDT Centre Off	Silver	120-1386	7.87	6.57	4.97	3.73
Rocker (Screw Mounting, Black Rocker)						
SPDT On-On	Silver	957-4913	2.79	2.52	2.36	2.18
DPDT On-On	Silver	957-4921	5.40	4.85	3.90	2.94

Help us to help the environment



This catalogue has been printed on paper certified from a sustainable source. Please recycle after use.

15

Re-reeling available



Miniature, Panel Mounting



5A @ 28V dc or 125V dc, 2A @ 250Vac (Silver)
0.4VA @ 20V ac/dc (Gold)



- Copper alloy contacts, gold or silver plated
- Epoxy sealed terminations
- UL Recognised

Toggles	Body Dimensions			
	H	W	D	
SPDT	12.7	6.86	10.54	
DPDT	12.7	11.43	10.54	
3PDT	12.7	16.51	10.54	
4PDT	12.7	21.59	10.54	
Rocker/ Lever handle	SPDT	12.7	6.86	9.56
	DPDT	12.7	11.43	9.56

Silver plated contacts: 5A @ 28V dc or 115V ac resistive load, 2A @ 250V ac
Gold plated contacts: 0.4VA @ 20V max. ac/dc
Electrical life 40000 operations
Contact resistance <10mohm @ 4Vdc 1A
Bush thread 1/4" x 40 NS
Lever length 10.4
Operating temperature -30°C to +85°C

311898

Toggle	Switch Contacts	Order Code	Price Each			
			1+	25+	100+	250+
SPDT On-On	Silver	947-3416	2.63	2.39	2.02	1.82
SPDT On-On	Gold	947-3424	2.72	2.44	2.22	2.03
SPDT On-Off-On	Silver	947-3432	2.95	2.61	2.28	1.99
SPDT On-Off-On	Gold	947-3440	2.74	2.35	2.04	1.78
SPDT Mom-Off-Mom	Silver	947-3459	2.84	2.38	2.08	1.81
SPDT Mom-Off-Mom	Gold	947-3467	1.43	1.19	1.03	0.91
SPDT On-Off-Mom	Silver	947-3475	1.43	1.19	1.03	0.91
SPDT On-Off-Mom	Gold	947-3483	1.43	1.19	1.03	0.91
SPDT On-Mom	Silver	947-3491	1.43	1.19	1.03	0.91
SPDT On-Mom	Gold	947-3505	1.43	1.19	1.03	0.91
DPDT On-On	Silver	947-3513	3.24	2.81	2.47	2.18
DPDT On-On	Gold	947-3521	3.20	2.92	2.52	2.27
DPDT On-Off-On	Silver	947-3530	1.65	1.44	1.27	1.11
DPDT On-Off-On	Gold	947-3548	3.56	3.06	2.67	2.23
DPDT Mom-Off-Mom	Silver	947-3556	3.76	3.24	2.87	2.51
DPDT Mom-Off-Mom	Gold	947-3564	3.76	3.24	2.87	2.51
DPDT On-Off-Mom	Silver	947-3572	2.11	1.80	1.62	1.41
DPDT On-Off-Mom	Gold	947-3580	2.10	1.80	1.62	1.41
3PDT On-On	Silver	947-3599	4.52	3.94	3.49	3.10
4PDT On-On	Silver	947-3602	5.99	5.25	4.66	4.08
Flat Toggle						
SPDT On-On	Silver	947-3610	2.63	2.39	2.02	1.82
SPDT On-Off-On	Silver	947-3629	2.95	2.61	2.28	1.99
SPDT Mom-Off-Mom	Silver	947-3637	2.84	2.38	2.08	1.81
SPDT On-Off-Mom	Silver	947-3645	1.43	1.19	1.03	0.91
SPDT On-Mom	Silver	947-3653	1.43	1.19	1.03	0.91
DPDT On-On	Silver	947-3661	3.24	2.81	2.47	2.18
DPDT On-Off-On	Silver	947-3670	3.30	2.87	2.52	2.22
3PDT On-On	Silver	947-3688	4.52	3.94	3.49	3.10
4PDT On-On	Silver	947-3696	5.99	5.25	4.66	4.08
Rocker (Black rocker)						
SPDT On-On	Silver	947-3700	2.82	2.32	2.03	1.78
DPDT On-On	Silver	947-3718	1.72	1.39	1.22	1.10
Lever Handle						
SPDT On-On	Silver	947-3726	1.25	1.08	0.95	0.82
DPDT On-On	Silver	947-3734	1.72	1.47	1.30	1.14

Gemini A Series - Long Lever



2A @ 250V ac, 5A @ 125V ac



- Silver contact material
- Toggle length 10.4mm
- Epoxy terminal seal
- Break before make contacts
- Threaded, 8.9mm long bushing
- Solder Tag Terminals
- UL Recognised

Contact rating Silver contact - 2A @ 250V ac, 5A @ 125V ac
Electrical life 30000 Cycles
Contact resistance 30mohm
Insulation resistance 1000Mohm
Dielectric strength 1000 V rms @ sea level
Operating temperature -20°C to 85°C
Bush/thread dimensions 8.9mm x 1/4 x 40NS

Supplied with 2 x hex nuts, 1 x internal tooth locking washer and 1 x locking ring

248684

Switch function	Mfrs. List No.	Order Code	Price Each			
			1+	25+	100+	250+
SPDT On-On	A101SYZQ	119-7667	2.34	2.20	2.06	1.78
SPDT On-Off-On	A103SYZQ	119-7668	2.61	2.45	2.29	1.98
SPDT Mom-Off-Mom	A105SYZQ	119-7669	4.11	3.86	3.61	3.11
SPDT On-Off-Mom	A107SYZQ	119-7670	3.47	3.26	3.05	2.63
DPDT On-On	A201SYZQ	119-7671	2.54	2.39	2.23	1.93
DPDT On-Off-On	A203SYZQ	119-7672	2.94	2.76	2.58	2.23
DPDT On-Off-Mom	A207SYZQ	119-7674	4.46	4.19	3.92	3.38



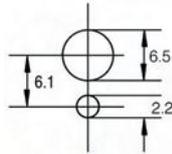
Panel Mounting
8A @ 6V dc, 3A @ 250V ac



108-2301 SPDT flat toggle
108-2313 DPDT standard pear toggle
108-2314 DPDT locking toggle

Body Dimensions			
	H	W	D
SPDT	12	7	13.2
DPDT	12	12	13.2
3PDT	13	16.5	13.2
4PDT	13	21.2	13.2

Lever L=11.6 (flat), 10.5 (std. pear), 15 (locking)
Bush L=8 (all types)



Panel cut-out

Miniature toggle switches with a choice of flat, pear or locking toggles. The locking toggle prevents accidental switching, the toggle being first lifted before positioning.

Contact resistance	<10mR	Electrical life	50000 ops
Contacts	Silver	Mechanical life	100000 ops
Dielectric strength	1kV rms	Operating temperature	-40°C to +85°C

Mfrs List No.

5632A = 108-2297	5637A9 = 108-2303	5642A = 108-2311	5649A3V = 108-2317
5632A9 = 108-2298	5638A = 108-2304	5642A9 = 108-2312	5649A9 = 108-2318
5636A = 108-2299	5638A9 = 108-2305	5646A = 108-2313	5656A = 108-2319
5636A2V = 108-2300	5639A = 108-2306	5646A2V = 108-2314	5656A9 = 108-2320
5636A9 = 108-2301	5639A3V = 108-2307	5646A9 = 108-2315	5666A = 108-2321
5637A = 108-2302	5639A9 = 108-2308	5649A = 108-2316	5666A9 = 108-2322

213083

Flat Toggle	Order Code	Price Each				
		1+	25+	50+	100+	500+
SPDT On-On	108-2301●	1.98	1.85	1.77	1.69	1.61
SPDT On-Off-On	108-2308●	2.14	2.00	1.92	1.83	1.74
SPDT Mom-Off-Mom	108-2303●	3.10	2.90	2.78	2.45	1.87
SPDT Mom-Off-On	108-2305●	3.10	2.90	2.78	2.45	1.87
SPDT On-Mom	108-2298●	2.74	2.56	2.47	2.34	2.23
DPDT On-On	108-2315●	2.73	2.55	2.46	2.32	2.21
DPDT Centre Off	108-2318●	3.03	2.82	2.72	2.58	2.46
DPDT On-Mom	108-2312●	3.74	3.50	3.34	3.20	3.04
3PDT On-On	108-2320●	5.44	5.07	4.85	4.30	3.49
4PDT On-On	108-2323●	6.24	5.81	5.56	5.32	5.06
Standard Pear Toggle						
SPDT On-On	108-2299●	1.69	1.60	1.51	1.25	0.99
SPDT On-Off-On	108-2306●	1.69	1.60	1.52	1.36	1.05
SPDT Mom-Off-Mom	108-2302●	1.69	1.60	1.52	1.39	1.19
SPDT On-Off-Mom	108-2304●	1.69	1.60	1.52	1.39	1.19
SPDT On-Mom	108-2297●	1.69	1.60	1.52	1.39	1.19
DPDT On-On	108-2313●	1.89	1.77	1.69	1.62	1.31
DPDT Centre Off	108-2316●	2.24	2.09	2.02	1.79	1.35
DPDT On-Mom	108-2311●	3.69	3.45	3.29	2.86	2.17
3PDT On-On	108-2319●	4.81	4.50	4.30	4.09	3.92
4PDT On-On	108-2321●	5.74	5.37	5.13	4.51	3.40
Locking Toggle						
SPDT On-On	108-2300●	4.56	4.12	3.88	3.64	3.46
SPDT On-Off-On	108-2307●	6.34	5.22	4.83	3.72	3.54
DPDT On-On	108-2314●	5.54	4.98	4.77	4.41	4.19
DPDT Centre Off	108-2317●	7.53	6.48	5.24	4.33	4.12

Miniature - Panel Mount
6A @ 125V ac, 3A @ 250V ac



- 2 x 0.8mm solder lug terminals
- 1.1 x 2mm oblong hole will accommodate 1 solid 18 gauge or 2 solid or stranded 20 gauge wires
- Antirotation design with mated toggle and bushing
- Antijamming system protects contacts from damage from excessive downward force on actuator
- Bushing construction prevents rotation or separation from frame during installation
- Epoxy sealed terminals prevent entry of flux and other contaminants
- 1/4"-40 Threaded bushing with keyway
- Supplied with 2 x hex locking nuts, locking ring and lock washer
- UL94V-0 moulded diallyl phthalate case
- CSA Certified and UL Recognised

Contact Resistance	10mohm (Max.)	Electrical Life	25000 ops
Insulation Resistance	1000Mohm @ 500V dc	Angle of Throw	25°
Dielectric Strength (Contact/Contact)	1000V ac	Operating temperature	-30 to 85°C
Dielectric Strength (Contact/Case)	1500V ac		

Mfrs. List No. M2012SS1W01=135-7681 M2015SS1W01=135-7683 M2013SS1W01=135-7684

M2018SS1W01=135-7685 M2025SS1W01=135-7688 M2028SS1W01=135-7690
M2019SS1W01=135-7686 M2023SS1W01=135-7689 M2029SS1W01=135-7691
M2022SS1W01=135-7687

473975

Switch Function	Order Code	Price Each				
		1+	25+	50+	100+	500+
Vertical Mounting - Solder Lug Terminals						
SPDT On-On	135-7681●	2.42	2.16	2.02	1.94	1.80
SPDT On-Off-On	135-7683●	2.92	2.60	2.44	2.34	2.18
SPDT On-Off-On	135-7684●	2.92	2.60	2.44	2.34	2.18
SPDT (On) - Off - (On)	135-7685●	3.18	2.82	2.66	2.54	2.36
SPDT On-Off-On	135-7686●	3.18	2.82	2.66	2.54	2.36
DPDT On-On	135-7687●	3.08	2.74	2.56	2.46	2.28
DPDT On-On	135-7688●	3.60	3.20	3.00	2.88	2.68
DPDT On-Off-On	135-7689●	3.60	3.20	3.00	2.88	2.68
DPDT (On) - Off - (On)	135-7690●	3.84	3.42	3.22	3.08	2.86
DPDT On-Off-On	135-7691●	3.84	3.42	3.22	3.08	2.86

0600 Series - Single Pole
3A @ 250V ac, 10A @ 6/24V ac/dc



140-600 H=25.4, W=12.7, D (excl. terminals)=14.2, Panel cut-out=12.7 dia, Bush thread=1/8"x 32NS, Tab=6.3
140-601 H=25.4, W=12.7, D (excl. terminals)=14.2, Panel cut-out=12.7 dia, Bush thread=1/8"x 32NS, Tab=6.3

Termination	Lever	Lever Length	Mfrs. List No.	Order Code
6.3mm Tab	Chrome	15	C0600CCAAE	140-600
6.3mm Tab	Nylon	17.5	C0600HDAAF	140-601

213175

Order Code	Price Each				
	1+	100+	250+	500+	1K+
140-600●	3.98	3.53	2.99	2.33	1.94
140-601●	2.72	2.42	2.04	1.59	1.32

Professional - Slow Make/ Break Action



6A @ 250V ac or 28V dc (Silver), 10mA @ 48V (Gold)



- A range of professional slow make break switches.
- Chrome plated lever.
- Solder bucket terminals.
- Gold contact versions are ideally suited for 'dry circuit switching'.

H=14.8, W=8 (SPDT), 13 (DPDT), 18 (3PDT), 23 (4PDT), D=10.5 (body)

	Gold contacts	Silver contacts
Contact rating (max.)	10V, 10mA	250V ac/28V dc, 6A
Maximum load	0.5VA	—
Contact resistance	20mohm	10mohm
Electrical life	> 50000 operations	> 50000 operations
Mechanical life	> 100000 operations	> 100000 operations
Temperature range	-25°C to +85°C	-25°C to +85°C
Bush thread	M6 x 0.75	M6 x 0.75

Mfrs List No.	Order Code	Mfrs List No.	Order Code	Mfrs List No.	Order Code
FTD0904	112-4175	FTF0904	112-4179	FTD09G04	112-4182
FTE0904	112-4176	FTR0904	112-4180	FTN09G04	112-4184
FTN0904	112-4177	FTS0904	112-4181		

213125

Silver Contacts	Order Code	Price Each			
		1+	25+	100+	500+
SPDT On-On	112-4175●	2.44	2.13	2.02	1.92
SPDT On-Off-On	112-4176●	3.64	3.11	2.96	2.82
SPDT On-Mom	112-4179●	3.15	2.68	2.57	2.45
DPDT On-On	112-4177●	3.90	3.48	3.17	3.00
DPDT On-Mom	112-4180●	3.98	3.69	3.41	3.05
DPDT Mom-Off-Mom	112-4181●	4.15	3.57	3.41	3.25
Gold Contacts					
SPDT On-On	112-4182●	4.60	3.90	3.72	3.54
DPDT On-On	112-4184●	5.75	4.86	4.65	4.42

Technical information at your fingertips

Over 352,000 technical datasheets available online.

Visit www.farnell.co.uk and look for the Tech Info heading in your search results.



15

Re-reeling available



Locking Lever
6A @ 250V ac or 28V dc



- Locking lever can be retained in either position.
 - Prevents accidental switching.
- | | | |
|-----------------------|------------------------|----------------------|
| Contact rating (max.) | Silver contacts | Gold contacts |
| Maximum load | 250V ac/28V dc, 6A | 48V, 10ma |
| Contact resistance | — | 0.5VA |
| Electrical life | 10mohm | 20mohm |
| Mechanical life | > 50000 operations | > 50000 operations |
| Temperature range | > 100000 operations | > 100000 operations |
| Bush thread | -25°C to +85°C | -25°C to +85°C |
| | M6 x 0.75 | M6 x 0.75 |
- Mftrs. List No
FTN59G = 112-4169

H=14.8, W=13, (DPDT), 8 (SPDT)
D=10.5 (body), Lever length = 15 (17 extended)

213074

	Order Code	1+	10+	50+	100+	250+
Gold Contacts						
DPDT On-On	112-4169●	7.10	6.60	6.32	6.01	5.58
Silver Contacts						
DPDT On-On	112-4170●	8.52	8.00	7.55	7.16	6.68

Quick Make, Quick Break
3A/8A/10A @ 250V ac/dc



Panel cut-out=12.7 dia
Bush thread=1/32" x 32NS

Rating @ 250V ac/dc	Termination	Body Dimensions	Bush Length	Lever Length	Order Code
		H W D			
SPST 3A	Lugs (bottom)	24.5 13.3 14.3	11.9	12.7	120-3330
DPST 3A	Lugs (ends)	30 13.1 14.3	11.9	12.7	120-3333
DPST 8A	Screw	44.5 20.6 19.1	11.9	16.7	120-3334
DPST 10A	Screw	54 25.4 22.2	11.9	16.7	120-3335
DPDT 3A	Lugs (bottom)	30 13.1 14.3	11.9	12.7	120-3336

213220

Mftrs. List No.	Order Code	1+	25+	50+	100+
110-B-63	120-3330●	2.51	2.38	2.26	2.14
2BK62-63	120-3333●	5.11	4.04	3.71	3.41
DK284-73	120-3334●	6.34	5.01	4.60	4.23
EK204-73	120-3335●	9.82	6.63	5.80	5.10
2BL63-63	120-3336●	5.11	4.04	3.71	3.41

S-POT Series
10A @ 250V ac, 10A @ 20V dc



Panel cut-out=12.7 dia
Bush thread=1/32" x 32NS, Tab=6.3
Lever L=17.0 (SPDT), 16.0 (DPDT)

Single pole H=37.5, W=15, D=30
Double Pole H=37.5, W=20.6, D=39

Mftrs List No.
SX0793/63.= 421-996 SX0794/63.= 422-009 SX0783/63.= 422-010 SX0784/63.= 422-022
SX0786/63.= 422-034 SX0792/63.= 422-046 SX0780/63.= 422-058 SX0782/63.= 422-060

213212

	Order Code	1+	25+	50+	100+	250+
Two Position						
SPDT On-On	421-996●	6.83	5.29	4.64	3.68	3.39
SPST On-Off	422-009●	4.73	3.67	3.22	2.45	2.37
DPDT On-On	422-010●	9.33	7.30	6.40	5.04	4.68
DPST On-Off	422-022●	8.60	6.73	5.87	4.64	4.31
DPST Off-Mom	422-034●	8.60	6.73	5.87	4.64	4.31
Three Position						
SPDT Mom-Off-Mom	422-046●	5.12	3.97	3.48	2.76	2.54
DPDT On-Off-On	422-058●	9.33	7.30	6.40	5.04	4.68
DPDT Mom-Off-Mom	422-060●	9.33	7.30	6.40	5.04	4.68

Environmentally Sealed Toggles



Wire Leads



- Sealing at front and back panel meets IP67 and IP60 of IEC60529
- Single unit construction of bushing and case gives added protection from environmental elements
- Anti-jamming design prevents contacts from damage due to excessive downward force on the toggle
- Specially designed contact mechanism for breaking light contact welds
- Minimal contact bounce achieved with designed interlocked switching mechanism
- Heat resistant resin used for outer housing meets UL94V-0 and provides high arc and tracking resistance



Switch Specifications

Environmental Data	Sealed to IP67
Electrical capacity (Resistive load)	10A @ 125V ac or 6A @ 250V ac or 10A @ 30V dc
Electrical life	15000 Cycles
Contact resistance	30mohm
Insulation resistance	200Mohm
Dielectric strength	1500V ac for 1 minute minimum
Operating temperature	-30°C to 70°C

498344

Switch Type	Mftrs. List No.	Order Code	1+	10+	25+	100+	250+
Solder Lug Terminals							
SPDT - On-One-On	WT12L	152-4263●	18.90	17.40	15.88	15.12	14.36
SPDT - On-Off-On	WT13L	152-4265●	19.30	17.76	16.22	15.44	14.68
DPDT - On-One-On	WT22L	152-4266●	25.32	23.30	21.26	20.26	19.24
DPDT - On-Off-On	WT23L	152-4267●	26.12	24.04	21.94	20.90	19.86

1700 Series



Single pole
H=25.4, W=12.7, D
(excl terminals)=12.2



Double pole
H=32.5, W=25.4, D
(excl terminals)=18.0

- Black nylon levers.
- Approved to BS3955, BEAB, VDE, SEMKO, SEV, OVE, KEMA and CSA.
- UL recognised

Mftrs List No.

C1700HOAAC=140-625 C1710HOAAB=140-626
C1720HOAAD=140-627 C1750HOAAC=140-621
C1760HOAAD=140-622 C1770HOAAC=140-624
Panel cut-out=12.7 dia
Bush thread=1/32" x 32NS, Tab=6.3 Lever L=17.8

213196

	Order Code	1+	50+	100+	250+	500+
SPST On-Off	140-625●	1.40	1.24	1.05	0.97	0.93
SPDT On-On	140-626●	1.46	1.43	1.40	1.17	0.95
SPDT On-Off-On	140-627●	1.46	1.43	1.40	1.17	0.95
DPST On-Off	140-621●	2.33	1.92	1.80	1.64	1.53
DPDT On-On	140-622●	2.47	2.02	1.87	1.72	1.63
DPDT On-Off-On	140-624●	2.47	2.02	1.87	1.72	1.63

Standard Size Toggle Switches
Medium / High Capacity



These standard size toggles come in low, medium, and high capacity models with ratings ranging from 6A to 30A @ 125V AC. Sturdy construction with high torque bushings and zinc plated steel covers. The 12mm bushing is designed for panel mount applications; mounting hardware is included with each switch. Case of heat resistant resin meets UL 94V-0 flammability standard and provides high arc and insulation resistance. The design of the contact mechanisms in these models assures long life. The range is fitted with solder lug terminals.



AC 125V	Electrical Capacity		Inductive AC 125V	Approvals		Mftrs. List No.	Order Code
	Resistive AC 250V	DC 30V		CSA	UL		
15A	6A	20A	10A	Yes	Yes	S302	152-4251
15A	6A	20A	10A	Yes	Yes	S303	152-4253
15A	6A	20A	200W			S2AW	152-4254
15A	6A	20A	200W			S3AW	152-4255
25A	15A	25A	10A	Yes	Yes	S332	152-4256
25A	15A	25A	10A	Yes	Yes	S333	152-4257
15A	6A	20A	8A	Yes	Yes	S335	152-4258
15A	6A	20A	8A	Yes	Yes	S338	152-4259
30A	30A	30A	15A	Yes	Yes	S822	152-4260
30A	30A	30A	15A	Yes	Yes	S823	152-4261

498304

15

Re-reeling available

Farnell

Switch Type	Mfrs.		Price Each				
	List No.	Order Code	1+	10+	25+	100+	250+
Solder Lug Terminals							
SPDT - On-One-On	S302	152-4251 ●	6.82	6.26	5.72	5.46	5.18
SPDT - On-Off-On	S303	152-4253 ●	6.84	5.84	5.34	5.08	4.82
SPDT - On-None-On	S2AW	152-4254 ●	6.86	6.32	5.76	5.48	5.22
SPDT - On-Off-Off	S3AW	152-4255 ●	6.94	6.40	5.84	5.56	5.28
DPDT - On-None-On	S332	152-4256 ●	8.96	8.24	7.52	7.16	6.80
DPDT - On-Off-Off	S333	152-4257 ●	9.70	8.94	8.16	7.76	7.38
DPDT - On-None-Mom	S335	152-4258 ●	10.94	10.06	9.18	8.74	8.32
DPDT - Mom-Off-Mom	S338	152-4259 ●	9.46	8.70	7.96	7.58	7.20
Screw Lug Terminals							
DPST - On-None-On	S822	152-4260 ●	24.18	22.26	20.32	19.34	18.38
DPST - On-Off-On	S823	152-4261 ●	24.08	22.14	20.22	19.26	18.30

600 Series. 15A @ 250V ac



- CSA approved
- UL recognised

Proof Voltage 2500V rms
 Electrical life 10000 operations
 Insulation resistance 1000 MR
 Operating temperature -20°C to +55°C
 Initial contact resistance 10 MR
 Body : H=15.0, W=14.0, D=29.5 (single pole)
 H=21.5, W=21.5, D=29.7 (double pole)
 Toggle : L=13.5 (insulated), L=17.5 (metal)
 Bush : L=11.5 (insulated), L=10.5 (metal)
 Dia.=12 x 0.75 Tabs : 6.35 x 0.8

Mfrs List No.	108-2325	641NH/2=	108-2331	631H/2=	108-2324	641H/2=	108-2330
631NH/2=	108-2325	641NH/2=	108-2331	631H/2=	108-2324	641H/2=	108-2330
636NH/2=	108-2327	646NH/2=	108-2333	636H/2=	108-2326	646H/2=	108-2332
639NH/2=	108-2329	649NH/2=	108-2336	639H/2=	108-2328	649H/2=	108-2335

213172

Insulated Lever	Order Code	Price Each			
		1+	25+	50+	100+
SPST On-Off	108-2325 ●	2.49	2.35	2.25	2.09
SPDT On-On	108-2327 ●	2.90	2.74	2.63	2.52
SPDT On-Off-On	108-2329 ●	2.85	2.66	2.56	2.44
DPST On-Off	108-2331 ●	3.69	3.41	3.33	3.18
DPDT On-On	108-2333 ●	4.33	4.09	3.89	3.72
DPDT On-Off-On	108-2336 ●	3.99	3.77	3.61	3.44
Metal Lever					
SPST On-Off	108-2324 ●	2.69	2.51	2.41	2.30
SPDT On-On	108-2326 ●	3.70	3.46	3.31	2.99
SPDT On-Off-On	108-2328 ●	3.35	3.13	3.00	2.85
DPST On-Off	108-2330 ●	4.75	4.42	4.23	4.05
DPDT On-On	108-2332 ●	5.49	5.11	4.89	4.57
DPDT On-Off-On	108-2335 ●	5.95	5.54	5.31	4.88

TL Series - to MIL-S-3950

15A @ 250V ac, 10A @ 250V ac (momentary action versions)



- Military approved to MIL-S-3950
- Sealed switches with non-tracking case
- Screw terminals
- UL recognised, CSA certified, CE approved
- Temperature range -65°C to +71°C

H=34.3, W=15.7 (SP), 22.6 (DP), 41.6 (4P),
 D=28.4 (SP), 33.5 (DP, 4P), Toggle=26.7

338549

Two Position	Mfrs.		Price Each		
	List No.	Order Code	1+	10+	50+
SPST On-Off	1TL1-2	508-2183 ●	16.57	15.72	14.96
DPDT On-On	2TL1-3	508-2225 ●	22.13	20.97	19.92
Three Position					
DPDT Mom-Off-Mom	2TL1-7	508-2237 ●	22.13	21.04	20.01

Metal Lever - 3900 Series

16(4)A @ 250V ac - ENEC(3900/3950), 10(4)A 250V ac (other circuits)
 20A @ 125/277V ac - UL/CSA (3990/3950), 16A 125/277V ac (other circuits)



Single pole body =
 29.5 x 14,
 Depth = 28,
 Panel cut-out (dia.)
 = 12.7,
 Tabs = 6.3 x 0.8



Double pole body =
 31 x 21.5,
 Depth = 31,
 Panel cut-out (dia.)
 = 12.7,
 Tabs = 6.3 x 0.8

- Approved to ENEC and CSA, UL recognised
- Robust metal lever/neck construction
- Spring-loaded hinged guard (767-4341) to prevent accidental operation
- Momentary action option

Insulation Resistance	>20MR	Operating Temp	0°C to +85°C
Contact Resistance	100mR	Contact Gap	3.0mm (On-Off types only)
Electrical Life	10000 ops	Mechanical Life	50000 ops

Mfrs. List No.



RoHS Compliant
 Non-compliant

08447 11 11 11

Fax: 08447 11 11 12

603

C3900BAAAA=767-4244
 C3910BAAAA=767-4252
 C3911BAAAA=767-4260
 C3920BAAAA=767-4279

C3922BAAAA=767-4287
 C3950BAAAA=767-4295
 C3960BAAAA=767-4309
 C3961BAAAA=767-4317

C3970BBAAA=767-4325
 C3972BBAAA=767-4333
 R171000AAA=767-4341

347649/405379

SPST On-Off	Order Code	Price Each				
		1+	25+	100+	250+	500+
SPST On-Off	767-4244 ●	2.72	2.25	1.96	1.82	1.73
SPDT On-On	767-4252 ●	3.09	2.54	2.24	2.07	1.97
SPDT On-Mom	767-4260 ●	3.29	2.73	2.38	2.23	2.12
SPDT On-Off-On	767-4279 ●	3.17	2.63	2.30	2.13	2.04
SPDT Mom-Of-Mom	767-4287 ●	3.22	2.65	2.32	2.17	2.07
DPST On-Off	767-4295 ●	3.75	3.10	2.72	2.52	2.40
DPDT On-On	767-4309 ●	4.61	3.82	3.33	3.12	2.96
DPDT On-Mom	767-4317 ●	4.34	3.58	3.14	2.92	2.79
DPDT On-Off-On	767-4325 ●	4.71	3.89	3.40	3.17	3.04
DPDT Mom-Off-Mom	767-4333 ●	4.59	3.79	3.32	3.09	2.94
Guard (Red)	767-4341 ●	3.17	2.63	2.30	2.13	2.04

C1700 Series

16(4) A @ 250V ac



Mfrs. List No. C175000= 481-099 C176000= 481-105
 C177000= 481-117

H=30.2, W=25.2, D (excl. terminals)=19.2
 Panel cut-out=12.7 dia.,
 Bush thread=1/8 x 32NS, Tab=6.3
 Toggle L=15.0

213180

DPST On-Off	Order Code	Price Each			
		1+	100+	250+	500+
DPST On-Off	481-099 ●	4.25	3.14	2.85	2.52
DPDT On-On	481-105 ●	4.89	3.67	3.29	3.06
DPDT On-Off-On	481-117 ●	5.02	3.74	3.39	3.13

IP67 Sealed

20A @ 250V ac or 30V dc



- Silver plated contacts.
- Sealed to IP67.
- Connections via 250 (1/4") receptacles or soldering.

H=33, W=19.5, D=17.5 (body) Bush diameter=11.4,
 Bush thread=M12 x 1.0, Bush length=6.5

Mfrs List No.

AWTN1504= 112-4163, AWTP1504= 112-4166, AWTT1504= 112-4167, AWTS1504= 112-4168
 AWTR1504= 112-4165,

213087

DPDT On-On	Order Code	Price Each			
		1+	10+	50+	100+
DPDT On-On	112-4163 ●	13.30	12.24	11.70	10.97
DPDT On-Mom	112-4165 ●	13.45	12.38	11.83	11.30
DPDT On-Off-On	112-4166 ●	13.14	12.09	11.56	11.03
DPDT On-Off-Mom	112-4167 ●	14.04	12.92	12.35	11.79
DPDT Mom-Off-Mom	112-4168 ●	14.54	13.38	12.79	12.21

IP67 Sealed

20A @ 250V ac



- Switches withstand water penetration into spaces between switches and mounting cut-out holes
- Contact mechanism designed to minimise noise
- UL 94V-0 Flammability rating
- Sealed to IP67.
- Connections via AMP 250 (1/4") receptacles or soldering.

H=22.9 (body), W=33, D=19.5mm
 Bush thread=M12 x 1.0, Bush length=5.5

Order Code	Part Number	Mfrs. List No.	Order Code	Part Number	Mfrs. List No.
162-9109	7-6437630-3	AWTA1504	162-9109	7-6437630-3	AWTA1504
143-6244	7-6437630-0	AWTD1504	162-9110	8-6437630-0	A4TK15W04
143-6245	7-6437630-1	AWTE1504	162-9111	8-6437630-1	A4TN15W04
143-6246	7-6437630-5	AWTG1504	162-9112	8-6437630-2	A4TP15W04
143-6248	7-6437630-6	AWTH1504	162-9113	8-6437630-3	A4TR15W04
143-6249	7-6437630-4	AWTF1504			

480821

Switch Function	Mfrs.		Price Each			
	List No.	Order Code	1+	10+	25+	50+
SPDT On-Off	AWTA1504	NEW 162-9109 ●	9.98	9.39	8.39	7.99
SPDT On-On	AWTD1504	143-6244 ●	10.90	10.03	9.60	9.16
SPDT On-Off-On	AWTE1504	143-6245 ●	11.34	10.43	9.99	9.53
SPDT Mom-Off-Mom	AWTG1504	143-6246 ●	12.57	12.07	11.59	11.13
SPDT On-Off-Mom	AWTH1504	143-6248 ●	13.19	12.66	12.15	11.66
SPDT On-Mom	AWTF1504	143-6249 ●	12.57	12.07	11.59	11.13
4PDT On-Off	A4TK15W04	NEW 162-9110 ●	15.92	14.96	13.37	12.73
4PDT On-On	A4TN15W04	NEW 162-9111 ●	15.92	14.96	13.37	12.73
4PDT On-Off-On	A4TP15W04	NEW 162-9112 ●	17.80	16.73	14.95	14.24
4PDT On-Mom	A4TR15W04	NEW 162-9113 ●	17.80	16.73	14.95	14.24

15

Re-reeling available

Farnell

Subminiature Toggle Switches - continued

IP67 Sealed - 3600 Series
12A @ 28V dc, 6A @ 250V ac



APEM



- Sealed to **IP67**, suitable for outdoor use
- Proof Voltage 2500V ac
- Electrical life 1000 operations
- Insulation resistance 1000 MR @ 500V dc
- Operating temperature -40°C to +85°C

H=35, W=21.5, D=23
Bush thread=12 x 0.75, Tabs=6.35 x 0.8, Panel thickness=3.5 max.

Mfrs. List No. 3631NF/2= 108-2293 3641NF/2= 108-2295
3636NF/2= 108-2294 3646NF/2= 108-2296

213156

	Order Code	1+	10+	50+	100+	250+
SPST On-Off	108-2293●	8.25	7.68	6.99	5.96	4.99
SPDT On-On	108-2294●	9.35	8.71	8.34	7.80	5.52
DPST On-Off	108-2295●	11.50	10.71	8.99	7.99	6.47
DPDT On-On	108-2296●	11.80	10.97	8.99	8.13	7.19

IP68 Sealed

16A @ 115V ac or 28V dc



- Rugged high performance toggle switch
- Doubled sealed with "O" ring and visible bushing sealed to **IP68**
- Withstands extreme shock and vibration
- Rear seal with potted contacts

H=32.2, W=27.9, D=21.8 (body)
Bush thread = 1/2 x 32 NS-2A, Bush length=11.9

Mfrs. List No. T7111A5= 113-8734 T7212D5= 113-8737 T7212F5= 113-8739
T7111B5= 113-8735 T7212E5= 113-8738 T7212G5= 113-8740
T7212B5= 113-8736

213148

	Order Code	1+	10+	25+	50+	100+
SPST On-Off	113-8734●	11.52	11.17	10.83	10.50	10.18
SPDT On-On	113-8735●	6.20	6.01	5.83	5.66	5.48
DPDT On-On	113-8736●	12.76	12.38	12.01	11.65	11.29
DPDT Mom-On	113-8737●	12.76	12.38	12.01	11.65	11.29
DPDT Mom-Off-Mom	113-8738●	12.76	12.38	12.01	11.65	11.29
DPDT On-Off-On	113-8739●	12.76	12.38	12.01	11.65	11.29
DPDT Mom-Off-On	113-8740●	12.76	12.38	12.01	11.65	11.29

Toggle Switches - Power

T9 Series - IP68 Sealed



- Compliant to MIL-DTL-3950
- Sealed per IP68 or per MIL-DTL-3950
- Electrical life 20,000 cycles full load
- Mechanical life 40,000 cycles
- Operating temperature range -65 °C to +71°C

Body - H = 1.37" (34.8mm), W (SPDT) = 0.635" (16mm), W (DPDT) 0.91" (23mm) = D = 1.34" (34mm)

The T9 Toggle Switch is an ideal switch for demanding applications, compliant to MIL-DTL-3950, this high performance switch is a logical choice for use in environments where sealing and resistance to shock and vibration are required. The T9 is particularly suitable for applications in off-road, aviation, commercial and industrial equipment. This compact, environmentally sealed switch is available in single and double pole configurations. Circuitry configurations include two or three positions.

TG series toggle guards fits standard size toggles, prohibiting actuation on (or OFF) without first flipping up the safety switch cover and closing the cover will flip the switch. The toggle guards meet the requirements of MIL DTL 7703 and MS25224-3

Contact ratings - Resistive 20A @ 28V dc, 15A @ 115V ac
Contact ratings - Inductive 15A @ 28V dc, 10A @ 115V ac
Contact plating Silver
Thread type 0.469-32 UNS - 2A
Terminal type Screw Terminals
Electrical life 20000 ops
Mechanical life 40000 ops
Operating temperature -65°C to +71°C

502293

Switch Positions/Function List.	Mfrs. Order Code	1+	10+	25+	50+	100+
SPDT						
2 - On-None-On	T9-CS1-23	155-6041●	16.83	15.48	14.13	13.46
3 - On-Off-On	T9-CS1-21	155-6042●	16.83	15.48	14.13	13.46
DPDT						
2 - On-None-On	T9-CS2-23	155-6043●	22.25	20.48	18.69	17.81
3 - On-Off-On	T9-CS2-21	155-6044●	22.25	20.48	18.69	17.81
Toggle Covers						
2 Way Switches	TG-00001	155-6045●	21.16	19.47	17.78	16.93
3 Way Switches	TG-00002	155-6047●	21.16	19.47	17.78	16.93

15

RL Re-reeling available

Farnell

Accessories

Toggle Switch Cover



- Moulded black flexible PVC splashproof switch cover
- Nickel-plated brass threaded insert suitable for all 1/2" x 32NS bush threads.

H=25, Dia=25

Mfrs. List No. SX0550/Brass

213132

Order Code	1+	50+	100+	500+	1K+
151-352●	0.66	0.63	0.57	0.50	0.45

Toggle Switch Accessories

Suitable for all Bush Threads of 1/2" x 32NS



140-648 678-144 678-156 140-663 140-658

Waterproof lever cover
Waterproof lever cover
Waterproof lever seal
Slotted knurled ring nut chrome finished, dia=16.0, thickness=2.3
ON/OFF status plate chrome finished, 25.4 16 overall

Mfrs. List No. Order code
A0331MOAAA 140-648
A1080MO 678-144
A0539MO 678-156
F0092TOAAA 140-663
F00232PAAA 140-658

213164

Order Multiple = 10

Order Code	10+	50+	100+	250+	500+	1K+
140-648●	0.680	0.630	0.610	0.500	0.420	0.330
678-144●	0.560	0.520	0.500	0.450	0.430	0.390
678-156●	0.560	0.520	0.500	0.450	0.430	0.390
140-663●	0.210	0.200	0.194	0.156	0.125	0.116
140-658●	0.300	0.280	0.260	0.240	0.230	0.210

Toggle and Push Button Sealing Boots



APEM



Covered toggle seal Protruding toggle seal Push button seals

- Black silicone rubber sealing boots for most toggle and pushbutton switches
- Moulded-in brass, nickel plated hexagonal nut gives water-tight, dust-tight protection
- Provide low cost sealing for non-MIL spec applications
- Operating temperature -40°C to +85°C

Mfrs. List No. U1024=108-2517, U1602=108-2520, U1320=108-2519, U590=108-2529, U1231=108-2518,

213103

Thread Size	Order Code	1+	25+	50+	100+	500+
Covered Toggle Seal						
11.9 (15/32") 32 NS	108-2517●	2.09	2.04	1.99	1.93	1.88
6.35 (1/4") 40 NS	108-2518●	1.75	1.70	1.66	1.62	1.58
Protruding Toggle Seal						
11.9 (15/32") 32 NS	108-2520●	2.13	2.08	2.03	1.98	1.92
Push Button Seals						
6.35 (1/4") 40 NS	108-2519●	2.04	1.82	1.75	1.67	1.61
11.9 (15/32") 32 NS	108-2529●	2.90	2.82	2.75	2.69	2.61

Toggle and Push Button Sealing Boots

'Hexseals' (MIL spec)



Covered toggle seals Protruding toggle seals Push button seals



- Provide positive high pressure environmental seal for most toggle and push button switches
- Moulded-in brass, nickel plated hexagonal nut gives water-tight, dust-tight protection
- Fit around switch neck to seal both panel mounting hole and the switch
- Meet MIL-B-5423 specification
- Resistant to salt spray, weather, sunlight, ozone, fuel oils, and most acids
- Vibration resistant. Pressure range exceeds 15 psi internal or external

Operating temperature -70°C to +205°C

Thread size	Max. Toggle Length	Height	Mfrs. List No.	Order Code
Covered Toggle Seals				
1/4" x 40NS	7.9	10.7	N5030	146-840
1/4" x 40NS	9.4	12.7	N5030L	146-841
1/4" x 40NS	12.7	15.1	N5030S	146-842
15/32" x 32 NS	16.8	21.4	N1030	146-843
15/32" x 32 NS-2B	18	23.8	C1131/28	142-6651
Protruding Toggle Seals				
1/4" x 40NS	1.6 to 4.8	6.4	N5032B	146-844
15/32" x 32 NS	3.9 to 6.1	11.1	N1030B	146-845
Push Button Seals				
1/4" x 40NS	5.2	7.9	N5040R	146-846
15/32" x 32 NS	7.14	13.9	N3030	146-847
15/32" x 32 NS	11.1	18.3	NC3030	146-848

213153

Thread Size	Order Code	Price Each			
		1+	25+	100+	500+
Covered Toggle Seals					
1/4" x 40NS	146-840	3.70	3.19	2.94	2.53
1/4" x 40NS	146-841	3.74	3.23	2.97	2.57
1/4" x 40NS	146-842	3.74	3.23	2.97	2.57
15/32" x 32 NS	146-843	3.13	2.72	2.50	2.16
15/32" x 32 NS-2B	142-6651	3.36	2.86	2.62	2.30
Protruding Toggle Seals					
1/4" x 40NS	146-844	3.74	3.23	2.97	2.57
15/32" x 32 NS	146-845	3.13	2.72	2.50	2.16
Push Button Seals					
1/4" x 40NS	146-846	3.08	--	--	--
15/32" x 32 NS	146-847	2.98	2.58	2.39	2.06
15/32" x 32 NS	146-848	2.18	1.62	1.58	1.54

Slide Switches

Momentary Action Slide Switches
25mA @ 24Vdc



Left Actuator Right Actuator

Current switching 25mA @ 24V dc
Contact resistance 70mohm max
Insulation resistance 100Mohm @ 100V dc
Dielectric strength 100V ac for 1 minute
Operating temperature -10°C to +60°C
Electrical life 10000 operations min

- Momentary action SPDT
- Left and Right hand Actuator versions available
- Operating force 180gf ± 70gf
- Long life of 10,000 cycles
- Height 2mm, Width 11mm, Depth 3.5mm



498829

Actuator Position	Mfrs. List No.	Order Code	Price Each			
			1+	25+	50+	100+
Left	MCSSS-12LG	SMD152-2052	0.48	0.46	0.44	0.43
Right	MCSSS-12RG	SMD152-2053	0.48	0.46	0.44	0.43

Miniature Slide Switch
25mA @ 24Vdc



- DPDT
- Operating force 200gf ± 150gf
- Long life of 10,000 cycles
- Two different lead length versions available

Current switching 25mA @ 24V dc
Current non-switching 100mA @ 50V dc
Contact resistance 100mohm max
Insulation resistance 100Mohm @ 500V dc
Dielectric strength 500V ac for 1 minute
Operating temperature -10°C to +60°C
Electrical life 10000 operations min



498814

Pin Length	Mfrs. List No.	Order Code	Price Each			
			1+	25+	100+	500+
3mm	MCLSS22	152-2046	0.37	0.35	0.34	0.32
1mm	MCLSS22P	152-2047	0.37	0.35	0.34	0.32

Over 480,000 products online



Miniature Momentary Slide Switches



- Momentary action (Double side recoil)
- Stem height only 1.5mm
- Operating force 100gf ± 50gf
- Long life of 50,000 cycles



Current switching 300mA @ 4V dc
Current non-switching 200mA @ 5V dc
Contact resistance 70mohm max
Insulation resistance 100Mohm @ 250V dc
Dielectric strength 100V ac for 1 minute
Operating temperature -30°C to +80°C
Electrical life 50000 operations min

498824

Switch Function	Mfrs. List No.	Order Code	Price Each			
			1+	25+	50+	100+
SPDT Mom-Off-Mom	MCS2S-A15F	SMD152-2049	0.48	0.46	0.44	0.43
SP3T Mom-On-Mom	MCS2S-B15F	SMD152-2051	0.48	0.46	0.44	0.43

SMD Slide - Ultraminiature
300mA, 6V dc



- Ultraminiature surface mount
- Low profile - 1.2mm
- SPDT and SP3T

Contact Voltage (V)	Contact Rating Current (mA)	Contact Resistance (mR)	Resistance Insulation (mR)	Dielectric Strength (Vac min)	Operating Temp. (Degree C)
6	300	70	100	500	-10 to 85°C

241380

Order Multiple=5

Contact configuration	Mfrs. List No.	Order Code	Price Each				
			5+	50+	100+	250+	500+
SPDT	PCM12SMTR	957-5146	0.79	0.69	0.60	0.55	0.52
SP3T	PCM13SMTR	134-8138	0.83	0.74	0.63	0.59	0.56

Subminiature, PCB Mounting - 1K2



0.5A @ 12V



- Gold plated contacts
- Vertical and horizontal styles for PCB mounting
- Raised actuators for easy operation
- Vertical style stack on 2.54mm centres
- Horizontal style end-stackable on 2.54mm grid
- Designed to appear on the front face of equipment

- Switch connections work in opposite direction to actuator

Contact rating <22mohm 674-345:
Insulation resistance >10000Mohm @ 500V dc H (above PCB)= 7.9, W=2.5, D=10
Operating temperature -40°C to +85°C 674-357:
Contact material 0.5µ Gold Plated H (above PCB)= 2.5, W=7.9, D (overall)=10
PCB pin spacing = 2.54

213217

SPDT, Vertical SPDT, R/A	Mfrs. List No.	Order Code	Price Each			
			1+	10+	100+	500+
	09-03290-01	674-345	0.99	0.90	0.83	0.78
	09-10290-01	674-357	0.99	0.92	0.88	0.84

Subminiature PCB Mounting - STSS2 Series



0.3A @ 6V dc



Vertical Knob H (above PCB)=5.5, W=8.5 (3 pin), 13 (4 pin), D=3.3
Horizontal Knob H (above PCB)=3.5, W=8.5 (3 pin), 13 (4 pin), D=5.5 (inc. knob)
PCB pin spacing=2.5 x 3.3 (DIL types) PCB pin spacing=2.5x3.3 (DIL types)

- High reliability, low noise design
- Widely used on audio mixing desks
- Non-shorting change over contacts

Electrical life 5000 cycles Contact resistance 70mΩ

213265

Poles/No. of Positions	Mfrs. List No.	Order Code	Price Each		
			1+	50+	100+
Vertical Knob					
SP/2	STSSS2121	112-3869	0.74	0.58	0.54
DP/2	STSSS2221	112-3870	0.70	0.57	0.53
DP/3	STSSS2231	112-3871	1.03	0.82	0.77
Horizontal Knob					
SP/2	STSSS2122	112-3872	0.70	0.55	0.51
DP/2	STSSS2222	112-3873	0.85	0.69	0.64
DP/3	STSSS2232	112-3874	0.78	0.61	0.57

15

Re-reeling available



Slide Switches - continued

Subminiature, Sealed PCB Mounting
0.4VA @ 20Vac/dc



Vertical: H=9.14, W=10.03, D=6.02
Horizontal: H=6.38, W=10.03, D=9.37

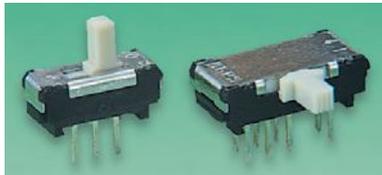
- Sealed construction, internal O-ring and epoxy base sealed, no boot seal required
- Process compatible, withstands wave and reflow soldering and cleaning processes
- Tin lead alloy coats all sides of terminals for solder joint integrity

Electrical life 40000 ops Operating temperature -30°C to +85°C
Contact resistance 50mohm

213167

Contact/Positions	Mfrs. List No.	Order Code	1+	25+	50+	100+	500+
Vertical Acuator							
SPST/2	ES02MCBE	120-1387	5.36	4.75	4.13	3.85	3.56
DPDT/3	ES21MCBE	120-1389	5.26	3.86	2.92	2.30	2.23
Horizontal Acuator							
DPDT/2	ES21MABE	120-1392	6.94	6.17	5.38	5.00	4.63
Horizontal - Acuator - Surface Mount							
SPST/2	ES02MSABE	120-1393	6.15	5.47	4.75	4.44	4.10
SPDT/2	ES01MSABE	120-1394	6.07	5.39	4.69	4.36	4.05

Subminiature PCB Mounting - STSS9 Series
0.1A @ 12V dc



Vertical Knob
H (above PCB)=10,
W=11.5, D=4.7
PCB pin spacing=2

Horizontal Knob
H (above PCB)=5,
W=11.5, D=9.7
PCB pin spacing=2

- High quality switch designed for audio applications
 - Non-shorting changeover contacts
- Electrical life 10000 ops
Contact resistance 30mohm

213266

Poles/No. of Positions	Mfrs. List No.	Order Code	1+	50+	100+
Vertical Knob					
SP/2	STSSS9121	112-3875	1.08	0.86	0.81
SP/3	STSSS9131	112-3876	0.71	0.57	0.53
DP/2	STSSS9221	112-3878	1.24	1.00	0.94
Horizontal Knob					
SP/2	SSSS916400	112-3880	0.78	0.61	0.57
SP/3	STSSS9132	112-3881	1.24	1.00	0.94
DP/2	SSSS925800	112-3882	1.24	1.00	0.94
DP/3	STSSS9233	112-3883	1.45	1.16	1.08

Ultra-Miniature Slide Switches



0.1A @ 30V dc



Body - H = 4.5, W = 10.2, D (SP) = 4mm (DP) = 6.54mm



Body - H = 5.0, W = 10.2, D (SP) = 4mm (DP) = 6.54mm



- Top and side actuation versions available
- Compact, low profile permits close stacking of PCB's
- Crisp and positive switching action
- Double molded thermoset base and thermoplastic housing prevent loosening of terminals during solder process
- Insert molded terminals lock out flux, solvents and other contaminants
- 2.54mm terminal pitch

Switch Specifications

Electrical capacity 0.1A @ 30V dc
Total actuator travel 2.0mm
Electrical life 10000 Cycles
Contact resistance 20mohm
Insulation resistance 100Mohm @ 500V dc
Dielectric strength 500V ac between contacts for 1 minute minimum
Operating temperature -15°C to 60°C

498453

15

RL Re-reeling available

Farnell

Switch Type	Mfrs. List No.	Order Code	1+	25+	100+	250+	500+
Top Actuated							
SPDT - On-None-On	SS12SDP2	152-4325	0.92	0.84	0.76	0.74	0.70
DPDT - On-None-On	SS22SDP2	152-4327	1.06	0.98	0.90	0.86	0.82
Side Actuated							
SPDT - On-None-On	SS12SDH2	152-4326	0.96	0.88	0.80	0.76	0.72
DPDT - On-None-On	SS22SDH2	152-4328	1.12	1.02	0.94	0.90	0.84

Subminiature PCB Mounting - TSS Series
0.4VA @ 20V dc



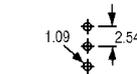
Vertical Horizontal

- Gold contacts for low level switching
- Vertical or horizontal actuators

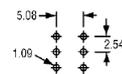
Contact resistance 20mohm
Insulation resistance 1000Mohm @ 500V dc
Electrical life 60000-80000 ops
Operating temperature -20°C to +80°C

Mfrs List No. TSS11DGPCFN04=119-7656,
TSS11DGRA04=112-3977,

PCB mounting plan



Vertical SPDT
H=9.65, W=5.23, D=10.2



Horizontal SPDT
H=5.23, W=10.20, D=9.65

213275

	Order Code	1+	25+	100+	250+	+
Vertical						
SPDT	119-7656	2.87	2.70	2.52	2.18	--
Horizontal						
SPDT	112-3977	3.23	3.04	2.84	2.45	--

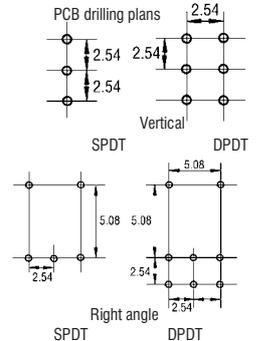
Subminiature Washable, PCB Mounting
50mA @ 48V ac/dc



Vertical H=8, W=9.5, D=5
H (incl. pins)=11.3
Overall H (including pins + slide)=14.6
Pins: H=3.3, Dia=0.6

Right angle Body H=5, W=9.5, D=8
H (incl. pins)=8.9
Pins: H=3.3, Dia=0.6

Contact current range 1µA to 50mA
Electrical life >50000 ops
Insulation resistance >500MΩ @ 250V dc
Contact resistance <50mΩ max @ 1.5V @ 200u Vac
Dielectric strength 500V @ 1 min
Operating temperature -20°C to +80°C
Terminal contacts Gold over nickel plate on phosphor bronze



Mfrs. List Nos: SE1DGPC04=112-3958 SE1DGRA04=112-3959
SE2DGPC04=112-3960 SE2DGRA04=112-3961

213274

Configuration	Order Code	1+	25+	100+	250+
SPDT - Vertical	112-3958	1.42	1.33	1.25	1.08
DPDT - Vertical	112-3960	1.52	1.43	1.33	1.15
SPDT - Right angle	112-3959	1.80	1.59	1.36	1.02
DPDT - Right angle	112-3961	1.91	1.80	1.68	1.45

Miniature, PCB Mounting

0.1A @ 12V dc



443-6313
H=8.4, W=8.2, D=8.6

443-6283
H=11.5, W=8.2, D=4.3

- Variety of actuators and terminations
- Silver plated contacts

Rating 0.1A @ 12V Insulation resistance 100Mohm @ 500V dc
Operating life 10000 operations Operating temperature -10°C to 70°C
Contact arrangement SPDT Dielectric strength 500V/1 min.
Resistance, contact 20mohm

Mfrs. List No. OS102011MS2QN1= 120-1430 OS102011MA1QN1= 120-1431

311828

Order Multiple=5		Price Each				
Orientation	Type	Order Code	5+	25+	100+	500+
Vertical	SPDT	120-1430	0.48	0.43	0.37	0.35
90 degree	SPDT	120-1431	0.43	0.39	0.33	0.31

Subminiature PCB Mounting
0.3A @ 115V ac/28V dc



- Unique design withstands aqueous or solvent cleaning processes
 - 2 or 4 pole types available
 - Bifurcated double wipe contacts provide dependable switching
 - Industry standard 0.1" x 0.3" pin spacing
- H=4.4, D=7.37, W=10.2(DP), 17.8 (4P)

Extended Top Actuator
Electrical life 10000 cycles

213279

Mftrs. List No.	Order Code	1+	25+	100+	250+	
Extended, Top Actuator						
DPDT	ASE2204	112-3950	1.70	1.58	1.52	1.36
4PDT	ASE4204	119-7659	1.89	1.77	1.69	1.52

GDH Series Slide Switch
8A @ 20V dc



- Unique design allows GDH series to withstand aqueous or solvent cleaning processes
- High temperature anti-static plastic construction

- GDH series -Flush actuator
- Bifurcated double wipe contacts provide dependable, telecom grade switching
- Industry standard .100 x.300 pin spacing

Contact Current	Electrical Life	Insulation Resistance	Contact Resistance	Dielectric Strength	Operating Temperature
25mA	1000 ops	300ohm	100mohm		-30 to 85°C

347652

Function	Mftrs. List No.	Order Code	1+	25+	100+	250+
Flush actuator						
DPDT on - on	GDH10S04	SMC112-3957	2.50	2.32	2.22	1.65

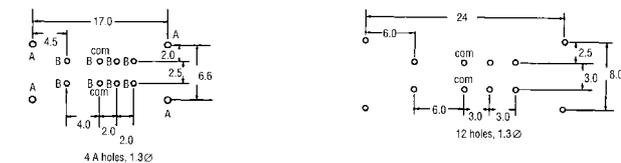
PCB Mounting
0.3A @ 125V ac/dc



Double pole 3 position slide switches available in vertical or right angle PCB mounting.

Contact resistance <20mohm
Mftrs. List Nos: SP112=117-9934
SN1010-DP3T=117-9935

117-9934 Body: L=25, W=8, Stand off H=19.5
117-9935 Body: L=18, W=6.6, Stand off H=14



213291

	Order Code	1+	25+	100+	250+	1K+
Vertical	117-9934	1.70	1.56	1.39	1.32	1.21
Right angle	117-9935	1.70	1.56	1.39	1.32	1.21

Miniature Slide
0.4 VA @ 20V ac or dc



- 3 Position switch. ON in LH, OPEN in centre, ON in RH place
- Gold plated copper alloy contacts
- White nylon case with black case and actuator
- Epoxy sealed terminations



SPDT (Body) - H = 7.7, W = 14, D = 7.8mm
DPDT (Body) - H = 7.7, W = 14, D = 12.8mm

Contact Rating - Max. 0.4VA @ 20V ac/dc
Contact Rating - Min. 10mA @ 20mV ac/dc
Mechanical life 20000 operations
Contact resistance <50mohm
Operating temperature -40°C to +80°C

501457

Switch Function	Mftrs. List No.	Order Code	1+	25+	50+	100+	500+
2.8mm Top Actuator							
SPDT	6MS1S2M1RE	155-0246	0.82	0.73	0.64	0.58	0.54
DPDT	6MD1S2M2RE	155-0247	1.10	0.98	0.85	0.77	0.72
6mm Top Actuator							
SPDT	6MS1S4M1RE	155-0248	0.97	0.85	0.74	0.68	0.63
DPDT	6MD1S4M2RE	155-0249	1.23	1.10	0.97	0.89	0.81
2.3mm Side Actuator							
SPDT	6MS1S3M1RE	155-0250	0.88	0.76	0.67	0.62	0.57
DPDT	6MD1S3M2RE	155-0252	1.14	1.02	0.90	0.81	0.75

Miniature, PCB Mounting

2A @ 250V ac (silver), 100mA 30V dc (gold)



Standard top button H=11, W=14, D=8 (DPDT=12.5)
Side button H=8, W=14, D=10 (DPDT=12.5)
High top button H=14, W=14, D=8

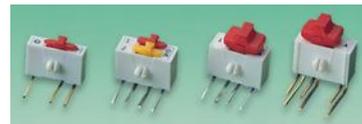
- Sealed terminals
- Pins on 5.08 x 2.54mm (0.1") grid
- Gold plated contact options allow low level switching
- Switch positions are marked 1 & 2
- Switch button protrudes by 2mm (standard), 6mm (high)

Minimum load	100mA @ 10V (silver)	Initial contact resistance	<10mohm (silver)
	10µA @ 5V - 10mA @ 50mV (gold)		<10mohm (gold)
Insulation resistance	1000Mohm @ 500V	Electrical life	10000 ops
		Operating temperature	-40°C to +85°C
Mftrs. List No.	25136NAH=108-2284	25146NAH=108-2288	25136NLDH=108-2286
	25336NA=108-2289	25546NA=108-2290	25136NLDH6=108-2287
	25136NAH6=108-2285		

213301

	Order Code	1+	25+	100+	250+	500+
Silver Contacts						
SPDT, standard top button	108-2284	1.75	1.65	1.58	1.52	1.44
SPDT, side button	108-2289	1.75	1.65	1.58	1.52	1.44
SPDT, high top button	108-2285	2.77	2.46	2.15	1.84	1.53
DPDT, standard top button	108-2288	3.25	3.04	2.79	2.77	2.62
DPDT, side button	108-2290	3.10	2.92	2.80	2.67	2.54
Gold Contacts						
SPDT, standard top button	108-2286	2.75	2.45	2.14	1.83	1.53
SPDT, high top button	108-2287	2.75	2.45	2.14	1.83	1.53

Low Profile, Edge Mounting - Series 015/017
5A @ 100V ac



120-3424 H=5.1, W=11.6
120-3426 H=5.1, W=11.6
120-3427 H=5.1, W=14.9

- Slide operation at right angle to pcb
- Provides through panel access
- Gold plated, 'U' piece contact
- Pins on 2.54mm pitch

Contact rating	5A @ 100V ac (non-switching) 1µA to 1A 1µV to 100V (switching)	Operating temperature	-55°C to +85°C
Initial contact resistance	10mohm typical (@ 10mA, 10mV)	Housing	Polyester PBT, UL recognised
Insulation resistance	10000Mohm (@ 500V dc min.)	Mechanical life	10000 ops

213270

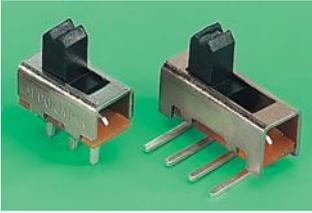
No. of Ways	Mftrs. List No.	Order Code	1+	25+	100+	250+
Single-in-line SPST						
1	SDS-1-017	120-3424	1.41	1.27	1.12	0.97
2	SDS-2-015	120-3425	1.29	1.14	1.02	0.90
Ganged style - DPST						
1	SDD-1-015	120-3426	2.52	2.22	1.98	1.70
Ganged style DPDT						
1	SCS-1G2-015	120-3427	3.54	3.10	2.71	2.53

Slide Switches - continued

Miniature PCB Mounting



0.25A @ 125Vac, 0.15A @ 12Vdc



Right Angle H=6, D=7.19 Vertical H=10, D=5.9

- Rolling contact
- PCB or panel Mounting
- Multi position
- SIL pin configuration 3.2 centres

Contacts Silver over nickel plate over copper alloy (BBM) Operating life 6000 ops
 Case material Tin plate over steel Operating temp. -10°C to +60°C
 Contact rating 250mA @ 125VAC, 150mA @ 12VDC Contact resistance 30mohm max
 Dielectric strength 500V ac

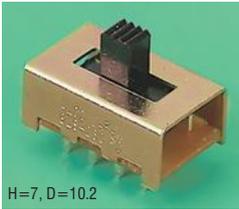
213307

	Length	Mfrs. List No.	Order Code	Price Each			
				1+	25+	100+	250+
PCB Mount							
SPDT, vertical	11	SLS121PC04	119-7660●	0.52	0.49	0.46	0.39
SPDT, right angle	11	SLS121RA04	112-3962●	0.63	0.59	0.55	0.48
SP3T, vertical	15.1	SLS131PC04	119-7661●	0.85	0.80	0.75	0.65

Miniature PCB Mounting



Break Before Make



Contacts Silver plate over Copper alloy(BBM)
 Case Material: Steel
 Contact rating 250mA@ 125VAC, 150mA@ 12VDC
 Contact Resistance: 30mR max
 Dielectric Strength: 500VAC
 Operating Life: 10000 ops
 Operating Temperature: -10°C to +60°C

213309

No of Ways	Length	Mfrs. List No.	Order Code	Price Each			
				1+	25+	100+	250+
2	13.59	SLS220PC04	112-3963●	1.02	0.96	0.90	0.78
3	16.79	SLS230PC04	143-6250●	1.06	1.00	0.93	0.81
4	19.99	SLS240PC04	143-6251●	1.24	1.16	1.09	0.94
5	23.19	SLS250PC04	112-3964●	1.52	1.43	1.33	1.15
6	26.39	SLS260PC04	143-6252●	1.54	1.45	1.36	1.17

Miniature 0.5A 50V dc



Miniature DPDT slide switch with solder tag connections. Ideal for prototyping, not recommended for industrial applications.

Contact Resistance <30mR
 Insulation Resistance 500mR @ 500V DC
 Mechanical Life 10000ops
 Proof Voltage ac 500V for 1 min

L=15.0 W=7.2, Fixing centres=19.0 Depth behind panel=11.5

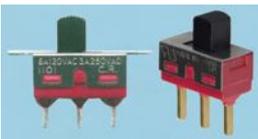
213369

10 Per Pack Order Code	1+	10+	Price Per Pack		
			50+	250+	1K+
599-293●	1.50	1.34	1.11	1.00	0.90

Miniature - PCB and Panel Mount



3A @ 250V ac, 6A @ 28V dc



- Epoxy terminal seal, compatible with bottom-wash cleaning
- PCB mounting and Panel mount tab versions available
- PCB terminal and solder lug versions
- Silver-plated contacts for power switching
- CSA Approved, UL Recognised

Rating 6A @ 120V ac / 28V dc Insulation resistance 1000Mohm
 3A @ 250V ac Dielectric strength 1000V_{RMS}
 Operating life 40000 operations Operating temperature -30°C to 65°C
 Resistance, contact 10mohm

483267

Type	Mfrs. List No.	Order Code	Price Each		
			1+	25+	100+
PCB Terminals - Vertical Mount					
SPDT - On-On	1101M2S3CQE2	143-7697●	2.84	2.70	2.21
SPDT - On-Off-On	1103M2S3CQE2	143-7698●	2.80	2.59	2.44
DPDT - On-On	1201M2S3CQE2	143-7699●	4.13	3.94	3.75
DPDT - On-Off-On	1203M2S3CQE2	143-7700●	5.11	4.72	4.47

Type	Mfrs. List No.	Order Code	Price Each		
			1+	25+	100+
PCB Terminals - Right Angle Horizontal Actuation					
SPDT - On-On	1101M2S3AQE2	143-7701●	2.64	2.45	2.31
SPDT - On-Off-On	1103M2S3AQE2	143-7702●	3.05	2.83	2.67
DPDT - On-On	1201M2S3AQE2	143-7703●	5.02	4.64	4.38
DPDT - On-Off-On	1203M2S3AQE2	143-7704●	5.62	5.20	4.93
PCB Terminals - Right Angle Vertical Actuation					
SPDT - On-On	1101M2S3AV2QE2	143-7705●	2.64	2.45	2.31
DPDT - On-On	1201M2S3AV2QE2	143-7706●	5.02	4.64	4.38
Panel Mount - PCB Terminals - Vertical Mount					
SPDT - On-On	1101M1S3CQE2	143-7710●	2.40	2.21	2.09
SPDT - On-Off-On	1103M1S3CQE2	143-7711●	2.80	2.59	2.46
DPDT - On-On	1201M1S3CQE2	143-7712●	4.51	4.17	3.95
DPDT - On-Off-On	1203M1S3CQE2	143-7713●	5.11	4.72	4.47
Panel Mount - Solder Lug Terminals - Vertical Mount					
SPDT - On-On	1101M1S3ZQE2	143-7714●	2.84	2.70	2.20
DPDT - On-On	1201M1S3ZQE2	143-7716●	5.00	4.74	4.20

Slide Switches

16A @ 125V ac, 10A @ 250V ac



- Black bodied switches positive action
- Black nylon (UL 94V-2) frames and actuators
- Brass terminals with silver plating
- Snap-in mounting
- 0.187" (4.75mm) square terminals
- UL Recognised



H = 20.6, W = 37.2, D = 22.4mm

Ratings - 1/3HP 16A @ 125V ac Insulation Resistance 100Mohm @ 500V dc
 Ratings - 1/2HP 10A @ 250V ac Dielectric Strength 1500V ac
 Contact Resistance 50mohm Flamability UL 94V-2

520484

Switch Function	Mfrs. Marking	List No.	Order Code	Price Each			
				1+	25+	50+	100+
SPST							
On-Off	On Off	R13-608A1-02-BB-9A	163-4609●	1.85	1.76	1.67	1.46
SPDT							
On-Off	On Off	R13-608C1-02-BB-9A	163-4617●	1.92	1.83	1.74	1.53
On-Off	I II	R13-608C1-02-BB-5A	163-4619●	1.92	1.83	1.74	1.53
On-Off-On	I II	R13-608D1-02-BB-5A	163-4620●	2.00	1.91	1.81	1.58

Voltage Selectors

Slide Switch, Snap-In Panel Mounting



5A @ 250V ac



- Two position mains slide switch with 120V or 240V markings
- Black nylon housing UL recognised
- Actuator lies flush with main body of switch to prevent inadvertent operation
- Approved to VDE, SEV and CSA

Operating Temperature -40°C to +85°C

Body: L=33, W=19, Depth behind panel=16
 Panel cut-out=31.5 x 17.5, Tabs=2.8 x 0.8

Mfrs. List No. SE1022

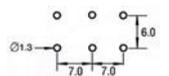
213110

Order Code	Price Each				
	1+	25+	50+	100+	500+
106-213●	1.54	1.43	1.40	1.24	1.11

Slide Switch, PCB and Panel Mounting



6(1)A @ 250V ac



Panel mount Body: L=23, W=14, D=12, Panel cut-out=13.3 x 6.25, Fixing holes=3.3 dia x 34.0
 Snap-in Body: L=27.35, W=14, D=14.8 Panel cut-out=29.75 to 30.65 x 14.2 to 14.3
 PCB mount Body L=23, W=14, D=12

- Two position mains slide switches with 115V and 230V markings
- Low profile actuator
- Approved to VDE, SEV, DEMKO, NEMKO, SEMKO, KEMA, SETI, OVE, UTE, SAA and CSA, UL recognised

Mfrs. List No. T22205B=147-911, T22208E=242-536, X22205C=152-274

SW32/213263

	Order Code	Price Each				
		1+	25+	100+	250+	500+
Panel Mount	147-911●	1.06	1.01	0.92	0.86	0.82
Snap-in	242-536●	1.07	1.01	0.93	0.86	0.83
PCB Mount	152-274●	1.29	1.25	1.17	0.96	0.81

Rotary Switch, Panel Mounting

6.3A @ 250V ac



Body: L=14.3, Panel cut-out=12.75 dia, Bezel: Round=15.9 dia, Square=15.9 x 15.9, Keyway=2.54 x 1.25, Tabs L=7.9, W=2.8

- Two position mains rotary switch with 120 and 240 voltage markings
- Approved to **VDE, CSA** and **SEMKO**

Mfrs. List No. VS0002=149-288, VS0001=150-362

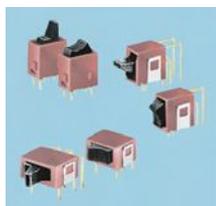
SW126/222296

	Order Code	Price Each			
		1+	100+	250+	500+
Round	149-288	2.21	1.64	1.42	1.20
Square	150-362	1.81	1.34	1.12	0.89

Rocker Switches

Ultraminiature Rocker and Lever

0.4 VA @ 20V ac or dc



- Rocker and Lever actuator styles available
- Black actuators
- Gold plated copper alloy contacts
- Glass filled nylon body, UL 94V-0 Rated



Body Dimensions (mm) - Rocker and Lever		H	W	D
SPDT - Vertical Vertical		7	4.5	7
DPDT - Vertical Vertical		7	4.5	7
SPDT - Solder		5.15	7	7.69
DPDT - Solder		5.15	7	7.69
SPDT - Vertical Right Angle		7.65	4.5	7.68
DPDT - Vertical Right Angle		7.65	4.5	7.68

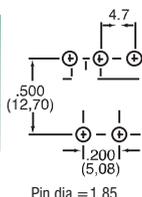
Contact Rating	0.4VAMax. @ 20V ac/dc	Rocker length	2.3mm
Mechanical life	50000 operations	Lever length	3.8mm
Contact resistance	<100mohm	Operating temperature	-30°C to +85°C

50146

Switch Function	Mfrs. List No.	Order Code	1+	50+	100+	500+
Rocker - Vertical Mount, Vertical Body						
SPDT - On-On	4US1R102M2RN	155-0218	1.14	1.02	0.90	0.81
DPDT - On-On	4UD1R102M2RN	155-0220	1.32	1.18	1.03	0.95
Rocker - Horizontal Mount, Right Angle Body						
SPDT - On-On	4US1R102M6RN	155-0222	1.23	1.10	0.97	0.89
DPDT - On-On	4UD1R102M6RN	155-0224	1.43	1.26	1.10	1.01
Rocker - Vertical Mount, Right Angle Body						
SPDT - On-On	4US1R102M7RN	155-0227	1.23	1.10	0.97	0.89
DPDT - On-On	4UD1R102M7RN	155-0229	1.43	1.26	1.10	1.01
Lever - Vertical Mount, Vertical Body						
SPDT - On-On	4US1R202M2RN	155-0231	1.14	1.02	0.90	0.81
DPDT - On-On	4UD1R202M2RN	155-0233	1.43	1.26	1.10	1.01
Lever - Horizontal Mount, Right Angle Body						
SPDT - On-On	4US1R202M6RN	155-0235	1.23	1.10	0.97	0.89
DPDT - On-On	4UD1R202M6RN	155-0237	1.43	1.26	1.10	1.01
Lever - Vertical Mount, Right Angle Body						
SPDT - On-On	4US1R202M7RN	155-0241	1.23	1.10	0.97	0.89
DPDT - On-On	4UD1R202M7RN	155-0243	1.43	1.26	1.10	1.01

Miniature, Sealed PCB

SPDT 0.4VA max. @ 20V ac/dc



- Gold plated contacts for low level switching
- Mounting bracket solders directly to PCB
- Process sealed to withstand machine soldering and pressure wash cleaning
- Anti-static rocker

Body H=6.6, W=12.7, D=12.7

Pin dia.=1.85

Contact Resistance	<10mRtyp.	Operating Temperature	-30°C to +85°C
Insulation Resistance	<1000MR	Static Resistance	11KV rms

SW228/213194

Mfrs. List No.	Order Code	1+	50+	100+	500+
E101J1ABE2	957-5421	4.95	3.87	2.93	2.19

Ultra Thin Rocker Switches

0.4VA @ 28V AC/DC (Maximum)



- Thin size allows high density PCB mounting
- Detent mechanism design of coil spring, plunger and plastic detent results in crisp and positive actuation
- Molded in epoxy sealed terminals lock out flux and other contaminants
- 2.54mm x 2.54mm terminal spacing conforms to standard PCB layout grid spacing



Switch Specifications

Electrical capacity (Resistive load)	0.4 VA @ 28V ac/dc (Max.)
Electrical life	50000 Cycles
Contact resistance	80mohm
Insulation resistance	500Mohm
Dielectric strength	500V ac for 1 minute minimum
Operating temperature	-30°C to 85°C

498362

Switch Type	Mfrs. List No.	Order Code	1+	25+	50+	100+	500+
Straight Mounting - Paddle							
SPDT - On-None-On	GW12LHP	152-4268	1.90	1.74	1.60	1.52	1.44
DPDT - On-None-On	GW22LHP	152-4269	2.24	2.06	1.88	1.80	1.70
Right Angle - Paddle							
SPDT - On-None-On	GW12LHH	152-4270	2.22	2.04	1.88	1.78	1.70
DPDT - On-None-On	GW22LHH	152-4271	2.78	2.56	2.34	2.22	2.12
Straight Mounting - Rocker							
SPDT - On-None-On	GW12RHP	152-4272	1.90	1.74	1.60	1.52	1.44
DPDT - On-None-On	GW22RHP	152-4273	2.24	2.06	1.88	1.80	1.70
Right Angle - Rocker							
SPDT - On-None-On	GW12RHH	152-4274	2.22	2.04	1.88	1.78	1.70
DPDT - On-None-On	GW22RHH	152-4275	2.78	2.56	2.34	2.22	2.12

Miniature

4A @ 250V ac 10(6) @ 250V ac



Bezel=21 x 15
Depth= x 22.7
Tabs=4.8 x 0.8
Cut out: 1mm panel (Min) 19.3 x 13
3mm panel (max) 19.5 x 13

- Compact range of rocker switches
- Fit standard panel cut-out
- UL Recognised

Mechanical Life	>100000 ops	Insulation Resistance	>50MR
Operating Temperature	0°C to +85°C	Contact Resistance	20mR
Dielectric Strength	3.5KV ac	Inrush Current	100A

213292

Rating	Mfrs.	Order Code	1+	50+	100+	250+
Non-Illuminated List No.						
4A @ 250V ac						
SPST	MC36328-001-01	956-2257	0.52	0.44	0.42	0.38
SPDT	MC36328-011-01	956-2265	0.48	0.40	0.38	0.36
DPST	MC3813-011-01	956-2273	0.45	0.42	0.40	0.32
DPST - I/O	MC3813-011-021	956-2281	0.92	0.84	0.81	0.65
Illuminated						
DPST Red	MC3811-091-02 Red	956-2320	1.31	1.15	1.09	1.06
DPST Green	MC3811-091-05 Green	956-2338	1.50	1.30	1.22	1.09

