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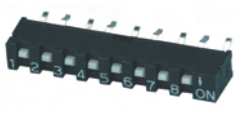
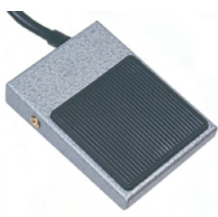
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Air Operated  SEE WEBSITE	Joysticks  SEE PAGE 1764	Navigation  SEE WEBSITE	Rocker  SEE PAGE 1725	Subminiature Interlocking  SEE PAGE 1738
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Detect  SEE WEBSITE	Keyboard Switches  SEE PAGE 1739	Push Button  SEE PAGE 1728	Rotary DIL  SEE PAGE 1760	Toggle, Illuminated  SEE WEBSITE
Digital  SEE WEBSITE	Keypads  SEE PAGE 1744	Push Button, Illuminated  SEE PAGE 1748	SIL  SEE WEBSITE	Voltage Selectors  SEE PAGE 1724
DIL  SEE PAGE 1757	Keyboards  SEE PAGE 1746	Push Buttons 8mm Illuminated  SEE PAGE 1747	Slide  SEE PAGE 1721	
Foot Operated  SEE WEBSITE	Microswitch  SEE PAGE 1765	Reed  SEE PAGE 1771	Snap-In Subminiature  SEE PAGE 1718	

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

SPST		Single Pole Single Throw Also known as single pole on-off
SPDT		Single Pole Double Throw Also known as single pole changeover (SPCO) or single pole on-on.
DPST		Double Pole Single Throw Also known as double pole on-off
DPDT		Double Pole Double Throw Also known as double pole changeover (DPCO) or double pole on-on

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

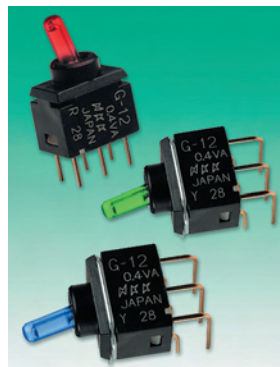
SPDT	Single pole on-on	(2 position)
SPDT - centre off	Single pole on-off-on	(3 position)
SPDT - biased	Single pole on-mom	(2 position)
SPDT - centre off, two ways bias	Single pole mom-off-mom	(3 position)
SPDT - centre off, one way bias	Single pole on-off-mom	(3 position)

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	80mR
Insulation resistance	500MR
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
LED colour	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. MCG12JPC=118-7628
MCG12JPCF=118-7748
MCG12JPCF=118-7749
MCG12JHC=118-7750

MCG12JHF=118-7751
MCG12JHCF=118-7753
MCG13JPCF=118-7754
MCG13JHCF=118-7755

311415

Straight Terminals	Order Code	1+	10+	25+	50+	+
SPDT on-on red	118-7628	11.65	10.51	9.63	8.76	--
SPDT on-on green	118-7748	11.65	10.51	9.63	8.76	--
SPDT on-on red/green	118-7749	14.03	12.63	11.59	10.51	--
SPDT on-off-on red/green	118-7754	14.61	13.15	12.04	10.97	--
Right Angle Terminals	Order Code	1+	10+	25+	50+	+
SPDT on-on red	118-7750	12.92	11.62	10.68	9.70	--
SPDT on-on green	118-7751	12.92	11.62	10.68	9.70	--
SPDT on-on red/green	118-7753	15.30	13.77	12.60	11.46	--
SPDT on-off-on red/green	118-7755	15.85	14.29	13.09	11.91	--

LED-tipped Toggle Switches

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



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

LED Specifications

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

Body H=20.3, W=12.7(SP), 17.5(DP), D=13
Lever L=14.7, Panel cut-out=6.5, thickness=2.6 max.

Switch Specifications

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

Mfrs. List No.

MCM2112TCW01 =	118-7767	MCM2113TCW01 =	118-7773
MCM2112TFW01 =	118-7768	MCM2113TFW01 =	118-7774
MCM2112TCFW01 =	118-7769	MCM2113TCFW01 =	118-7775
MCM2122TCW01 =	118-7770	MCM2123TCW01 =	118-7777
MCM2122TFW01 =	118-7771	MCM2123TFW01 =	118-7778
MCM2122TCFW01 =	118-7772	MCM2123TCFW01 =	118-7779

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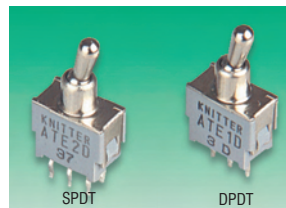
Switch Function	Colour	Order Code	1+	10+	25+	50+	+
SPDT on-on	Red	118-7767	19.95	17.97	16.47	14.97	--
SPDT on-on	Green	118-7768	19.95	17.97	16.47	14.97	--
SPDT on-on	Red/Green	118-7769	21.91	19.73	18.07	16.44	--
DPDT on-on	Red	118-7770	24.45	22.00	20.15	18.33	--
DPDT on-on	Green	118-7771	24.45	22.00	20.15	18.33	--
DPDT on-on	Red/Green	118-7772	26.37	23.73	21.78	19.79	--
SPDT on-off-on	Red	118-7773	21.55	19.40	17.77	16.14	--
SPDT on-off-on	Green	118-7774	21.55	19.40	17.77	16.14	--
SPDT on-off-on	Red/Green	118-7775	23.50	21.16	19.37	17.61	--
DPDT on-off-on	Red	118-7777	26.07	23.47	21.52	19.56	--
DPDT on-off-on	Green	118-7778	26.07	23.47	21.52	19.56	--
DPDT on-off-on	Red/Green	118-7779	27.99	25.19	23.11	20.99	--

Subminiature Toggle Switches

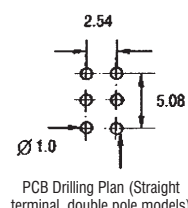
Sealed PCB Mounting

50mA@48V ac/dc

knitter-switch



Body H=8, W=9.5, D=5



Minimum load	1μA @ 20mV ac
Contact resistance	<50mR
Insulation resistance	10000MR @ 250V dc
Proof voltage	500V, 1 minute
Mechanical life	60000 ops.
Operating temperature	-20°C to +80°C

Mfrs. List No.

ATE1D = 992-2601	ATE 1D-RA = 119-0432
ATE2D = 119-0429	ATE 2D-RA = 119-0433

237888/405374

Switch Function	Order Code	1+	25+	100+
Straight Terminals	Order Code	1+	25+	100+
SPDT on-on	992-2601	7.41	6.01	5.63
DPDT on-on	119-0429	9.86	8.51	--
Right Angled Terminals	Order Code	1+	25+	100+
SPDT on-on	119-0432	10.21	--	--
DPDT on-on	119-0433	14.21	--	--

Switches

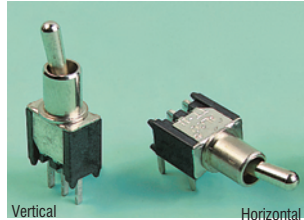
44

Compliant
Non-compliant
RoHS
Limited stock - RoHS replacement available

PCB Mount, Panel Mount,
Sealed - TT Series

0.4VA @ 20V dc (gold), 3A @ 125V ac (silver)

tyco Electronics ALCOSWITCH

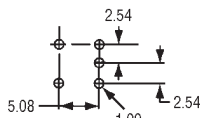


PCB Mounting

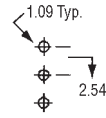


Panel Mount

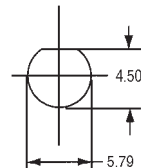
PCB drilling plans



Horizontal mounting
SPDT
H=7.1, W=8.1, D=9.4
Bush L=5.6, Dia=4.72



SPDT
H=8.60,
W=5.23, D=8.6
Bush L=5.6,
Dia=4.72



Panel cut-out
Panel mounting
H=8.6, W=5.3, D=8.1
Bush L=5.6 (10-48
UNS-2A)

- Gold contacts allow low level switching
- Threaded bush types suitable for panel mounting
- Vertical and Horizontal mounting

Contact rating 0.4VA @ 20V dc/ac gold contacts
3A @ 125V28V dc silver contacts
Contact material Gold over Nickel or Silver plate
Contact resistance ≤20mR
Insulation resistance 1000MR @ 500V dc
Electrical life 2 position (gold) 80000 ops.3 position (gold) 60,000 ops
2 position (silver) 20,000 ops

Mfrs. List No.

TT11DGRA1 = 112-3980
TT11EGPC1 = 112-3982

TT13A-2TFN = 119-7657

TT13D-2TFN = 119-7658

213277

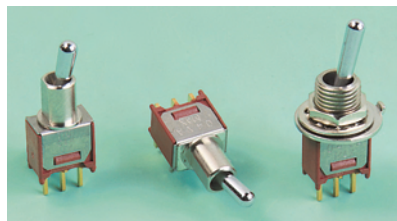
	Order Code	1+	10+	25+	50+	+	+
PCB Mount - Vertical (Gold Contacts)							
SPDT on-off-on	112-3982	17.92	15.23	14.13	12.08	--	--
PCB Mount - Horizontal (Gold Contacts)							
SPDT on-on	112-3980	14.18	12.00	11.09	9.57	--	--
Panel Mount - Vertical, (Silver Contacts)							
SPDT on-off	119-7657	24.48	20.76	19.31	16.51	--	--
SPDT on-on	119-7658	22.62	19.20	17.82	15.27	--	--

PCB Mounting

0.4VA @ 20V ac/dc

Cannon

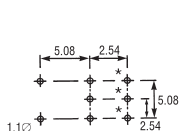
ITT Industries
Engineered for life



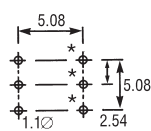
Vertical
Body H=8.64
W=5 (SPDT), 9.1 (DPDT)
D=8.13

Horizontal
Body H=5 (SPDT), 9.1 (DPDT)
W=8.1, D=9.1 (SPDT), 11.6 (DPDT)

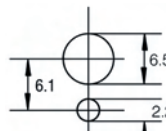
Vertical Threaded Bush
Body H=8.64
W=5 (SPDT), 9.1 (DPDT)
D=8.13



Right angle



Vertical



Panel cut-out

PCB drilling plans

*This row needed only for double pole switches

- 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 20mR @ 4V dc

Mfrs List No.