Miniature - CWSC Series

9A @ 125V ac or 6A @ 250V ac



- Full face LED illumination
- Interior shield prevents contamination of rocker
- Front panel snap-in mounting
- Snap action gives smooth action and audible feedback
- Solder lug/Quick connect terminals
- LED supply accessed by two separate terminals

Bezel = 21.1 x 15.1mm, Panel cut-out = 19.2 x 12.9mm

Electrical Life	10000 ops	Insulation Resistance	>500Mohm @ 500V dc
Mechanical Life	30000 ops	Contact Resistance	<20mR
Operating Temperature	-10°C to +50°C	Operating Force (Nom.)	SPST - 4.5N, DPST - 10N

LED	Red	Green
Forward Peak Current	30 mA	30 mA
Continuous Forward Current	20 mA	20 mA
Reverse Peak Voltage	5 V	5 V
Forward Voltage	1.95 V	2.0 V



Rocker Switches - continued

Miniature - CWSC Series - continued

9A @ 125V ac or 6A @ 250V ac - continued

444680

Illumination Colour	Mfrs. List No.	Order Code	1+	50+	100+	250+	500+
SPST							
Green	CWSC11JFAFS	123-0622●	1.90	1.80	1.75	1.70	1.61
Red	CWSC11JCACS	123-0623●	1.90	1.80	1.75	1.70	1.61
DPST							
Green	CWSC21JFAFS	123-0625●	3.20	3.13	3.03	2.93	2.84
Red	CWSC21JCACS	123-0626●	3.20	3.13	3.03	2.93	2.84

Miniature - 8600 Series

6(1)A @ 250V ac (SPST Momentary, SPDT, DPST Illuminated, DPST)
10(4)A @ 250V ac (SPST, DPST)



Single pole Double pole

Single pole Bezel=21 x 15, Depth=19, Panel cut-out=19.3 x 13, Tab=4.8 x 0.8
Double pole Bezel=24 x 21, Depth=19, Panel cut-out=19.3 x 21.9, Tab=4.8 x 0.8

- Approved to **BEAB, VDE, SEV, DEMKO, SEMKO, NEMKO, SEMKO, KEMA, SETI, UTE, OVE** and **CSA. UL** recognised
- Momentary type has push-to-make spring return action
- Illuminated type available with coloured illuminated rocker

Electrical Life	10000 ops	Insulation Resistance	>20MR
Mechanical Life	50000 ops	Contact Resistance	<10mR
Operating Temperature	0°C to +90°C		

Mfrs. List No.	H8600VBAAA=151-133	H8620VBAAA=733-878	H8653VBNA=152-266
	H8601VBAAA=480-393	H8650VBAA=151-135	H8653VBNA=149-286
	H8610VBAAA=151-134	H8660VBAAA=151-136	H8670VBAAA=767-4058

222306

Non Illuminated	Order Code	1+	25+	100+	250+	500+
SPST	151-133●	0.57	0.54	0.52	0.47	0.39
SPST Momentary	480-393●	1.11	1.08	1.03	0.81	0.63
SPDT	151-134●	0.70	0.66	0.62	0.58	0.54
SPDT On-Off-On	733-878●	1.01	0.94	0.90	0.86	0.81
DPST	151-135●	1.08	1.06	1.04	0.94	0.82
DPDT	151-136●	1.21	1.19	1.16	0.97	0.80
DPDT On-Off-On	767-4058●	1.45	1.35	1.29	1.18	1.09
Illuminated						
DPST, Red	152-266●	1.89	1.84	1.79	1.47	1.21
DPST, Green	149-286●	2.12	2.07	1.99	1.67	1.35

Miniature - 'Mini Visirocker™'

6(4)A @ 250V ac



- Matt black switches with coloured section (red or green) on rocker that becomes visible in 'ON' position
- I/O markings on rocker for status indication
- Approved to **VDE, SEV, SEMKO, BEAB, DEMKO, NEMKO, SETI** and **CSA. UL** recognised

Mfrs. List No. 6211691909V=120-3337 6211591909V=120-3339
6211691909G=120-3338 6211591909G=120-3340

Bezel=21.0 x 15.0, Depth=27, Panel cut-out=19.2 x 12.9, Tab=4.7

213170

	Order Code	1+	25+	100+	250+	500+
SPST, Red	120-3337●	0.77	0.71	0.68	0.65	0.62
SPST, Green	120-3338●	0.73	0.68	0.65	0.62	0.59
DPST, Red	120-3339●	0.94	0.88	0.84	0.80	0.75
DPST, Green	120-3340●	0.99	0.93	0.89	0.85	0.81

Miniature - 8800 Series

10(6)A @ 250V ac



- Slimline body
- High rating 10(6)A @ 250V ac
- Approved to **BEAB, VDE, SEMKO, DEMKO, NEMKO, SETI, KEMA, OVE, SEV, NF-USE, IMQ** and **CSA. UL** recognised
- Available with or without I/O status marking

Bezel=21 x 9.5, Depth=24,
Panel cut-out=19.3 x 6.8, Tab=4.8 x 0.8

Electrical Life	10000 ops	Contact Gap	> 3.0mm
Contact Resistance	<10mR	Insulation Resistance	1000MR
Breakdown Voltage	<2kV		

Mfrs. List No. H8800VA BLK = 678-120, H8800VA BLK = 678-132

213215

	Order Code	1+	100+	250+	500+	1K+
SPST	678-120●	0.83	0.70	0.56	0.47	0.44
SPST, I/O	678-132●	0.97	0.68	0.54	0.48	0.44

Miniature - 8500 Series

10(6)A @ 250V ac, 85A Inrush (EN61058-1)



Bezel=21 x 15, Body=16.9 x 12.1, Depth=23,
Panel cut-out=19.3 x 13, Tab=4.8 x 0.8

- DPST switches that fit into standard SPST panel cut-out
- Approved to **BEAB, VDE, SEV, DEMKO, SEMKO, NEMKO, KEMA, SETI, UTE, IMQ** and **CSA. UL** recognised
- Non-illuminated type available with or without I/O marking for status indication
- Illuminated type available with coloured illuminated rocker

Electrical Life	10000 ops	Insulation Resistance	>20MR
Mechanical Life	50000 ops	Contact Resistance	<10mR
Operating Temperature	0°C to +125°C		

Mfrs. List No.	H8550VBAAA=149-905	H8550VBACA=273-200	H8553VBNAF=149-863
	H8500XBAAA=389-997	H8550XBAAA=390-021	H8553VBNAE=149-864
	H8500XBAA=390-010	H8550XBAA=566-147	H8553VBNAO=150-388

213097

Non-Illuminated	Rocker/Marking	Order Code	1+	25+	100+	250+	500+
SPST	Black with I/O Red	389-997●	0.68	0.62	0.55	0.51	0.47
SPST	Black with I/O Green	390-010●	0.75	0.70	0.61	0.56	0.52
DPST	Black	149-905●	1.10	1.06	1.01	0.81	0.62
DPST	Black with I/O White	273-200●	0.93	0.87	0.83	0.79	0.73
DPST	Black/Red with I/O	390-021●	0.93	0.88	0.77	0.70	0.63
DPST	Black/Green with I/O	566-147●	0.93	0.88	0.77	0.70	0.63
Illuminated							
DPST	Red	149-863●	1.59	1.51	1.47	1.42	1.34
DPST	Green	149-864●	1.76	1.69	1.60	1.44	1.40
DPST	Amber	150-388●	1.80	1.71	1.62	1.26	1.01

Splash Proof Covers



Single pole cut-out 19.3 x 13
Double pole cut-out 19.3 x 21.9

- PVC
- Cover simply clips over the switch mounted on the panel
- Seals to **IP64** and **DIN40050**, switch operation is unaffected
- Single pole size is suitable for Arcoelectric sub-miniature rocker switches 8600 series (single pole size) and 8500 series
- Double pole size is suitable for Arcoelectric sub-miniature rocker switches 8600 series (double pole size)

Mfrs. List No. L167=149-287, F0180L=151-575

213090

Order Multiple=10	Order Code	10+	100+	250+	500+
Mfrs. List No.					
F0167LOAAA	149-287●	0.340	0.320	0.270	0.187
F0180LOAAA	151-575●	0.320	0.280	0.270	0.260

Standard - 40 Series Single pole,

50 Series Double pole



10(4)A @ 250V ac



- Standard Range of Rocker Switches available in single and double pole
- **CSA** approved, **UL** recognised
- Single pole has **VDE** approved

Single pole bezel=30 x 13.9 Depth=29.6 Tabs=6.3
Cut-out: 1mm panel (min.) 27.3 x 12.2
3mm panel (max) 27.5 x 12.2
Double pole bezel=21 x 15 Depth=22.7 Tabs=6.3
Cut-out: 1mm panel (min) 27.2 x 22.1 3mm panel (max) 27.2 x 22.3

Mechanical Life	>100000 ops	Insulation Resistance	>50MR
Operating Temperature	0°C to +85°C	Contact Resistance	20mR
Dielectric Strength	3.5KV ac		

213293

Switch Function	Mfrs. List No.	Order Code	1+	50+	100+	250+
SPST	MC33428-001-11	956-2290●	0.91	0.68	0.61	0.47
SPDT Centre Off	MC33412-041-11	956-2346●	1.11	0.78	0.70	0.55
DPST	MC33523-001-91	956-2303●	1.06	0.71	0.64	0.58
DPDT	MC33523-011-91	956-2311●	1.53	1.08	0.98	0.78
DPDT Centre Off	MC3350-041-91	956-2354●	1.54	1.21	1.03	0.78

Latching Action - RSS and RSM Series

10A @ 250V ac



- Compact range of rocker switches
- Sealed to IP40, IP65 with transparent cover
- Fit standard panel cut-out
- VDE Approved, UL Recognised
- Snap in mounting

Switching Capacity (UL 1054)	10A @ 125-250V ac
Switching Capacity (EN 61058-1)	10(4)A250V ac 6(4)250V ac 5E4
Mechanical Life	>50000 ops
Operating Temperature (max.)	(UL 1054) 65°C
Contact opening	>3mm
Dimensions H x W x D (body)	Terminal Type
116-2728 11.7 x 15 x 21mm	13 x 19 x 3mm 1.7mm x 0.8mm - Solder Terminals
116-2729 11.7 x 15 x 21mm	13 x 19 x 3mm 4.8mm x 0.8mm - Quick-connect Terminals
116-2730 11.7 x 15 x 21mm	13 x 19 x 3mm 1.7mm x 0.8mm - Solder Terminals
116-2734 14 x 15 x 21mm	13 x 19 x 3mm 4.8mm x 0.8mm - Quick-connect Terminals
116-2735 11.7 x 24 x 21mm	19 x 22 x 4mm 4.8mm x 0.8mm - Quick-connect Terminals

429907

Colour	Mfrs. List No.	Order Code	1+	10+	50+	100+
Non-illuminated, Single Pole - RSS						
Black	1301.9205	116-2728	0.450	0.420	0.400	0.380
Black	1301.9206	116-2729	0.450	0.420	0.400	0.380
Red	1301.9207	116-2730	0.450	0.420	0.400	0.380
Illuminated, Double Pole - RSS						
Red	1301.9211	116-2734	1.580	1.370	1.290	1.140
Illuminated, Double Pole - RSM						
Green	1301.9212	116-2735	0.940	0.850	0.760	0.710
IP 65 Transparent Covers						
For RSS Models	1301.9209	116-2732	0.156	0.146	0.136	0.114
For RSM Models	1301.9210	116-2733	0.156	0.146	0.136	0.114

Standard Rocker Switches

6A @ 125/250V ac



- Protective barrier version prevents accidental actuation
- Rocker cap and housing in black
- Easy, crisp actuation
- Molded in terminals to lock out flux, dust and other contaminants
- Outer case of heat resistant resin meets UL94V-0 flammability standard
- Approved by CSA and VDE, UL Recognised



Switch Specifications

Electrical capacity	6A @ 125 / 250V ac
Electrical life	10000 Cycles
Contact resistance	10mohm
Insulation resistance	500Mohm
Dielectric strength	2000 between contacts for 1 minute minimum
Operating temperature	-25°C to 70°C

498367

Switch Type	Mfrs. List No.	Order Code	1+	25+	50+	100+	500+
Without Barrier							
SPST - On-None-Off	JWS11RAA	152-4277	2.44	2.26	2.06	1.96	1.86
DPST - On-None-Off	JWS21RAA	152-4278	3.72	3.42	3.12	2.98	2.82
Protective Barrier							
SPST - On-None-Off	JWS11BAA	152-4279	2.86	2.62	2.40	2.28	2.16
DPST - On-None-Off	JWS21BAA	152-4280	4.12	3.80	3.46	3.30	3.14

TV Rated Rocker Switches

10A @ 125/250V ac - TV-5 Models
16A @ 125/250V ac, 5A @ 72V dc - TV-8 Models



- Molded rocker with TV rating, designed to handle large inrush currents
- Rocker cap and housing in black
- Specially designed to break light contact welds
- Molded in and epoxy sealed terminals to lock out flux, dust and other contaminants
- Housing and case of heat resistant resin meet UL94V-0 flammability standard
- Approved by CSA and VDE, UL Recognised



Switch Specifications

Electrical capacity - TV-5	10A @ 125 / 250V ac
Electrical capacity - TV-8	16A @ 125 / 250V ac; 5A @ 72V dc
Electrical life	25000 Cycles
Contact resistance	10mohm
Insulation resistance	1000Mohm
Dielectric strength	2000 between contacts for 1 minute minimum
Operating temperature	-25°C to 70°C

Switch Type	Mfrs. List No.	Order Code	1+	25+	100+	250+	500+
TV-5 Rated							
SPST - On-None-Off	JWM11RAA	152-4281	3.40	3.14	2.86	2.72	2.58
DPST - On-None-Off	JWM21RAA	152-4282	4.54	4.18	3.82	3.64	3.46
TV-8 Rated							
SPST - On-None-Off	JWL11RAA	152-4283	4.90	4.50	4.12	3.92	3.72
DPST - On-None-Off	JWL21RAA	152-4284	6.86	6.32	5.76	5.48	5.22

Standard - 'Softline' Series



10(3)A 250V ac, 16A 6 to 24V dc (Standard Versions)
16(4)A 250V ac, 150A Inrush (High Inrush Versions)



Single pole Bezel=14 x 30.2, Depth=16.2, Panel cut-out=11.5 x 28.2, Tab=6.35 x 0.8
Double pole Bezel=25 x 30.2, Depth=16.2, Panel cut-out=22.3 x 28.2, Tab=6.35 x 0.8

- Ergonomic design and appearance
- Illuminated types available with either coloured illuminated rocker or coloured neon spot illumination on rocker (Illumination requires 230Vac)
- All double pole on/off types feature contact gap greater than 3mm suitable for mains isolation to CEE24 class 2
- High inrush types are rated 150A Inrush to IEC65
- Approved to BSI, BEAB, VDE, SEV, SEMKO, NEMKO, DEMKO, KEMA, SETI, UTE, OVE and CSA. UL recognised

Electrical Life	10000 ops	Insulation Resistance	<20MR
Mechanical Life	50000 ops	Contact Resistance	<100mR
Operating Temperature	0°C to +125°C (standard) 0°C to +85°C (high inrush)		

Mfrs. List No.	C1500ATAAA=150-549	C5403ATNAA=151-574	C1350ATAAB=242-822
	C1501ATAAA=480-381	C5503PTNAM=150-552	C1353ATNAN=242-834
	C1510ATAAA=150-550	C5503PTNAM=150-552	C1353ATQ/1GRN=521-892
	C1520ATAAA=150-551	C1553ATNAE=151-573	C1522ATAAA=767-4180
	C1550ATAAD=150-554	C5503ATGN=311-6888	C1572ATAAA=767-4201
	C1560ATAAB=150-555	C1553PTNAB=150-557	C1561ATAAA=767-4210
	C1570ATAAAJ=150-556	C1553PTNAO=150-558	

213115

Non-Illuminated	Order Code	1+	25+	100+	250+	500+
SPST	150-549	0.78	0.76	0.72	0.55	0.43
SPST Mom-Off	480-381	1.25	1.21	1.14	0.88	0.71
SPDT	150-550	0.97	0.92	0.88	0.69	0.53
SPDT Centre Off	150-551	0.99	0.94	0.90	0.71	0.55
SPDT Mom-Of-Mom	767-4180	1.56	1.32	1.14	1.03	0.94
DPST	150-554	1.15	1.05	0.93	0.77	0.61
DPDT	150-555	2.17	2.05	1.95	1.52	1.22
DPDT On-Mom	767-4210	2.83	2.38	2.07	1.85	1.70
DPDT Centre Off	150-556	2.17	2.05	1.95	1.52	1.22
DPDT Mom-Of-Mom	767-4201	2.62	2.19	1.89	1.70	1.58
Illuminated						
SPST, red	151-574	1.46	1.41	1.32	1.04	0.84
SPST, green	311-6888	1.45	1.37	1.33	1.13	0.89
SPST, spot red	150-552	1.68	1.63	1.53	1.20	0.94
SPST, spot green	150-553	1.73	1.68	1.58	1.22	0.98
DPST, red	151-573	2.29	2.18	2.05	1.60	1.27
DPST, spot red	150-557	2.50	2.39	2.27	1.76	1.41
DPST, spot green	150-558	2.76	2.64	2.50	1.94	1.54
High Inrush, with I/O marking						
DPST, non-illuminated	242-822	1.63	1.49	1.32	1.04	0.84
DPST, red illuminated	242-834	2.50	2.39	2.27	1.76	1.41
DPST, green illumination	521-942	3.00	2.75	2.51	1.95	1.54

Coming soon



Register your interest for items that are 'Coming Soon' at www.farnell.co.uk and we'll email you to let you know that they're in stock.

15

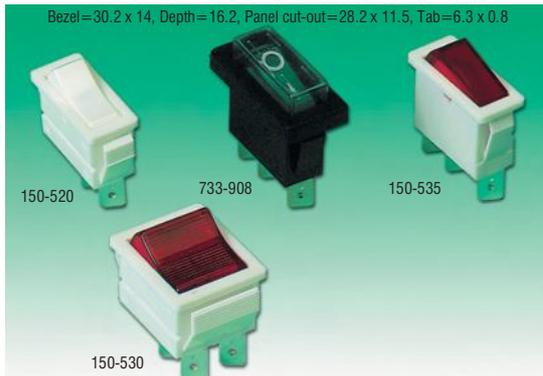
Re-reeling available



Rocker Switches - continued

Standard - 1500 Series

16(4)A @ 250V ac



Bezel=30.2 x 14, Depth=16.2, Panel cut-out=28.2 x 11.5, Tab=6.3 x 0.8

DPDT versions: Bezel=30.2 x 25, Depth=25.3, Panel cut-out=28.3 x 22.4, Tab=6.3 x 0.8

Approved to **BS3955, VDE, SEV, DEMKO, NEMKO, OVE** and **CSA**. **UL** recognised

Electrical Life	10000 ops	Insulation Resistance	>20MR
Mechanical Life	50000 ops	Contact Resistance	<10MR
Operating Temperature	0°C to +85°C		

Mfrs. List No.

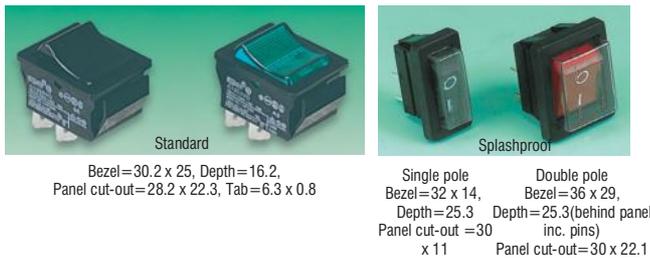
C1500VQASG=150-519	C1560VQAAH=150-534	C1553VQNAF=150-532
C1500VQAAJ=150-520	C1553VQNAI=150-529	C5503FQNAE=150-535
C1510VQASB=150-525	C1553VQNAM=150-530	C5503ALNEA=733-891
C1510VQAAH=150-526	C1553VQNAL=150-531	C5503ALNEB=733-908
C1560VQAAA=150-533		

213241

	Body Colour	Order Code	Price Each					
			1+	50+	100+	250+	500+	1K+
Non-Illuminated (Curved Rocker)								
SPST	Black	150-519	0.86	0.82	0.80	0.75	0.71	0.49
SPST	White	150-520	0.86	0.82	0.80	0.75	0.71	0.49
SPDT	Black	150-525	1.15	1.07	1.03	0.83	0.72	0.53
SPDT	White	150-526	0.71	0.66	0.64	0.61	0.57	0.40
DPDT	Black	150-533	2.41	2.31	2.18	1.69	1.42	1.18
DPDT	White	150-534	1.50	1.40	1.28	1.15	0.99	0.94
Illuminated (Curved Rocker)								
DPST, red	Black	150-529	2.47	2.35	2.23	1.72	1.40	1.07
DPST, red	White	150-530	2.24	2.07	1.98	1.87	1.71	1.28
DPST, green	Black	150-531	2.72	2.61	2.44	1.91	1.53	1.19
DPST, green	White	150-532	2.19	2.02	1.95	1.83	1.68	1.42
Illuminated, High Brightness (Flat Rocker)								
SPST, red	White	150-535	1.54	1.49	1.38	1.09	0.89	0.70
Splashproof								
SPST, red illumination		733-891	2.33	2.26	2.12	1.69	1.33	--
SPST, green illumination		733-908	2.61	2.45	2.35	1.87	1.49	--

Standard - 1350 Series, High Inrush Positive Break

16(4)A @ 250V ac, 150A Inrush



Standard
Bezel=30.2 x 25, Depth=16.2, Panel cut-out=28.2 x 22.3, Tab=6.3 x 0.8

Splashproof
Single pole Bezel=32 x 14, Depth=25.3, Panel cut-out=30 x 11
Double pole Bezel=36 x 29, Depth=25.3(behind panel inc. pins), Panel cut-out=30 x 22.1

- 150A Inrush rated to **IEC65**
- Non-illuminated types with black gloss rocker
- Illuminated types with coloured illuminated rocker
- White I/O markings on rocker for status indication
- Splashproof types have clear flexible cover giving switch sealing to **IP65**, and fit 'European' cut-out
- Suitable for class II appliances
- Approved to **VDE, BEAB, SEV, DEMKO, NEMKO, SEMKO, KEMA, SETI, OVE** and **CSA**. **UL** recognised

Initial inrush current	150A to IEC65	Insulation Resistance	>20MR
Electrical Life	10000 ops	Contact Resistance	<10mR
Mechanical Life	50000 ops	Operating Temperature	0°C to +85°C

Mfrs. List No.

C1350VQAAAB=149-901	C1353VQNAAC=149-904	C1350ALGAE=480-356
C1350VQO/1BLK=521-954	C1353VQO/1RED=521-966	C1353ALGNF=480-368
C1353VQNAA=149-902	C1353VQO/1GRN=521-978	C1353ALGNE=480-370
C1353VQNAB=149-903	C1300ALGAA=733-880	

213096

	Order Code	Price Each				
		1+	50+	100+	250+	500+
Non-Illuminated						
DPST	149-901	1.15	1.07	1.01	0.95	0.90
DPST, I/O marking	521-954	1.63	1.49	1.32	1.04	0.84
Illuminated						
DPST, red	149-902	2.50	2.39	2.27	1.76	1.41
DPST, amber	149-903	2.50	2.39	2.27	1.76	1.41
DPST, green	149-904	2.83	2.68	2.50	1.95	1.54
DPST, I/O marking, red	521-966	2.50	2.39	2.27	1.76	1.41
DPST, I/O marking, green	521-978	3.36	3.28	3.22	3.11	3.06
Splashproof						
SPST, non-illuminated	733-880	1.66	1.52	1.37	1.14	0.93
DPST, non-illuminated	480-356	1.99	1.96	1.85	1.64	1.41
DPST, red illumination	480-368	3.39	3.25	3.15	3.00	2.80
DPST, green illumination	480-370	3.70	3.56	3.45	3.23	3.07

Splashproof - 6000 Series

16(4)A @ 250V ac - ENEC, 20A @ 277V ac - UL/CSA



- Approved to **ENEC** and **CSA**, **UL** recognised
- Double pole switches printed with I/O marking
- Splashproof to IP44
- High in-rush capability: 150A to EN61058-1

Double Pole: Bezel = 31.25 x 25, Depth = 30, Panel Cutout = 30 x 22.1, Tab = 6.3 x 0.8

Insulation Resistance	>100MR	Operating Temp	0°C to +125°C
Contact Resistance	20mR	Contact Gap	3.0mm
Electrical Life	10000 ops	Mechanical Life	50000 ops

Mfrs. List No.

C6000ALAAC=767-4120	C6053ALNAE=767-4163	C6053ALNAM=767-4171
C6050ALAAC=767-4155		

347638/405389

	Rocker	Order Code	Price Each				
			1+	25+	100+	250+	500+
Non-Illuminated							
SPST	Black	767-4120	0.72	0.59	0.50	0.46	0.43
DPST	Black	767-4155	0.68	0.65	0.61	0.52	0.48
Illuminated							
DPST	Red	767-4163	0.99	0.93	0.90	0.87	0.82
DPST	Green	767-4171	1.10	1.03	1.00	0.96	0.90

Sealed - IP68

16A @ 28Vdc, 10A @ 120Vac

OTTO Controls



- Sealed to **IP68** withstands direct waterspray without the need for a cover
- UV and solvent resistant
- Withstands extreme shock and vibration
- Switches up to 16A
- Rear seal with potted contacts
- Black rocker, black bezel with 1-0 legend option

Single Pole: Bezel 28.5 x 16, Depth=36.83 (inc. tabs), Panel cut-out 27.22 x 12.19, Tab 6.3 x 0.8
Double Pole: Bezel 28.5 x 26.9, Depth=36.83 (inc. tabs), Panel cut-out 27.22 x 22, Tab 6.3 x 0.8

Electrical Life	50000 ops	Operating Temperature	-30°C to +85°C
-----------------	-----------	-----------------------	----------------

213155

	Rocker	Mfrs. List No.	Order Code	Price Each			
				1+	25+	50+	100+
SPST	Black	K1ABAAAAA	113-8732	6.50	6.31	6.12	5.94
SPST	Black I/O	K1ABAAAAA	113-8733	9.19	8.92	8.65	8.40
DPST	Black I/O	K2ABHAAAA	113-8773	12.30	11.94	11.58	11.22

Standard - H11/21 Series

16(4)A @ 250V ac



Illuminated Bezel=35.4 x 27.4, Depth=33.25, Panel cut-out=34.5 x 23.5, Tabs=6.3
Non-illuminated Bezel=35.4 x 27.4, Depth=33.25, Panel cut-out=34.5 x 23.5, Tabs=6.3

- Attractively styled dark grey plastic bezels and silk-chrome finish rockers
- Illuminated type has integral neon viewed through red polycarbonate lens

Maximum Working Temperature +85°C

Mfrs. List No.	H11CG1=996-8270	H11CG1R2=996-8261
	H21CG1=996-8296	H21CG1R2=996-8288

213239

15

Re-reeling available



Non-Illuminated	Order Code	Price Each				
		1+	50+	100+	250+	500+
SPST	996-8270●	3.98	3.61	3.42	3.21	2.91
DPST	996-8296●	5.19	4.69	4.48	4.20	3.83
Illuminated						
SPST, red	996-8261●	7.08	6.63	6.33	5.89	5.36
DPST, red	996-8288●	7.48	6.78	6.45	5.99	5.44

Standard - 'Visirocker™' Series, High Inrush



16(6)A @ 250V ac, 125A Inrush



- SPST matt black switches with coloured section (red or green) on rocker that becomes visible in 'ON' position
- I/O markings on rocker for status indication
- CSA approved, UL recognised

Bezel=31.35 x 17.07, Panel cut-out: 27.23 x 12.19 to 28.58 x 13.97, Tab=6.35 x 0.8

Current Rating	15A @ 250V ac	Mechanical Life	100000 ops
	16A(6)A @ 250V ac VDE	Operating Temperature	0°C to +85°C
	20A @ 125V ac		
	¼HP @ 125V to 250V ac		

Mfrs. List No. RSCA201VBB9V = 120-3341, RSCA201VBB9G = 120-3342

213117

	Order Code	Price Each				
		1+	25+	100+	250+	500+
SPST, red	120-3341●	1.12	1.02	0.88	0.81	0.69
SPST, green	120-3342●	1.12	1.02	0.88	0.81	0.69

Standard Rocker Switches - MC34 & MC37 Series



16(4)A @ 250V ac



Single pole : Bezel=32 x 13.7, Body=27.7 x 10.6 x 18, Panel cut-out=30 x 11mm
Double pole : Bezel=32 x 25, Body=29 x 22.1 x 18, Panel cut-out=30 x 22.5mm

- Black bodied switches positive action
- Non-illuminated types available with either I/O status marking or with coloured section (red or green) that becomes visible in 'ON' position
- Illuminated types available with colour illuminated rocker
- Snap-in mounting
- 6.3 x 0.8mm Quick connect terminals
- CSA, VDE and CQC Approved, UL recognised

Ratings - UL & CSA	20A @ 125V ac, 15A @ 250V ac
Ratings - VDE, SEMKO & CQC	16(6)A @ 250V ac
Contact Resistance	20mohm
Insulation Resistance	50Mohm @ 500V dc
Dielectric Strength	3.5kV
Fiamability	UL 94V-2

485851

Func-tion	Colour	Mfrs. List No.	Order Code	Price Each		
				1+	25+	100+
Non-Illuminated						
SPDT	Black	MC34231-011-21	145-4380●	0.91	0.86	0.82
SPST	Black I/O	MC34231-001-71	145-4381●	0.68	0.61	0.51
SPST	Black / Red	MC34224-071-1601	145-4382●	0.84	0.75	0.64
DPST	Black I/O	MC37920-001-1101	145-4383●	0.95	0.84	0.72
DPST	Black / Red	MC37920-001-2601	145-4384●	1.09	0.98	0.84
DPST	Black / Green	MC37920-001-2701	145-4385●	1.09	0.98	0.84
Illuminated						
SPST	Red I/O	MC34231-091-72	145-4386●	1.18	1.14	1.07
DPST	Red I/O	MC37920-021-1102	145-4387●	2.05	1.93	1.81
DPST	Green I/O	MC37920-021-1104	145-4388●	2.34	2.15	1.96

Standard - 'Softline' Series, European Cut-Out



16(4)A @ 250V ac (Standard Versions, except Centre Off =13.5A)

16(4)A @ 250V ac, 150A Inrush (High Inrush Versions)



273-211
273-247
521-930

Single pole : Bezel=33.4x14.0, Depth=16.2, Panel cut-out=30 x 11, Tab=6.3 x 0.8
Double pole : Bezel=33.4 x 25.0, Depth=16.2, Panel cut-out=30 x 22.1, Tab=6.3 x 0.8

- Matt black switches with 'European size' cut-out
- Rockers available with either I/O status marking or with coloured section (red or green) that becomes visible in 'ON' position
- Single throw versions have 150A inrush capability to IEC65
- Illuminated types available with coloured illuminated rocker
- Approved to VDE, SEMKO, DEMKO, NEMKO, SETI, BEAB, KEMA, OVE, SEV, NF-USE, IMQ and CSA. UL recognised

Insulation Resistance	>20MR	Operating Temp	0°C to +125°C (standard)
Contact Resistance	10mR		0°C to +85°C (high inrush)
Electrical Life	10000 ops		

Mfrs. List No.

C1510AB BLK=678-170	C1350ABAAB=273-235	C5503ABNAN=678-211
C1300ABAAA=273-211	C1350XBAAA=273-247	C1353AB0/1RED=521-929
C1300XBAAA=273-223	C1350XB BLK/GRN=678-223	C1353AB0/1GRN=521-930

213214

Rocker	Order Code	Price Each					
		1+	25+	100+	250+	500+	
Non-Illuminated							
SPDT	Black	678-170●	1.17	1.11	1.05	0.82	0.66
Non-Illuminated, High Inrush							
SPST	Black, I/O	273-211●	0.89	0.78	0.66	0.53	0.45
SPST	Black / Red	273-223●	1.08	0.96	0.83	0.68	0.57
DPST	Black, I/O	273-235●	1.22	1.08	0.94	0.77	0.63
DPST	Black / Red	273-247●	1.41	1.25	1.08	0.89	0.78
DPST	Black / Green	678-223●	1.41	1.25	1.08	0.89	0.78
Illuminated, High Inrush							
SPST	Red, I/O	678-211●	1.14	1.10	1.03	0.81	0.66
DPST	Red, I/O	521-929●	2.64	2.49	2.31	1.76	1.41
DPST	Green, I/O	521-930●	3.00	2.77	2.52	1.95	1.54

Front/Rear Panel Mount - C1250 AN/AP



10(6)A @ 240V ac



480-344
Panel cut-out=26.2 x 12.4 (snap-in fixing)
Facia=23.8 x 13.1 with 3.4 radius corners



481-087
Panel cut-out=27.2 x 12.4 (snap-in fixing)
Bezel=29.5 x 15.0

Panel thickness=0.75/1.25, Tab=6.3 x 0.8

- Double pole on-off switch with I/O markings
- Designed for front/rear snap fit panel mounting
- Particularly suited to equipment with removable front panels
- 3mm contact gap
- Suitable for Class II appliances
- Approvals include VDE, SEV, DEMKO, SEMKO, NEMKO, SETI, OVE, KE-MA-KEUR and CSA. UL recognised

Initial inrush current	75A to IEC65	Insulation Resistance	>20MΩ
Electrical Life	10000 ops	Contact Resistance	<10mΩ
Mechanical Life	50000 ops	Operating Temperature	0°C to +85°C

213101

	Order Code	Price Each				
		1+	25+	100+	250+	500+
DPST, Rear mount	480-344●	1.97	1.83	1.69	1.29	1.04
DPST, Front mount	481-087●	1.30	1.26	1.23	1.18	1.15

Sealed - IP68

OTTO CONTROLS

20(15)A @ 28 Vdc, 16A @ 110Vac



- Snap in panel mount rocker switches to IP68
- 6.35mm Faston terminals
- Cut out 44 x 22mm
- Double pole options in ST, DT, momentary and illuminated
- UL recognised

Bezel=25.9 x 48.00, Depth=48.48 (inc. tabs). Panel Cut Out = 22 x 43, Tab 6.3 x 0.8

Mfrs. List No.	Rocker	Configuration	Sequence	Order Code
K3AB2AAA	Black	DPST	on-off	113-8763
K3AB2EAA	Black	DPDT	mom-off-mom	113-8774
K3ABANB-10	Red LED	DPST	on-off	113-8764
K3AB2APB-20	Green LED	DPST	on-off	113-8766
K3AB1BAA00-E3E4992	I/O	SPDT	on-off	113-8767

Mechanical Life:	100000 ops	Case/Bezel:	Thermoplastic
Electrical Life:	25000 ops	Actuator:	Thermoplastic
Rating:	20(15)A@28Vdc, 8A@240VAC	Contacts:	Silver Alloy
Illumination:	12V LED	Terminals:	Brass
Seal:	IP68		
Operating Temperature:	-40°C to +85°C		

227860

15

Re-reeling available



Rocker Switches - continued

Sealed - IP68 - continued

20(15)A @ 28 Vdc, 16A @ 110Vac - continued

	Sequence	Order Code	Price Each		
			1+	25+	50+
DPST	on-off	113-8763	8.03	7.79	7.55
DPDT	mom-off-mom	113-8774	8.03	7.79	7.55
DPST	on-off	113-8764	9.96	9.66	9.37
DPST	on-off	113-8766	12.45	12.07	11.71
SPDT	on-off	113-8767	9.55	9.27	8.99
Seal Gasket		113-8768	1.20	1.17	1.13

Rocker - Voltage Loss Protection

16 A @ 230 V ac



APEM



H = 53, W = 30, D = 38mm

A new type of manually operated switch. An electromagnet sets the switch when turned on. If for any reason voltage loss occurs then the power is tripped out. The switch must then be manually re-set before power can be restored, preventing inadvertent re-start.
VDE and UL recognised

Mfrs. List No.	Order Code
3251-00.01	996-8407
3251-01.01	996-8415
AAE003-251/Z016	996-8423

Rocker Operated Switch		Rocker Operated Switch	
Contacts	Bipolar	Fixing	Snap-in
Rated Operational Voltage	230V ac @ 50Hz	Cut Out	45.3 x 21.8mm
Rated Operational Current	AC1-16(A), AC3-14.5(A)	Protection - TP2351-00	IP 40
Conection	6.35mm x 0.8mm	Protection - TP2351-01	IP 40(rear), IP54 (front)

Description	Order Code	Price Each		
		1+	10+	50+
Standard rocker	996-8407	8.53	7.93	7.59
Standard rocker (Aux contact)	996-8415	9.72	9.04	8.66
Seal /Protection kit	996-8423	3.26	3.04	2.90

Rocker Switches

6A @ 125V ac, 3A @ 250V ac



- Snap-in mounting
- Oval shaped bezel
- Sculptured rocker surface
- Black nylon frame and base
- Solder lug terminal, brass with silver plating
- 15mm panel cutout
- 0.75 to 3mm panel thickness

H (Body) = 14 (Bezel) = 5, W = 24, D = 20.5

Rating	6A @ 125V ac	Insulation Resistance	100Mohm @ 500V dc
Rating	3A @ 250V ac	Dielectric Strength	1500V ac
Contact Resistance	50mohm	Temperature operating	-20 to 65°C

Switch Function	Mfrs. List No.	Order Code	1+	25+	50+	100+
SPST						
On-Off	R13-234A-05-BB-0A	163-4637	0.84	0.76	0.68	0.61
SPDT						
On-On	R13-234C-05-BB-0A	163-4638	0.91	0.82	0.74	0.65
On-Off-On	R13-234D-05-BB-0A	163-4639	0.98	0.88	0.80	0.70
(On)-Off-(On)	R13-234I-05-BB-0A	163-4640	1.06	0.94	0.85	0.75

Round, Panel Mount - R13 Series



Panel Cut-out=20.2, Bezel=23 dia.



Mfrs. List Nos.:

R13-112A	= 186-764	R13112BNAB	= 767-4074	R13244BNAA	= 767-4104
R13-112BNA	= 186-776	R13208FAAA	= 767-4082	R13-112B2	= 396-6781
R13112AAAB	= 767-4066	R13244AAAA	= 767-4090		

- Attractive circular rocker design
- Choice of red and green illuminated, black and white non-illuminated and red spot illuminated
- Non-illuminated versions printed with I/O marking (except momentary version)
- Single and double pole configurations
- Snap fixing into panel thickness ≤3mm
- Approvals include **VDE, SEV, DEMKO, NEMKO, SETI** and **CSA**. **UL** recognised

Maximum Working Temperature	+85°C
Contact Resistance	100mohm
Insulation Resistance	20Mohm
Operating Voltage	All 230 Vac max except 396-6781 (which is 24 Vdc max)

213304

Order Code	1+	Price Each			
		100+	250+	500+	
Non-Illuminated Switch - 250V ac @ 6A					
SPST Black, I/O	186-764	0.93	0.76	0.71	0.63
SPST White, I/O	767-4066	0.89	0.80	0.76	0.71
SPST Mom-Off Black	767-4082	1.02	0.96	0.91	0.87
DPST Black, I/O	767-4090	0.99	0.89	0.84	0.80
Illuminated - 250V ac @ 6A					
SPST Red	186-776	1.66	1.55	1.49	1.35
SPST Green	767-4074	1.68	1.56	1.50	1.43
DPST Red	767-4104	1.73	1.56	1.47	1.39
LED Illuminated - 12/24V dc @ 10A					
DPST Black	396-6781	1.89	1.47	1.37	1.17

Rocker Switches

16A @ 125V ac, 10A @ 250V ac



- Snap-in mounting
- Illuminated actuators moulded in PC
- Frames in nylon (UL 94V-2)
- Solder lug terminal, brass with silver plating
- 3mm panel thickness
- **CSA, VDE, TUV, FIMKO, DEMKO, NEMKO, SEMKO, ENEC, CQC** and **CNS** Approvals
- **UL** Recognised



R13-112 Series. H (Body) = 14.5 (Bezel) = 2, Dia. 23, Dia. Cut-out = 20.2mm
R13-244 Series. H (Body) = 15.8, (Bezel) = 2, Dia. 23.5, Dia. Cut-out = 20.2mm

Rating	16A @ 125V ac	Insulation Resistance	100Mohm @ 500V dc
Rating	10A @ 250V ac	Dielectric Strength	1500V ac
Contact Resistance	50mohm	Temperature operating	-20 to 65°C

520583

Colour	Legend	Mfrs. List No.	Order Code	Price Each			
				1+	25+	50+	100+
Non-illuminated - SPST							
Black		R13-112A-02-BB-0A	163-4642	0.860	0.790	0.710	0.630
Black		R13-112F-02-BB-0A *	163-4643	0.890	0.810	0.730	0.650
White		R13-112A5-02-WW-0A	163-4644	0.900	0.820	0.740	0.660
Black	I/O	R13-112A-02-BB-3A	163-4645	0.910	0.830	0.750	0.670
Black	I/O	R13-112F-02-BB-3A *	163-4646	0.930	0.850	0.770	0.700
White	I/O	R13-112A5-02-WW-3A	163-4647	0.940	0.860	0.790	0.710
IP65 Sealed							
Black		R13-112A8-02-BB-0A	163-4652	1.620	1.550	1.480	1.430
Black		R13-112F8-02-BB-0A *	163-4654	1.620	1.550	1.480	1.430
Black	I/O	R13-112A8-02-BB-2A	163-4655	1.690	1.630	1.560	1.490
Black	I/O	R13-112F8-02-BB-2A *	163-4656	1.690	1.630	1.560	1.490
Illuminated							
Black	Red	R13-112B-02-BR-0A	163-4657	1.120	1.070	1.010	0.970
Black	Green	R13-112B-02-BG-0A	163-4658	1.120	1.070	1.010	0.970
Black	Red - LED	R13-112B9-02-BBR-0A	163-4663	1.890	1.800	1.690	1.630
Black	Green - LED	R13-112B9-02-BBG-0A	163-4664	1.890	1.800	1.690	1.630
IP65 Sealed							
Black	Red	R13-112B8W-02-BR-0A	163-4661	1.800	1.710	1.620	1.550
Black	Green	R13-112B8W-02-BG-0A	163-4662	1.800	1.710	1.620	1.550
Non-illuminated - DPST							
Black		R13-244A-02-BB-0A	163-4648	0.950	0.880	0.800	0.720
White		R13-244A5-02-WW-0A	163-4649	1.010	0.930	0.850	0.770
Black	I/O	R13-244A-02-BB-3A	163-4650	0.980	0.900	0.820	0.740
White	I/O	R13-244A5-02-WW-3A	163-4651	1.030	0.950	0.880	0.800
Illuminated - DPST							
Black	Red	R13-244B-02-BR-0A	163-4659	1.770	1.680	1.600	1.530
Black	Green	R13-244B-02-BG-0A	163-4660	1.770	1.680	1.600	1.530
Waterproof Cover		R13-112BT	163-4666	0.240	0.200	0.180	0.157

MR-R Series - Illuminated Round Rockers

8A @ 250V ac



Bezel=23mm (dia), Depth=18.2mm, Panel cut-out=20mm (dia), Tab = 4.8mm

- Double Pole
- Snap-in mounting
- Constructed from Nylon 66 to **UL94V-2**
- Choice of three colours: black, illuminated red and illuminated green

15

RL Re-reeling available

Farnell



- Coloured actuators are printed with 0/1 legend, black actuator is plain
- Approved to **CSA, UL, VDE, SEMKO, DEMKO, NEMKO, FIMKO, SEV**

Electrical Life	10000 ops	Insulation Resistance	<100MR
Operating Temperature	-20°C to +85°C	Contact Resistance	<20mR

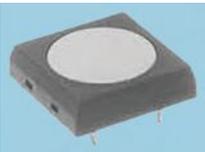
347604/405438

Colour	Mfrs. List No.	Order Code	1+	25+	50+	100+	250+
Green	MR210R5LGB	108-2460 ●	1.53	1.37	1.30	1.21	1.14
Red	MR210R5LBR	108-2461 ●	1.43	1.28	1.20	1.14	1.07
Black	MR210R2NBB	108-2459 ●	1.17	1.05	0.99	0.94	0.88

Push Button Switches

Ultra-Thin Tactile Switches

50 mA @ 24V dc



- Extremely low profile - Only 5mm from PCB to top of switch
- Single pole, momentary action
- Rubber seal construction prevents contact contamination
- Minimal operating force and short travel enable light touch operation
- Dome contact gives crisp tactile and audio feedback
- Choice of body and actuator shapes
- Actuator available in 3 colours
- Terminal spacing conforms to standard 2.54mm (0.1") PCB grid

Switch Specifications

Electrical capacity	50mA @ 24V
Total actuator travel	0.4mm
Operating Force	3N
Electrical life	500000 Cycles

Switch Specifications

Contact resistance	50mohm
Insulation resistance	500Mohm @ 250V dc
Dielectric strength	250V ac for 1 minute minimum
Operating temperature	-25°C to 85°C

498458

Actuator Colour	Mfrs. List No.	Order Code	1+	50+	100+	500+	1K+
Round Housing - Round Actuator							
Blue	JF15CP2G	152-4329 ●	2.14	1.96	1.80	1.72	1.62
Grey	JF15CP2H	152-4330 ●	2.14	1.96	1.80	1.72	1.62
Red	JF15CP2C	152-4332 ●	2.14	1.96	1.80	1.72	1.62
Square Housing - Round Actuator							
Blue	JF15SP2G	152-4333 ●	2.14	1.96	1.80	1.72	1.62
Grey	JF15SP2H	152-4335 ●	2.14	1.96	1.80	1.72	1.62
Red	JF15SP2C	152-4336 ●	2.14	1.96	1.80	1.72	1.62
Square Housing - Square Actuator							
Blue	JF15SP1G	152-4337 ●	2.14	1.96	1.80	1.72	1.62
Grey	JF15SP1H	152-4338 ●	2.14	1.96	1.80	1.72	1.62
Blue	JF15SP1C	152-4339 ●	2.14	1.96	1.80	1.72	1.62

Pushbutton TACT Switch

50mA @ 12Vdc



H = 5, W = 6, D = 6mm

- SPST
 - Long operational life
 - Long travel of 1.3mm
 - Excellent tactile feedback without audible click sound
 - Low contact resistance
- | | |
|-----------------------|----------------------|
| Current switching | 50mA @ 12V dc |
| Contact resistance | 100mohm max |
| Insulation resistance | 100Mohm @ 500V dc |
| Dielectric strength | 300V ac for 1 minute |
| Operating temperature | -40°C to +85°C |
| Electrical life | 30000 operations min |

498835

Mfrs. List No.	Order Code	1+	25+	50+	100+
MCLTL-613R	SMD152-2054 ●	0.37	0.35	0.34	0.33

Ultraminiature Pushbutton - Sealed

0.4 VA @ 20V ac or dc



S & D PDT (Body) - H = 4.9, W = 7.8, D = 5.08mm

- Sealed to IP 67
- Gold contacts
- Black pushbutton cap
- Glass filled nylon housing and base
- UL 94V-0 Flammability rating
- Epoxy sealed terminations

S & D PDT (Body) - H = 5.8, W = 7, D = 4.5mm

Contact Rating - Max.	0.4VA @ 20V ac/dc	Insulation resistance	>500Mohm
Mechanical life	40000 operations	Operating temperature	-30°C to +85°C
Contact resistance	<50mohm		

501463

Switch Function	Mfrs. List No.	Order Code	1+	25+	50+	100+	500+
Vertical Mount							
SPDT - On-Mom	8US8R2A1M2RE	155-0265 ●	1.10	0.98	0.85	0.77	0.72
DPDT - On-Mom	8UD8R2A1M2RE	155-0266 ●	1.23	1.10	0.97	0.89	0.81
Right Angle Horizontal Mount							
SPDT - On-Mom	8US8R2A1M6RE	155-0267 ●	1.23	1.10	0.97	0.89	0.81
DPDT - On-Mom	8UD8R2A1M6RE	155-0268 ●	1.32	1.18	1.03	0.95	0.88

Subminiature Washable, Momentary

0.4VA @ 20V ac/dc

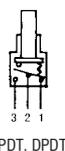


Vertical, single pole
H=17.75 (excl pins),
W=8.1, D=5.0
(108-2514=8.1)

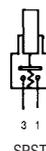
Right angle, single pole,
horizontal mount
H, excl. pins=5.0, (108-2515=9.1)
W=8.1, D=18.18



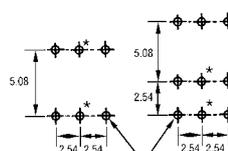
Right angle, single pole,
vertical mount
H=8.65, W=5.0, D=17.83



SPDT, DPDT



SPST



Vertical

Right angle, horizontal mounting

Right angle, vertical mounting

PCB drilling plans

*Pins only used on double throw (DT) switches

- Manufactured from polyester, **UL** recognised
- Totally sealed by 'O' ring gasket inside the bushing
- Gold plated contacts allow low voltage switching
- Ideal for PCB designs, board washable, wave solderable
- Caps in 3 colours, 6.5mm dia., 4mm high

Initial Contact Resistance	10mR max	Electric Life	2 position	100000 ops
Insulation Resistance	1000MR min	Operating Force	3 position	50000 ops
Dielectric Strength	1000V rms @ 50Hz			220g
Operating Temperature	-20°C to +85°C			

Mfrs. List No.

TP33P0080=108-2511	TP33W0080=108-2512	TP33WW080=108-2513	U573=108-2526
TP32P0080=108-2508	TP32W0080=108-2509	TP32WW080=108-2510	U576=108-2527
TP42P0080=108-2514	TP42W0080=108-2515	U572=108-2525	

SW153/213118

Vertical	Order Code	1+	25+	100+	250+	500+
SPST	108-2511 ●	1.800	1.700	1.540	1.470	1.370
SPDT	108-2508 ●	2.260	2.140	2.030	1.960	1.870
DPDT	108-2514 ●	3.160	2.970	2.870	2.750	2.620
Right Angle, Horizontal Mounting						
SPST	108-2512 ●	2.090	1.980	1.800	1.720	1.650
SPDT	108-2509 ●	2.350	2.230	2.030	1.940	1.710
DPDT	108-2515 ●	3.300	3.110	2.860	2.720	2.490
Right Angle, Vertical Mounting						
SPST	108-2513 ●	2.190	2.080	1.890	1.790	1.620
SPDT	108-2510 ●	2.290	2.170	1.980	1.880	1.690
Order Multiple = 10						
Caps		10+	30+	100+	250+	
Black	108-2525 ●	0.163	0.150	0.140	0.120	
Green	108-2526 ●	0.163	0.150	0.140	0.120	
Red	108-2527 ●	0.163	0.150	0.140	0.120	

Subminiature Washable, Momentary

0.4VA @ 20V ac/dc



Vertical mounting

Type 1 Horizontal mounting

Type 2 Horizontal mounting

- Process sealed - withstands machine soldering and pressure wash processes
- Epoxy sealed terminals
- Gold contacts for low level/dry circuit switching

Electrical Life	60000 ops (30,000 SPDT versions)	Contact Resistance	<20mR
		Operating Temperature	-30°C to +85°C
Mfrs. List No.	EP11SD1CBE=957-4662	EP11SD1ABE=957-4689	EP11SD1AVBE=957-4700
	EP12SD1CBE=957-4670	EP12SD1ABE=957-4697	EP12SD1AVBE=957-4719

15

Re-reeling available



Push Button Switches - continued

Subminiature Washable, Momentary - continued

0.4VA @ 20V ac/dc - continued

SW265/213226

Vertical	Order Code	1+	25+	50+	100+	500+
SPST - off-mom	957-4662	3.31	2.43	1.84	1.38	1.29
SPDT - off-mom	957-4670	3.23	2.88	2.51	2.34	2.16
Type 1, Horizontal						
SPST - off-mom	957-4689	3.65	2.68	2.04	1.52	1.43
SPDT - on-mom	957-4697	3.58	2.68	2.02	1.52	1.42
Type 2, Horizontal						
SPST - off-mom	957-4700	3.83	2.81	2.12	1.60	1.49
SPDT - on-mom	957-4719	3.79	3.60	3.41	2.57	2.41

Snap Acting Momentary Pushbutton - PCB

0.4VA @ 20V ac or dc/1A @ 120V ac or 28V dc



- Positive tactile action
- SPDT switch function
- On - Momentary switch action
- Through Hole PCB connections
- Epoxy terminal seal, compatible with bottom wash cleaning
- Threaded versions supplied with Nut & Locking Ring and Locking Washer

Electrical life	60000 make and break cycles at full load		
Operating temperature	-30°C to +75°C		
Contact resistance	≤50mohm		
Order Code	Mfrs. List No.	Contact Rating	Switch Style - Bushing
142-6661	8125SHCBE	0.4VA @ 20V or dc	Vertical - Threaded
142-6662	8125SD9ABE	0.4VA @ 20V or dc	Horizontal/Right Angle - Plain
142-6663	8125SD9AV2BE	0.4VA @ 20V or dc	Vertical/Right Angle - Plain
142-6664	8121SHCGE	1A @ 120V or 28V	Vertical - Threaded
142-6665	8121SD9AGE	1A @ 120V or 28V	Horizontal/Right Angle - Plain
142-6666	8121SD9AV2GE	1A @ 120V or 28V	Vertical/Right Angle - Plain
142-6668	801801000	White	7.87 Dia. x 6.35mm
142-6669	801802000	Black	7.87 Dia. x 6.35mm
142-6670	801803000	Red	7.87 Dia. x 6.35mm

478387

Mfrs. List No.	Order Code	1+	25+	50+	100+	500+
8125SHCBE	142-6661	3.77	3.52	3.35	3.17	2.92
8125SD9ABE	142-6662	4.02	3.76	3.58	3.36	3.11
8125SD9AV2BE	142-6663	4.22	3.95	3.76	3.53	3.28
8121SHCGE	142-6664	5.41	5.08	4.85	4.56	4.22
8121SD9AGE	142-6665	5.70	5.31	5.10	4.78	4.44
8121SD9AV2GE	142-6666	5.77	5.40	5.15	4.85	4.51
Buttons						
801801000	142-6668	0.46	0.44	0.42	0.40	0.37
801802000	142-6669	0.46	0.44	0.42	0.40	0.37
801803000	142-6670	0.46	0.44	0.42	0.40	0.37

Ultra-Miniature Push Button Switches

0.4VA Max. @ 28V ac/dc



- Ultra-miniature size for high density mounting
- Light weight for portable/handheld equipment applications
- Totally sealed body construction prevents contact contamination and allows automated soldering and cleaning
- Smooth and positive detent actuation
- 2.54mm x 2.54mm terminal spacing

Body - H = 7, W = 7, D = 4.5mm

Switch Specifications

Electrical capacity	0.4VA @ / 28V ac/dc
Electrical life	50000 Cycles
Contact resistance	80mohm
Insulation resistance	500Mohm @ 500V dc
Dielectric strength	500V ac between contacts for 1 minute minimum
Operating temperature	-30°C to 85°C

498383

Switch Type	Mfrs. List No.	Order Code	1+	25+	50+	100+	500+
SPDT - On-Mom	GB-15AP	152-4285	3.66	3.36	3.06	2.92	2.78
DPDT - On-Mom	GB-25AP	152-4286	4.00	3.68	3.36	3.20	3.04
Switch Cap							
Black - 4mm	AT4063A	152-4287	0.15	0.14	0.13	0.12	0.11

Over 480,000 products online



Snap Acting Momentary Pushbutton - Solder Lug

0.4VA @ 20V ac or dc/1A @ 120V ac or 28V dc



- Positive tactile action
- On - Momentary switch action
- Solder lug terminal connections
- Epoxy terminal seal, compatible with bottom wash cleaning
- Supplied with Nut & Locking Ring and Locking Washer

Electrical life	60000 make and break cycles at full load	Contact resistance	≤50mohm
Operating temperature	-30°C to +75°C		

Order Code	Mfrs. List No.	Contact Rating
142-6654	8125SHZBE	0.4VA @ 20V or dc
142-6656	8225SHZBE	0.4VA @ 20V or dc
142-6657	8121SHZGE	1A @ 120V or 28V
142-6658	8221SHZGE	1A @ 120V or 28V
142-6668	801801000	White
142-6669	801802000	Black
142-6670	801803000	Red

478335

Switch Function	Order Code	1+	25+	50+	100+	500+
SPDT	142-6654	3.79	3.49	3.24	3.16	2.84
DPDT	142-6656	5.71	5.26	4.88	4.85	4.10
SPDT	142-6657	3.66	3.40	3.11	2.84	2.48
DPDT	142-6658	5.13	4.74	4.37	3.99	3.47
Buttons						
White	142-6668	0.46	0.44	0.42	0.40	0.37
Black	142-6669	0.46	0.44	0.42	0.40	0.37
Red	142-6670	0.46	0.44	0.42	0.40	0.37

Subminiature Momentary - TP Series

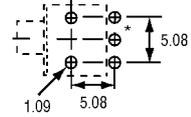
0.4VA @ 20V dc



Square Actuator

Round Actuator without Bush

- Square or round actuator options
- Gold contacts for low level switching



*Omit for SPST switches

*Omit for SPST switches

Vertical mounting
H=8.13, W=5.23, D=8.13
Sealed: H=9.14, W=5.21, D=8.13

Horizontal mounting
H=5.74, W=8.13, D=8.13
Sealed: H=6.38, W=8.13, D=9.14

Contact Resistance	20mR max	Insulation Resistance	1000MR @ 500V dc
Electrical Life	60000 ops	Operating Resistance	-30°C to +65°C
Dielectric Strength	1000Vrms		

Mfrs. List No.

SW333/213276

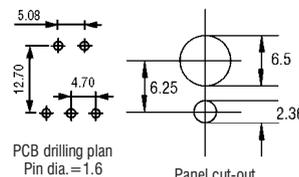
	Order Code	1+	25+	50+	100+	500+
Square Actuator						
SPST - Horizontal	112-3973	2.11	1.98	1.86	1.60	--
SPST - Vertical	112-3974	2.15	2.02	1.89	1.63	--
Round Actuator Without Bush						
SPDT - Vertical	112-3976	2.34	2.20	2.06	1.78	--
SPST - Horizontal	112-3975	1.91	1.80	1.68	1.45	--

Miniature, Microswitch Action

SPDT and DPDT - Momentary - 100mA @ 30V dc



108-2278 H=13.2, W=7.0, D=29.5	108-2281 H=13.2, W=12.0, D=29.5	108-2277 H=12.0, W=13.2, D=26.8
-----------------------------------	------------------------------------	------------------------------------



- Momentary snap-action for high precision and reliability
- Gold plated copper contacts for low level switching
- Panel mounting switches with solder lug terminals
- PCB mounting switch with right-angled terminals

Initial Contact Resistance 50mR max
 Insulation Resistance 1000MR min
 Dielectric Strength 1000V rms @ 50Hz

Electrical Life 60000 ops
 Operating Temperature -30°C to +65°C

SW226/213192

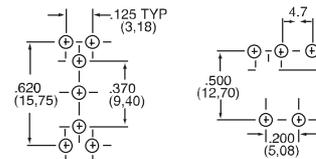
Switches	Mfrs. List No.	Order Code	Price Each			
			1+	25+	100+	250+
SPDT, Solder lug	18535CD	108-2278●	3.10	2.89	2.76	2.64
DPDT, Solder lug	18545CD	108-2281●	4.90	4.57	4.37	4.18
SPDT Mom.PCB	18235WCD3	108-2277●	4.97	4.09	3.58	3.02

Caps	Mfrs. List No.	Order Code	Price Each			
			10+	50+	100+	250+
Black	U482	108-2522●	0.14	0.13	0.12	0.11
Green	U483	108-2523●	0.14	0.13	0.12	0.11
Red	U486	108-2524●	0.14	0.13	0.12	0.11

SPDT Momentary - Sealed
 1A @ 120V ac/28V dc



- Gold plated contacts for low level switching
- Mounting bracket solders directly to PCB
- Process sealed to withstand machine soldering and pressure wash cleaning
- Snap-acting



Contact Resistance (initial) <50mR> typ
 Insulation Resistance >1000MR

Operating Temperature -30°C to +75°C
 Electrical Life 60000 ops, full load

SW227/213193

Mounting	Order Code	Price Each			
		1+	50+	100+	500+
Vertical	957-5430●	3.40	3.03	2.63	2.46
Horizontal	957-5448●	4.38	4.16	3.58	2.70

SPNO and SPNC Momentary
 100mA @ 30V dc



L=19.3, Dia=6.5
 Bush thread=M4, Button dia=2.5, Panel cut-out=4.2

- SPNO and SPNC switches with either solder lug or PCB terminations
- Gold plated contacts allow low current switching
- Caps in 3 colours, 6.5mm dia., 4mm high
- Switch may be used without cap being fitted
- M4 sealing hood protects against moisture and dust ingress

Initial Contact Resistance <30mR

Mfrs. List No. 9533CD=108-2343 9233CD=108-2341 U572=108-2525 U576=108-2527
 9532CD=108-2342 U1829=108-2521 U573=108-2526

SW39/213331

Order Multiple=1 Switches	Order Code	Price Each				
		1+	25+	100+	500+	+
SPNO, Solder Lug	108-2343●	1.820	1.740	1.650	1.570	--
SPNC, Solder Lug	108-2342●	1.930	1.830	1.740	1.650	--
SPNO, PCB	108-2341●	2.430	2.310	1.930	1.770	--
Sealing Hood	108-2521●	3.650	3.470	3.290	3.140	--

Caps	Order Code	Price Each			
		10+	30+	100+	250+
Black	108-2525●	0.163	0.150	0.140	0.120
Green	108-2526●	0.163	0.150	0.140	0.120
Red	108-2527●	0.163	0.150	0.140	0.120

SPNO and SPNO/SPNC Momentary



300mA @ 250V ac, 1A @ 30V dc (silver), 100mA @ 30V dc (gold)



L=26.5, Dia=10, Bush thread= ¼ x 40 NS,
 Button dia=4, Panel cut-out=6.35

Insulation Resistance 1000MR @ 500V dc
 Electrical Life 250000 ops
 Initial Contact Resistance <50mR

Mfrs. List No. 9633NA=108-2344 9635CD=108-2347 U483=108-2523
 9633NCD=108-2345 U482=108-2522 U486=108-2524

SW40/213333

Order Multiple=1

Switches	Order Code	Price Each				
		1+	25+	100+	250+	500+
SPNO, Silver	108-2344●	1.91	1.77	1.70	1.63	1.52
SPNO, Gold	108-2345●	1.83	1.69	1.59	1.56	1.45
SPNO + SPNC, Gold	108-2347●	2.88	2.71	2.60	2.49	2.36

Order Multiple=10

Caps	Order Code	Price Each			
		10+	50+	100+	250+
Black	108-2522●	0.14	0.13	0.12	0.11
Green	108-2523●	0.14	0.13	0.12	0.11
Red	108-2524●	0.14	0.13	0.12	0.11

SPNO B3WN Series - Sealed



- Unique double sealing construction ensures water tight and dust tight performance
- Ideal for humid environments
- Supplied on radial tape for automatic insertion process
- Above board height allows use where conformal coating is required
- Sealed to IP67

H=13, W=8, D=8 Lead Pitch=17, Pitch 5

Contact rating 50mA
 Contact resistance 100mR
 Voltage rating 12Vdc
 Minimum load 1mA, @ 5Vdc
 Operating life 100000 ops min

213127

Mfrs. List No.	Order Code	Price Each				
		5+	50+	100+	250+	500+
B3WN-6002	994-5423●	0.32	0.28	0.27	0.26	0.25

SPNO Momentary
 1A @ 0.1 to 28V dc



Sub-miniature single pole push-to-make switch with red or black operating button.

L=16, Dia=10,
 Bush thread= ¼ x 28 UNF, Panel cut-out=6.35

Mfrs. List No. MP16/Red=422-204, MP16/Black=422-216

SW48/213340

Order Code	Price Each				
	1+	50+	100+	250+	500+
Red 422-204●	2.81	2.18	1.68	1.39	1.31
Black 422-216●	2.81	2.18	1.68	1.39	1.31

Push Button Switches - Momentary
 3A @ 125V ac, 1.5A @ 250V ac



- Buttons available in either black or red
- NO or NC versions available
- Black nylon body, UL 94V-2
- Silver plated brass solder terminals



Body - H (NO) = 9.5, H (NC) = 11.8, Button - Dia. = 6mm
 L (Thread) = 7, (Button & stem) - 6.9mm

Rating 3A @ 125V ac
 Rating 1.5A @ 250V ac
 Contact Resistance 50mohm
 Insulation Resistance 100Mohm @ 500V dc
 Dielectric Strength 1000V ac
 Flammability UL 94V-2

520658

Switch Function	Mfrs. List No.	Order Code	Price Each				
			1+	50+	100+	500+	1K+
Black Actuator	SPNO R13-509A-05-BB	163-4682●	0.36	0.34	0.31	0.28	0.25
	SPNC R13-509B-05-BB	163-4683●	0.36	0.34	0.31	0.28	0.25
Red Actuator	SPNO R13-509A-05-BR	163-4684●	0.36	0.34	0.31	0.28	0.25
	SPNC R13-509B-05-BR	163-4685●	0.36	0.34	0.31	0.28	0.25

700 products added online every week



See our pick of the hottest products and latest technologies in 'What's New?' at www.farnell.co.uk

15

Re-reeling available



Push Button Switches - Momentary

3A @ 125V ac, 1.5A @ 250V ac



- Black base
- Buttons available in either black or red
- Two button sizes available, 8 x 5.6 and 10 x 8.5mm
- NO or NC versions available
- Nickel plated brass body
- PBT actuators, phenolic base

Body - H (NO) = 9.1, H (NC) = 9.4, Button - Dia. = 6mm
L (Thread) = 6, (Button & stem) - 8.6mm
Dia. cut-out = 7.2mm

Rating	3A @ 125V ac	Insulation Resistance	100Mohm @ 500V dc
Rating	1.5A @ 250V ac	Dielectric Strength	1000V ac
Contact Resistance	50mohm		

520689

Button Switch Colour Function	Mfrs. List No.	Order Code	1+	50+	Price Each 100+	500+	1K+
6 x 5.6mm Button							
Black SPNO	R13-24A-05-BB	163-4687	0.42	0.39	0.37	0.34	0.30
Black SPNC	R13-24B-05-BB	163-4688	0.42	0.39	0.37	0.34	0.30
Red SPNO	R13-24A-05-BR	163-4691	0.42	0.39	0.37	0.34	0.30
Red SPNC	R13-24B-05-BR	163-4692	0.42	0.39	0.37	0.34	0.30
10 x 8.5mm Button							
Black SPNO	R13-24AL-05-BB	163-4693	0.44	0.42	0.39	0.36	0.33
Black SPNC	R13-24BL-05-BB	163-4694	0.44	0.42	0.39	0.36	0.33
Red SPNO	R13-24AL-05-BR	163-4695	0.44	0.42	0.39	0.36	0.33
Red SPNC	R13-24BL-05-BR	163-4696	0.44	0.42	0.39	0.36	0.33

FOR MORE INFORMATION & CHOICE

Product Search

Anti-Vandal Switch



RoHS Compliant Items Only | Advanced Search

Push Button Switches

3A @ 125V ac, 1.5A @ 250V ac



- SPST with black body
- Black or coloured illuminated buttons
- Frames are nylon, UL94V-2
- Illuminated buttons are molded in PC
- Solder terminals are silver plated brass
- Snap-in mounting

H (Body) = 16, (Button) = 6, Dia. (Bezel) = 14mm
Dia. (Panel cut-out) = 12.2mm

Rating	3A @ 125V ac	Insulation Resistance	500Mohm @ 500V dc
Rating	1.5A @ 250V ac	Dielectric Strength	1500V ac
Contact Resistance	50mohm	Temperature operating	-20 to 65°C

520641

Colour Actuator	Mfrs. List No.	Order Code	1+	10+	Price Each 100+	250+
Latching action						
Black	R13-548B-05-BB	163-4675	0.95	0.91	0.86	0.82
Red	R13-548DL-05-BR	163-4676	1.26	1.21	1.17	1.12
Green	R13-548DL-05-BG	163-4678	1.26	1.21	1.17	1.12
Momentary action						
Black	R13-548A-05-BB	163-4679	0.95	0.91	0.86	0.82
Red	R13-548CL-05-BR	163-4680	1.26	1.21	1.17	1.12
Green	R13-548CL-05-BG	163-4681	1.26	1.21	1.17	1.12

Miniature Push Button Switches

6A @ 125V ac, 3A @ 250V ac or 3A @ 30V dc



- Guide interlocked with actuator block to prevent locking and to maintain plunger alignment
- Over-centre actuator provides diminished sparking for longer life
- High insulating barriers increase isolation os circuits in multipole versions
- Epoxy sealed terminals prevent entry of solder flux and other contaminants
- UL94V-0 Flammability rating
- CSA Approved, UL Recognised

Body - H = 21, W = 13, D (SP) = 7.9, D (DP) == 12.7mm

Electrical capacity	6A @ 125V ac / 3A @ 250V ac or 3A @ 30V dc
Electrical life	25000 Cycles
Contact resistance	10mohm
Insulation resistance	1000Mohm @ 500V dc
Dielectric strength	1000V ac between contacts for 1 minute minimum
Operating temperature	-30°C to 85°C

498384

Switch Type	Mfrs. List No.	Order Code	1+	25+	Price Each 50+	100+	500+
SPDT - On-On	MB2065SS1W01	152-4289	3.88	3.56	3.26	3.10	2.94
SPDT - On-Mom	MB2011SS1W01	152-4291	3.70	3.40	3.10	2.96	2.80
DPDT - On-On	MB2085SS1W01	152-4292	4.96	4.56	4.18	3.98	3.78
DPDT - On-Mom	MB2061SS1W01	152-4294	4.84	4.44	4.06	3.86	3.68
Switch Cap							
Black - 13mm	AT414A	152-4295	0.56	0.52	0.46	0.44	0.42

Right Angle LED Illuminated Pushbutton

3.5VA @ 50V dc



- SPDT (NO & NC)
- Low height above PCB
- Reliable self-cleaning contacts
- Surface mount or through hole versions
- Central LED illumination
- Latching or momentary actions
- Long travel with smooth feel

Body - H = 5.16, W = 11.43, D = 20.58mm

Switching Power (Max.)	3.5VA	Operating Force (Full travel)	2.5N
Contact Vontage (Min./Max.)	20mV / 50V	Operating Life	Cycles
Contact Current (Min./Max.)	0.01mA / 250mA	Operating Temperature	-40 to 85°C

483043

Colour LED	Mfrs. List No.	Order Code	1+	10+	Price Each 25+
Momentary action					
Red	ELUMOATHQ3C12	143-7644	3.11	2.88	2.56
Green	ELUMOATHQ6C12	143-7646	3.11	2.88	2.56
Blue	ELUMOATHQ7C12	143-7647	3.24	2.99	2.66
Latching action					
Red	ELUMEETHQ3C12	143-7651	3.19	2.94	2.62
Green	ELUMEETHQ6C12	143-7654	3.25	3.00	2.67
Blue	ELUMEETHQ7C12	143-7655	3.39	3.11	2.77
Momentary action SMD					
Red	ELUMOASAQ3C12	143-7659	3.45	3.16	2.82
Green	ELUMOASAQ6C12	143-7661	3.45	3.16	2.82
Blue	ELUMOASAQ7C12	143-7662	3.57	3.27	2.93
Latching action SMD					
Red	ELUMEEAQA3C12	143-7667	3.58	3.28	2.94
Green	ELUMEEAQA6C12	143-7669	3.58	3.28	2.94
Blue	ELUMEEAQA7C12	143-7670	3.70	3.41	3.04

SPNO, SPNC and SPDT Momentary

0.5A @ 250V ac, (SPDT 50V dc only)



- Switches have different coloured bases to identify them
- Vandal resistant actuator available, fits all switches
- Actuator screws on to front of switch (without normal fixing nut) and is internally and panel sealed to IP66

Switch L=35.4 (body=19.3), Dia=10.3, Panel cut-out=7.1
Vandal resistant actuator L=21.0, Dia.=21.5

Mfrs. List No.