T101MH9CBE = 957-5634
T201MH9CBE = 957-5669
T101MH9ABE = 957-5685
T201MH9ABE = 957-5707
T103STDCBE = 957-5723

T103MH9CBE = 957-5642
T203MH9CBE = 957-5677
T103MH9ABE = 957-5693
T101STDCBE = 957-5715

T108STDCBE = 957-5731
T108MH9CBE = 957-5650
T203STDCBE = 957-5758
T201STDCBE = 957-5740

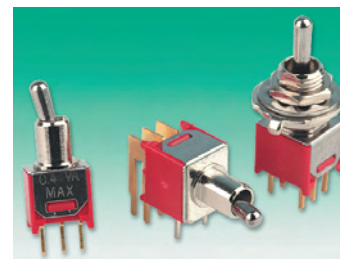
213278

	Order Code	1+	25+	100+	250+	+
Vertical Mounting						
SPDT on-on	957-5634	6.70	6.36	6.06	5.42	--
SPDT on-off-on	957-5642	7.68	6.33	5.79	4.92	--
SPDT on-mom	957-5650	8.43	7.26	6.69	5.52	--
DPDT on-on	957-5669	10.08	8.31	7.65	6.48	--
DPDT centre off	957-5677	8.95	7.68	7.23	6.51	--
Horizontal Mounting						
SPDT on-on	957-5685	5.09	4.82	4.58	4.09	--
SPDT on-off-on	957-5693	8.57	7.09	6.58	5.51	--
DPDT on-on	957-5707	17.67	14.61	13.56	10.86	--
Vertical Mounting - Threaded Bush						
SPDT on-on	957-5715	7.82	7.27	7.00	6.39	--
SPDT on-off-on	957-5723	9.81	8.43	7.83	6.45	--
SPDT on-mom	957-5731	10.86	9.24	8.61	7.17	--
DPDT on-on	957-5740	9.87	9.09	8.73	7.95	--
DPDT centre off	957-5758	15.24	13.05	12.03	9.99	--

Subminiature, PCB Mounting

0.4VA @ 20V ac/dc

multicomp

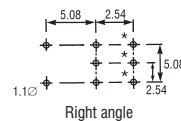


Vertical
Body H=8.3
W=5.08 (SPDT),
9.14 (DPDT)
D=8.13

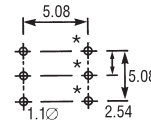
Vertical Threaded
Bush
Body H=8.64
W=5.08 (SPDT),
9.14 (DPDT)
D=8.13

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

PCB drilling plans



Right angle



Vertical

*This row needed only for double pole switches

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

Mfrs List No.

2MS1T2B2M2RE = 947-2967
2MS3T2B2M2RE = 947-2975
2MS2T2B2M2RE = 947-2983
2MD1T2B2M2RE = 947-2991
2MD3T2B2M2RE = 947-3009
2MS1T2B2M6RE = 947-3017
2MS3T2B2M6RE = 947-3025
2MD1T2B2M6RE = 947-3033
2MS1T1B5M2RE = 947-3041
2MS3T1B5M2RE = 947-3050
2MD1T1B5M2RE = 947-3068
2MD3T1B5M2RE = 947-3076
311893.343134

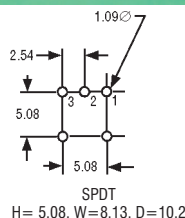
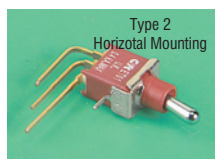
	Order Code	1+	25+	100+	250+	+
Vertical Mounting						
SPDT on-on	947-2967	5.97	5.67	5.40	5.16	--
SPDT on-off-on	947-2975	6.93	5.70	5.22	4.74	--
SPDT on-mom	947-2983	7.59	6.54	6.03	5.52	--
DPDT on-on	947-2991	9.09	7.50	6.90	6.21	--
DPDT on-off-on	947-3009	9.63	8.19	7.62	6.87	--
Horizontal Mounting						
SPDT on-on	947-3017	4.56	4.32	4.08	3.99	--
SPDT on-off-on	947-3025	7.65	6.33	5.88	5.31	--
DPDT on-on	947-3033	15.93	13.17	12.21	11.07	--
Vertical Mounting - Threaded Bush						
SPDT on-on	947-3041	6.99	6.48	6.24	5.97	--
SPDT on-off-on	947-3050	8.85	7.59	7.05	6.33	--
DPDT on-on	947-3068	8.91	8.19	7.86	7.53	--
DPDT on-off-on	947-3076	13.74	11.76	10.83	9.87	--

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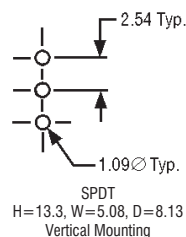
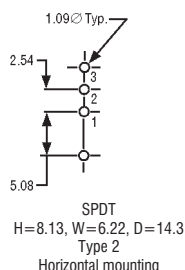
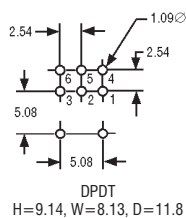
The very latest NEW products

Washable PCB Mounting

0.4VA @ 20V ac/dc



PCB drilling plans



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

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

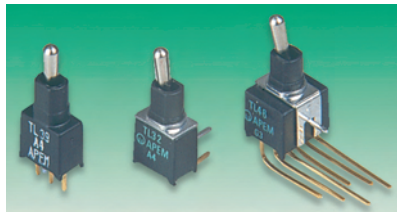
Mfrs. List No ET01MD1CBE = 957-4530 ET08MD1CBE = 957-4581 ET23MD1ABE = 957-4620
ET03MD1CBE = 957-4557 ET01MD1ABE = 957-4590 ET01MD1ABVE = 957-4638
ET05MD1CBE = 957-4565 ET03MD1ABE = 957-4603 ET03MD1ABVE = 957-4646
ET07MD1CBE = 957-4573 ET08MD1ABE = 957-4611 ET07MD1ABVE = 957-4654

213227

	Order Code	1+	25+	50+	100+	+
Vertical Mounting						
SPDT on-on	957-4530	5.45	5.30	5.15	4.39	--
SPDT on-off-on	957-4557	6.94	6.12	5.85	4.03	--
SPDT mom-off-mom	957-4565	5.45	4.76	4.30	3.85	--
SPDT on-off-mom	957-4573	5.73	4.98	4.53	4.02	--
SPDT on-mom	957-4581	5.73	4.98	4.53	4.02	--
Type 1 - Horizontal Mounting						
SPDT on-on	957-4590	9.88	8.76	8.18	5.73	--
SPDT on-off-on	957-4603	7.27	6.42	6.00	4.21	--
SPDT on-mom	957-4611	7.21	6.27	5.67	5.03	--
DPDT on-off-on	957-4620	11.18	9.88	9.27	8.14	--
Type 2 - Horizontal Mounting						
SPDT on-on	957-4638	6.24	5.52	5.34	4.11	--
SPDT on-off-on	957-4646	7.42	6.58	6.18	4.94	--
SPDT on-off-mom	957-4654	5.08	4.60	--	--	--

Washable PCB Mounting

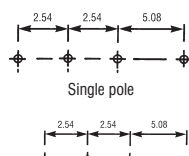
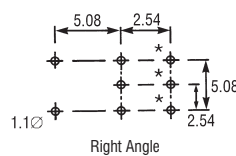
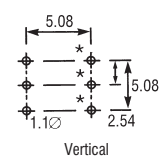
0.4VA @ 20V ac/dc



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



*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 <10mR 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 TL36W0050 = 108-2499
TL39P0050 = 108-2500 TL36W0050 = 108-2497 TL46W0050 = 108-2505
TL46P0050 = 108-2502 TL46W0050 = 108-2503 TL49W0050 = 108-2507

213119

	Order Code	1+	25+	Price Each	50+	100+	+
Vertical Mounting							
SPDT on-on	108-2496	5.22	4.68	4.45	3.69	--	
SPDT on-off-on	108-2500	5.70	5.15	4.87	4.10	--	
DPDT on-on	108-2502	7.44	6.75	6.20	5.67	--	
DPDT centre off	108-2506	7.83	7.06	6.59	5.64	--	
Right Angle - Horizontal Toggle							
SPDT on-on	108-2497	6.17	5.57	5.25	4.45	--	
DPDT on-on	108-2503	8.69	7.80	7.25	6.36	--	
Right Angle - Vertical Toggle							
SPDT on-on	108-2499	6.11	5.51	5.20	4.54	--	
DPDT on-on	108-2505	8.69	7.80	7.25	6.52	--	
DPDT centre off	108-2507	12.22	9.23	8.18	6.23	--	