T0916SOAAA=140-690, T0918SOAAA=140-695, T0917SOAAA=147-405, A1015SAAAA=273-259
T0916SOAAB=140-692, T0918SOAAB=140-697,

SW43/213336

Switches	Button Colour	Order Code	1+	50+	Price Each 100+	250+	500+	1K+
SPNO	Black	140-690	2.10	1.99	1.91	1.47	1.19	0.91
SPNO	Red	140-692	2.10	1.99	1.91	1.47	1.19	0.91
SPNC	Black	140-695	2.10	1.99	1.91	1.47	1.19	0.91
SPNC	Red	140-697	2.10	1.99	1.91	1.47	1.19	0.91
SPDT	Black	147-405	1.98	1.91	1.79	1.40	1.13	0.96
Actuator	Black	273-259	6.90	6.49	5.91	5.25	5.08	4.57

SPNO - 1100 Series

0.125A @ 125V ac/45V dc



- Snap-in panel mounting
- Gold contacts
- Solder lug connection

Insulation Resistance >1000MR
Insulation Class II
Operating Life >50000 Cycles
Operating Temperature -20°C to +55°C

Bezel=21 x 15, Body=16.9 x 12.1, Depth=23,
Panel cut-out=19.3 x 13, Tab=2.5 x 0.5

SW318/213261

Type	Mfrs. List No.	Order Code	1+	100+	Price Each 250+	500+
Momentary	T1101BB	733-921	1.65	1.39	1.25	1.05

15

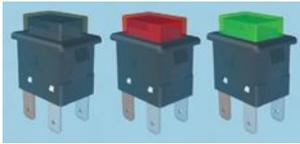
Re-reeling available

Farnell



DPST - MC3310 Series

16(4)A @ 250 Vac



- Non illuminated and illuminated versions available
- Snap-In panel mounting
- 3mm contact gap
- 8mm Isulation spacing
- 4.8 x 0.8 push-on quick connect terminals
- VDE and ENEC Approvals, UL Recognised

Bezel = 21 x 15, Depth 25.5
Body 19.2 x 12.8, Tab = 4.8 x 0.8
Panel Cut-out = 19.2 x 13mm

Ratings - UL/C-UL 16A @ 125V ac, 8A @ 250V
Ratings - VDE / ENEC 16(4)A @ 250V
Contact Resistance 20mohm
Insulation Resistance 50Mohm @ 500V dc
Dielectric Strength 3.5kV
Flamability UL 94V-2

485850

Colour & Function	Mftrs. List No.	Order Code	1+	10+	100+	250+
Non-Illuminated						
Black - Mom	MC3310-031-01	145-4375	1.19	1.15	1.10	1.03
Black - Latching	MC3310-011-01	145-4376	1.19	1.15	1.10	1.03
Illuminated						
Red - Latching	MC3310-051-02	145-4378	1.58	1.50	1.46	1.21
Green - Latching	MC3310-051-05	145-4379	1.58	1.50	1.46	1.21

DPST-8300 Series

12(2)A @ 250 Vac



- Non illuminated and illuminated versions available
- Snap-In panel mounting
- 3mm contact gap (suitable for class II appliances)
- 4.8 x 0.8 push on terminal connection

H8351AB=389-973, H8350AB=389-948,
H8353ABBLK/RED=389-950,
H8353ABBLK/GRN=389-961

Bezel = 21 x 15, Body 19 x 12.1, Depth 25.5
Panel Cut-out=19.2 x 13, Tab = 4.8 x 0.8

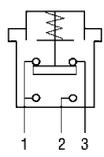
Insulation Resistance >20MR
Insulation Class II
Operating Life 10000 Cycles
Operating Temperature 0°C to +105°C

SW361/213303

	Order Code	1+	10+	25+	100+	250+	500+
Non-Illuminated Switch							
Momentary	389-973	1.45	1.33	1.27	1.21	1.18	1.13
Latching	389-948	1.14	1.09	1.06	1.04	0.98	0.72
Illuminated Switch							
Red, Latching	389-950	2.03	1.94	1.90	1.86	1.57	1.17
Green, Latching	389-961	2.09	1.95	1.86	1.77	1.71	1.48

SPDT Momentary

2(1)A @ 250V ac, 4A 125V ac



- Snap-in panel mounting
- Low cost
- Solder lug connections

Insulation Resistance 1000MR @ 500V dc
Operating Cycles 10000 Cycles
Initial Contact Resistance 10mR @ 1A 2V dc
Operating Temperature -20°C to +55°C

Mftrs.List No. 1415NC + Colour

H=18, W=18, L = 24.0 (19 behind panel),
Panel cut-out=16.5 x 14.3 Max. panel thickness=2

SW141/213104

Button	Order Code	1+	50+	100+	250+	500+
Black	108-2275	1.65	1.55	1.47	1.23	1.09
Red	108-2276	1.65	1.55	1.47	1.23	1.09

Push Button Switches

10A @ 125V ac, 6A @ 250V ac



- SPST & DPST, momentary or latching action versions
- IP 56 alternatives available
- Black nylon frames, UL94V-2
- 4.75mm square, quick connect terminals
- Terminals made from silver plated brass
- UL Recognised



H (Body) = 14.5, Dia. (Bezel) = 23, (Body) = 19.8mm
Dia. (Panel cut-out) = 20.2mm

Rating - 1/2 HP 10A @ 125V ac
Rating - 1/2 HP 6A @ 250V ac
Contact Resistance 50mohm
Insulation Resistance 100Mohm @ 500V dc
Dielectric Strength 1000V ac
Temperature operating -20 to 65°C

520628

Switch Type	Mftrs. List No.	Order Code	1+	10+	100+	250+
Latching action						
SPST	R13-527D-02-BB	163-4667	1.29	1.25	1.19	1.11
DPST	R13-527B-02-BB	163-4669	1.31	1.27	1.21	1.13
SPST - IP 56	R13-527D2-02-BB	163-4671	1.43	1.37	1.31	1.22
DPST - IP 56	R13-527B2-02-BB	163-4673	1.45	1.39	1.34	1.25
Momentary action						
SPST	R13-527C-02-BB	163-4668	1.29	1.25	1.19	1.11
DPST	R13-527A-02-BB	163-4670	1.31	1.27	1.21	1.13
SPST - IP 56	R13-527C2-02-BB	163-4672	1.43	1.37	1.31	1.22
DPST - IP 56	R13-527A2-02-BB	163-4674	1.45	1.39	1.34	1.25

SPNO Momentary

0.25A @ 250V ac, 2A @ 12V dc



- Polished chrome bezel
- Screw terminal connections

Mftrs. List No. MP12/RED=422-228
MP12/BLACK=422-230

L=25, Dia=22, Panel cut-out=19.1

SW105/213070

Button	Order Code	1+	50+	100+	250+	500+
Red	422-228	5.35	4.07	3.36	2.61	2.44
Black	422-230	5.28	3.99	3.16	2.57	2.41

SPST Latching

10(6)A @ 250V ac



- Single pole 10A rated push button with latching action
- Approved to VDE, SEMKO, DEMKO, NEMKO, SETI, BEAB, KEMA, OVE, SEV, NF-USE, IMQ and CSA. UL recognised

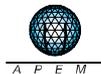
H=20.5, W=23.2, D (behind panel, min.)=23.3
Panel cut-out=12.7 dia., Panel thickness=9.5 max.,
Button dia.=8.0 Tab=4.8 x 0.8

213216

Mftrs. List No.	Order Code	1+	100+	250+	500+
H8500PO	678-168	3.12	2.79	2.35	1.74

SPDT and DPDT, Momentary and Latching

3A @ 250V ac, 4A @ 30V dc



L=39.5, D=22, Panel cut-out=6.4 dia
Body size=10 x 13.2 (SPDT), 12 x 13.2 (DPDT) Bush thread 1/4 x 40 NS, Button dia=4

- Caps in 3 colours, 10mm dia
- Solder terminals
- Momentary and latching types, single and double pole

Initial Contact Resistance <10mR

Mftrs. List No. 8632A=108-2337 8642A=108-2339 U482=108-2522 U486=108-2524
8636A=108-2338 8646A=108-2340 U483=108-2523

213334

Order Multiple=1 Switches	Order Code	1+	25+	100+	250+	500+
SPDT Mom	108-2337	4.43	4.09	3.82	3.53	2.42
SPDT Latching	108-2338	4.43	4.09	3.82	3.53	2.42
DPDT	108-2339	5.18	4.78	4.41	4.15	3.04
DPDT	108-2340	5.64	5.21	4.98	4.76	3.04
Order Multiple=10 Caps						
Black	108-2522	0.14	0.13	0.12	0.11	
Green	108-2523	0.14	0.13	0.12	0.11	
Red	108-2524	0.14	0.13	0.12	0.11	

Over 480,000 products online



Push Button Switches - continued

Sealed Push Button Switches

6A @ 125V ac, 3A @ 250V ac or 6A @ 30V dc



New



- Single unit construction for environmental protection
- Wire lead terminals
- Contact mechanism specially designed for breaking light welds
- Minimal contact bounce achieved with the use of interlocked switching mechanism
- High arc and tracking resistance
- **UL94-V0** Flammability rating for outer housing

Body - H = 38, W = 30.2, D = 20.8mm

Switch Specifications

Electrical capacity	6A @ 125V ac / 6A @ 250V ac or 6A @ 30V
Electrical life	15000 Cycles
Contact resistance	30mohm
Insulation resistance	200Mohm @ 500V dc
Dielectric strength	1500V ac between contacts for 1 minute minimum
Operating temperature	-30°C to 70°C

498415

Switch Type	Mfrs. List No.	Order Code	1+	25+	50+	100+	500+
SPDT - On-On	WB12L	152-4296	21.60	19.88	18.14	17.28	16.42
SPDT - On-Mom	WB15L	152-4297	22.14	20.36	18.60	17.70	16.82
Switch Cap							
Black - 19.0mm	AT412A	152-4298	0.66	0.62	0.56	0.54	0.50

SPDT Momentary - VAQ Series

15A @ 110V ac, 10A @ 230V ac



- Pure silver contacts
- Choice of coloured buttons

RoHS Buttons:

Black = 990-1566 Red = 990-1582

Body: H=21.9, W=18, L=28,
Bush thread=M10, Button diameter=13,
Panel cut-out=10.2 dia

Mfrs. List No. VAQ-0V-15-1C5=990-1655 VAQ-BB=990-1566 VAQ-BR=990-1582

213312

SPDT Switch	Order Code	1+	50+	100+
	990-1655	5.16	4.58	4.17
Switch Cap				
Black	990-1566	0.80	0.71	0.60
Red	990-1582	0.64	0.57	0.48

SPDT and DPDT, Panel Mounting

10(4)A @ 250V ac



- Single and double pole panel mounting switches.
- Momentary-push-pull (reset) - 'Cheat'
- Snap-in mounting.
- Approved to **CSA** and **VDE**. **UL** recognised

Mechanical life 200,000 ops
Operating temperature -40°C to +85°C

H=26.6, W=23.1, D=13.7
Panel cut-out=14.0 x 28.3 (910-569),
36.7 (910-570).

213322

Switch Function	Mfrs. List No.	Order Code	1+	25+	50+	100+	250+
Basic Momentary Action							
SPDT	OE69-00A0	NEW 142-6671	2.93	2.48	2.42	2.19	1.87
DPDT	OE79-00A0	NEW 142-6673	4.88	4.12	4.05	3.63	3.12
Momentary Action							
SPDT	UF69-30A	118-0027	2.67	2.26	2.20	1.99	1.70
DPDT	UF79-30A	118-0028	4.44	3.74	3.68	3.30	2.84
Short Button Momentary Action							
SPDT	OE69-40A0	NEW 142-6672	2.93	2.48	2.42	2.19	1.87
DPDT	OE79-40A0	NEW 142-6674	4.88	4.12	4.05	3.63	3.12

Coming soon



Register your interest for items that are 'Coming Soon' at www.farnell.co.uk and we'll email you to let you know that they're in stock.

SPNO/SPNC Momentary 'Flexibutton'
5A @ 250V ac, 'Flameproof'



L=29.5, Dia=30,
Panel cut-out=22.5

- **IP67** protection to IEC 144/BS5420
- Iceproof to -40°C
- Positive tactile feel
- Flame retardant, **UL** recognised
- Choice of 6 button colours
- Mount into standard DIN 22.5mm hole or by reversing locknut into 25mm dia. hole
- Supplied with locknut and sealing washer

Button colours:	White = 106-207	Red = 106-208	Green = 106-209
	Blue = 106-210	Yellow = 106-211	Black = 106-212

Dielectric strength	1kV for 1min	Electrical life	100000 ops
Insulation resistance	1000MR @ 500V	Mechanical life	10000000 ops
Contact resistance	<25mR (max. initial)	Operating force	6.75N/12.75N
Terminals	Solid silver/solder connect	Operating temperature	-40°C to +80°C

Mfrs. List No. 76-911x/439088, where x=colour

213100

Order Code	1+	25+	50+	100+
All Switches	6.00	5.64	5.40	5.18

Miniature, Sealed, Snap-In

125mA @ 125V ac



- Compact switches, snap in mounting
- Sealed to meet **IP67**
- Constructed from lightweight thermo-plastic **UL94-V0**
- Available in a wide choice of colours

Bezel=17.5 (dia), Depth=13mm,
Panel cut-out=13.6mm (dia),
Tab=5.08mm

Electrical Life	500000 ops	Insulation Resistance	<1MR
Operating Temperature	-40°C to +125°C (standard)	Contact Resistance	<50mR
Total Travel	1.5mm	Operating Force	3N

347607/405608

Colour	Mfrs. List No.	Order Code	1+	10+	25+	50+
Blue	IBR3SAD1	108-2436	4.06	3.79	3.62	3.40
Black	IBR3SAD2	108-2438	3.85	3.60	3.44	3.25
Green	IBR3SAD3	108-2439	3.85	3.60	3.44	3.25
Red	IBR3SAD6	108-2440	3.85	3.60	3.44	3.25

SPNO Momentary

0.125A @ 125V ac, 0.4A @ 32V ac, 0.1A @ 50V dc IP67 Sealed



Round Bezel L=20.0, Bezel dia.=17.45
Square Bezel L=20.0, Bezel=17.45 x 17.45

All Switches
Panel cut-out (single flat)=13.65 x 12.90,
Max. panel thickness=3.0mm, Depth behind panel=13.0mm

- Panel sealed to **IP67**
- Constructed from **NCB 481/1965** approved non-sparking zinc alloy or PBT
- Choice of 6 actuator colours, round, square and PBT round bezel
- Small size, robust construction

Contacts	Palladium Nickel, Gold plated	Electrical life	500000 ops
Contact resistance	50mR	Mechanical life	1000000 ops
Dielectric strength	1000V ac	Operating temperature	-55°C to +125°C
Insulation resistance	1000MR		

Metal round bezel switches:

Black = 519-315 Red = 519-327 Green = 519-339
White = 519-340 Yellow = 519-352 Blue = 519-364

Metal square bezel switches:

Black = 519-376 Red = 519-388 Green = 519-390
White = 519-406 Yellow = 519-418 Blue = 519-420

Plastic round bezel switches:

Black = 443-4390 Red = 443-4407 Green = 443-4419 Orange = 443-4456
White = 443-4420 Yellow = 443-4432 Blue = 443-4444

Mfrs. List No. Bezel: Std Round=59-11 + colour, Std square=59-21 + colour PBT round bezel: 59-51 + colour

311633

Order Code	1+	25+	50+	100+	250+
Metal Bezel Switches	4.80	4.52	4.32	4.15	3.98
Plastic Bezel Switches	3.83	3.56	3.41	3.26	2.51

SPNO Momentary - For Harsh Environments
200mA @ 250V ac/50V dc



- Compact - 13.6mm dia. panel cutout
- Sealed to IP 67
- Zinc alloy construction
- Gold plated, silver contacts

Supplied with 1 x hex. nut (0.551", 14mm across flats) and 1 x 'O' ring
 Operating temperature -40°C to 85°C Terminals Solder lugs, 5.2 x 2.0mm
 Panel thickness 1.5mm to 5.5mm Depth, behind panel 13.2mm
 Torque, applied to nut 1.5 Nm Overall diameter 17.5mm

244897

Chrome Bezel Button colour	Mfrs. List No.	Order Code	1+	10+	25+	50+	Price Each
Black	IPR3SAD2101	108-2446	8.97	8.34	8.00	7.64	
Green	IPR3SAD3101	108-2447	8.97	8.34	8.00	7.64	
Red	IPR3SAD6101	108-2448	8.97	8.34	8.00	7.64	

ON OFF Latching - For Harsh Environments
2A @ 125V ac, 100mA @ 24V dc



- Compact - 13.6mm dia. panel cutout
- Sealed to IP 67
- Zinc alloy construction
- Gold plated, silver contacts

Supplied with 1 x hex. nut (0.551", 14mm across flats) and 1 x 'O' ring

Latching - Non illuminated Illuminated
 Operating temperature -40°C to 85°C Depth, behind panel 13.2mm
 Panel thickness 1.5mm to 5.5mm Overall diameter 17.5mm
 Torque, applied to nut 1.5 Nm LED forward current
 Terminals Solder lugs, 5.2 x 2.0mm

244901

Colour (Non illuminated) Bezel Button	Mfrs. List No.	Order Code	1+	10+	25+	50+	Price Each
Black Black	IPR1SAD2	108-2441	9.64	8.97	8.59	8.21	
Chrome Black	IPR1SAD2101	108-2442	9.64	8.97	8.59	8.20	
Colour (Illuminated) Bezel & button Central LED							
Black Red	IPR1SAD2LOS	108-2444	11.19	10.41	9.97	9.52	
Black Green	IPR1SAD2LOG	108-2443	11.19	10.41	9.97	9.52	
Black Yellow	IPR1SAD2LOY	108-2445	11.19	10.41	9.97	9.52	

Push Button Switches - Momentary
3A @ 125V ac, 1.5A @ 250V ac



- Nylon or nickel plated brass bodied switches, momentary action
- Solder lug terminals
- Brass terminals with silver plating
- Snap-in mounting
- 5.8mm long terminals
- UL Recognised



H (Nylon) = 15, H (Metal) = 17.3, Dia. = 12.7mm
 Rating 3A @ 125V ac Insulation Resistance 100Mohm @ 500V dc
 Rating 1.5A @ 250V ac Dielectric Strength 500V dc
 Contact Resistance 50mohm Flamability UL 94V-2

520513

Switch Function	Mfrs. Colour List No.	Order Code	1+	25+	50+	100+	Price Each
Black Nylon Body							
SPST	Red R13-502A-05-R	163-4621	0.76	0.70	0.63	0.57	
SPST	Black R13-502A-05-B	163-4622	0.76	0.70	0.63	0.57	
Nickel Plated Brass Body							
SPST	Red R13-502MA-05-R	163-4623	1.19	1.08	0.98	0.89	
SPST	Black R13-502MA-05-B	163-4624	1.19	1.08	0.98	0.89	
SPDT	Red R13-502MC-05-R	163-4625	1.39	1.27	1.16	1.06	
SPDT	Black R13-502MC-05-B	163-4626	1.39	1.27	1.16	1.06	

Push Button Switches



3A @ 125V ac, 1.5A @ 250V ac



- SPST, momentary or latching action versions
- Black phenolic bodied switches with ABS (UL 94HB) buttons
- Solder lug terminals
- M12 x 1.0 threaded mounting
- 5.8mm long terminals
- 12.2mm diameter panel cutout
- CSA Approved



H (Body) = 22.9, Bezel = 15.5mm Sq., Button = 11mm Sq.
 Rating 3A @ 125V ac Insulation Resistance 100Mohm @ 500V dc
 Rating 1.5A @ 250V ac Dielectric Strength 1000V ac
 Contact Resistance 50mohm Temperature operating -20 to 65°C

520513

Button Colour	Mfrs. List No.	Order Code	1+	25+	50+	100+	500+	Price Each
Momentary action								
Red	R13-23A-05-BR	163-4627	1.23	1.14	1.07	0.99	0.91	
Black	R13-23A-05-BB	163-4629	1.23	1.14	1.07	0.99	0.91	
White	R13-23A-05-BW	163-4631	1.23	1.14	1.07	0.99	0.91	
Green	R13-23A-05-BG	163-4632	1.23	1.14	1.07	0.99	0.91	
Latching action								
Red	R13-23B-05-BR	163-4633	1.23	1.14	1.07	0.99	0.91	
Black	R13-23B-05-BB	163-4634	1.23	1.14	1.07	0.99	0.91	
White	R13-23B-05-BW	163-4635	1.23	1.14	1.07	0.99	0.91	
Green	R13-23B-05-BG	163-4636	1.23	1.14	1.07	0.99	0.91	

SPNO and SPNC Momentary and Latching
10A @ 250V ac, Impact Resistant



Flush actuator Raised actuator Domed actuator Rotary actuator Large circular actuator
 L=31.0, Dia=30.0 (domed actuator=35.0, large circular actuator=46.5),
 Panel cut-out (double flat)=22.0 x 20.0, Depth behind panel=23.0, Max. panel thickness=6.0

- Impact resistant and panel sealed to IP679
- Constructed from NCB481/1965 approved non-sparking zinc alloy
- Momentary and latching SPNO/SPNC pushbuttons and matching
- 2 position snap-action SPNO/SPNC latching rotary switches

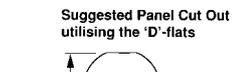
Contacts Silver Insulation resistance 1000Mohm
 Minimum contact rating 10mA @ 5V dc Electrical life @ 20°C
 Contact resistance <25mR Mechanical life 1000000 ops
 Dielectric strength 1000V rms Operating temperature -40°C to +135°C

Mfrs. List No. Flush=76-9410/439088B + colour, Raised=76-9420/439088B + colour
 Domed=76-9450/439088B + colour, Rotary=76-9470/439088G
 76-9430/439088NBlue=607-630, 76-9440/439088NBlue=607-642

SW184/222299

Colour	Order Code	1+	10+	25+	50+	100+	250+	Price Each
Flush Actuator, Momentary								
Black	109-280	9.68	9.11	8.73	8.37	8.03	7.70	
Green	109-281	9.54	8.97	8.60	8.25	7.92	6.74	
Red	109-282	8.67	8.15	7.81	7.47	7.17	6.86	
Blue	273-120	8.84	8.31	7.97	7.64	7.33	7.03	
Raised Actuator, Momentary								
Black	109-283	8.67	8.15	7.81	7.47	7.17	6.86	
Green	109-284	9.49	8.93	8.55	8.19	7.92	6.72	
Red	109-285	8.67	8.15	7.81	7.47	7.17	6.86	
Blue	273-132	9.76	9.20	8.80	8.43	8.07	7.72	
Domed Actuator, Momentary								
Black	241-507	11.86	11.17	10.67	10.19	9.73	9.30	
Green	241-519	11.86	11.17	10.67	10.19	9.73	9.30	
Red	241-520	12.79	11.60	11.38	11.11	10.28	9.40	
Large Circular Actuator, Latching								
Blue	607-630	12.46	11.72	11.23	10.76	10.04	9.62	
Large Circular Actuator, Momentary								
Blue	607-642	11.95	11.25	10.77	10.31	8.83	8.46	
Rotary Actuator, Latching								
Green	241-532	12.46	12.03	11.79	11.56	10.69	9.94	
Red	241-544	11.52	10.84	10.37	9.93	9.50	9.09	

SPNO Momentary - 49-59 Series
0.4A @ 32V ac, 'Sealed'



L=23.8, Bezel=19.8 x 19.8 L=23.1, Bezel dia.=19.8

- Industry standard 16mm cut-out
- IP67 rating
- UL recognised
- Gold contacts, suitable for logic
- switching
- Ideal for retro-fitting
- 500mm lead termination
- Choice of 6 colours

Contact rating (resistive) 0.4A @ 32V dc Dielectric strength 1000V ac
 0.1A @ 50V dc Insulation resistance 1000MR
 0.125A @ 125V ac Electrical life @ 20°C 500000 ops
 Contact resistance 60mR max. (incl. leads) Mechanical life 1000000 ops
 Contacts Gold plated, palladium nickel Operating temperature -55°C to +105°C

SW327/213271

Colour	Mfrs. List No.	Order Code	1+	25+	50+	100+	Price Each
Black	49-59111	734-070	6.18	5.82	5.57	5.33	
Red	49-59112	734-081	6.51	6.12	5.98	5.69	
Green	49-59113	734-093	6.51	6.12	5.98	5.69	
White	49-59114	734-100	6.09	5.73	5.48	5.23	
Yellow	49-59115	734-111	5.13	4.82	4.71	4.49	
Blue	49-59116	734-123	6.09	5.73	5.49	5.25	



Push Button Switches - continued

SPNO Momentary - 49-59 Series - continued

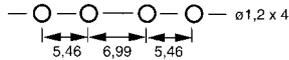
0.4A @ 32V ac, 'Sealed' - continued

Colour	Mfrs. List No.	Order Code	Price Each			
			1+	25+	50+	100+
Square Bezel						
Black	49-59211	734-135	6.18	5.82	5.57	5.33
Red	49-59212	734-147	6.51	6.12	5.98	5.69
Green	49-59213	734-159	6.51	6.12	5.98	5.69
White	49-59214	734-160	3.90	3.66	3.51	3.36
Yellow	49-59215	734-172	6.51	6.12	5.98	5.69
Blue	49-59216	734-184	6.09	5.73	5.38	5.14

SPNO/SPNC Momentary - 49-59 Series
10A @ 250V ac, 'Microswitch'



Round bezel: L=23.1, Dia.=19.8 Square bezel: L=23.8, Bezel=19.8 x 19.8



- Panel sealed to IP67
- Positive snap action
- 110 fast-on terminals with soldering facility
- Push button used with snap-on mains rated microswitch
- UL recognised
- Standard 16mm cut-out

Contacts rating (resistive)	10A @ 250V ac	Electrical life	100000 ops @ 20°C
Contact resistance	25mR		50000 ops @ 70°C
Dielectric strength	1kV ac, 1 minute	Mechanical life	1000000 ops
Insulation resistance	1000MR @ 500V dc	Operating temperature	-55°C to +135°C

SW319/213262

Colour	Mfrs. List No.	Order Code	Price Each			
			1+	25+	50+	100+
Round Bezel						
Black	49-59121	734-196	6.11	5.75	5.50	5.21
Red	49-59122	734-202	6.11	5.75	5.51	5.21
Green	49-59123	734-214	6.71	6.31	6.16	5.88
Yellow	49-59125	734-238	7.30	6.88	6.59	5.88
Blue	49-59126	734-240	6.71	6.31	6.16	5.88
Square Bezel						
Black	49-599081	734-251	6.71	6.31	6.16	5.88
Red	49-59222	734-263	6.11	5.75	5.39	5.15
Green	49-59223	734-275	5.29	4.98	4.86	4.63

Series 76-97 - Coloured, Panel-Sealed
10A @ 250V ac



- Panel sealed to IP67
- Robust construction
- Wide operating temperature range: -40°C to 105°C
- Choice of 7 actuator colours

Contacts	Fine Silver
Contact resistance	25mR
Dielectric strength	1000V ac
Contact resistance	25MR
Electrical life	100000 ops
Mechanical life	2000000 ops
Operating temperature	-40°C to +105°C
Termination	

347658/405521

Pushbutton/ Rim Colour	Mfrs. List No.	Order Code	Price Each			
			1+	25+	100+	250+
Momentary						
Red / Yellow	76-9711/439088R	770-5492	9.64	9.32	8.84	8.13
Green / Yellow	76-9711/439088G	770-5506	9.64	9.32	8.84	8.13
Black / Red	76-9711/439088B	770-5514	9.64	9.32	8.84	8.13
Latching						
Red / Yellow	76-9712/439088R	770-5522	9.49	8.70	8.25	7.97
Green / Yellow	76-9712/439088G	770-5530	9.49	8.70	8.25	7.97
Black / Red	76-9712/439088B	770-5549	9.16	8.70	8.25	7.88

SPNO and SPNC Momentary

5A @ 115Vac or 28Vdc, 2.5A @ 250Vac

OTTO Controls



L=21, Dia=17.5
Panel cut-out=11.9 x 11.3 (single flat), depth behind panel=14.0

- Attractive flush and raised dome actuator button options
- SPNO and SPNC set of gold contacts
- Positive tactile feedback with momentary snap action
- Black thermoplastic case and bezel, sealed to IP64
- Rear panel seal with potted contacts

Contacts	Gold plated silver alloy	Operating temperature	-55°C to +85°C
Mechanical life	1000000 ops		

SW172/213134

Colour	Order Code	Price Each					
		1+	10+	25+	50+	100+	250+
Flush Dome Actuator							
Red	113-8748	4.41	4.20	4.04	3.84	3.64	3.45
Black	113-8749	4.41	4.20	4.04	3.84	3.64	3.45
Yellow	113-8750	4.41	4.20	4.04	3.84	3.64	3.45
Green	113-8751	4.41	4.20	4.04	3.84	3.64	3.45
Blue	113-8752	4.41	4.20	4.04	3.84	3.64	3.45
Grey	113-8754	4.41	4.20	4.04	3.84	3.64	3.45
White	113-8755	4.41	4.20	4.04	3.84	3.64	3.45
Raised Dome Actuator							
Red	113-8756	4.41	4.20	4.04	3.84	3.64	3.45
Black	113-8757	4.41	4.20	4.04	3.84	3.64	3.45
Yellow	113-8758	4.41	4.20	4.04	3.84	3.64	3.45
Green	113-8759	4.41	4.20	4.04	3.84	3.64	3.45
Blue	113-8760	4.41	4.20	4.04	3.84	3.64	3.45
Grey	113-8761	4.41	4.20	4.04	3.84	3.64	3.45
White	113-8762	4.41	4.20	4.04	3.84	3.64	3.45

Illuminated Pushbutton Switches

5A Resistive, 3A Inductive @ 115Vac or 28Vdc



- Watertight per IP68 (submersible to 1 meter water pressure)
- LED lighted with 12V dc
- White LED illumination
- Flush and raised button style
- Positive tactile feedback contact transfer
- Designed to withstand extreme shock and vibration
- Short behind panel depth

Dia. Bezel = 0.69" (17.5mm), Body - Across the Flat 0.448" (11.38mm)
Body Depth - Behind Bezel = 0.34" (8.6mm)

The OTTO LP9 Lighted Dome series is a quality precision switch designed for use in panels, control grips, instruments, heavy equipment and other demanding applications where attractive, rugged, lighted pushbutton switches are required.

The LP9 series offers a positive tactile feedback signaling the operator when the switch is operated with the added benefit of reliable LED illumination. This series offers two button versions; flush and raised profile. The switches come with a threaded case for hex nut mounting.

The LP9 series is constructed to meet the IP68 watertight seal. Expect a minimum of 25,000 operations at full rated load of 5 amperes resistive or 3 amperes inductive; up to one million operations in low level switching.

The LP9 series are momentary snap action double break switches. The LED is white and operates at 12V dc.

Contacts	plated Silver Alloy
Operating force	1.7lbf
Actuator travel	0.080"
Mechanical life	25000 ops
Operating temperature	-55°C to +85°C

502290

Actuator Colour	Mfrs. List No.	Order Code	Price Each				
			1+	10+	25+	50+	100+
Flush Dome Actuator							
Red	LP9-11131K21	155-6025	13.67	12.57	11.48	10.93	10.39
Black	LP9-11131K22	155-6026	13.67	12.57	11.48	10.93	10.39
Yellow	LP9-11131K24	155-6027	13.67	12.57	11.48	10.93	10.39
Green	LP9-11131K25	155-6028	13.67	12.57	11.48	10.93	10.39
Blue	LP9-11131K26	155-6029	13.67	12.57	11.48	10.93	10.39
Grey	LP9-11131K28	155-6030	13.67	12.57	11.48	10.93	10.39
White	LP9-11131K29	155-6031	13.67	12.57	11.48	10.93	10.39
Raised Dome Actuator							
Red	LP9-21131K21	155-6032	13.67	12.57	11.48	10.93	10.39
Black	LP9-21131K22	155-6033	13.67	12.57	11.48	10.93	10.39
Yellow	LP9-21131K24	155-6036	13.67	12.57	11.48	10.93	10.39
Green	LP9-21131K25	155-6037	13.67	12.57	11.48	10.93	10.39
Blue	LP9-21131K26	155-6038	13.67	12.57	11.48	10.93	10.39
Grey	LP9-21131K28	155-6039	13.67	12.57	11.48	10.93	10.39
White	LP9-21131K29	155-6040	13.67	12.57	11.48	10.93	10.39

SPNO and SPNC

10A (5A) @ 115Vac or 28Vdc, 5A @ 240Vac

OTTO Controls



L=35.8, Dia=26.6
Panel cut-out=16,
depth behind panel=25

- Attractive flush and raised dome actuator button options
- SPNO and SPNC set of contacts
- Positive tactile feedback with momentary snap action
- Black anodised case and bezel
- Rear panel seal with potted contacts

Contacts	Silver alloy	Operating temperature	-55°C to +85°C
Mechanical life	1000000 ops		

213149

15

RL Re-reeling available

Farnell

Order Code	Price Each					
	1+	10+	25+	50+	100+	250+
Flush Dome Actuator, Momentary						
Red 113-8742	9.89	9.42	8.93	8.42	7.94	7.00
Black 113-8743	9.89	9.42	8.93	8.42	7.94	7.00
Green 113-8744	9.89	9.42	8.93	8.42	7.94	7.00
Raised Dome Actuator, Momentary						
Red 113-8745	9.89	9.42	8.93	8.42	7.94	7.00
Black 113-8746	9.89	9.42	8.93	8.42	7.94	7.00
Green 113-8747	9.89	9.42	8.93	8.42	7.94	7.00
Raised Dome Actuator, Latching						
Black 113-8770	12.99	12.33	11.71	11.08	10.59	9.56

Tact Pushbutton
50mA @ 12V dc



- SPST
- Momentary action
- Black switch body
- Strong tactile feedback
- Short switch travel
- Low operating force



Bezel - 10mm Square.
O/A H = 8.2mm

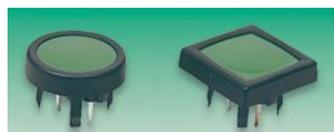
Bezel - Dia. = 10mm
O/A H = 8.2mm

Contact Rating - Max.	50mA @ 12V dc	Operating force	160gf
Mechanical life	100000 operations	Total travel	0.25mm
Contact resistance	<100mohm	Operating temperature	-10°C to +60°C
Insulation resistance	>100Mohm		

501528

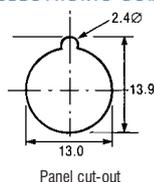
Colour	Mfrs. List No.	Order Code	1+	25+	50+	100+	500+
Non-Illuminated - Square							
Black	TSOA22	155-0253	0.60	0.53	0.46	0.43	0.39
Red	TSOA23	155-0254	0.60	0.53	0.46	0.43	0.39
Green	TSOA26	155-0255	0.60	0.53	0.46	0.43	0.39
Non-Illuminated - Round							
Black	TSOB22	155-0257	0.60	0.53	0.46	0.43	0.39
Red	TSOB23	155-0258	0.60	0.53	0.46	0.43	0.39
Green	TSOB26	155-0259	0.60	0.53	0.46	0.43	0.39
LED Illuminated - Square							
Red	Red TS3A23	155-0260	0.88	0.76	0.67	0.62	0.57
Green	Green TS6A26	155-0261	0.88	0.76	0.67	0.62	0.57
LED Illuminated - Round							
Red	Red TS3B23	155-0262	0.88	0.76	0.67	0.62	0.57
Green	Green TS6B26	155-0264	0.88	0.76	0.67	0.62	0.57

Membrane, SPNO Momentary
125mA @ 48V dc



Dia=18, H=4.2
Pin pitch=7.62

H=4.2, W=18, D=18
Pin pitch=7.62



- Push-fit panel mounting membrane switches with a tactile feel
- Coloured actuator snaps on to black body
- Straight pin connections allow PCB mounting or wirewrap
- 'O' ring kit available, seals switch to IP65

Actuator Colour	Mfrs. List No.	Order Code	Actuator Colour	Mfrs. List No.	Order Code
Round Bezel			Square Bezel		
Switch			Switch		
Red	1241.1104.7093	150-242	Red	1241.1100.793	150-247
Yellow	1241.1104.791	150-243	Green	1241.1100.795	150-248
Black	1241.1104.797	150-244	Black	1241.1100.797	150-249
Green	1241.1104.795	150-245	Yellow	1241.1100.791	150-250
Grey	1241.1104.796	150-246	Grey	1241.1100.796	150-251
Actuator Colour					
'O' Ring					
Sealing Kit	0098.9201	148-921			
Contact resistance	110 to 115mR		Mechanical life	1000000 ops	

SW1/213066

Order Code	Price Each			
	1+	100+	250+	1K+
All Switches	2.14	2.02	1.94	1.86
5 Per Pack	Price Per Pack			
	1+	100+	250+	1K+
Sealing Kit	148-921	2.94	2.73	1.99

Detect Switches

Detect Switch - Card



Left and Right Hand Operating Direction - SMD



A horizontally actuated detector switch with one NO contact. The switch has a side push of 2.15mm with a 40gf to operate. Available with either left hand or right hand operating direction.

H = 2.0, W = 5.5, D (Body) = 5.2 - (Overall) = 8.4mm

Voltage Rating (VDC)	Current Rating (mA)	Dielectric strength (VAC)/1 minute	Contact resistance (Ω)	Insulation resistance (MΩ) @ 100V dc	Operating temp. min/max (°C)
20	50	100	1	100	-10 to 60

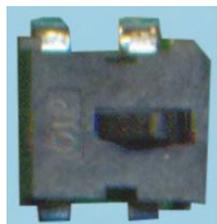
453566

Operating Direction	Mfrs. List No.	Order Code	1+	10+	50+	100+	500+
Right Hand	MCTE-MRR-V	SMD131-6980	0.30	0.27	0.25	0.22	0.20
Left Hand	MCTE-MRL-V	SMD131-6981	0.43	0.39	0.35	0.32	0.29

Detect Switch - Card



Top Actuated - SMD



A top actuated TACT switch with one NO contact. The switch has a low operating force of 40gf with very small overall dimensions.

H = 2.3 - Body. O/A - 5.3 (Long Lever), 3.8 (Short Lever),
W = 4.7, D = 3.8mm

Voltage Rating (VDC)	Current Rating (mA)	Dielectric strength (VAC)/1 minute	Contact resistance (Ω)	Insulation resistance (MΩ) @ 100V dc	Operating temp. min/max (°C)
5	1	100	1	100	-20 to 70

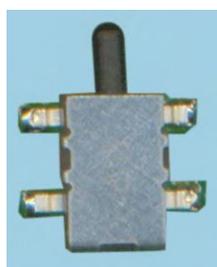
453567

Lever Type	Mfrs. List No.	Order Code	1+	10+	50+	100+	500+
Long	MCATE-1-V	SMD131-6982	0.55	0.49	0.44	0.41	0.37
Short	MCATE-2-V	SMD131-6983	0.54	0.48	0.43	0.40	0.36

Detect Switch - Horizontal



Micro-Miniature - SMD



A horizontally actuated detect switch with a choice of either one NO or one NC contact. The switch requires a side push of 50gf to operate and has a very small PCB footprint.

H = 2.0, W = 4.0, D (Body) = 5.5 - (Overall) = 8.0mm

Voltage Rating (VDC)	Current Rating (mA)	Dielectric strength (VAC)/1 minute	Contact resistance (Ω)	Insulation resistance (MΩ) @ 100V dc	Operating temp. min/max (°C)
5	1	100	2	100	-10 to 60

453568

Contact Style	Mfrs. List No.	Order Code	1+	10+	50+	100+	500+
NO	MCFTE-2C-V	SMD131-6984	0.54	0.48	0.43	0.40	0.36
NC	MCFTE-3C-V	SMD131-6985	0.38	0.34	0.30	0.28	0.25

Side Actuated Detection Switch



1mA - 5V dc



- Ultra-small size and ultra-low profile
- High contact reliability
- High precision operation
- Surface mount
- Available with left or right hand direction of operation
- Standard length and long lever versions available

H = (Body) 0.9, W (Body) = 3,
D (Body) = 3.4mm

Contact Configuration	SPST N/O / SPST N/C	Insulation resistance	100Mohm min
Contact rating - Current	1mA	Dielectric strength	100V ac
Contact rating - Voltage	5V dc	Life cycle	100000 Operations (Min)
Contact resistance	3ohm max	Operating temperature	-25°C to +85°C
Order Code	Mfrs. List No.	Order Code	Mfrs. List No.
133-3657	D3SH-AOR	133-3660	D3SH-BOL
133-3658	D3SH-AOL	133-3661	D3SH-AOR1
133-3659	D3SH-BOR	133-3662	D3SH-AOL1

15

Re-reeling available



Over 480,000 products online

Detect Switches - continued

Side Actuated Detection Switch - continued

1mA - 5V dc - continued

459010

Operating Direction	Contact Type	Order Code	5+	50+	100+	250+	500+
Standard Lever Version							
Right	SPST N/O	SMD133-3657	1.13	1.04	0.95	0.91	0.86
Left	SPST N/O	SMD133-3658	1.13	1.04	0.95	0.91	0.86
Right	SPST N/C	SMD133-3659	0.72	0.66	0.61	0.58	0.55
Left	SPST N/C	SMD133-3660	1.13	1.04	0.95	0.91	0.86
Long Lever Version							
Right	SPST N/O	SMD133-3661	1.13	1.04	0.95	0.91	0.86
Left	SPST N/O	SMD133-3662	0.72	0.66	0.61	0.58	0.55

Micro Mini - Top or Side Actuation

1mA, 5VDC



- Low profile package sits just 3.35mm off PCB
- Design allows top or side actuation
- Low actuation force, 30 grams max
- Pick and place compatible

W=3.5, D=2.8, H=3.35mm

Mfrs. List No.	Contact Voltage (V)	Rating Current (mA)	Contact Resistance (mR)	Insulation (mR)	Operating Temp. (Degree C)
HDT0001	5	1	500	50	10 to 60°C

311824

Mfrs. List No.	Order Code	1+	25+	Price Each 100+	1K+	3K+
HDT0001	957-5154	0.72	0.68	0.61	0.54	0.52

Detect Switch - Top Actuated

Ultra-miniature KSU



- Hard metal actuator
- Totally protected against overload
- Gold contacts
- Compatible with infrared soldering processes and also pick & place machines

A top-actuated detect switch without tactile feedback (linear F/d curve). The momentary action, normally open contacts are designed to be compatible with Surface Mount Technology processes.

Actuating force (N)	Power (VA)	Voltage (V)	Switching current Max (mA)	Contact resistance mΩ	Insulation resistance MΩ's	Operating temp. min/max °C
1.1	0.5	50	10	100	1000	-40 to 125

333927

Mfrs. List No.	Order Code	1+	50+	Price Each 100+
KSU213WLF	SMD120-1432	0.34	0.30	0.24

Detect - Micro Mini

100mA, 12V dc



- Low profile, 2mm height above PCB
- 2mm overtravel
- Low actuator force - 100g max
- Pick and place compatible

W = 5, D = 5.7, H = 2mm

Mfrs. List No.	Contact Voltage (V)	Rating Current (mA)	Contact Resistance (mR)	Insulation (mR)	Operating Temp. (Degree C)
SDS001	12	100	100	100	-20 to 60°C
SDS002	12	100	100	100	-20 to 60°C

241379

Mfrs. List No.	Order Code	5+	50+	Price Each 100+	250+	500+
SDS001 N O	957-5120	0.60	0.57	0.52	0.48	0.46
SDS002 N C	957-5138	1.02	0.91	0.80	0.73	0.68

Tilt Switch

Sealed - Photo interrupter



Straight PCB - Body H=8.8, W=9.5, D=10mm
Right Angle PCB - Body H=9.5, W=10, D=8.8mm

- Photo interrupter ensures high reliability
- Sealed construction for environmental protection
- Totally sealed body for automated processing
- Internal steel ball movement allows functionality of 360°
- Switch is triggered when tilted beyond ±30° of the horizontal
- Operating temperature range -25°C to +80°C

Input	Parameter	Value
Forward	Current (I _f)	50 mA
	Voltage (V _f)	5 V
	Dissipation (P _f)	75 mW
Output	Collector-Emitter Voltage (V _{CE0})	30 V
	Emitter-Collector Voltage (V _{EC0})	3 V
	Collector Current (I _c)	20 mA
	Collector Power Dissipation (P _c)	50 mW

474790

Switch Type	Mfrs. List No.	Order Code	1+	10+	Price Each 50+	100+
Straight PCB	DSBA1P	137-2330	3.86	3.30	2.90	2.58
	DSBA1H	137-2331	3.86	3.30	2.90	2.58

Subminiature Tilt Sensor

PCB Mounting - Discriminating Left or Right



- Subminiature SMD PCB mounting
- Detects the inclination of the sensor between 40° and 80° (Left and Right)
- Reset angle range between 50° and 10°
- Utilizes a highly reliable solid state Hall effect IC
- Low power consumption

H = 7, W = 7, D = 2mm

This Hall effect tilt sensor is ideally suited for vertical or horizontal discrimination of digital cameras, PDA's, cellular phones, picture viewers and general orientation detection.

Angle - Activate	40 to 80° (Left and right)
Angle - Reset	50 to 10°
Supply Voltage	2.4 to 3.6V dc
Current Consumption	10µA
Operating Temperature	-10°C to 60°C

508847

Mfrs. List No.	Order Code	1+	25+	Price Each 50+	100+	250+
D6BN-1	SMD157-3143	2.86	2.46	2.03	1.71	1.61

Navigation Switches

Navigation Switch - Multidirectional

Micro-Miniature - SMD



These multidirectional navigation switches require an operating force of 160gf with a centre push of 320gf. They have a very long electrical life of at least 100,000 cycles.

H = 1.67, W = 4.7, D (Body) = 3.5 - (Overall) = 4.5mm

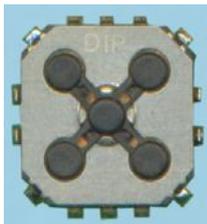
Voltage Rating (VDC)	Current Rating (mA)	Dielectric strength (VAC)/1 minute	Contact resistance (mΩ)	Insulation resistance (MΩ) @ 100V dc	Operating temp. min/max (°C)
12	50	250	100	100	-25 to 85

453569

Directions Number of	Mfrs. List No.	Order Code	1+	5+	Price Each 10+	50+	100+
4	MCMT4-F-V	SMD131-6986	0.75	0.69	0.65	0.60	0.54
5	MCMT5-F-V	SMD131-6987	0.75	0.69	0.65	0.60	0.54

Navigation Switch

5 Way Multidirectional - SMD



A multi-directional TACT switch with a centre push function. The operating force required for the side switches is 180gf while the centre push force is 320gf. The device has an exceptional life expectancy of 200,000 electrical cycles.

H = 1.55, W = 9.8, D = 9.8mm

Voltage Rating (VDC)	Current Rating (mA)	Dielectric strength (VAC)/1 minute	Contact resistance (mΩ)	Insulation resistance (MΩ) @ 500V dc	Operating temp. min/max (°C)
12	50	250	100	100	-20 to 70

453570

Mfrs. List No.	Order Code	1+	5+	10+	50+	100+
MCTT5-V	SMD131-6988	0.73	0.68	0.64	0.59	0.53

Navigation Switch

Push and Lever Series - SMD



This series of 3 way navigation switches has an integrated centre push switch. They have an electrical life in excess of 100,000 operations. The MCPLJ switch requires an operating force of 40gf on the return actuator and 150gf on the centre push switch. The MCPLS series requires 70gf on the return actuator and 200gf on the centre push switch. MCPL3-AC-V switch has an integrated Mounting Knob.

MPLJ - H = 2.55, W = 12, D = 9.3mm MPL3 - H = 2.35, W = 11.8, D = 11.8mm

Voltage Rating (VDC)	Current Rating (mA)	Dielectric Strength (VAC)/1 minute	Contact Resistance (mΩ)	Insulation Resistance (MΩ) @ 500V dc	Operating Temp. min/max (°C)	Order Code
5	10	100	100	100	-25 to 80	131-6991
5	1	100	500	100	-30 to 80	131-6992
5	1	100	500	100	-30 to 80	131-6993

453571

Mfrs. List No.	Force (gf) Push/Slide	Order Code	1+	10+	25+	50+	100+
MCPLJ-G2-K-V	150/40	SMD131-6991	0.84	0.78	0.73	0.69	0.64
MCPL3-AC-V	200/70	SMD131-6992	0.86	0.80	0.76	0.71	0.66
MCPL3-BC-V	200/70	SMD131-6993	0.60	0.56	0.53	0.50	0.46

9 Way Navigation Switch

Centre Push Function



- A centre push switch built into an 8 directional switch
- Strong tactile feel
- Thin shape with main body only 6.4mm thick
- Push travel only 0.2mm
- Rated at 10mA @ 5V dc

H (body) = 6.4, W = 15, D = 14.8mm

Operating angle (°)	Voltage (V dc)	Current Rating (mA)	Voltage proof V ac	Insulation resistance MΩ's	Operating temp. min/max °C
12 ±3	5	10	300	100	-30 to 70

482415

Mfrs. List No.	Order Code	1+	50+	100+
RKJXL100401V	143-5770	3.39	3.13	2.71

9 Way Navigation Switch

Centre Push Function



- A centre push switch built into an 8 directional switch
- Different operating angles and force provided for each operating direction, four + directions and four x directions
- Push travel only 0.3mm
- Rated at 10mA @ 5V dc

H (body) = 6.6, W = 9.9, D = 10.7mm

Operating angle	Voltage (V dc)	Current Rating (mA)	Voltage proof V ac	Insulation resistance MΩ's	Operating temp. min/max °C
10° for + directions, 12° for x directions	5	10	300	100	-30 to 70

482416

Mfrs. List No.	Order Code	1+	50+	100+
RKJXM1015001	143-5771	3.94	3.62	3.15

Navigation Switch

RKJXX Series



Without Center Push Button
Dimensions (mm): H=12.9, W=22.7, D=20.7



With Center Push Button
Dimensions (mm): H=12.9, W=25.4, D=20.7

- Operational feeling free from gaps in operating directions
- With lever return mechanism
- Ideal for finger-tip operation
- Compact size
- Integrated TACT switch™ for selection contributes to the improvement of user-friendliness of the set.
- Operating temperature -10 to 70°C

Applications

- Remote controllers for audio systems and TVs
- Game and electronic toy controllers

Mfrs. List No.	Max Operating Voltage (Vac / Vdc)	Operating Life	Insulation Resistance (mΩ)	Operating Force (N) Direction	Push
RKJXX122000D	50 / 5	100000	100	6	-
RKJXX122400Y	50 / 5	100000	100	6	5.2

524165

Mfrs. List No.	Center Push	Order Code	1+	50+	100+
RKJXX122000D	Without	165-6441	7.22	6.65	6.07
RKJXX122400Y	With	165-6443	7.61	7.00	6.40

4 Way Navigation Switch

With or Without Centre Push Function



- High tactile feedback gives a sharp click feel
- The stem is provided with a shape which allows a button or knob to be fitted
- Snap in type allows automatic flow soldering
- SMD type allows reflow soldering
- Rated at 50mA @ 12V dc

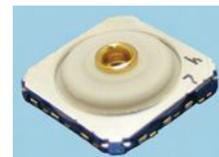
Voltage (V dc)	Current Rating (mA)	Voltage proof V ac	Insulation resistance MΩ's	Operating temp. min/max °C
12	50	100	100	-30 to 85

482417

Mfrs. List No.	Dimensions H x W x D (mm)	Order Code	1+	50+	100+
4 Directional Types					
SKQUAAA010	7.1 x 10 x 10	143-5773	0.82	0.75	0.65
SKQUBAE010	7.1 x 10 x 10	SMD143-5774	1.08	1.00	0.87
4 Direction with Centre Push Types					
SKQUCAA010	10 x 10 x 10	143-5775	1.58	1.45	1.26
SKQUDBE010	8.6 x 10 x 10	SMD143-5776	1.76	1.63	1.42

9 Way Navigation Switch

SSAF Series



Dimensions (mm): H=1.4, W=10.85, D=10.5

- A centre push switch built into an 8 directional switch
- Slide operation has soft feeling made of rubber
- Push travel only 0.25mm
- Reflow solderable
- Operating temperature -10 to 60°C

Applications

- Portable electronic devices
- Mobile phones
- PDAs

Mfrs. List No.	Rating max (V / mA)	Operating Life	Insulation Resistance (mΩ)	Operating Force (N)
SSAF120100	5 / 20	500000	10	0.5
SSAF220100	5 / 20	500000	10	0.5

524163

Mfrs. List No.	Location Lug	Order Code	1+	50+	100+	500+
SSAF120100	Without	SMD165-6439	6.70	6.16	5.63	5.36
SSAF220100	With	SMD165-6440	6.70	6.16	5.63	5.36

Technical information at your fingertips

Over **352,000** technical datasheets available online.



Visit www.farnell.co.uk and look for the **Tech Info** heading in your search results.

15

Re-reeling available



Tri-Direction Scan Switch
Subminiature TPC



A side-actuated miniature switch with normally open contacts. Rotation of the actuator closes two individual contacts (left or right), while pushing down in the central position closes the two (select) contacts.

- Right or left actuation prevent select function actuation
- Good tactile feedback - 1.0N actuating force, left or right. 2N actuating force, select
- Extended life - 100,000 operations per direction
- Compatible with infrared soldering and also pick & place machines

Power Voltage (VA)	Current (V)	Dielectric strength (VDC)	Contact resistance (mΩ)	Insulation resistance (MΩ's)	Operating temp. (min/max °C)
1.0	50	250	300	1000	-40 to 125

241238

Mfrs. List No.	Order Code	1+	50+	100+	Price Each
TPC1133G	SMD120-1401 ●	1.30	1.14	0.96	

Navigation Switch Kits
Navimec Series



- Stand-alone SPNO momentary switches, ready prepared in kits
- 50mA @ 24V dc
- 10,000,000 Operations life
- IP67 sealed
- Temperature range from -40°C to 115°C
- Choice of button colour
- Outer buttons marked with white arrow, Centre button marked with white OK
- Through Hole or Surface Mount versions available

476133

Mfrs. List No.	Order Code	1+	50+	100+	250+	Price Each
Black Buttons						
NAVIKITTH09WL	139-0523 ●	8.75	7.86	6.26	6.12	
NAVIKITSM09WL	SMD139-0524 ●	9.95	8.97	7.96	6.93	
Blue Buttons						
NAVIKITTH30WL	139-0525 ●	9.41	8.45	7.47	6.49	
NAVIKITSM30WL	SMD139-0526 ●	9.95	8.97	7.96	6.93	

Navigation Switch Module
Navimec Series



H(Above PCB) = 10, W = 40, D = 50mm
H(Under PCB) = 7mm (Connector)

- Ready assembled Navimec™ switches on PCB
- 50mA @ 24V dc
- 10,000,000 Operations life
- IP67 sealed switches
- Temperature range from -40°C to 115°C
- Choice of button colour
- Outer buttons marked with white arrow, Centre button marked with white OK
- Under PCB connector JST SMT S10B-PH-SM3-TB

476142

Description	Mfrs. List No.	Order Code	1+	5+	10+	Price Each
Black Button Module	9509136118	139-0595 ●	20.490	19.080	17.510	
Blue Button Module	9530136118	139-0596 ●	20.490	19.260	18.440	
Accessories						
			Price Per Pack of 10			
Connector	PHR-10	361-6265 ●	10+	100+	250+	
			0.075	0.060	0.050	
			Price Per Pack of 100			
Crimp Terminal	BPH-002T-P0.5S	361-7210 ●	100+	250+	500+	
			0.030	0.024	0.020	

Miniature Trackerball
Scanning and Select



- Ergonomic 8mm ball design enables ease of use in all directions
- All-direction scanning plus select functions
- Positive tactile feedback
- 12 pulses per rotation

Typical Applications

- Mobile phones
- Remote controls
- Navigation systems
- Keyboards, notebooks, PC mouse
- Cameras, camcorders
- PDA's
- Game controllers

H = 7.3, W = 12,
D = 12mm (Body)
Length - Lead = 59.3mm

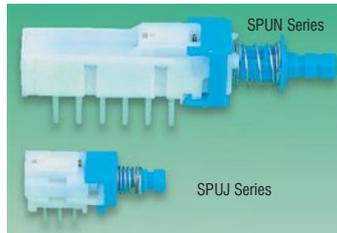
Power (Max.)	0.2VA	Operating Force - Select	2.2N
Voltage (Min./Max.)	20mV / 32V	Operating Life	300000 Cycles
Current (Min./Max.)	1mA / 50mA	Operating Temperature	-30 to 85°C
Operating Force - Scanning	0.35N		

483074

Mfrs. List No.	Order Code	1+	10+	50+	100+	Price Each
TBWB2A00	143-7673 ●	4.99	4.72	4.48	4.23	

Keyboard Switches and Accessories

Horizontally Actuated



- Non-shorting
- Latching
- PC board mounting
- Straight terminals
- Operating temperature -10°C to +60°C

Contact rating 0.1A 30Vdc Life cycles 10000

213243

Standard	Mfrs. List No.	Order Code	1+	50+	100+	Price Each
2 Pole Latching	SPUN191400	112-3855 ●	0.690	0.560	0.530	
4 Pole Latching	SPUN194700	112-3856 ●	1.100	0.920	0.860	
2 Pole Morn	SPUN190900	143-5766 ●	0.690	0.560	0.530	
Miniature						
2 Pole Latching	SPUJ190900	112-3857 ●	0.790	0.650	0.610	
4 Pole Latching	SPUJ193700	112-3858 ●	1.150	0.970	0.910	
6 Pole Latching	SPUJ195500	112-3859 ●	1.570	1.360	1.260	
2 Pole Momentary	SPUJ191500	112-3860 ●	0.820	0.690	0.650	
Order Multiple = 10						
Rectangular Caps for Standard Switches			10+	50+	100+	
Black	PB0150000B	112-3884 ●	0.190	0.167	0.159	
Grey	PB0150000G	112-3885 ●	0.200	0.175	0.167	
Red	PB0150000R	112-3886 ●	0.200	0.175	0.167	
White	PB0150000W	112-3887 ●	0.152	0.134	0.127	
Rectangular Caps for Miniature Switches						
Black	PB0151000B	112-3888 ●	0.195	0.171	0.163	
Grey	PB0151000G	112-3891 ●	0.200	0.175	0.167	
Red	PB0151000R	112-3892 ●	0.200	0.175	0.167	
White	PB0151000W	112-3893 ●	0.100	0.088	0.086	

Right Angle Miniature Pushbutton Switch
Series 100



The series 100 right angle miniature switch is available in momentary or self-lock (maintained) action with a variety of keycap styles and colours. Ideal for high volume, low cost electrical applications

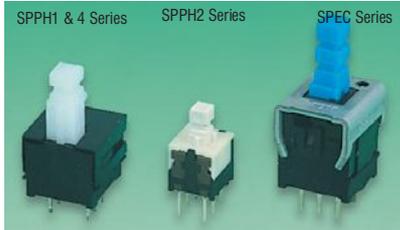
- Momentary or self-lock operation
- Single or Double pole
- Silver contacts
- PCB terminals
- None-shorting contacts
- Low contact resistance, less than 50 mΩ

Rating	500 mA @ 30 VDC (-501 & -502) 800 mA @ 30 VDC (-507 & -508)
Contact Type	None-Shorting
Travel Lock	2.5 mm (0.1")
Force, operating	330 ± 100 Grams (-501 & -502) 230 ± 100 Grams (-507 & -508)
Travel Full	3.5 mm (0.14")
Contact resistance	50 mR max @ 5 VDC, 100mA (-501 & -502)

414085

Action	Mfrs. List No.	Order Code	1+	20+	100+
Actuators					
DPDT	100-510-502	993-5010	1.54	1.47	1.34
SPDT Latching	100-510-507	993-5029	1.28	1.20	1.04
SPDT - Mom	100-510-508	993-5037	0.73	0.69	0.60
Colour					
Black Rectangular	055-002-230	993-5045	0.53	0.48	0.43
Grey Rectangular	055-002-231	993-5053	0.54	0.49	0.44
Chrome Rectangular	055-002-234	993-5061	1.08	0.96	0.86

Vertically Actuated



- SPPH1 & 4 Series - Double Pole, 1.5mm Travel, 0.1A @ 30V dc
- SPPH2 Series - Double Pole, 1.0mm Travel, 0.1A @ 12V dc
- SPEC Series - Double Pole, 2.5mm Travel, 0.1A @ 30V dc

213244

	Mfrs. List No.	Order Code	1+	50+	100+
SPPH1 Series					
Pole Mom2	SPPH110800	143-5767	1.66	1.43	1.33
2 Pole Momentary Standard	SPPH110300	112-3862	1.32	1.13	1.07
SPPH2 Series					
2 Pole Momentary Miniature	SPPH210500	112-3864	1.32	1.13	1.07
SPPH4 Series					
2 Pole Latching	SPPH410100	143-5768	0.89	0.77	0.71
2 Pole Momentary	SPPH410200	143-5769	0.89	0.77	0.71
SPEC Series					
2 Pole Latching Standard	SPEC121100	112-3866	1.97	1.68	1.60

Non-Illuminated, Low Profile



- SPNO momentary keyboard switches for PCB mounting
- Gold crosspoint contacts, keypads are ochre coloured

213388

	Order Code	1+	25+	100+
Low profile switch module	118-0016	0.64	0.58	0.37
Keycap for 118-0016	NEW 152-0545	0.73	0.68	0.62

PCB Mount SPNO, Momentary D6 Series, 100mA @ 100V ac



D6 square 151-137 to 151-144
H above PCB=11.5, Max. dia.=12
Button size= 7.7 x 7.7 square, Lead pitch=5 x 5



D6 round 151-145 to 151-152
H above PCB=14.5, Max. dia.=12
Button size=9.0 dia round, Lead pitch=5 x 5

- Tactile feedback contact operation
- Minimum centre spacing of 12.7mm
- Specially designed for digital electronic controls
- Strapped terminals permit X, Y coding
- Round or square styles in a choice of 8 colours

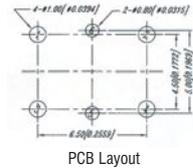
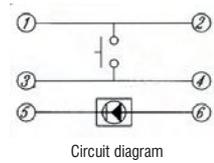
Max. breaking power	6VA	Operating force	1.3N ±30%
Contact resistance	<100mR	Travel	0.8mm ±0.2mm
Insulation resistance	100000MR	Contact bounce	<3ms
Operating life	250000 ops	Operating temperature	-20°C to +85°C

	D6 with Square Button		D6 with Round Button	
	Mfrs. List No.	Order Code	Mfrs. List No.	Order Code
Black	D6C90LFS	120-1367	D6R90LFS	120-1375
Yellow	D6C30LFS	120-1368	D6R30LFS	120-1376
White	D6C00LFS	120-1369	D6R00LFS	120-1377
Green	D6C50LFS	120-1370	D6R50LFS	120-1378
Red	D6C40LFS	120-1371	D6R40LFS	120-1379
Blue	D6C60LFS	120-1373	D6R10LFS	120-1381
Grey	D6C10LFS	120-1374	D6R10LFS	120-1381

213120

	Order Code	1+	25+	100+	250+	1K+
All Order Codes		1.03	0.89	0.75	0.59	0.54

TACT With LED Illumination 50mA @ 12Vdc



H=7, W=6.1, D=4.5



Dia. = 10, cap height = 3.9



Cap height = 3.9, W = 10, D = 10

- Sharp click with positive tactile feed-back
- Ultraminiature and light weight
- Contact moulding prevents flux build-up enabling auto-dipping

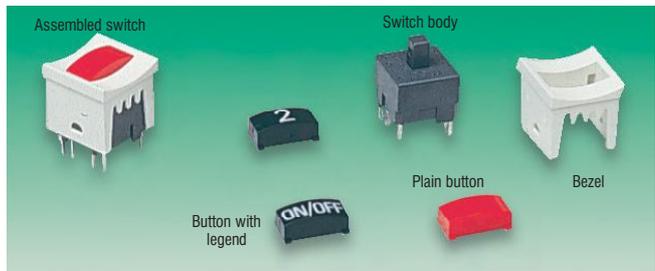
Rating	50mA @ 12V dc	Insulation resistance	100Mohm @ 500V dc
Contact arrangement	SPST	Dielectric strength	250V ac/1 min.
Force, operating	160±50gf	Resistance, contact	100mohm
Stroke	0.20±0.10mm	Operating life	200000 ops
		Operating temperature	-25°C to 70°C

Switch bodies	Mfrs. List No.	Order Code	1+	25+	100+	250+
LED colour						
Red	TLL-62BR	947-1995	0.52	0.45	0.39	0.34
Yellow	TLL-62BY	947-2002	0.49	0.42	0.37	0.32
Green	TLL-62BG	947-2010	0.34	0.29	0.26	0.22

340599/341729

Caps Colour	Order Code	5+	100+	500+	1K+	
	Round	Square				
Ivory	956-1595	956-1668	0.098	0.086	0.078	0.074
Black	956-1609	956-1676	0.134	0.117	0.106	0.101
Red	956-1587	956-1650	0.098	0.086	0.078	0.074
Yellow	956-1560	956-1633	0.098	0.086	0.078	0.074
Green	956-1617	956-1684	0.134	0.117	0.106	0.101
Blue	956-1579	956-1641	0.098	0.086	0.078	0.074

Unimec - DPNO+DPNC Momentary and Latching 250mA @ 120V, 9W ac/6W dc



- PCB/Panel mount switch bodies with 2NO and 2NC contacts,
- Choice of momentary or latching action, and silver or gold contacts
- Range of coloured bezels to fit switch bodies
- 4 x 4 support bracket for up to 16 switches is available, also blanking cap to fit unused switch holes
- Range of plain coloured and legend buttons (white on black) to fit switch bodies

Contact finish	Silver over nickel	Operating force	Momentary 1500000 ops
Dielectric strength	1000V for 2 minutes	Operating temperature	Latching 500000 ops
Insulation resistance	50000000MR		-25°C to +75°C
Capacitance	<0.5pF		

213381

Order Multiple=1	Order Code	1+	50+	100+	250+	500+
Switch Bodies						
Momentary/silver	113-2859	2.060	1.830	1.640	1.530	1.400
Latching/silver	113-2860	2.320	2.080	1.860	1.720	1.580
Momentary/gold	113-2876	3.120	2.770	2.490	2.300	2.120
Latching/gold	113-2877	3.410	3.050	2.730	2.530	2.310
Support Bracket						
	113-2873	2.160	1.910	1.730	1.640	1.480
Legend Buttons						
On / Off	113-2871	0.930	0.810	0.680	0.630	0.590
Reset	113-2872	0.860	0.740	0.630	0.580	0.550

15

Re-reeling available



Tactile Push Button Switches

TACT Switch - Vertical

Ultra Low Profile - SMD



Ultra-low design with a very small profile, dust-proof case for a multitude of applications in telecommunications, video recorders, digital cameras and audio devices.

H = 0.56, W = 4.4, D = 4.75mm

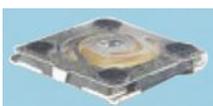
Voltage Rating (VDC)	Current Rating (mA)	Dielectric strength (VAC)/1 minute	Contact resistance (mΩ)	Insulation resistance (MΩ) @ 500V dc	Operating temp. min/max (°C)
12	50	350	100	100	-20 to 70

453572

Mfrs. List No.	Order Code	1+	50+	100+	500+	8K+
MCTJ-416-V	SMD 131-6994	0.320	0.280	0.210	0.170	0.107

Tact Switch - Microminiature

KMX Series



H = 0.58, W = 4.1, D = 4.1mm (Body)

- Ultra low profile
- Compact switch body
- Sharp tactile feel
- Two types - 1.6N and 2.2N actuating force
- Operating temperature -40 to 125°C

Typical Applications

- Cell phones
- Keypads
- Key fob
- White goods
- Medical and military

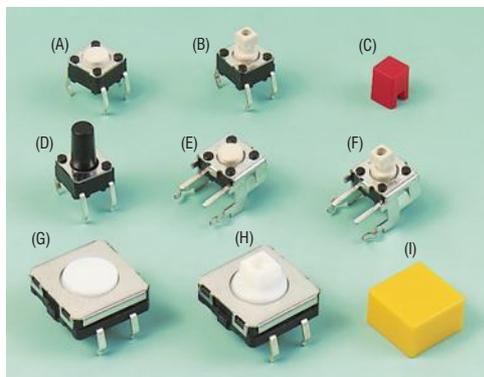
Mfrs. List No.	Power (VA)	Voltage Min (mV dc)/Max (V dc)	Current Min/Max (mA)	Contact resistance mΩ	Insulation resistance GΩ's	Operating force (N)
KMX213G	0.5	32	1/20	100	50	1.6
KMX223G	0.5	32	1/20	100	50	2.2

482972

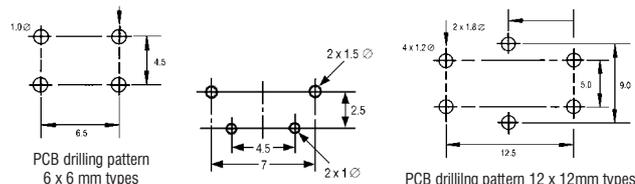
Mfrs. List No.	Order Code	1+	50+	100+	500+	10K+
KMX213G	SMD 143-7632	0.390	0.350	0.280	0.200	0.132
KMX223G	SMD 143-7633	0.390	0.350	0.280	0.200	0.132

PCB Mount, SPNO

B3F/W Series - Sealed and Unsealed, 50mA @ 24V dc



- (A) 176-432 6 x 6 unsealed flat plunger
- (B) 176-433 6 x 6 unsealed projected plunger
- (C) 262-419 4 x 4 switch cap
- (D) 959-698 6 x 6 Extended plunger
- (E) 959-704 7.4 x 7.3 Flat plunger Right Angle
- (F) 959-716 7.4 x 7.3 Projected Plunger Right Angle
- (G) 176-988 12 x 12 sealed flat plunger
- (H) 176-989 12 x 12 sealed projected plunger
- (I) 176-446 9 x 9 switch cap



B3F/B3W1000 Series L=6, W=6, D=4.3 (7.3 projected plunger, 9.5 extended plunger)
 B3F3000 Series L=7.3, H=7.4, D=7.15 (10.15 projected plunger),
 B3F/B3W4000 Series L=12, W=12, D=4.3 (7.3 projected plunger)

- Positive tactile switch action through dome design
- Available with flat, projected or extended plunger
- Horizontal or Vertical mounting options available
- Available either unsealed or sealed suitable for immersion cleaning or harsh environments
- Range of coloured caps available suitable for all projected plungers

4 x 4mm caps suitable for all 6 x 6mm switches with projected plunger:
 Black= 176-437 Yellow = 176-439 Blue = 176-440
 Red= 262-419 Green = 262-407

9 x 9mm caps suitable for all 12 x 12mm switches with projected plunger:
 Black = 176-444 Yellow = 176-446 Red = 176-447
 Cream = 176-443 Green = 262-420 Red = 262-432

Min. permissible load	1mA @ 5V dc	Mech. + elec. life
Contact resistance	<100mR	B3F1000 10 x 10 ⁶ ops min.
Insulation resistance	100MR @ 250V dc	B3F4000 30 x 10 ⁶ ops min.
Dielectric strength	ac for 1 min	

Mfrs. List No.	Order Code	5+	100+	250+
B3F-1000=176-432	176-432	0.530	0.450	0.420
B3F-1070=959-698	176-433	0.560	0.510	0.440
B3W-1050=176-987	959-698	0.270	0.250	0.240
B3W-4000S=176-988	959-704	0.480	0.430	0.410
B32-1010=176-437	959-716	0.480	0.430	0.410
B32-1030=176-439	176-434	0.280	0.250	0.220
B32-1050=262-407	176-435	0.550	0.490	0.430
B32-1200=176-443				
B32-1240=176-447				
B3F-1050=176-433	B3F-3100=959-704	B3F-4000=176-434	B3F-4050=176-435	B3W-1000=176-986
B3W-1050=176-987	B3W-4000S=176-988	B3W-4050=176-989	B32-1000=176-436	B32-1080=262-419
B32-1010=176-437	B32-1030=176-439	B32-1040=176-440	B32-1080=262-419	B32-1230=176-446
B32-1050=262-407	B32-1200=176-443	B32-1210=176-444		
B32-1240=176-447	B32-1250=262-420	B32-1280=262-432		

213076

Order Multiple=5

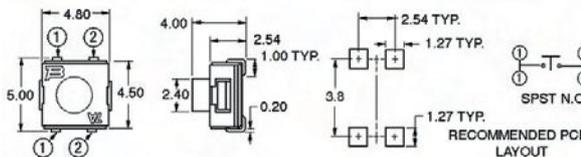
Unsealed Switches - B3F	Order Code	5+	100+	250+
6 x 6mm, flat	176-432	0.530	0.450	0.420
6 x 6mm, projected	176-433	0.560	0.510	0.440
6 x 6mm, extended	959-698	0.270	0.250	0.240
7.4 x 7.3mm, flat right angle	959-704	0.480	0.430	0.410
7.4 x 7.3mm, projected right angle	959-716	0.480	0.430	0.410
12 x 12mm, flat	176-434	0.280	0.250	0.220
12 x 12mm, projected	176-435	0.550	0.490	0.430
Sealed Switches - B3W				
6 x 6mm, flat	176-986	0.550	0.520	0.460
6 x 6mm, projected	176-987	0.680	0.610	0.550
12 x 12mm, flat	176-988	0.550	0.520	0.460
12 x 12mm, projected	176-989	0.620	0.570	0.510
Caps for projected plungers	All Order Codes	0.270	0.196	0.180

SPNO, 4mm

100mA @ 24V



- Surface mount 4mm size
- Positive tactile operation
- Sealed construction
- Compatible with all surface mount soldering processes



Current rating	100mA	Voltage rating	250Vac
Contact resistance	100mR max	Dielectric strength	10000 actuations
Insulation resistance	100MR min @ 500V dc	Operating temperature	-55°C to +125°C

Mfrs. List No. 7914J-001-000

213188

Order Multiple=5	Order Code	5+	25+	100+	250+
	SMD 112-3624	0.68	0.60	0.53	0.47

6mm Square Reflow Light Touch Switches



- Easy operation with push plate
- Low Contact Resistance
- Short push travel - 0.25 mm
- J - bend or Straight terminals available
- Suitable for use as control switches in small electronic devices

H = 3.1, D = 6.5, W = 6.5mm

Mfrs. List No. (J Bend Terminals)	Operating Force (JN)	Operating Life (Cycles - Min.)	Mfrs. List No. (Straight Terminals)	Operating Force (JN)	Operating Life (Cycles - Min.)
EVQQ2B03W	0.5	2000000	EVQQ2T03W	0.5	2000000
EVQQ2F03W	1	1000000	EVQQ2X03W	1	1000000
EVQQ2P03W	1.6	1000000	EVQQ2403W	1.6	1000000
EVQQ2U03W	2.6	200000	EVQQ2503W	2.6	200000
EVQQ2Y03W	3.5	100000	EVQQ2703W	3.5	100000

Rating 20mA @ 15 VDC
 Operating temperature -40°C to 85°C
 Contact Resistance 100 mΩ
 Contacts SPST

15

Re-reeling available



Tactile Push Button Switches - continued

6mm Square Reflow Light Touch Switches - continued

414301

Mfrs. List No.	Order Code	1+	50+	100+
J Bend Terminals				
EVQ02B03W	996-2832● RL	0.380	0.290	0.230
EVQ02F03W	996-2840● RL	0.370	0.280	0.220
EVQ02P03W	996-2858● RL	0.380	0.290	0.230
EVQ02U03W	996-2867● RL	0.191	0.143	0.111
EVQ02Y03W	996-2875● RL	0.191	0.143	0.111
Straight Terminals				
EVQ02T03W	996-2883● RL	0.185	0.139	0.111
EVQ02X03W	996-2891● RL	0.220	0.158	0.121
EVQ02403W	996-2905● RL	0.370	0.280	0.220
EVQ02503W	996-2913● RL	0.185	0.139	0.108
EVQ02703W	996-2921● RL	0.380	0.290	0.230

Tact Switches SPNO



RAISED (6mm)

MCDTS6 (6 x 6mm)

MCDTSHW6 Sealed 6 x 6mm
MCTH4-47 7.4 x 7.4mm

MCDTSA6 Right Angled (6 x 6mm)

MCDTJSW6 SMD Washable (6 x 6mm)

TA3 Right Angle 6.5 x 6.3mm

MCTA4-58 Right Angle 8 x 9.5mm

- Comprehensive range of SPNO tact switch
- High reliability, long operating life
- Select by overall height, body and actuator length, and operating force

Applicable Series	MCDTS2, MCDTS6, MCDTSHW6, MCDTSA6 & MCDTJSW6	MCTA3	MCTA4 & MCTH4
Voltage rating	12V dc	5V dc	50V dc
Current rating	50mA	1.5mA	50mA

213130

Order Multiple=5	Order Code	5+	50+	100+	250+	500+
Actuator style/Operating Force (gf)						
MCDTS2 Series (12mm x 12mm) - PCB drilling 12.5mm x 5.0mm						
	Raised/160	947-1634●	0.360	0.330	0.300	0.270
	Flat/160	947-1642●	0.360	0.330	0.300	0.270
	Raised/260	947-1650●	0.380	0.340	0.310	0.280
	Flat/260	947-1669●	0.370	0.340	0.310	0.280
MCDTS6 Series (6mm x 6mm) - PCB drilling 6.5mm x 4.5mm						
Overall height/Operating Force (gf)						
	4.3mm/100	947-1677●	0.220	0.200	0.181	0.161
	4.3mm/160	947-1685●	0.220	0.200	0.181	0.161
	4.3mm/260	947-1693●	0.220	0.200	0.181	0.161
	5mm/160	947-1707●	0.270	0.250	0.200	0.190
	5mm/260	947-1715●	0.280	0.250	0.200	0.191
	7mm/100	947-1723●	0.270	0.250	0.200	0.189
	7mm/160	947-1731●	0.270	0.250	0.200	0.189
	7mm/260	947-1740●	0.280	0.250	0.210	0.192
	9.5mm/100	947-1758●	0.280	0.260	0.210	0.194
	9.5mm/160	947-1766●	0.280	0.260	0.210	0.194
	9.5mm/260	947-1774●	0.280	0.260	0.210	0.195
MCDTSHW6 Series (6mm x 6mm) Washable - PCB drilling 6.5mm x 4.0mm						
	3.8mm/160	947-1782●	0.470	0.420	0.380	0.350
MCDTSA6 Series (6mm x 6mm) Right Angled - PCB drilling about C/L of actuator 4.5mm & 7.0mm row separation 2.5mm						
Overall length (Switch body & actuator)/Operating force (gf)						
	8.35mm/100	947-1790●	0.330	0.300	0.270	0.250
	8.35mm/160	947-1804●	0.330	0.300	0.270	0.250
	8.35mm/260	947-1820●	0.330	0.300	0.280	0.250
	3.85mm/100	947-1839●	0.330	0.310	0.280	0.260
	3.85mm/160	947-1847●	0.330	0.310	0.280	0.260
	3.85mm/260	947-1855●	0.330	0.300	0.270	0.250
MCDTJSW6 Series (6mm x 6mm) SMD Washable						
Overall height/Operating force (gf)						
	2.3mm/160	947-1863●	0.510	0.460	0.410	0.370
	3.1mm/160	947-1871●	0.570	0.510	0.460	0.410
MCTA3 Series (6.5mm x 6.3mm)						
Overall height/Operating force (gf)/Actuator Length						
	6.5mm/180/2.3mm	SMD 160-7140● NEW	0.570	0.540	0.510	0.490
	6.5mm/180/2.8mm	SMD 160-7141● NEW	0.530	0.500	0.480	0.450
	6.5mm/180/4mm	SMD 160-7142● NEW	0.570	0.540	0.510	0.490
	6.5mm/180/4.35mm	SMD 160-7143● NEW	0.530	0.500	0.480	0.450
	6.5mm/260/2.3mm	SMD 160-7144● NEW	0.570	0.540	0.510	0.490
	6.5mm/260/2.8mm	SMD 160-7146● NEW	0.570	0.540	0.510	0.490
	6.5mm/260/4mm	SMD 160-7147● NEW	0.610	0.580	0.550	0.520
	6.5mm/260/4.35mm	SMD 160-7148● NEW	0.530	0.500	0.480	0.450
MCTA58 Series (8mm x 9.5mm)						
Overall height/Operating force (gf)						
	8mm/130	160-7149● NEW	0.410	0.390	0.370	0.350
	8mm/300	160-7150● NEW	0.450	0.430	0.410	0.380
MCTH47 Series (4.7mm x 7.4mm x 7.4mm)						
Overall height/Operating force (gf)						
	4.7mm/130	160-7151● NEW	0.410	0.390	0.370	0.350
	4.7mm/300	160-7152● NEW	0.450	0.430	0.410	0.380