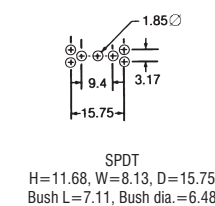
Miniature Toggle Switches

Miniature, PCB Mounting - Standard and Sealed

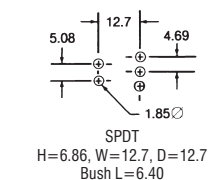
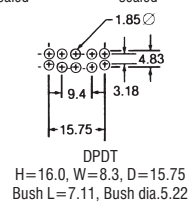
0.4VA @ 20V ac/dc



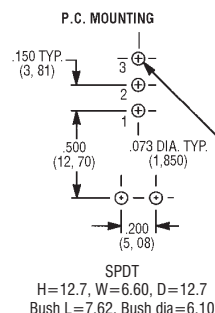
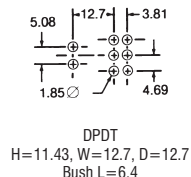
Vertical Type 1 horizontal Type 2 horizontal Type 1 horizontal, sealed Type 2 horizontal, sealed



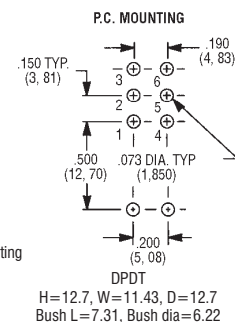
PCB drilling plans



Type 1 Horizontal mounting



Type 2 Horizontal Mounting



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

Switches

44

Compliant
Non-compliant
Limited stock - RoHS replacement available
RoHS

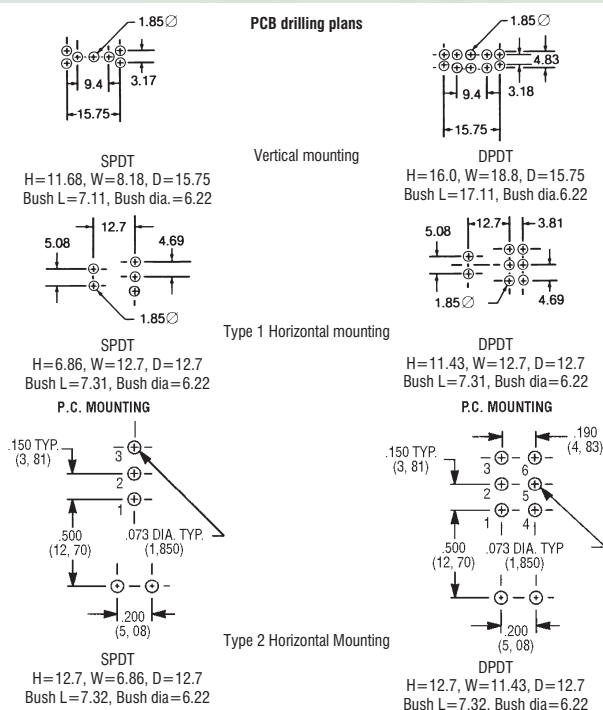
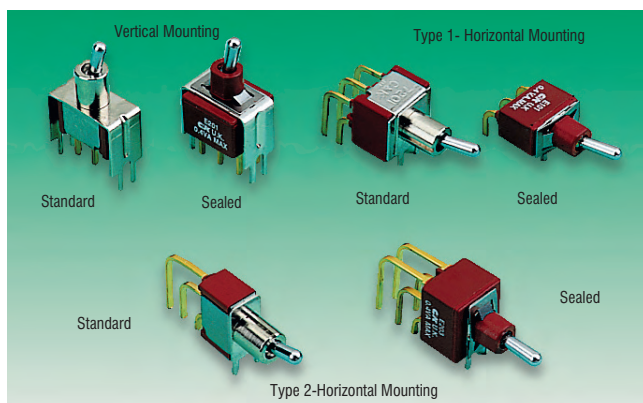
311895

	Order Code	1+	50+	100+	250+	+
Vertical Mounting - Standard						
SPDT on-on	947-3181	5.07	3.93	3.42	3.03	--
SPDT on-off-on	947-3190	5.61	4.59	3.96	3.48	--
SPDT on-mom	947-3203	7.38	5.70	5.01	4.41	--
SPDT mom-off-mom	947-3211	7.02	5.43	4.80	4.23	--
SPDT on-off-mom	947-3220	7.02	5.43	4.80	4.23	--
DPDT on-on	947-3238	7.47	5.79	5.19	4.62	--
Type 1 - Horizontal Mounting - Standard						
SPDT on-on	947-3246	7.29	4.98	4.41	4.23	--
SPDT on-off-on	947-3254	6.96	4.77	4.23	3.87	--
SPDT mom-off-mom	947-3262	8.37	5.76	5.13	4.47	--
DPDT on-on	947-3270	10.23	7.05	6.18	5.40	--
DPDT on-off-on	947-3289	11.01	7.56	6.54	5.76	--
Type 2 - Horizontal Mounting - Standard						
SPDT on-on	947-3297	6.30	4.35	3.78	3.42	--
SPDT on-off-on	947-3300	7.48	5.18	4.51	4.06	--
DPDT on-on	947-3319	9.75	7.20	6.45	5.79	--
Vertical Mounting - Sealed						
SPDT on-on	947-3327	4.32	3.54	3.18	2.82	--
Type 1 - Horizontal Mounting - Sealed						
SPDT on-on	947-3335	5.25	3.93	3.51	3.09	--
SPDT on-off-on	947-3343	6.12	4.59	4.08	3.66	--
SPDT on-mom	947-3351	7.02	5.22	4.68	4.17	--
Type 2 - Horizontal Mounting - Sealed						
SPDT on-on	947-3360	5.48	4.09	3.70	3.27	--

PCB Mounting - Standard and Sealed

0.4VA @ 20V ac/dc

Cannon
ITT Industries
Engineered for life



- 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
Contact resistance <10mR @ 4V dc
Lever length 7.0
Operating temperature -20°C to +65°C

Mfrs List No.	7101MD9ABE = 957-4786	7105MD9V3BE = 957-5456	7108MD9V3BE = 957-4760
	7101MD9AV2BE = 957-5502	7107MD9V3BE = 957-5464	E101MD1ABE = 957-5391
	7101MD9V3BE = 957-4743	7201MD9ABE = 957-4808	E101MD1V3BE = 957-5375
	7103MD9ABE = 957-4794	7201MD9V3BE = 957-4778	E103MD1ABE = 957-5405
	7103MD9AV2BE = 957-5510	7203MD9ABE = 957-5499	E103MD1V3BE = 957-5383
	7103MD9V3BE = 957-4751	7205MD9V3BE = 957-5472	E108MD1ABE = 957-5413
	7105MD9ABE = 957-5480	7201MD9AV2BE = 957-5529	

213102

	Order Code	1+	50+	100+	500+	+
Vertical Mounting - Standard						
SPDT on-on	957-4743	5.61	4.35	3.78	3.09	--
SPDT on-off-on	957-4751	6.27	5.15	4.42	3.51	--
SPDT on-mom	957-4760	8.27	6.39	5.61	4.48	--
SPDT mom-off-mom	957-5456	7.80	6.03	5.31	4.20	--
SPDT on-off-mom	957-5464	7.80	6.03	5.31	4.20	--
DPDT on-on	957-4778	8.36	6.48	5.82	4.67	--
DPDT mom-off-mom	957-5472	10.64	8.15	7.39	6.00	--
Type 1 - Horizontal Mounting - Standard						
SPDT on-on	957-4786	8.10	5.52	4.89	4.44	--
SPDT on-off-on	957-4794	7.71	5.28	4.68	3.78	--
SPDT mom-off-mom	957-5480	9.30	6.39	6.25	--	--
DPDT on-on	957-4808	11.34	7.83	6.84	5.46	--
DPDT centre off	957-5499	12.33	8.45	7.33	5.88	--
Type 2 - Horizontal Mounting - Standard						
SPDT on-on	957-5502	7.06	4.88	4.24	3.42	--
SPDT on-off-on	957-5510	8.22	5.67	4.95	4.02	--
DPDT on-on	957-5529	10.83	7.98	7.14	5.73	--
Vertical Mounting - Sealed						
SPDT on-on	957-5375	4.82	3.97	3.55	2.82	--
SPDT on-off-on	957-5383	5.79	4.33	3.82	3.64	--
Type 1 - Horizontal Mounting - Sealed						
SPDT on-on	957-5391	5.82	4.35	3.87	3.09	--
SPDT on-off-on	957-5405	6.85	5.15	4.58	3.64	--
SPDT on-mom	957-5413	7.85	5.85	5.24	4.15	--
Type 2 - Horizontal Mounting - Sealed						
SPDT on-on	957-5537	6.09	4.51	4.09	3.24	--

Miniature, Panel Mounting

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

multicomp



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

311897

	Order Code	1+	100+	250+	500+	+
SPDT on-on	947-3378	1.76	1.48	1.39	1.33	--
SPDT on-off-on	947-3386	2.16	1.86	1.74	1.65	--
DPDT on-on	947-3394	2.31	1.98	1.89	1.77	--
DPDT on-off-on	947-3408	3.21	2.76	2.61	2.46	--

Panel Mount

5A @ 125V ac or 28V dc - 2A @ 250V ac

eleedis



Specifications

Contact rating (resistive) 5A@ 125V ac or 28V dc - 2A @ 250V ac
Electrical life 55,000 make/break cycles
Contact resistance 10mR
Insulation resistance 1000MR
Dielectric strength 1500 V rms @ sea level
Operating temperature -30°C to 85°C

Materials

Case Diallylphthalate (DAP)
Toggle Brass, chrome plated
Bushing Brass, nickel plated
Housing Stainless steel
Approvals UL recognised

246632

Switch function	Mfrs. List No.	Order Code	1+	100+	250+	+
SPDT on, none, on	1A11-NF5STSE-B	112-3894	3.06	2.90	2.84	--
SPDT on, off, on	1A13-NF5STSE-B	112-3895	3.37	3.15	3.09	--
DPDT on, none, on	1A21-NF5STSE-B	112-3896	4.76	4.25	4.00	--
DPDT on, off, on	1A23-NF1STSE-B	112-3897	5.01	4.69	4.38	--

Panel Mounting

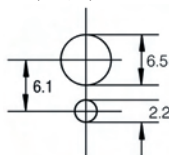
8A @ 6V dc, 3A @ 250V ac



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.