Caps for MCDTS2 series



- Round and square caps for use with 12x12 MCDTS2 series of Multicom tact switches
- Square caps :
- Red = 956-1463
 - Green = 956-1439
 - Yellow = 956-1447
 - Blue = 956-1455
 - Ivory = 956-1471
 - Black = 956-1480
- Round caps :
- Orange = 956-1498
 - Green = 956-1501
 - Yellow = 956-1510
 - Blue = 956-1528
 - Red = 956-1536
 - Ivory = 956-1544
 - Black = 956-1552

336003

Order Multiple=5	Order Code	5+	100+	500+
All Order Codes				
		0.039	0.021	0.018

Tactile Switch - SPST SKHH Series



Vertical Dimensions (mm):
H=3.5, W=6, D=6

Horizontal Dimensions (mm):
H=6, W=6, D=3.5

- Snap-in type allows switch to be mounted directly onto the PC board
- Part of the output terminal can also be applied as jumper leads, making circuit design easier
- Horizontal or Vertical mounting options available
- Operating temperature -35 to 85°C

Applications

- Audio equipment
- Office devices
- Communication devices
- Measuring devices
- TVs, VCRs and in-car components

Mfrs. List No.	Input max (V / mA)	Operating Life	Contact Resistance (mΩ)	Operating Force (N)
SKHHAKA010	12 / 50	1000000	100	0.98
SKHHAMA010	12 / 50	500000	100	1.57
SKHHARA010	12 / 50	200000	100	2.55
SKHHLMA010	12 / 50	1000000	100	0.98
SKHHLNA010	12 / 50	500000	100	1.57
SKHHLPA010	12 / 50	200000	100	2.55

524082

Mfrs. List No.	Order Code	5+	25+	Price Each 50+	100+	500+
Vertical						
SKHHAKA010	165-6423●	0.189	0.168	0.147	0.137	0.126
SKHHAMA010	165-6424●	0.189	0.168	0.147	0.137	0.126
SKHHARA010	165-6425●	0.189	0.168	0.147	0.137	0.126
Horizontal						
SKHHLMA010	165-6426●	0.240	0.210	0.189	0.179	0.168
SKHHLNA010	165-6427●	0.240	0.210	0.189	0.179	0.168
SKHHLPA010	165-6428●	0.240	0.210	0.189	0.179	0.168

Tact Switch - Miniature KSR/KMR Sealed



Dimensions: KMR W = 4.6, D = 2.8 H = 1.9, KSR W = 6, D = 3.7 H = 2.5mm

Mfrs. List No.	Power (VA)	Voltage Min (mV)/Max (V)	Current Min/Max (mA)	Contact resistance mΩ	Insulation resistance MΩ2's	Operating temp. min/max °C
KSR221G LFS	1	20/50	1/50	100	1000	-40 to 85
KSR211G LFS	1	20/50	1/50	100	1000	-40 to 85
KSR231G LFS	1	20/50	1/50	100	1000	-40 to 85
KSR251G LFS	1	20/50	1/50	100	1000	-40 to 85
KMR211G LFS	1	32V dc max	1/50	100	1000	-40 to 85
KMR221G LFS	1	32V dc max	1/50	100	1000	-40 to 85
KMR231G LFS	1	32V dc max	1/50	100	1000	-40 to 85
KMR241G LFS	1	32V dc max	1/50	100	1000	-40 to 85

241370

15

Re-reeling available

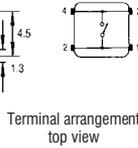
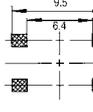
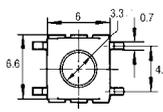


Over 480,000 products online



Mfrs. List No.	Operating force (N)	Order Code	1+	50+	100+
KSR221G LFS	1.2	SMD120-1421 ●	0.46	0.39	0.34
KSR211G LFS	1.8	SMD143-7634 ●	0.35	0.30	0.26
KSR231G LFS	3	SMD120-1422 ●	0.45	0.39	0.34
KSR251G LFS	4.5	SMD120-1423 ●	0.35	0.30	0.26
KMR211G LFS	1.2	SMD143-7635 ●	0.35	0.30	0.26
KMR221G LFS	2	SMD120-1424 ●	0.45	0.39	0.34
KMR231G LFS	3	SMD143-7636 ●	0.35	0.30	0.26
KMR241G LFS	4	SMD143-7637 ●	0.35	0.30	0.26

SPNO B3S Series - Sealed



Flat plunger H (max)=4.3 Dimensions PCB footprint Terminal arrangement top view

- Surface mount version of Omron B3W keyswitch
- Sealed construction, suitable for PCB immersion cleaning
- General purpose and high force actuation versions available



Min. permissible load	1mA @ 5V dc (resistive)	Mech. + elec. life	500000 ops min
Contact resistance	100mR max	Operating force	160g (230g high force)
Insulation resistance	100MR max	Pre-travel	0.25±0.2 - 0.1mm
Dielectric strength	500V ac/dc for 1 min	Operating temperature	-25°C to +70°C

Mfrs. List No. B3S1000=177-807, B3S1002=959-728

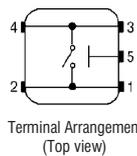
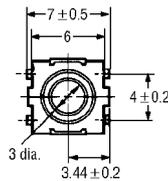
213174

Actuation force	Order Code	1+	50+	100+	250+	500+
General purpose	SMD177-807 ● RL	0.46	0.42	0.40	0.38	0.36
High-Force	SMD959-728 ● RL	0.46	0.42	0.40	0.38	0.36

SPNO B3SN Series - Sealed

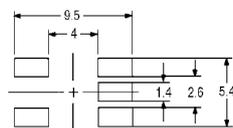


30mA @ 24V dc



Flat plunger H=3.1

- Low profile, meets high-density mounting requirements
- Compact design - more than 1mm thinner than conventional key switches
- Sealed construction provides high reliability in dusty or humid environments
- Ground terminal for protection against static electricity



PCB mounting (Top view)

Contact rating	30mA	Voltage rating	24V dc
Contact resistance	100mR max	Dielectric strength	250V ac
Insulation resistance	100MR min	Life cycle	50000 actuations
Operating temperature	-25°C to +70°C		

Mfrs. List No. B3SN-3112=990-2031

B3SN-3012=118-1018

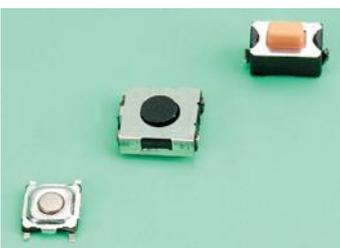
213281

Ground Terminal Version	Order Code	1+	50+	100+	250+	500+
With	SMD990-2031 ● RL	0.62	0.57	0.53	0.48	0.45
Without	SMD118-1018 ●	0.58	0.54	0.49	0.45	0.42

Tact Switches - SPNO



50mA @ 12Vdc - Sharp Click



- Long life
- Short stroke
- Sharp click positive tactile feedback

TM-533-T/R DTSL-61K-B DTSM-32S-B
DTSL-61R-B TAEF

Current rating	50mA	Voltage rating	12Vdc min.
Contact resistance	100mR max	Insulation resistance	100MR 500 Vdc
Dielectric strength	250 Vac/1 minute	Stop strength	3kgf 15 Sec.
Operating temperature	-25°C to +70°C	Wave solder	260°C max 5 sec.
Electrical life	100000 operations min	Hand solder	320°C 2 sec./30W iron
Materials	Base: High temp. thermoplastic (947-1880) Stem: Brass (947-1880)		Nylon, UL recognised

Operation Force	Stroke	Dimensions (mm)			Mfrs. List No.	Order Code
gf	mm	H	W	D		
160	0.25	1.5	5.2	5.2	TM-533-T/R	947-1880
320	0.25	3.5	6	3.5	DTSM-32S-B	947-1898
160	0.25	2.5	6.4	6.4	DTSL-61K-B	947-1901
160	0.25	2.5	6.4	6.4	DTSL-61R-B	947-1910
200	0.3	1.7	6	3.8	MCTAEF-25N-V	160-5484
300	0.35	1.7	7.3	3.8	MCTAEF-25R-V	160-5485
450	0.45	1.7	7.3	3.8	MCTAEF-25S-V	160-5486

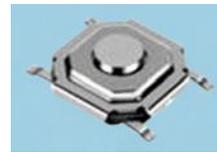
233660

Mfrs. List No.	Order Code	5+	50+	100+	250+
TM-533-T/R	SMD947-1880 ●	0.350	0.310	0.290	0.270
DTSM-32S-B	SMD947-1898 ●	0.250	0.210	0.195	0.168
DTSL-61K-B	SMD947-1901 ●	0.250	0.220	0.200	0.168
DTSL-61R-B	SMD947-1910 ●	0.320	0.290	0.270	0.250
MCTAEF-25N-V	NEW SMD160-5484 ●	0.260	0.240	0.210	0.200
MCTAEF-25R-V	NEW SMD160-5485 ●	0.280	0.260	0.220	0.210
MCTAEF-25S-V	NEW SMD160-5486 ●	0.290	0.270	0.250	0.220

Tactile Switch - SPST



SKQG Series



Dimensions (mm): H=1.2, W=5.2, D=5.2

- Suitable for high density mounting with dimensions of 5.2 x 5.2mm
- Reflow solderable
- Vertical mounting
- Operating temperature -30 to 85°C

Applications

- Audio equipment
- Video recorders
- Communication devices
- Cameras
- Notebook PCs

Mfrs. List No.	Input max (V / mA)	Operating Life	Contact Resistance (mΩ)	Operating Force (N)
SKQGABE010	12 / 50	500000	100	1.57
SKQGADE010	12 / 50	100000	100	2.55
SKQGAKE010	12 / 50	100000	100	3.43

524159

Mfrs. List No.	Order Code	5+	25+	50+	100+	500+
SKQGADE010	SMD165-6433 ●	0.34	0.29	0.26	0.23	0.20
SKQGADE010	SMD165-6434 ●	0.34	0.29	0.26	0.23	0.20
SKQGAKE010	SMD165-6435 ●	0.34	0.29	0.26	0.23	0.20

SPST-NO B3U Series



30mA - 12V dc



- Ultra-small size
- Dust-proof construction
- Surface mount
- Available with or without mounting boss



H = (Body) 1.2, W (Body) = 3, D (Body) = 2.5mm

Contact Configuration	SPST N/O	Insulation resistance	100Mohm min
Contact rating - Current	1 to 50mA	Dielectric strength	250V ac
Contact rating - Voltage	5 to 12V dc	Life cycle - Top/Side	200000 / 100000 Operations (Min)
Contact resistance	100mohm max	Operating temperature	-25°C to +70°C

Order Code	Mfrs. List No.	Order Code	Mfrs. List No.
133-3652	B3U-1000P	133-3655	B3U-3000P
133-3654	B3U-1000P-B	133-3656	B3U-3000P-B

458997

Mounting Type	Order Code	5+	50+	100+	250+	500+
Top Actuated Version						
Without Boss	SMD133-3652 ●	0.55	0.49	0.45	0.43	0.41
With Boss	SMD133-3654 ●	0.57	0.53	0.47	0.45	0.43
Side Actuated Version						
Without Boss	SMD133-3655 ●	0.55	0.49	0.45	0.43	0.41
With Boss	SMD133-3656 ●	0.57	0.53	0.47	0.45	0.43

Over 480,000 products online



15

RL Re-reeling available



Tactile Push Button Switches - continued

Ultra-Low Profile Dome Key

Tactile - B3D Series



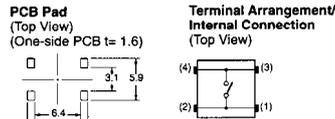
- No soldering required. Attach directly to PCB to make an ultra-low profile tactile switch
- Construction provides strong resistance to static electricity by having no soldered terminals
- Matrix adhesive used to create highly dust-proof construction with good ventilation
- Lower profile, lighter weight and crisp clicking action achieved using stainless steel contact dome
- Omron's unique circular contact action ensures a high level of resistance to foreign matter
- Supplied as a Sheet of 25, on a 5 x 5 grid

	B3D-4112 4mm	B3D-5112 5mm
Diameter of Contact Dome	4mm	5mm
Operating Force	1.67±0.49 N	
Releasing Force	0.2N min.	
Pretravel	0.2±0.1 mm	
Thickness	0.3±0.1 mm	
Life Expectancy	500,000 operations min.	1,000,000 operations min.
Switching Capacity	12 VDC, 10mA (resistive load) recommended minimum load: 3 VDC, 1mA (resistive load)	
Ambient Operating Temperature	-40 to 80°C	
Ambient Storage Temperature	-40 to 85°C	
Contact Dome	Stainless Steel	
Plating	Silver	

386006/405606

Mfrs. List No.	Order Code	Price Per Sheet of 25			
		1+	25+	100+	250+
B3D-4112	877-4455	6.86	5.04	4.17	3.95
B3D-5112	877-4471	6.86	5.04	4.17	3.95

SPNO B3FS Series



H=2.6 (3.1 or 4.3 flat plunger, 7.3 extended plunger)

- Low cost unsealed switch specifically designed for no clean production processes
- Available in 2 operating force versions, 100gf and 150gf
- Suitable for re-flow soldering
- Positive tactile feedback
- Available with extended plungers which allow use of B3F series cap

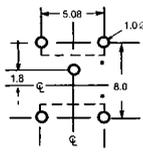
Contact rating	50mA	Minimum load	1mA 5Vdc
Contact resistance	100mR	Operating life	1000000 ops min (standard),
Voltage rating	24Vdc		

222302

Order Multiple=5	Mfrs. List No.	Order Code	Price Each			
			5+	50+	100+	250+
Flat Plunger - 3.1mm Height	100gf	B3FS-1000	0.40	0.39	0.38	0.37
	150gf	B3FS-1002	0.40	0.39	0.38	0.37
Flat Plunger - 4.3mm Height	100gf	B3FS-1010	0.40	0.39	0.38	0.37
	150gf	B3FS-1012	0.40	0.39	0.38	0.37
Extended Plunger	100gf	B3FS-1050	0.42	0.35	0.30	0.26
	150gf	B3FS-1052	0.42	0.35	0.30	0.26

PCB Mount, SPNO Momentary

50mA @ 24V dc



- Low profile snap-action SPNO switch
- Very short stroke 0.3mm
- Precious metal contact system gives long life and reliability

Maximum contact chatter 5ms
Dielectric withstand voltage 250V dc for 1 minute
Operating temperature -20°C to +80°C

Mfrs. List No.
FES311121=146-202 FES311161=146-203
FES311131=146-204 FES311171=146-205

212374

Colour	Order Code	Price Each				
		1+	25+	100+	250+	1K+
Red	146-202	1.97	1.69	1.50	1.22	1.11
Dark Grey	146-203	1.97	1.69	1.50	1.22	1.11
Light Grey	146-204	1.97	1.69	1.50	1.22	1.11
Blue	146-205	1.97	1.69	1.50	1.22	1.11

Tact Switches - SPNO

50mA @ 12Vdc



Side Push
H = 1.42, W = 4.34, D = 3.55mm



Vertical Push
W = 4.34, D = 2.8mm



- Compact size
 - Easy for Pick and Place
 - Dust proof to IP40
 - Side Push and Vertical Push types available
- | | | | |
|-----------------------|-----------------------|-----------------------------------|-------------------|
| Current rating | 50mA | Voltage rating | 12V dc |
| Contact resistance | 100mR max | Insulation resistance | 100Mohm @ 100V dc |
| Dielectric strength | 100V ac / 1 minute | Stroke | 0.25mm |
| Operating temperature | -30°C to +80°C | Operating force - Horizontal Push | 220gf |
| Electrical life | 100000 operations min | Operating force - Vertical Push | 160gf |

511524

Order Multiple=5	O/A Height (mm)	Mfrs. List No.	Order Code	Price Each				
				1+	50+	100+	500+	1K+
Horizontal Push	1.42	MCIPTG14K-V	SMD-160-5469	0.280	0.260	0.220	0.210	0.194
	Vertical Push	1.9	MCIPTG23K-V	SMD-160-5470	0.290	0.270	0.250	0.220
	2.5	MCIPTG33K-V	SMD-160-5472	0.310	0.290	0.260	0.240	0.220

TACT Switch - Horizontal



Micro-Miniature - SMD



A horizontally actuated TACT switch with one NO contact. The switch has a side push of 0.3mm with a 220gf to operate and a very small PCB footprint. Available with (947-1987) or without (131-6979) Locating Posts.

H = 1.67, W = 4.7, D (Body) = 3.5 - (Overall) = 4.5mm

Voltage Rating (VDC)	12	Current Rating (mA)	50	Dielectric strength (VAC)/1 minute	250	Contact resistance (mΩ)	100	Insulation resistance (MΩ) @ 500V dc	100	Operating temp. min/max (°C)	-25 to 70
----------------------	----	---------------------	----	------------------------------------	-----	-------------------------	-----	--------------------------------------	-----	------------------------------	-----------

453557

Mfrs. List No.	Order Code	Price Each				
		1+	10+	50+	100+	500+
MCPTF-V	SMD-131-6979	0.195	0.180	0.158	0.134	0.110
MCPTCF-V	SMD-947-1987	0.270	0.250	0.210	0.183	0.150

Tact Switch - Side Actuated



Micro-miniature KMS



W = 4.6, D = 3.5,
H = 1.42mm

- Compact size
- Strong tactile feedback
- Minimum travel - 0.3mm to make, 0.45mm total
- Compatible with infrared reflow soldering and pick & place SMT machines

A side-actuated microminiature SPST, sharp tactile feedback switch with normally open contacts.

Operating force (N)	2	Power (VA)	1	Voltage (V)	32	Switching current Max (mA)	50	Contact resistance mΩ	100	Insulation resistance MΩ's	1000	Operating temp. min/max °C	-40 to 85
	3		1		32		50		100		1000		-40 to 85

241324

Mfrs. List No.	Operating force (N)	Order Code	Price Each		
			1+	50+	100+
KMS221G LFS	2	SMD-143-7638	0.33	0.29	0.26
KMS231G LFS	3	SMD-120-1409	0.43	0.38	0.34

Tactile Switch - SPST



SKQY Series



Dimensions (mm): H=2.5, W=6.1, D=3.7

- 6.1 x 3.7mm dimensions with 2.5mm height suitable for high density mounting
- Highly reliable with dust-proof structure
- Reflow solderable
- Vertical mounting
- Operating temperature -30 to 85°C

Applications

- Audio equipment
- Video recorders
- Communication devices
- In-car components
- TVs

Mfrs. List No.	Input max (V / mA)	Operating Life	Contact Resistance (mΩ)	Operating Force (N)
----------------	--------------------	----------------	-------------------------	---------------------

15

RL Re-reeling available

Farnell

Mfrs.	Input	Operating	Contact	Operating
SKQYAAE010	12 / 50	50000	500	1.57
SKQYABE010	12 / 50	50000	500	2.55
SKQYAFE010	12 / 50	50000	500	3.14

524160

Mfrs. List No.	Order Code	5+	25+	50+	100+	500+
SKQYAAE010	165-6436●	0.41	0.37	0.33	0.28	0.24
SKQYABE010	165-6437●	0.41	0.37	0.33	0.28	0.24
SKQYAFE010	165-6438●	0.41	0.37	0.33	0.28	0.24

Tact Switch - Side Actuated
Miniature KSS



Designed for SMT use, this range of normally open, momentary, SPST switches has a minimal height of 1.6mm (0.063")

- Requires minimum space for high density component applications
- Long life - in excess of 100,000 operations
- Minimum travel - 0.3mm (0.012")

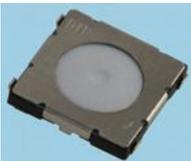
Body - W=5.5, D=3.5, H=1.63mm

Mfrs. List No.	Operating force (N)	Power (VA)	Voltage (V)	Current Min/Max (mA)	Dielectric strength VDC	Contact resistance mΩ	Insulation resistance MΩ's	Operating temp. min/max °C
KSS221G LFS	2	1	50	1/50	250	100	1000	-40 to 85
KSS231G LFS	2.5	1	32	1/50	250	100	1000	-40 to 85
KSS241G LFS	4	1	32	1/50	250	100	1000	-40 to 85
KSS321G LFS	2	1	32	1/50	250	100	1000	-40 to 85
KSS331G LFS	2.5	1	50	1/50	250	100	1000	-40 to 85
KSS341G LFS	4	1	50	1/50	250	100	1000	-40 to 85

241290

Mfrs. List No.	Operating force (N)	Order Code	1+	50+	100+
Standard Actuator (1.1mm)					
KSS221G LFS	2	SMD120-1406● RL	0.39	0.35	0.33
KSS231G LFS	2.5	143-7639●	0.33	0.30	0.28
KSS241G LFS	4	143-7640●	0.35	0.32	0.30
Large Actuator (1.8mm)					
KSS321G LFS	2	143-7642●	0.30	0.27	0.25
KSS331G LFS	2.5	SMD120-1407● RL	0.45	0.40	0.37
KSS341G LFS	4	SMD120-1408● RL	0.33	0.30	0.29

Miniature Tact Switch - Double Action
50mA @ 12Vdc



- Double Action Switch
- 1st Action = 80gf, 2nd Action = 250gf
- Stainless contact disc with silver cladding
- Long life of 30,000 cycles

Current rating 50mA @ 12V dc
Contact resistance 100mohm max
Dielectric strength 250V ac for 1 minute
Operating temperature -25°C to +70°C
Electrical life 30000 operations min

H = 1.5, W = 6, D = 6mm

498796

Mfrs. List No.	Order Code	1+	50+	Price Each	250+	500+
MCM2A-L	SMD152-2043●	0.48	0.45	0.42	0.39	0.36

Tact Switches - Double Action
50mA @ 12Vdc



- Double Action Switches
- Standard 6mm x 6mm size
- 1st Action = 80gf, 2nd Action = 250gf
- Stainless contact disc with silver cladding
- Long life of 30,000 cycles

152-2041, H = 1.5mm 152-2045, H = 3mm

Current rating 50mA @ 12V dc
Contact resistance 100mohm max
Dielectric strength 250V ac for 1 minute
Operating temperature -25°C to +70°C
Electrical life 30000 operations min

498789

Mfrs. List No.	Order Code	1+	50+	Price Each	100+	250+	500+
MC2A-F	SMD152-2041●	0.47	0.44	0.41	0.38	0.35	
MC2A-1F	SMD152-2042●	0.47	0.44	0.41	0.38	0.35	

700 products added online every week



See our pick of the hottest products and latest technologies in 'What's New?' at www.farnell.co.uk

Key Switch - Miniature
K5G Snap Action



- SPST with 2 x NO contacts
- Double stroke
- Strong tactile feel
- Low profile
- Quiet actuation

Typical Applications

- Automotive - Window lift
- Automotive - Sunroof control
- Multi-function devices

H = 6, W = 8.25, D = 8mm

Mfrs. List No.	Power (VA)	Voltage Min (mV dc)/Max (V dc)	Current Min/Max (mA)	Contact resistance mΩ	Insulation resistance GΩ's	Operating temp. min/max °C
K5G-4/6.5N	1	20/30	0.01/50	100	1	-40 to 85

482965

Mfrs. List No.	Order Code	1+	50+	Price Each	100+	250+	500+
K5G-4/6.5N	SMD143-7631●	1.42	1.29	1.19	1.10	1.03	

Pushbutton TACT Switch
50mA @ 12Vdc



- SPST
- Long operational life
- Long travel of 1.3mm
- Excellent tactile feedback without audible click sound
- Low contact resistance

Current switching 50mA @ 12V dc
Contact resistance 100mohm max
Insulation resistance 100Mohm @ 500V dc
Dielectric strength 300V ac for 1 minute
Operating temperature -40°C to +85°C
Electrical life 30000 operations min

H = 5, W = 6, D = 6mm

498835

Mfrs. List No.	Order Code	1+	Price Each	25+	50+	100+
MCLTL-613R	SMD152-2054●	0.37	0.35	0.34	0.33	

Multimec® IP67 - SPNO Momentary



PCB and surface mounting SPNO momentary action switches with a very positive tactile feel. The switches employ high temperature plastics, silicone seals, ultrasonic welding and insert moulded terminals, sealed to IP67.

The switches are available as either

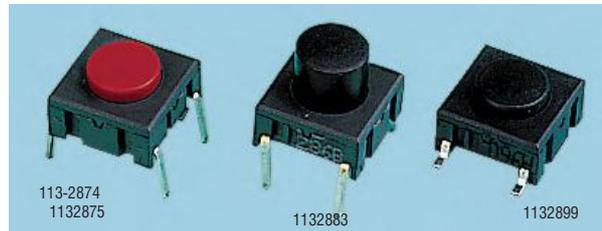
- Stand-alone
- Basic switches plus caps and bezels
- Illuminated switches plus caps and bezels
- Rocker Style Pushbuttons

The caps and bezels are available in various shapes and colours, suitable for both through hole and surface mount switches.

Contact resistance	<30mR	Contact material	Silver
Insulation resistance	>10MR	Travel	1mm
Mechanical life	10000000 operations		
Operating temperature	-40°C to +115°C (through hole)		
	-40°C to +115°C (surface mount)		

213221

Stand Alone Switches



113-2874
1132875

1132883

1132899

Body W=10.1, D=10.1, H (standard type)=6.4, Button. dia.=6.5
PCB layout=4x0.9 ∅ holes, rectangular formation, centres 10.16 x 7.62

- Stand-alone SPNO switches for use in through panel applications or under a membrane overlay to produce a high tactility keyboard
- Choice of button colour and button height
- Surface mount and right angled versions available

15

Re-reeling available



Tactile Push Button Switches - continued

Stand Alone Switches - continued

Mfrs. List No.		Order Code	Price Each			
			1+	50+	100+	250+
Standard Height, 6.4mm Button						
White	3CTL6	113-2874	0.98	0.90	0.81	0.69
Black	3CTL9	113-2875	0.94	0.86	0.77	0.66
Extended Height, Black Button						
8mm	3ETL9-8.0	113-2879	1.01	0.92	0.82	0.70
9.5mm	3ETL9-9.5	113-2881	1.01	0.92	0.82	0.70
10.4mm	3ETL9-10.4	113-2883	0.97	0.88	0.78	0.67
12mm	3ETL9-12.0	113-2884	0.97	0.88	0.78	0.67
15mm	3ETL9-15.0	113-2953	0.97	0.88	0.78	0.67
Surface Mount Switch						
Black 6.4mm	3CSH9	113-2899	1.04	0.95	0.85	0.75

213222

Switches with Caps and Bezels



1132885, 1132885, 113-2892, 1132900, 1132916, 1132896, 1132915, 113-2915

Switch base W=10.1, D=10.1, Overall H: Round=14.9, Square=19.1, Rectangular=14.4
Caps: Round=11 dia., Square=14.3 x 14.3, Rectangular=12.5 x 6.5, Bezel=17.75 x 17.75

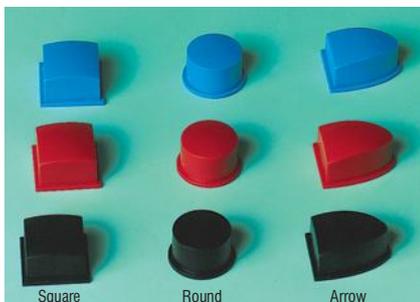
- These switches and caps should be ordered separately
- Switch available as through-hole or surface mount
- Caps available in 3 shapes and wide colour selection
- Bezels are available and recommended for use with square caps

213223

Mfrs. List No.		Order Code	Price Each			
			1+	50+	100+	250+
Order Multiple=1						
PCB	3FTL6	113-2885	0.970	0.880	0.780	0.670
Surface mount	3FSH9	113-2900	1.040	0.950	0.850	0.750
Right angle	3FTL6RAS	113-2916	1.390	1.340	1.280	1.220
Order Multiple=10						
			10+	50+	100+	250+
Round caps						
Black	1D09	113-2886	0.220	0.190	0.170	0.150
Grey	1D03	113-2887	0.220	0.194	0.173	0.150
Red	1D08	113-2888	0.220	0.190	0.170	0.150
Blue	1D00	113-2912	0.230	0.200	0.181	0.160
Yellow	1D04	113-2913	0.230	0.200	0.181	0.160
White	1D06	113-2914	0.230	0.200	0.181	0.160
Square caps						
Black	1K0916	113-2889	1.340	1.270	1.200	1.140
Grey	1K0316	113-2890	1.340	1.270	1.200	1.140
Red	1K0816	113-2892	1.340	1.270	1.200	1.140
Rectangular caps						
Black	1P09	113-2893	0.230	0.200	0.181	0.160
Grey	1P03	113-2894	0.230	0.200	0.181	0.160
Red	1P08	113-2895	0.230	0.200	0.181	0.160
White	1P06	113-2915	0.230	0.200	0.181	0.160
Bezels to fit square caps						
Black	2K09	113-2896	0.230	0.200	0.181	0.160
Grey	2K03	113-2897	0.230	0.200	0.181	0.160
Red	2K08	113-2898	0.230	0.200	0.181	0.160



Softline Style Caps



Square Round Arrow

- Softline styled caps with curved top for aesthetic and ergonomic appeal with square, round and arrow options

213157

Colour Mfrs. List No.		Order Code	Price Each			
			10+	50+	100+	250+
Square caps						
Blue	1T00	113-2938	0.190	0.170	0.150	0.130
Grey	1T03	113-2939	0.190	0.170	0.150	0.130
Red	1T08	113-2940	0.190	0.170	0.150	0.130
Black	1T09	113-2941	0.190	0.170	0.150	0.130
Round caps						
Blue	1U00	113-2942	0.190	0.170	0.150	0.130
Grey	1U03	113-2943	0.190	0.170	0.150	0.130
Red	1U08	113-2944	0.190	0.170	0.150	0.130
Black	1U09	113-2946	0.190	0.170	0.150	0.130
Arrow caps						
Blue	1V00	113-2947	0.190	0.170	0.150	0.130
Grey	1V03	113-2948	0.200	0.181	0.160	0.149
Red	1V08	113-2949	0.190	0.170	0.150	0.130
Black	1V09	113-2950	0.190	0.170	0.150	0.130

Extended Height Caps



- For use with '3F' Series switches
- Black caps offer overall height of 16, 19 or 22.5mm.
- Extender section gives additional 10mm height.

213142

Order Multiple=10		Mfrs. List No.	Order Code	Price Each			
				10+	50+	100+	250+
16mm Cap		1S09-16.0	113-2917	0.210	0.190	0.171	0.143
19mm Cap		1S09-19.0	113-2918	0.210	0.190	0.171	0.143
22.5mm Cap		1S09-22.5	113-2919	0.210	0.184	0.163	0.143
10mm Extender		2S09-10.0	113-2920	0.230	0.210	0.184	0.163

FOR MORE INFORMATION & CHOICE

Product Search

Omron A16

RoHS Compliant Items Only | [Advanced Search](#)

Illuminated with Caps and Bezels



1132904, 1132911, 1132901, 1132902, 1132898, 1132906, 1132907
Dimensions as non-illuminated types (above)

- Switches incorporate either red or green, blue or bicolor red/green LED's for illumination
- Caps have clear lenses within the coloured moulding and can therefore be used with either colour LED
- Round or rectangular caps available in black or grey
- Transparent square cap is supplied with diffuser. Custom legends may be placed between cap and diffuser
- Bezels are available and recommended for use with square caps
- Extended height versions offer 16 or 19mm overall height

FOR SUITABLE BEZELS FOR SQUARE CAPS
SEE ORDER CODES 113 - 2896 / 2897 / 2898.

213219

Mfrs. List No.		Order Code	Price Each			
			1+	50+	100+	250+
Switch Body with LED						
Green LED	3FTL620	113-2901	2.150	1.930	1.720	1.500
Red LED	3FTL680	113-2902	2.150	1.930	1.720	1.500
Blue LED	3FTL600	113-2954	2.740	2.480	2.190	1.930
Red/Green LED	3FTL68020	113-2955	2.140	1.920	1.700	1.480
H.I. Green LED	3FTL622	113-2903	3.160	2.840	2.530	2.220
H.I. Red LED	3FTL688	113-2904	2.990	2.700	2.400	2.110

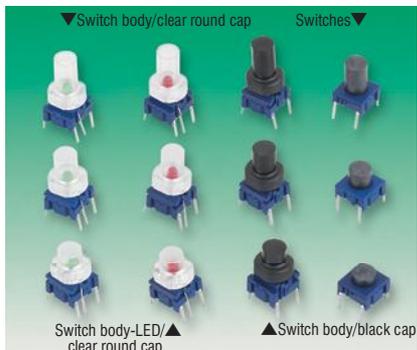
15

RL Re-reeling available



Mftrs.		Price Each				
		1+	50+	100+	250+	
Caps with Clear Lens						
Square cap, with diffuser	1K1116	113-2911●	1.650	1.500	1.320	1.160
Round Black	1E091	113-2905●	0.480	0.410	0.380	0.340
Round Grey	1E031	113-2906●	0.480	0.410	0.380	0.340
Rectangular Black	1Q091	113-2907●	0.530	0.480	0.430	0.400
Rectangular Grey	1Q031	113-2909●	0.530	0.480	0.430	0.400
Extended Height Caps with Clear Lens - Round						
16mm	1S11-16	113-2951●	0.230	0.210	0.181	0.160
19mm	1S11-19	113-2952●	0.230	0.210	0.181	0.160
10mm	2S09-10.0	113-2920●	0.230	0.210	0.184	0.163

Variable Height & Extender Components



- Select stand alone switch (3C/3E) or switch (3F) & extender & cap
- Extenders are stackable offering a large range of overall height options
- Extenders are suitable for both illuminated and non illuminated variants

Order Multiple = 10		Price Each				
Description	Mftrs. List No.	Order Code	1+	50+	100+	250+
Extenders - Height (mm)						
5	2S09-05	113-2956●	0.200	0.181	0.160	0.139
6	2S09-06	113-2958●	0.200	0.181	0.160	0.139
7	2S09-07	113-2959●	0.200	0.181	0.160	0.139
8	2S09-08	113-2961●	0.200	0.181	0.160	0.139
9	2S09-09	113-2962●	0.200	0.181	0.160	0.139
10	2S09-10.0	113-2920●	0.230	0.210	0.184	0.163
Extender caps - Height (mm)						
16	1S09-16.0	113-2917●	0.210	0.190	0.171	0.143
19	1S09-19.0	113-2918●	0.210	0.190	0.171	0.143
22.5	1S09-22.5	113-2919●	0.210	0.184	0.163	0.143
Clear Round caps - Height (mm)						
16	1S11-16	113-2951●	0.230	0.210	0.181	0.160
19	1S11-19	113-2952●	0.230	0.210	0.181	0.160

Panel Seal Kit - Components



- IP67 sealed cap and switch
- Can be used with any 3F Series switch
- 10 million cycle mechanical life
- 1mm travel with 2.5N force
- Select switch & cap & bush & boot for full panel seal solution
- Use transparent cap/boot for illuminated applications
- Boot made from silicone, 2 million cycles -40°C to +85°C

Description	Kit Qty.	Mftrs. List No.	Order Code	1+	50+	100+	250+
Order Multiple = 1							
Panel bush 0.5 - 2.5	5	AQN0.5	113-2963●	0.94	0.89	0.84	0.78
Panel bush 2.5 - 4.0	5	AQN2.5	113-2964●	0.64	0.61	0.57	0.54
Sealing boot - black	5	AQB0109	113-2971●	1.43	1.35	1.28	1.20
Sealing boot - transparent	5	AQB0111	113-2972●	1.43	1.35	1.28	1.20
Order Multiple = 10							
Cap, black 24.2 mm	5	AQC09-24.2	113-2965●	0.32	0.30	0.28	0.26
Cap, black 25.2 mm	5	AQC09-25.2	113-2966●	0.32	0.30	0.28	0.26
Cap, transparent 24.2 mm	5	AQC11-24.2	113-2967●	0.32	0.30	0.28	0.26
Cap, transparent 25.2 mm	5	AQC11-25.2	113-2968●	0.32	0.30	0.28	0.26

Illuminated Single Pole Momentary Switches

Illume™ 4F Series



- Through Hole or SMD Versions
- 50mA @ 24V dc
- Single Pole, Momentary Action
- 10,000,000 Operations Life
- IP67 Sealed
- Caps available separately
- Temperature Range from -30°C to 85°C

H = 10.4, W = 10.3, D = 12.5mm

LED Colour	Mftrs. List No.	Order Code	1+	25+	50+	100+
Through Hole versions						
Blue	4FTH901	139-0579●	2.94	2.76	2.65	2.53
Green	4FTH922	139-0580●	2.38	2.02	1.79	1.61
Yellow	4FTH942	139-0581●	2.38	2.02	1.79	1.61
White	4FTH961	139-0583●	2.94	2.76	2.65	2.53
Red	4FTH982	139-0584●	2.38	2.02	1.79	1.61
Green / Yellow	4FTH92242	139-0585●	2.65	2.40	2.16	1.95
Red / Green	4FTH98222	139-0586●	2.65	2.40	2.16	1.95
SMD versions						
Blue	4FSH901	SMD139-0587●	2.94	2.76	2.65	2.53
Green	4FSH922	SMD139-0588●	2.38	2.17	1.92	1.73
Yellow	4FSH942	SMD139-0589●	2.38	2.17	1.92	1.73
White	4FSH961	SMD139-0590●	2.94	2.76	2.65	2.53
Red	4FSH982	SMD139-0591●	1.67	1.56	1.49	1.43
Green / Yellow	4FSH92242	SMD139-0592●	2.65	2.49	2.38	2.16
Red / Green	4FSH98222	SMD139-0593●	2.65	2.49	2.38	2.16

Lighted Tact Switch
Right Angle - 1VA Switching



- Gold plated dome contact SPST/SPDT
- High bright LED
- Long travel, sharp tactile feel and an audible click
- Compact size
- 4N Operating Force, 40N Overload

Power Switching - Min/Max
Voltage Switching - Min/Max
Current Switching - Min/Max
Contact Resistance
Insulation Resistance
Temperature Operating

0.02VA / 1VA
20mV / 32V dc
0.1mA / 100mA
≤150mohm
>1Gohm (Initial)
-40°C to 85°C

Order Code	Mftrs. List No.	Colour	LED
157-3055	K5V1CL43T	Transparent	No LED
157-3057	K5V1GN43T	Translucid	Green
157-3058	K5V1RD43T	Translucid	Red
157-3059	K5V1BU43T	Translucid	Blue
157-3060	K5V1WH43T	Translucid	White
157-3061	K5V1CL43G	Transparent	No LED
157-3062	K5V1GN43G	Translucid	Green
157-3063	K5V1RD43G	Translucid	Red
157-3064	K5V1BU43G	Translucid	Blue
157-3065	K5V1WH43G	Translucid	White

Mftrs. List No.	Order Code	1+	25+	100+	250+
THT					
K5V1CL43T	157-3055●	5.35	4.65	4.18	3.89
K5V1GN43T	157-3057●	5.52	4.79	4.32	4.00
K5V1RD43T	157-3058●	5.67	4.94	4.45	4.11
K5V1BU43T	157-3059●	6.36	5.54	4.98	4.61
K5V1WH43T	157-3060●	6.22	5.41	4.87	4.51
SMD					
K5V1CL43G	SMD157-3061●	5.24	4.56	4.10	3.79
K5V1GN43G	SMD157-3062●	6.18	5.38	4.84	4.49
K5V1RD43G	SMD157-3063●	5.87	5.10	4.59	4.24
K5V1BU43G	SMD157-3064●	7.16	6.22	5.60	5.18
K5V1WH43G	SMD157-3065●	5.98	5.19	4.67	4.33

Coming soon



Register your interest for items that are 'Coming Soon' at www.farnell.co.uk and we'll email you to let you know that they're in stock.

15

Re-reeling available



Tactile Push Button Switches - continued

SPST-NO Momentary
50mA - 24V dc



H = 11, W = 10, D = 10mm

- Compact construction
 - Bright uniform illumination
 - 1.57N Operating force
 - Sealed switch part protects contacts from dust
- Contact Configuration SPST-NO
 Contact rating - Current 1 to 50mA
 Contact rating - Voltage 5 to 24V dc
 Contact resistance 100mohm max
 Insulation resistance 100Mohm min
 Life 100000 Operations (Min)
 Operating temperature -25°C to +70°C

Order Code	Mfrs. List No.	Colour - Cap	Colour - LED
157-3154	B3W-9000-R1R	Red	Red
157-3155	B3W-9000-G1G	Green	Green
157-3156	B3W-9000-B1B	Blue	Blue
157-3157	B3W-9000-Y1Y	Yellow	Yellow
157-3158	B3W-9000-R1N	Milky White	Red
157-3161	B3W-9000-G1N	Milky White	Green
157-3162	B3W-9000-B1N	Milky White	Blue
157-3163	B3W-9000-Y1N	Milky White	Yellow
157-3164	B3W-9000-RG2N	Milky White	Red / Green

508907

Mfrs. List No.	Order Code	1+	20+	50+	100+	250+
B3W-9000-R1R	157-3154	2.09	1.88	1.67	1.50	1.42
B3W-9000-G1G	157-3155	2.09	1.88	1.67	1.50	1.42
B3W-9000-B1B	157-3156	3.34	2.94	2.62	2.36	2.31
B3W-9000-Y1Y	157-3157	2.09	1.88	1.67	1.50	1.42
B3W-9000-R1N	157-3158	2.09	1.88	1.67	1.50	1.42
B3W-9000-G1N	157-3161	2.09	1.88	1.67	1.50	1.42
B3W-9000-B1N	157-3162	3.34	2.94	2.62	2.36	2.31
B3W-9000-Y1N	157-3163	2.09	1.88	1.67	1.50	1.42
B3W-9000-RG2N	157-3164	2.85	2.51	2.25	2.02	1.91

Keypads

Universal Keypad + Keyboard Encoder



W=88.9, D=60

- The Storm 420 Series encoder allows interfacing between keypad and host system.
- Input Power + 5V ± 0.25V dc
 - RS232 Output via 6 pin Molex 2.54mm (.100") Pitch KK® connector
 - Direct connection to underpanel mounted 12-, 16- and 20 way Storm Keypads
 - Ribbon Cable needed for top panel fixing 4-, 12- and 16 way Storm Keypads
 - Can drive LCD display on Storm FT series keypads
 - Overall footprint 89mm x 66mm

346031

Mfrs. List No.	Order Code	1+	5+	25+	+
4200-001-FEC	980-9988	59.21	54.08	49.42	--

Sealed and Rugged Keypads - IP67
Storm 700 Series and 900 Series



Illuminated keypads



981-0021: W=96, D=32



Legend Tiles

- Excellent tactile characteristics
 - Interchangeable legends fit into recess in keys
 - Dual LEDs allow red or green illumination of any key
 - 0.1" gold plated connectors (compatible with Molex KK range)
 - Six legend tile sets available, for information see legend tile character library
 - Comprehensive instructions supplied
- Operating voltage 24V max.
 Operating current 50mA max.
 Breakdown voltage 500V max.
 Insulating resistance 50MR
 Contact resistance 100R max.
 Contact bounce 5ms max.
 Operational life to 70°C 2 million cycles
 Material: Engineering grade silicone rubber.
 Keypad surface Andodised aluminium
- Operating temp. range -55°C to +125°C (700 series)
 -25°C to +85°C (900 Series)
 1.5mm nominal
 Keypat travel 160g typ
 Actuation force B55490 IP67
 Environ sealing Illuminated keypads only:
 LED drive current 20mA typ, 25mA max.
 LED drive voltage (single diode) 3.3V typ.
 LED drive voltage (double diode)

213253

Non illuminated	Mfrs. List No.	Order Code	1+	10+	50+
Grey, 4 way	70040101	981-0021	14.56	13.68	13.27
Black, 4 way	70040201	981-0030	14.56	14.07	13.42
Grey, 12 way	70120101	981-0048	19.23	18.09	17.52
Black, 12 way	70120201	981-0056	19.23	18.58	17.73
Grey, 16 way	70160101	981-0064	26.78	25.16	24.40
Black, 16 way	70160201	981-0072	26.78	25.86	24.69
QWERTY, Grey	70360101	981-0080	43.36	41.55	40.25
QWERTY, Black	70360201	981-0099	43.36	42.47	40.74
Illuminated keypad, 4 way	90040101	981-0102	24.60	23.16	22.42
keypad, 12 way	90120101	981-0110	37.35	35.81	34.69
Keypat Legend Tiles					
Non-Illuminated					
Set A	70A00101	135-0268	3.28	3.06	2.87
Set B	70B00101	135-0269	3.28	3.06	2.87
Set C	70C00101	135-0270	3.28	3.06	2.87
Set D	70D00101	135-0271	3.28	3.06	2.87
Set E	70E00101	135-0272	3.28	3.06	2.87
Set F	70F00101	135-0273	3.28	3.06	2.87
Illuminated					
Set A	90A00101	135-0275	3.28	3.06	2.87
Set B	90B00101	135-0276	3.28	3.06	2.87
Set E	90E00101	135-0279	3.28	3.06	2.87
Set F	90F00101	135-0280	3.28	3.06	2.87

Storm Graphic Series +
Configurable Keypads



Keypat legends can be custom configured without the need to dismantle the keypad. Transparent polymer legend tiles can be selected from an extensive library of standard characters or symbols and located in the keytop by a unique snap-on keytop cap. Customised keytop graphics can be created using laser printed acetate film or screen printed polymer film. Coloured keytops are achieved by inserting a second, coloured tile under the polymer legend tile. The impact resistant keytop cap provides a permanent, tamper resistant lens protecting the encapsulated legend from wear, physical damage and water ingress.

- High impact polymer
- Sealed to IP54
- Interchangeable with Storm K Series keypads
- Ideal for use in industrial, commercial, public and point of sale applications
- Six legend tile sets available, for information see legend tile character library below
- Quick and easy to install
- Top surface or under panel mounting



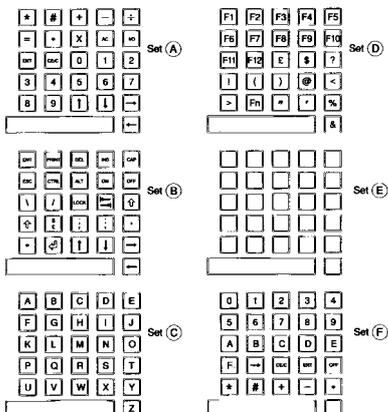
- Contacts Gold over Nickel
 Contact Rating 24V dc, 50mA
 Operating temperature -10°C (dry) to +85°C
- Breakdown voltage 500V ac
 Insulation resistance 50MΩ

213233

Terminal Type	Order Code	1+	10+	50+
Graphic Series				
4 Key	981-0170	13.74	12.70	12.10
12 Key	981-0188	25.41	23.53	22.37
16 Key	981-0196	31.06	28.78	27.37
Keypat Legend Tiles				
Set A	135-0248	1.73	1.58	1.51
Set B	135-0251	1.73	1.58	1.51
Set C	135-0253	1.73	1.58	1.51
Set D	135-0254	1.73	1.58	1.51
Set E	135-0255	1.73	1.58	1.51
Set F	135-0256	1.73	1.58	1.51
Legend Background				
Grey	135-0257	1.15	1.05	1.00

Terminal Type	Order Code	1+	10+	50+
Legend Background				
Yellow	135-0264●	1.15	1.05	1.00
Spare Keypads (set of 4)	135-0265●	3.32	3.14	3.01

Legend Tile Character Library
STORM Graphic and 700/900 Series Keypads



Library of standard format keypad character sets ('A' to 'F') for use with STORM Graphic and 700/900 series keypads.

213254

Vandal Resistant Illuminated Keypads



These immensely tough, weather resistant key-pads are suitable for use in exposed, hostile or industrial environments. Integrated illumination of keytops and keypad characters make these responsive data entry keypads ideal for use in dark or subdued lighting conditions.

- Integrated LED illumination of keytop characters
- Sealed against water and dust to IP65 specification
- Rugged, reliable and responsive key action
- 4 and 12 key formats
- Can be fixed to a flat surface or under panel mounted for a flush, low profile installation
- Red or green LED by polarity reversal

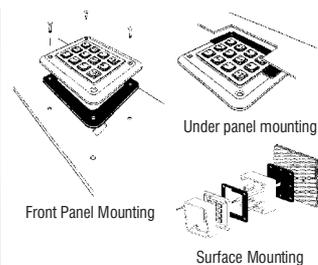
Dimensions (mm)
4 Key, W=42.5, H=118.5, D=11.1
12 Key, W=99.5, H=118.5, D=11.1

227872

Description	Mftrs. List No.	Order Code	1+	10+	50+
4 Key (F1-F4)	1KL120101	980-9864●	50.77	47.55	44.39
12 Key (calc.)	1KL121101	980-9872●	50.77	47.55	44.39



Storm Multi-Purpose Keypad Range - Up to IP67
Storm 'K' Series



1000PLX 3000 Series

- 5 ranges of keypads offering excellent price/performance for all applications
- Keypads are completely interchangeable across the series
- Easy to install and use
- High specification gold plated circuitry and connectors provide high reliability
- Compatible with the universal keypad encoder (177-687)
- Customisable keypad legends, see STORM graphics series spare keytops Order Code 102-933
- Supplied with comprehensive instructions

Product Selection Guide

Conditions▶	Vandal Resist	Impact Resist	Sealed to IP67	Sealed to IP65	Sealed to IP54	Replaceable Keypads
Range▼						
1000 Series Public Outdoor	✓	✓	✓	✓	✓	✓
1000PLX Series Public Outdoor	✓	✓	X	✓	✓	✓
2000 Series Industrial/Outdoor	X	✓	X	✓	✓	✓
3000 Series Sheltered Outdoor	X	X	X	X	✓	✓
4000 Series Light Duty/Indoor	X	X	X	X	X	Keypads

Series	Key Life (cycles)	Service Temperature	Case Material	Keypad Material	Keypad Legends	Legend Colour
1000	4 million	-40°C to +100°C	Chromed zinc	Chromed zinc	Engraved	Black
1000PLX	4 million	-40°C to +100°C	Super high impact polymer	Chromed zinc	Engraved	Black
2000	4 million	-25°C to +85°C	Super impact polymer	Super impact polymer	Laser marked	Dark Grey
3000	2 million	-10°C to +85°C	General Service Polymer	General Service Polymer	Printed	Dark Grey
4000	2 million	0°C to +70°C	General Service Polymer	Silicon Rubber	Printed	Dark Grey

Contacts Carbon/Gold, 100mΩ (max), 5ms (max.) bounce
 Insulation 50mΩ (min)
 Breakdown 500V ac (60secs)
 Operation 24V dc, 50mA
 Actuation 180g
 Connections 0.1" gold plated, square pin male

230750

Troubleshooting tips

Chat live online to one of our technical engineers at www.farnell.co.uk

Coming soon

Register your interest for items that are 'Coming Soon' at www.farnell.co.uk and we'll email you to let you know that they're in stock.

	Order Code	1+	10+	50+
1000 Series - Vandal Resistant - IP67				
4 Key (F1, F2, F3, F4)	980-9805●	28.20	26.13	25.12
4 Key (↑↓←→)	980-9791●	28.20	26.13	25.12
12 Key Calc. style	980-9813●	41.00	39.16	38.14
12 Key Tel. style	980-9821●	44.67	42.19	40.62
16 Key Calc. style	980-9830●	55.46	52.98	51.61
16 Key Tel. style	980-9848●	54.93	51.88	49.88
1000PLX Series - Vandal Resistant -IP65				
4 Key (↑↓←→)	981-0200●	24.53	22.73	21.63
12 Key Tel. style	981-0226●	35.32	33.35	31.72
2000 Series - Impact Resistant - IP65				
4 Key (F1,F2,F3,F4)	980-9910●	18.33	16.97	16.33
12 Key Calc. style	980-9929●	28.51	26.41	25.41
12 Key Tel. style	980-9937●	28.51	26.41	25.41
16 Key Calc. style	980-9945●	35.07	32.48	31.23
3000 Series - General Service - IP64				
4 Key (↑↓←→)	980-9953●	12.82	11.87	11.43
12 Key Tel. style	980-9961●	17.95	16.63	16.00
16 Key Tel. style	980-9970●	24.54	22.74	21.87
4000 Series - Light Duty				
Mounting box for				
12 way keypads	135-0245●	17.96	16.71	15.66
Blank Keys				
1000 series (set of 4)	135-0246●	4.33	4.09	3.93
2000/3000 series (set of 4)	135-0247●	1.47	1.33	1.27

700 products added online every week

See our pick of the hottest products and latest technologies in 'What's New?' at www.farnell.co.uk

Keypads - continued

Alpha Numeric Keypad - DDA Compliant

Storm 6000 Series



H = 17.5 (overall), W = 124,
D = 118.5mm

The 6000 series keypad is perfectly suited for vending applications, access control devices or any public data entry device. Large, brightly coloured keys with raised tactile symbols ensure maximum usability by those with visual or mobility impairments. The 6000 series keypad, features Storm's patented weather and vandal switch technology, which allows these devices to be confidently deployed in the harshest outdoor/public environments.

- DDA Compliant
- Rugged, reliable and responsive data entry keypads
- Vandal resistant
- Weather resistant to IP65
- Large buttons for clarity and ease of use
- High contrast, laser engraved keytop graphics will not wear off over time
- Front plate is made of brushed stainless steel
- Keys: Super high impact polymer

For full legislative details, see: www.dda-compliance.com

415927

Description	Mfrs. List No.	Order Code	Price Each		
			1+	10+	50+
Non Illuminated					
Matrix Output	6000-210011-FEC	101-5740	74.84	68.62	64.33
Mounting Kit					
6000 Series	6000-MK0001-FEC	101-5743	4.86	4.44	4.17

Toughened Display Module

Storm 5000 Series



H = 17, W = 110, D = 88mm

- Impact resistant to 10J BS EN 60068-2-75
- Clear, scratch resistant, anti-reflective window
- Weather resistant to IP65
- Responsive menu navigation and option select keys
- Under-panel fixing through panel thicknesses of up to 2 mm
- Supplied complete with panel gasket and 4 x 20 character LCD display
- Resistant to petrochemicals and most commonly used cleaning agents
- Silver-grey bezel with Black keys
- Compatible with STORM keypads and interface devices

Unit is supplied complete with a 4 line x 20 character backlit LCD display module.

415983

Description	Mfrs. List No.	Order Code	Price Each		
			1+	10+	50+
Bezel with 20 x 4 LCD	5001-200202-FEC	101-5744	67.97	62.31	58.42

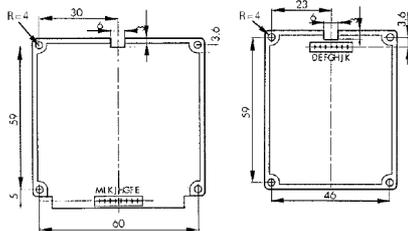
Low Cost Miniature Keypads

ECO Series



467-212

467-200



Miniature matrix circuit keypads in a black flush mounting case with white keys and black markings. Fitted with a 0.1" pitch header (7 pin for 12 way and 8 pin for 16 way keypads).

Mfrs. List No. ECO 12150 06=467-200, ECO 16250 06=467-212

Operating voltage	24V max.	Operational life	1000000 operations
Operating Current	50mA max.	Contact	Amorphous Carbon on Gold
Contact resistance	220R/1N	Operating temp.	-25°C to 70°C
Contact bounce	5ms		

213246

	Order Code	Price Each		
		1+	10+	50+
Keypad, 12 way	113-0805	4.46	4.17	3.87
Keypad, 16 way	113-0806	5.80	5.42	5.03

Vandal Resistant Keypads - IP67

S. Series Illuminated/Non-illuminated



A range of vandal resistant keypads which include yellow or blue LED illuminated and lower cost non-illuminated 12 key keypads. These rugged impact resistant keypads can either be front mounted using screws or rear mounted using studs. The polished chrome Zamac keys and casing offers superb looks along with a high degree of vandal and impact resistance. Non illuminated versions have superb black filled markings whilst illuminated versions have glass filled keys for bright clear illumination and a good viewing angle.

- High impact resistance housing and keys
- Anti-pull off keys
- Key lifetime 4 million operations
- Front or rear panel mounting
- Front face sealed to IP67 using gasket supplied
- Connection via 0.1" pitch headers

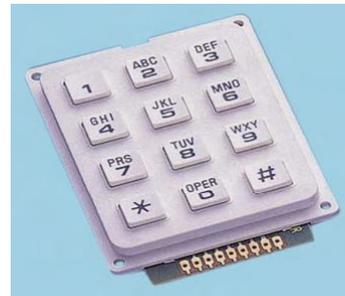
Operating voltage	24V max.	Key and body material	Chromed Zamac
Nominal current	5 mA	Contact	Amorphous Carbon on Gold
Contact resistance	≤200mΩ	Operating Temp.	-25°C to +85°C
Insulation resistance	>1000 MΩ	Keytop travel	1.3±0.3mm
LED operating voltage	2.5V (yellow)	Actuation force	1 to 3 N
Individual LED current	20mA (yellow)	Front face seal	IP67
Life expectancy	4 million operations		

213191

	Mfrs. List No.	Order Code	Price Each		
			1+	10+	50+
12 Key - Non Illuminated					
Telephone Keypad	S.12X00.342	100-6085	37.55	32.68	27.92
12 Key - Illuminated					
Yellow LED - Telephone markings	S.12150.241	113-0817	41.25	37.13	34.99
16 Key - Illuminated					
Yellow LED - 16 Key hex. markings	S.16350.241	113-0818	64.60	59.61	57.14

Plastic Keypad

Telephone Type



12 Key - H = 14 (overall), 16 Key - H = 15.7 (overall),
W = 56.2, D = 72mm W = 82, D = 70.4mm

Connection is via PCB pre drilled 2.54mm solder terminals. Switches are configured on a standard matrix layout. White keypads have white keys with black legends. Black keypads have white keys with black legends.

Contact rating	20mA @ 24V	Operating temperature	-20 to 60°C
Contact resistance	200ohm (Max.)	Operating force	100gf
Life	1000000 Cycles per key	Key travel	12 Key = 1.4mm, 16 Key = 1.5mm

Mfrs. List No.	Mfrs. List No.
MCAK304NWWB=118-2235	MCAK304NBWB=118-2236
MCAK1604NWWB=118-2238	MCAK1604NBWB=118-2239

431434

Description	Order Code	Price Each				
		1+	10+	25+	50+	100+
White						
12 Keys - 4 x 3	118-2235	3.55	3.39	3.19	3.02	2.85
16 Keys - 4 x 4	118-2238	4.81	4.59	4.34	4.10	3.86
Black						
12 Keys - 4 x 3	118-2236	3.55	3.39	3.19	3.02	2.85
16 Keys - 4 x 4	118-2239	4.81	4.59	4.34	4.10	3.86

15

RL Re-reeling available

Farnell



Plastic Keypad - IP67

Telephone Type



12 Key - H = 14 (overall), W = 56.2, D = 72mm
16 Key - H = 15.7 (overall), W = 82, D = 70.4mm

Connection is via PCB pre drilled 2.54mm solder terminals. Switches are configured on a standard matrix layout. White keypads have white keys with black legends. Black keypads have black keys with white legends.

Contact rating	20mA @ 24V	Operating temperature	-20 to 60°C
Contact resistance	200ohm (Max.)	Operating force	120gf
Life	2000000 Cycles per key	Key travel	2mm

Mfrs. List No. MCAK207NWWBWP=118-2231
MCAK1607NWWBWP=118-2232

Mfrs. List No. MCAK207NBBWWP=118-2232
MCAK1607NBBWWP=118-2234

431428.432724

Description	Order Code	Price Each				
		1+	10+	25+	50+	100+
White						
12 Keys - 4 x 3	118-2231	8.12	7.76	7.41	7.06	6.36
16 Keys - 4 x 4	118-2233	11.33	10.82	10.31	9.79	9.28
Black						
12 Keys - 4 x 3	118-2232	8.12	7.76	7.41	7.06	6.36
16 Keys - 4 x 4	118-2234	11.33	10.82	10.31	9.79	9.28

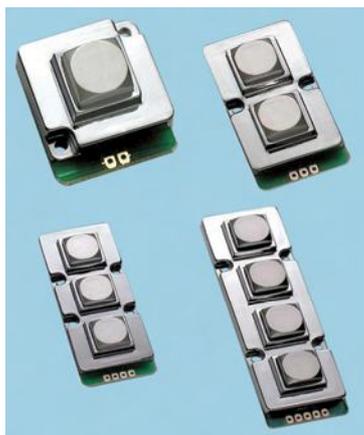
Help us to help the environment



This catalogue has been printed on paper certified from a sustainable source. Please recycle after use.

Metal Keypad - IP67

Single In Line



All - H = 15.1 (overall), W = 23mm
Depth - 1 Key = 23, 2 Key = 38.5, 3 Key = 55.25, 4 Key = 72mm

Connection is via PCB pre drilled 2.54mm solder terminals.

Contact rating	20mA @ 24V	Operating temperature	-20 to 60°C
Contact resistance	200ohm (Max.)	Operating force	120gf
Life	2000000 Cycles per key	Key travel	2mm

Mfrs. List No. MCAK101BSSWPMM=118-2227
MCAK102BSSWPMM=118-2228

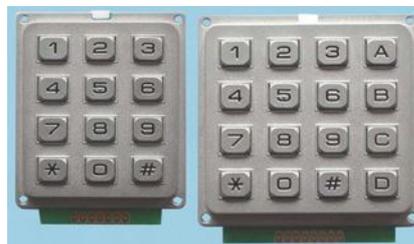
Mfrs. List No. MCAK103BSSWPMM=118-2229
MCAK104BSSWPMM=118-2230

431422.432723

Description	Order Code	Price Each				
		1+	10+	25+	50+	100+
1 x 1	118-2227	5.90	5.66	5.41	5.17	4.94
1 x 2	118-2228	8.03	7.69	7.32	6.99	6.64
1 x 3	118-2229	9.63	9.20	8.77	8.34	7.91
1 x 4	118-2230	10.04	9.59	9.15	8.70	8.25

Low Profile Metal Keypad

Waterproof - IP67



12 Key - H = 10.3 (overall), W = 51, D = 64mm
16 Key - H = 8.9 (overall), W = 65, D = 64mm

Connection is via PCB pre drilled 2.54mm solder terminals. Switches are configured on a standard matrix layout.

Contact rating	20mA @ 24V	Operating temperature	-20 to 60°C
Contact resistance	200ohm (Max.)	Operating force	100gf
Life	2000000 Cycles per key	Key travel	1.4mm

Mfrs. List No. MCAK304NNSBWPMM=118-2219
MCAK1604NNSBWPMM=118-2221

431310.432709

Description	Order Code	Price Each				
		1+	10+	25+	50+	100+
12 Keys - 4 x 3	118-2219	15.52	14.79	14.07	13.36	12.64
16 Keys - 4 x 4	118-2221	21.89	20.86	19.81	18.77	17.74

Insertable Legend Keypads



- Tactile feedback
- Splash-proof, sealed switches
- Legends easily swapped
- Four inserts supplied with keypads
- Adhesive backed for easy mounting

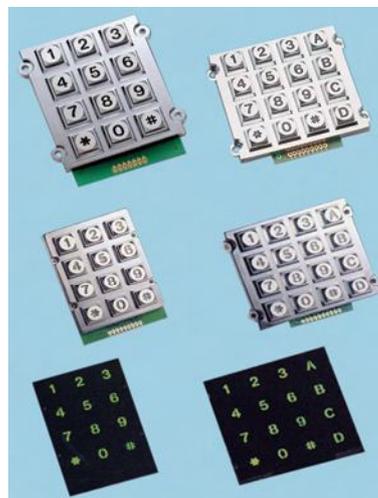
Switch function	SPST, momentary, normally open	Contact bounce	≤10ms
Contact rating	100mA, 30V dc max.	Travel	0.63mm
Insulation resistance	5Mohm	Operating temperature	-40°C to +60°C

311418.341291

Description	Order Code	Price Each			
		1+	10+	100+	250+
1x4 array, 4 keys	117-1222	11.39	10.45	10.24	9.99
3x4 array, 12 keys	117-1223	13.15	12.07	11.81	11.52
4x4, 16 keys	117-1224	13.41	12.29	12.05	11.75

Metal Keypad - IP67

Illuminated and Non-illuminated



Standard 12 Key - H = 13.7 (overall), W = 70, D = 70.4mm
16 Key - H = 12.1 (overall), W = 82, D = 70.4mm
Illuminated 12 Key - H = 13.6 (overall), W = 56, D = 72mm
16 Key - H = 14.1 (overall), W = 82, D = 70.4mm

Keypads - continued

Metal Keypad - IP67 - continued

Illuminated and Non-illuminated - continued

Connection is via PCB pre drilled 2.54mm solder terminals. Switches are configured on a standard matrix layout. Illuminated versions have each key lit by a 2.1V LED producing a low level green glow.

Keypads are supplied with front fitting sealing gasket.

Contact rating	20mA @ 24V	Operating temperature	-20 to 60°C
Contact resistance	200ohm (Max.)	Operating force	120gf, except 118-2222 which = 100gf
Life	2000000 Cycles per key	Key travel	2mm
Mfrs. List No.		Mfrs. List No.	
MCAK707NSSBWPMM=118-2222		MCAK207NSSLWPMM=118-2224	
MCAK1607NSSBWPMM=118-2223		MCAK1607NSSLWPMM=118-2226	

431415.432715

Description	Order Code	Price Each				
		1+	10+	25+	50+	100+
Standard						
12 Keys - 4 x 3	118-2222●	21.89	20.86	19.81	18.77	17.74
16 Keys - 4 x 4	118-2223●	28.30	26.94	25.58	24.23	22.86
Illuminated						
12 Keys - 4 x 3	118-2224●	33.39	31.77	30.15	28.53	26.93
16 Keys - 4 x 4	118-2226●	46.38	44.13	41.86	39.60	37.33

Keyboards

Compact, Vandal Resistant Keyboards

Storm 2210 - with integrated tracker ball



Steel-trackerball



Polymer Tracker-ball

- Tough, vandal resistant construction
- Permanent, high visibility, engraved keytops
- Sealed against water and dust to **IP65**
- Integral PS2/USB switchable electronic interface
- Integral 38MM, PS2/USB tracker ball with left and right click keys
- Protected against RF/EMI in accordance with current & forthcoming EU & US directives
- Resistant to most corrosives and cleaning agents

Key life	>4 million cycles per key
Output codes	TTL level data with PC compatible codes
Insulation resistance	50 MΩ min
Shock resistance	20 joules via 50mm dia. steel striker
Operating temperature	-20°C(dry) to +75°C

248185

	Order Code	Price Each		
		1+	5+	25+
2210 keyboard - Polymer keys	135-0281●	294.95	273.89	261.66
2210 keyboard - Metal keys	135-0282●	357.11	321.29	306.85
2.5m PS/2 cable w/6 pin mini-DIN connector	980-9767●	7.75	7.30	6.67
2.5m USB cable w/USB type connector	980-9775●	7.75	7.30	6.67
Under panel mounting kit - 2200 K/B	377-8927	11.55	10.88	9.88

Integrated Keypad & Display

Storm 5000 Series



H = 46.8, W = 120, D = 178.5mm

Developed for a wide range of industrial and commercial applications. This integrated keypad and display module is extremely tough and weather resistant. It is ideal for use in hostile, exposed or public environments.

The integrated keypad and display module can be supplied with a 20 character x 4 line illuminated LCD display securely located behind a coated, scratch resistant, polycarbonate window. Alternatively, the module can be ordered without the LCD display module for those applications requiring different display types or technologies. The module is designed for easy installation into a control panel or equipment housing with generous provision for the fixing and accommodation of additional circuit boards and components. Connection to the keypad device is achieved via a 0.1" square pin male connector with locking ramps. Connection to the display module (when fitted) is via a 16 way 0.1" square female connector.

Available in either 'vandal resistant' (VR) specification (with a brushed stainless steel front plate and engraved metal keys) or 'robust' (R) specification (with black polycarbonate front plate and re-legendable 'Graphics Keys').

Available in either 'vandal resistant' (VR) specification (with a brushed stainless steel front plate and engraved metal keys) or 'robust' (R) specification (with black polycarbonate front plate and re-legendable 'Graphics Keys').

- Weather and vandal resistant for outdoor and unsupervised public environments
- 20 character x 4 line, illuminated LCD display (optional)
- Rapid, responsive and reliable data entry
- Stainless steel brushed front plate
- Easily and securely installed in vending machines, automated teller machines, public telephones, ticketing machines, car parking control equipment etc.

227873

Description	Mfrs. List No.	Order Code	Price Each		
			1+	10+	50+
No-Display Version					
R - Graphics Keys	FT4K1001	981-0161●	65.11	60.59	56.19
VR - Metal Keys	FT1K0501	981-0137●	97.25	90.47	83.93
Display Version					
R - Graphics Keys	FT4K0901	981-0153●	82.88	77.11	71.52
VR - Metal Keys	FT1K0801	981-0145●	151.61	141.04	130.84

Industrial Push Button Switches

Miniature 8mm - 19 Series



Illuminated Push Buttons and Indicators



- SPNO momentary or latching switches with gold or silver contacts
- Round or square bezzled types available, matching lenses
- Matching indicators available
- Switches require T1 bi-pin lamps for illumination

0.8A @ 50V ac or 72V dc
100mA @ 50V ac 72V dc

<1.5ms
<100µs

<50mR
<15mR
0.8W
1000V ac

-25°Cto +45°C
-25°Cto +65°C

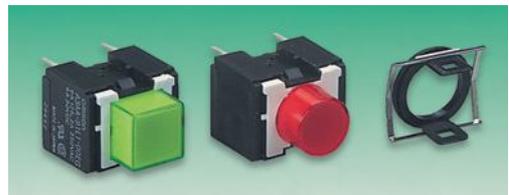
Note:Lamps must be run with a 20% reduced voltage to prevent excessive heating of the actuator.

224506

Indicator	Mfrs. List No.	Order Code	Price Each		
			1+	25+	100+
Round	19-030-005	146-206●	1.46	1.25	1.16
Square	19-050-0005	146-207●	1.46	1.25	1.16
Switch, Momentary					
Round, silver contacts	19-139-015	146-208●	6.42	5.42	4.85
Round, gold contacts	19-431-035	150-583●	5.63	4.77	4.28
Square, silver contacts	19-159-015	146-209●	6.42	5.42	4.85
Square, gold contacts	19-451-035	150-584●	5.06	4.29	3.85
Switch, Latching					
Round, silver contacts	19-279-015	146-210●	6.89	5.83	5.26
Round, gold contacts	19-471-035	150-585●	6.15	5.22	4.70
Square, silver contacts	19-289-015	146-211●	6.89	5.83	5.26
Square, gold contacts	19-481-035	150-586●	6.15	5.22	4.70
Square Lens					
Red	19-951-2	146-216●	0.79	0.65	0.64
Yellow	19-951-4	146-217●	0.79	0.65	0.64
Green	19-951-5	146-218●	0.79	0.65	0.64
White	19-951-9	146-219●	0.79	0.65	0.64
Round Lens					
Red	19-931-2	146-220●	0.58	0.54	0.49
Yellow	19-931-4	146-221●	0.58	0.54	0.49
Green	19-931-5	146-222●	0.58	0.54	0.49
White	19-931-9	146-223●	0.58	0.54	0.49

Miniature - A3A Series

SPST Momentary and Latching



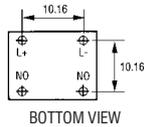
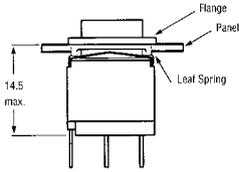
H=12.7, W=15.2, D=14.5 Buttons: Square=8.9 x 8.9, Round=8.9 dia Panel cut-out: Square=11.5 x 11.5, Round=11.5 dia., Solder tabs W=1.7, PCB pins=0.6 dia.

15

Re-reeling available

Farnell





- Surface LED illuminated round or square push buttons
- Minimal rear panel depth, PCB or solder tag terminals
- VDE and CSA approvals, UL recognised
- Switches supplied complete with cap. Mounting flanges available as separate item.

Contacts SPNO
 Contact switch rating From 1mA @ 5V dc to 6A @ 125V ac, 2A @ 250V ac
 LED ratings V=2.1V (3.0V max.), I=10mA (20mA max.)
 Operating force 250g max.
 Insulation resistance 100MR@ 500V dc

213205

Mfrs. List No.	Order Code	1+	Price Each			
			10+	50+	100+	
Switch with square Cap, PCB Terminals						
Momentary, Red	A3AA-91K1-00ER	137-2572	7.59	6.81	5.86	5.12
Momentary, Green	A3AA-91K1-00EG	118-1286	7.59	6.81	5.86	5.12
Latching, Red	A3AA-91L1-00ER	137-2573	7.59	6.81	5.86	5.12
Latching, Green	A3AA-91L1-00EG	137-2574	7.59	6.81	5.86	5.12
Switch with Round Cap, Solder Terminals						
Latching, Green	A3AT-90L1-00EG	118-1288	8.62	7.76	6.81	5.96
Order Multiple=5 Flanges						
Square	A3A-211	176-430	0.35	0.33	0.29	0.27
Round	A3A-221	176-431	0.35	0.33	0.29	0.27

Miniature 8mm - A3D Series
 100mA @ 30V dc



Round Bezel=9 dia Square Bezel=9 x 9 Rectangular Bezel= 14 x 9
 Depth behind panel (inc. terminals)=24.5

- Round, square and rectangular options
- Compact housing - requires only 18mm mounting depth
- Lenses include built-in LED
- All LED's lenses and legends replaceable without tools
- Switch contacts are SPST NO
- Excellent operability/visibility
- Sealed to IP40

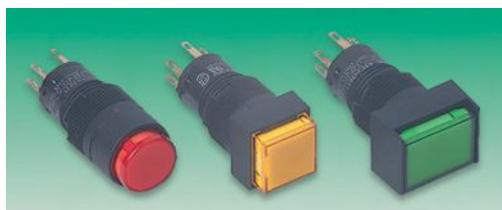
Note: Built-in LED requires appropriate current limiting resistor.
 Red/Green LED IF=20mA/VF=1.7V, Yellow LED IF=20mA/VF=2.2V

213284

Mfrs. List No.	Order Code	1+	10+	Price Each		
				50+	100+	250+
Switch Body - Momentary						
Round	A3DT-7111	118-1349	4.59	4.33	4.13	3.94
Square	A3DA-7111	118-1351	4.59	4.33	4.13	3.94
Rectangular	A3DJ-7111	118-1352	4.59	4.35	4.14	3.94
Switch Body - Latching						
Round	A3DT-7121	118-1353	4.95	4.67	4.46	4.26
Square	A3DA-7121	118-1354	4.95	4.67	4.46	4.26
Rectangular	A3DJ-7121	118-1355	4.95	4.67	4.46	4.26
Lens - Round						
Red	A3DT-500R	959-911	2.29	2.16	2.07	1.98
Green	A3DT-500GY	959-923	2.29	2.16	2.07	1.98
Yellow	A3DT-500Y	959-935	2.38	2.22	2.11	2.01
Lens - Square						
Red	A3DA-500R	985-958	2.29	2.17	2.06	1.96
Green	A3DA-500GY	985-960	2.29	2.17	2.06	1.96
Yellow	A3DA-500Y	985-971	2.29	2.17	2.06	1.96
Lens - Rectangular						
Red	A3DJ-500R	985-983	2.29	2.16	2.07	1.98
Green	A3DJ-500GY	985-995	2.29	2.16	2.07	1.98
Yellow	A3DJ-500Y	986-008	1.83	1.73	1.66	1.52

Miniature 12mm - A3C Series

Illuminated Push Buttons and Indicators - 1A @ 125V ac, 30V dc



Round Bezel=14 dia. Square Bezel=14 x 14 Rectangular Bezel=14 x 18
 Depth behind panel (inc. terminals)=26.5

- Excellent operability
- Sealed to IP40
- High visibility
- CSA approved, UL recognised
- Round, square and rectangular options
- All LEDs, lamps, lenses and legends replaceable without tools
- Compact housing - requires only 20mm mounting depth
- Switch contacts are SPST NO + SPST NC

Note: For suitable light source's see Omron A16 series, AC3 range not suitable for Neon illumination.