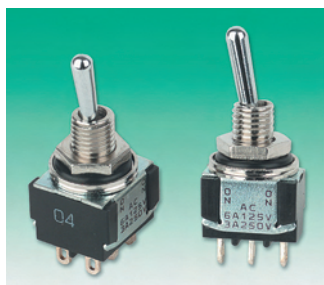
Contact resistance	<10mR	Electrical life	50000 ops
Contacts	Silver	Mechanical life	100000 ops
Dielectric strength	1kV rms	Operating temperature	-40°C to +85°C
Mfrs List No.			
5632A = 108-2297	5637A9 = 108-2303	5642A = 108-2311	5649A3V = 108-2317
5632A9 = 108-2298	5638A = 108-2304	5642A9 = 108-2312	5649A9 = 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 = 108-2323

213083

Flat Toggle	Order Code	1+	25+	50+	100+	+
SPDT on-on	108-2301	5.58	5.15	4.78	3.91	--
SPDT on-off-on	108-2308	6.27	5.60	5.00	3.79	--
SPDT mom-off-mom	108-2303	9.51	7.19	6.33	4.87	--
SPDT mom-off-on	108-2305	9.51	7.19	6.33	4.87	--
SPDT on-mom	108-2298	8.02	7.09	6.75	4.87	--
DPDT on-on	108-2315	7.41	6.81	6.27	5.15	--
DPDT centre off	108-2318	8.76	7.78	7.34	5.62	--
DPDT on-mom	108-2312	10.91	9.71	9.04	6.62	--
3PDT on-on	108-2320	16.71	12.56	11.26	8.97	--
4PDT on-on	108-2323	18.29	17.05	16.16	14.16	--
Standard Pear Toggle						
SPDT on-on	108-2299	5.06	3.85	3.43	2.74	--
SPDT on-off-on	108-2306	5.31	4.07	3.63	2.93	--
SPDT mom-off-mom	108-2302	5.22	3.91	3.46	2.64	--
SPDT on-off-mom	108-2304	5.22	3.91	3.46	2.64	--
SPDT on-mom	108-2297	5.22	3.91	3.46	2.64	--
DPDT on-on	108-2313	5.73	4.74	4.74	3.98	--
DPDT centre off	108-2316	6.94	5.25	4.68	3.69	--
DPDT on-mom	108-2311	11.62	8.82	7.77	5.92	--
3PDT on-on	108-2319	14.77	11.13	9.99	7.96	--
4PDT on-on	108-2321	17.59	13.30	11.84	9.45	--
Locking Toggle						
SPDT on-on	108-2300	12.37	11.04	10.31	8.72	--
SPDT on-off-on	108-2307	17.01	13.86	12.73	8.44	--
DPDT on-on	108-2314	15.08	13.39	12.70	10.59	--
DPDT centre off	108-2317	19.47	16.51	13.27	9.57	--

MTE Series - Waterproof

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



Contact rating	3A @ 250V ac, 6A @ 125V ac, 4A @ 12V dc, 5A @ 12V dc, 6A @ 5V dc	Waterproof to	IP 67
Contact resistance	< 10mΩ	Mechanical life	> 100000 operations
Insulation Resistance	> 1000MΩ	Contact material	Silver
Dielectric strength	1000V, 50Hz, 1 minute	Housing material	Diallyl-phthalate, meets UL94 V-0
Operating temperature	-45°C to +140°C		

244913/405378

Switch Function	Mfrs. List No.	Order Code	1+	50+
SPDT on-on	MTE106D	807-254	14.44	11.45
SPDT on-off-on	MTE 106 E	419-3088	18.55	--
SPDT mom-off-mom	MTE 106 G	419-3106	19.15	--
DPDT on-on	MTE206N	807-266	17.65	14.06
DPDT mom-off-mom	MTE 206 S	419-3143	23.66	--

Professional - Slow Make/Break Action **tyco Electronics** ALCOSWITCH
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.)	250V ac/28V dc, 6A
Maximum load	0.5VA
Contact resistance	10mR
Electrical life	> 50000 operations
Mechanical life	> 100000 operations
Temperature range	-25°C to +85°C
Bush thread	M6 X 0.75
Mfrs List No.	Order Code
FTD09	112-4175
FTE09	112-4176
FTN09	112-4177
Mfrs List No.	Order Code
FTP09	112-4178
FTF09	112-4179
FTR09	112-4180
Mfrs List No.	Order Code
FTS09	112-4181
FTD09G	112-4182
FTN09G	112-4184

213125

Silver Contacts	Order Code	1+	10+	25+	50+	+	+
SPDT on-on	112-4175	7.34	6.77	6.58	5.83	--	--
SPDT on-off-on	112-4176	11.10	10.29	9.47	8.46	--	--
SPDT on-mom	112-4179	9.07	8.51	8.13	7.56	--	--
DPDT on-on	112-4177	11.50	10.74	10.46	9.51	--	--
DPDT centre off	112-4178	12.38	11.66	11.31	10.27	--	--
DPDT on-mom	112-4180	11.75	10.99	10.46	9.73	--	--
DPDT mom-off-mom	112-4181	12.92	12.28	11.50	10.62	--	--
Gold Contacts							
SPDT on-on	112-4182	10.08	9.29	8.98	8.28	--	--
DPDT on-on	112-4184	15.28	14.02	13.61	12.63	--	--

Locking Lever

6A @ 250V ac or 28V dc



- Locking lever can be retained in either position.
- Prevents accidental switching.

	Silver contacts	Gold contacts
Contact rating (max.)	250V ac/28V dc, 6A	48V, 10mA
Maximum load	—	0.5VA
Contact resistance	10mR	20mR
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
FTN59G = 112-4169

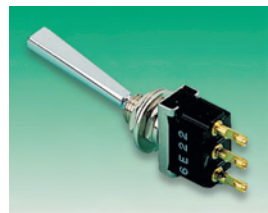
H=14.8, W=13, (DPDT), 8 (SPDT)
D=10.5 (body), Lever length = 15 (17 extended)

213074

Order Code	1+	10+	25+	50+	+	+
Gold Contacts						
DPDT on-on	112-4169	19.44	18.43	17.23	15.91	--
Silver Contacts						
DPDT on-on	112-4170	14.93	13.99	13.26	12.32	--

Long Flat Lever

6A @ 250V ac or 28V dc



- Chrome finished, lever offers style and ease of operation.
- Silver contacts

H=14.8, W=8 (SPDT), 13 (DPDT),
D=10.5 (body), Lever length=22.5

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

Mfrs. List No FTD79 = 112-4172 FTN79 = 112-4173 FTP79 = 112-4174 213112

Switch Function	Order Code	1+	10+	25+	50+	+	+
Silver Contacts							
SPDT on-on	112-4172	9.70	8.98	8.66	7.97	--	--
DPDT on-on	112-4173	17.07	16.22	15.15	14.02	--	--
DPDT centre off	112-4174	12.00	11.34	10.65	9.89	--	--

Snap-In Subminiature & Bezels

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 rocker 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 T1¼/5mm LED (not supplied)
- Switch bodies for rocker and lever are epoxy sealed

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

Switch Bodies for Rocker or Lever	Mfrs. List No.	Order Code
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
SPDT on-mom	7108J50 ZQE++	957-4972
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
DPDT on-mom	7208J50 ZQE++	957-5022
Switch Bodies for Push Button		
SPDT momentary	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 (T1¼)	
	Mfrs. List No.	Order No	Mfrs. List No.	Order No
Black	615602263	120-1357	613302263	120-1366

213068

Order Multiple=1	Order Code	1+	50+	100+	500+	+
Switch Bodies for Rocker or Lever						
SPDT on-on	957-4930	7.20	5.67	4.89	4.05	--
SPDT on-off-on	957-4948	7.03	5.45	4.82	3.73	--
SPDT mom-off-mom	957-4956	8.22	6.48	5.64	4.44	--
SPDT on-off-mom	957-4964	8.27	6.48	5.51	4.39	--
SPDT on-mom	957-4972	8.19	6.42	5.46	4.35	--
DPDT on-on	957-4980	10.18	7.82	6.85	5.30	--
DPDT on-off-on	957-4999	10.24	8.21	7.00	5.39	--
DPDT mom-off-mom	957-5006	11.97	8.97	7.58	5.79	--
DPDT on-off-mom	957-5014	13.97	10.73	8.42	6.51	--
DPDT on-mom	957-5022	13.97	10.73	8.42	6.51	--

Order Multiple=1	Order Code	1+	50+	100+	500+	+
Switch Bodies for Push Button						
SPDT momentary	957-4727	9.00	6.33	5.39	4.21	--
DPDT Momentary	957-4735	12.84	8.61	7.80	6.03	--
Order Multiple=5						
Actuators		5+	50+	100+	250+	
Rocker	All Colours	0.81	0.72	0.60	0.47	
Lever	All Colours	1.00	0.84	0.69	0.56	
Push button	All Colours	0.87	0.78	0.63	0.53	
Bezels						
Plain	All Colours	1.00	0.84	0.69	0.56	
With LED position	All Colours	0.81	0.72	0.60	0.47	

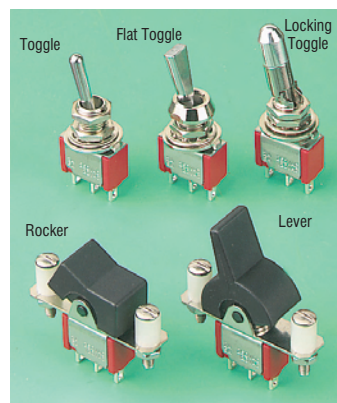
Miniature Toggle & Rocker Switches

Panel Mounting

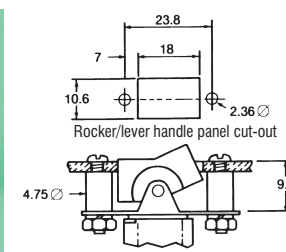
5A @ 28V dc or 125V dc, 2A @ 250Vac (Silver)

0.4VA @ 20V ac/dc (Gold)

Cannon

ITT Industries
Engineered for life

Toggle panel cut-out=6.35 dia



Rocker mounting information

		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/	SPDT	12.7	6.86	8.89

- 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 <10mR @ 4Vdc 1A
Bush thread 1/4" x 40 NS
Lever length 11
Operating temperature -55°C to +85°C

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

213133

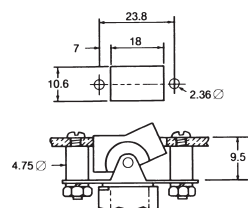
Toggle	Switch Contacts	Order Code	1+	25+	100+	250+
SPDT on-on	Silver	957-4816	6.33	5.76	4.86	4.41
SPDT on-on	Gold	957-4824	6.54	5.85	5.34	4.89
SPDT on-off-on	Silver	957-4832	7.11	6.27	5.49	4.80
SPDT on-off-on	Gold	957-4840	6.57	5.61	4.92	4.32
DPDT on-on	Silver	957-4859	7.85	6.82	6.00	5.27
DPDT on-on	Gold	957-4867	7.76	7.09	6.15	5.51
DPDT centre off	Silver	957-4875	8.03	7.00	6.15	5.39
DPDT centre off	Gold	957-4883	8.67	7.45	6.48	5.42
3PDT on-on	Silver	957-4891	10.92	9.51	8.43	7.50
4PDT on-on	Silver	957-4905	14.49	12.72	11.25	9.84
SPDT mom-off-mom	Silver	957-5545	6.88	5.79	5.06	4.42
SPDT mom-off-mom	Gold	957-5553	6.88	5.79	5.06	4.42
SPDT on-off-mom	Silver	957-5561	6.91	5.82	5.09	4.45
SPDT on-off-mom	Gold	957-5570	6.91	5.82	5.09	4.45
SPDT on-mom	Silver	957-5588	6.91	5.82	5.09	4.45
SPDT on-mom	Gold	957-5596	6.84	5.76	5.04	4.41
DPDT mom-off-mom	Silver	957-5600	9.15	7.88	7.00	6.12
DPDT on-off-mom	Silver	957-5618	10.14	8.70	7.77	6.78
DPDT on-off-mom	Gold	957-5626	10.14	8.70	7.77	6.78
Flat Toggle						
SPDT on-on	Silver	957-5030	6.33	5.76	4.86	4.41
SPDT on-off-on	Silver	957-5049	7.11	6.27	5.49	4.80
SPDT mom-off-mom	Silver	957-5057	6.88	5.79	5.06	4.42
SPDT on-off-mom	Silver	957-5065	6.91	5.82	5.09	4.45
SPDT on-mom	Silver	957-5073	6.91	5.82	5.09	4.45
DPDT on-on	Silver	957-5081	7.85	6.82	6.00	5.27

Toggle	Switch Contacts	Order Code	Price Each			
			1+	25+	100+	250+
Flat Toggle						
DPDT centre off	Silver	957-5090●	6.87	6.31	5.37	4.88
3PDT on-on	Silver	957-5103●	7.21	—	—	—
4PDT on-on	Silver	957-5111●	14.63	12.85	11.36	9.94
Locking Toggle						
SPDT on-on	Silver	120-1382●	10.80	9.81	8.70	7.89
SPDT on-off-on	Silver	120-1383●	12.04	9.80	8.79	8.17
DPDT on-on	Silver	120-1385●	13.17	11.91	10.56	9.60
DPDT centre off	Silver	120-1386●	14.68	13.41	12.01	10.90
Rocker (Screw Mounting,Black Rocker)						
SPDT on-on	Silver	957-4913●	7.02	5.79	5.04	4.47
DPDT on-on	Silver	957-4921●	8.64	7.06	6.18	5.51

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

		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

Rocker/lever handle panel cut-out
Rocker mounting information

Silver plated contacts: 5A @ 28V dc or 115V ac resistive load, 2A @ 250V ac
Gold plated contacts: 0.4VA @ 20V ac/dc
Electrical life: 40000 operations
Contact resistance: <10mR @ 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	5.70	5.19	4.38	3.99
SPDT on-on	Gold	947-3424	5.91	5.28	4.83	4.41
SPDT on-off-on	Silver	947-3432	6.42	5.67	4.95	4.32
SPDT on-off-on	Gold	947-3440	5.94	5.07	4.44	3.90
SPDT mom-off-mom	Silver	947-3459	6.15	5.16	4.53	3.96
SPDT mom-off-mom	Gold	947-3467	6.15	5.16	4.53	3.96
SPDT on-off-mom	Silver	947-3475	6.15	5.16	4.53	3.96
SPDT on-off-mom	Gold	947-3483	6.15	5.16	4.53	3.96
SPDT on-mom	Silver	947-3491	6.15	5.16	4.53	3.96
SPDT on-mom	Gold	947-3505	6.15	5.16	4.53	3.96
DPDT on-on	Silver	947-3513	7.09	6.15	5.42	4.76
DPDT on-on	Gold	947-3521	6.93	6.33	5.49	4.92
DPDT on-off-on	Silver	947-3530	7.17	6.24	5.49	4.83
DPDT on-off-on	Gold	947-3548	7.74	6.66	5.79	4.86
DPDT mom-off-mom	Silver	947-3556	8.16	7.02	6.24	5.46
DPDT mom-off-mom	Gold	947-3564	8.24	7.09	6.30	5.51
DPDT on-off-mom	Silver	947-3572	9.15	7.83	7.02	6.12
DPDT on-off-mom	Gold	947-3580	9.15	7.83	7.02	6.12
3PDT on-on	Silver	947-3599	9.84	8.58	7.59	6.75
4PDT on-on	Silver	947-3602	13.18	11.57	10.24	8.97
Flat Toggle						
SPDT on-on	Silver	947-3610	5.76	5.24	4.42	4.03
SPDT on-off-on	Silver	947-3629	6.42	5.67	4.95	4.32
SPDT mom-off-mom	Silver	947-3637	6.15	5.16	4.53	3.96
SPDT on-off-mom	Silver	947-3645	6.21	5.21	4.58	4.00
SPDT on-mom	Silver	947-3653	6.15	5.16	4.53	3.96
DPDT on-on	Silver	947-3661	7.02	6.09	5.37	4.71
DPDT on-off-on	Silver	947-3670	7.17	6.24	5.49	4.83
3PDT on-on	Silver	947-3688	9.84	8.58	7.59	6.75
4PDT on-on	Silver	947-3696	13.18	11.57	10.24	8.97
Rocker (Black rocker)						
SPDT on-on	Silver	947-3700	6.33	5.22	4.56	4.05
DPDT on-on	Silver	947-3718	7.71	6.30	5.52	4.92
Lever Handle						
SPDT on-on	Silver	947-3726	5.61	4.80	4.29	3.75
DPDT on-on	Silver	947-3734	7.71	6.60	5.88	5.13

Power Toggle Switches

Gemini A Series - Long Lever

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

tyco Electronics ALCOSWITCH



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

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

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

248684

Switch function	Contact material	Mfrs. List No.	Order Code	1+	10+	50+	100+
SPDT on-on	Silver	A101SYZQ	119-7667	5.48	4.85	4.38	3.95
SPDT on-off-on	Silver	A103SYZQ	119-7668	6.77	5.98	5.39	4.88
SPDT mom-off-mom	Silver	A105SYZQ	119-7669	7.56	6.65	5.98	5.39
SPDT on-off	Silver	A107SYZQ	119-7670	8.19	7.21	6.49	5.83
DPDT on-on	Silver	A201SYZQ	119-7671	9.70	8.54	7.69	6.90