222303

Mfrs. List No.	Order Code	1+	Price Each		
			50+	100+	
Switch Bodies - Momentary					
Round	A3CT-7011	118-1356	6.75	6.29	6.02
Square	A3CA-7011	619-220	7.11	6.30	6.07
Rectangular	A3CJ-7011	118-1357	6.57	6.24	5.89
Switch Bodies - Latching					
Round	A3CT-7021	118-1358	6.75	6.28	6.02
Square	A3CA-7021	619-255	7.31	6.51	6.26
Rectangular	A3CJ-7021	118-1359	6.75	6.28	6.02
Indicator Bodies					
Round	M2CT-7001	118-1360	3.94	3.67	3.51
Square	M2CA-7001	619-280	5.19	4.69	4.52
Rectangular	M2CJ-7001	118-1362	4.61	4.31	4.11
Lens - Round					
Red	A3CT-500R	619-309	1.49	1.38	1.33
Green	A3CT-500G	619-310	1.52	1.41	1.31
Green (LED illumination)	A3CT-500GY	619-322	1.60	1.44	1.39
Yellow	A3CT-500Y	619-334	1.47	1.36	1.31
White	A3CT-500W	619-346	1.52	1.41	1.36
Lens Square					
Red	A3CA-500R	619-358	1.60	1.44	1.39
Green	A3CA-500G	619-360	1.60	1.44	1.39
Green (LED illumination)	A3CA-500GY	619-371	1.31	1.03	0.95
Yellow	A3CA-500Y	619-383	1.60	1.44	1.39
White	A3CA-500W	619-395	1.18	1.06	1.03
Lens - Rectangular					
Red	A3CJ-500R	619-401	1.49	1.38	1.33
Green	A3CJ-500G	619-413	1.52	1.41	1.31
Green (LED illumination)	A3CJ-500GY	619-425	1.31	1.03	0.95
Yellow	A3CJ-500Y	619-437	1.31	1.03	0.95
White	A3CJ-500W	619-449	1.18	1.09	1.05

Illuminated Miniature Push Button Switches



1A @ 125V ac/250V ac or 1A @ 30V dc



- Super bright LED illumination
- Audible and tactile feedback with responsive action
- Long life, snap-action mechanism
- 12mm body diameter
- Molded-in terminals lock out flux, dust and other contaminants
- 8mm panel thickness
- CSA Approved, UL Recognised



Round - H = 30mm, Bezel Dia = 14mm

Square - H = 30mm, Bezel = 14 x 14mm

Switch Specifications

Electrical capacity 1A @ 125V / 250V ac or 1A @ 30V
 Electrical life 50000 Cycles
 Contact resistance 50mohm
 Insulation resistance 1000Mohm @ 500V dc
 Dielectric strength 1000V ac between contacts for 1 minute minimum
 Operating temperature -25°C to 50°C

498421

LED Colour & Switch Type	Mfrs. List No.	Order Code	Price Each			
			1+	10+	25+	50+
Round Bezel						
White - SPDT On-On	KB16CKW01-6B-JB	152-4299	13.32	12.26	11.18	10.66
Blue - SPDT On-On	KB16CKW01-6G-JB	152-4300	13.32	12.26	11.18	10.66
White - SPDT On-Mom	KB15CKW01-6B-JB	152-4301	12.82	11.80	10.78	10.26
Blue - SPDT On-Mom	KB15CKW01-6G-JB	152-4302	12.82	11.80	10.78	10.26
White - DPDT On-On	KB26CKW01-6B-JB	152-4303	15.14	13.94	12.72	12.12
Blue - DPDT On-On	KB26CKW01-6G-JB	152-4304	15.14	13.94	12.72	12.12
White - DPDT On-Mom	KB25CKW01-6B-JB	152-4305	14.58	13.42	12.26	11.66
Blue - DPDT On-Mom	KB25CKW01-6G-JB	152-4307	14.58	13.42	12.26	11.66
Square Bezel						
White - SPDT On-On	KB16SKW01-6B-JB	152-4308	13.32	12.26	11.18	10.66
Blue - SPDT On-On	KB16SKW01-6G-JB	152-4309	13.32	12.26	11.18	10.66
White - SPDT On-Mom	KB15SKW01-6B-JB	152-4310	12.82	11.80	10.78	10.26
Blue - SPDT On-Mom	KB15SKW01-6G-JB	152-4311	12.82	11.80	10.78	10.26
White - DPDT On-On	KB26SKW01-6B-JB	152-4312	15.14	13.94	12.72	12.12
Blue - DPDT On-On	KB26SKW01-6G-JB	152-4313	15.14	13.94	12.72	12.12
White - DPDT On-Mom	KB25SKW01-6B-JB	152-4314	14.58	13.42	12.26	11.66
Blue - DPDT On-Mom	KB25SKW01-6G-JB	152-4315	14.58	13.42	12.26	11.66

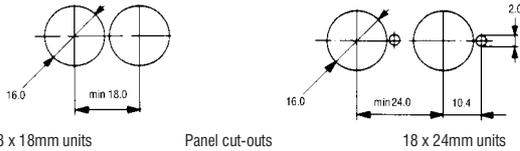
Industrial Push Button Switches - continued

Standard 16mm - EMF Series

Illuminated Push Buttons and Indicators - 5A 250V ac



Indicator depth behind panel T1 1/4 lamp fitting 1 pole=35 T1 1/4 lamp fitting 2 pole=43
Indicator (non switchable)=38.3 Panel cut-out=16.0



- Standard series for screw on panel mounting through 16mm hole diameter
- Round, square and rectangular bezzled units available, matching lenses
- Matching indicators available
- Snap-action elements in either momentary or latching action
- SPDT or DPDT contacts, ie. 1 or 2 contact elements of 1N/O + 1N/C. For changeover contacts connect terminals 2 and 4

Note: Contacts in one section must be same polarity

- T1 1/4 midget groove lamp required for illumination
- Protection covers and IP67 splashproof covers available for all styles
- Switches are approved to VDE, SEMKO and CSA. UL recognised
- Switches/indicators, lenses and diffusers are ordered separately

Mfrs. List No.	Mfrs. List No.	Mfrs. List No.	Mfrs. List No.
0041-2321	114-8216	0041-2351	114-8227
0041-2322	114-8218	0041-2352	114-8228
0041-2371	114-8219	0035-5501	114-8231
0041-2372	114-8220	0854-0622	114-8232
0041-2311	114-8221	0854-0624	114-8233
0041-2312	114-8222	0854-0623	114-8234
0041-2361	114-8223	0854-0873	114-8235
0041-2362	114-8224	0854-0602	114-8236
0035-5511	149-209	0854-0604	114-8237
0041-2301	114-8225	0854-0603	114-8238
0041-2302	114-8226	0854-0872	114-8239
		0854-0582	114-8240
		0854-0584	114-8241
		0854-0583	114-8243
		0854-0871	114-8244
		0853-0621	149-227
		300-0001	141-235
		0853-0622	149-230
		0886-0001	114-8245
		0886-0003	114-8246
		200-5009-00	141-239
		200-6008-00	141-240

Contact rating	5A @ 250V ac	Insulation resistance	10000MR @ 500V dc
Contacts	Gold over silver	Protection class II	ICE536
Mechanical lifetime	2000000 ops	Operating temperature	°C to +°C

222297

	Order Code	Price Each			
		1+	20+	50+	100+
Order Multiple=1					
18mm Diameter Bezeled Units					
SPDT momentary	114-8216●	7.69	7.11	6.26	5.14
DPDT momentary	114-8218●	11.77	10.89	9.58	7.83
SPDT latching	114-8219●	8.63	7.99	7.03	5.75
DPDT latching	114-8220●	12.79	11.84	10.44	8.53
Order Multiple=10					
		10+	20+	50+	100+
18mm Dia Lens					
Red	114-8232●	0.36	0.34	0.32	0.28
Yellow	114-8233●	0.36	0.34	0.32	0.28
Green	114-8234●	0.36	0.34	0.32	0.28
Diffuser/legend insert	114-8235●	0.36	0.34	0.32	0.28
Order Multiple=1					
		1+	20+	50+	100+
18 x 18mm Bezeled Units					
SPDT momentary	114-8221●	7.69	7.12	6.27	5.14
DPDT momentary	114-8222●	11.77	10.89	9.58	7.83
SPDT latching	114-8223●	8.63	7.99	7.03	5.75
DPDT latching	114-8224●	12.79	11.84	10.44	8.53
Lamp Holder	149-209	3.76	3.38	2.87	2.53
Order Multiple=1					
		1+	20+	50+	100+
18 x 18mm Bezeled Units					
Red	114-8236●	0.36	0.34	0.32	0.28
Yellow	114-8237●	0.36	0.34	0.32	0.28
Green	114-8238●	0.36	0.34	0.32	0.28
Diffuser/legend insert	114-8239●	0.36	0.34	0.32	0.28
18 x 24mm Bezeled Units					
SPDT momentary	114-8225●	7.69	7.11	6.26	5.14
DPDT momentary	114-8226●	11.77	10.89	9.58	7.83
SPDT latching	114-8227●	8.63	7.99	7.03	5.75
DPDT latching	114-8228●	12.79	11.84	10.44	8.53
Indicator (body only)	114-8231●	3.76	3.50	3.09	2.51
Order Multiple=1					
		10+	20+	50+	100+
18 x 24mm Transparent Lens					
Red	114-8240●	0.36	0.34	0.32	0.28
Yellow	114-8241●	0.36	0.34	0.32	0.28
Green	114-8243●	0.36	0.34	0.32	0.28
Diffuser/legend insert	114-8244●	0.36	0.34	0.32	0.28

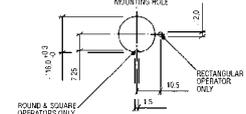
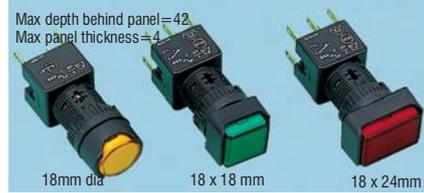
Order Multiple=1

Price Each

Accessories					
Lamp extractor	149-227	3.12	--	--	--
Lens extractor	141-235	4.43	--	--	--
Socket key	149-230	3.05	--	--	--
18 x 18 splashproof cover	114-8245●	4.66	4.34	3.80	3.13
18 x 18 protection cover	114-8246●	3.48	3.21	2.83	2.31
18 x 24 splashproof cover	141-239●	3.23	--	--	--
18 x 24 protection cover	141-240●	2.06	--	--	--

Standard 16mm - A01 Series

Illuminated Push Buttons and Indicators - 6A @ 250V ac



- Modular constructed push buttons and indicators
- Single or double pole C/O switch blocks
- Momentary or latching action
- Illuminated by neon, filament or multi segmented LED lamps
- Gold flashed silver contacts
- IP65 sealed
- Approved to BEAB, VDE and CSA. UL recognised
- Push button assembly: Actuator+Lens+Lamp+ Contact block
- Indicator assembly: Indicator body+Lens+Lamp

Contact rating	10mA @ 5V ac min	Mechanical life	Momentary>1 millionops
	6A @ 250V ac max.		Latching-100,000 ops
Contact resistance	10mR@ 4V dc, 1A	Operating temperature	-20°C to +55°C
Insulation resistance	>50MR		

224507

Order Multiple=1	Mfrs. List No.	Order Code	Price Each		
			1+	25+	100+
Push Button Actuators - Momentary					
18mm dia	A0109Y	108-2429●	2.90	2.73	2.61
18 x 18mm	A0105Y	108-2351●	2.90	2.73	2.62
18 x 24mm	A0101Y	108-2349●	2.90	2.73	2.62
Push Button Actuators - Latching					
18mm dia	A0109X	108-2352●	3.10	2.92	2.80
18 x 18mm	A0105X	108-2350●	3.10	2.92	2.80
18 x 24mm	A0101X	108-2348●	3.10	2.92	2.80
Indicator Body					
18mm dia	A0173	108-2372●	3.90	3.74	3.60
18 x 18mm	A0172	108-2370●	3.90	3.74	3.60
18 x 24mm	A0171	108-2369●	3.90	3.74	3.60
Contact Blocks					
Single pole	A0151B	108-2353●	2.59	2.44	2.33
Double pole	A0152B	108-2354●	3.55	3.34	2.93
Order Multiple=5					
Ø18mm Round Lens					
Red	A0163B	108-2365●	0.24	0.21	0.20
Amber	A0163C	108-2366●	0.24	0.21	0.20
Green	A0163E	108-2367●	0.24	0.21	0.20
Blue	A0163F	108-2368●	0.24	0.21	0.20
18 x 18mm Lens					
Red	A0162B	108-2361●	0.24	0.21	0.20
Amber	A0162C	108-2362●	0.24	0.21	0.20
Green	A0162E	108-2363●	0.24	0.21	0.20
Blue	A0162F	108-2364●	0.24	0.21	0.20
18 x 24mm Lens					
Red	A0161B	108-2355●	0.24	0.21	0.20
Amber	A0161C	108-2356●	0.24	0.21	0.20
Green	A0161E	108-2357●	0.24	0.21	0.20
Blue	A0161F	108-2359●	0.24	0.23	0.20
Order Multiple=1					
			1+	25+	100+
Tools					
Bulb remover	30-0002	925-639	1.44	1.39	1.34
Lens remover	30-0006	925-640	1.44	1.39	1.34
Tool kit (all above)	30-0126	108-2291	3.69	3.44	3.15
Protection Covers					
18mm dia/18 x 18	A01FG2	108-2382●	1.40	1.30	1.20
18 x 24	A01FG1	108-2381●	1.40	1.30	1.25
Replacement Neon Bulbs					
110V ac	A0143G	126-2194●	4.27	4.16	3.98
220V ac	A0143H	126-2195●	6.07	5.90	5.74

15

RL Re-reeling available

Farnell

Standard 16mm - A01 Series

Key Switches and Rotary Lever Switches - 6A @ 250V ac



- Modular constructed key switch and rotary lever
- Single or double pole switching
- Two position latching operators
- Gold flashed silver contacts
- IP65 sealed
- Approved to **BEAB, VDE and CSA**
- **UL** recognised
- Key switch and rotary lever assembly: Actuator + contact block

Max depth behind panel=42
max panel thickness=4

Contact rating	10mA @ 5V ac max. 6A @ 250V ac max.	Insulation resistance	>50mR
Contact resistance	<10mR @ 4V dc, 1A	Mechanical life	>100,000 ops.
		Operating temperature	-20°C to +55°C

213385

Key Switch Actuator	Mftrs. List No.	Order Code	1+	25+	100+	Price Each
18mm dia two position	A018301	108-2375	8.51	8.28	8.05	
18 x 18mm two position	A018201	108-2374	7.99	7.44	7.12	
18 x 24mm two position	A018101	108-2373	8.51	8.17	7.84	
Rotary Lever Actuator	Mftrs. List No.	Order Code	1+	25+	100+	Price Each
18mm dia two position	A019501	108-2378	5.87	5.64	5.41	
18 x 18mm two position	A019301	108-2377	3.34	3.25	3.16	
18 x 24mm two position	A019101	108-2376	3.20	3.01	2.89	
Contact Blocks	Mftrs. List No.	Order Code	1+	25+	100+	Price Each
Single Pole	A0151B	108-2353	2.59	2.44	2.33	
Double Pole	A0152B	108-2354	3.55	3.34	2.93	

Standard 16mm - A01 Series

Emergency Stop Switch - 6A 250V ac



- Emergency stop
- Supplied with double pole positive break switch block
- Prominent 24 mm diameter red mushroom actuator
- Push to operate, twist to reset
- IP65 sealed
- Yellow self-adhesive 60mm emergency stop label available
- Approved to **VDE and CSA**. **UL** recognised

Bezel dia. = 18 , Max depth behind panel = 42
max panel thickness = 42

Contact rating	10mA @ 5V ac min 6A @ 250V ac max.	Insulation resistance	>50mΩ
Contact resistance	<10mΩ @ 4V dc, 1A	Mechanical life	>100,000 ops
		Operating temperature	-20°C to +55°C

SW90/213387

	Order Code	1+	25+	100+	Price Each
Switch	108-2379	8.53	8.19	7.86	
Label	108-2386	0.94	0.90	0.87	

Over 480,000 products online

Compact 16mm IP65 Sealed - A16 Series

Illuminated Push Buttons, Indicators, Key Switch, Selector Switch, Emergency Stop, Buzzer. 3A @ 250Vac or 30Vdc, 5A @ 125Vac. 1mA @ 5Vdc minimum load



Switches & Indicators L=37.8, depth behind panel=28.5,
Key Switch L=38, depth behind panel=28.5
Selector Switch L=47, depth behind panel=28.5
Emergency Stop Switch L=48.5, depth behind panel=28.5
Buzzer L=38, depth behind panel=28.5
All switches Tabs=2.8 x 0.5, Panel cut-out=16
Panel spacing: Round, Square=19 x 19, Rectangular=24 x 19

- Sealed to **IP65**
- Features detachable contact block for ease of installation
- Lamp, LED or Neon illumination
- Single or double pole, latching or momentary action

- Meets **EN60947-5-1**
- **CSA** approved. **UL** recognised
- Complete switch = Switch/indicator body + contact block + light source + lens

Note: Indicator types consist of the momentary action switch body and a Dummy Socket.
Operating temperature -55°C to + 85°C

213150

Switch Sockets

Note: For indicators use dummy socket



213234

Mftrs. List No.	Order Code	1+	10+	50+	100+	250+	Price Each
Switch Units							
SPDT socket	A16-1	118-1289	3.08	2.94	2.80	2.72	2.65
DPDT socket	A16-2	118-1290	5.96	5.61	4.05	3.57	3.17
Dummy socket	M16-0	118-1291	0.88	0.83	0.80	0.77	0.73
Socket/Lens removal tool	A16Z-5080	311-9970	1.97	1.87	1.78	1.70	1.62

Switch, Indicator, Buzzer and Key Switch Bodies



Round, square, rectangular, buzzer or key switch options

Note: For indicator use momentary switch body and dummy socket

Switch Bodies	Mftrs. List No.	Order Code
18mm dia round, momentary action	A165-CTM	118-1293
18mm dia round, latching action	A165-CTA	118-1295
18mm x 18mm square, momentary action	A165-CAM	118-1296
18mm x 18mm square, latching action	A165-CAA	118-1297
18mm x 24mm rectangular, momentary action	A165-CJM	118-1298
18mm x 24mm rectangular, latching action	A165-CJA	118-1299
Selector Switch Body		
18mm x 24mm rectangular, 2 position latching	A165S-J2M-2	137-2568
Buzzer		
18mm x 24mm rectangular, 12-24V ac/dc	M2BJ-B24	118-1292
Key Switch Body		
18mm x 24mm rectangular, 2 position.	A165K-J2ML	118-1301

213235

Order Code	1+	10+	50+	100+	250+	Price Each
All Momentary Switch Bodies	2.55	2.42	2.32	2.22	2.09	
All Latching Switch Bodies	3.37	3.20	3.07	2.93	2.76	
118-1292	21.50	20.22	19.36	18.51	17.63	
137-2568	8.97	8.45	8.10	7.73	7.61	
118-1301	20.85	19.61	18.78	17.94	17.58	

Emergency Stop Switch



- 40mm Button size
- Less than 28.5mm depth behind the panel
- Contact gap exceeds 3mm
- Sealed to **IP65**
- Conforms to **EN418, EN60947-5-1**

Mftrs List No: A165E-M-02

213162

Order Code	1+	10+	50+	100+	250+	Price Each
Switch	137-2566	28.83	27.10	25.95	24.80	23.81
Yellow Nameplate	311-9968	2.57	2.18	1.95	1.72	1.52

Light Source

- Choice of filament, neon or LED illumination
- LED lamps are 4 LED clusters and offer much longer life, thereby reducing maintenance costs

Light source	Voltage (V)	Current (mA)	Operational Life (hrs)	Mftrs. List No.	Order Code
Filament lamp	6	60	3000	A16-5	118-1328
Filament lamp	14	40	16000	A16-12	118-1329
Filament lamp	28	24	16000	A16-24	118-1330
Neon, orange	110ac	1.5	10000	A16-1NRN	118-1331
Neon, orange	250ac	1.5	10000	A16-1NGN	118-1332
Neon, green	110ac	1.5	10000	A16-2NRN	118-1333
Neon, green	250ac	1.5	10000	A16-2NGN	118-1334
LED, red	5	30	50000	A16-5DR	118-1335
LED, red	12	15	50000	A16-12DR	118-1337
LED, red	24	10	50000	A16-24DR	118-1338
LED, yellow	5	30	50000	A16-5DY	118-1339
LED, yellow	12	15	50000	A16-12DY	118-1340
LED, yellow	24	10	50000	A16-24DY	118-1341
LED, green	5	30	50000	A16-5DG	118-1342
LED, green	12	15	50000	A16-12DG	118-1343
LED, green	24	10	50000	A16-24DG	118-1344
LED, blue	5	30	50000	A16-5DA	118-1345
LED, blue	12	15	50000	A16-12DA	118-1346
LED, blue	24	10	50000	A16-24DA	118-1347

15

Re-reeling available



Industrial Push Button Switches - continued

Light Source - continued

213237

Order Code	Price Each				
	1+	10+	50+	100+	250+
All Lamps	1.08	1.01	0.97	0.93	0.87
All Neons	2.69	2.45	2.25	2.05	1.85
All LEDs	3.73	3.39	3.13	2.84	2.54

Lens Screen

- Round, square or rectangular options to match bodies
- Choice of 6 colours

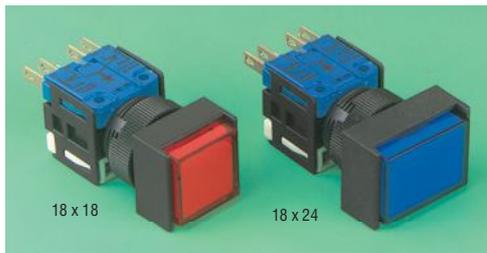
Colour	Light Source	Lens Screen		
		Round Order Code	Square Order Code	Rectangular Order Code
Red	Filament lamp or LED	118-1302	118-1303	118-1304
Yellow	Filament lamp or LED	118-1305	118-1306	118-1307
Green	Filament lamp or LED	118-1308	118-1309	118-1310
White	Filament lamp or LED*	118-1311	118-1313	118-1314
Blue	Filament lamp	118-1315	118-1316	118-1317
Red	Neon	118-1318	118-1319	118-1320
Green	Neon	118-1321	118-1322	118-1323
Black	--	118-1325	118-1326	118-1327
	* Using yellow LED			

213236

Order Code	Price Each				
	1+	10+	50+	100+	250+
All Colours	0.99	0.91	0.82	0.79	0.75

Compact, 16mm hole mounting - 35mm Series

Illuminated Push Buttons and Indicators - 6A @ 250V ac



Panel cut-out dia. = 16

- 35mm maximum back panel depth
- Removable contact blocks for pre-wiring
- Lamp or LED Illumination T 1¼ midget groove
- IP40 and IP65 version available
- Gold plated snap action switch
- Complete switch = Actuator + Contact Block + Lens + Light Source
- VDE, CSA, SEV and SEMKO approved. UL recognised.

224508

	Mfrs. List No.	Order Code	Price Each		
			1+	10+	100+
18 x 18mm Bezeled Actuators					
Momentary IP40	680-4000-00	185-644●	5.25	4.85	4.43
Momentary IP65	680-4000-W0	185-656●	6.58	6.08	5.57
Latching IP40	600-4000-00	185-668●	5.53	5.12	4.68
18 x 24mm Bezeled Actuators					
Momentary IP40	680-6000-00	185-700●	5.25	4.85	4.43
Momentary IP65	680-6000-W0	185-711●	6.58	6.08	5.57
Latching IP40	600-6000-00	185-723●	5.53	5.12	4.68
18 x 18mm Lenses					
Red	600-3120-00	185-760●	1.11	1.02	0.94
Yellow	600-3170-00	185-772●	1.11	1.02	0.94
Green	600-3140-00	185-784●	1.11	1.02	0.94
Blue	600-3150-00	185-796●	1.11	1.02	0.94
18 x 24mm Lenses					
Red	600-5120-00	185-802●	1.11	1.02	0.94
Yellow	600-5170-00	185-814●	1.00	0.91	0.85
Green	600-5140-00	185-826●	1.11	1.02	0.94
Blue	600-5150-00	185-838●	1.11	1.02	0.94
Contact Blocks					
1 NO/1 NC	601-0000-00	185-840●	5.54	5.01	4.60
2 NO/2 NC	602-0000-00	185-851●	11.63	10.35	9.08
Indicator Lamp Block	600-0000-00	185-863●	1.81	1.65	1.53

700 products added online every week

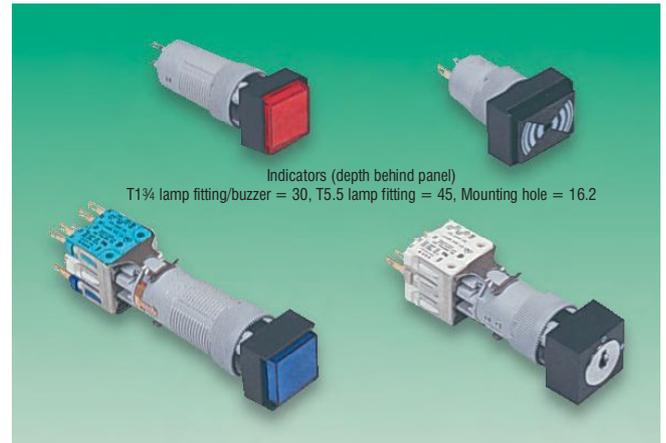


See our pick of the hottest products and latest technologies in 'What's New?' at www.farnell.co.uk

Standard, 16mm hole mounting - 55-70mm Series

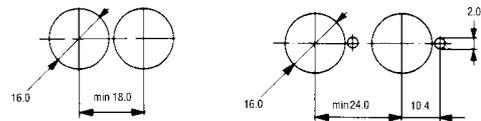


Illuminated Push Buttons, Indicators, Key Operated Switch, Buzzer - 6A @ 250V ac



Indicators (depth behind panel)
T1¼ lamp fitting/buzzer = 30, T5.5 lamp fitting = 45, Mounting hole = 16.2

Switches (depth behind panel)
T1¼ lamp fitting/key switch = 55, T5.5 lamp fitting = 70, Mounting Hole = 16.2



18 x 18mm units Panel cut-outs 18 x 24mm units

- Panel mounting through 16.2mm hole diameter
- Square and rectangle bezeled units available, matching lenses
- Matching indicators available
- Same switch mechanism can serve as either latching or momentary. Supplied as latching, can be converted to momentary by simply removing a phosphor bronze spring on the side of the switch body
- Choice of body style, to take either T1¼ midget groove or T5.5 telephone side lamps
- SPDT or DPDT contacts, ie. 1 or 2 contact elements of 1N/O + 1N/C
- Extra elements (1N/O + 1NC) can be added to a maximum of 3
- Contacts are hard silver, gold plated
- Matching key operated switch available 1N/O + 1N/C contacts, 2 positions, latching
- Matching 12 volt buzzer available
- Approved to VDE, SEV, SEMKO, DEMKO, NEMKO and CSA

Mfrs List No.

890-000-K0+200-4000-00=141-200, 990-000-K0+200-4000-00=141-201, 801-0000-00+200-4000-00=141-202, 901-000-00+200-4000-00=141-203, 802-0000-00+200-4000-00=141-204, 902-0000-00+200-4000-00=141-205, 911-4001=151-153, 200-3120-00=141-225, 200-3170-00=141-226, 200-3140-00=141-227, 200-3150-00=141-228, 200-3160-00=141-229, 890-000-K0+200-6000-00=141-208, 901-000-00+200-6000-00=141-211, 802-0000-00+200-6000-00=141-212, 902-0000-00+200-6000-00=141-213, 200-5120-00=141-230, 200-5170-00=150-241, 200-5140-00=141-232, 200-5150-00=141-233, 200-5160-00=141-234, 300-0001=141-235, 300-0002=141-236, 200-5009-00=141-239, 200-6008-00=141-240, 201-0400-00=141-242,

224509

	Order Code	Price Each			
		1+	10+	40+	200+
18 x 18mm Bezeled Units					
Indicator body T5.5	141-200●	4.20	3.86	3.43	2.86
Indicator body T1¼	141-201●	3.77	3.46	3.08	2.68
Switch SPDT T5.5	141-202●	12.33	11.17	9.88	8.27
Switch SPDT T1¼	141-203●	12.16	11.00	9.74	8.16
Switch DPDT T5.5	141-204●	18.39	16.67	14.75	12.32
Switch DPDT T1¼	141-205●	17.89	16.20	14.35	11.98
Keyswitch, 2 position	151-153●	22.84	20.70	18.32	15.31
18 x 18mm Clear Lens with Diffuser					
Red	141-225●	0.72	0.64	0.57	0.49
Yellow	141-226●	0.72	0.64	0.57	0.49
Green	141-227●	0.72	0.64	0.57	0.49
Blue	141-228●	0.64	0.57	0.51	0.45
White	141-229●	0.72	0.64	0.57	0.49
18 x 24mm Bezeled Units					
Indicator body T5.5	141-208●	4.20	3.86	3.43	2.86
Indicator body T1¼	141-209●	4.10	3.78	3.34	2.78
Buzzer, 12V	113-0804●	19.47	17.97	15.91	13.30
Switch SPDT T5.5	141-210●	12.33	11.17	9.88	8.27
Switch SPDT T1¼	141-211●	12.33	11.17	9.88	8.27
Switch DPDT T5.5	141-212●	18.39	16.67	14.75	12.32
Switch DPDT T1¼	141-213●	17.52	15.83	14.04	11.73
18 x 24mm Clear Lens with Diffuser					
Red	141-230●	0.72	0.64	0.57	0.49
Yellow	150-241●	0.72	0.64	0.57	0.49
Green	141-232●	0.72	0.64	0.57	0.49
Blue	141-233●	0.72	0.64	0.57	0.49
Accessories					
Lens extractor	141-235	4.43	--	--	--
Lamp extractor	141-236	0.76	--	--	--
18 x 24 splashproof cover	141-239●	3.23	--	--	--
18 x 24 protection cover	141-240●	2.06	--	--	--
Contact element, green	141-242●	4.43	--	--	--
Contact element, grey	143-030●	4.25	--	--	--

Tactile Snap Action, 16mm hole mounting - 31 Series

Illuminated Pushbuttons and Indicators 5A, 250Vac, IP40



- Tactile self-cleaning elements
- One or two changeover elements
- Square or rectangular front bezels
- Gold plated silver contacts
- VDE, CSA, SEV approved, UL recognised

Depth behind panel Unit 1NO, 1NC = 29

Unit 2NO, 2NC = 36.5
Indicator = 23.5

Rectangular Lenses:	Red = 925-159	Orange = 925-160	Yellow = 925-172
	Green = 925-184	Blue = 925-196	Clear = 925-202
Square Lenses:	Red = 925-214	Orange = 925-226	Yellow = 925-238
	Green = 925-240	Blue = 925-251	Clear = 925-263

213315

Order Multiple=1	Mfrs. List No.	Order Code	Price Each		
			1+	10+	100+
18 x 24mm Bezeled					
1 N/O + 1 N/C Momentary Units	31-121.025	311-2081	14.06	12.75	11.50
2 N/O + 2 N/C Momentary Units	31-122.025	311-2093	20.69	18.75	16.90
1 NO + 1 NC Latching	31-261.025	311-2100	15.53	14.08	12.69
2NO+2NC Latching	31-262.025-2	311-2111	20.22	18.32	16.51
Indicator	31-040.005	311-2123	4.66	4.32	3.88
18 x 18mm Bezeled Units					
1 C/O Momentary Units	31-151.025	311-2135	14.06	12.75	11.50
2 C/O Momentary Units	31-152.025	311-2147	20.17	18.27	16.47
1 C/O Latching	31-281.025	311-2159	15.53	14.08	12.69
2 C/O Latching	31-282.025	311-2160	21.13	19.15	17.26
Indicator	31-050.005	311-2172	4.66	4.32	3.88
Order Multiple=3 Lenses - See Above			3+	15+	60+
Rectangular	All Order Codes		0.90	0.87	0.82
Square	All Order Codes		0.90	0.87	0.82

Industrial 22mm - A02 Series

Illuminated Push Buttons and indicators - 16A @ 250V ac



29mm Plastic Bezel 29mm Metal Bezel 29 x 29 Indicator
H (above panel)=60, D behind panel=38, Panel cut-out=22.5

- Modular design
- Momentary or latching action
- Round or square bezels available
- Panel sealed to IP65
- Screw termination
- Push button: Actuator + Contact block + Lens + Lamp
- Indicator: Actuator + Lens + T 1 3/4 Midget Groove Lamp
- VDE, CSA and BEAB approved
- UL recognised

Contact rating	25mA @ 5V ac min 16A @ 250V ac	Mechanical life	Momentary >1000000 ops Latching > 100000 ops
Contact resistance	<10mΩ @ 1A 4Vdc	Operating temperature	-20°C to +85°C
Insulation resistance	>50MΩ		

FOR MORE LAMPS AND LEDs SEE OPTOELECTRONICS, INDICATORS, LAMPS & DISPLAYS SECTION

227699

Order Multiple=1	Order Code	Price Each					
		1+	10+	50+	100+	500+	
Push Button Actuators - momentary							
29mm dia, plastic	A0207Y	108-2390	6.59	6.33	6.06	5.82	5.59
29mm dia, metal	A0210Y	108-2392	8.66	8.32	7.99	7.66	7.36
29 x 29	A0204Y	108-2388	6.59	6.33	6.06	5.82	5.59
Push Button Actuators - latching							
29mm dia, plastic	A0207X	108-2389	8.41	8.07	7.76	7.44	7.14
29mm dia, metal	A0210X	108-2391	9.21	8.85	8.49	8.14	7.82
29 x 29	A0204X	108-2387	5.46	5.25	5.03	4.83	4.63
Indicators							
29mm dia, plastic	A0275	108-2407	7.32	7.03	6.75	6.48	6.23
29mm dia, metal	A0277	108-2408	8.32	7.99	7.66	7.36	7.06
29 x 29	A0273	108-2406	5.25	5.04	4.85	4.65	4.47
Order Multiple=5							
29mm dia. Lens							
Red	A0236B	108-2393	0.31	0.30	0.29	0.28	0.27
Green	A0263E	108-2404	0.30	0.28	0.26	0.24	0.23
Clear	A0263G	108-2405	0.31	0.30	0.29	0.28	0.27
29 x 29 Lens							
Red	A0262B	108-2400	0.30	0.28	0.26	0.24	0.23
Green	A0262E	108-2402	0.30	0.28	0.26	0.24	0.23
Clear	A0262G	108-2403	0.31	0.30	0.29	0.28	0.27

Order Multiple=1

Contact Blocks	Mfrs. List No.	Order Code	Price Each				
			1+	10+	50+	100+	500+
1 N/O	A02501	108-2394	4.31	4.14	3.96	3.81	3.66
1 N/C	A02502	108-2396	5.07	4.86	4.67	4.48	4.30
2 N/O	A02503	108-2397	6.79	6.51	6.26	6.01	5.77
2 N/C	A02504	108-2398	7.98	7.65	7.35	7.05	6.78
1 N/O + 1 N/C	A02505	108-2399	6.79	6.51	6.26	6.01	5.77
Replacement Neon Lamps							
110V ac	A0143G	126-2194	4.27	4.16	3.98	3.52	3.24
220V ac	A0143H	126-2195	6.07	5.90	5.74	5.59	5.45

Snap-In Panel Mount Square and Rectangular



- 2 Poles
- Silver contacts
- Momentary or Latching (Push-on, Push-off) action
- T1-3/4" Lamps ordered separately
- Lamp circuit independent of switch circuit
- CSA Certified, UL Recognised

Switch body - Square: H = 36, W = 18.9, D = 18.9mm
Rectangular: H = 36, W = 28.85, D = 18.9mm

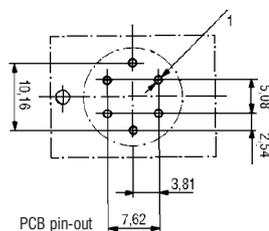
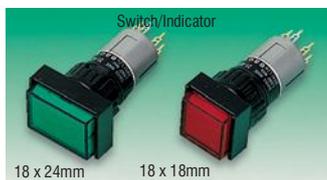
Contacts	DPDT	Electrical life	25000 ops min.
Current rating - AML21	2A @ 250V, 24V	Mechanical life	25000 ops
Current rating - AML31/32	10A @ 250V	Operating temperature	0 to 55°C

445143

AML21 - DPDT	Mfrs. List No.	Order Code	Price Each			
			1+	10+	50+	100+
Momentary						
Square	AML21BBA2AC	126-5328	10.03	9.32	8.92	8.53
Square, Illuminated	AML21CBA2AC	126-5329	11.61	10.80	10.33	9.86
Rectangular	AML21EBA2AC	126-5332	9.95	9.45	8.96	8.56
Rectangular, Illuminated	AML21GBA2AC	126-5333	11.06	10.30	9.87	9.43
Latching						
Square	AML21BBA2AD	126-5330	10.39	9.67	9.25	8.82
Square, Illuminated	AML21CBA2AD	126-5331	13.54	12.60	12.05	11.51
Square	AML21EBA2AD	126-5334	9.95	9.45	8.96	8.56
Square, Illuminated	AML21GBA2AD	126-5335	11.44	10.87	10.30	9.84
AML31/32 - DPNO						
Latching, Illuminated						
Rectangular	AML31FBA4AD	126-5338	13.02	12.85	12.39	12.31
Rectangular, Red Neon	AML32FBC4AD	126-5339	21.36	19.86	19.03	18.16
Rectangular, Green Neon	AML32FBP4AD	126-5340	14.75	14.35	13.99	13.89
Indicators, Illuminated						
Square	AML41CBA2	126-5341	6.44	6.00	5.74	5.49
Rectangular	AML41GBA2	126-5342	6.35	6.03	5.85	5.75
Lens / Buttons						
Square - Green	AML51C10G	126-5343	0.68	0.66	0.63	--
Square - Red	AML51C10R	126-5344	0.68	0.66	0.63	--
Square - White	AML51C10W	126-5345	0.68	0.66	0.63	--
Square - Black	AML51C10K	126-5346	0.68	0.66	0.63	--
Rectangular - Green	AML51F10G	126-5347	0.89	0.85	0.80	--
Rectangular - Red	AML51F10R	126-5348	0.89	0.85	0.80	--
Rectangular - White	AML51F10W	126-5351	1.01	0.97	0.94	--
Rectangular - Black	AML52-N10K	126-5352	0.89	0.85	0.80	--
Panel Seals						
Square	AML75ABC	126-5353	2.21	2.14	2.06	1.94
Rectangular	AML75BBC	126-5354	2.59	2.46	2.33	2.23
Finger Guards						
Square	AML76C10T01P	126-5355	5.05	4.75	4.55	4.29
Rectangular	AML76F10T0-1P	126-5356	4.57	4.37	4.17	4.09

Low Level Switching 16mm - 31 Series

Illuminated Silent Action Push Button Switches, Indicators, 10µA/100µV to 100mA/42V



Depth behind panel = 36 (inc. terminals). Panel cut-out = 16

- Low signal level switches
- Silent operation for momentary actuators
- Square or rectangular push buttons and indicators
- Terminals suitable for PCB, solder or plug-in (2.8 x 0.5mm) connection
- PCB socket adaptor available for easy switch removal
- Contact bounce less than 100µs, initial contact resistance ≤50mR
- Mechanical life 5 million operations

224510

Order Multiple=1	Mfrs. List No.	Order Code	Price Each		
			1+	10+	100+
18 x 24mm Bezeled Units					
1 N/O Momentary	31-425.036	925-093	8.15	7.94	7.30
1 N/O + 1 N/C Momentary	31-423.036	925-100	13.19	12.88	11.91
2 N/O Momentary	31-421.036	925-111	13.19	12.88	11.91



Industrial Push Button Switches - continued

Low Level Switching 16mm - 31 Series - continued

Illuminated Silent Action Push Button Switches, Indicators, 10µA/100µV to 100mA/42V - continued

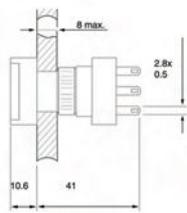
Order Multiple=1		Mfrs. List No.	Order Code	1+	10+	100+
18 x 24mm Bezeled Units						
1 N/O + 1 N/C Latching	31-463.036	925-123	15.04	14.70	13.59	
2 N/O Latching	31-461.036	925-135	13.03	12.73	11.77	
Indicator unit	31-041.006	925-147	5.09	4.98	4.68	
18 x 18mm Bezeled Units						
1 N/O Momentary	31-455.036	925-032	8.15	7.94	7.30	
1 N/O & 1 N/C Momentary	31-453.036	925-044	13.19	12.88	11.91	
2 N/O Momentary	31-451.036	925-056	13.19	12.88	11.91	
1 N/O + 1 N/C Latching	31-483.036	925-068	15.04	14.70	13.59	
2 N/O Latching	31-481.036	925-070	15.04	14.70	13.59	
Indicator unit	31-051.006	925-081	5.09	4.98	4.68	
Order Multiple=3						
18 x 24mm Lenses						
Red	31.903.2	925-150	0.90	0.87	0.82	
Orange	31.903.3	925-160	0.90	0.87	0.82	
Yellow	31.903.4	925-172	0.90	0.87	0.82	
Green	31.903.5	925-184	0.90	0.87	0.82	
Blue	31.903.6	925-196	0.90	0.87	0.82	
Clear	31.903.7	925-202	0.90	0.87	0.82	
18 x 18mm Lenses						
Red	31.953.2	925-214	0.90	0.87	0.82	
Orange	31-953.3	925-226	0.90	0.87	0.82	
Yellow	31-953.4	925-238	0.90	0.87	0.82	
Green	31-953.5	925-240	0.90	0.87	0.82	
Blue	31-953.6	925-251	0.90	0.87	0.82	
Clear	31-953.7	925-263	0.90	0.87	0.82	
Order Multiple=1 Accessories						
PCB adaptor	31-940	925-275	2.29	2.25	2.13	
Lens removing tool	02-905	925-287	3.48	3.22	2.81	
Lamp/LED remover	02-906	925-299	1.53	1.42	1.23	

Raised/Ultra Flush Mounted IP65 Sealed - 61 Series

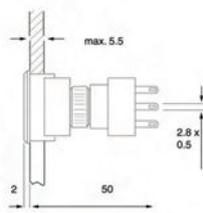
Illuminated Push Buttons, Indicators, Emergency Stop Push Buttons 5A @ 250Vac



Flush mount: L = 50mm
 Depth behind panel max = 48mm
 Panel cut out: 25mm dia = 22.5, 24 x 24 = 21 x 21, 24 x 30 = 21 x 27
 Raised: L = 51.6, depth behind panel max = 41
 panel cut out 16mm, E stop L = 80mm
 Depth behind panel max 43mm, panel cut out 16mm



Raised



Ultra Flush

224511/224511

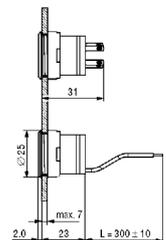
Flush Mount Push Button Actuators and Indicator		Mfrs. List No.	Order Code	1+	10+	100+
Momentary	61-1100.0	311-6086	4.70	4.40	3.92	
Latching	61-1200.0	311-6098	5.88	5.60	5.13	
Indicator	61-0000.02	311-6104	3.92	3.63	3.38	
Bezels for Flushmount Bodies*						
24 x 24mm Square Plastic	61-9930.0	618-457	1.92	1.76	1.57	
24 x 30mm Rectangular Plastic	61-9931.0	618-469	1.92	1.76	1.57	
25mm Round Aluminium	61-9933.0	311-6128	4.64	4.43	3.95	
25mm Round Plastic	61-9933.10	311-6130	1.92	1.76	1.57	
Round Flush Lenses						
Red	61-9642.2	618-470	2.26	2.13	1.89	
Yellow	61-9642.4	311-6153	2.26	2.13	1.89	
Green	61-9642.5	618-494	2.26	2.13	1.89	
Clear	61-9642.7	618-500	1.81	1.71	1.51	
Square Flush Lenses						
Red	61-9671.2	311-6207	1.35	1.14	1.11	
Yellow	61-9671.4	311-6219	1.21	1.03	1.00	
Green	61-9671.5	311-6220	1.35	1.14	1.11	
Clear	61-9671.7	311-6232	1.21	1.03	1.00	

Rectangular Flush Lenses		Mfrs. List No.	Order Code	1+	10+	100+
Red	61-9681.2	311-6244	1.35	1.14	1.11	
Yellow	61-9681.4	311-6256	1.35	1.14	1.11	
Green	61-9681.5	311-6268	1.35	1.14	1.11	
Clear	61-9681.7	311-6281	1.35	1.14	1.11	
Raised Push Button Actuators and Indicators						
Rectangular 18 x 24						
Momentary	61-1130.0	311-6300	4.80	4.47	4.28	
Latching	61-1230.0	311-6311	5.99	5.58	5.35	
Raised Rectangular Lenses						
Red	61-9331.2	311-6384	1.15	1.07	1.01	
Green	61-9331.5	311-6402	1.15	1.07	1.03	
Contact Blocks - Gold						
1 N/O	61-8410.22	618-597	5.39	5.03	4.81	
2 N/O	61-8420.22	618-603	6.55	6.10	5.84	
1 N/O, 1 N/C	61-8470.22	618-615	6.55	6.10	5.84	
Foolproof Emergency Stop Actuator						
Arrow Marking	61-3440.4/1	618-627	27.79	25.65	17.25	
Stop Marking	61-3440.4/2	618-639	26.13	24.12	16.22	
Slow Make Contact Block for Emergency Stop						
2 N/C	61-8755.17	618-652	6.40	5.79	5.13	
Tool Kit						
Lens remover, contact remover, mounting key and LAMP/LED remover	K61-999.100	618-676	8.56	7.90	7.00	

Ultra Flush Mount IP67 - 84 Series



Push buttons/Indicators
 Bezel = 25 dia. Panel cut-out = 22.5



- Ultra flush mounting - height above panel 2mm only
- Integrated multi-chip LED (illuminated versions, 24V dc operating voltage)
- Flying lead or solder/plug-in terminations
- Detachable switch unit for easy wiring
- Gold plated normally open, momentary contacts
- Sealing to IP67

213198

Push Button Illuminated - Solder Terminal		Mfrs. List No.	Order Code	1+	10+	100+
Red	K84-603.2105	113-0811	9.65	8.69	8.20	
Yellow	K84-603.2909	113-0812	10.13	9.12	8.61	
Green	K84-603.3311	113-0813	15.19	13.75	12.18	
Push Button Illuminated - Flying Lead						
Red	K84-603.2205	113-0814	18.82	17.04	15.08	
Yellow	K84-603.3009	113-0815	19.32	17.47	15.48	
Green	K84-603.3411	113-0816	19.32	17.47	15.48	
Accessories						
Mounting Tool	84-997	619-085	1.78	1.63	1.44	
Lens remover	61-9730.0	619-097	2.48	2.30	2.03	

Push-Pull Switches 2A @ 250V ac



- Latching double-pole changeover
- Selection of button colours
- Solder lug terminals

Electrical Life 10000 ops
 Contact Resistance 10mR
 Operating Temp °C to +°C2070
 Travel 2.3mm

Bezel dia. = 24, Depth = 22, Panel cut-out (dia.) = 12, thickness = 8 max.

Mfrs. List No.

N46B=108-2464

N46A=108-2463

347655/405519

Actuator Colour		Order Code	1+	10+	50+	100+
Red	108-2464	5.58	5.25	5.05	4.82	
Black	108-2463	5.58	5.26	5.04	4.82	

15

RL Re-reeling available

Farnell

Mushroom Head Pushbutton Switches - Enclosed
6A 250V ac



- Pushbutton switches in robust polycarbonate enclosures
- Available with coloured momentary and twist-to-release (emergency stop) actuators
- Sealed to **IP65**
- Knockouts for popular conduit sizes
- DPDT contacts

Actuator dia.=40, Body height=55, Width/Depth=65

	Momentary	E-Stop		
Contact rating	6A @ 250V ac	1.5A @ 250V ac (E-Stop)		
Electrical Life	6050 ops	50000 ops		
Operating Temperature	-20°C to 55°C			
Mfrs. List No.	A01ESSP354B+PEA01	= 108-2380	A01MMESP352B+PEA01	= 108-2385
	A01MMBSP352B+PEA01	= 108-2384		

347654/405523

Momentary Action	Order Code	1+	10+	25+	50+
Actuator Colour					
Red	108-2384	16.82	15.81	15.27	14.45
Green	108-2385	16.82	15.81	15.27	14.45
Emergency Stop					
Red	108-2380	17.00	15.96	15.41	14.58

Mushroom Switch with Key Reset
Panel Cut-out 22.5mm



- Mushroom cap, 40mm diameter
- Positive opening operation
- Light action
- Faston terminals 2.8 x 0.5mm
- 1NO + 1NC contacts

Switching Capacity	Contact Resitance	Operating Temperature	IP
6A @ 230V ac	<30mohm	-25 to 55°C	IP40

Cap dia 40mm, panel cut-out 22.5mm

347665/405524

Mfrs. List No.	Order Code	1+	5+	10+
TH885503691	777-1860	61.51	59.95	57.97

16mm - Sealed
Emergency Stop Switch



Dia. = 42mm,
Cut Out = 16mm

Dia. - Button = 28mm, Cut Out = 16mm
Length O/A = 73.4mm
Panel Thickness = 5mm (Max.)

- Emergency stop
- Push to operate, twist to reset
- Supplied with Snap On, 2 x NC/NO contact block
- High actuation force to prevent inadvertent operation
- Quick Connect/Solder terminals
- Complete with terminal cover and self adhesive "EMERGENCY STOP" disc
- Plain and Illuminated versions available

Contact rating	5A @ 250V ac	Protection	IP65
Panel Thickness	0.5 to 5mm	Operating temperature	-40 to 70°C

511687

Type	Mfrs. List No.	Order Code	1+	10+	25+
Non Illuminated	MCADA16E6-R11-B10R	160-6957	19.07	17.74	16.49
12V LED Illuminated	MCADA16E6-R11-B1JR	160-6958	21.95	20.41	18.98
24V LED Illuminated	MCADA16E6-R11-B1KR	160-6959	21.95	20.41	18.98
110V Neon Illuminated	MCADA16E6-R11-B1FR	160-6960	20.76	19.31	17.96
240V Neon Illuminated	MCADA16E6-R11-B1GR	160-6961	20.76	19.31	17.96

700 products added online every week



See our pick of the hottest products and latest technologies in 'What's New?' at www.farnell.co.uk

Sealed Emergency Stop Switch to EN 418
Panel Cut-out 16.2mm



- Mushroom cap, 27mm diameter
- Rotary reset
- Faston terminals 2.8 x 0.5mm
- Two normally closed terminals

Switching Capacity	Contact Resitance	Operating Temperature	IP
6A @ 230V ac	<30mohm	-25 to 55°C	IP66

347669/405526

Mfrs. List No.	Order Code	1+	10+	25+	50+
TH880204691	777-1851	13.36	12.99	12.73	12.47

Standard 16mm
Emergency Stop Switch



- Emergency stop
- Supplied with integral NO /NC switch block
- Prominent 24 mm diameter red mushroom actuator
- Push to operate, twist to reset
- AC and DC Switching models available

Dia. - Button = 24mm, Cut Out = 16mm
Panel Thickness = 5mm (Max.)

Contact rating - PCB Pin Model	100mA @ 32V dc
Contact rating - Blade Terminal Model	5A @ 250V ac
Panel Thickness	0.5 to 5mm
Operating temperature	-40 to 70°C

511642

Terminal Type	Mfrs. List No.	Order Code	1+	10+	25+	50+
PCB Pins	MCOS38009	160-6954	10.68	9.93	9.23	8.58
Blade	MCOS38008	160-6956	10.68	9.93	9.23	8.58

Illuminated E-Stop Push Button
3A @ 120V ac, 1.5A @ 240V ac



Button dia = 32, cutout = 22.3,
depth below panel = 18 (inc terminals),
13.5 (ribbon cable version)

- 32mm button size
- Compatible with all 84 series range
- Yellow ring bezel available as accessories
- IP65 sealed
- Manufactured to EN60947-1, EN60947-5-1, EN60947-5-5, EN 418, DIN EN 60204-1

Contact rating	0.22A @ 120V dc max.
Operating temperature	-25°C to +85°C
Operating life	>50000 operations
Peak rated voltage	2.5 kV
LED supply voltage	5 - 30 Vdc
Contact material	Gold plate on silver

347729/405528

Termination	Mfrs. List No.	Order Code	1+	5+	10+
Non-Illuminated					
Solder terminals	84-5030.0020	134-6927	13.96	13.13	12.85
Ribbon cable	84-5030.0040	134-6928	20.97	20.04	19.25
Illuminated					
Solder terminals	84-5031.2B20	134-6929	20.96	19.70	19.29
Ribbon cable	84-5031.2B40	134-6930	30.34	28.97	27.83
Accessories					
Yellow Ring Bezel	44-950	772-8000	2.44	2.32	2.22

Vandal Resistant Switches

Vandal-Proof Piezo Switches
SPNO illuminated



M22 M27 M30 M24

- Vandal resistant
- Switch has no moving parts
- High reliability
- Sealed to **IP67**
- LED illumination

15

Re-reeling available



Vandal Resistant Switches - continued

Vandal-Proof Piezo Switches - continued

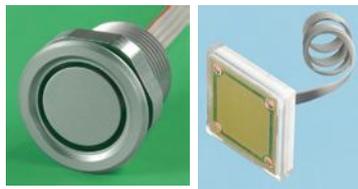
SPNO illuminated - continued

Switch Types	Connector type	illumination
M22 1241.3020.M	FASTON terminated leads, 90mm o/a length	Point illuminated, red 24V led
M24 1241.3010	Leads, 200mm length	Ring illuminated, red/green 24V led's
M27 1241.3011	Leads, 200mm length	Ring illuminated, red/green 24V led's
M30 1241.3012	Leads, 200mm length	Ring illuminated, red/green 24V led's
Voltage, switching dc max.	60	Resistance, initial contact <20ohm
Voltage, switching ac max.	42	Capacitance 30pF
Current, switching max.	0.1	Current, led (I _f) 2.0mA
Capacity, breaking max.	1W	Temperature, operating -20°C to 60°C
Life, at breaking capacity	≥50Cycles	Force, operating min. 1.53N
Resistance, isolation	>10Mohm	Travel (contact) 0.002mm

248883

Mfrs. List No.	Order Code	1+	10+	50+	Price Each
1241.3020.M	979-3763●	18.35	16.96	16.05	
1241.3010	979-3739●	25.67	25.67	24.29	
1241.3011	979-3747●	34.23	34.23	32.38	
1241.3012	979-3755●	34.23	34.23	32.38	

Vandal-Proof Switches Capacitive



M16 Ring Illumination 25 x 25mm Under Glass

- Robust electronic switch
- No actuating force required
- 210mm long wire termination
- Sealed to IP67

Capacitive switches are activated by a simple touch. The switch has no moving parts and so there is no risk of malfunction due to abuse. Designed for use in rough climates and harsh industrial environments they are also vandal resistant.

Voltage, switching max.	+7 to +24 VDC
Current, switching max.	175mA
Capacity, breaking max.	250mW
NO make time (impulse types only)	750ms
Life (at rated breaking capacity)	1000000 Operations
Resistance, contact initial (ON = in action)	7.5ohm
Resistance, isolation (housing)	1.5kV
Temperature, operating	-20°C to 85°C

248921

Switch Action Type	Mfrs. List No.	Order Code	1+	10+	50+	100+	Price Each
M16 Ring Illumination - Red							
Latching	1243.1218.11	979-3810●	32.70	31.72	31.08	30.48	
Momentary	1243.1318.11	979-3828●	31.65	30.72	29.69	27.80	
M16 Ring Illumination - Green							
Momentary	1243.1318.21	979-3836●	32.70	31.72	30.66	28.70	
Impulse	1243.1118.21	979-3844●	32.70	31.72	30.66	28.70	
Square Under Glass - Green Illumination							
Impulse	1243.5203.21	979-3852●	21.18	19.32	18.30	16.54	

SPNO Momentary

200mA @ 48V dc 'Vandal Resistant', Screw Terminals



- Three options available, curved actuator, flat actuator, curved actuator with chamfer
- Robust stainless steel construction
- Screw terminal connections
- Sealed to IP54

Insulation Resistance	1000MR min./500V dc
Contact Resistance	50mR max.
Operating Temperature	-20°C to +55°C
Mechanical Life	1000000 ops

Mfrs. List No.	AV1630C940=108-2435
	AV0630C940=108-2430
	AV0830C940=108-2431

SW269/213231

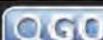
	Order Code	1+	25+	100+	250+	Price Each
Curved Actuator	108-2435●	12.82	12.11	11.66	11.10	
Flat Actuator	108-2430●	10.77	10.36	9.83	9.47	
Curved Actuator with Chamfer	108-2431●	13.65	13.01	12.67	12.10	

15

RL Re-reeling available

Farnell

Over 480,000 products online



'Vandal Resistant' - IP67

10A @ 250V ac



15mm Button: L = 33.5, Dia. = 21.5, Depth behind panel = 31.0
Max. panel thickness = 8.0, Panel cut-out = 19.25 dia.
19mm Button: Max. panel thickness = 2.5, Panel cut-out = 22.5 dia.
L = 29.0, Dia. = 27.0, Depth behind panel = 25.7
25mm Button: L = 35.0, Dia. = 43.0, Depth behind panel = 32.5
Max. panel thickness = 3.0, Panel cut-out = 30.1 dia.

- Logic-level switching
- Panel sealed to IP67
- Form Z contacts to cover all switching needs
- Wide temperature range
- Microswitch Action
- Solder terminals
- Front and rear mounting versions

Switch rating	5A max. (resistive), 24V dc	Insulation resistance	1000MΩ min
Contact resistance	25mΩ max.	Temperature range	-30°C to +105°C

Mfrs. List Nos:

76-9510/4044	= 438-9463	76-9512/4044	= 438-9487
76-9511/4044	= 438-9475		

273292

Button Dia.	Order Code	1+	10+	25+	100+	Price Each
15mm	438-9463●	9.13	8.59	8.22	7.87	
19mm	438-9475●	10.05	9.46	9.06	8.68	
25mm	438-9487●	11.53	10.84	10.37	9.93	

SPNO and SPNC Momentary

10mA @5V dc, 10A @ 250V ac IP67 Sealed



Bezel dia=21.5, D(behind panel)=31,
Panel cut-out dia = 19.25

Contacts	Silver	Insulation resistance	1000Mohm
Contact resistance	25mR	Electrical life	500000 ops
Dielectric strength	1kV ac	Operating temperature	-30°C to +105°C

311643

Colour	Order Code	1+	25+	100+	100+	Price Each
Red	443-4468●	9.05	8.59	8.40	7.98	
Green	443-4470●	9.05	8.59	8.40	7.98	
Black	443-4481●	9.05	8.59	8.40	7.98	
Gold	443-4493●	9.05	8.59	8.40	7.98	
Blue	443-4500●	9.05	8.59	8.40	7.98	
Purple	443-4511●	7.82	7.35	7.04	6.80	

SPNO Momentary

1A @ 50V dc 'Vandal Resistant', Screw Terminals



Sealed
L=28.4, Dia=21.5, Depth behind panel=25.3
Max panel thickness=4.0, Panel cut-out=19.2
Standard
L=36.0, Dia=22.1, Depth behind panel=33.0
Max panel thickness=15.0, Panel cut-out=19.2

- Stainless steel button, chromium plated brass body
- Available with flush or raised actuators
- Screw terminal connections for ease of wiring, particularly servicing
- Sealed low profile versions are both panel and barrier sealed to IP66



Insulation Resistance	10000MR	Contacts	Silver
Dielectric Strength	2.5kV ac	Operating Temperature	-20°C to +85°C (150-379) -20°C to +70°C (560-431)

Mfrs. List No.	MP0013=150-379 MP0037=560-431	MP0013/2=311-4594 MP0037/2=311-4648	MP0037/3=324-8835
----------------	----------------------------------	--	-------------------

SW145/213108

Flush Actuator	Order Code	Price Each			
		1+	25+	100+	250+
Standard	150-379●	5.22	4.79	4.27	3.61
Sealed, low profile	560-431●	8.34	7.76	6.72	5.34
Raised Actuator	Order Code	Price Each			
		1+	25+	100+	250+
Standard	311-4594●	5.47	5.04	4.48	3.61
Sealed, low profile	311-4648●	8.34	7.76	6.72	5.34
Domed Actuator	Order Code	Price Each			
		1+	25+	100+	250+
Standard	324-8835●	6.74	6.44	5.83	5.04
Sealed, low profile					

Vandal Resistant - Stainless Steel
2A @ 48V dc



- Three actuator styles available
- 18mm bezel diameter
- 16mm panel hole
- Depth behind panel 20.3mm
- Maximum panel thickness 6mm
- Single Pole Momentary action
- Polished stainless steel

Terminals	Screw Terminals	Operations - Electrical	100000 (Min.)
Contact Material	Silver	Contact resistance	50mohm
Switch Rating	2A @ 48V	Insulation resistance	1000Mohm
Contact Resistance	50mohm Max.	Dielectric Strength	2000V ac (Min.)
Operations - Mechanical	1000000 (Min.)	Operating Temperature	-20°C to 55°C

458426

Mfrs. List No.	Actuator Style	Order Code	Price Each			
			1+	10+	50+	100+
MP0042/1	Flush Profile	133-1987●	4.38	4.04	3.69	3.25
MP0042/2	Domed Profile	133-1988●	4.38	4.04	3.69	3.25
MP0042/3	Prominent Button	133-1989●	4.38	4.04	3.69	3.25

Vandal Resistant - Stainless Steel
3A @ 250V ac



- Two actuator styles available
- 18mm bezel diameter
- 16mm panel hole
- Depth behind panel 36.5mm
- Maximum panel thickness 10mm
- Momentary and Latching action versions available
- Polished stainless steel

Terminals	Solder Tags	Operations - Electrical	30000 (Min.)
Contact Material	Silver	Contact resistance	50mohm
Switch Rating	3A @ 250V	Insulation resistance	1000Mohm
Contact Resistance	50mohm Max.	Dielectric Strength	2000V ac (Min.)
Operations - Mechanical	200000 (Min.)	Operating Temperature	-20°C to 55°C

458435

Mfrs. List No.	Actuator Style	Order Code	Price Each			
			1+	10+	50+	100+
DPCO - Mom						
MP0045/1D0NN000	Low Profile	133-1990●	6.33	5.82	5.32	4.70
MP0045/3D0NN000	Prominent Button	133-1992●	6.33	5.82	5.32	4.70
DPCO - Latching						
MP0045/1E0NN000	Low Profile	133-1993●	6.63	6.10	5.56	4.92
MP0045/3E0NN000	Prominent Button	133-1994●	6.63	6.10	5.56	4.92

Vandal Resistant - Stainless Steel
3A @ 250V ac - LED Illuminated



- Two illumination styles available
- Separate LED terminals
- LED supply voltage 12V dc
- 18mm bezel diameter
- 16mm panel hole
- Depth behind panel 36.5mm
- Maximum panel thickness 10mm
- Latching action
- Polished stainless steel

Terminals	Solder Tags	Switch Rating	3A @ 250V
Contact Material	Silver	Contact Resistance	50mohm Max.

Operations - Mechanical	200000 (Min.)	Insulation resistance	1000Mohm
Operations - Electrical	30000 (Min.)	Dielectric Strength	2000V ac (Min.)
Contact resistance	50mohm	Operating Temperature	-30°C to 55°C

458441

Mfrs. List No.	Colour LED	Order Code	Price Each			
			1+	10+	50+	100+
DPCO - Dot Illuminated						
MP0045/1E1RD012	Red	133-1995●	8.01	7.36	6.72	5.94
MP0045/1E1GN012	Green	133-1996●	8.01	7.36	6.72	5.94
MP0045/1E1BL012	Blue	133-1997●	8.01	7.36	6.72	5.94
DPCO - Ring Illuminated						
MP0045/1E2RD012	Red	133-1998●	8.01	7.36	6.72	5.94
MP0045/1E2GN012	Green	133-1999●	8.01	7.36	6.72	5.94
MP0045/1E2BL012	Blue	133-2000●	8.01	7.36	6.72	5.94

SPNO/SPNC Momentary - Low Profile
5A @ 250V ac, 'Vandal Resistant', Solder Tags



21.5mm L=33.2, Dia=21.5, Depth behind panel=31.6 Max. panel thickness=7.1, Panel cut-out=19.2
27.8mm L=27.6, Dia=27.8, Depth behind panel=26.0 Max. panel thickness=4.0, Panel cut-out=25.8

- Low profile
- Solder tag terminations
- Robust stainless steel construction
- Available with flush and raised actuator options
- Sealed versions are both panel and barrier sealed to IP66

Insulation Resistance	1000MR	Contacts	Silver
Dielectric Strength	2kV ac	Operating Temperature	-20°C to +70°C

Mfrs. List No.	MP0031=152-253 MP0031/2=311-4624 MP0031/3=324-8811	MP0027=519-297 MP0038=733-799 MP0027/2=311-4612	MP0038/2=311-4650 MP0027/3=324-8823 MP0038/3=324-8847
----------------	--	---	---

SW180/213143

Order Code	Price Each				
	1+	25+	100+	250+	
Dia. 21.5mm - Flush Actuator					
Sealed	152-253●	8.35	8.19	7.55	7.39
Dia. 21.5mm - Raised Actuator					
Sealed	311-4624●	10.57	10.08	9.08	8.32
Dia. 21.5mm - Domed Actuator					
Sealed	324-8811●	10.00	9.66	8.69	7.50
Dia 27.8mm - Flush Actuator					
Non-Sealed	519-297●	12.14	11.64	10.28	8.37
Sealed	733-799●	12.18	11.39	10.39	8.40
Dia 27.8mm - Raised Actuator					
Non-Sealed	311-4612●	11.09	10.53	9.58	7.45
Sealed	311-4650●	12.18	11.39	10.39	8.40
Dia. 27.8mm - Domed Actuator					
Non-Sealed	324-8823●	11.16	10.60	9.65	8.35
Sealed	324-8847●	11.21	10.73	9.70	8.40

Vandal Resistant - Brass, Chrome Plated



MPB 031, MPB 037, MPB 038

- Low cost
- Front panel sealed
- Shock resistant
- Single Pole switches
- Tactile feel
- Choice of screw or solder tag termination

Mfrs. List No.	MPB031	MPB038	MPB037
Terminations	Solder Tag	Solder Tag	Screw Terminal
Contacts	SPDT Mom	SPDT Mom	SPDT Mom
Switch rating	momentary action	push to make	push to make
Panel Hole Dia.	5A @ 250V ac	5A @ 250V ac	1A @ 50V ac
Contact resistance	19.2mm	25.8mm	19.2mm
Insulation resistance	10mohm	10mohm	10mohm
Temperature range	1000Mohm	1000Mohm	100000Mohm
	-20°C to 70°C	-20°C to 70°C	-20°C to 70°C

242035

Front Panel Sealed to:	Mfrs. List No.	Order Code	Price Each			
			1+	25+	100+	250+
IP66	MPB031	421-2277●	7.52	7.16	6.53	5.65
IP66	MPB038	421-2290●	8.39	8.01	7.27	6.29
IP68	MPB037	421-2289●	5.05	4.82	4.38	3.81

15

Re-reeling available



Vandal Resistant Switches - continued

SPNO and SPNC Momentary-Flush Mounting
5A @ 250V ac, Vandal Resistant



- Flush mounting
 - Solder tag terminations
 - Robust stainless steel construction
 - Available with flush and raised actuator options
 - Supplied with rear panel mounting bracket
- Insulation Resistance 1000MR
Dielectric Strength 2kV ac
Mfrs. List No. MP0025=238-193
MP0034=519-303
- Contacts Silver
Operating Temperature -20°C to +70°C
Mfrs. List No. MP0025/2=311-4600
MP0034/3=324-8800
MP0034/2=311-4636

Dia.	Order Code	Price Each			
		1+	25+	100+	250+
Flush Actuator					
27mm	238-193●	10.580	10.310	8.950	8.030
20mm	519-303●	8.300	8.100	7.020	6.300
Raised Actuator					
27mm	311-4600●	6.510	6.240	5.500	4.531
20mm	311-4636●	10.960	10.480	9.240	7.530
Domed Actuator					
20mm	324-8800●	9.740	9.560	8.460	7.290

SPDT Momentary and Latching
15A @ 250V ac



Round bezel Rectangular bezel Vandal resist, stainless steel

Switch body H=31.6, W=15.0, D=43.0, Tabs=6.3 x 0.8
Panel cut-out=12.7 (19 for vandal resist), Max panel thickness=5.0
Round bezel=22.0 dia, H=10.9, Rectangular bezel=23.9 x 20.1, H=10.9, Vandal resist=21.5 dia

- Round style has button slightly recessed in metal bezel
- Rectangular style has black plastic bezel
- Round style available with latching action
- Vandal resist style has stainless steel actuator and surround, sealed to IP66
- Approved to BEAB, VDE, SEMKO, DEMKO, NEMKO, KEMA. UL recognised
- Choice of coloured buttons

Contact resistance <10mR Mechanical life 10000000 ops

Mfrs. List No.
Round bezel, momentary = C0911KB + colour
Rectangular bezel = C0911RB + colour

Round bezel, latching = C0910KB + colour
Vandal resist = C0911VAAA

Colour	Order Code	Price Each				
		1+	25+	100+	250+	500+
Momentary, Round Metal Bezel						
Black	242-731●	4.76	4.55	4.31	3.33	2.70
Green	242-743●	4.76	4.55	4.31	3.33	2.70
Red	242-755●	4.76	4.55	4.31	3.33	2.70
Latching, Round Metal Bezel						
Black	678-235●	5.79	5.54	5.29	4.18	3.51
Green	678-259●	5.79	5.54	5.29	4.18	3.51
Red	678-247●	5.79	5.54	5.29	4.18	3.51
Momentary, Rectangular Plastic Bezel						
Black	242-767●	4.13	3.97	3.73	2.89	2.32
Green	242-779●	2.58	2.48	2.33	1.80	1.46
Red	242-780●	4.13	3.97	3.73	2.89	2.32
Momentary, Vandal Resist Stainless Steel						
	480-400●	9.00	8.71	8.32	7.44	7.11

Troubleshooting tips



Chat live online to one of our technical engineers at www.farnell.co.uk



Vandal Resistant - 8300 Series

16(4)A @ 250V ac/8(8)A @ 250V ac - ENEC



- Approved to ENEC and CSA. UL recognised
- Robust stainless steel 'Vandal Resist' button
- Front panel sealed to IP66
- Choice of latching or momentary action
- Double pole

Bezel (dia.) = 21.5, Panel cut-out (dia.)=19.2, Tabs = 4.8 x 0.8, Max panel thickness = 6.0

Insulation Resistance >20MR Operating Temp 0°C to +85°C
Contact Resistance 100mR Contact Gap 3.0mm
Electrical Life 10000 ops Mechanical Life 50000 ops

Mfrs. List No. H8350RPAAA=767-4228 H8351RPAAA=767-4236

347648

Order Code	Price Each				
	1+	25+	100+	250+	500+
DPST 767-4228●	9.45	7.96	6.87	6.17	5.70
DPST 767-4236●	6.86	5.76	4.97	4.46	4.12

Vandal Resistant - IP66

50mA @ 24V dc



L(Tab) = 32.7mm, Bezel = 22mm dia., Panel cut-out - 19.2mm

L(Screw) = 31.0mm, Bezel = 22mm dia., Panel cut-out - 19.2mm

- Stainless steel body
- Front panel sealed to IP66
- Dot and ring illumination styles, choice of illumination colours.
- Bright daylight LED's
- Momentary action, tactile feel
- Choice of screw or 2.8mm tab termination

Contacts SPNO
Switch rating 50mA @ 24V dc
LED Rating 1.85V dc, 20mA
LED intensity Red 900mcd
LED intensity Green 1500mcd
LED intensity Blue 1500mcd

LED intensity Amber 220 mcd
LED intensity White 900mcd
Contact resistance 100mohm
Insulation resistance 1000Mohm
Temperature range -30°C to 70°C

241611

Colour Illumination	Mfrs. List No.	Order Code	Price Each			
			1+	25+	100+	250+
Dot Illumination						
Red 2.8mm x 0.8mm	MPI001/28/RD	324-8859●	14.27	13.59	12.39	10.71
Amber 2.8mm x 0.8mm	MPI001/28/AM	765-9008●	14.27	13.59	12.39	10.71
Green 2.8mm x 0.8mm	MPI001/28/GN	324-8860●	14.27	13.59	12.39	10.71
Blue 2.8mm x 0.8mm	MPI001/28/BL	430-3052●	14.85	14.15	12.93	11.15
White 2.8mm x 0.8mm	MPI001/28/WH	145-4955●	13.59	12.95	11.79	10.71
Red Screw	MPI001/TERM/RD	324-8872●	12.94	12.10	11.17	9.15
Green Screw	MP1001/TERM/GN	324-8884●	14.27	13.59	11.93	10.71
Blue Screw	MPI001/TERM/BL	430-3064●	14.85	14.15	12.93	11.15
White Screw	MPI001/TERM/WH	145-4956●	13.59	12.95	11.79	10.71
Ring Illumination						
Red 2.8mm x 0.8mm	MPI002/28/RD	324-8896●	14.27	13.59	12.39	10.71
Amber 2.8mm x 0.8mm	MPI002/28/AM	765-9024●	14.27	13.59	12.39	10.71
Green 2.8mm x 0.8mm	MPI002/28/GN	324-8902●	14.27	13.59	12.39	10.71
Blue 2.8mm x 0.8mm	MPI002/28/BL	430-3076●	14.85	14.15	12.93	11.15
White 2.8mm x 0.8mm	MPI002/28/WH	145-4958●	13.59	12.95	11.79	10.71
Red Screw	MPI002/TERM/RD	324-8914●	14.27	13.59	12.39	10.71
Amber Screw	MPI002/TERM/AM	733-7024●	14.27	13.59	12.39	10.71
Green Screw	MPI002/TERM/GN	324-8926●	14.27	13.59	12.39	10.71
Blue Screw	MPI002/TERM/BL	430-3088●	14.85	14.15	12.93	11.15
White Screw	MPI002/TERM/WH	145-4959●	13.59	12.95	11.79	10.71

Illuminated - Dual Colour - Vandal Resistant - IP66

50mA @ 24V dc



L(Tabs) = 31.0mm, Bezel = 22mm dia., Panel cut-out - 19.2mm

L(Screw) = 32.7mm, Bezel = 22mm dia., Panel cut-out - 19.2mm

- Stainless steel body
- Front panel sealed to IP66
- Dot and ring, dual colour illumination
- Bright daylight LED's
- Momentary action, tactile feel
- Choice of screw or 2.8mm tab termination

Contacts SPNO Contact resistance 100mohm
Switch rating 50mA @ 24V Insulation resistance 1000Mohm

15

Re-reeling available

Farnell

LED Rating @ 20mA
 LED intensity - Red / Green 2500mcd / 5000mcd
 LED intensity - Red / Blue 2000 / 850mcd
 LED intensity - Blue / Green 2000 / 4000mcd
 Temperature range -30°C to 70°C

486019

Colour LED - Termination	Mfrs. List No.	Order Code	Price Each		
			1+	25+	100+
Dot Illumination					
Red / Green - 2.8mm x 0.8mm	MPI001/28/D1	145-4941	13.59	12.95	11.79
Red / Blue - 2.8mm x 0.8mm	MPI001/28/D4	145-4942	13.59	12.95	11.79
Blue / Green - 2.8mm x 0.8mm	MPI001/28/D5	145-4943	13.59	12.95	11.79
Red / Green - Screw Terminals	MPI001/TERM/D1	145-4944	13.59	12.95	11.79
Red / Blue - Screw Terminals	MPI001/TERM/D4	145-4945	13.59	12.95	11.79
Blue / Green - Screw Terminals	MPI001/TERM/D5	145-4946	13.59	12.95	11.79
Ring Illumination					
Red / Green - 2.8mm x 0.8mm	MPI002/28/D1	145-4947	13.59	12.95	11.79
Red / Blue - 2.8mm x 0.8mm	MPI002/28/D4	145-4948	13.59	12.95	11.79
Blue / Green - 2.8mm x 0.8mm	MPI002/28/D5	145-4951	13.59	12.95	11.79
Red / Green - Screw Terminals	MPI002/TERM/D1	145-4952	13.59	12.95	11.79
Red / Blue - Screw Terminals	MPI002/TERM/D4	145-4953	13.59	12.95	11.79
Blue / Green - Screw Terminals	MPI002/TERM/D5	145-4954	13.59	12.95	11.79

'Miniature Vandal Resistant' - IP67
 Illuminated and Non-Illuminated - 400mA @ 32V ac



Non-Illuminated: L = 20.45, Dia. = 18.5, Depth behind panel = 18.0
 Illuminated: L = 30.45, Dia. = 18.5, Depth behind panel = 28.0
 Max. panel thickness = 3.0, Panel cut-out = 16.1 x 14.75

- Logic-level switching
- Panel sealed to IP67
- Status illumination option
- Wide temperature range (up to 125°C)
- Solder terminals
- Gold contacts
- Momentary action

Switch rating 100mA max. (resistive), 24V dc
 LED (illuminated types) 2.1V @ 10mA, red or green
 Contact resistance 50mΩ initial
 Insulation resistance 1000MΩ min
 Temperature range -40°C to +85°C

Mfrs. List No. 57-111 = 438-9396 57-112G = 438-9402 57-112R = 438-9414

273212

	Order Code	Price Each			
		1+	10+	25+	100+
Non-Illuminated	438-9396	6.65	6.19	5.92	5.66
Illuminated					
Green	438-9402	7.70	7.26	6.93	6.63
Red	438-9414	7.90	7.44	7.12	6.79

'Vandal Resistant' - IP67
 Illuminated and Non-Illuminated - 400mA @ 32V ac



Non-Illuminated: L = 19.5, Dia. = 21.5, Depth behind panel = 17.5
 Max. panel thickness = 6.0, Panel cut-out = 19.25
 Illuminated: L = 29.0, Dia. = 21.5, Depth behind panel = 27.0

- Machined stainless steel
- Panel sealed to IP67
- Non-rotating button
- Status illumination option
- Wide operating temperature range
- Solder terminals
- Gold contacts
- Momentary action

Switch rating 100mA max. (resistive), 24V dc
 LED (red/green) 2.1V @ 10mA
 LED (blue) 3.8V @ 20mA
 Contact resistance 50mΩ max.
 Insulation resistance 1000MΩ min
 Temperature range -30°C to +85°C (non-illuminated)
 Temperature range -30°C to +85°C (non-illuminated)

Mfrs. List No. 76-5910 = 438-9426 76-5910G = 438-9438 76-5910R = 438-9440 76-5910B = 438-9451

273291

	Order Code	Price Each			
		1+	10+	25+	100+
Non-Illuminated	438-9426	6.90	6.68	6.53	6.27
Illuminated					
Green	438-9438	7.23	7.06	6.92	6.65
Red	438-9440	7.12	6.96	6.82	6.55
Blue	438-9451	7.35	7.19	7.04	6.76



Vandal-Proof Stainless Steel Switches
 SPDT, mechanical stroke, M19 and M22



Standard Point Illumination Ring Illumination

Both the housing and the actuator of this range of MSM, vandal-proof switches are made of high-quality stainless steel. This robust construction method enables the switches to be used in harsh environments. There are two mounting diameters available, 19mm and 22mm. The MSM switches are equipped with flat-pin plugs to permit fast and simple connection. The cables are plugged onto the microswitch which is subsequently plugged onto the previously mounted switch. Point and ring illuminated versions are available for applications in low-light conditions or for optical status indication. The switches are delivered complete with fixing nut, gasket and microswitch

Switch action Momentary
 Contact voltage, max. 3A @ 250V ac
 Contact current, max. 5A @ 125V ac
 Capacity, breaking max. 1250W
 Life, at breaking capacity 200,000 Operations @ Max. breaking capacity
 Temperature, operating -25°C to 85°C
 Force, operating min. 4.5N
 Travel (contact) 1mm
 Protection class IP 40

522462

Illumination Type/Colour	Mfrs. List No.	Order Code	Price Each			
			1+	25+	100+	250+
M19 Mounting - M22 Button diameter						
None	1241.6621.1120000	163-7559	7.43	6.98	6.39	5.94
Point / Red	1241.6623.1121000	163-7560	13.95	13.11	12.00	11.16
Point / Green	1241.6623.1122000	163-7561	13.95	13.11	12.00	11.16
Point / Blue	1241.6623.1124000	163-7562	13.95	13.11	12.00	11.16
Ring / Red	1241.6624.1121000	163-7564	20.05	18.85	17.24	16.04
Ring / Green	1241.6624.1122000	163-7565	20.05	18.85	17.24	16.04
Ring / Blue	1241.6624.1124000	163-7566	25.10	23.59	21.59	20.08
M22 Mounting - M25 Button diameter						
None	1241.6631.1120000	163-7567	8.38	7.87	7.20	6.70
Point / Red	1241.6633.1121000	163-7568	14.30	13.44	12.30	11.44
Point / Green	1241.6633.1122000	163-7569	14.30	13.44	12.30	11.44
Point / Blue	1241.6633.1124000	163-7570	14.68	13.79	12.62	11.74
Ring / Red	1241.6634.1121000	163-7571	20.83	19.58	17.91	16.66
Ring / Green	1241.6634.1122000	163-7572	20.83	19.58	17.91	16.66
Ring / Blue	1241.6634.1124000	163-7573	25.83	24.28	22.21	20.66

Vandal-Proof Stainless Steel Switches
 DPST, mechanical stroke, M19 and M22



Standard Ring Illumination

Both the housing and the actuator of this range of MSM, vandal-proof switches are made of high-quality stainless steel. This robust construction method enables the switches to be used in harsh environments. There are two mounting diameters available, 19mm and 22mm. These MSM switches are equipped with Quick Connect terminals to permit fast and simple connection. The cables are plugged onto the microswitch which is subsequently plugged onto the previously mounted housing assembly. Point and ring illuminated versions are available for applications in low-light conditions or for optical status indication. The switches are delivered complete with fixing nut, gasket and microswitch

Switch action Latching
 Contact Rating - ac 12A @ 250V ac
 Contact Rating - dc 0.1A @ 30V dc
 Capacity, breaking max. 3000W
 Life, at breaking capacity 50,000 Operations @ 8A / 250V ac
 Temperature, operating -40°C to 85°C
 Force, operating min. 10N
 Travel (contact) 4.5mm
 Protection class IP 67

522482

Illumination Ring Colour	Mfrs. List No.	Order Code	Price Each			
			1+	25+	100+	250+
M19 Mounting - M22 Button diameter						
None	1241.6821.1120000	163-7574	12.08	11.35	10.38	9.66
Red	1241.6824.1121000	163-7576	24.73	23.24	21.26	19.78
Green	1241.6824.1122000	163-7577	24.73	23.24	21.26	19.78
Blue	1241.6824.1124000	163-7578	29.73	27.94	25.56	23.78
M22 Mounting - M25 Button diameter						
None	1241.6831.1120000	163-7579	13.00	12.22	11.18	10.40
Red	1241.6834.1121000	163-7580	25.65	24.11	22.06	20.52
Green	1241.6834.1122000	163-7581	25.65	24.11	22.06	20.52
Blue	1241.6834.1124000	163-7582	30.68	28.83	26.38	24.54

Vandal-Proof Stainless Steel Switches
 DPDT, mechanical stroke, M19 and M22



Standard Point Illumination Ring Illumination

Vandal Resistant Switches - continued

Vandal-Proof Stainless Steel Switches - continued

DPDT, mechanical stroke, M19 and M22 - continued

Both the housing and the actuator of this range of MSM, vandal-proof switches are made of high-quality stainless steel. This robust construction method enables the switches to be used in harsh environments. There are two mounting diameters available, 19mm and 22mm. The switch is equipped with two separate switching contacts which are available as normally open, normally closed or as change-over. These MSM switches are supplied with flat-pin plugs to permit fast and simple connection. The cables are plugged onto the microswitch which is subsequently plugged onto the previously mounted housing assembly. Point and ring illuminated versions are available for applications in low-light conditions or for optical status indication. The switches are delivered complete with fixing nut, gasket and microswitch.