0600 Series - Single Pole

3A @ 250V ac, 10A @ 6/24V ac/dc

Arcoelectric



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
SPST	6.3mm tab	Chrome	15	C0600CCAAE	140-600
SPST	6.3mm tab	Nylon	17.5	C0600HDAAF	140-601

213175

Order Code	1+	100+	Price Each		
			250+	500+	+
140-600	10.71	9.23	7.69	4.88	—
140-601	7.31	6.33	5.23	3.34	—

Quick Make, Quick Break

3A/8A/10A @ 250V ac/dc

CARLINGSWITCH
QUALITY BY DESIGN



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)	30.0	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	54.0	25.4	22.2	11.9	16.7	120-3335
DPDT 3A	Lugs (bottom)	30.0	13.1	14.3	11.9	12.7	120-3336

Panel cut-out=12.7 dia
Bush thread=1/8" x 32NS

Switches

44

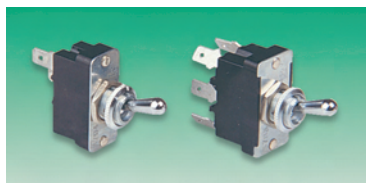
Compliant
Non-compliant
RoHS
Limited stock - RoHS replacement available

213220

Mfrs. List No.	Order Code	1+	50+	100+	500+
110-B-63	120-3330	6.52	5.58	5.13	4.25
2BK62-63	120-3333	9.83	8.35	7.84	6.36
DK284-73	120-3334	12.06	10.33	9.54	7.94
EK204-73	120-3335	25.07	17.80	15.15	13.17
2BL63-63	120-3336	11.97	10.14	9.42	7.78

S-POT Series

10A @ 250V ac, 10A @ 20V dc



Panel cut-out=12.7 dia
Bush thread=1/8" 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

Mfrs 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

Two Position	Order Code	1+	25+	50+	100+	+
SPDT on-on	421-996	17.89	13.32	12.00	9.14	--
SPST on-off	422-009	16.54	12.35	11.12	8.51	--
DPDT on-on	422-010	24.57	18.36	16.57	12.63	--
DPST on-off	422-022	22.59	16.88	15.18	11.59	--
DPST off-mom	422-034	22.59	16.88	15.18	11.59	--
Three Position	Order Code	1+	25+	50+	100+	+
SPDT mom-off-mom	422-046	17.89	13.32	12.00	9.14	--
DPDT on-off-on	422-058	24.57	18.36	16.57	12.63	--
DPDT mom-off-mom	422-060	24.57	18.36	16.57	12.63	--

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

Mfrs 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=1/8" x 32NS, Tab=6.3 Lever L=17.8

213196

	Order Code	1+	25+	50+	100+	+
SPST on-off	140-625	3.32	3.08	2.85	2.59	--
SPDT on-on	140-626	3.67	3.41	3.15	2.86	--
SPDT on-off-on	140-627	3.67	3.41	3.15	2.86	--
DPST on-off	140-621	6.01	5.59	5.17	4.68	--
DPDT on-on	140-622	6.32	5.88	5.43	4.93	--
DPDT on-off-on	140-624	6.32	5.88	5.43	4.93	--

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

	Order Code	1+	100+	250+	500+
DPST on-off	481-099	11.47	8.19	7.31	6.46
DPDT on-on	481-105	13.20	9.58	8.47	7.81
DPDT on-off-on	481-117	13.58	9.80	8.69	8.00

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.

C3900BAAAA=767-4244 C3922BAAAA=767-4287 C3970BBAAAA=767-4325
C3910BAAAA=767-4252 C3950BBAAAA=767-4295 C3972BBAAAA=767-4333
C3911BAAAA=767-4260 C3960BBAAAA=767-4309 R171000AAAA=767-4341
C3920BAAAA=767-4279 C3961BBAAAA=767-4317

347649/405379

	Order Code	1+	25+	50+	100+	+
SPST on-off	767-4244	5.07	4.72	4.36	3.95	--
SPDT on-on	767-4252	5.77	5.37	4.96	4.50	--
SPDT on-mom	767-4260	6.16	5.73	5.30	4.81	--
SPDT on-off-on	767-4279	5.93	5.51	5.10	4.62	--
SPDT mom-off-mom	767-4287	6.71	6.24	5.77	5.23	--
DPST on-off	767-4295	7.09	6.60	6.10	5.53	--
DPDT on-on	767-4309	8.66	8.05	7.45	6.75	--
DPDT on-mom	767-4317	9.05	8.41	7.78	7.06	--
DPDT on-off-on	767-4325	8.81	8.20	7.58	6.87	--
DPDT mom-off-mom	767-4333	9.59	8.92	8.25	7.48	--
Guard (Red)	767-4341	5.93	5.51	5.10	4.62	--

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.

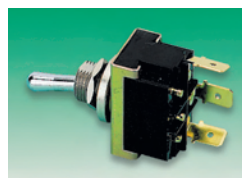
631NH/2= 108-2325 641NH/2= 108-2331 631H/2= 108-2324 641H/2= 108-2330
636NH/2= 108-2327 646NH/2= 108-2333 636H/2= 108-2326 646H/2= 108-2332
639NH/2= 108-2329 649NH/2= 108-2336 639H/2= 108-2328 649H/2= 108-2335

213172

	Order Code	1+	25+	100+	250+
Insulated Lever					
SPST on-off	108-2325	7.19	6.27	5.64	5.28
SPDT on-on	108-2327	10.40	7.86	6.39	5.67
SPDT on-off-on	108-2329	8.08	7.06	6.33	5.95
DPST on-off	108-2331	10.24	8.97	8.08	7.58
DPDT on-on	108-2333	12.28	10.69	9.61	9.07
DPDT on-off-on	108-2336	11.32	9.90	8.88	8.36
Metal Lever					
SPST on-off	108-2324	7.35	6.94	6.65	6.33
SPDT on-on	108-2326	10.15	9.23	8.78	7.96
SPDT on-off-on	108-2328	9.23	8.69	8.33	7.96
DPST on-off	108-2330	13.36	12.56	12.12	11.54
DPDT on-on	108-2332	16.51	15.06	14.27	13.45
DPDT on-off-on	108-2335	16.35	15.40	14.80	14.13

IP67 Sealed

20A @ 250V ac or 30V dc



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

H=35, W=19, D=17.5 (body) Bush diameter=11.4,
Bush thread=M12 x 1.0, Bush length=6.5

Mfrs List No.

ATN15W= 112-4163, ATP15W= 112-4166, ATT15W= 112-4167, AWT15= 112-4168
ATR15W= 112-4165,

213087

Prices are in Singapore Dollars and exclusive of GST.
Due to the volatile nature of certain products,
prices are subject to change without notice.

	Order Code	1+	10+	25+	100+	+
DPDT on-on	112-4163	37.96	33.58	31.69	27.59	--
DPDT on-mom	112-4165	42.27	37.52	35.37	30.65	--
DPDT on-off-on	112-4166	36.45	33.96	32.16	29.80	--
DPDT on-off-mom	112-4167	39.41	34.90	32.92	28.57	--
DPDT mom-off-mom	112-4168	39.47	34.97	32.92	28.57	--

IP67 Sealed - 3600 Series

12A @ 28V dc, 6A @ 220V ac



- 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



	Order Code	1+	10+	25+	100+	+
SPST on-off	108-2293	25.26	21.50	18.93	15.24	--
SPDT on-on	108-2294	28.66	24.34	21.50	17.37	--
DPST on-off	108-2295	35.57	30.16	26.63	21.41	--
DPDT on-on	108-2296	35.76	30.35	26.82	21.41	--

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

	Order Code	1+	10+	25+	50+	+
SPST on-off	113-8734	22.77	20.10	18.96	16.83	--
SPDT on-on	113-8735	22.77	20.10	18.96	16.83	--
DPDT on-on	113-8736	25.23	22.27	21.07	18.65	--
DPDT mom-on	113-8737	25.23	22.27	21.07	18.65	--
DPDT mom-off-mom	113-8738	25.23	22.27	21.07	18.65	--
DPDT on-off-on	113-8739	25.48	22.49	21.28	18.81	--
DPDT mom-off-on	113-8740	25.23	22.27	21.07	18.65	--

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



Order Code	1+	50+	100+	500+	+
151-352	1.68	1.56	1.44	1.20	--

Toggle and Push Button Sealing Boots



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+	100+	500+	+
Covered Toggle Seal						
11.9(15/32") 32 NS	108-2517	7.68	6.57	5.43	4.68	--
6.35 (1/4") 40 NS	108-2518	7.68	6.06	4.71	3.75	--
Protruding Toggle Seal						
11.9 (15/32") 32 NS	108-2520	8.49	7.29	6.00	5.04	--
Push Button Seals						
6.35 (1/4") 40 NS	108-2519	5.46	5.19	5.01	4.74	--
11.9(15/32") 32 NS	108-2529	7.30	6.33	5.16	4.38	--

Toggle and Push Button Sealing Boots

'Hexseals' (MIL spec)

APM HEXSEAL®



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
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

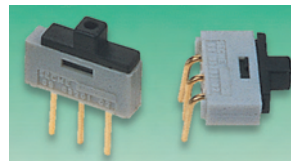
Thread Size	Order Code	1+	25+	100+	500+
Covered Toggle Seals					
1/4" x 40NS	146-840	10.74	9.27	8.34	7.29
1/4" x 40NS	146-841	10.86	9.39	8.43	7.41
1/4" x 40NS	146-842	10.86	9.39	8.43	7.41
15/32" x 32 NS	146-843	9.09	7.92	7.11	6.24
Protruding Toggle Seals					
1/4" x 40NS	146-844	10.86	9.39	8.43	7.41
15/32" x 32 NS	146-845	9.09	7.92	7.11	6.24
Push Button Seals					
1/4" x 40NS	146-846	11.16	--	--	--
15/32" x 32 NS	146-847	8.64	7.50	6.78	5.94
15/32" x 32 NS	146-848	8.64	7.50	6.78	5.94

Slide Switches

Subminiature, PCB Mounting - 1K2

0.5A @ 12V

eao



- 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

Contact rating <22mR
Insulation resistance >10000MR @ 500V dc
Operating temperature -40°C to +85°C
Contact material 0.5µ Gold plated

674-345:
H (above PCB)= 7.9, W=2.5, D=10
674-357:
H (above PCB)= 2.5, W=7.9, D (overall)=10
PCB pin spacing = 2.54

Switches

44

Compliant
Non-compliant
Limited stock - RoHS replacement available
RoHS

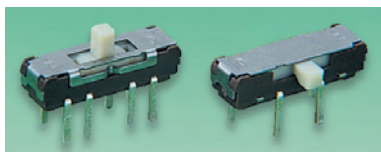
213217

	Mfrs. List No.	Order Code	1+	10+	100+	500+
SPDT, vertical	09-03290-01	674-345 ●	2.86	2.28	2.08	1.95
SPDT, right angle	09-10290-01	674-357 ●	5.92	4.38	3.40	2.90

Subminiature PCB Mounting - STSS2 Series

0.3A @ 6V dc

ALPS



Vertical Knob
H (above PCB)=5.5,
W=8.5 (3 pin), 13 (4 pin), D=3.3
PCB pin spacing=2.5 x 3.3
(DIL types)

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

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

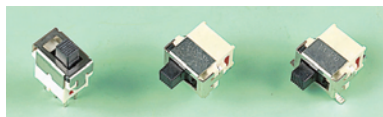
Electrical life 5000 cycles Contact resistance 70mΩ

213265

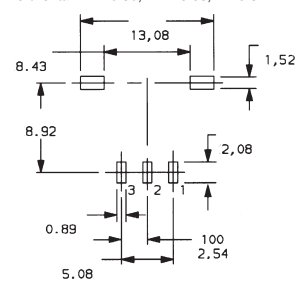
Poles/No. of Positions	Mfrs. List No.	Order Code	1+	50+	100+
Vertical Knob					
SP/2	STSS2121	112-3869 ●	1.63	1.46	1.30
DP/2	STSS2221	112-3870 ●	2.52	2.05	1.83
DP/3	STSS2231	112-3871 ●	2.60	2.14	—
Horizontal Knob					
SP/2	STSS2122	112-3872 ●	1.63	1.46	1.30
DP/2	STSS2222	112-3873 ●	2.52	2.05	1.83
DP/3	STSS2232	112-3874 ●	2.96	2.36	2.14

Subminiature, Sealed PCB Mounting

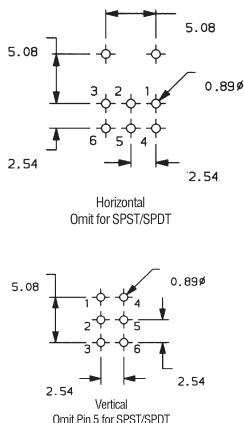
0.4VA @ 20Vac/dc

Cannon
ITT Industries

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



Horizontal-Surface Mount
Omit pad 2 for SPST



- 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 50mR

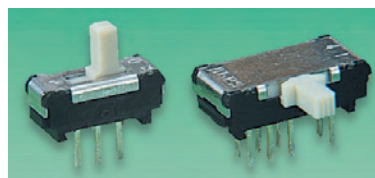
213167

Contact/Positions	Mfrs. List No.	Order Code	1+	25+	50+	100+	+
Vertical Acuator							
SPST/2	ES02MCBE	120-1387 ●	9.21	8.13	7.38	6.33	—
SPDT/2	ES01MCBE	120-1388 ●	8.34	7.38	6.72	5.73	—
DPDT/3	ES21MCBE	120-1389 ●	11.01	9.72	8.85	7.59	—
Horizontal Acuator							
SPST/2	ES02MAKE	120-1390 ●	10.20	9.03	8.19	7.02	—
SPDT/2	ES01MABE	120-1391 ●	9.42	8.34	7.56	6.48	—
DPDT/2	ES21MABE	120-1392 ●	11.91	10.56	9.60	8.25	—
Horizontal - Acuator - Surface Mount							
SPST/2	ES02MSABE	120-1393 ●	10.59	9.36	8.49	7.26	—
SPDT/2	ES01MSABE	120-1394 ●	10.44	9.21	8.37	7.17	—
SPDT/3	ES03MSABE	120-1395 ●	10.44	9.21	8.40	7.17	—

Subminiature PCB Mounting - STSS9 Series

0.1A @ 12V dc

ALPS



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 30mR

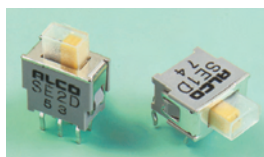
213266

Poles/No. of Positions	Mfrs. List No.	Order Code	1+	50+	100+
Vertical Knob					
SP/2	STSS9121	112-3875 ●	2.96	2.36	2.14
SP/3	STSS9131	112-3876 ●	3.06	2.44	2.28
DP/2	STSS9221	112-3878 ●	3.06	2.44	2.28
DP/3	STSS9231	112-3879 ●	3.52	2.83	2.67
Horizontal Knob					
SP/2	SSSS916400	112-3880 ●	2.96	2.36	2.14
SP/3	STSS9132	112-3881 ●	3.06	2.44	2.28
DP/2	SSSS925800	112-3882 ●	3.06	2.44	2.28
DP/3	STSS9233	112-3883 ●	3.94	3.15	2.84

Subminiature Washable, PCB Mounting

50mA @ 48V ac/dc

tyco Electronics ALCOSWITCH

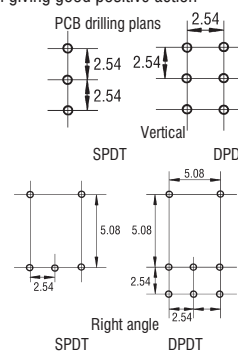


Vertical
H=8, W=9.5, D=5
H (incl. pins)=11.3
Overall H (including pins + slide)=14.6
Pins: H=3.3, Dia=0.6

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

- Designed for low level switching PCB applications
- Switch slide fitted with silicone rubber cover enabling board washing, protected to IP67
- Cover may be removed after washing, or kept in place, still giving good positive action



Mfrs. List Nos: SE1DGPC=112-3958
SE2DGPC=112-3960

SE1DGRA=112-3959
SE2DGRA=112-3961

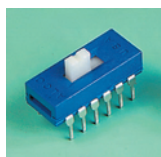
213274

	Order Code	1+	25+	100+	250+
SPDT VERTICAL	112-3958 ●	8.63	7.21	6.52	5.26
DPDT, vertical	112-3960 ●	20.36	17.82	15.70	13.05
SPDT, right angle	112-3959 ●	9.01	7.78	6.65	4.95
DPDT, right angle	112-3961 ●	16.35	13.85	11.89	10.14

Subminiature PCB Mounting

0.3A @ 115V ac/28V dc

tyco Electronics ALCOSWITCH



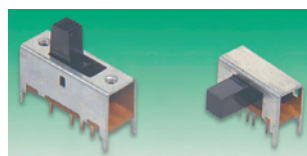
Extended Top Actuator

Electrical life 10000 cycles

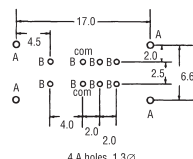
- Unique design withstands aqueous or solvent cleaning processes
 - 2, 4 or 6 pole types available
 - Bifurcated double wipe contacts provide dependable switching
 - Industry standard 0.1" x 0.3" pin spacing
 - ASF types are tape sealed as standard
- H=4.4, D=7.37, W=10.2(DP), 17.8 (4P)

213279

	Mfrs. List No.	Order Code	1+	25+	100+	250+
Extended, Top Actuator						
DPDT	ASE22	112-3950 ●	6.11	5.15	4.84	4.01
4PDT	ASE42FN	119-7659 ●	11.88	10.05	9.36	7.75

PCB Mounting
0.3A @ 125V ac/dc

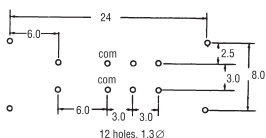
117-9934 Body: L=25, W=8, Stand off H=19.5
117-9935 Body: L=18, W=6.6, Stand off H=14



4 A holes, 1.3Ø

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

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



213291

	Order Code	1+	25+	100+	250+	+
Vertical	117-9934	4.57	4.03	3.84	3.21	--
Right angle	117-9935	4.79	4.06	3.69	2.84	--