Switch action	Momentary	Temperature, operating	-25°C to 85°C
Contact Rating - ac	3A @ 250V ac	Force, operating min.	5N
Contact Rating - ac	5A @ 125V ac	Travel (contact)	1mm
Capacity, breaking max.	1250W	Protection class	IP 40
Life, at breaking capacity	200,000		

522718

Illumination Type / Colour	Mfrs. List No.	Order Code	Price Each			
			1+	25+	100+	250+
M19 Mounting - M22 Button diameter						
None	1241.6921.1120000	163-7583	9.48	8.91	8.15	7.58
Point / Red	1241.6923.1121000	163-7584	15.98	15.02	13.74	12.78
Point / Green	1241.6923.1122000	163-7585	15.98	15.02	13.74	12.78
Point / Blue	1241.6923.1124000	163-7586	15.98	15.02	13.74	12.78
Ring / Red	1241.6924.1121000	163-7588	22.10	20.77	19.01	17.68
Ring / Green	1241.6924.1122000	163-7589	22.10	20.77	19.01	17.68
Ring / Blue	1241.6924.1124000	163-7590	23.23	21.83	19.97	18.58
M22 Mounting - M25 Button diameter						
None	1241.6831.1120000	163-7579	13.00	12.22	11.18	10.40
Point / Red	1241.6834.1121000	163-7580	25.65	24.11	22.06	20.52
Point / Green	1241.6834.1122000	163-7581	25.65	24.11	22.06	20.52
Point / Blue	1241.6834.1124000	163-7582	30.68	28.83	26.38	24.54
Ring / Red	1241.6934.1121000	163-7595	22.88	21.50	19.67	18.30
Ring / Green	1241.6934.1122000	163-7596	22.88	21.50	19.67	18.30
Ring / Blue	1241.6934.1124000	163-7597	26.75	25.15	23.01	21.40

'Vandal Resistant' - IP65

Illuminated and Non-Illuminated - 50mA @ 24V dc



L = 23.8, Dia. = 22.0, Depth behind panel = 21.6
 Max. panel thickness = 10.5, Panel cut-out = 19.2
 Connections : Switch = 1,2, LED = +, - (illuminated types)

- Vandal resistant, low profile
- Robust stainless steel bushing and plunger, sealed to IP65
- Available LED illuminated red or green, or non-illuminated
- Gold plated contacts for low level switching
- Momentary/Snap action

Switch rating	50mA max. (resistive), 24V dc	Insulation resistance	1000MR min
LED (illuminated types)	2.5V @ 10mA, red or green	Temperature range	-30°C to +70°C
Contact resistance	100mR max.		
Mfrs. List No.	AV09C703D240E = 108-2432 AV09C7L3D2403E = 108-2433	AV09C7L3D2406E = 108-2434	

213204

Non-illuminated	Order Code	Price Each			
		1+	10+	50+	100+
Non-illuminated	108-2432	27.58	22.76	18.68	15.90
Illuminated					
Red	108-2434	40.66	33.58	27.59	23.45
Green	108-2433	40.66	33.58	27.59	23.45



Vandal-Proof Mechanical Switches

SPNO, mechanical stroke, M19



- Vandal resistant
- M19 x 0.75 thread for panel or enclosure mounting
- Available with plain stainless steel finish or diecast zinc finish
- Momentary action
- Legend or LED illumination options

Contact voltage, dc max.	48V (Silver)	Temperature, operating	-25°C to 60°C
Contact current, max.	125mA (Silver)	Force, operating min.	3.7N
Capacity, breaking max.	0.72W	Travel (contact)	0.4mm
Life, at breaking capacity	≥ million cycles		

311374

Finish	Mfrs. List No.	Order Code	Price Each			
			1+	10+	50+	100+
Zinc Diecast Finish						
Standard Pins	1241.2800	979-3542	4.70	4.47	4.24	4.02
Pins with Soldering Aid	1241.2801	979-3550	6.10	5.68	5.44	5.20
With Clip	1241.2802	979-3569	5.87	5.61	5.29	5.01
Zinc Diecast Housing, Stainless Steel actuator - With Legend						
Start	1241.2805.072	979-3577	7.12	6.58	5.91	5.39
Stop	1241.2805.057	979-3607	7.12	6.58	5.91	5.39
Zinc Diecast Housing, Stainless Steel actuator - LED Illuminated						
Red	1241.2855	979-3771	8.07	7.67	7.12	6.77
Green	1241.2856	979-3780	9.87	9.35	8.71	8.27
Yellow	1241.2857	979-3798	8.07	7.67	7.12	6.77
Red/Green	1241.2858	979-3801	8.96	8.43	8.07	7.73

Rotary Switches

RMS Series

4/80A @ 250V ac, 10A @ 12V dc



H = 24, W = 17, D (Body) = 9.8mm

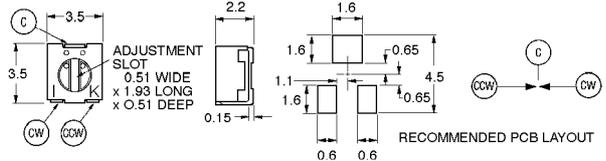
Switch Function	DPST	Insulation resistance	>999Mohm @ 500V dc (Initial)
Switch Rating	4/80A @ 250V ac, 10A @ 12V dc	Indexing angle	45°
Proof voltage	3kV ac (Initial)	Contact material	Silver Cadmium Oxide
Life	10000 Cycles	Operating temperature	-25°C to +85°C
Contact resistance	<20mohm (Initial)	Approvals	SEMKO EN61058

474187

Mfrs. List No.	Order Code	Price Each			
		5+	25+	100+	250+
PCB Terminals					
RMS1130	136-0551	1.03	0.99	0.95	0.90
Solder Terminals					
RMS1035	136-0552	1.03	0.99	0.95	0.90

SPDT Sealed - Surface Mount

100mA @ 24V



- Compatible with all surface mount manufacturing processes
- Sealed construction allows immersion cleaning of the PCB
- Break-before-make (non-shorting) contacts
- Choice of 3mm or 4mm square package
- Supplied on 12mm embossed tape

Current rating	100mA max.	Insulation resistance	100MR
Contact resistance	2R max.	Dielectric strength	250V ac
Rotational life	2000 cycles	Operating temperature	-55°C to +125°C

213187

Package size	Order Code	Price Each			
		1+	25+	100+	250+
7813J-001-023Emm square	3mm SMD 112-3625	1.58	1.44	1.20	1.09
7814J-001-023Emm square	4mm SMD 112-3626	1.26	1.15	0.96	0.87

Rotary - Non shorting

150mA @ 250V ac/dc, 1A @ 12V ac/dc

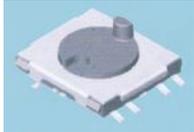


- Standard 30° indexing
- Adjustable stop to restrict the number of positions
- Solder clip terminals
- 25.4mm diameter switch
- 6mm dia. x 50mm long, No Flat, mild steel spindle

Contact Rating @ 250V ac/dc 150mA
 Contact Rating @ 110V ac/dc 350mA
 Contact Rating @ 12V ac/dc 1A
 Operational life 10000 operations
 Contact resistance <20mohm
 Insulation resistance >999Mohm
 Operating temperature -30°C to +85°C

Switch Poles	Positions	Mfrs. List No.	Order Code	1+	10+	25+	50+	100+
1	12	RA01A12BSFMSOX	156-6715	9.04	8.68	8.32	8.00	7.49
2	6	RA01B06BSFMSOX	156-6716	9.04	8.68	8.32	8.00	7.49
3	4	RA01C04BSFMSOX	156-6717	9.04	8.68	8.32	8.00	7.49
4	3	RA01D03BSFMSOX	156-6718	9.04	8.68	8.32	8.00	7.49

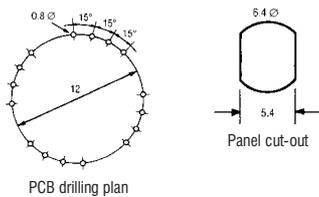
Rotary Encoder Switch
 25mA @ 24V dc



- Rotary code switches
 - Switch with ground terminal
 - 8 Positions with either 7 or 8 circuits
 - Operational life in excess of 10,000 cycles
- Switching Capacity 25mA @ 24V dc
 Contact Resistance 200mohm
 Insulation Resistance 100Mohm @ 500V dc
 Ambient Temperature -20 to 80°C
 Voltage Proof 300V ac for 1 minute
 Life Expectancy 10000 steps min.

Circuits No. of Actuating	Force	Mfrs. List No.	Order Code	1+	50+	100+	250+
7	130gf	MCSR-8R7G	SMD152-2044	0.47	0.44	0.41	0.37
8	40gf	MCSR-8R8G	SMD152-2045	0.47	0.44	0.41	0.37

Miniature Waterproof
 0.4W @ 20V ac



- Miniature size, 12.5mm dia., suitable for portable and compact equipment
 - Moulded-in terminals and mounting bush 'O' ring give perfect seal against ingress of flux and water
- Mfrs. List No. MRJE11204 = 112-4185 MRJE3404 = 118-6546
 MRJE2604 = 118-6545
- Contact resistance <100mR (2V dc @ 200mA)
 Insulation resistance 100MR
 Water proofing 1m depth for 30mins
 Contacts Gold plate over nickel/non-shorting

Poles	Positions	Order Code	1+	10+	25+	50+
1	12	112-4185	10.73	9.86	9.44	9.00
2	6	118-6545	10.73	9.86	9.44	9.00
3	4	118-6546	10.73	9.86	9.44	9.00

Adjustable Stopper Rotary Switches
 MR Series



Screwdriver Actuated - Dia = 14, H = 8.2mm

- Low profile, screwdriver actuated versions for space saving PCB applications
- Shaft actuated versions for panel thickness from 8.2mm to 17mm
- Positive detent mechanism for distinct feel and audible feedback
- Metal bushing and housing construction for increased durability
- Adjustable stopper
- Self cleaning contact mechanism for reliability
- Break-before-make contact timing
- Interior housing seal and molded-in PC terminals allow cleaning after automated soldering

Low Profile - Dia. = 14, H = 10.1mm
 Standard - Dia. = 16, H = 17mm

Switch Specifications	Screwdriver and Low Profile	Standard
Electrical capacity	0.4VA @ 28V ac/dc	250mA @ 125V ac
Electrical life	10000 Cycles	10000 Cycles
Contact resistance	50mohm	10mohm
Insulation resistance	100Mohm @ 500V dc	100Mohm @ 500V dc
Dielectric strength (1 Minute Min.)	500V ac	1000V ac
Operating temperature	-10°C to 70°C	-10°C to 70°C

Switch Type	Mfrs. List No.	Order Code	1+	25+	100+	250+
Screwdriver Actuated						
SP - 2 to 12 Positions	MRF112	152-4317	8.08	7.44	6.80	6.46
DP - 2 to 6 Positions	MRF206	152-4319	8.38	7.70	7.04	6.70
Low Profile Shaft Actuated						
SP - 2 to 12 Positions	MRK112-A	152-4321	9.78	9.00	8.22	7.82
DP - 2 to 6 Positions	MRK206-A	152-4322	10.08	9.28	8.48	8.08
Standard Shaft Actuated						
SP - 2 to 12 Positions	MRA112-A	152-4323	13.02	11.98	10.94	10.42
DP - 2 to 6 Positions	MRA206-A	152-4324	14.60	13.44	12.28	11.68

Optical Encoder



- MOS, TTL & HCMOS compatible
- 1,000,000 cycle life.
- No requirement to de-bounce.
- Smoother waveform than mechanical devices.
- Metal shaft and bushing for superior feel.
- Incorporates push button switch
- Supplied with nut and washer.

Small device for detented incremental switching. Used for menu select & enter setting, radio frequency, drill depth, GPS and medical application systems.

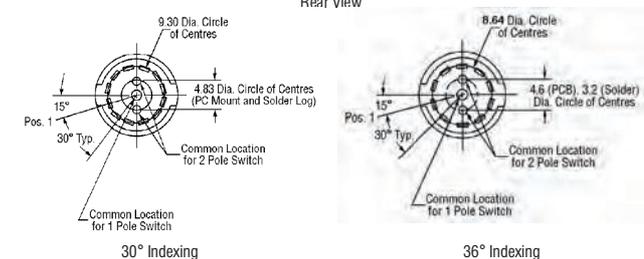
Voltage 5 Vdc
 Current 10 mA resistive
 Contact resistance Less than 10 ohms
 Contact bounce < 4mS at make - < 10mS at break
 Coding 2-bit quadrature coded output
 Logic output levels High - 3.8 to 2.3 Vdc. Low - 0.8 Vdc
 Operating temperature High - 3.8 to 2.3 Vdc. Low - 0.8 Vdc

Mfrs. List No.	Order Code	1+	10+	25+	
62A11-02-P	0.1" pitch pins	119-0396	24.31	23.82	22.38
62A22-02-060C	0.05" cable	119-0397	25.00	24.51	22.61

Miniature Sealed - 56 Series
 200mA @ 115V ac or 30V dc



Body: Depth behind panel = 12.9 (solder)
 12.37 (PCB)
 Dia = 12.7
 Bush thread = 1/4 28 UNF - 2A
 L = 9.53, Dia = 3.18



- Miniature size - ideal for portable and compact equipment
 - PCB or solder terminations
 - Adjustable stop facility
 - Shorting and non shorting types available
- Contact resistance 100mR Contact material Gold over Silver
 Insulation resistance 10000MR
- Mfrs. List No.
 56SD30-01-1-AJN = 119-0375 56SDP36-01-1-AJN = 119-0381 56SDP30-01-2-AJS = 119-0387
 56SD30-01-2-AJN = 119-0376 56SDP36-01-2-AJN = 119-0382 56SD36-01-1-AJS = 119-0388
 56SDP30-01-1-AJN = 119-0377 56SD30-01-1-AJS = 119-0383 56SD36-01-2-AJS = 119-0389
 56SDP30-01-2-AJN = 119-0378 56SD30-01-2-AJS = 119-0384 56SDP36-01-1-AJS = 119-0390
 56SD36-01-1-AJN = 119-0379 56SDP30-01-1-AJS = 119-0385 56SDP36-01-2-AJS = 119-0391
 56SD36-01-2-AJN = 119-0380

Poles	Positions	Termination	Order Code	1+	10+	25+	50+	100+
Non-Shorting - 30° Indexing								
1	12	Solder	119-0375	10.56	9.94	9.51	9.10	8.51
2	6	Solder	119-0376	11.93	11.23	10.74	10.27	9.39
1	12	PCB	119-0377	10.24	8.97	8.54	7.96	7.18
2	6	PCB	119-0378	11.28	9.87	9.40	8.76	7.90
Non-Shorting - 36° Indexing								
1	10	Solder	119-0379	10.15	9.55	9.14	8.75	8.25
2	5	Solder	119-0380	10.67	9.34	8.89	8.29	7.47
1	10	PCB	119-0381	9.94	8.70	8.28	7.73	6.96
2	5	PCB	119-0382	10.99	9.62	9.15	8.53	7.69
Shorting - 30° Indexing								
1	12	Solder	119-0383	11.22	10.55	10.11	9.69	8.77
2	6	Solder	119-0384	11.28	9.87	9.40	8.76	7.90
1	12	PCB	119-0385	10.56	9.24	8.78	8.20	7.39
2	6	PCB	119-0387	11.84	10.35	9.85	9.19	8.28

Rotary Switches - continued

Miniature Sealed - 56 Series - continued

200mA @ 115V ac or 30V dc - continued

Poles	Positions	Termination	Order Code	Price Each				
				1+	10+	25+	50+	100+
Shorting - 36° Indexing								
1	10	Solder	119-0388●	10.09	9.49	9.09	8.71	8.34
2	5	Solder	119-0389●	11.07	10.41	9.97	9.54	9.13
1	10	PCB	119-0390●	10.24	8.97	8.54	7.96	7.18
2	5	PCB	119-0391●	11.53	10.10	9.62	8.96	8.07

PCB Mount Optical Encoders Series 62P



- Low cost
- Compact size
- PCB mount
- Reliable, up to 2 million cycles
- Quadrature output
- Ideal for automotive controls, white goods and audio systems

Voltage: 5V dc ±0.25V dc
 Current: 30mA maximum @ 5V dc
 Contact Resistance: <10Ω (TTL or CMOS compatible)
 Logic Outputs: High: 3.V min., Low: 1.0V max.
 Contact Bounce: <4mS @ make and <10mS @ break
 Actuation Life (Rotations): 3000000
 Operating Temperature: -40 to 85°C

Description	Mfrs. List No.	Order Code	Price Each		
			1+	10+	25+
Push/Rotary Optical Encoder	62P22-L6S	100-5754●	8.95	8.01	6.71
Rotary Optical Encoder	62P22-L0S	100-5755●	7.87	7.05	5.90

Rotary Encoder EC11 Series



Without Push-On Switch Dimensions (mm): H=4.5, W=11.7, D=14.2, Shaft=12
 With Push-On Switch Dimensions (mm): H=4.5, W=11.7, D=14.2, Shaft=10

- Compact and highly accurate sliding contact type encoder
- 1.5mm-travel push switch with compliance to 4.5mm height
- Incremental type
- Vertical mounting
- Flat actuator configuration
- Operation life 1,000,000 cycles
- Operating temperature -40 to 85°C

Applications

- Controlling volume in car AV equipment
- Volume and menu selection in car navigation systems
- Various in-car components
- DVD players/recorders
- CD players, portable audio players and various AV equipment

Mfrs. List No.	Rating (mA / Vdc)	Insulation Resistance (MΩ)	Number of Detent	Pulse	Push-On Switch
EC11J0920801	10 / 5	100	18	9	×
EC11J1520801	10 / 5	100	30	15	×
EC11J0924801	10 / 5	100	18	9	✓
EC11J1524801	10 / 5	100	30	15	✓

Mfrs. List No.	Order Code	Price Each			
		1+	25+	50+	100+
EC11J0920801	165-6444●	4.86	4.47	4.09	3.89
EC11J1520801	165-6445●	5.91	5.44	4.97	4.73
EC11J0924801	165-6446●	6.70	6.16	5.63	5.36
EC11J1524801	165-6447●	7.22	6.65	6.07	5.78

700 products added online every week

See our pick of the hottest products and latest technologies in 'What's New?' at www.farnell.co.uk



Adjustable stop - 26 Series

Sealed, BCD output



Switch Position	Index	BCD Output*			
		1	2	4	8
1	0				
2	1				
3	2				
4	3				
5	4				
6	5				
7	6				
8	7				
9	8				
10	9				
11	10				
12	11				
13	12				
14	13				
15	14				
16	15				

- BCD coded output
- Choice of indexing angles

The switch may have continuous rotation or be adjusted to limit the rotation. The panel seal ring can be removed to expose the stop pin holes on the front of the switch. Two stop pins and panel seal O-ring are supplied with the switch. One or both may be used to limit the rotation as desired.

Shaft Diam.	0.125"	Shaft Diam.	0.125"
Body Diam.	0.5"	Body Diam.	0.5"
Thread type	1/4" 28UNF-2A	Insulation resistance	1000 MR
Shaft length	0.375"	Dielectric strength	250V ac min.
Electrical life	25,000 cycles	Current capacity	200 mA
Contact resistance	500mR max.		

Mfrs. List No.	Order Code	1+	10+	25+
1/8" Shaft				
22.5° Indexing, 2 to 16 positions				
26ASD22-01-1-AJS	119-0402●	10.66	10.37	10.07
45° Indexing, 2 to 8 positions				
26ASD45-01-1-AJS	119-0403●	10.66	10.37	10.07

Miniature - MX Series 0.5A @ 115V



- Rugged construction
- Stainless steel shaft, double D form
- Ball indexing
- Adjustable switch stop
- Central fixing with M7 x 0.75 bush

Body : Depth behind panel = 17 (1 wafer), 23.5 (2 wafer)
 Dia = 17, Bush thread M7 x 0.75
 Spindle Dia. = 4mm, 3mm Across Flats

non switching	2A	Operational life	≥25000 ops
switching	0.5A	Insulation resistance	1000MR
Indexing angle	30°	Operating temperature	-40°C to +85°C

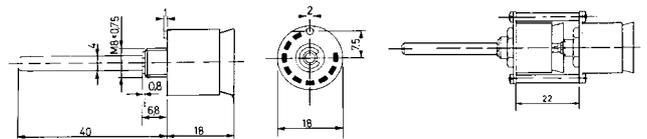
Poles	Positions	No of Wafers	Order Code	Price Each				
				1+	25+	50+	100+	250+
Non-Shorting								
1	12	1	116-5280●	38.83	34.52	33.08	31.64	30.21
2	6	1	116-5281●	39.34	34.97	33.52	32.05	30.60
3	4	1	116-5222●	43.12	38.32	36.74	35.13	33.54
4	3	1	116-5223●	40.82	36.29	34.77	33.25	31.75
2	12	2	116-5224●	56.79	50.49	48.38	46.29	44.18
4	6	2	116-5282●	45.50	40.45	38.76	37.08	35.40
6	4	2	116-5225●	62.29	55.37	53.08	50.77	48.44
8	3	2	116-5226●	67.03	59.58	57.10	54.62	52.13
Shorting								
2	12	2	116-5231●	55.63	49.45	47.39	45.33	43.26

Miniature - 01 Series

1A @ 2V ac/dc, 0.5A @ 24V ac/dc, 0.1A @ 200V ac/dc



- Fibreglass reinforced Makrolon case
- Compact size
- Stainless steel shaft suitable for use in humid atmospheres
- Maximum of 12 positions (or 11 positions with 'Stop')



Current rating (non-switching)	3A	Bush thread	M8
Contact resistance	5mR	Indexing angle	Non-shorting 60° Shorting 30°
Test voltage	750V	Contact material	Hard silver with gold flash
Capacitance, contact to contact	0.8pF		
Wafer insulation (minimum)	10000000MR		

Stop Screws: The switches are fitted with stop screws as indicated below. Additional stop screws may be ordered separately.

Mfrs. List No.	01-1101 = 140-514	01-1120 = 140-517	01-2100 = 140-522	01-2260 = 140-528
	01-1231 = 140-518	01-1260 = 140-519	01-2231 = 140-527	01-1161 = 140-513

01-1421 = 140-525 01-1430 = 140-526 01-2421 = 140-529 01-1100 = 140-515
 01-1110 = 140-516 01-2161 = 140-520

213368

Order Multiple = 1 Poles	Positions	No of Wafers	Order Code	Price Each		
				1+	50+	100+
Non-Shorting						
1	6▲	1	140-514●	19.00	16.53	14.83
1	6	1	140-513●	19.00	16.53	14.83
2	6	2	140-520●	48.02	41.79	37.47
2	3	1	140-518●	20.19	17.56	15.74
4	3	2	140-527●	50.46	43.90	39.36
4	2	1	140-525●	22.64	19.71	17.67
8	2	2	140-529●	55.23	48.06	43.10
Shorting						
1	12▲	1	140-517●	19.45	16.93	15.18
1	11	1	140-516●	19.35	16.83	15.10
2	6	1	140-519●	20.60	17.93	16.07
4	6	2	140-528●	51.22	44.56	39.95
4	3	1	140-526●	23.05	20.07	17.99
1	10▲	1	140-515●	19.35	16.83	15.10
2	10▲	2	140-522●	48.54	42.24	37.87

Adjustable stop - 71 Series
 200mA @ 115 Vac or 28 Vdc



- Adjustable stops
- 30° indexing angle
- Shaft size 1/4"
- Solder lug terminals
- Compact design
- Stop position can be set as required using pins provided

The adjustable stop switches allow the number of positions per pole to be changed. Remove and relocate stop pins in the holes in the front of the switch. The shaft is

sealed by an O-ring inside the bushing. The panel is sealed by an O-ring at the base of the bushing. The panel seal is silicone rubber. The shaft seal is an O-ring per MIL-P-5516B.

Shaft Diam.	1/4"
Body Diam. (mm)	17.45
Thread	3/8"-32 UNEF-2A
Length, shaft	7.929, 5.3mm**
Current rating	4A
Current switching	500mA @ 115V ac, 250mA @ 28V dc
Contact Resistance	50mR max, 20mR initially
Mechanical life (operations)	15000

Switch configuration	Mfrs. List No.	No. of decks	No. of poles per deck	Contact arrangement
71BD30-01-1-AJN		Single	One	Non-shorting
71BD30-01-2-AJN		Single	Two	Non-shorting
71BD30-02-1-AJN		Two	One	Non-shorting

240744

Mfrs. List No.	Order Code	1+	10+	25+
71BD30-01-1-AJN	119-0399●	8.93	6.54	6.05
71BD30-01-2-AJN	119-0400●	14.63	13.09	11.93
71BD30-02-1-AJN	119-0401●	18.25	16.31	14.90

25.4mm - 44/42 Series
 1A @ 115V ac or 28V dc



- Rugged construction
 - Solder terminals
 - Non shorting contacts
 - UL and CSA approved
 - Adjustable stop facility
- Body: Depth behind panel = 26
 (1 wafer), 34.8 (2 wafer)
 Dia = 29.5 (30°), 25.4 (36°), Bushthread = 3/8-32 NEF
 Spindle: L = 11.1, dia = 6.35

non switching	10A	Operational life	100000 ops
switching	1A @ 115V ac/28V dc	Contact material	Silver alloy
Contact resistance	50mR (max)	Insulation resistance	1000MR

Mfrs. List No.	44D30-01-1-AJN = 119-0368	42D36-01-1-AJN = 119-0372
	44D30-01-2-AJN = 119-0371	42D36-01-2-AJN = 119-0373

222310

Poles	Positions	No of Wafers	Order Code	Price Each				
				1+	5+	10+	25+	50+
Non-Shorting - 30° Indexing								
1	2-12	1	119-0368●	24.02	17.61	15.62	14.67	13.66
2	2-6	1	119-0371●	36.34	34.24	33.26	30.63	29.13
Non-Shorting - 36° Indexing								
1	2-10	1	119-0372●	23.39	17.16	15.53	14.02	13.32
2	2-5	1	119-0373●	23.40	17.17	14.91	13.46	12.98

Over 480,000 products online



25.4mm - MA Series, 2A

Mechanisms - 500mA @ 30V ac/dc, 50mA @ 300V ac/dc



Plastic mechanism

Metal mechanism

- Wafers are 25.4mm diameter
- MA miniature version of MK standard switch
- Use mechanism with appropriate wafers and accessories to assemble switches to specific requirements
- 146-047 features plastic mechanism of moulded construction, giving protection against corrosion

(non switching)	2A	Metal	13mm
Contact resistance	<10mR	Plastic	39mm
Insulation resistance	500MR	Stop setting	Adjustable
Overall length		Maximum number of wafers per switch	4
Metal	100mm	Plastic (8 poles max or 4 wafers, whichever is the greater)	
Spindle diameter	6mm	(N.B. dependant upon spacers used)	
		Bush thread	M10

Spindle length
 Mfrs. List No. MU 454882FPA(MA) = 116-5268 MU 454883FPA(MA) 116-5270
 SLMAD S454619FPA(MA) = 116-5269

213361

Mechanisms	Order Code	1+	25+	50+	100+	250+
30° indexing (metal)	116-5268●	8.57	7.62	7.30	7.00	6.67
30° indexing (plastic)	116-5269●	3.74	3.32	3.18	3.04	2.90
36° indexing (metal)	116-5270●	8.57	7.62	7.30	7.00	6.67

Wafers and Accessories



MA Series



Note: Dummy wafer has 12 clips but no rotor.

213082

Poles	Positions	Mfrs. List No.	Order Code	Price Each			
				1+	25+	50+	100+
Standard, Non-Shorting							
1	12	MA112N 454623/1/MA	146-049●	3.77	3.36	3.21	3.08
2	6	MA206N 454624/1/MA	146-050●	3.77	3.36	3.21	3.08
3	4	MA304N 454625/1/MA	146-051●	3.88	3.44	3.31	3.17
4	3	MA403N 454626/1/MA	146-052●	4.57	4.06	3.89	3.73
6	2	MA602N 454627/1/MA	146-053●	4.79	4.25	4.07	3.89
Standard, Non-Shorting, 36° Indexing							
1	10	MB110N 454630/1/MA	146-054●	3.69	3.27	3.14	2.99
2	5	MB205N 454631/1/MA	146-055●	3.69	3.27	3.14	2.99
1	12	MA112S 454623MA	146-057●	3.77	3.36	3.21	3.08
2	6	MA206S 454624MA	146-058●	3.77	3.36	3.21	3.08
PCB, Non-Shorting							
1	12	455767MA	149-173●	6.88	6.12	5.85	5.61
2	6	455768MA	149-174●	6.88	6.12	5.85	5.61
1	12	455771MA	149-177●	8.37	7.44	7.13	6.81
2	6	455772MA	149-178●	8.37	7.44	7.13	6.81
Accessories							
Spacer, 3mm		MAS3 SPACER 220012 3MM	116-5271●	0.30	0.26	0.24	0.24
Spacer, 6mm		MAS6 SPACER 220012 6MM	116-5272●	0.30	0.26	0.24	0.24

700 products added online every week



See our pick of the hottest products and latest technologies in 'What's New?' at www.farnell.co.uk

32mm - MK Series, 5A

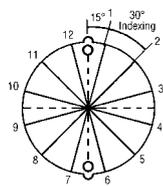
Mechanism - 500mA @ 30V ac/dc, 150mA @ 250V ac, 60mA @ 250V dc



- Use mechanism with MK wafers and accessories to assemble switches to specific requirements
 - Wafers are 32mm diameter with silver plated 5A contacts
- Current rating (non switching) 5A Spindle length 50mm
 Insulation resistance 1000000MR Stop setting Adjustable
 Overall length 213mm (N.B. dependant upon spacers used) 10
 Spindle diameter 6mm Bush thread M10
- Mfrs. List No. MU-MKD 454622FPA(MK) 213360

Mechanism, 30° indexing	Order Code	Price Each				
		1+	25+	50+	100+	250+
	116-5262●	9.41	8.36	8.01	7.67	7.32

Wafers and Accessories - MK Series



Note: Dummy wafer has 12 clips but no rotor

- Mfrs. List No.
- | | |
|-----------------------------------|------------------------------------|
| MK112N 454633/1/MK= 146-034 | MK1120C 454639MK= 146-041 |
| MK403N 454636/1/MK= 146-037 | MKS6 SPACER 221805 6MM= 116-5266 |
| MK000D 454638MK= 146-040 | MK304N 454635/1/MK= 146-036 |
| MKS33 SPACER 221805 3MM= 116-5265 | MK206S 454634MK= 146-039 |
| MK206N 454634/1/MK= 146-035 | MKSH SCREEN 105921= 116-5263 |
| MK112S 454633MK= 146-038 | MKS10 SPACER 221805 10MM= 116-5267 |
- 213084

Poles	Positions	Order Code	Price Each			
			1+	25+	50+	100+
1	12	146-034●	3.96	3.52	3.38	3.23
2	6	146-035●	3.96	3.51	3.37	3.22
3	4	146-036●	4.22	3.75	3.60	3.44
4	3	146-037●	4.71	4.20	4.02	3.85
1	12	146-038●	3.96	3.52	3.38	3.23
2	6	146-039●	3.96	3.52	3.38	3.23
Dummy wafer		146-040●	3.88	3.44	3.30	3.16
Rotating open circuit wafer		146-041●	3.96	3.51	3.37	3.22
Electrostatic screen		116-5263●	0.37	0.33	0.32	0.31
Spacer, 3mm		116-5265●	0.30	0.26	0.24	0.24
Spacer, 6mm		116-5266●	0.30	0.26	0.24	0.24
Spacer, 10mm		116-5267●	0.30	0.26	0.24	0.24

Key Actuator (for MK and MA Series)



- Six position key actuator for use with either MA or MK series wafers
 - Maximum of 4 MA or 3 MK wafers may be used
 - Supplied with two different sized shafts to accommodate MA or MK wafers
 - 5 disc tumbler with 60° between positions is fitted, key being removable in any position
 - Supplied with two random keys
- Panel Cut-out=19 dia, Max panel thickness=13.5

Mfrs. List No. A20667 213362

Order Code	Price Each			
	1+	25+	100+	250+
116-2587●	16.87	15.53	15.15	14.73

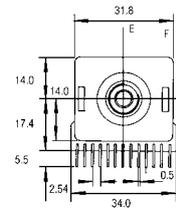
Technical information at your fingertips



Over **352,000** technical datasheets available online.

Visit www.farnell.co.uk and look for the **Tech Info** heading in your search results.

PT Series



H = 31.4, W = 31.8, D = 16.7
 Indexing angle = 30°, Bush L = 8, Th = M10 x 0.75
 Spindle L = 42.0 (exc. bush), Dia = 6.0

- Printed circuit mounting
- Non-shorting
- Moulded from flame retardant polyester and rear glass fibre PCB
- Supplied with adjustable stop, 2 to 12 position
- 3 pole/3 way switch can also have an 'OFF' position

Voltage rating	250V ac/dc	Insulation resistance	500MR
Proof voltage	1000V	Contacts	Silver plated
Current rating (non-switching)	2A continuous	Contact resistance	<50mR
Contact rating	0.5A continuous	Switching life	10000 ops

Mfrs. List No. PT6434/BMH= 112-3674, PT6422/BMH= 112-3675, PT6509/BMH= 112-3676 213116

Poles	Positions	Order Code	Price Each			
			1+	15+	100+	250+
1	12	112-3674●	4.20	3.84	3.73	3.52
2	5	112-3675●	4.22	3.85	3.75	3.53
3	3	112-3676●	4.21	3.85	3.74	3.53

CK Series



350mA @ 110V ac/dc, 150mA @ 250V ac/dc



Solder terminals Max body dia = 27.5, body H = 12.8
 Mounting bush: L = 8, Dia = 9.5
 Spindle L = 38, Dia = 6.35 (with 30mm flat) Imperial
 Dia = 6.0 Metric

PCB terminals Max body dia = 27.5, body H = 12.8
 Mounting bush: L = 8, Dia = 10
 Spindle L = 50, Dia = 6.0

- Single bank switches moulded in glass filled nylon, UL recognised
- Adjustable stop facility mechanism
- Positive indexing obtained from dual spring plunger
- Choice of non-shorting or shorting contacts
- Choice of metric or imperial spindle diameter
- Choice of solder or PCB terminals

Voltage rating	300V ac/dc	Indexing angle	30°
Proof voltage	1000V	Contact material	Brass, Silver Plated,
Current rating (non-switching)	5A continuous	Operating temperature	-30°C to +85°C
Contact resistance	<10mR		

213364

Poles	Positions	Mfrs. List No.	Order Code	Price Each				
				1+	25+	100+	250+	1K+
Imperial with Solder Terminals								
Non-shorting								
1	12	CK1024	112-3687●	1.34	1.21	1.08	1.02	0.97
2	6	CK1025	112-3688●	1.34	1.21	1.08	1.02	0.97
3	4	CK1026	112-3704●	1.34	1.21	1.08	1.02	0.97
4	3	CK1027	112-3689●	1.34	1.21	1.08	1.02	0.97
Shorting								
1	12	CK1034	112-3690●	1.34	1.21	1.08	1.02	0.97
2	6	CK1035	112-3691●	1.34	1.21	1.08	1.02	0.97
3	4	CK1036	112-3692●	1.34	1.21	1.08	1.02	0.97
4	3	CK1037	112-3693●	1.34	1.21	1.08	1.02	0.97
Metric with PCB Terminals								
Non-shorting								
1	12	CK1049	112-3694●	1.34	1.21	1.08	1.02	0.97
2	6	CK1050	112-3696●	1.34	1.21	1.08	1.02	0.97
3	4	CK1051	112-3697●	1.34	1.21	1.08	1.02	0.97
4	3	CK1052	112-3698●	1.34	1.21	1.08	1.02	0.97
Shorting								
1	12	CK1059	112-3699●	1.34	1.21	1.08	1.02	0.97
2	6	CK1060	112-3700●	1.34	1.21	1.08	1.02	0.97
3	4	CK1061	112-3702●	1.34	1.21	1.08	1.02	0.97
4	3	CK1062	112-3703●	1.34	1.21	1.08	1.02	0.97
Metric with Solder Terminals								
Non-shorting								
1	12	CK1029	112-3705●	1.34	1.21	1.08	1.02	0.97
2	6	CK1030	112-3706●	1.34	1.21	1.08	1.02	0.97
3	4	CK1031	112-3707●	1.34	1.21	1.08	1.02	0.97
4	3	CK1032	112-3708●	1.34	1.21	1.08	1.02	0.97

JMK Series - Non-Shorting

1A @ 28V dc, 100mA @ 250V ac, 50mA @ 300V dc



Spindle dia = 6.4mm (1/4"), Spindle L = 37, Bush thread = 1/8" x 32 UNEF

Voltage rating 300V ac/dc Rotor Nylon with hard brass, silver plated blades
 Proof voltage 1000V ac Indexing 30°
 Current rating (non-switching) 5A Stop setting Adjustable
 Contact resistance <3mR

213365

Poles	Positions	No. of Wafers	Mfrs. List No.	Order Code	Price Each		
					1+	25+	50+
1	12	1	459101JMK1	116-5221	18.03	16.03	15.36
1	12	2	459102JMK2	116-5273	25.27	22.45	21.52
2	7	1	459103JMK1	116-5274	17.20	15.29	14.65
4	4	1	459104JMK1	116-5275	19.86	17.67	16.92

MSD Series - Non-Shorting

6A @ 250V ac, 10A @ 30V dc



- Heavy duty, high current ratings
- Complies with BS3955

Spindle dia = 6.4 (1/4"), Spindle L = 37, Bush thread = 1/8" x 32 UNEF

Voltage rating 250V ac Rotor Glass Filled Nylon
 Proof voltage 2000V dc Indexing 30°
 Contact resistance <5mR Stop setting Adjustable

Mfrs. List No: MSD1112N MU454494MSD1 = 116-5277 MSD1206N MU454493MSD1 = 116-5279

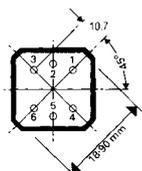
213367

Poles	Positions	No. of Wafers	Order Code	Price Each		
				1+	25+	50+
1	12	1	116-5277	28.40	25.25	24.19
2	6	1	116-5279	28.38	25.22	24.18

Key Operated Switches

2 Position Miniature - E Series

100mA @ 30V dc



D behind panel = 28.0
 Panel cut-out = 15.1 x 15
 W (Bezel) = 18 x 16
 Max panel thickness = 14.28

- Lock mechanism and key are glass filled polyester. UL recognised
- Gold plated contacts suitable for low level switching (5mV/1mA dc)
- Each keyswitch is provided with two keys
- Suitable as tamperproof switch in low level security applications where accidental operation of a function is undesirable

Proof voltage 1000V for 1 minute Contact resistance 20mΩ max.
 Operating life >50000 ops Static resistance 30kV
 Indexing 90° Operating temperature -20°C to +55°C

Mfrs. List No. E1ACAAAE = 116-2593
 E1 SPARE KEY = 116-2600

213095

	Order Code	Price Each		
		1+	10+	50+
Key removable in one position only	116-2593	5.92	5.58	5.35
Spare key for above	116-2600	0.73	0.55	0.44

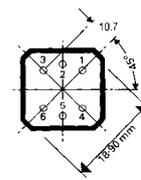
700 products added online every week



See our pick of the hottest products and latest technologies in 'What's New?' at www.farnell.co.uk

2 Position Miniature - M Series

100mA @ 30V dc



Panel cut-out

Standard depth 28mm W (bezel) = 18 x 16 Panel cut-out = 15.1 Depth behind panel = 28 Max. panel thickness = 14.28 Pins: L = 3.4, Dia = 1
 Low depth 19.8mm W (bezel) = 18 x 18 Panel cut-out = 15.1 x 15.1 Depth behind panel = 19.8 Height above panel = 11.7 Pins: L = 3.4, Dia = 1

- 5 disc tumbler lock and diecast body
- Polished chrome lock face has engraved arrowhead to indicate switch position
- Available with either flush mounting or raised bezel
- Raised bezel types give low depth behind panel
- Switch body is glass filled polyester. UL recognised
- Gold plated contacts and terminals suitable for low level switching (5mV/1mA dc)
- Each keyswitch is provided with two keys
- Suitable for use in cash registers, security panels, computers etc. to give tamperproof security

Proof voltage 1000V for 1 minute Contact resistance 20mΩ max.
 Operational life 50000 ops Static resistance 7kV
 Indexing 90° Operating temperature -20°C to +55°C

Note: Key trapping versions have the key retained in the clockwise position.

Mfrs. List No. M1BAAAAE = 116-2594 M1BAEAAE = 116-2598
 M1BCAAAE = 116-2595 M1BCEAAE = 116-2599
 M1MCAAAE = 116-2596 TOK NO 001 SPARE KEY M = 116-2601

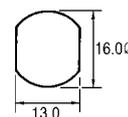
Caution: Care should be taken when soldering the pins, heat in excess of 300°C for more than 2 seconds could damage the pins.

213098

DPDT	Standard Depth 28mm	Order Code	Price Each		
			1+	10+	50+
Key removable in both positions, standard key Key removable in one position only, standard key Key removable in one position only, random key		116-2594	7.86	7.11	6.91
		116-2595	7.87	7.12	6.93
		116-2596	8.02	7.24	7.05
Low Depth 19.8mm Key removable in both positions, standard key Key removable in one position only, standard key Spare key (TOK No.001) for 116-2594, 116-2595, 116-25989, 116-2599		116-2598	7.64	6.90	6.71
		116-2599	7.47	6.77	6.57
		116-2601	1.61	1.31	1.20

2 Position - SRL Series

5A @ 115V ac, 3A @ 50V dc



Dia (bezel) = 22.0
 D behind panel = 29.7 (SPDT), 30.7 (DPDT)
 Max panel thickness = 4.5 (SPDT), 5.0 (DPDT)

- Silver plated brass contacts
- Spare keys are available for common key profile
- Each keyswitch is provided with two keys, random or common profile

Proof voltage 750V dc Insulation resistance 100MR
 Current rating (non switching) 5A Contact resistance 20mR max.
 Operating life >50000 ops Operating temperature -20°C to +65°C
 Indexing 90° (SPDT), 60° (DPDT)

Mfrs. List No: SRL-5-E-D-2 = 112-3677 SRL-5-D-S-2 = 112-3682 SRL-5-L-D-2 = 112-3680
 SRL-5-E-S-2 = 112-3681 SRL-5-M-D-2 = 112-3679 SRL-5-L-S-2 = 112-3685
 901 = 112-3686 SRL-5-M-S-2 = 112-3684 SRL020 = 136-0558
 SRL-5-D-D-2 = 112-3678

213144

Random Key Profile	SPDT	Order Code	Price Each			
			1+	25+	100+	250+
Key removable in 1 position Key removable in 2 positions		112-3677	4.28	4.08	3.83	3.49
		112-3678	4.28	4.08	3.83	3.49
DPDT		112-3679	4.28	4.08	3.83	3.49
		112-3680	3.70	3.52	3.31	3.02
Common Key Profiles, SPDT		112-3681	4.24	4.04	3.81	3.47
		112-3682	4.24	4.04	3.81	3.47
DPDT		112-3684	4.24	4.04	3.81	3.47
		112-3685	4.24	4.04	3.81	3.47
Spare common keys (pair) Dust Cap		112-3686	3.17	2.86	2.54	2.42
		136-0558	0.67	0.60	0.57	0.52

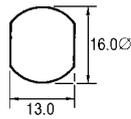
15

Re-reeling available



Key Operated Switches - continued

2 Position - SRL Series
4A @ 250V ac, 80A surge



Switch Unit - H = 12.4, W = 18, D = 18mm

- Two part construction
- Snap on switch unit
- Standard solder terminals
- Two keys per lock
- 5 disc lock
- 90° key movement steps

Proof voltage	3kV dc	Insulation resistance	999MR
Current rating	4A @ 250V ac	Contact resistance	20mR max.
Operating life	>10000 ops	Operating temperature	-25°C to +85°C

Mfrs. List No:

SRLM-5-Q-D= 113-8694	SRLM-5-Q-S= 113-8696	SRL020= 136-0558
SRLM-5-S-D= 113-8695	SRLM-5-S-S= 113-8697	

424999

Key Profiles	Order Code	Price Each			
		1+	25+	100+	250+
Random - 2 Pole NO					
Key removable in 2 positions	113-8694●	5.67	4.32	3.65	3.16
Key removable in 1 position	113-8695●	5.67	4.32	3.65	3.16
Common - 2 Pole NO					
Key removable in 2 positions	113-8696●	5.67	4.32	3.65	3.16
Key removable in 1 position	113-8697●	5.67	4.32	3.65	3.16
Accessories					
Dust Cap	136-0558●	0.67	0.60	0.57	0.52

WRL Series

5A @ 115V ac, 3A @ 50V dc



Dia. (Body) = 16, Depth (Body) = 22.4, L (Pins) = 7.2, Panel Thickness (Max.) 4.5mm

The WRL waterproof lock switch is sealed to IP66 and IP67. The lock is mounted to the panel from the front and the electrical switch snaps on to the back of the mechanism. These switches have 90° key indexing and the key may be inserted into the lock either way up and withdrawn in both the locked and unlocked switch positions. Locks come complete with 2 keys.

Switch Function	SPDT
Switch Rating	5A @ 115V ac, 3A @ 50V dc
Proof voltage	750V dc ac (Initial)
Life	10000 Cycles
Contact resistance	<20mohm (Initial)
Insulation resistance	>999Mohm @ 500V dc (Initial)
Indexing angle	90°
Contact material	Brass CZ108,
Operating temperature	-20°C to +65°C
Lock type	5 Disc

474190

Key Withdrawal Positions	Movement/Indexing	Mfrs. List No.	Order Code	1+	25+	100+
Random Key - Switch						
1 Only	90°/90	WRL-5-E-D-2	136-0554●	9.97	8.97	8.38
1 and 4	90°/90	WRL-5-D-D-2	136-0555●	9.97	8.97	8.38
1 and 4	60°/60	WRL-5-M-D-2	155-1856●	10.00	9.06	8.48
Common Key - Switch						
1 Only	90°/90	WRL-5-E-S-2	136-0556●	9.97	8.97	8.38
1 and 4	90°/90	WRL-5-D-S-2	136-0557●	9.97	8.97	8.38
1 and 4	60°/60	WRL-5-M-S-2	155-1857●	10.00	9.06	8.48
Accessories						
Dust Cap		SRL020	136-0558●	0.67	0.60	0.57
Common Key		901	112-3686●	3.17	2.86	2.54

High Security - 2 Position

4/80A @ 250V ac



- Dimpled 6 pin lock
- Two part construction
- The lock is inserted from the front of the panel
- The mains switch module snaps-on from rear of panel
- Standard solder terminals

- Two keys per lock
- Spare keys (common) available

Key Type	Switch Type	Position Key Free	Mfrs. List No.	Order Code
Random	DPST / NO	0° & 90°	DSL-6-A-D	125-3503
Random	DPST / NO	0°	DSL-6-B-D	125-3504
Common	DPST / NO	0° & 90°	DSL-6-C-S	125-3506
Common	DPST / NO	0°	DSL-6-D-S	125-3507

446113

Mfrs. List No.	Order Code	1+	25+	100+	250+
DSL-6-A-D	125-3503●	28.35	24.96	22.69	20.35
DSL-6-B-D	125-3504●	28.35	24.96	22.69	20.35
DSL-6-C-S	125-3506●	28.35	24.96	22.69	20.35
DSL-6-D-S	125-3507●	28.35	24.96	22.69	20.35

Mfrs. List No.	Order Code	1+	25+	100+	250+
Spare Keys - Common					
DSL-6 -KEY COM	125-3512●	4.41	4.19	4.01	3.88

2 Position - Y Series

2A @ 250Vac, 4A @ 125Vac/30Vdc



- SPCO or DPCO contacts
- 4 tumbler lock, 90° indexing
- Supplied with 2 standard keys
- Zinc alloy body with stainless steel face

N.B. Keys offer level 1 security and are interchangeable with all Y series key switch locks

Depth behind panel=28.8
Maximum panel thickness=4.95

Mfrs. List No:

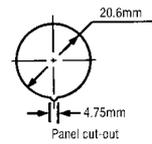
Y1011U2C203NQ = 120-1397	Y101132C203NQ = 120-1399
Y2011U2C203NQ = 120-1398	Y201132C203NQ = 120-1400

213295

Rating	Order Code	Price Each				
		1+	10+	25+	100+	250+
Key Removable in Both Positions						
SPCO	120-1397●	7.14	6.60	6.36	5.70	5.10
DPCO	120-1398●	7.58	6.02	5.24	4.91	4.78
Key Removable in One Position Only						
SPCO	120-1399●	6.45	5.11	4.11	3.56	3.47
DPCO	120-1400●	5.94	5.52	5.16	4.84	4.55

2 Position - P5/3TMA/22/209

7A @ 250V ac, 10A @ 125V ac, 10A @ 12V dc



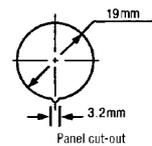
- 5 disc tumbler lock, 90° indexing
- Key removable in both positions
- 2 N/O + 2 N/C sets of fine silver contacts, break-before-make
- Each keyswitch is provided with two keys, random selection

213355

Order Code	1+	10+	25+	100+
116-2582●	30.27	28.22	24.61	22.20

2 Position - P2/3

2A @ 250V ac, 4A @ 125V ac, 10A @ 12V dc



- 2 N/O + 2 N/C sets of fine silver contacts, break-before-make
- 5 disc tumbler lock, 90° indexing (except 116-2591, 45°)

213351

Key Code	Key Trapping	Spring Return	Mfrs List No.	Order Code
Random	None	No	P2/3TMA 209	116-2579
TOK 3	None	No	P2/3FDA 209	116-2580
TOK 3	None	Yes	P2/3FDA.206	116-2591
TOK 2	Horizontally, right	No	P2/3FCC 209	116-2583

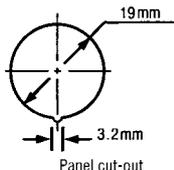
Switches	Order Code	1+	10+	25+	100+	250+
Mfrs List No						
P2/3TMA 209	116-2579●	12.46	11.23	10.95	10.50	9.30
P2/3FDA 209	116-2580●	12.46	11.23	10.95	10.50	9.30
P2/3FDA.206	116-2591●	12.71	11.47	11.14	10.72	9.49
P2/3FCC 209	116-2583●	12.71	11.47	11.14	10.72	9.49

Keys	Order Code	1+	10+	25+	100+	250+
TOK 3	116-2590●	1.62	1.31	1.20	1.17	1.07
TOK 2	116-2592●	1.62	1.31	1.20	1.17	1.07

3 Position - P2/3-TMA-1473

2A @ 250V ac, 4A @ 125V ac, 10A @ 12V dc

Ideal for 'Off' - 'Test' - 'Set Alarm' applications



D=51.1, W (body)=19
Max panel thickness=11

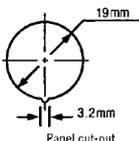
- Key removable in all 3 positions
- 5 disc tumbler lock, 90° indexing
- 3 sets of N/O contacts, one set makes in each of the 3 positions, break-before-make
- Supplied with two keys, random selection (2000 variants)
- Switch lock protrudes from switch body by 0.05mm

213352

Order Code	Prce Each			
	1+	10+	25+	100+
116-2581●	11.05	10.33	9.22	8.70

2 and 3 Position - K2/3

2A @ 250V ac, 4A @ 125V ac, 10A @ 12V dc



D behind panel=39.6
W (body)=19
Max panel thickness=11

- Key removable in all positions
- 5 disc tumbler lock, 90° indexing
- Switch lock protrudes from switch body by 0.05mm
- Supplied with two keys, random selection (2000 variants)
- 2 and 3 position keyswitches with two sets of fine silver contacts, break-before make

Mfrs. List No. K2/3TMA 201 = 116-2584 K2/3TMA 109 = 116-2586 K2/3TMA 123 = 116-2578

213350

	Order Code	Price Each			
		1+	10+	25+	100+
2 positions, 2 N/O sets of contacts, (DP Off/On)	116-2584●	11.96	11.12	10.12	9.74
2 positions 1 N/O, 1 N/C sets of contacts, (cross connection give SPDT)	116-2586●	11.96	11.12	10.12	9.74
3 positions SPDT, centre off	116-2578●	11.96	11.12	10.12	9.74

CK & SK Series Key Switches



SK Series - Low and Medium Security



CK Series - High Security

- Wide choice of security levels and keying options
- Single pole contacts
- Solder lug terminals

	Low/Medium Security - SK Series	High Security - CK Series
Contact Rating	3A @ 125V ac	3A @ 250V ac
Contact Resistance	10mohm	20mohm
Insulation Resistance	1000mohm	1000mohm
Mechanical Life	30000 operations	30000 operations
Angle of Throw	90° for 2-position, 45° for 3-position	
Keys	Low security: matt chrome-plated zinc alloy Med: Gloss nickel-plated zinc alloy	Nickel-plated brass, PBT handle
Keys Supplied	Low Security Switches: 2 Med Security: 1 (random)	1 (random)

347672/405575

Pos. 1	Pos. 2	Pos. 3	Key Removes	Mfrs. List No.	Order Code	1+	10+	25+	50+
Low Security									
On	None	On	1 & 3	SK12AAW01	118-7780●	7.68	7.45	7.23	7.01
On	None	On	1	SK12BAW01	118-7781●	8.03	7.79	7.56	7.33
On	Off	On	1, 2, 3	SK13DAW01	118-7782●	7.88	7.64	7.41	7.19
On	Off	On	2	SK13EAW01	118-7783●	8.66	8.40	8.15	7.91
Medium Security									
On	None	On	1 & 3	SK12ADW01	118-7784●	9.91	9.61	9.32	9.04
On	None	On	1	SK12BDW01	118-7785●	10.25	9.94	9.64	9.35
On	Off	On	2	SK13EDW01	118-7786●	10.89	10.56	10.24	9.93
High Security									
19mm Bushing									
On	None	On	1 & 3	CKL12AFW01	118-7792●	8.25	8.00	7.76	7.53
On	None	On	1	CKL12BFW01	118-7793●	8.25	8.00	7.76	7.53
On	Off	On	2	CKL13EFW01	118-7794●	8.25	8.00	7.76	7.53
16mm Bushing									
On	None	On	1 & 3	CKM12AFW01	118-7787●	7.78	7.55	7.32	7.10
On	None	On	1	CKM12BFW01	118-7789●	7.78	7.55	7.32	7.10
On	None	On	2	CKM13EFW01	118-7791●	7.78	7.55	7.32	7.10

SIL Switches

Splay Terminals - Automatic Insertion



100mA @ 50Vdc



Straight Terminals



Right Angle Terminals

- Double contacts
- Low contact resistance
- High reliability
- Self clean contact area
- High pressure contact structure prevents vibration shock

Contacts	Alloy copper C5210-EH	Insulation resistance	100Mohm @ 500V dc
Current, switching rating @ 5Vdc max		Dielectric strength	300V ac/1 min.
Current, carry rating	100mA @ 50Vdc max	Capacitance	5pF
Initial contact resistance	100mohm max	Operating life	500 ops
Body material	Nylon High-temp Thermoplastic	Operating temperature	-30°C to 80°C

249004

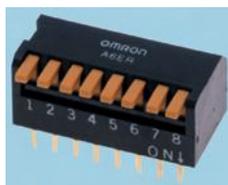
No. of Ways	Length (mm)	Mfrs. List No.	Order Code	1+	25+	100+	250+
Straight Terminals							
2	7.62	SIP-02T	NEW 152-1990●	0.97	0.82	0.70	0.62
4	12.7	SIP-04T	NEW 152-1991●	1.02	0.86	0.75	0.66
6	17.78	SIP-06T	947-1960●	1.10	0.93	0.82	0.71
8	22.86	SIP-08T	947-1979●	1.15	0.97	0.85	0.77
10	27.94	SIP-10T	NEW 152-1992●	1.19	1.02	0.92	0.85
Right Angle Terminals							
2	7.62	SIP-02A	NEW 152-1993●	0.97	0.82	0.70	0.62
4	12.7	SIP-04A	NEW 152-1994●	1.02	0.86	0.75	0.66
6	17.78	SIP-06A	NEW 152-1995●	1.07	0.91	0.80	0.69
8	22.86	SIP-08A	NEW 152-1996●	1.12	0.94	0.83	0.73
10	27.94	SIP-10A	NEW 152-1997●	1.19	1.02	0.92	0.85

DIL Switches

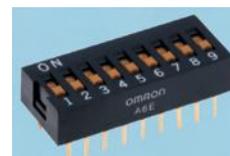
Sealed A6E & A6ER Series



25mA @ 24V dc



A6ER Series



A6E Series

- The sealed bottom prevents flux penetration
- A variety of models with short or long actuators (levers) available

15

Re-reeling available



DIL Switches - continued

Sealed A6E & A6ER Series - continued

25mA @ 24V dc - continued

Switching Capacity 25 mA at 24VDC, 10µA (minimum current) at 3.5 VDC
 Ambient Temperature -20 to 70°C (with no icing)
 Ambient Humidity Operating: 35 to 90%
 Insulation Resistance 100MΩ min. (at 250VDC)
 Contact Resistance 200mΩ max. (initial value)
 Dielectric Strength 500 VAC for 1min between terminals of the same polarity and between terminals of different polarity
 Malfunction: 10 to 55Hz, 1.5mm double amplitude
 Vibration Resistance Malfunction: 300m/s² min.
 Shock Resistance 0.29N
 Operating Force Mechanical: 1000 operations min.
 Life Expectancy Electrical: 1000 operations min.
 Weight A6E: 0.66g (2 poles), 1.00g (4 poles), 1.32g (6 poles), 1.65g (8 poles), 1.98g (10 poles)
 A6ER: 1.01g (2 poles), 1.51g (4 poles), 2.00g (6 poles), 2.51g (8 poles), 3.02g (10 poles)

386003/405575

No. of Ways	Mfrs. List No.	Order Code	Price Each			
			1+	25+	100+	250+
A6E Series						
Flat Actuator						
2	A6E-2101	877-4072	0.930	0.680	0.550	0.520
4	A6E-4101	877-4099	1.020	0.740	0.600	0.560
6	A6E-6101	877-4110	1.250	0.900	0.750	0.700
8	A6E-8101	877-4137	1.620	1.170	0.960	0.890
10	A6E-0101	877-4056	1.890	1.340	1.130	1.020
Raised Actuator						
2	A6E-2104	877-4080	0.960	0.700	0.570	0.530
4	A6E-4104	877-4102	1.090	0.780	0.650	0.590
6	A6E-6104	877-4129	1.300	0.930	0.780	0.730
8	A6E-8104	877-4145	1.710	1.230	1.000	0.930
10	A6E-0104	877-4064	2.090	1.500	1.240	1.160
A6ER Series						
Side Actuator (Short Lever)						
2	A6ER-2101	877-4170	1.070	0.770	0.620	0.596
4	A6ER-4101	877-4196	1.790	1.290	1.070	0.980
8	A6ER-8101	877-4234	2.410	1.730	1.420	1.320
Side Actuator (Long Lever)						
2	A6ER-2104	877-4188	1.740	1.250	1.040	0.950
4	A6ER-4104	877-4200	1.900	1.350	1.130	1.040
8	A6ER-8104	877-4242	2.520	1.800	1.500	1.380

Sealed Low Profile - A6D Series

100mA @ 50V dc



Top actuated H=3.4, D=6.6
 Piano key actuator H=6.4, D=8.9

- BT approved to D8173 specification
- Moulded in polybutylene terephthalate
- Fully sealed construction, without tape seal
- Choice of IC style top actuators or 'piano key' actuators

Pins=7.62x2.54 spacing

Contacts Beryllium contact (Bifurcated, auto cleaning)
 Contact resistance 100mohm max
 Insulation resistance 100Mohm @ 250V dc
 Dielectric strength 500V dc
 Operating temperature -20°C to 70°C
 Mechanical life 5000 ops min

213078

No. of Ways	Length	Mfrs. List No.	Order Code	Price Each			
				1+	50+	100+	500+
Top Actuated							
2	7.1	A6D-2100	114-8638	1.31	1.24	1.20	1.08
4	12.2	A6D-4100	990-1680	1.40	1.33	1.28	1.15
6	17.3	A6D6100	990-1698	1.60	1.52	1.45	1.33
8	22.4	A6D8100	990-1701	2.01	1.90	1.80	1.66
10	27.4	A6D-0100	990-1710	3.01	2.85	2.73	2.49
Piano Key Actuated							
4	12.2	A6DR-4100	990-1728	2.81	2.61	2.50	2.25
6	17.3	A6DR-6100	990-1736	2.49	2.32	2.22	1.99
8	22.4	A6DR-8100	990-1744	3.72	3.46	3.31	2.98
10	27.4	A6DR-0100	990-1752	5.04	4.68	4.48	4.03

Low Profile - A6T/A6S Series



A6T:H=3.6, W=6.2, Pins 7.62 x 2.54 spacing
 A6S:H=3, W=6.2, Pins 7.62 x 2.54 spacing

- Bifurcated movable contacts offer superb reliability
- Smooth switching action
- Through hole version has raised actuators for easy operation
- Surface mount version is tape sealed and has recessed actuators (not 990-1868 and 990-1876)
- Auto insertable

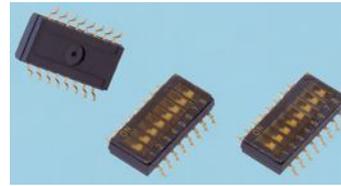
Contacts Beryllium Copper
 Contact rating 25mA @ 24Vdc
 Operating temperature -20°C to 70°C
 Dielectric strength 500Vac

213317

No. of Ways	Length	Mfrs. List No.	Order Code	Price Each		
				1+	50+	100+
Through Hole - A6T Series						
2	6.02	A6T-2104	990-1809	1.05	0.96	0.91
4	11.10	A6T-4104	990-1817	1.28	1.16	1.11
6	16.18	A6T-6104	990-1825	1.30	1.18	1.13
8	21.26	A6T-8104	990-1833	2.04	1.85	1.77
10	26.34	A6T-0104	990-1841	2.27	2.06	1.98
Surface Mount - A6S Series						
2	6.02	A6S-2102	SMD990-1850	0.91	0.82	0.78
4	11.10	A6S-4101	SMD990-1868	0.99	0.90	0.86
6	16.18	A6S-6101	SMD990-1876	1.05	0.97	0.93
8	21.26	A6S-8102	SMD990-1884	1.42	1.29	1.24
10	26.34	A6S-0102	SMD990-1892	2.25	2.04	1.96
Surface Mount - A6S-H Series						
2	6.02	A6S-2102-H	SMD145-5487	0.91	0.83	0.80
4	11.10	A6S-4102-H	SMD145-5489	0.99	0.92	0.88
6	16.18	A6S-6102-H	SMD145-5490	1.07	0.99	0.95
8	21.26	A6S-8102-H	SMD145-5491	1.42	1.32	1.26
10	26.34	A6S-0102-H	SMD145-5493	1.64	1.50	1.44

Half/Pitch Surface Mount A6H Series

25mA @ 24V dc



- Very low profile of 1.55mm
- Mounting space reduced by 63% (compared with conventional models)
- Washable, seal tape models available
- Embossed taping models available



Switching Capacity 25 mA at 24VDC, 10µA (minimum current) at 3.5 VDC
 Ambient Temperature Operating: -20 to 70°C (with no icing or condensation)
 Storage: -40 to 85°C (with no icing or condensation)
 Ambient Humidity Operating: 35 to 90%
 Insulation Resistance 100MΩ min. (at 250VDC)
 Contact Resistance 200mΩ max. (initial value)
 Dielectric Strength 300 VAC for 1min between terminals of the same polarity and between terminals of different polarity
 Malfunction: 10 to 55Hz, 1.5mm double amplitude
 Vibration Resistance Malfunction: 300m/s² min.
 Shock Resistance Mechanical: 1000 operations min.
 Life Expectancy Electrical: 1000 operations min.
 Operating Force 0.29 to 0.49N
 Weight 0.09g (4 poles), 0.12g (6 poles), 0.15g (8 poles), 0.18g (10 poles)

386004

No. of Ways	Mfrs. List No.	Order Code	Price Each			
			1+	25+	100+	250+
4	A6H-4101	877-4269	1.42	1.02	0.86	0.79
6	A6H-6101	877-4277	1.64	1.17	0.97	0.90
8	A6H-8101	877-4285	1.79	1.29	1.07	0.98
10	A6H-0101	877-4250	2.22	1.60	1.32	1.23

Low Profile

100mA @ 20 Vdc



- Low profile DIL switches, tape sealed to allow washing
- Dielectric strength 500V dc
 Mechanical life 2000 ops
 Operating temperature -40°C to 100°C

H=3.3, W=7.1, Pins=7.62x2.54 spacing

213146

No. of Ways	Length	Mfrs. List No.	Order Code	Price Each			
				1+	25+	100+	250+
DIL							
2	5.6	M402SNL	996-8300	0.84	0.81	0.76	0.73
4	10.70	M404SNL	996-8318	0.99	0.95	0.91	0.88
8	21.3	M408SNL	996-8326	1.21	1.16	1.12	1.08
SMD							
2	5.5	M4025MGNL	SMD996-8342	1.28	1.22	1.17	1.13
4	10.5	M4045MGNL	SMD996-8350	1.73	1.66	1.60	1.54
8	21.3	M4085MGNL	SMD996-8334	2.14	2.06	1.98	1.90

700 products added online every week



See our pick of the hottest products and latest technologies in 'What's New?' at www.farnell.co.uk

15

Re-reeling available

Farnell

Low Profile Machine Insertable

100mA @ 50V dc



H=3.4, W=7.2
Pins=7.62 x 2.54 spacing

- Auto-insertable switches, tape sealed to allow washing

Contacts	Gold Plated sliding auto cleaning	Dielectric strength	500V rms 50Hz
Contact rating	100mA @ 50V dc max	Capacitance	Less than 5pF
Contact resistance	Less than 50mohm	Mechanical life	3000 ops
Insulation resistance	1000Mohm @ 500V dc	Operating temperature	-40°C to 85°C

213382

No. of Ways	Length	Mftrs. List No.	Order Code	1+	25+	100+	250+
2	6	NDIR02ST	108-2466	1.42	1.35	1.30	1.17
4	11.1	NDIR04ST	108-2467	1.53	1.44	1.39	1.26
6	16.1	NDIR06ST	108-2468	1.74	1.65	1.58	1.45
8	21.2	NDIR08ST	108-2469	2.19	2.06	1.96	1.80
10	26.3	NDIR10ST	108-2470	3.27	3.11	2.97	2.71

Piano Key

0.4VA @ 20mA



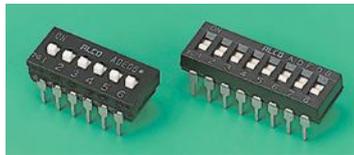
- High pressure wiping contact allows aqueous or solvent cleaning without tape seal
- Side mounted actuators for easy movement
- Lever down 'ON'
- PCB mountable
- Unique design can withstand vapour phase reflow or wave soldering conditions

H=5.25, W=7.50

213314

No. of Ways	Length	Mftrs. List No.	Order Code	1+	25+	100+	250+
Piano Key - Lever down 'ON'							
2	7.06	ADPO204	126-4578	1.52	1.43	1.35	0.57
4	12.14	ADPO404	112-3947	1.54	1.45	1.37	0.59
6	17.22	ADPO604	126-4579	1.85	1.77	1.63	0.70
8	22.3	ADPO804	112-3948	1.98	1.85	1.77	0.81
10	27.38	ADP1004	112-3949	2.19	2.05	1.95	0.95

Extended and Flush Actuator



- High pressure wiping contact allows aqueous or solvent cleaning without tape and seal
- Unique design can withstand vapour phase reflow or wave soldering conditions
- PCB mountable
- Extended actuator for easy movement

H=5.25, W=7.50

- Flush actuator types are machine insertable

Flammability rating	UL recognised	Insulation Resistance	1000Mohm min @ 100VDC
Contacts	Gold flashed copper alloy	Dielectric strength	500VAC
Contact rating	0.4VA @ 24V dc max.	Operating life	1000
Contact Resistance	50mohm max	Operating temperature	-45°C to 85°C

213313/405612

No. of Ways	Length	Mftrs. List No.	Order Code	1+	25+	100+	250+
Extended Actuator							
2	7.06	ADE0204	112-3936	0.62	0.58	0.57	0.45
4	12.14	ADE0404	112-3938	0.98	0.91	0.87	0.43
6	17.22	ADE0604	112-3939	1.10	1.02	0.96	0.48
7	19.76	ADE0704	112-3940	1.28	1.21	1.17	0.51
8	22.3	ADE0804	112-3941	1.28	1.21	1.17	0.51
12	29.92	ADE1204	112-3943	1.52	1.37	1.23	1.10

Half Pitch - Surface Mount



- Compact half pitch 1.27mm package
- Gold wiping contact system
- UL recognised

H=2.30, W=6.00, Pins = 7.6 x 1.27 spacing

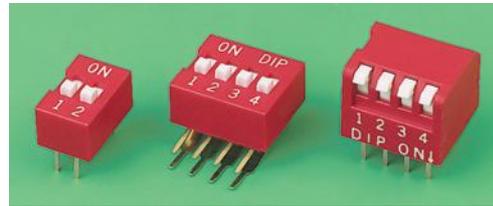
Moving contacts	Gold over nickel over copper alloy	Initial contact resistance:	100mohm
Fixed contact:	Gold over nickel over copper alloy	Insulation Resistance:	300
Contact rating	0.4VA25mA @ 24VDC	Operating life:	1000 ops
		Operating temperature:	-30°C to 85°C

213310

No. of Ways	Length	Mftrs. List No.	Order Code	1+	25+	100+	250+
2	3.66	GDH02S04	SMD112-3952	1.24	1.16	1.11	0.99
4	6.20	GDH04S04	SMD112-3953	1.39	1.29	1.24	1.05
6	8.75	GDH06S04	SMD112-3954	1.68	1.56	1.49	1.21
8	11.92	GDH08S04	SMD112-3955	2.19	2.04	1.95	1.29
10	13.82	GDH10S04	SMD112-3957	2.50	2.32	2.22	1.65

DS and DP Series

100mA @ 50V dc



Top actuated H=6.9, W=6.6
Side actuated H=9.9, W=11.52
Piano key actuated H=10.3, W=11.7
Pin dia=0.6, Pins=7.62 x 2.54 spacing

- Gold plated contacts and terminals, single throw
- Suitable for most cleaning and soldering processes
- Choice of top actuators or 'piano key' actuators

Dielectric strength	500V dc	Initial contact resistance	50mohm
Operating temperature	-40°C to 70°C	Insulation resistance	100Mohm @ 500V dc

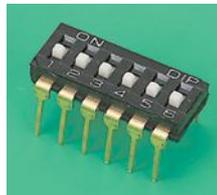
It is recommended to solder switches in the 'off' factory supplied position

213171

No. of Ways	Length	Mftrs. List No.	Order Code	1+	50+	100+	500+	1K+
Top Actuated								
2	6.60	MCDS02	947-2126	0.38	0.33	0.28	0.25	0.22
3	8.98	MCDS03	125-5223	0.41	0.33	0.29	0.27	0.26
4	11.68	MCDS04	947-1570	0.44	0.32	0.30	0.28	0.27
5	14.06	MCDS05	125-5225	0.48	0.34	0.32	0.30	0.29
6	16.76	MCDS06	947-1588	0.51	0.36	0.35	0.32	0.31
7	19.14	MCDS07	125-5226	0.53	0.43	0.37	0.34	0.32
8	21.84	MCDS08	947-1596	0.55	0.47	0.39	0.35	0.34
9	24.22	MCDS09	125-5227	0.37	0.27	0.25	0.22	0.20
10	26.92	MCDS10	947-2134	0.72	0.48	0.46	0.43	0.42
12	32.00	MCDS12	947-2142	0.82	0.57	0.54	0.52	0.51
Side Actuated								
2	6.44	MCDA02	125-5229	0.34	0.33	0.32	0.30	0.29
3	8.98	MCDA03	NEW 152-1999	0.65	0.63	0.60	0.57	0.55
4	11.72	MCDA04	947-1545	0.69	0.66	0.63	0.60	0.58
5	14.06	MCDA05	NEW 152-2001	0.70	0.67	0.63	0.60	0.58
6	16.8	MCDA06	947-1553	0.78	0.72	0.68	0.65	0.62
7	19.14	MCDA07	NEW 152-2002	0.80	0.77	0.73	0.68	0.65
8	21.88	MCDA08	947-1561	0.90	0.86	0.82	0.78	0.72
9	24.22	MCDA09	NEW 152-2003	0.89	0.85	0.81	0.77	0.71
10	26.76	MCDA10	125-5231	0.48	0.45	0.43	0.41	0.39
12	31.84	MCDA12	125-5232	0.97	0.91	0.88	0.84	0.79
Piano Key Actuated								
2	6.64	MCDP02	125-5233	0.41	0.40	0.39	0.37	0.35
3	9.18	MCDP03	NEW 152-2004	0.41	0.40	0.39	0.37	0.35
4	11.71	MCDP04	947-1600	0.43	0.42	0.41	0.39	0.38
5	14.26	MCDP05	NEW 152-2005	0.44	0.43	0.42	0.40	0.38
6	16.80	MCDP06	947-1618	0.48	0.47	0.45	0.44	0.41
7	19.34	MCDP07	NEW 152-2006	0.52	0.51	0.50	0.47	0.45
8	21.87	MCDP08	947-1626	0.60	0.58	0.57	0.53	0.51
9	24.42	MCDP09	NEW 152-2007	0.60	0.58	0.56	0.54	0.52
10	26.96	MCDP10	125-5234	0.65	0.62	0.61	0.59	0.55
12	32.04	MCDP12	125-5235	0.94	0.36	0.34	0.33	0.32

Low Profile - Through Hole

25mA @ 24V dc



Body - H = 2.8, D = 6mm.
Lead Pitch = 7.62 x 2.54mm

- End stackable DIL switches
- Two types of actuators available, Raised and Recessed
- Raised actuator is 0.40mm in height

Contact rating	25mA @ 24V dc
Contact resistance	100mohm @ 500V dc
Insulation resistance	100Mohm@500V
Dielectric Strength	500V ac for 1 minute
Contacts	Alloy Copper with Gold plating
Terminals	Brass with Gold plating
Life expectancy	2000 ops.
Operating temperature	-20°C to 85°C

498975

No. of Ways	Width (mm)	Mftrs. List No.	Order Code	1+	25+	Price Each	100+	500+
Raised Actuator								
2	4.98	MCEI-02	152-3984	0.42	0.36	0.31	0.29	0.26
3	7.52	MCEI-03	152-3985	0.46	0.39	0.34	0.31	0.29
4	10.06	MCEI-04	152-3986	0.50	0.42	0.37	0.33	0.31
5	12.60	MCEI-05	152-3987	0.53	0.45	0.39	0.36	0.33
6	15.14	MCEI-06	152-3988	0.57	0.48	0.42	0.38	0.35
7	17.68	MCEI-07	152-3989	0.61	0.52	0.45	0.41	0.38
8	20.22	MCEI-08	152-3990	0.65	0.55	0.47	0.43	0.40



DIL Switches - continued

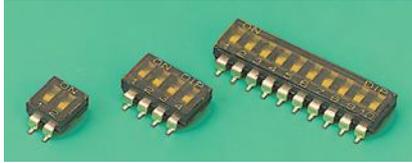
Low Profile - Through Hole - continued

25mA @ 24V dc - continued

No. of Ways	Width (mm)	Mfrs. List No.	Order Code	1+	25+	50+	100+	500+
Raised Actuator								
9	22.76	MCEI-09	152-3991	0.72	0.61	0.53	0.48	0.44
10	25.30	MCEI-10	152-3992	0.79	0.65	0.57	0.52	0.48
12	30.38	MCEI-12	152-3993	0.85	0.70	0.61	0.55	0.51
Recessed Actuator								
2	4.98	MCEIR-02	152-3994	0.42	0.36	0.31	0.29	0.26
3	7.52	MCEIR-03	152-3996	0.46	0.39	0.34	0.31	0.29
4	10.06	MCEIR-04	152-3997	0.50	0.42	0.37	0.33	0.31
5	12.60	MCEIR-05	152-3998	0.53	0.45	0.39	0.36	0.33
6	15.14	MCEIR-06	152-3999	0.57	0.48	0.42	0.38	0.35
7	17.68	MCEIR-07	152-4000	0.61	0.52	0.45	0.41	0.38
8	20.22	MCEIR-08	152-4001	0.65	0.55	0.47	0.43	0.40
9	22.76	MCEIR-09	152-4002	0.72	0.61	0.53	0.48	0.44
10	25.30	MCEIR-10	152-4003	0.79	0.65	0.57	0.52	0.48
12	30.38	MCEIR-12	152-4004	0.85	0.70	0.61	0.55	0.51

Low Profile - Surface Mount

25mA @ 24V dc



- End stackable DIL switches
- Recessed actuator
- Top tape sealed



Body - H = 2.8, D = 6mm. Lead pitch = 7.62 x 2.54mm

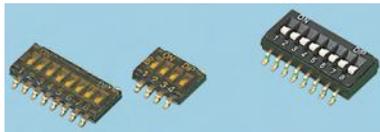
Contact rating	25mA @ 24V dc
Contact resistance	100mohm @ 500V dc
Insulation resistance	100Mohm@500V
Dielectric Strength	500V ac for 1 minute
Contacts	Alloy Copper with Gold plating
Terminals	Brass with Gold plating
Life expectancy	2000 ops.
Operating temperature	-20°C to 85°C

498925

No. of Ways	Width (mm)	Mfrs. List No.	Order Code	1+	25+	50+	100+	500+
2	4.98	MCEMR-02-T	SMD152-4005	0.42	0.36	0.31	0.29	0.26
3	7.52	MCEMR-03-T	SMD152-4006	0.46	0.39	0.34	0.31	0.29
4	10.06	MCEMR-04-T	SMD152-4007	0.50	0.42	0.37	0.33	0.31
5	12.80	MCEMR-05-T	SMD152-4008	0.53	0.45	0.39	0.36	0.33
6	15.14	MCEMR-06-T	SMD152-4011	0.57	0.48	0.42	0.38	0.35
7	17.68	MCEMR-07-T	SMD152-4012	0.61	0.52	0.45	0.41	0.38
8	20.22	MCEMR-08-T	SMD152-4013	0.65	0.55	0.47	0.43	0.40
9	22.76	MCEMR-09-T	SMD152-4014	0.72	0.61	0.53	0.48	0.44
10	25.30	MCEMR-10-T	SMD152-4015	0.79	0.65	0.57	0.52	0.48
12	30.38	MCEMR-12-T	SMD152-4016	0.85	0.70	0.61	0.55	0.51

Half Pitch

High or Low Profile



Low Profile H=1.5, W=4.5, L=6.31 - 4 way
High Profile H=2.3, W=5.4, L=11.56
11.39 - 8 way

● Single pole single throw half pitch DIL switches	● Recessed Actuator		
● Available in low or high profile	● UL recognised		
Contacts	Gold Plated over Nickel	Terminals	Gold
Contact rating	25mA24Vdc100mA	Life expectancy	2000 ops.
Operating temperature	50Vdc non switching	Insulation resistance	100Mohm@500V
Dielectric Strength	-30°C to 85°C		
	300Vac 1 min.		

It is recommended to solder switches in the 'off' factory supplied position

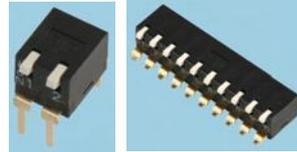
213299

No. of Ways	Mfrs. List No.	Order Code	1+	25+	50+	100+	500+
Low Profile							
2	MCNHDS-02-T	SMD125-5220	0.57	0.54	0.48	0.46	0.43
4	MCNHDS-04-T	SMD947-2100	1.62	1.44	1.33	1.24	1.07
6	MCNHDS-06-T	SMD125-5221	1.26	1.19	1.08	1.02	0.95
8	MCNHDS-08-T	SMD947-2118	1.34	1.27	1.14	1.08	1.01
10	MCNHDS-10-T	SMD125-5222	0.71	0.67	0.61	0.58	0.54
High Profile							
8	MCHDS-08-T	SMD947-2096	1.41	1.33	1.18	1.12	1.05
Low Profile - Without Tape							
2	MCDHN-02F-V	NEW SMD160-5473	0.69	0.65	0.58	0.54	0.50
4	MCDHN-04F-V	NEW SMD160-5474	0.73	0.68	0.61	0.57	0.53
6	MCDHN-06F-V	NEW SMD160-5475	0.77	0.71	0.63	0.60	0.55
8	MCDHN-08F-V	NEW SMD160-5476	0.82	0.76	0.68	0.63	0.59
10	MCDHN-10F-V	NEW SMD160-5477	0.85	0.80	0.70	0.66	0.61

No. of Ways	Mfrs. List No.	Order Code	1+	25+	50+	100+	500+
Low Profile - Top Tape Sealed							
2	MCDHN-02F-T-V	NEW SMD160-5478	0.71	0.66	0.59	0.56	0.51
4	MCDHN-04F-T-V	NEW SMD160-5479	0.75	0.69	0.62	0.58	0.54
6	MCDHN-06F-T-V	NEW SMD160-5480	0.79	0.72	0.65	0.61	0.56
8	MCDHN-08F-T-V	NEW SMD160-5481	0.84	0.78	0.69	0.65	0.60
10	MCDHN-10F-T-V	NEW SMD160-5482	0.87	0.81	0.72	0.67	0.62

Piano Key - Through Hole & Surface Mount

25mA @ 24V dc



- Piano style SPST DIP switches.
- Flamability rated UL94V-0
- Contacts are gold clad copper alloy
- Long operational life of 2000 cycles



Contact resistance	100mohm	Operating force	800gf
Insulation resistance	100Mohm	Operating temperature	-20°C to 85°C
Dielectric strength	500V ac for 1 min.		

498726

No. of Ways	Width (mm)	Mfrs. List No.	Order Code	1+	50+	100+	500+	1K+
Through Hole Versions								
2	5	MCEPI-02	152-2017	0.52	0.47	0.43	0.38	0.34
4	5	MCEPI-04	152-2018	0.55	0.50	0.45	0.40	0.36
6	5	MCEPI-06	152-2019	0.62	0.56	0.50	0.45	0.40
8	5	MCEPI-08	152-2020	0.65	0.59	0.53	0.47	0.42
10	5	MCEPI-10	152-2021	0.70	0.63	0.57	0.51	0.45
Surface Mount Versions								
2	5	MCEPM-02	SMD152-2022	0.54	0.49	0.44	0.39	0.35
4	5	MCEPM-04	SMD152-2023	0.57	0.52	0.47	0.42	0.37
6	5	MCEPM-06	SMD152-2025	0.65	0.59	0.53	0.47	0.42
8	5	MCEPM-08	SMD152-2026	0.68	0.62	0.56	0.50	0.44
10	5	MCEPM-10	SMD152-2027	0.72	0.65	0.58	0.52	0.46

End Stackable - 014 Series

1A @ 100V up to 10VA



SDS single throw
H=8.3, W=10.6



SDC double throw (PCB linked)
H=9.2, W=10.6

Initial contact resistance	20mohm	Capacitance	Less than 1pF, between open contacts
Body material	glass filled polyamide	Operating life	30000 ops within rated load is typical
Insulation resistance	100000Mohm	Operating temperature	-55°C to 100°C
Dielectric strength	500V rms		

(All ratings are at 20° and 70% RH)

213366

No. of Ways	Length	Mfrs. List No.	Order Code	1+	10+	25+	50+
Single Throw Style							
2	5	SDS-2-014	422-630	1.85	1.73	1.65	1.56
4	10	SDS-4-014	422-642	2.28	2.15	2.06	1.97
6	15	SDS-6-014	422-654	3.13	2.85	2.60	2.26
8	20	SDS-8-014	422-666	3.11	2.93	2.81	2.69
10	25	SDS-10-014	422-678	4.06	3.83	3.65	3.50
Double Throw Style (PCB Linked)							
1	5	SDC-1-014	422-680	1.71	1.61	1.52	1.44
2	10	SDC-2-014	422-691	2.24	2.13	2.05	1.97
4	20	SDC-4-014	422-708	3.66	3.47	3.31	3.17

Coming soon



Register your interest for items that are 'Coming Soon' at www.farnell.co.uk and we'll email you to let you know that they're in stock.

Recessed - 023 Series

1A @ 100V up to 10VA



H=8.8 (above PCB),
W=10.5



Single throw



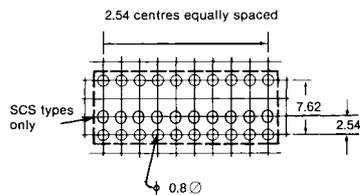
Double throw
(PCB linked)



Double throw
Triple-in-Line



Ganged



- International coded actuators
- Tape sealed suitable for flow soldering and solvent cleaning
- Meets requirements of **BS9566 F0001** and **BTD8173** and exceeds requirements of **MIL-S-83504**
- Specification as End-Stackable 014 Series (see above)

213375

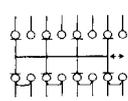
No. of Ways	Length	Mfrs. List No.	Order Code	Price Each			
				1+	25+	50+	100+
Single Throw Style							
2	7	SDS-2-023	422-710	1.58	1.49	1.43	1.37
4	12	SDS-4-023	422-721	2.26	2.12	2.04	1.96
6	17	SDS-6-023	422-733	3.20	2.99	2.88	2.75
8	22	SDS-8-023	422-745	3.74	3.50	3.34	3.20
10	27	SDS-10-023	422-757	6.15	4.53	3.64	2.94
Double Throw Triple-in-Line							
2	7	SCS-2-023	422-769	2.13	2.00	1.91	1.83
4	12	SCS-4-023	422-770	4.13	3.87	3.68	3.52
6	17	SCS-6-023	422-782	6.07	4.91	4.32	4.22
8	22	SCS-8-023	422-794	6.38	5.94	5.68	5.43
Double Throw Style (PCB Linked)							
1	7	SDC-1-023	422-812	2.16	1.55	1.26	0.97
2	12	SDC-2-023	422-824	3.48	2.54	2.00	1.57
3	17	SDC-3-023	422-836	3.50	2.57	2.08	1.58
4	22	SDC-4-023	422-848	5.55	4.06	3.31	2.50
Ganged Style							
1	7	SDD-1-023	422-861	2.41	1.77	1.40	1.09
2	12	SDD-2-023	422-873	2.46	1.81	1.44	1.11

Slide - 16 Series

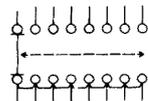
250mA @ 30V dc up to 7.5VA



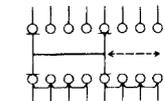
H=9.3, W=9.9,
L=22.7



DS16C 4 2



DS16C 1 8



DS16C 2 4
Base views

- Slide action, break-before-make contacts
- Tape sealed suitable for flow soldering and solvent cleaning
- Fitted with transparent hinged dust cover

Initial contact resistance	30mohm	Dielectric strength	500V rms
Body material	Glass Filled Polyamide	Operating life	20000 ops
Insulation resistance	100000Mohm	Operating temperature	-55°C to 100°C

(All ratings are at 20° and 70% RH)

213386

	Mfrs. List No.	Order Code	Price Each			
			1+	25+	100+	250+
1 Pole, 8 way	DS16C1-8	422-903	3.26	3.08	2.96	2.85
2 Pole, 4 way	DS16C2-4	422-915	2.90	2.73	2.61	2.51
4 Pole, 2 way	DS16C4-2	422-927	3.61	3.42	3.25	3.12

Rocker and Lever - 76 Series



Rocker: H=7.5, W=9.5
Pins=3.96x0.51x0.31
Lever Key: H=7.14, W=9.5
Pins=3.96x0.51x0.31

Contacts	Gold plated brass	Insulation resistance	5000Mohm @ 100V dc
Current rating	5A max @ 20°C rise	Dielectric resistance	500V rms
Initial contact resistance	<30mohm	Capacitance	Less than 5pF
(50mV, 2mA max)		Operating life	35000 ops @ 50mA 30V dc
Body material	Moulded thermoplastic polyester	Operating temperature	-40°C to +85°C

- Rocker and lever key operated single throw switches
- Reliable positive wiping contact action
- Base sealed to **MIL-S-202**, manufactured to **MIL-S-83504** specification
- Tape sealed versions available for flow soldering and solvent cleaning

221805

No. of Ways	Length	Mfrs. List No.	Order Code	1+	100+	500+
Rocker						
2	7.11	76SB02T	947-9155	1.02	0.82	0.76
4	12.19	76SB04T	947-9163	1.08	0.87	0.80
6	17.27	76SB06T	947-9171	1.15	0.92	0.85
8	22.35	76SB08T	947-9180	1.20	0.96	0.89
10	27.43	76SB10T	947-9198	1.22	0.98	0.91
Rocker - Tape Sealed						
4	12.19	76SB04ST	947-9007	0.68	0.58	0.50
6	17.27	76SB06ST	947-9015	1.17	0.95	0.88
8	22.35	76SB08ST	947-9023	1.23	0.99	0.91
Lever Key						
4	12.19	76PSB04T	947-9210	1.24	1.01	0.93
6	17.27	76PSB06T	947-9228	1.31	1.05	0.97
8	22.35	76PSB08T	947-9236	1.35	1.11	1.01
10	27.43	76PSB10T	947-9244	1.46	1.19	1.08
Lever Key - Tape Sealed						
4	12.19	76PSB04ST	947-9139	1.29	1.03	0.95
8	22.35	76PSB08ST	947-9147	1.38	1.14	1.03

Slide - 78 Series



- SPST contacts
- Sealed base
- Spring and ball contact arrangement for added reliability
- Top tape sealed option available

H=7.49, D=9.65, Pins=7.62 x 2.54 spacing

Contacts	Gold plated brass	Insulation resistance	5000Mohm @ 100V dc
Current rating	4A	Dielectric strength	500V rms
Initial contact resistance	<30mohm	Operating life	20000 ops
Body material	Thermoplastic, UL recognised	Operating temperature	-40°C to 85°C

222305

No. of Ways	Length	Mfrs. List No.	Order Code	1+	100+	500+
Slide						
2	7.1	78B02T	947-9031	1.01	0.82	0.76
4	12.2	78B04T	947-9040	1.08	0.87	0.82
6	17.3	78B06T	947-9066	1.15	0.92	0.85
8	22.4	78B08T	947-9074	1.20	0.96	0.89
Slide - Top Sealed						
4	12.2	78B04ST	947-9058	1.10	0.91	0.81
8	22.4	78B08ST	947-9082	1.23	0.99	0.91
12	32.5	78B12ST	947-9090	1.29	1.02	0.92

Slide - 90 Series

Surface Mount



- SPST surface mount
- Top sealed with clear tape, suitable for high pressure aqueous cleaning
- Spring and ball contact system for high reliability

H=4.19, W=7.37,
Pins spacing=7.62 x 2.54

Contacts	Gold plated brass	Dielectric strength	500V rms
Current rating	3A	Body material	Thermoplastic UL94V0A
Initial contact resistance	<20mohm	Operating life	5000ops
Insulation resistance	1000Mohm @ 100V dc	Operating temperature	-40°C to 85°C

222304

No. of Ways	Length	Mfrs. List No.	Order Code	1+	10+	500+
4	11.9	90HBW04PT	SMD:947-9104	1.33	1.20	1.08
8	22.1	90HBW08PT	SMD:947-9112	1.84	1.65	1.49
10	27.2	90HBW10PT	SMD:947-9120	2.07	1.86	1.68

Rotary DIL Switches

Truth Tables

Output codes as used in digital and rotary DIL switches.

Binary Coded Decimal (BCD)	Binary Coded Decimal (BCD) Complement	Hexadecimal	Hexadecimal Complement	Decimal																																																																																																																																																																																																																																																																									
<table border="1"> <tr><td>1</td><td>2</td><td>3</td><td>4</td></tr> <tr><td>0</td><td>•</td><td>•</td><td>•</td></tr> <tr><td>1</td><td>•</td><td>•</td><td>•</td></tr> <tr><td>2</td><td>•</td><td>•</td><td>•</td></tr> <tr><td>3</td><td>•</td><td>•</td><td>•</td></tr> <tr><td>4</td><td>•</td><td>•</td><td>•</td></tr> <tr><td>5</td><td>•</td><td>•</td><td>•</td></tr> <tr><td>6</td><td>•</td><td>•</td><td>•</td></tr> <tr><td>7</td><td>•</td><td>•</td><td>•</td></tr> <tr><td>8</td><td>•</td><td>•</td><td>•</td></tr> <tr><td>9</td><td>•</td><td>•</td><td>•</td></tr> </table>	1	2	3	4	0	•	•	•	1	•	•	•	2	•	•	•	3	•	•	•	4	•	•	•	5	•	•	•	6	•	•	•	7	•	•	•	8	•	•	•	9	•	•	•	<table border="1"> <tr><td>1</td><td>2</td><td>3</td><td>4</td></tr> <tr><td>0</td><td>•</td><td>•</td><td>•</td></tr> <tr><td>1</td><td>•</td><td>•</td><td>•</td></tr> <tr><td>2</td><td>•</td><td>•</td><td>•</td></tr> <tr><td>3</td><td>•</td><td>•</td><td>•</td></tr> <tr><td>4</td><td>•</td><td>•</td><td>•</td></tr> <tr><td>5</td><td>•</td><td>•</td><td>•</td></tr> <tr><td>6</td><td>•</td><td>•</td><td>•</td></tr> <tr><td>7</td><td>•</td><td>•</td><td>•</td></tr> <tr><td>8</td><td>•</td><td>•</td><td>•</td></tr> <tr><td>9</td><td>•</td><td>•</td><td>•</td></tr> </table>	1	2	3	4	0	•	•	•	1	•	•	•	2	•	•	•	3	•	•	•	4	•	•	•	5	•	•	•	6	•	•	•	7	•	•	•	8	•	•	•	9	•	•	•	<table border="1"> <tr><td>1</td><td>2</td><td>3</td><td>4</td></tr> <tr><td>0</td><td>•</td><td>•</td><td>•</td></tr> <tr><td>1</td><td>•</td><td>•</td><td>•</td></tr> <tr><td>2</td><td>•</td><td>•</td><td>•</td></tr> <tr><td>3</td><td>•</td><td>•</td><td>•</td></tr> <tr><td>4</td><td>•</td><td>•</td><td>•</td></tr> <tr><td>5</td><td>•</td><td>•</td><td>•</td></tr> <tr><td>6</td><td>•</td><td>•</td><td>•</td></tr> <tr><td>7</td><td>•</td><td>•</td><td>•</td></tr> <tr><td>8</td><td>•</td><td>•</td><td>•</td></tr> <tr><td>9</td><td>•</td><td>•</td><td>•</td></tr> <tr><td>A</td><td>•</td><td>•</td><td>•</td></tr> <tr><td>B</td><td>•</td><td>•</td><td>•</td></tr> <tr><td>C</td><td>•</td><td>•</td><td>•</td></tr> <tr><td>D</td><td>•</td><td>•</td><td>•</td></tr> <tr><td>E</td><td>•</td><td>•</td><td>•</td></tr> <tr><td>F</td><td>•</td><td>•</td><td>•</td></tr> </table>	1	2	3	4	0	•	•	•	1	•	•	•	2	•	•	•	3	•	•	•	4	•	•	•	5	•	•	•	6	•	•	•	7	•	•	•	8	•	•	•	9	•	•	•	A	•	•	•	B	•	•	•	C	•	•	•	D	•	•	•	E	•	•	•	F	•	•	•	<table border="1"> <tr><td>0</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td></tr> <tr><td>0</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td></tr> <tr><td>1</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td></tr> <tr><td>2</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td></tr> <tr><td>3</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td></tr> <tr><td>4</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td></tr> <tr><td>5</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td></tr> <tr><td>6</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td></tr> <tr><td>7</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td></tr> <tr><td>8</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td></tr> <tr><td>9</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td></tr> </table>	0	1	2	3	4	5	6	7	8	9	0	•	•	•	•	•	•	•	•	•	1	•	•	•	•	•	•	•	•	•	2	•	•	•	•	•	•	•	•	•	3	•	•	•	•	•	•	•	•	•	4	•	•	•	•	•	•	•	•	•	5	•	•	•	•	•	•	•	•	•	6	•	•	•	•	•	•	•	•	•	7	•	•	•	•	•	•	•	•	•	8	•	•	•	•	•	•	•	•	•	9	•	•	•	•	•	•	•	•	•
1	2	3	4																																																																																																																																																																																																																																																																										
0	•	•	•																																																																																																																																																																																																																																																																										
1	•	•	•																																																																																																																																																																																																																																																																										
2	•	•	•																																																																																																																																																																																																																																																																										
3	•	•	•																																																																																																																																																																																																																																																																										
4	•	•	•																																																																																																																																																																																																																																																																										
5	•	•	•																																																																																																																																																																																																																																																																										
6	•	•	•																																																																																																																																																																																																																																																																										
7	•	•	•																																																																																																																																																																																																																																																																										
8	•	•	•																																																																																																																																																																																																																																																																										
9	•	•	•																																																																																																																																																																																																																																																																										
1	2	3	4																																																																																																																																																																																																																																																																										
0	•	•	•																																																																																																																																																																																																																																																																										
1	•	•	•																																																																																																																																																																																																																																																																										
2	•	•	•																																																																																																																																																																																																																																																																										
3	•	•	•																																																																																																																																																																																																																																																																										
4	•	•	•																																																																																																																																																																																																																																																																										
5	•	•	•																																																																																																																																																																																																																																																																										
6	•	•	•																																																																																																																																																																																																																																																																										
7	•	•	•																																																																																																																																																																																																																																																																										
8	•	•	•																																																																																																																																																																																																																																																																										
9	•	•	•																																																																																																																																																																																																																																																																										
1	2	3	4																																																																																																																																																																																																																																																																										
0	•	•	•																																																																																																																																																																																																																																																																										
1	•	•	•																																																																																																																																																																																																																																																																										
2	•	•	•																																																																																																																																																																																																																																																																										
3	•	•	•																																																																																																																																																																																																																																																																										
4	•	•	•																																																																																																																																																																																																																																																																										
5	•	•	•																																																																																																																																																																																																																																																																										
6	•	•	•																																																																																																																																																																																																																																																																										
7	•	•	•																																																																																																																																																																																																																																																																										
8	•	•	•																																																																																																																																																																																																																																																																										
9	•	•	•																																																																																																																																																																																																																																																																										
A	•	•	•																																																																																																																																																																																																																																																																										
B	•	•	•																																																																																																																																																																																																																																																																										
C	•	•	•																																																																																																																																																																																																																																																																										
D	•	•	•																																																																																																																																																																																																																																																																										
E	•	•	•																																																																																																																																																																																																																																																																										
F	•	•	•																																																																																																																																																																																																																																																																										
0	1	2	3	4	5	6	7	8	9																																																																																																																																																																																																																																																																				
0	•	•	•	•	•	•	•	•	•																																																																																																																																																																																																																																																																				
1	•	•	•	•	•	•	•	•	•																																																																																																																																																																																																																																																																				
2	•	•	•	•	•	•	•	•	•																																																																																																																																																																																																																																																																				
3	•	•	•	•	•	•	•	•	•																																																																																																																																																																																																																																																																				
4	•	•	•	•	•	•	•	•	•																																																																																																																																																																																																																																																																				
5	•	•	•	•	•	•	•	•	•																																																																																																																																																																																																																																																																				
6	•	•	•	•	•	•	•	•	•																																																																																																																																																																																																																																																																				
7	•	•	•	•	•	•	•	•	•																																																																																																																																																																																																																																																																				
8	•	•	•	•	•	•	•	•	•																																																																																																																																																																																																																																																																				
9	•	•	•	•	•	•	•	•	•																																																																																																																																																																																																																																																																				

10 Positions

10 Positions

16 Positions

16 Positions

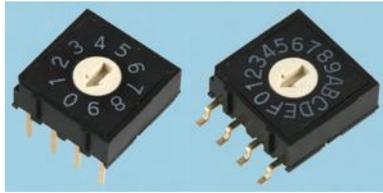
10 Positions

213242

Rotary DIP Switches - continued

10mm x 10mm Rotary DIP Switches

25mA @ 24V dc



- Real codes DIP switching
- Low profile, recessed actuator
- Available in either Through Hole or Surface Mount versions
- Flamability rating UL 94V-0

Switching Capacity	25mA @ 24V dc	Ambient Temperature	-25 to 80°C
Non-Switching Rating	100mA @ 50V dc	Voltage Proof	250V ac for 1 minute
Contact Resistance	200mohm	Life Expectancy	20000 steps min.
Insulation Resistance	100Mohm @ 250V dc		

498743

No. of Ways	Pin Config.	Mfrs. List No.	Order Code	Price Each			
				1+	25+	100+	250+
Through Hole Mounting							
10	4 x 1	MCRH4AF-10R	152-2028	0.88	0.80	0.71	0.65
10	3 x 3	MCRH3AF-10R	152-2029	0.88	0.80	0.71	0.65
10	3 x 2	MCRH2AF-10R	152-2030	0.88	0.80	0.71	0.65
16	4 x 1	MCRH4AF-16R	152-2031	0.88	0.80	0.71	0.65
16	3 x 3	MCRH3AF-16R	152-2032	0.88	0.80	0.71	0.65
16	3 x 2	MCRH2AF-16R	152-2033	0.88	0.80	0.71	0.65
Surface Mount							
10	4 x 1	MCRM4AF-10R	152-2034	0.91	0.83	0.75	0.68
10	3 x 3	MCRM3AF-10R	152-2035	0.91	0.83	0.75	0.68
10	3 x 2	MCRM2AF-10R	152-2037	0.91	0.83	0.75	0.68
16	4 x 1	MCRM4AF-16R	152-2038	0.91	0.83	0.75	0.68
16	3 x 3	MCRM3AF-16R	152-2039	0.91	0.83	0.75	0.68
16	3 x 2	MCRM2AF-16R	152-2040	0.91	0.83	0.75	0.68

Sealed 'IC Style' - A6C Series

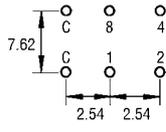
100mA @ 30V dc



H=4.5, W=6.6, L=9
Pins: L=3.5,
Th=0.5 x 0.25



H=9.1, W=7.1, L=9
Pins: L=3.5,
Th=0.5 x 0.25



Drilling plan

- Bifurcated contacts
- Fully sealed construction, without tape seal
- Screwdriver setting
- Available BCD (10 positions, 0 - 9) and hex (16 positions, 0 - 9, A - F)
- Low operating force

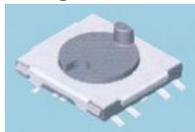
Min permissible load	100µA @ 3.5V dc	Mechanical life	10000 ops
Contact resistance	<100mohm	Electrical life	2000 ops
Insulation resistance	100Mohm @ 250V dc	Operating temperature	-20°C to 70°C
Contact material	Gold over Nickel		

213111

	Mfrs. List No.	Order Code	Price Each		
			1+	50+	100+
Horizontal					
BCD	A6C-10R(N)	990-1760	3.59	3.26	3.10
Hex	A6C-16R(N)	990-1779	2.93	2.75	2.64
Vertical					
BCD	A6CV-10R	990-1787	3.12	2.96	2.83
Hex	A6CV-16R	990-1795	3.12	2.96	2.83

Rotary Encoder Switch

25mA @ 24V dc



- Rotary code switches
- Switch with ground terminal
- 8 Positions with either 7 or 8 circuits
- Operational life in excess of 10,000 cycles

Switching Capacity	25mA @ 24V dc
Contact Resistance	200mohm
Insulation Resistance	100Mohm @ 500V dc
Ambient Temperature	-20 to 80°C
Voltage Proof	300V ac for 1 minute
Life Expectancy	10000 steps min.

498897

Circuits	Force	Mfrs. List No.	Order Code	Price Each		
				1+	50+	250+
7	130gf	MCSR-8R7G	152-2044	0.47	0.44	0.41
8	40gf	MCSR-8R8G	152-2045	0.47	0.44	0.41

15

Re-reeling available

Farnell

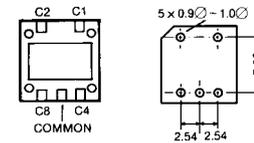
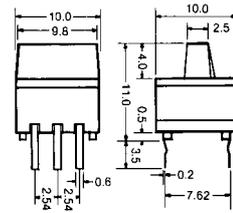
Troubleshooting tips



Chat live online to one of our technical engineers at www.farnell.co.uk

Knob Control

125mA @ 30V



Bottom view

- Large coloured knob with 'V' cut-out to indicate code selected
- Selection of knob colours
- Available BCD (10 positions, 0 - 9) and hex (16 positions, 0 - 9, A - F)

Maximum static contact rating	125mA @ 100V rms non switched @ 85°
Contact resistance (10mV, 10mA max)	100mohm
Body material	Black polyamide, UL recognised
Insulation resistance	1000Mohm @ 240V dc min
Dielectric strength	250V rms for 1 minute
Capacitance	<5pF @ 1 MHz
Operating life	20000 ops
Operating temperature	-55°C to 85°C

213332

Knob Colour	Mfrs. List No.	Order Code	Price Each				
			1+	25+	100+	250+	
BCD	Red	ERG10-412/2	120-3413	7.56	5.23	4.00	3.54
BCD	Blue	ERG10-412/6	120-3414	5.56	3.85	2.94	2.60
BCD complement	Red	ERG10-422/2	120-3415	7.56	5.23	4.00	3.54
Hex	Red	ERG16-412/2	120-3416	7.56	5.23	4.00	3.54
Hex	Green	ERG16-412/5	120-3417	4.74	3.28	2.51	2.22
Hex	Blue	ERG16-412/6	120-3419	7.56	5.23	4.00	3.54
Hex complement	Red	ERG16-422/2	120-3420	7.56	5.23	4.00	3.54
Hex complement	Green	ERG16-422/5	120-3421	3.87	3.50	3.23	2.98
Hex complement	Blue	ERG16-422/6	120-3422	7.56	5.23	4.00	3.54

Sealed PCB Mounting

400mA @ 24V dc (non-switching),

150mA @ 24Vdc (switching)



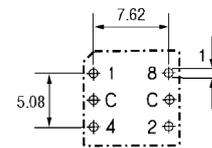
Horizontal screwdriver
H=6.5, W=10, D=10

Right angle screwdriver
H=10, W=10, D=11.9

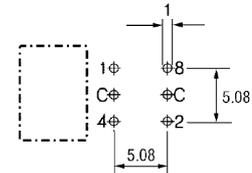
Spindle
H=13.8, W=10, D=10

Knurled wheel
H=9.2,
W=10,
D=10

Segment wheel
H=10.9,
W=10,
D=10



Standard mounting
(except right angle)
PCB drilling plans



Right angled mounting

- Wide variety of styles
- Gold plated terminals

- All types solder flux sealed and washable

Initial contact resistance	<80mohm	Mechanical life	10000 operations
Insulation resistance	>100Mohm	Operating temperature	-20°C to 70°C
Mfrs. List No.	PT65-101 = 108-2476	PT65-121 = 108-2482	PT65-303 = 108-2484
	PT65-102 = 108-2478	PT65-101-L508 = 108-2477	PT65-401 = 108-2485
	PT65-103 = 108-2479	PT65-103-L508 = 108-2480	PT65-501 = 108-2487
	PT65-106 = 108-2481	PT65-301 = 108-2483	PT65-503 = 108-2488

213173

Order Code	Price Each					
	1+	25+	100+	250+	500+	
Horizontal Screwdriver						
BCD	108-2476	2.24	2.04	1.80	1.49	1.37
BCD complement	108-2478	2.50	2.35	2.05	1.70	1.57
Hex	108-2479	2.50	2.35	2.17	2.05	1.89
Hex complement	108-2481	2.50	2.33	2.13	2.04	1.89
Decimal 4 position	108-2482	2.50	2.33	2.14	1.94	1.89





Sealed PCB Mounting, 4 + 1 Pin Connection

With Spindles and Segment Wheels

400mA @ 24Vdc (non-switching), 150mA @ 24V dc (switching)



Horizontal cross-head:
H=6, W=10, D=10, Pins
(3 x 2.54) x 7.62

Right angle cross-head:
H=10, W=10, D=10,
Pins (3 x 2.54) x 5.08

- Choice of horizontal or right angle orientation
- 4 + 1 Pin connection
- Press-fit activators
- Choice of two spindle heights
- Selection of segment wheel colours

241415

Horizontal Cross Head	Order Code	1+	25+	100+	250+	500+
BCD	996-8369●	2.99	2.75	2.65	2.52	2.33
HEX	996-8377●	2.99	2.75	2.65	2.52	2.33
Right Angle Crosshead	Order Code	1+	25+	100+	250+	500+
BCD	996-8385●	3.21	2.93	2.83	2.68	2.48
HEX	996-8393●	3.21	2.93	2.83	2.68	2.48
Spindles	Order Code	1+	25+	100+	250+	500+
11.6mm	108-2494●	0.43	0.41	0.39	0.37	0.35
13.3mm	108-2495●	0.43	0.41	0.39	0.37	0.35
Segment Wheels	Order Code	1+	25+	100+	250+	500+
Blue	108-2531●	0.43	0.41	0.39	0.37	0.35
Black	108-2532●	0.43	0.41	0.39	0.37	0.35
Green	108-2533●	0.43	0.41	0.39	0.37	0.35
Red	108-2534●	0.43	0.41	0.39	0.37	0.35

Order Code	1+	25+	100+	250+	500+	
Right Angle Screwdriver						
BCD	108-2477●	3.33	2.96	2.57	2.15	1.98
Hex	108-2480●	3.68	3.29	2.88	2.35	2.22
Spindle						
BCD	108-2483●	2.95	2.78	2.65	2.53	2.39
Hex	108-2484●	2.95	2.58	2.45	2.33	2.22
Knurled Wheel						
BCD	108-2485●	3.68	3.29	2.88	2.35	2.22
Segment Wheel						
BCD	108-2487●	3.50	3.32	3.16	2.95	2.85
Hex	108-2488●	3.50	3.29	3.14	2.74	2.63

Sealed PCB Mounting With Spindles and Segment Wheels 400mA @ 24Vdc (non-switching), 150mA @ 24V dc (switching)



Horizontal cross-head: H=7, W=10, D=10
Right angle cross-head: H=10, W=10, D=10

- Press-fit activators
 - Choice of two spindle heights
 - Selection of segment wheel colours
- Horizontal and right angle mounted cross-head rotary DIL switches with a variety of spindles and segment wheels to suit.

213225

Horizontal Cross Head	Order Code	1+	25+	100+	250+	500+
BCD	108-2489●	2.90	2.82	2.69	2.48	2.39
HEX	108-2491●	2.90	2.74	2.62	2.51	2.36
HEX/COMP	108-2493●	3.14	2.98	2.80	2.65	2.55
Right Angle Crosshead	Order Code	1+	25+	100+	250+	500+
BCD	108-2490●	3.10	2.94	2.79	2.65	2.51
HEX	108-2492●	3.10	2.94	2.79	2.65	2.51
Spindles	Order Code	1+	25+	100+	250+	500+
11.6mm	108-2494●	0.43	0.41	0.39	0.37	0.35
13.3mm	108-2495●	0.43	0.41	0.39	0.37	0.35
Segment Wheels	Order Code	1+	25+	100+	250+	500+
Blue	108-2531●	0.43	0.41	0.39	0.37	0.35
Black	108-2532●	0.43	0.41	0.39	0.37	0.35
Green	108-2533●	0.43	0.41	0.39	0.37	0.35
Red	108-2534●	0.43	0.41	0.39	0.37	0.35

Sealed Through Hole and Surface Mount - P36 Series

400mA @ 24V dc (non-switching), 100mA @ 24V dc (switching)



Connections

PCB pin spacing : 2.54x7.62, H=3.6
SMT overall dims. : H=3.8, W=9.5, D=7.4

Operating voltage	24Vdc max.	Expected life	10000 switching ops.
Initial contact resistance	<250mohm	Operating temperature	-30°C to 90°C
Insulation resistance	>100Mohm		
Soldering recommendations :			
Hand soldering (max.)	340°/2 secs. (40W iron max.)		
Wave soldering (max.)	260°/10 secs.		
Mfrs. List No.	P36101 = 108-2471 P36103 = 108-2472	P36S101 = 108-2473	P36S103 = 108-2475

213200

Order Code	1+	25+	100+	250+	
Through hole, BCD	108-2471●	2.90	2.74	2.47	2.09
Through hole, hex.	108-2472●	2.90	2.74	2.47	2.09
Surface mount, BCD	SMD:108-2473●	2.90	2.74	2.45	2.08
Surface mount, hex.	SMD:108-2475●	2.90	2.74	2.45	2.08

Over 480,000 products online



Digital Switches

Truth Tables

Output codes as used in digital and rotary DIL switches.

Binary Coded Decimal (BCD)	Binary Coded Decimal (BCD) Complement	Hexadecimal	Hexadecimal Complement	Decimal
10 Positions	10 Positions	16 Positions	16 Positions	10 Positions

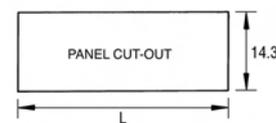
213242

Ultra-Miniature Push Button - PA Series

100mA @ 50V ac/dc



L=(Nx7.62)+3.3+(Sx2.5) where N=No of switches and S=No of spacers
Switch: H=15, W=7.62, D=18 (behind panel) (24 including PCB terminals)
Spacer: H=15, W=2.5, D=18 (behind panel)
End cheek: H=15, W=1.5, D=18 (behind panel)



- White engraved legends behind perspex window on matt black background
- Panel mounting by means of snap-in end cheeks
- All parts, including spacers and end cheeks, clip together by means of integral pips and lugs

Contacts	Gold	Operating life	1000000 ops
Contact resistance	<0.1ohm	Housing material	PPO Noryl
Insulation resistance	1000Mohm	Operating temperature	-20°C to 80°C
Dielectric strength	500V ac		

Mfrs. List No. PAAA3000 = 118-0017 PACA3000 = 118-0018
6090801 = 118-0014 6090799 = 118-0013 6090803 = 118-0015

213086

Output Code	Readout	Order Code	1+	25+	100+	250+	1K+
Decimal	0 - 9	118-0017●	4.98	4.49	4.15	4.05	3.88
BCD	0 - 9	118-0018●	4.86	4.53	4.21	4.11	3.94
Accessories							
LH end cheek		118-0014●	0.44	0.37	0.33	0.29	0.28
RH end cheek		118-0013●	0.44	0.37	0.33	0.29	0.28
2.5mm spacer		118-0015●	0.50	0.43	0.39	0.34	0.33

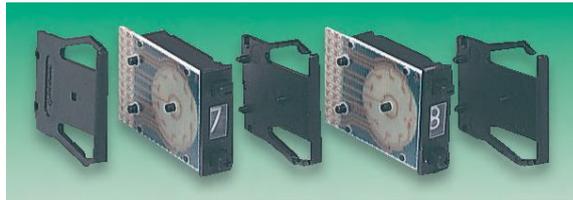
Over 480,000 products online



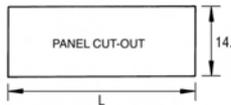
Digital Switches - continued

Sub-Miniature Push Button - PE Series

100mA @ 50V ac/dc



$L = (N \times 7.62) + 3 + (S \times 2.5)$ where N=No of switches and S=No of spacers
 Switch: H=24, W=7.62, D=26 (behind panel) (34 including PCB terminals)
 Spacer: H=24, W=2.5, D=26 (behind panel)
 End cheek: H=24, W=3.0, D=26 (behind panel)



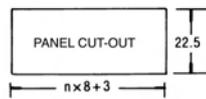
● As PA series detailed above, but switch height is 24mm instead of 15mm

Mfrs. List No.
 PEAA3000 = 118-0020 6090754 = 118-0007
 PEFA3000 = 118-0021 6090756 = 118-0011
 PEHA3000 = 118-0023 6090760 = 118-0012

213085

Output Code	Readout	Order Code	1+	25+	100+	250+	1K+
Switch Modules							
Decimal	0-9	118-0020●	5.42	5.06	4.84	4.63	4.44
BCD+ Complement	0-9	118-0021●	5.95	5.60	5.36	5.15	4.93
Hex	0-9, A-F	118-0023●	6.32	5.89	5.64	5.38	5.15
Accessories							
LH end cheek		118-0007●	0.85	0.74	0.66	0.56	0.54
RH end cheek		118-0011●	0.85	0.74	0.66	0.56	0.54
Order Multiple=5			1+	25+	100+	250+	1K+
2.5mm spacer		118-0012●	0.47	0.44	0.42	0.41	0.39

Miniature Rocker - 84214 Series



H=24.0, W=7.5 (switch),
 W=6.0 (end plates per pair)
 D=26.0, Board length=16.0
 Max panel thickness=3.5
 Pad pitch: 143-632=2.54, 143-633=2.0

- Front panel mounting by retaining clips on end plates
- Switch modules and end plates all snap together
- Rocker action digit incrementing either up or down
- Long boards fitted to modules to accommodate diodes and resistors

Mfrs. List No. 84214009 = 143-632 84214010 = 143-633
 79214283 = 143-634 79214216 = 143-640

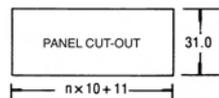
213345

Output Code	Readout	Order Code	1+	50+	100+	250+	1K+
Switch Modules							
BCD	0-9	143-632	18.93	17.53	16.64	14.66	13.39
Decimal	0-9	143-633	25.33	23.45	22.27	19.62	17.93
Accessories							
End plates, pair		143-634	6.63	5.93	5.29	5.04	4.72
Spacer		143-640	2.09	2.01	1.95	1.71	1.60

Standard Rocker and LED Readout Module



84211/84217 Series



H=33.0, W=10.0 (switch),
 W=13.0 (end plates per pair)
 W=10.0 (accessories)
 D=28.5, Board length=18.5
 Max panel thickness=3.5, Pad pitch=2.54

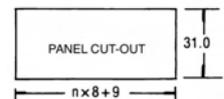
- Front panel mounting by retaining clips on end plates and separators
- Modules and end plates all snap together
- Rocker action digit incrementing either up or down
- Long board fitted to modules to accommodate diodes and resistors
- Spacer: blank module used to replace a module assembly
- Separator: used to fit 2 switches into one unit (complete with 2 clips)
- Matching 7-segment LED display modules are common cathode and are available with or without a decoder:-

143-629: Anodes are brought out to the edge connector via series resistors suitable for 5V operation
 143-630: Module decodes BCD to 7-segment and handles ripple blanking and lamp test
 143-631/147-150: Modules decode BCD to 7-segment with 4-bit memory latch
 Mfrs. List No. 84211004 = 143-624 84211023 = 143-625 79211848143-628 = =
 84217018 = 143-630 84217013 = 143-631
 79211847 = 143-626 79211836 = 143-627

213346

Output Code	Readout	Order Code	1+	50+	100+	250+	1K+
Switch Modules							
BCD	0-9	143-624	18.59	17.02	16.21	13.91	12.62
Decimal	0-9	143-625	18.59	17.02	16.21	13.91	12.62
LED Readout Modules							
BCD, +5V		143-630	43.70	42.09	40.11	35.88	31.62
BCD with memory, +15V		143-631	38.14	36.82	35.04	31.72	28.12
Accessories							
End plates, pair		143-626	3.26	3.12	2.98	2.60	2.37
Spacer		143-627	1.32	1.28	1.23	1.03	0.97
Separator		143-628	2.35	2.15	2.04	1.77	1.60

Standard Thumbwheel and LED Readout Module



H=33.0, W=8.0 (switch),
 W=9.0 (end plates per pair)
 W=8.0 (accessories), D=28.5,
 Board length=18.5
 Max panel thickness=3.5, Pad pitch=2.54

- Front panel mounting by retaining clips on end plates and separators
- Modules and end plates all snap together
- Standard thumbwheel switches
- Long board fitted to modules to accommodate diodes and resistors
- Matching 7-segment LED display is common cathode, decodes BCD to 7-segment, has memory and handles ripple blanking
- Spacer: blank module used to replace a module assembly
- Separator: used to fit 2 switches into one unit (complete with 2 clips)

Mfrs. List No. 84210056 = 143-616 84216005 = 145-217 79211745 = 143-619
 84210054 = 143-617 79211759 = 143-618 79211760 = 143-620

213347

Output Code	Readout	Order Code	1+	50+	100+	250+	500+
Switch Modules							
BCD	0-9	143-616	15.09	14.08	13.67	11.91	10.70
Decimal	0-9	143-617	15.09	14.08	13.67	11.91	10.70
LED Readout Module							
BCD with memory, +5V		145-217	61.17	58.08	56.25	48.65	44.36
Accessories							
End plates, pair		143-618	3.07	2.99	2.83	2.46	2.25
Spacer		143-619	1.38	1.29	1.24	1.00	0.92
Separator		143-620	2.10	1.98	1.93	1.68	1.54

Joystick Controllers

Miniature Trackerball



H = 7.3, W = 12,
 D = 12mm (Body)
 Length - Lead = 59.3mm

- Ergonomic 8mm ball design enables ease of use in all directions
- All-direction scanning plus select functions
- Positive tactile feedback
- 12 pulses per rotation

Typical Applications

- Mobile phones
- Remote controls
- Navigation systems
- Keyboards, notebooks, PC mouse
- Cameras, camcorders
- PDA's
- Game controllers

Power (Max.) 0.2VA
 Voltage (Min./Max.) 20mV / 32V
 Current (Min./Max.) 1mA / 50mA
 Operating Force - Scanning 0.35N
 Operating Force - Select 2.2N
 Operating Life 300000 Cycles
 Operating Temperature -30 to 85°C

483074

Mfrs. List No.	Order Code	1+	10+	50+	100+
TBWB2A00	143-7673●	4.99	4.72	4.48	4.23

15

Re-reeling available

Farnell



Single Axis Fingertip Rocker (Potentiometer)



- Conductive plastic track technology - absolute position control and maintenance free operating life
- Developed for applications where compact size and minimal above panel height is paramount
- Fitted with flying leads
- Sealed to **IP65**

Input voltage (max) 35V
 Total track resistance 2kohm
 Power rating 0.25W
 Mechanical life >5 million operations
 Operating temperature 20°C to +70°C

H=47.5, W=47.5, D=27

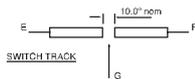
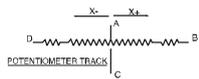
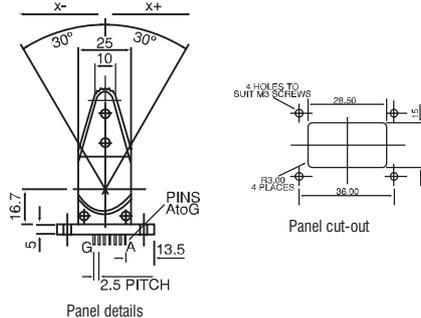
338013

Mfrs. List No.	Order Code	1+	5+	10+	25+
JC030-R-STD-BLK	119-1276●	46.94	42.74	41.67	40.03

Single Axis (Potentiometer)



H=70, Base W=34, D=46



Connections

- Potentiometric single axis control
- Compact size and easy to install
- Proportional output and independent switched output
- Sealed to **IP66**, suitable for outdoor use
- Internal padding resistors enable user to detect possible faults in their equipment
- Connection by 7-way connector, mating connector and data supplied

Track details:
 Track resistance 4KΩ ±20% + padding resistance 5kohm ± 20% total
 Padding resistance (each end) 0.5kohm ± 20%
 Power dissipation 0.25W @ 20°C
 Wiper current 5mA max.
 Current centre tap self-centre within tap width ± 2.5° nominal
 Switch wiper current 2mA max.
 Temperature range -20°C to 70°C

213202

Mfrs. List No.	Order Code	1+	5+	10+	25+
JC100-002-5K	119-1277●	42.93	40.91	39.25	37.52
Connector SA301649	119-1544●	5.39	5.33	5.26	5.05

Compact, Single Axis (Potentiometer)



119-1274: H=63.75, W=50, D=26.5

119-1273: H=54, W=50, D=26.5

- Conductive plastic track technology - absolute position control and maintenance free operating life
- Low profile lever avoids unintentional operation
- EMC Protected
- Sealed to **IP66**

Input voltage (max) 35V
 Current consumption 5mA
 Total track resistance 5kohm
 Power rating 0.25W
 Mechanical life >5 million operations
 Operating temperature -25°C to +70°C

338009

Handle Style	Mfrs. List No.	Order Code	1+	5+	10+	25+
Short handle	JC120-0002	119-1273●	43.52	39.63	38.65	37.12
Long handle	JC120-0005	119-1274●	43.52	39.63	38.65	37.12
Connector 500mm	SA301649	119-1544●	5.33	5.26	5.05	

Dual Axis (Potentiometer)



- Miniature size uses 26 x 26 panel area (excluding potentiometer)
- PCB mount with both self centering and absolute (put and stay) options
- ±30 lever movement
- Supplied with robust metallic knob

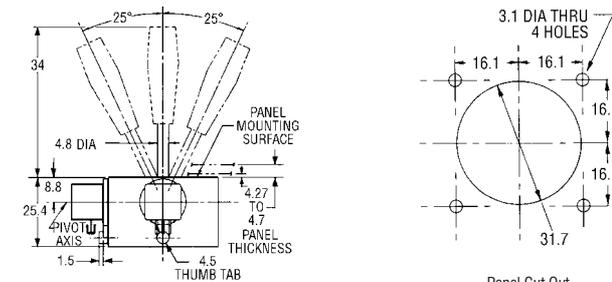
Potentiometer resistance 10kohm
 Operating life 300000 ops

H=33(above panel), W=34, D=34, Below panel depth=20

213311

Mfrs. List No.	Order Code	1+	10+	50+
Absolute (put and stay)	114-8304●	25.78	23.66	22.33
Self centering	114-8306●	25.78	23.66	22.33

Dual Axis (Potentiometer)



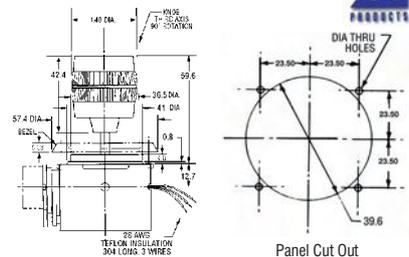
- Potentiometric dual axis control
- Self centering to zero position
- Precision ground stainless steel ball pivot and shaft
- Special blended plastics reduce friction on the bearing surfaces
- Supplied with a square black textured bezel

Joystick travel 25% from centre in all directions
 Return to centre repeatability ±1%
 Potentiometer 5KR, 1W conductive plastic, set at centre of resistance
 Panel thickness 1.25mm to 4.75mm
 Mechanical life > 5 million operations
 Operating temperature -10°C to +65°C

213190

Mfrs. List No.	Order Code	1+	10+	25+	50+
M11Q061A	112-4084●	54.82	48.74	43.87	39.91

Three Axis (Potentiometer)



- Potentiometric three axis control rotational movement of the joystick knob gives control in the Z axis
- Supplied with a two piece bezel consisting of a textured ring and rubber boot for sealing

FOR TECHNICAL SPECIFICATION SEE ORDER CODE 112-4084

213189

Mfrs. List No.	Order Code	1+	10+	25+	50+
M31L081A	112-4085●	101.22	89.99	80.97	73.68

Over 480,000 products online



Potentiometer Joystick
Low Profile



- Low profile installation
- Simple interface
- Ergonomic design
- Low current drain
- Specifically designed for keyboards and CCTV applications

H = 73 (overall), W = 41.5, D = 41.5mm

Potentiometers	5kohm - 55°	Potentiometers	5kohm - 55°
Operating voltage - Max.	10V	Operation life	>1000000 Operations
Power rating	0.125W	Operating temperature	-10 to 55°C
Lever Travel	±20°		

479518

Number of Axes/ Handle style	Mftrs. List No.	Order Code	1+	5+	10+
2 / Conical	5T25-1S0F-21-127	142-8461●	37.80	36.00	33.61
3 / Third Axis	5T35-1S0W-21-127	142-8462●	76.99	73.12	68.53

Robust Potentiometer Joystick
IP 65 Sealed



- Highly robust metal mechanism
- High quality industrial 5kR full range potentiometers
- Inherent immunity to RFI
- Robust, closed frame construction
- Conical, black Nylon handle
- Supplied with alternate round handle
- IP 65 above panel

H = 98.75 (overall), W = 42, D = 42mm

Potentiometers	5kohm - 55°	Potentiometers	5kohm - 55°
Preferred load	>100kR	Operation life	>5000000 Operations
Power rating	1W @ 70°C, derate to 0W @ 125°C	Operating temperature	-20 to 55°C
Lever Travel	±27.5°		

479442

Number of Axes	Mftrs. List No.	Order Code	1+	10+	25+
1	4R18-2S1E-55-126	142-8458●	37.27	31.67	29.81
2	4R28-2S1E-55-126	142-8459●	58.59	48.92	46.83

Robust Contactless Joystick
IP 65 Sealed



- Ultra low profile
- High EMC immunity
- Dual decode - Combined fault and centre detect
- Robust, contactless for proportional control
- Supplied with a round, diamond, slot and cross limiter set
- IP 65 above panel

Supply voltage	75 to 15V
Supply current	10mA
Lever Travel	±18°
Operation life	>10000000 Operations
Signal swing	±10% of V _{CC} to ±50% of V _{CC}
Operating temperature	-20 to 55°C

H = 107 (overall), W = 42, D = 42mm

479414

Handle Type	Mftrs. List No.	Order Code	1+	10+	25+
Round - Phenolic	9SY40SC-65-124	142-8455●	50.79	43.16	42.30
Third Axis - Aluminium	9SY40SR-65-125	142-8456●	93.54	79.51	76.64

USB Joystick Interface
Windows or MacOS



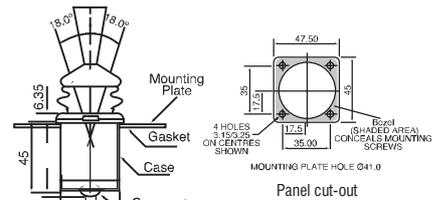
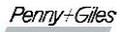
W = 50, D = 50mm

- Designed to connect any joystick with up to 3 axes and 8 buttons to a USB port
- USB interface controlled by "JoyWarrior" chip
- Fully USB V1.1/2.0 and HID 1.1 compliant
- 3 analog inputs for X, Y and Z axes
- 10bit resolution and connections for up to 8 pushbuttons
- Supplied USB cable 1.5m long

479509

Mftrs. List No.	Order Code	1+	5+	+
909998	142-8460●	58.58	55.05	--

Dual Axis (Non-Contacting)



- EMC protected
- Sealed to IP65
- Inductive joystick with non-contacting sensor system

- Excellent proportional dual axis control
- Internal dual amplifier circuit for additional operational safety
- Connection by 200mm flying leads

Performance details:

Input voltage	5 to 14V
Output impedance, signal	1.8kR
Output impedance, centre tap	0.34kR
Life in normal use	15 million cycles

Connections:

Red	Positive supply
Black	Negative supply
Green	Centre tap
Blue	X Axis
Yellow	Y axis

Characteristics with 10V dc supply:

Current drain	15mA max.
Ripple	10mV max.
Centre tap voltage (V centre)	5V ± 30mV
Self centre within	V centre ± 20mV
Voltage swing	±1V ±10%
output voltage, normal range	4 to 6V ±0.1V
Operating voltage on detected failure	<3.5V, >6.5V
Operating temperature range	-25°C to +70°C

213203

Mftrs. List No.	Order Code	1+	5+	10+	25+
JC200BS1K1Y	119-1278●	51.16	46.86	45.49	43.86

Single, Dual and Three Axis (Non-Contacting)



(All heights=above panel), Below panel depth=32.4 max.

- Single, dual and three axis joysticks
- Uses non-contacting hall effect technology
- Small compact housing
- Sealed to IP65
- RFI and EMI resistant
- Durable rubber boot and sealing gasket
- Precision ground stainless steel shaft

Input Voltage	5V	Operating life	15000000 ops
Centre Output voltage	2.5V	Supply current	8mA (2 axis), 12mA (3 axis)
		Travel	40° (±20°) self centering

213308

Axis	Handle type	Order Code	1+	10+	25+
Single	Taper	112-4089●	82.77	73.59	66.21
	Ball	112-4087●	82.77	73.59	66.21
	Taper	112-4088●	82.77	73.59	66.21
Dual	Standard + switch	112-4090●	98.95	87.99	79.17
Three	Standard	112-4091●	122.66	109.08	98.14
Three	Standard + switch	112-4093●	138.89	123.50	111.10
Three	Low profile	112-4094●	122.66	109.08	98.14

Technical information at your fingertips

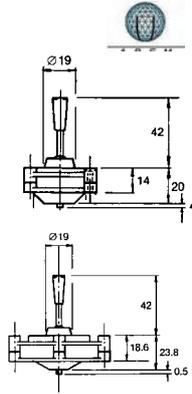


Over 352,000 technical datasheets available online.

Visit www.farnell.co.uk and look for the **Tech Info** heading in your search results.

Microswitch Joysticks

Panel/Surface Mount Sealed Joysticks



- Assemblies fitted with 4 standard changeover microswitches
- Joystick will activate none, one or two neighbouring microswitches depending on position
- Supplied with two joystick guides to limit movement to one or two axes
- Suitable for panel or surface mounting
- Sealing to panel against dust and moisture provided by PVC gaiter at joystick base
- Supplied with panel bezel and 4 fixing screws

989-5736	989-5744
Fixing centres=64.0	Fixing centres=36.0
989-5744	989-5736
Contact rating 5A @ 250V ac	10A @ 250V ac
Contact type Double throw	
Operation angle ±12°	
Termination Solder tab	6.3mm tag

413505

Contact Rating	Mfrs. List No.	Order Code	1+	10+	100+
5 A	100113	989-5744	13.00	12.10	11.42
10 A	100114	989-5736	13.67	12.86	12.21

Panel or Surface Mount Joystick

IP 65 Sealed



- Modern "stubby" design
- 22mm bush or screw mounting
- Construction based on V4 micro-switches with change over contacts
- Gold flash terminals for reliable low current switching
- Black Conical handle made from Nylon
- Supplied with adhesive sealing gasket

H = 64 (Overall), W = 44, D = 44 (Base)

Contact rating	6A @ 250V ac	Contact rating	6A @ 250V ac
Contact type	Change-over	Contact type	Change-over
Lever Travel	±12° from centre	Contact bush	22mm Bush
Operation life	≥5000000 Operations	Operating temperature	-20 to 50°C

479401

Contact Rating	Mfrs. List No.	Order Code	1+	10+	25+
6 A	1D1-5F-15-71	142-8454	14.50	12.16	11.30

Microswitches

Superminiature Series AV4

0.1A @ 30V dc (resistive load)

NAIS



Hinge lever Pin plunger

- Superminiature size (7.5 x 4.5 x 2.5 mm)
- Light weight with snap action
- Long life expectancy of 300,000 operations

Contact resistance	200mR (solder)	Insulation resistance	100MΩ @ dc
Contact rating	@	Electrical life	200000 ops.
Operating temperature	-25°C to +80°C	Mechanical life	300000
Switch type	Hinge lever	Simulated roller lever	
Operating force, max.	100gf		100gf
Pre-travel, max.	2.4mm		2.2mm
Over-travel, min.	0.4mm		0.3mm
Movement differential, max.	0.7mm		0.7mm

241393

Mfrs. List No.	Order Code	1+	10+	25+	50+
AV4 Series					
Hinge Lever	AV442461	372-7051	2.62	2.37	2.17
Simulated roller lever	AV444461	372-7063	2.55	2.32	2.11

Microminiature PCB Mount - D2MQ Series

500mA @ 30V dc

OMRON



H=6.5 W=2.6 D=8.1

- Super miniature design
- Ideal for applications where size and weight restrictions are crucial

Contacts	SPDT
Operating temperature	-15°C to 70°C
Insulation resistance	100MR min
Contact resistance	100mR max
Electrical life	10000 ops min
Mechanical life	30000 ops min

213318

Vertical type	Mfrs. List No.	Order Code	1+	50+	100+
Plunger	D2MQ-1	990-1906	1.17	1.11	1.06
Lever	D2MQ-4L-1	990-1914	1.46	1.39	1.32
Right Angle Type					
Plunger	D2MQ-1-TR	990-1922	1.46	1.39	1.32
Lever	D2MQ-4L-1-R	990-1930	1.46	1.39	1.32

Microminiature - D2F

Series3A @ 125V ac, 2A @ 30V dc Microload 0.1A @ 30V dc

OMRON



Body : H=6.5, W=5.8, D=12.8, Fixing centres=5.08
Actuator lever L=12.8

Microminiature switches with solder/PCB terminals

- Microload types have gold plated contacts for low level switching
- Standard load types have silver contacts for general purpose applications
- CSA approved, UL recognised

Contacts	SPDT	Insulation resistance	100MΩ @ 500V dc
Contact resistance (initial)	30mR (standard) 100mR (microload)	Electrical life	30000 ops. min.
Switch type	Broad plunger	Operating temperature	-25°C to +85°C
Operating force, max.	1.47N	Lever	Roller lever
Release force, min.	0.2N	0.78N	0.78N
Pre-travel, max.	0.5mm	0.05N	0.05N
Over-travel, min.	0.25mm	—	—
Movement differential, max.	0.12mm	0.05mm	0.05mm

213213

Mfrs. List No.	Order Code	1+	50+	100+	250+
Microvoltage/Current Load					
Broad plunger	D2F-01	990-1949	0.94	0.85	0.74
Lever	D2F-01L	990-1957	1.09	0.99	0.88
Roller lever	D2F-01L2	990-1965	1.59	1.44	1.27
Standard					
Broad plunger	D2F	990-1663	0.88	0.79	0.70
Lever	D2FL	990-1671	0.94	0.85	0.74
Roller lever	D2F-L2	990-1973	1.33	1.20	1.06

Subminiature PCB Mount- DG Series

125V ac or 30V dc Switching

CHERRY



- SPDT
- Degree of protection IP40
- Electrical life 6000 operations
- Operating temperature -25°C to 85°C
- UL Recognised

Body - H = 6.5, W = 12.8, D = 5.8mm

UL Rating	Actuator	Terminals	Operating Force (gf)	Mfrs. List No.	Order Code
0.05A @ 30V dc	Button	PCB Straight	140	DG23-B1AA	151-9071
0.05A @ 30V dc	Short Lever	PCB Straight	45	DG23-B1LA	151-9072
0.05A @ 30V dc	Long Lever	PCB Straight	60	DG23-B1RA	151-9073
3A @ 125V ac / 2A @ 30V dc	Button	PCB Straight	140	DG13-B1AA	151-9075
3A @ 125V ac / 2A @ 30V dc	Short Lever	PCB Straight	45	DG13-B1LA	151-9076
3A @ 125V ac / 2A @ 30V dc	Long Lever	PCB Straight	60	DG13-B1RA	151-9077

15

Re-reeling available

Farnell

Microswitches - continued

Subminiature PCB Mount- DG Series - continued

125V ac or 30V dc Switching - continued

494193

Mfrs. List No.	Order Code	1+	25+	50+	100+	250+
DG23-B1AA	151-9071●	0.71	0.65	0.60	0.55	0.51
DG23-B1LA	151-9072●	0.84	0.78	0.70	0.65	0.61
DG23-B1RA	151-9073●	1.18	1.09	0.99	0.92	0.85
DG13-B1AA	151-9075●	0.68	0.63	0.57	0.53	0.49
DG13-B1LA	151-9076●	0.79	0.72	0.66	0.62	0.56
DG13-B1RA	151-9077●	1.18	1.09	0.99	0.92	0.85

Subminiature Turquoise Series ABS

2A @ 250Vac/124Vac/30V dc, 0.4A @ 125V dc (resistive load)



Pin plunger Hinge lever, Roller lever

- Subminiature (19.8 x 11.1 x 6.4 mm)
- Watertight housing sealed to IP67
- Highly resistant to environmental influences
- CSA, VDE and SEMKO approved. UL recognised

Contacts	SPDT	Insulation resistance	100MΩ @ 500V dc
Contact resistance	100mR (solder)	Electrical life	50000 ops.
Contact rating	2A @ 250V ac/30V dc	Mechanical life	5000000 ops.
Operating temperature	-40°C to +85°C		
Switch type		Hinge lever	Roller lever
SPDT, Wire leads (bottom entry)			
Operating force, max.		100gf	100gf
Release force, min.		1.7gf	2.0gf
Pre-travel, max.		2.8mm	2.5mm
Over-travel, min.		1.2mm	0.8mm
Movement differential, max.		0.8mm	0.5mm

241388

Mfrs. List No.	Order Code	1+	10+	25+	50+
ABS Series					
Hinge Lever	ABS161240 372-6976●	4.98	4.54	4.14	3.81
Roller lever	ABS161640 372-6988●	5.35	4.88	4.44	4.07

Subminiature, IP67 Sealed - D2JW Series

0.1A @ 30V dc



- Subminiature watertight housing sealed to IP67
- Gold crossbar contact and coil spring offer long life expectancy and high contact reliability
- Available with either solder terminals or 300mm moulded leads

Solder types : H (body)=9.4, W=5.3, D=12.7
Moulded lead types : H (body)=16.6, W=5.3, D=12.7
Fixing centres=4.8

Contacts	SPDT	Insulation resistance	100MΩ @ 500V dc
Contact resistance	100mR (solder) 140mR (moulded lead)	Electrical life	100000 ops.
Contact rating	0.1A @ 30V dc (res.)	Operating temperature	-40°C to +85°C
Switch type		Lever	Roller lever
Operating force, max.		Broad plunger	
Release force, min.		0.8N	0.95N
Pre-travel, max.		0.15N	0.19N
Over-travel, min.		0.6mm	5.2mm
Movement differential, max.		0.3mm	1.1mm
Actuator length		0.1mm	0.5mm
		16.5	13.5

213208

Solder type	Mfrs. List No.	Order Code	1+	50+	100+
Pin plunger	D2JW-011	990-1981●	6.56	5.83	5.57
Lever	D2JW-01K11	990-1990●	6.77	6.02	5.74
Roller lever	D2JW-01K21	990-2007●	6.96	6.20	5.91
Moulded Lead Type					
Roller lever	D2JW-01K21-MD	990-2023●	8.70	7.74	7.40

Sub Miniature - SM Series

5A @ 30V dc



H = 12.4, W = 19.8, D = 6.35mm

The SM Series Sub miniature Switches are used for simple or precision on/off application needs. These switches combine small size and light weight with ample electrical capacity, precision operation and long life.

- Choice of solder termination
- SM3-T = Single length Solder Terminal, SM3-T2 = Double length Solder Terminal
- Elongated mounting hole for easier, more accurate mounting
- Choice of auxiliary actuators
- Auxiliary Actuators complete with Pad, Mounting Screws, Nuts and Washers
- CSA Approved and UL Recognised

Switch type	SPDT	Switch type	SPDT
Operating force (max.)	1.39N	Differential travel (max.)	0.1mm
Return force (min.)	0.28N	Operating temperature	-53 to 121°C
Pre travel (max.)	0.5mm		

445106

Actuator Type	Mfrs. List No.	Order Code	1+	25+	50+	100+
Button actuated Switches						
Button Plunger	11SM3-T	126-5323●	2.81	2.67	2.62	2.57
Button Plunger	11SM3-T2	126-5324●	5.29	5.08	4.93	4.75
Auxiliary Actuators						
Straight Lever	JS2	126-5326●	2.01	1.97	1.92	1.82
Roller Lever	JS5	126-5327●	3.75	3.59	3.37	3.21

Subminiature 'V4' Style - SS Series

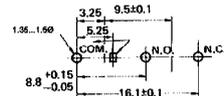
3A & 10A @ 250V ac



Body
H=10.2, W=6.4, D=19.8
Fixing centres=9.5
Terminal W=3.2 (solder types)

Body fixing centres conform to international standards.

Contact	SPDT
Electrical life	100000 ops
Mechanical life	3000000 ops
Operating temperature	-15°C to 85°C



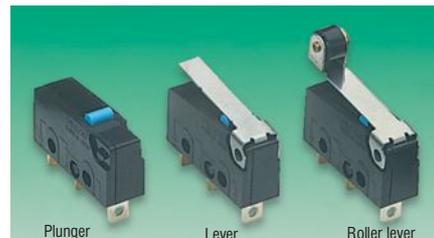
Order Codes	103-443	103-444	103-445
	170-566	170-567	170-568
	118-1019	118-1020	118-1021
	118-1022	118-1024	118-1025
Operating force, max.	150g	50g	50g
Release force, min.	25g	6g	6g
Pre-travel, max.	0.5mm	—	—
Over-travel, min.	0.5mm	1.2mm	1.2mm
Movement differential, max.	0.1mm	0.8mm	0.8mm
Actuator length	—	14.5mm	14.5mm

213391

Type	Mfrs. List No.	Order Code	1+	50+	100+	250+
Solder Type - 3A						
Plunger	SS-5	103-443●	1.29	1.16	1.08	0.93
Hinge Lever	SS-5GL	103-444●	1.47	1.34	1.22	1.04
Roller Lever	SS-5GL2	103-445●	1.74	1.58	1.42	1.23
PCB Type - 3A						
Plunger	SS-5D	170-566●	0.79	0.65	0.57	0.56
Hinge Lever	SS-5GLD	170-567●	1.47	1.32	1.22	1.04
Roller Lever	SS-5GL2D	170-568●	1.11	0.92	0.77	0.75
Solder Type - 10A						
Hinge Lever	SS-10GL	118-1020●	1.69	1.51	1.34	1.21
Hinge Roller Lever	SS-10GL2	118-1021●	1.93	1.72	1.54	1.37
PCB Type - 10A						
Pin Plunger	SS-10D	118-1022●	1.84	1.67	1.48	1.33
Hinge Lever	SS-10GLD	118-1024●	2.05	1.84	1.65	1.48
Hinge Roller Lever	SS-10GL2D	118-1025●	1.82	1.65	1.46	1.32

Subminiature 'V4' Style - SSG Series

Wide Temperature Range, 3A @ 250V ac



Body H=7.7, W=19.8, D=6.4. Fixing centres=9.5

- Wide operating temperature range -25°C to +125°C
- Solder, quick connect and PCB terminal options
- PCB terminal pin spacing conforms to DIN 41635 Form B
- Flux resistant PCB terminals
- Conforms to EN61058-1 (IEC1058-1) and CSA C22.2.U.L recognised

Contacts	SPDT	Electrical life	200000 ops.
Mechanical life	10000000 ops.	Operating temperature	25°C to 125°C

15

RL Re-reeling available

Farnell

Switch type	Plunger	Lever	Roller Lever
Operating force, max.	153g	61g	61g
Release force, min.	0.25g	6g	6g
Pre-travel, max.	0.6mm	1.0mm	1.0mm
Over-travel, min.	0.4mm	0.8mm	0.8mm
Movement differential, max.	0.1mm	—	—
Actuator length	—	15.5mm	17mm

213201

Solder Type	Mfrs. List No.	Order Code	Price Each			
			1+	50+	100+	250+
Plunger	SSG-5H	619-504●	1.30	1.21	1.15	1.09
Lever	SSG-5L1H	619-516●	1.46	1.36	1.30	1.24
Roller Lever	SSG-5L2H	619-528●	1.77	1.65	1.58	1.50
Quick Connect Type (2.8 0.5)						
Plunger	SSG-5T	619-530●	1.42	1.32	1.27	1.21
Lever	SSG-5L1T	619-541●	1.59	1.48	1.42	1.36
Roller Lever	SSG-5L2T	619-553●	1.77	1.65	1.58	1.50
PCB Type						
Plunger	SSG-5P	619-565●	1.30	1.21	1.15	1.09
Lever	SSG-5L1P	619-577●	1.02	0.94	0.91	0.87

Subminiature 'V4' Style, IP67/IP50 - D2SW Series **OMRON**
3A @ 125V ac, 2A @ 250V ac



Pin plunger Lever Roller lever
Solder types: H (body)=10.6, W=6.4, D=19.8 Moulded lead types: H (body)=16.9, W=6.4, D=21.2
Fixing centres=9.5

- Monoblock construction ensures high sealing capability
- Moulded lead type sealed to IP67, Solder type sealed to IP50
- CSA and VDE/EN61058-1 approved. UL recognised

Contacts	SPDT	Electrical life				200000 ops.
Insulation resistance	100MΩ @ 500Vdc	Operating temperature				-40°C to 85°C
Order Code	959-790	959-807	959-819	959-820	959-832	959-844
Operating force, max.	180g	60g	60g	180g	60g	60g
Release force, min.	30g	6g	6g	30g	6g	6g
Pre-travel, max.	0.6mm	4.8mm	4.8mm	4.8mm	4.8mm	4.8mm
Over-travel, min.	0.5mm	1mm	1mm	1mm	1mm	1mm
Movement differential, max.	0.1mm	0.8mm	0.8mm	0.8mm	0.8mm	0.8mm
Actuator length	—	14.5mm	14.5mm	14.5mm	14.5mm	14.5mm

213285

Solder Type - IP50	Mfrs. List No.	Order Code	Price Each			
			1+	50+	100+	250+
Pin Plunger	D2SW-3H	959-790●	2.41	2.24	2.15	2.05
Lever	D2SW-3L1H	959-807●	2.71	2.52	2.41	2.31
Roller Lever	D2SW-3L2H	959-819●	2.71	2.52	2.41	2.31
Moulded Lead Type - IP67						
Pin Plunger	D2SW-3M	959-820●	2.98	2.77	2.66	2.54
Lever	D2SW-3L1M	959-832●	3.92	3.66	3.49	3.35
Roller Lever	D2SW-3L2M	959-844●	4.12	3.84	3.68	3.51

Subminiature - F4/F5 Series **saia-burgess**
5A @ 250V ac/30V dc



Switch body: Solder type H=9.95, W=5.1, D=12.8 Fixing centres=4.8
PCB type H=7.25, W=5.1, D=12.8

Switch type	Solder Plunger	Solder Lever	Solder Simulated Roller	PCB Plunger	PCB Lever
Operating force max	140g	60g	70g	140g	60g
Release force min	25g	7g	9g	25g	7g
Pre travel max	0.9mm	2.5mm	1.95mm	1.05mm	3.0mm
Differential travel	0.13mm	0.7mm	0.45mm	0.13mm	0.7mm

213328

Solder Type	Mfrs. List No.	Order Code	Price Each			
			1+	25+	50+	100+
Plunger	F4T7	116-2610●	3.82	3.66	3.59	3.53
Lever	F4T7Y1	116-2611●	3.97	3.81	3.74	3.65
Simulated Roller	F4T7YC	116-2612●	4.02	3.86	3.79	3.70
PCB Type						
Plunger	F5T8	116-2613●	3.82	3.66	3.59	3.53
Lever	F5T8Y1	116-2614●	3.97	3.81	3.74	3.65

Sub-miniature 'V4' Style, IP67 Sealed - Long Overtravel



5A @ 250V ac



- SPDT contacts
- Sealed to IP67
- Minimum over travel of 2.2mm compared to 0.4/0.9 available from standard switches
- Ideal for applications where the movement of the actuating medium cannot be precisely controlled

Operating force, max	240gf
Release force, min	40g
Pre travel, max	1.5mm
Differential travel, max	0.6mm
Over travel, min	2.2mm

H=16.05, W=6.45, D=20, Fixing centres = 9.53

213330

Mfrs. List No.	Order Code	Price Each			
		1+	25+	50+	100+
V4LS	116-2617●	4.88	4.58	4.39	4.20

Panel Mount Actuator
5A @ 250V ac



Microswitch: H=10.2 (unsealed), 16.05 (sealed), W=6.45, D=20 Fixing centres=9.53
Long over travel kit H=23.95 (from fixing centres) Thread=M6 fine. Lead length (318-9650)=0.5m.

- Pushbutton actuator system based on the popular V4 microswitch
- Long over travel kit has a spring loaded, stainless steel plunger that converts the assembly into a miniature limit switch and simply clips to the microswitch body
- Ideal for machine applications such as end of travel detection
- 5mm over travel allows use in high tolerance applications
- Single round hole fixing
- Simple assembly

Contacts	SPCO
Contact rating	5A @ 240Vac
Mechanical life	10000000
Operating temperature	-40°C to 85°C

213327

Microswitches - Unsealed	Mfrs. List No.	Order Code	Price Each			
			1+	25+	50+	100+
Solder	V4NT7	116-2606●	1.52	1.37	1.27	1.13
Microswitches - Sealed						
Solder	V4NST7	116-2607●	1.79	1.62	1.57	1.34
Leaded	V4NS	116-2608●	3.94	3.66	3.56	3.52
Long over travel kit	QA4	116-2609●	1.63	1.52	1.47	1.45

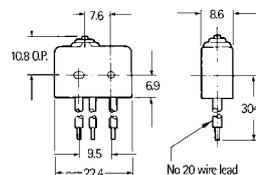
Environment Proof Sealed Subminiature Switches



Micro switch 719-0384



Roller lever actuator 719-0396



- SE sub-miniature switch combines small size with environment-proof sealing and precision operation
- Conforms to BS4683 Part 3 type 'N' protection - enclosed break
- High-quality basic switch is sealed in epoxy resin within a corrosion-resistant aluminium housing
- Pin plunger stainless steel with silicone rubber seal

- Pre-wired with 300mm of PTFE cable
- Stainless steel roller lever auxiliary actuators available separately
- BASEEFA approved No 4028U, rating Ex n d II
- 5A resistive 250V ac, SPDT

Microswitches - continued

Environment Proof Sealed Subminiature Switches - continued

- Mechanical life to 10 million operations
- Temperature range -62°C to 150°C

	Pin Plunger	With Lever
Operating force	140g-480g	340g max.
Release force	113g	57g min.
Pre-travel	1.3mm	3.8mm
Over-travel	0.08mm	0.4mm
Differential travel	0.1mm	0.6mm
Operating position from mounting centres	10.8mm	16.2mm
Free position	—	20.1mm

214227

	Mfrs. List No.	Order Code	1+	Price Each	20+	50+
Micro Switch	91SE1	719-0384	38.05	35.48	33.61	32.95
Roller Lever Actuator	JE5	719-0396	8.63	8.10	7.60	7.44

Subminiature 'V4' Style, IP67 Sealed

6A @ 250V ac



Body H=15.85, W=6.5, D=19.9, Fixing centres=9.5

- Polyester housing **UL** recognised and sealed to **IP67**
- SPDT silver contacts
- Pre-wired with 500mm long 0.75mm² PVC leads
- Wire colour code: Blue = NO, Grey = NC, Black = Common

Mechanical life	1000000 ops	Operating temperature	-40°C to 120°C		
Electrical life	10000 ops		118-0024	118-0025	118-0026
Order codes					
Operating force, max		2N	0.7N	0.8N	
Pre-travel, max		1.0	5.0	5.0	
Over-travel, max		0.6	1.5	1.5	
Differential travel		0.1	0.6	0.6	

213145

Mfrs. List No.	Order Code	1+	Price Each	25+	50+	100+
UDC1C-C3AA	118-0024	3.75	3.49	3.41	3.19	
UDC1C-C3LC	118-0025	3.98	3.70	3.64	3.41	
UDC1C-C3RC	118-0026	4.36	4.02	3.95	3.56	

Subminiature 'V4' Style - IP67 Sealed and Unsealed

5 (1) A @ 250V ac



- SPDT silver contacts
- Fully sealed version to **IP67**
- Nylon 64 housing **UL** recognised
- Approved to **VDE** and **BEAB**

Mechanical life	10000000 ops	Operating temperature	-40°C to +125°C			
Electrical life	100000 ops		Plunger	Lever	Long lever	Roller lever
IP67 Sealed Switches						
Operating force (Max.)		2N	0.6N	0.17N	0.7N	
Release force (Min.)		0.27N	0.08N	0.02N	0.09N	
Pre travel (Max.)		1.2mm	4.1mm	21.0mm	3.45mm	
Differential travel (Max.)		0.2mm	0.7mm	6.35mm	0.35mm	
Actuator length		—	18mm	63mm	15mm	
Unsealed Switches						
Operating force (Max.)		1.5N	0.45N	0.15N	0.51N	
Release force (Min.)		0.27N	0.08N	0.02N	0.09N	
Pre travel (Max.)		1.2mm	4.1mm	21.0mm	3.45mm	
Differential travel (Max.)		0.2mm	0.7mm	6.35mm	0.35mm	
Actuator length		—	18mm	63mm	15mm	

213177

	Mfrs. List No.	Order Code	1+	Price Each	50+	100+	250+
Plunger	19N402	521-840	1.90	1.67	1.53	1.25	
Lever	19N402L18	521-851	1.80	1.66	1.62	1.49	
Long lever	19N402L63	521-863	1.99	1.85	1.76	1.51	
Roller lever	19N402R15	521-875	2.22	2.04	2.00	1.84	
PCB Type							
Plunger	19N502	521-887	1.90	1.67	1.53	1.25	

IP67 Sealed Switches	Mfrs. List No.	Order Code	1+	Price Each	50+	100+	250+
Solder Type							
Lever	19N502L18	521-899	1.80	1.66	1.62	1.49	
Long lever	19N502L63	521-905	2.16	1.91	1.78	1.44	
Roller lever	19N502R15	521-917	2.19	2.02	1.88	1.81	
Unsealed Switches							
Solder Type							
Plunger	19N403	624-664	1.04	0.89	0.79	0.71	
Lever	19N403L18	624-676	1.15	0.97	0.86	0.78	
Long lever	19N403L63	624-688	1.21	1.04	0.93	0.82	
Roller lever	19N403R15	624-690	1.38	1.19	1.06	0.92	
PCB Type							
Plunger	19N503	624-706	1.04	0.89	0.79	0.71	
Lever	19N503L18	624-718	1.15	0.97	0.86	0.78	
Long lever	19N503L63	624-720	1.21	1.04	0.93	0.82	
Roller lever	19N503R15	624-731	1.38	1.19	1.06	0.92	

Subminiature PCB Mount- DC Series 250V ac Switching



Body - H = 9.25 (15.25 Leaded Version), W = 20, D = 6.5mm

- SPDT
- Sealed switch IP6K7
- Meets the glow-wire specification requirements
- Operating temperature up to 120°C (105°C Leaded version)
- Wide variety of terminal types available
- Mechanical operating life min. 1,000,000 actuations
- Leaded versions with 500mm leads
- Kema-Keur, **ENEC** Approved, **UL** Recognised

UL Rating @ 250V ac Actuator	Terminals	Operating Force (gf)	Mfrs. List No.	Order Code
100mA Button	Short Solder, 30° Twist	204	DC3C-A1AA	151-9010
100mA Short Lever	Short Solder, 30° Twist	81.5	DC3C-A1LB	151-9011
100mA Button	QC, 30° Twist	204	DC3C-L1AA	151-9019
100mA Medium Lever	QC, 30° Twist	71.5	DC3C-L1LC	151-9020
100mA Medium Roller Lever	QC, 30° Twist	81.5	DC3C-L1RC	151-9021
5A Button	Short Solder, 30° Twist	204	DC1C-A1AA	151-9023
5A Short Lever	Short Solder, 30° Twist	81.5	DC1C-A1LB	151-9024
5A Long Lever	Short Solder, 30° Twist	81.5	DC1C-A1LD	151-9027
5A Medium Roller Lever	Short Solder, 30° Twist	81.5	DC1C-A1RC	151-9029
5A Button	PCB RH with Locating Pin	204	DC1C-K8AA	151-9032
5A Button	PCB LH with Locating Pin	204	DC1C-K9AA	151-9033
10A Button	Short Solder, 30° Twist	204	DC2C-A1AA	151-9039
10A Medium Lever	Short Solder, 30° Twist	122	DC2C-A1LC	151-9040
10A Medium Roller Lever	Short Solder, 30° Twist	132.5	DC2C-A1RC	151-9041
10A Button	PCB RH with Locating Pin	204	DC2C-K8AA	151-9044
10A Button	PCB LH with Locating Pin	204	DC2C-K9AA	151-9045

493870

Mfrs. List No.	Order Code	1+	Price Each	25+	50+	100+	+
DC3C-A1AA	151-9010	1.10	0.97	0.88	0.77	--	--
DC3C-A1LB	151-9011	1.31	1.16	1.05	0.91	--	--
DC3C-L1AA	151-9019	1.10	0.97	0.88	0.77	--	--
DC3C-L1LC	151-9020	1.31	1.16	1.05	0.91	--	--
DC3C-L1RC	151-9021	1.65	1.47	1.32	1.15	--	--
DC1C-A1AA	151-9023	1.05	0.93	0.84	0.73	--	--
DC1C-A1LB	151-9024	1.23	1.09	0.98	0.86	--	--
DC1C-A1LD	151-9027	1.39	1.23	1.11	0.96	--	--
DC1C-A1RC	151-9029	1.57	1.39	1.25	1.09	--	--
DC1C-K8AA	151-9032	1.20	1.07	0.96	0.84	--	--
DC1C-K9AA	151-9033	1.20	1.07	0.96	0.84	--	--
DC2C-A1AA	151-9039	1.03	0.91	0.82	0.71	--	--
DC2C-A1LC	151-9040	1.29	1.14	1.03	0.89	--	--
DC2C-A1RC	151-9041	1.55	1.37	1.23	1.08	--	--
DC2C-K8AA	151-9044	1.23	1.09	0.98	0.86	--	--
DC2C-K9AA	151-9045	1.23	1.09	0.98	0.86	--	--

Subminiature PCB Mount- DB Series 250V ac Switching



Body - H = 10, W = 20, D = 6.5mm

- SPDT
- High precision switch with high repeat accuracy
- Operating temperature up to 120°C
- Wide variety of terminal types available
- Kema-Keur, **ENEC** Approved, **UL** Recognised

UL Rating @ 250V ac	Actuator	Terminals	Operating Force (gf)	Mfrs. List No.	Order Code
100mA	Plunger	Short Solder	150	DB3C-A1AA	151-8966
100mA	Short Lever	Short Solder	60	DB3C-A1LB	151-8967
100mA	Medium Roller Lever	Short Solder	55	DB3C-A1RC	151-8969
100mA	Plunger	QC	150	DB3C-B1AA	151-8971
5A	Plunger	Short Solder	150	DB1C-A1AA	151-8979
5A	Short Lever	Short Solder	60	DB1C-A1LB	151-8980
5A	Medium Lever	Short Solder	50	DB1C-A1LC	151-8981
5A	Short Roller Lever	Short Solder	65	DB1C-A1RB	151-8982
5A	Long Roller Lever	Short Solder	20	DB1C-A1RD	151-8983
5A	Medium Lever	QC	50	DB1C-B1LC	151-8989
5A	Simulated Roller Lever	QC	55	DB1C-B1SC	151-8990
5A	Plunger	PCB Straight	150	DB1C-C1AA	151-8991
5A	Medium Roller Lever	PCB Straight	55	DB1C-C1RC	151-8992
5A	Plunger	PCB, RH with Locating Pins	150	DB1C-D2AA	151-8994

15

RL Re-reeling available



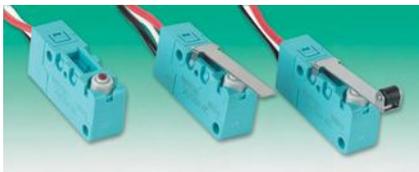
UL Rating	Actuator	Terminals	Operating Force (gf)	Mfrs. List No.	Order Code
@ 250V ac					
5A	Plunger	PCB, LH with Locating Pins	150	DB1C-D3AA	151-8995
10A	Plunger	Short Solder	250	DB2C-A1AA	151-8996
10A	Long Lever	Short Solder		DB2C-A1LD	151-8998
10A	Medium Roller Lever	Short Solder	95	DB2C-A1RC	151-9000
10A	Plunger	PCB Straight	250	DB2C-C1AA	151-9007

493827

Mfrs. List No.	Order Code	1+	25+	50+	100+	250+
DB3C-A1AA	151-8966	0.79	0.73	0.66	0.61	0.55
DB3C-A1LB	151-8967	0.97	0.91	0.82	0.74	0.68
DB3C-A1RC	151-8969	1.35	1.25	1.13	1.04	0.94
DB3C-B1AA	151-8971	0.72	0.67	0.61	0.55	0.50
DB1C-A1AA	151-8979	0.69	0.65	0.57	0.53	0.48
DB1C-A1LB	151-8980	0.85	0.80	0.71	0.65	0.60
DB1C-A1LC	151-8981	1.04	0.96	0.87	0.80	0.72
DB1C-A1RB	151-8982	1.45	1.35	1.20	1.11	1.02
DB1C-A1RD	151-8983	1.29	1.20	1.08	0.98	0.90
DB1C-B1LC	151-8989	0.94	0.88	0.79	0.72	0.66
DB1C-B1SC	151-8990	0.94	0.88	0.79	0.72	0.66
DB1C-C1AA	151-8991	0.69	0.65	0.57	0.53	0.48
DB1C-C1RC	151-8992	1.13	1.06	0.94	0.87	0.80
DB1C-D2AA	151-8994	0.75	0.70	0.63	0.57	0.52
DB1C-D3AA	151-8995	0.75	0.70	0.63	0.57	0.52
DB2C-A1AA	151-8996	0.69	0.65	0.57	0.53	0.48
DB2C-A1LD	151-8998	1.04	0.96	0.87	0.80	0.72
DB2C-A1RC	151-9000	1.22	1.14	1.03	0.94	0.86
DB2C-C1AA	151-9007	0.91	0.85	0.77	0.70	0.64

Miniature Turquoise Series ABV

3A @ 250V ac



Pin plunger, Hinge lever, Roller lever

- Miniature (33 x 15.9 x 10.3 mm)
- Watertight housing sealed to IP67
- Long life expectancy and high contact reliability
- CSA, VDE and SEMKO approved. UL recognised

Contacts	SPDT	Insulation resistance	100MΩ @ dc
Contact resistance	100mR (solder)	Electrical life	1000000 ops.
Contact rating	3A @ 250V ac	Mechanical life	5000000
Operating temperature	-40°C to +85°C		

Switch type	Pin plunger	Hinge lever	Roller lever
SPDT, Wire leads (side entry)			
Operating force, max.	300gf	180gf	180gf
Release force, min.	25gf	10gf	10gf
Pre-travel, max.	1.6mm	3.2mm	3.2mm
Over-travel, min.	0.8mm	1.2mm	1.2mm
Movement differential, max.	0.4mm	1.2mm	1.2mm

241389

ABV Series	Mfrs. List No.	Order Code	1+	10+	25+	50+
Pin plunger	ABV161061	372-6990	6.00	5.47	4.98	4.57
Hinge Lever	ABV161261	372-7002	6.74	6.14	5.59	5.12
Roller lever	ABV161661	372-7014	7.79	7.12	6.47	5.92

Standard Basic Switches

15A - BZ Series



- Accepted standard "Large Basic" switch
- Single Pole Double throw action
- 15A @ 125V ac Switching
- Low operating force and differential travel
- Long mechanical life up to 20,000,000 cycles
- Elongated mounting hole for easier, more accurate mounting
- Screw terminals
- CSA and DEMKO Approved, UL Recognised

Order Code	Force (N)		Travel (mm)		
	Operating	Release	Pre-travel	Over-travel	Differential
126-2125	3.61	1.11	0.33	0.13	0.05
126-2126	3.61	1.11	0.38	1.52	0.05
126-2127	3.61	1.11	0.38	3.56	0.05
126-2128	3.61	1.11	0.38	5.56	0.05
126-2131					
126-2132	0.7	0.14		5.56	1.27
126-2133	1.67	0.42		2.39	0.51
126-2134	1.67	0.4		2.39	0.51
126-2135	0.97	0.21		3.96	1.0

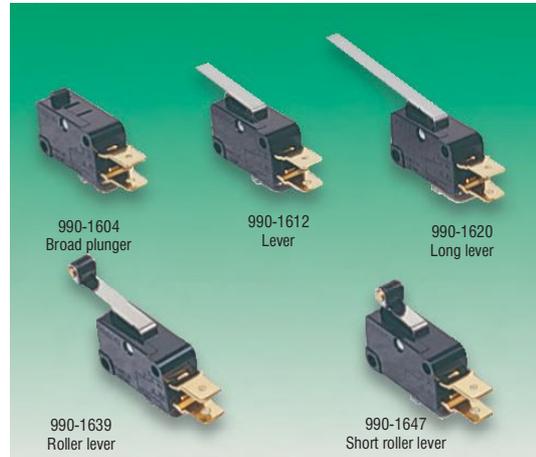
444825

Honeywell

Actuator Type	Mfrs. List No.	Order Code	1+	5+	10+	25+	50+
Pin Plunger	BZ-2R-A2	126-2125	7.66	7.36	7.05	6.83	6.60
Button Plunger	BZ-2RD-A2	126-2126	5.80	5.34	5.23	5.12	5.01
Roller Plunger	BZ-2RQ18M-A2	126-2127	21.16	20.51	19.49	18.83	18.20
Panel Plunger	BZ-2RQ1M-A2	126-2128	13.14	12.57	12.11	11.71	11.32
Wire Hinge Lever	BZ-2RW53-A2	126-2131	8.93	8.48	8.04	7.68	7.33
Hinge Lever	BZ-2RW80-A2	126-2132	8.17	7.52	7.28	7.05	6.82
Roller Lever	BZ-2RW822-A2	126-2133	9.32	8.95	8.59	8.31	8.03
Roller Lever	BZ-2RW826-A2	126-2134	13.65	12.32	12.05	11.65	10.92
Roller Lever	BZ-2RW82-A2	126-2135	9.32	8.95	8.59	8.31	8.03

Miniature 'V3' Style - V Series

15A @ 240V ac



Body: H=15.9, W=10.3, D=27.9,

Fixing centres=22.2 x 10.3, Quick-connect terminals=6.35 x 0.8

- Body fixing centres conform to international standards
- Switches with integral or separate actuator available

Contacts	SPDT	Electrical life	25000 ops
Mechanical life	500000 ops	Operating temperature	-25°C to +80°C
Order Code	990-1604	990-1612	990-1620
Operating force, max	200gf(1.96N)	125gf(1.23N)	70gf(0.69N)
Return force, min	0.49g	0.14g	0.06g
Pre travel, max	1.6mm	4.0mm	9.0mm
Overtravel, min	0.8mm	1.6mm	3.2mm
Movement differential, max	0.6mm	1.5mm	2.8mm
Actuator length			103-463 20.6mm

222320

Switches	Mfrs. List No.	Order Code	1+	50+	100+
Broad plunger	V-15-1C5	990-1604	1.05	1.02	1.00
Lever	V-152-1C5	990-1612	2.13	2.06	1.96
Long lever	V-153-1C5	990-1620	1.83	1.66	1.51
Roller lever	V-156-1C5	990-1639	1.99	1.79	1.63
Short roller lever	V-155-1C5	990-1647	1.44	1.41	1.38
Actuators					
Roller leaf spring	V-AL2	103-463	1.25	1.12	0.99

Miniature D3V Series

16A @ 250V ac



- Reliable basic switch with external lever
- Self-cleaning contacts
- Quick-Connect terminals
- Mounting hole size of 3.1mm
- Conforms to EN61058-1 and UL1054

Contacts	SPDT	Electrical life	100000 ops
Mechanical life	10000000 ops	Operating temperature	-25°C to +105°C
		High Temperature	-25°C to +155°C
Order code	Operating force, max	Return force, min	Pre travel, max
877-4560	200gf	50gf	1.6mm
877-4579	200gf	50gf	1.2mm
877-4587	125gf	14gf	4.0mm
877-4609	240gf	50gf	1.6mm
877-4617	125gf	14gf	4.0mm
125-7583	125gf	14gf	4.0mm
125-7586	240gf	50gf	1.6mm
125-7587	125gf	14gf	4.0mm

386009/405587

Model	Mfrs. List No.	Order Code	1+	25+	100+
Short Hinge	D3V-161-1C5	877-4560	1.31	1.22	1.16
Pin Plunger	D3V-16-1C5	877-4579	1.10	1.03	0.99
Hinge Lever	D3V-162-1C5	877-4587	1.46	1.36	1.20
Short Hinge Roller Lever	D3V-165-1C5	877-4609	1.63	1.52	1.29
Hinge Roller Lever	D3V-166-1C5	877-4617	1.63	1.52	1.29
High Temperature Versions					
Hinge Lever	D3V-113-1C5T	125-7583	2.40	1.68	1.37
Short Hinge Roller Lever	D3V-115-1C5T	125-7586	2.47	1.72	1.41
Hinge Roller Lever	D3V-116-1C5T	125-7587	1.98	1.38	1.13

Microswitches - continued

Miniature PCB Mount- D3 Series
250V ac Switching



- SPDT
- Choice of actuator
- Self-cleaning effect of wiping contact mechanism provides excellent reliability
- Suitable for low actuation speeds
- Flammability rating UL94V-0
- Operating temperature -40°C to 85°C
- **KEMA-KEUR, ENEC Approved, UL Recognised**

Body - H = 15.9, W = 27.8, D = 10.3mm

UL Rating @ 250V ac	Actuator	Terminals	Operating Force (gf)	Mfrs. List No.	Order Code
10A	Button	QC, Dog Leg	407.75	D3B6-V3AA	151-9078
10A	Straight Lever	QC, Dog Leg	204	D3B6-V3LD	151-9079
10A	Long Roller Lever	QC, Dog Leg		D3B6-V3RD	151-9080

494216

Mfrs. List No.	Order Code	1+	25+	50+	100+	250+
D3B6-V3AA	151-9078	1.31	1.20	1.10	1.03	0.94
D3B6-V3LD	151-9079	1.34	1.22	1.12	1.04	0.96
D3B6-V3RD	151-9080	1.67	1.54	1.40	1.31	1.20

Miniature 'V3' Style, Long Life/ Low Operating Force - VX Series
5A @ 250V ac/30V dc



Broad plunger Long lever Roller lever
Body H=15.9, W=10.3, D=27.8, Fixing centres=22.2 x 10.3
Solder/tab terminals=4.75 x 0.5

- Unique mechanism gives ultra-low force operation and high reliability
- Industry standard 'V3' style housing
- **CSA and VDE approvals, UL recognised**

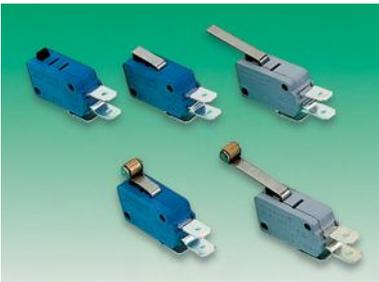
Contacts	SPDT	Electrical life	500000 ops
Contact resistance	30mR max. (initial)	Operating temperature	-25°C to +80°C
Mechanical life	50million ops		

Switch type	Broad plunger	Long lever	Roller lever
Operating force, max	0.25N(25gf)	0.2N(20gf)	0.29N(30gf)
Return force, min	0.03N(3gf)	—	—
Pre travel, max	1.2mm	9.0mm	4.0mm
Overtravel, min	1mm	3.2mm	1.6mm
Movement differential, max	0.3mm	2mm	0.8mm
Actuator length	—	51.3mm	25.9mm

213206

Mfrs. List No.	Order Code	1+	50+	100+
Broad plunger	VX5-1A2	673-626	1.60	1.49
Long lever	VX53-1A3	673-638	2.11	1.96
Roller lever	VX56-1A3	673-640	2.22	2.06

Miniature 'V5' Style - High Current, High Temp.
20A @ 250V ac, 150 C



- Body fixing centres conform to international 'V3' standards.
- High current 20(4)A and High temperature 150 C versions available.
- Friction contact system overcomes contact welding in applications using inductive or capacitive loads.
- Two-piece spring carrier mechanism gives extended electrical and mechanical life.
- **BEAB, VDE, SEMKO and CSA approved, UL recognised**

Switch body: H=15.9, W=10.3, D=28.8
Fixing centres=22.2 x 10.3, terminals=6.3 x 0.8
Body colour=blue (high temp), grey (high current)

15

RL Re-reeling available



	Plunger	Long Lever	Roller Lever	Long Roller Lever
Operating force (max.)	300gf	180gf	350gf	180gf
Return force (min.)	75gf	30gf	60gf	30gf
Pre travel (max.)	1.6mm	3.2mm	1.6mm	3.2mm
Differential travel (max.)	0.25mm	0.75mm	0.25mm	0.75mm
Actuator length	—	25.9mm	12.5mm	25.9mm
Contacts	SPDT	Electrical life	100000 ops min.	
Mechanical life	3000000 ops	Operating temperature	85°C (high current)	
Current rating	20A (high current) 16A (high temp.)		150°C (high temp.)	

213359

High Current - 20A	Mfrs. List No.	Order Code	1+	50+	100+	250+
Plunger	V5A010CB	118-1138	2.02	1.88	1.70	1.50
Roller lever	V5A010CB4D	118-1139	2.63	2.47	2.19	1.95
Long roller lever	V5A010CB4E	118-1140	2.63	2.46	2.19	1.96
High Temperature - 150°C, 16A						
Plunger	V5B210CB	118-1141	2.02	1.88	1.70	1.50
Long lever	V5B210CB1C	118-1143	1.80	1.68	1.50	1.33
Roller lever	V5B210CB1D	118-1144	2.63	2.46	2.19	1.95
Long Roller lever	V5B210CB1E	118-1145	2.63	2.44	2.20	1.95

Miniature XG Series
15A @ 250V ac



- Wide range of force variants
- High mechanical and electrical life
- Quick Connect termination
- Micro disconnection
- Plain or roller lever

Force (N)	Sealing	Operating Pos. (mm)	Terminal	Actuator	Contacts	Order Code
3.2	IP40	14.7	6.35mm x 0.8mm	Plunger	Silver/silver nickel	777-1550
1.4	IP40	14.9	6.35mm x 0.8mm	Plain Lever	Silver/silver nickel	777-1568
0.65	IP40	13.7	6.35mm x 0.8mm	Plain Lever	Silver/silver nickel	777-1584
3.2	IP40	20.2	6.35mm x 0.8mm	Roller Lever	Silver/silver nickel	777-1592
1.55	IP40	20.1	6.35mm x 0.8mm	Roller Lever	Silver/silver nickel	777-1606

347668/405589

Mfrs. List No.	Order Code	1+	50+	100+	500+
XGG2-88-Z1	777-1550	0.94	0.82	0.78	0.74
XGG2-88-J23Z1	777-1568	1.05	0.92	0.84	0.81
XGG2-88-J27Z1	777-1584	1.15	1.00	0.93	0.88
XGG2-88-S20Z1	777-1592	1.34	1.15	1.07	1.03
XGG2-88-S21Z1	777-1606	1.20	1.07	0.98	0.95

Miniature 'V3' Style IP67 Sealed (Lead Type) - D2VW-5 Series
5A @ 250V ac/30V dc



Plunger Lever Long lever Roller lever
Body: H=15.9, W=10.3, D=33, Fixing centres=22.2 x 10.3
Solder/tab terminals=4.8 x 0.5, Wire leads L=300

- Long life
- High operating position accuracy (0.4mm)
- Wire lead types are sealed to IP67
- Wide operating temperature range
- **CSA approved, UL recognised**

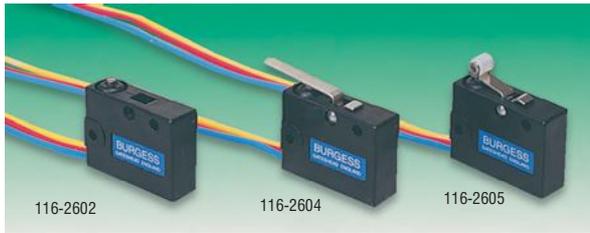
Contacts	SPDT	Electrical life	100000 ops.
Insulation resistance	100MR @ 500V dc	Operating temperature	-40°C to +90°C
Enclosure rating	IP67 (lead type) IP50 (tab type)		

Switch type	Plunger	Lever	Long lever	Short roller lever
Operating force, max	1.96N	1.18N	0.59N	2.25N
Release force, min	0.29N	0.15N	0.05N	0.2N
Pre-travel, max.	1.2mm	4.0mm	9.0mm	1.6mm
Over-travel, min.	1mm	1.6mm	3.2mm	0.8mm
Movement differential, max.	0.4mm	0.8mm	2mm	0.5mm
Actuator length	—	30.6mm	54.43mm	15.1mm

213207

Mfrs. List No.	Order Code	1+	50+	100+
Solder/Tab Terminal Type				
Plunger	D2VW-5-1	673-547	6.21	5.77
Lever	D2VW-5L1-1	673-559	5.66	5.29
Long lever	D2VW-5L1B-1	673-560	6.69	6.06
Short roller lever	D2VW-5L2A-1	673-572	5.75	5.39
Moulded Lead Type				
Plunger	D2VW-5-1M	673-584	7.18	6.74
Lever	D2VW-5L1-1M	673-596	7.47	7.00
Long lever	D2VW-5L1B-1M	673-602	7.13	6.47
Short roller lever	D2VW-5L2A-1M	673-614	7.61	7.15

Miniature 'V3' Style IP67 Sealed - Type 'V3S'
5A @ 250V ac/30V dc



Body H=24.2, W=10.5, D=31.7, Fixing centres=22.2 x 10.3

- Sealed to **IP67**
 - Pre-wired with 500mm long PVC leads
- Colour code : N.O.=Blue, N.C.=Grey, Common=Black
- | | | | | | |
|-----------------------|-------------|-----------------------|----------------|--|--|
| Mechanical life | 1000000 ops | Operating temperature | -10°C to +70°C | | |
| Order Codes | 116-2602 | 116-2604 | 116-2605 | | |
| Operating force, max. | 4N | 1.7N | 4N | | |
| Release force, min. | 1.1N | 0.43N | 1.1N | | |
| Pre-travel, max. | 1.9mm | 4.2mm | 2.34mm | | |
| Differential travel | 0.4mm | 1mm | 0.4mm | | |

213163

Mfrs. List No.	Order Code	1+	10+	100+	250+
Plunger V3S UL	116-2602	9.76	9.07	8.88	8.68
Lever V3SY1 UL	116-2604	10.40	9.68	9.47	9.28
Roller lever V3SYR UL	116-2605	10.40	9.69	9.47	9.27

Miniature 'V3' Style - Failsafe - Positive Break BVM3 Series
10A @ 250V ac



- Positive action ensures that contacts are forced open, even in the event of welding
- SPNC contacts
- Re-inforced plastic casing and transparent polycarbonate cover
- Contact gap greater than 3mm at full travel
- **CSA** and **VDE** approved, **UL** recognised

Switch body: H=15.9, W=10.1, D=28.0 Fixing Centres=22.2

Mechanical life	1000000 ops	Operating temperature	-10°C to +85°C		
Switch type		Button	Roller		
Operating force at contact break		450g	500g		
Operating force at total travel position		480g	550g		
Total travel position		Flush with case	19.0mm		
Free position max		15.8mm	22.3mm		

213329

Mfrs. List No.	Order Code	1+	25+	50+	100+	250+
Plunger BVM3F	318-9673	2.38	2.25	2.20	2.02	1.44
Roller BVM3FYR	318-9697	4.34	4.13	4.03	3.69	2.61

V9 Series Microswitch, Miniature
10A @ 250V ac



- Robust metal housing
- **IEC IP67** sealed mechanism
- Rated 10A @ 250V ac
- Side mounting screw terminals
- Silver contacts
- **CSA** approved, **UL** recognised

Dimensions: 42.3 x 28.1 x 16mm

Force (N)	Operating Pos. (mm)	Actuator Plain Plunger	Order Code
5.5	21.3		777-1770

347666/405590

Mfrs. List No.	Order Code	1+	10+	25+	50+
V9NV	777-1770	21.52	20.90	20.47	20.07

General Purpose - Type 'Z'
15A @ 240V ac



118-1275 Short spring plunger
118-1276 Spring plunger
118-1277 Panel mounting plunger



118-1278 Panel mounting cross roller plunger
118-1279 Panel mounting roller plunger in-line
118-1280 Hinge lever



118-1281 Hinge roller lever
118-1283 Short hinge roller lever
118-1284 Wire hinge lever



1181285 Pin plunger
134-0944 Terminal enclosure
Switch body: H=24, W=17.5, D=49.2, Fixing centres=25.4

- Body fixing centres conform to international standards
 - Wide range of integral actuators available
- | | | | | | |
|----------------------|--------------------------|-----------------------|-------------------|--------------------------|--------------------------|
| Contacts | SPDT | Electrical life | 700000 ops | | |
| Mechanical life | 10000000 ops | Operating temperature | -25°C to +80°C | | |
| Plunger Types | | | | | |
| Operating force | 118-1275
250 to 350gf | 118-1276
540gf max | 118-1277
350gf | 118-1278
250 to 350gf | 118-1285
250 to 350gf |
| Release force, min | 114gf | 114gf | 114gf | 114gf | 114gf |
| Pre-travel, max mm | 0.4 | 2.4 | 0.4 | 0.4 | 0.4 |
| Overtravel, min mm | 1.6 | 3.5 | 5.5 | 3.58 | 0.13 |
| Movement diff, mm | 0.05 max | 0.06 max | 0.05 max | 0.05 max | 0.05 max |
| Lever Types | | | | | |
| Operating force, max | 118-1280
70gf | 118-1281
100gf | 118-1283
160gf | 118-1284
4gf | 118-1279
350gf |
| Release force, min | 70gf | 42gf | 42gf | 0.3gf | 114gf |
| Pre-travel, mm | 6.8 to 10 | 3.9 to 7.1 | 2.7 max | 10 max | max0.4 |
| Overtravel, min mm | 5 to 6 | 4 | 2.4 | 6 | 3.58 |
| Movement diff, mm | 0.18 to 1.27 | 0.10 to 1.02 | 0.5 max | 0.9max | max0.05 |
| Actuator length, mm | 63.5 | 48.5 | 26.6 | 110 | 33.4 |

Accessories
134-0944 Phenolic resin terminal enclosure

213069

Plunger Switches	Mfrs. List No.	Order Code	1+	5+	10+
Short spring	Z-15GD-B7 SEV	118-1275	5.54	5.17	5.00
Spring	Z-15GK355-B7	118-1276	8.30	7.74	7.50
Panel Mounting	Z-15GQ-B7 SEV	118-1277	7.10	6.62	6.40
Panel mtg, cross roller	Z-15GQ21B	118-1278	7.65	7.11	6.96
Panel mtg, in-line roller	Z-15GQ22B	118-1279	8.19	7.62	7.46
Pin	Z-15G-B7 SEV+	118-1285	4.45	4.14	4.01
Lever Switches					
Hinge	Z-15GW-B7+	118-1280	4.92	4.59	4.45
Hinge roller	Z-15GW2B	118-1281	4.95	4.61	4.50
Short hinge roller	Z-15GW22B	118-1283	5.25	4.89	4.78
Wire	Z-15HW78-B7	118-1284	7.47	6.98	6.75
Terminal Enclosures					
Phenolic	APB	134-0944	0.72	0.68	0.67

3BR Microswitch
5A @ 250V ac



- **IP54** sealed version
- Precise movements and exceptional repeat accuracy
- Robust plastic housing
- Silver contacts
- **CSA** approved, **UL** recognised

H= 30.8, W=20.6, D=53.1

347732/405592

Mfrs. List No.	Order Code	1+	10+	25+	100+
IP54 Sealed 3BR-103	777-1525	7.89	7.47	6.72	6.19

Microswitches - continued

4BR Microswitch
15A @ 250V ac



- Robust metal housing
- Choice of **IP54** or **IP67** sealed versions
- Precise movements and exceptional repeat accuracy
- Operating position 39.3mm
- Screw type terminals
- Plunger actuator
- Silver contacts
- **CSA** approved, **UL** recognised

Dimensions: 53.1 x 20.6 x 30.8mm

Rating	Force (N)	Sealing	Order Code
15A @ 250V ac	7.2	IP54	522-5644
15A @ 250V ac	7.2	IP67	777-1541

347744/405593

Mfrs. List No.	Order Code	1+	10+	25+	50+
4BR	522-5644	11.81	11.34	10.84	10.25
4BRSH	777-1541	21.23	20.38	19.44	18.42

Heavy Duty Microswitches
16A @ 250Vac



Fixing hole distance=23.3
Fixing hole height to actuator:
992-2563=27.3
992-2571=38
992-2580=19.0
992-2598=30.0

- High precision snap action mechanism
- Screw terminals with covers

Contacts	SPDT	Operating Temp	-20°C to 85°C	
Contact rating	16A @ 250Vac	Mechanical Life	20000000 ops	
		992-2563	992-2571	992-2580
Operating force		350gf	350gf	320gf
Pre-travel, max mm		0.5mm	1.0mm	20.0mm
Mfrs. List No.		MV06	MV10	MV35

213099

	Order Code	1+	5+	10+
Plunger/Plongeur	992-2563	4.08	3.90	3.67
Thread Plunger	992-2571	6.63	6.35	5.98
Long Lever/Levier long	992-2580	5.15	4.90	4.64
Roller Lever	992-2598	5.49	5.25	4.95
Terminal Cover	993-8699	0.79	0.75	

Special Purpose Safety - Type D2D
16A @ 250V ac



Screw Mounting
Switch body
H=33.6(excl Plunger)
W=30, D=12.4
Fixing centres=22

Panel Mounting
Switch body
H= 33.7(excl Plunger)
W=30, D=12.4,
Bezel: 40 x 21 Panel cut-out=37 x 13.5

- Direct drive positive contact opening
- Minimum contact gap of 3mm
- Screw or panel mounting versions available
- Double internal/external return spring mechanism (Pull to lock internal only)
- Pull to lock on version available for easy maintenance
- Conforms to Class II of VDE Insulation
- **CSA**, **VDE**, and **SEMKO** approved, **UL** recognised

Contacts	SPST N/C, SPDT - N/O, N/C	Electrical life	100000 ops (min)
Mechanical life	10000000 ops (min)	Operating temperature	-25°C to +80°C

213282

Contact Arrangement	Mfrs. List No.	Order Code	1+	50+	100+	250+
Screw Mounting						
SPDB - SPST N/C	D2D-1002	990-2040	4.11	3.72	3.52	2.99
SPDB - SPDT - N/O, N/C	D2D-1000	990-2058	3.74	3.58	3.42	3.25
Screw Mounting (Pull to Lock)						
SPDB - SPDT - N/O, N/C	D2D-2000	990-2066	3.30	2.97	2.70	2.55
Panel Mounting						
SPDB - SPDT - N/O, N/C	D2D-1100	990-2074	5.51	4.95	4.69	4.02

Contact Arrangement	Mfrs. List No.	Order Code	1+	50+	100+	250+
Screw Mounting						
Panel Mounting (Pull to Lock)						
SPDB - SPST N/O, N/C	D2D-2100	990-2082	4.18	3.44	2.92	2.50

'V3S' Door Interlock Switch
10A @ 250V ac, 6A @ 30V dc



- Sealed to **IP67**
- Pre-wired with 500mm long PVC leads

Colour code : N.O. =Blue, N.C. =Grey, Common=Black

Electrical life >100,000 ops Operating temperature -55°C to +85°C

Operating force, max. 1133gf
Pre-travel, max. 4.19mm
Dimensions (mm) 52.76x52x14.22

347661/405595

Mfrs. List No.	Order Code	1+	10+	50+	100+
73-6905	466-2246	6.82	6.50	6.34	6.20

Foot Switches

Standard Light Duty
3A @ 240V ac



- Light duty with heavy gauge pressed steel base and cover
- Non-slip base and foot pad
- SPDT contacts, either momentary or latching (press-on/press-off)
- Provided with 2 metres cable

Current rating Momentary 3A @ 240V ac
Latching 3A @ 240V ac

H=20 (max),
W=63, L=89

Mfrs. List No. 6289-CC= 422-940 6289-PP= 422-952

213088

	Order Code	1+	10+	25+	100+
Momentary	422-940	17.23	16.56	16.24	15.83
Latching	422-952	21.45	20.79	20.37	19.76

Palm/Footswitch
3A @ 240V ac



- Can be hand or foot operated
- Hinge is located at the front for improved operator comfort
- Switch is moulded in glass filled nylon for strength and rigidity
- Supplied with 2 metres of 3 core cable
- 733-829 sealed to **IPx2**, 733-830 sealed to **IPx7**

H=27, W=66, L=116.5

Contact rating SPCO, 3A @ 240V ac

Mfrs. List No. 6220-IP40=733-829, 6221-CABB-ZZEZ=733-830

213273

Mfrs. List No.	Order Code	1+	10+	25+
Palm/Footswitch, IPx2	733-829	20.43	19.08	17.89
Palm/Footswitch, IPx7	733-830	26.09	24.54	22.96

Treadle Footswitch
3/6A @ 240V ac



- Non-slip base and foot pad
- Provided with 2 metres of cable
- Incorporates two momentary SPST foot switches wired in parallel

Current rating 6A resistive, 3A inductive @ 240V ac

213269

Mfrs. List No.	Order Code	1+	5+	10+	25+	+
6289-01	733-817	62.77	57.49	56.33	51.75	--

Industrial, Medium Duty
3/6A @ 240V ac

- Die-cast aluminium base and cover
- SPDT momentary contacts
- Non-slip base and foot pad

H=46, W=95, D=150

Current rating 6A resistive, 3A Inductive @ 240V ac

213272

Mfrs. List No.	Order Code	1+	10+	25+	50+	100+
6254-CT	733-805	58.34	55.39	52.05	48.17	44.91

Heavy Duty Metal Footswitch, 1 or 2 Pedals
10A @ 500V ac

- Ultra strong die-cast aluminium construction
- Snap-action contacts 1NO/1NC (latching and two stage, slow make/break)
- Positive drive forced disconnection on NC contacts
- Dual stage pedal has two sets of 1NO/1NC contacts
- Latching type (press once - on, press again - off)
- Mounting holes allow fixing to floor or machine

Single Pedal H=60, W=70, D=220,
Single pedal guarded H=146, W=156, D=250
Double pedal guarded H=146, W=276, D=250

Housing Protection	Die-cast aluminium IP 65	Operating temp	-30 to +80°C
Cable entries <td></td> <td>Mechanical life <td>10 x 10⁶ switch operations</td> </td>		Mechanical life <td>10 x 10⁶ switch operations</td>	10 x 10 ⁶ switch operations
Single pedal <td>1 x M20</td> <td>Max inrush current <td>acc. IEC 947-5-1; AC15; DC 13</td> </td>	1 x M20	Max inrush current <td>acc. IEC 947-5-1; AC15; DC 13</td>	acc. IEC 947-5-1; AC15; DC 13
Two stage single pedal <td>3 x M20</td> <td>Max Voltage <td>500V ac.</td> </td>	3 x M20	Max Voltage <td>500V ac.</td>	500V ac.
Two pedal <td>1 x M20</td> <td>Thermal current <td>1st 10A.</td> </td>	1 x M20	Thermal current <td>1st 10A.</td>	1 st 10A.
Mfrs. List No.	606-1300-011 = 178-891 606-1800-012 = 176-493	Approvals	BG, CSA, UL recognised
	616-1800-247 = 178-890 F1-U2ZD UN = 101-6446		F2-U1Z/U1Z UN = 101-6447 F1-SU1Z/U1V DUN = 101-6448

213079

Type	Mfrs. List No.	Order Code	1+	5+	10+
Momentary - Without shroud	606-1300-011	178-891	53.58	51.32	49.51
Momentary - With shroud	606-1800-012	176-493	69.14	65.75	62.57
Latching - With shroud	616-1800-247	178-890	70.60	67.10	63.89
Dual stage - Guarded	F1	101-6446	91.84	82.64	80.76
Latching - With Manual Reset	F1	101-6448	117.08	105.37	102.95
Double pedal - Guarded	F2	101-6447	132.56	119.31	116.58

Heavy Duty Footswitch with Safety Function
10A @ 500V ac

- 3 stage operation with emergency off (latched)
Stage 1 (rest) OFF
Stage 2 ON (machine running)
Stage 3 EMERGENCY OFF (contacts latched)
- Manual reset button to return to normal operation
- Ultra strong Die-cast aluminium construction

Protection IP65
Cable Entry 1 x M20
Operating Temperature -30°C to 80°C
Approvals BG, UL, CSA

H=146, W=156, D=250

249531

Mfrs. List No.	Order Code	1+	5+	10+	50+
F1-SU1Z/U1V DUN	101-6448	117.08	105.37	102.95	100.88

Air Switching System**herga**

The air operated switching system allows safe operation of electrical circuits in dangerous, dirty or difficult environments. Actuated by a simple bellows, which when compressed causes air to move down the tubing to the switch. The pressurised air then causes the bellows in the switch to operate the electrical contacts. The switch and all electrical wiring can be mounted outside the hazardous area.

Applications include hospitals, laboratories, garages, agricultural, food industry, factory production lines, etc. where explosive gases, vapours or substances exist or in areas which are wet and dirty or may need washing down.

Operating temperature -10°C to +50°C (subject to tube length limitations)

213121

Over 480,000 products online

RoHS ● Compliant
▲ Non-compliant

08447 11 11 11

Fax: 08447 11 11 12

677

Foot/Hand Actuator**herga**

- Foot or hand operated air actuator for general light duty
- Suitable for use with all air-operated switch elements
- Supplied complete with mounting plate or may be used free-standing
- Moulded in black PVC and fitted with 2m of tubing (3mm bore, 6mm O.D.)

Dia=93, H=16.5, Mounting=3 holes on 70 PCD (equally spaced)

213122

Mfrs. List No.	Order Code	1+	10+	25+	50+
6448-00	107-271	7.33	6.47	6.27	6.02

Foot Actuator, Light Duty**herga**

- Foot operated air actuator for light duty applications
- Heavy gauge pressed steel base and cover
- Suitable for use with all air-operated switching elements
- Supplied with 2 metres of tubing (3mm bore, 6mm O.D.)

H=20, W=63, L=89

213267

Mfrs. List No.	Order Code	1+	10+	25+	50+
6289-0B	733-866	17.49	16.93	16.26	15.27

Foot Actuator, Heavy Duty**herga**

- Foot operated air actuator for heavy duty applications
- Aluminium base and cover
- Non-slip base and foot pad
- Supplied with 2 metres of 9mm O.D. armoured tubing
- Suitable for use with all air operated switching elements

H=46, W=95, L=150

213268

Mfrs. List No.	Order Code	1+	10+	25+	50+
6254-0B	733-842	41.67	38.55	37.77	36.47

Push Button Actuator**herga**

- Push-button actuators with chrome plated or white finish
- Suitable for use with all air-operated switch elements

Dia = 63, D (behind panel) = 43,
Panel cut-out = 42 dia, Max. panel thickness = 28

213123

Finish	Mfrs. List No.	Order Code	1+	10+	25+	50+
Chromeplated	6442-0C	107-272	14.67	13.13	12.37	10.46
White	6442-0W	733-854	12.57	11.89	10.86	10.13

700 products added online every week

See our pick of the hottest products and latest technologies in 'What's New?' at www.farnell.co.uk

15

Re-reeling available



Air Switching System - continued

SPDT Air Switches



Side entry Base entry

- Air-operated SPDT switches for use with actuators 107-271 and 107-272
- Designed to operate at pressures as low as 25 inches of water to a maximum of 5psi
- Momentary (press-on, release-off) and latching (press-on, press-off) versions
- Available either surface mounting with air connection at the side, or panel mounting with air connection through the base
- UL recognised

H=37, W=25, Fixing centres=20

Switch rating = 16A resistive, 4A inductive @ 250Vac

herga

		Mftrs. List No.	Order Code	Price Each			
				1+	10+	25+	50+
Momentary	Side entry	6871-01	286-151	7.34	6.54	6.26	5.80
	Base entry	6871-CO	286-163	7.94	7.07	6.78	6.28
Latching	Side entry	6871-AO	286-175	10.26	9.11	8.56	7.86
	Base entry	6871-AC	286-187	10.39	9.22	8.80	8.20

213126

Air Tubing and Accessories



Bulkhead connector 107-277 Tee-piece 107-278



PVC tubing (10m reel) 107-279

- Flexible PVC tubing enables remote switching (3mm bore, 6mm O.D.)
- In-line/bulkhead connectors and tee pieces give extra versatility to the switch system

213124

		Mftrs. List No.	Order Code	Price Each			
				1+	10+	25+	50+
Bulkhead connector		6419-00	107-277	4.51	4.16	3.93	3.70
Tee piece		6421-00	107-278	1.12	1.06	1.03	0.89
Tubing (10m reel)		6401-0004	107-279	7.29	6.61	6.26	5.90

Reed Switches & Magnets

Reed Switch - Glass

SMD



Gull wing package

G1 - Dia. = 1.8, L (body) = 5, L (overall) = 8.7mm
G2 - Dia. = 1.8, L (body) = 5, L (overall) = 10.16mm



J-lead package

Dia. = 1.8, L (body) = 5, L (overall) = 7.1mm

These SMT devices are dry reed switches hermetically sealed in a gas-filled glass envelope. They are single-pole single-throw (SPST) type, having normally open contacts and containing two magnetically actuated reeds. The switch is a double-ended type and may be actuated with an electromagnet, a permanent magnet or a combination of both. The devices are intended for use in relays, sensors, pulse counters or similar products.

Operate range (AT)	5 - 15	Switching current ac rms(max)	250mA
Release range (AT)	2 - 13	Switch carry current (max)	0.5A
Switch power (max)	5W	Contact resistance (max)	160mohm
Switch voltage dc(max)	175V dc	Insulation resistance (Min)	1000Gohm
Switch voltage ac rms(max)	140V ac	Temperature, operating	-55 to +125°C
Switching current dc(max)	0.5A		

418483

		Mftrs. List No.	Order Code	Price Each				
				1+	25+	50+	100+	250+
RI-80SMD0515-G1			SMD108-1703	2.32	2.05	1.85	1.71	1.58
RI-80SMD0515-G2			SMD108-1704	2.09	1.57	1.37	1.21	1.09
RI-80SMD0515-J1			SMD108-1705	2.50	2.24	2.01	1.85	1.71

Reed Switch - Moulded

CT Series



Model CT05 - Gull wing package
H = 2.31, W = 6.4, D = 2.31mm



Model CT10
H = 2.92, W = 11.6, D = 2.41mm

These SMT devices are moulded dry reed switches. They are single throw (SPST) type, having normally open ruthenium contacts. The switch is a double-ended type and may be actuated with an electromagnet, a permanent magnet or a combination of both.

Model

Operate range (AT)	15 - 50	CT05	15 - 50	CT10	10 - 40
Release range (AT)	5 - 45		5 - 45		3 - 35
Switch power (max)	5W		5W		10W
Switch voltage dc(max)	140V dc		140V dc		200V dc
Switch voltage ac rms(max)	100V ac		100V ac		140V ac
Switching current dc(max)	500mA		500mA		500mA
Switching current ac rms(max)	250mA		250mA		500mA
Switch carry current (max)	500mA		500mA		500mA
Contact resistance (max)	160mohm		160mohm		150mohm
Insulation resistance (Min)	1000Gohm		1000Gohm		1000Gohm
Temperature, operating	-40 to +125°C		-40 to +125°C		-40 to +125°C

Mftrs. List No.	Order Code	Feature	Mftrs. List No.	Order Code	Feature
CT05-3050-G1	108-1694	Gull Wing	CT10-1530-G1	108-1696	Gull Wing
CT05-3050-J1	108-1695	J - Lead	CT10-1540-G1	108-1697	Gull Wing
			CT10-2540-G1	108-1698	Gull Wing

418468

		COIL	Price Each						
		V dc	Ω ±10%	Order Code	1+	10+	50+	100+	250+
Model CT05 - SPST N/O									
				SMD108-1694	2.500	1.950	1.500	1.186	1.159
				SMD108-1695	2.000	1.580	1.240	0.920	0.830
Model CT10 - SPST N/O									
				SMD108-1696	3.320	2.600	1.990	1.470	1.320
				SMD108-1697	3.320	2.600	1.990	1.470	1.320
				SMD108-1698	1.750	1.370	1.040	0.780	0.690

Reed Sensor

Magnet Detection - SMD



MK15 - H = 2.5, W = 16, D = 2.5mm
MK16 - H = 2.3, W = 11.5, D = 2.3mm
MK17 - H = 2.1, W = 8.5, D = 2.1mm

These sensors are magnetically operated Reed proximity switches for SMD mounting. The special features of this series are the small dimensions and the simple internal structure.

Contact Form	SPNO	Switching current A (max)	0.5
Contact resistance mR (max)	150	Switch carry current A (max)	0.5
Switch power W (max)	10	Breakdown voltage V dc	200
Switch voltage V dc (max)	200	Temperature, operating °C	-40 to +130

417821

Pull in Range	Mftrs. List No.	Order Code	1+	10+	25+	50+
10mm to 15mm	MK15-B-2	SMD107-9484	1.30	1.07	0.97	0.71
15mm to 20mm	MK15-C-2	SMD107-9485	1.30	1.07	0.97	0.71
10mm to 15mm	MK16-B-2	SMD107-9486	0.97	0.81	0.73	0.53
15mm to 20mm	MK16-C-2	SMD107-9488	1.14	0.97	0.86	0.63
10mm to 15mm	MK17-B-2	SMD144-7645	1.58	1.44	1.29	1.11
15mm to 20mm	MK17-C-2	SMD144-7647	1.58	1.44	1.29	1.11

Reed Sensor

Magnet Detection



MK6-5x - H = 3.2, W = 14.3, D = 2.8mm
MK6-8x - H = 4.2, W = 22.32, D = 3.3mm

Contact Form	Contact Form		
Contact resistance mR (max)	150	Switch carry current A (max)	0.5
Switch power W (max)	10	Breakdown voltage V dc	230
Switch voltage V dc (max)	200	Temperature, operating °C	°C to +85
Switching current A (max)	0.5		

417833

Pull in Range	Mftrs. List No.	Order Code	1+	10+	25+	50+
10mm to 15mm	MK6-5-B	107-9479	0.79	0.66	0.60	0.45
15mm to 20mm	MK6-5-C	107-9480	0.91	0.76	0.69	0.49
10mm to 15mm	MK6-8-B	107-9481	0.75	0.63	0.56	0.42
15mm to 20mm	MK6-8-H	107-9482	4.35	3.63	3.27	2.39

Over 480,000 products online

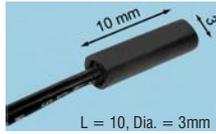


15

RL Re-reeling available

Farnell

Reed Sensor - Magnetic
Cylindrical Proximity Switch



The MK20 and MK20/1 sensors are magnetically operated reed proximity switches in a cylindrical module, fitted with 100mm interconnect cable. The sensor should be mounted on a fixed surface with the actuating magnet on the moving surface. The module has a flat side to indicate maximum sensitivity. Introduction or removal of the magnetic field determines the closing or opening of the reed switch.

Contact ratings	5W	Carry current	0.5A
Switching voltage	175V dc or 175V ac peak	Contact resistance	150mohm
Switching current	0.25A	Operating temperature	-20 to 70°C

486388

Pull-in Range	Mfrs. List No.	Order Code	1+	10+	25+	50+	Price Each
10mm to 15mm	MK20/1-B-100W	144-7648●	1.71	1.58	1.50	1.44	
15mm to 20mm	MK20/1-C-100W	144-7649●	1.71	1.58	1.50	1.44	

Glass Reed Switches
Switches and Magnets



- Hermetically sealed contacts
 - Capable of switching European mains voltages
 - Low, stable contact resistance
 - Zero operating power required for contact change
- UL recognised (File E47258) except DRR-DTH, MLRR-3 and MITI-3

L (mm)	Dia (mm)	Style	Voltage		Current		Resistance Contact (mR)	Order Code
			switching (V) dc max	breakdown (V) dc min	switching max (A)	carry max (A)		
Standard Size								
39.67	5.53	C/O (Form C)	500	1200	0.5	3.0	125	433-2349
50.8	5.25	N/O (Form A)	400	600	3	6	100	433-2337
Miniature Size								
20.32	2.84	N/O (Form A)	250	750	1	2.5	100	433-2350
15.24	2.66	N/O (Form A)	200	250	1	1.2	100	433-2374
Sub miniature								
12.7	1.8	N/O (Form A)	200	250	0.5	0.8	100	433-2362
15.24	2.28	N/O (Form A)	200	250	0.5	1.2	100	433-2453
Ultra miniature								
6.86	1.8	N/O (Form A)	170	170	0.5	0.5	150	433-2441
Magnets								
		Dimensions (mm)						
Order Code	L	W	D	Order Code	L	W	D	
433-2386	12.7	1.6	1.6	433-2404	19.1	3.2	3.2	
433-2398	25.4	4.8	4.8	433-2416	25.4	6.35	6.35	

249251

Mfrs. List No.	Order Code	1+	25+	100+	250+	500+	1K+	Price Each
C O contacts								
DRR-DTH	433-2349●	2.800	2.600	2.340	2.060	1.820	1.520	
N O contacts								
DRR-129	433-2337●	1.670	1.550	1.400	1.200	1.090	0.910	
Miniature								
MRPR-8	433-2350●	0.570	0.540	0.490	0.410	0.360	0.310	
MLRR-3	433-2374●	0.330	0.310	0.290	0.250	0.230	0.187	
Sub miniature								
MDSR-7	433-2362●	0.330	0.310	0.290	0.250	0.230	0.187	
MDCG-4	433-2453●	0.310	0.290	0.260	0.230	0.200	0.176	
Ultra miniature								
MITI-3V1	433-2441●	0.600	0.560	0.510	0.450	0.390	0.330	
Magnets								
H31	433-2386	0.390	0.360	0.340	0.300	0.270	0.220	
H32	433-2398	1.010	0.940	0.830	0.740	0.670	0.560	
H33	433-2404	0.460	0.420	0.390	0.350	0.300	0.260	
H34	433-2416	1.400	1.290	1.170	1.030	0.880	0.770	

Reed Switch - Glass
Axial lead



- RI-23 - Dia. = 2.54, L (body) = 15, L (overall) = 46mm
- RI-27 - Dia. = 1.8, L (body) = 13.2, L (overall) = 46mm
- RI-46 - Dia. = 2.7, L (body) = 20.5, L (overall) = 54.8mm
- RI-70 - Dia. = 1.8, L (body) = 7, L (overall) = 46mm

These devices are dry reed switches hermetically sealed in a gas-filled glass envelope. They are single-pole single-throw (SPST) type, having normally open contacts and containing two magnetically actuated reeds. The switch is a double-ended type and may be actuated with an electromagnet, a permanent magnet or a combination of both. The devices are intended for use in relays, sensors, pulse counters or similar products.

Model	RI-23	RI-27	RI-46	RI-46
Operate range (AT)	18 - 32	20 - 34	24 - 51	7 - 21
Release range (AT)	8 - 22	7 - 19.5	8 - 20.5	3 - 16
Switch power (max)	10W	10W	40W	10W
Switch voltage dc(max)	200V dc	200V dc	200V dc	170V dc
Switch voltage ac rms(max)	140V ac	140V ac	250V ac	120V ac

Model	RI-23	RI-27	RI-46	RI-46
Switching current dc(max)	2.5A	1.75A	3A	400mA
Switching current ac rms(max)	500mA	500mA	1000mA	500mA
Switch carry current (max)	2.5A	1.75A	3A	400mA
Contact resistance (max)	100mohm	100mohm	90mohm	150mohm
Insulation resistance (Min)	1000Gohm	1000Gohm	1000Gohm	1000Gohm
Temperature, operating	-55 to +125°C	-55 to +125°C	-55 to +125°C	-55 to +125°C

418482

Mfrs. List No.	Order Code	1+	25+	50+	100+	250+	Price Each
RI-23A	108-1699●	0.83	0.74	0.67	0.62	0.58	
RI-27A	108-1700●	1.14	1.02	0.91	0.85	0.78	
RI-46B	108-1701●	0.83	0.74	0.67	0.62	0.58	
RI-70GP0715	108-1702●	1.11	0.99	0.89	0.82	0.76	

Over 480,000 products online

Reed Switch
Rhodium Contacts



1A Contacts

1C Contacts

Model	1A35	1A46	1A66	1A80	1A87	1C90U
Dia. (body) mm	2.2	2	2.2	1.8	2	2.54
Length (body) mm	10.5	12	14	7	10	14
Length (overall) mm	34.5	44.1	44.1	35.6	35.5	56.1
Model						
Contact Form	1A	1A	1A	1A	1A	1C
Contact resistance mR (max)	150	150	150	200	150	150
Rated power (max)	20W	10W	10VA	10W	10W	10W
Switch voltage V dc (max)	200	200	180	170	200	175
Switching current A (max)	1.0	0.5	0.5	0.5	0.5	0.5
Switch carry current A (max)	1.25	1	1.25	0.5	0.5	1
Breakdown voltage V dc	320	225	225	210	230	200
Insulation voltage V dc	1500	1500	1500	1500	1500	1500
Time, operate/release ms (max)	0.5/0.1	-/0.1	0.5/0.1	0.6/0.1	0.6/0.1	0.7/1.5

417762

Mfrs. List No.	Order Code	1+	10+	25+	50+	Price Each
KSK-1A35-1520	107-9467●	0.38	0.32	0.28	0.21	
KSK-1A46-1020	NEW 144-7642●	0.57	0.49	0.43	0.32	
KSK-1A66-1020	107-9468●	0.45	0.37	0.34	0.25	
KSK-1A66-2030	107-9469●	0.75	0.62	0.57	0.41	
KSK-1A80-1020	107-9470●	1.66	1.37	1.25	0.91	
KSK-1A87-1020	107-9471●	0.62	0.52	0.47	0.35	
KSK-1C90U-2034	107-9472●	2.88	2.40	2.16	1.59	

Encapsulated Reed - PCB moun 6960 Series
HE 6960 Series



- Reed switch protected by strong plastic case
- Easy installation
- Long reliable life

495 - H = 4.2, W = 15.0, D = 3.2mm
496 - H = 4.7, W = 25.0, D = 3.7mm

	Standard		High voltage	
	10W	10V	100	100
Switch power W (max)	10W	10V	100	100
Switch voltage V dc (max)	200V	300V	10000Mohm	10000Mohm
Switching current A (max)	0.5A	0.5A	Temperature, operating	-40°C to 85°C
Switch carry current A (max)	0.8	1.5		

249247

Switching voltage	Mfrs. List No.	Order Code	1+	25+	100+	250+	500+	1K+	Price Each
Standard									
59600-495	433-2428●	1.10	1.03	0.92	0.81	0.71	0.61		
High voltage									
59600-496	433-2430●	1.10	1.03	0.92	0.81	0.71	0.61		

Help us to help the environment



This catalogue has been printed on paper certified from a sustainable source. Please recycle after use.

15

Re-reeling available



Reed Switches & Magnets - continued

PCB Mounting, Moulded Case



- Easy PCBinsertion
- Positive protection against accidental damage

Reed switches in strong polystyrene moulded cases for easy handling and to protect the glass body of the reed switch.

599-785/732-011: H=4.2 (above PCB), W=3.2, L=15, Pin spacing=12
 732-023: H=4.7 (above PCB), W=3.7, L=25, Pin spacing=22

Switching voltage (max.)	732-011
Switching current (max.)	24V ac
Switching capacity (max.)	0.1A
Switching resistance (max.)	1.0VA
	0.2ohm

231085

Mfrs. List No.	Order Code	1+	25+	100+	200+
PPS24	732-011 ●	1.57	1.31	1.12	1.03

Reed Sensor - Magnetic for Harsh Conditions
Screw Mount Proximity Switch



Products for tomorrow...

H = 6.35, W = 26.8, D = 19mm M21 Series Magnet
 H = 6.35, W = 28.6, D = 19mm

MK21 sensors are magnetically operated reed proximity switches designed for screw mounting. The sensor should be mounted on a fixed surface with the actuating magnet on the moving surface. Introduction or removal of the magnetic field determines the closing and opening of the reed switch. The 500mm long leads are Teflon coated. Designed for extreme environments. High temperatures, 150 °C Imprevions to water, fuels, oils, inks and most acids.

Contact ratings	10W	Carry current	1.25A
Switching voltage	200V dc or 200V ac peak	Contact resistance	150mohm
Switching current	0.5A	Operating temperature	-30 to 150°C

486606

Pull-in Range	Mfrs. List No.	Order Code	1+	10+	25+
10mm to 15mm	MK21P-1A66B-500W	144-7650 ●	3.07	2.92	2.76
15mm to 25mm	MK21P-1A66C-500W	144-7651 ●	3.07	2.92	2.76
Magnet	MAGNET M21P	144-7652 ●	0.72	0.67	0.64

Sensor Magnets



Products for tomorrow...

AlNiCo bar magnets are suitable for the operation of most Reed Switches and should ideally be the moving part of the sensing application. The selection of the magnet and the sensitivity of the Reed Switch will determinate the Pull-In and Drop-Out distances.

SmCo (samarium cobalt) and **NdFeB** (neodymium iron boron) magnets are made from rare earth materials and have especially good magnetic properties concerning stability and energy product.

Order Code	H (mm)	W (mm)	D (mm)	Dimensions	Dimensions	Dimensions	
107-9492	5.9	23	13.9	107-9496	22	5	
107-9492	5.9	23	13.9	107-9497	4	3	
107-9492	L (mm)	Dia. (mm)		107-9498	4	5	
107-9493	27	7.5		107-9500	15	8	
107-9494	12	3		Order Code	H (mm)	W (mm)	D (mm)
107-9495	19	4		107-9501	5	10	1.9

417861

Mfrs. List No.	Order Code	1+	10+	25+	50+
AlNiCo500					
MAGNET M4	107-9492 ●	1.100	0.910	0.820	0.610
ALNIC0500 7.5X27MM	107-9493 ●	0.860	0.700	0.640	0.460
ALNIC0500 3X12MM	107-9494 ●	0.250	0.210	0.188	0.139
ALNIC0500 4X19MM	107-9495 ●	0.330	0.270	0.240	0.182
ALNIC0500 5X22MM	107-9496 ●	0.890	0.740	0.670	0.480
SmCo					
SMCO5 3X4MM	107-9497 ●	0.520	0.420	0.380	0.290
SMCO5 5X4MM	107-9498 ●	0.530	0.440	0.400	0.290
NdFeB					
NDFEB 8X15MM	107-9500 ●	0.600	0.490	0.440	0.330
NDFEB 10X5X1.9MM	107-9501 ●	0.480	0.400	0.370	0.270

15

RL Re-reeling available