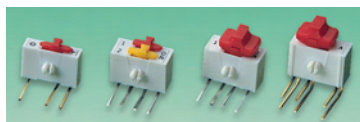
Miniature, PCB Mounting**2A @ 250V ac (silver), 100mA 30V dc (gold)**Standard top button
H=11, W=14, D=8 (DPDT=12.5)Side button
H=8, W=14, D=10 (DPDT=12.5)High top button
H=14, W=14, D=8

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

213301

	Order Code	1+	25+	50+	100+	+
Silver Contacts						
SPDT, standard top button	108-2284	4.87	4.36	4.14	3.57	--
SPDT, side button	108-2289	4.87	4.36	4.14	3.57	--
SPDT, high top button	108-2285	7.44	6.11	5.18	3.95	--
DPDT, standard top button	108-2288	9.61	8.66	8.05	6.04	--
DPDT, side button	108-2290	8.55	7.70	7.28	6.04	--
Gold Contacts						
SPDT, standard top button	108-2286	7.41	6.11	5.18	3.95	--
SPDT, high top button	108-2287	7.41	6.11	5.18	3.95	--

Low Profile, Edge Mounting - Series 015/017
5A @ 100V ac733-945
H=5.1, W=11.6733-970
H=5.1, W=11.6733-982
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)
- Initial contact resistance 10mR typical (@ 10mA, 10mV)
- Insulation resistance 10000MR (@ 500V dc min.)
- Operating temperature -55°C to +85°C
- Housing Polyester PBT, UL recognised
- Mechanical life 10000 ops

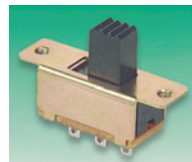
213270



Erg Components

Erg Components

No. of Ways	Mfrs. List No.	Order Code	1+	25+	100+	250+
Single-in-line SPST						
1	SDS-1-017	120-3424	3.22	2.90	2.54	2.15
2	SDS-2-015	120-3425	5.21	4.72	4.07	3.58
Ganged style - DPST						
1	SDD-1-015	120-3426	5.53	5.05	4.39	3.74
Ganged style DPDT						
1	SCS-1G2-015	120-3427	7.56	6.74	5.92	5.04

Miniature, Panel Mounting**0.3A @ 125V ac**

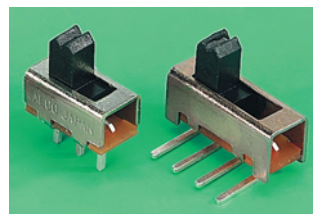
Solder tag connections.

Contact resistance <20mR
Insulation resistance 100mR @ 500V dc
Proof voltage 500V for 1 min.
Mechanical life 10000 ops

Mfrs List No. MFS131DSW=219-459, MFS201N=981-0447
L=15, W=7.4 Fixing centres=19, Depth behind panel=10.3

213158

Order Code	Order Code	1+	25+	100+	250+	+
SPDT	219-459	1.95	1.67	1.26	0.86	--
DPDT	981-0447	1.95	1.67	1.26	0.93	--

Miniature PCB Mounting**0.25A @ 125Vac, 0.15A @ 12Vdc**Right Angle
H=6, D=7.19Vertical
H=10, D=5.9

Contacts Silver over nickel plate over copper alloy (BBM)
Case material Tin plate over steel
Contact rating 250mA @ 125VAC, 150mA @ 12VDC
Dielectric strength 500V ac

Operating life 6000 ops
Operating temp. -10°C to +60°C
Contact resistance 30mR max

213307

	Length	Mfrs. List No.	Order Code	1+	25+	100+	250+
PCB Mount							
SPDT, vertical	11	SLS121PCFN	119-7660	1.39	1.23	1.17	1.10
SPDT, right angle	11	SLS121RA	112-3962	1.75	1.57	1.47	1.41
SP3T, vertical	15.1	SLS131PCFN	119-7661	1.76	1.58	1.48	1.42

Miniature 0.5A 50V dc

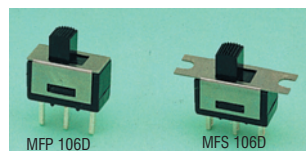
Miniature DPDT slide switch with solder tag connections. Ideal for prototyping, not recommended for industrial applications.

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+	50+	250+	+
	599-293	4.10	3.59	2.99	2.49	--

MFP/MFS Series**3A @ 250V ac, 4A @ 30V dc**

MFP 106D

MFS 106D

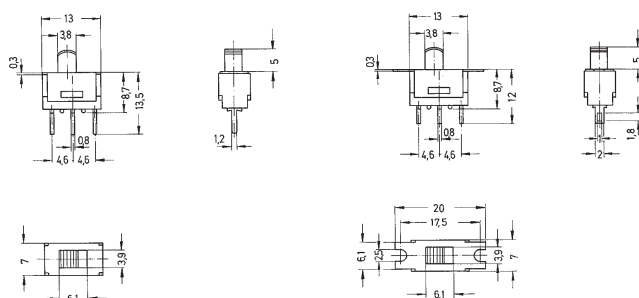
NEW

Switches

44

Compliant
Non-compliant
Limited stock - RoHS replacement available

RoHS



Contact rating 3A @ 250V ac, 6A @ 125V ac, 4A @ 30V dc
 Contact resistance $\leq 20\Omega$
 Insulation resistance $\geq 1000M\Omega$ @ 500Vdc
 Dielectric strength 1500V, 50Hz, 1 minute
 Mechanical life > 200000 operations
 Contact material Coin silver (common contact copper alloy, silver plated)

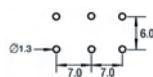
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Termination	Switch Function	Mfrs. List No.	Order Code	1+	50+
PCB terminals	SPDT on-on	MFP106D	807-527	3.79	2.99
Solder tags	SPDT on-on	MFS106D	807-539	3.79	2.99

Voltage Selectors

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	1+	25+	100+	250+	+
Panel Mount	147-911	2.90	2.65	2.36	2.05	--
Snap-in	242-536	2.93	2.65	2.39	2.08	--
PCB Mount	152-274	3.53	3.31	2.99	2.02	--

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	1+	100+	250+	500+
Round	149-288	5.80	4.13	3.65	3.24
Square	150-362	6.30	4.47	3.84	3.18

Rocker Switches

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 $\leq 3mm$
- Approvals include VDE, SEV, DEMKO, NEMKO, SETI and CSA. UL recognised

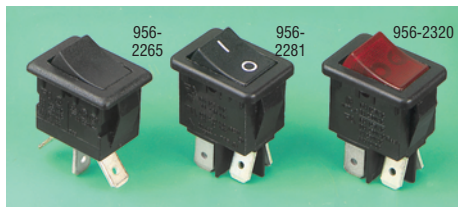
Maximum Working Temperature +85°C
 Contact Resistance 100mR
 Insulation Resistance 20MR
 Operating Voltage All 230 Vac max except 396-6781 (which is 24 Vdc max)

	Order Code	1+	25+	50+	100+
Non-Illuminated Switch - 250V ac @ 6A					
SPST Black, I/O	186-764	2.24	2.09	1.93	1.75
SPST White, I/O	767-4066	2.86	2.31	2.08	1.99
SPST Mom-Off Black	767-4082	2.99	2.41	2.18	2.05
DPST Black, I/O	767-4090	3.22	2.60	2.34	2.21
Illuminated - 250V ac @ 6A					
SPST Red	186-776	4.18	3.89	3.60	3.26
SPST Green	767-4074	4.85	3.91	3.48	3.32
DPST Red	767-4104	5.57	4.43	3.97	3.74
LED Illuminated - 12/24V dc @ 10A					
SPST Black, Red Spot	396-6781	2.99	--	--	--

213304

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 which fit standard panel cut-out

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

Mfrs. List No.	MC3813-011-021=956-2281	MC36328-001-01=956-2257
	MC3811-091-02=956-2320	MC36328-011-01=956-2265
	MC3811-091-05=956-2338	MC3813-011-01=956-2273

213292

	Order Code	1+	50+	100+	250+	+
Non-Illuminated						
4A @ 250V ac						
SPST	956-2257	1.41	1.20	1.14	0.84	--
SPDT I/O marking	956-2265	1.67	1.39	1.36	1.18	--
DPST	956-2273	2.35	2.15	2.06	1.27	--
DPST I/O marking	956-2281	2.42	2.21	2.12	1.36	--
Illuminated						
DPST Red	956-2320	3.58	3.18	3.00	2.61	--
DPST Green	956-2338	4.08	3.51	3.33	2.73	--

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

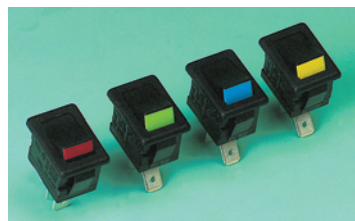
Prices are in Singapore Dollars and exclusive of GST.
 Due to the volatile nature of certain products,
 prices are subject to change without notice.

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	H8650VBAAA=151-135	H8653VBNA=149-286
	H8610VBAAA=151-134	H8660VBAAA=151-136	H8670VBAAA=767-4058

222306

Non Illuminated	Order Code	1+	25+	50+	100+	+
SPST	151-133	1.63	1.52	1.40	1.27	--
SPST momentary	480-393	3.26	3.04	2.81	2.55	--
SPDT	151-134	2.04	1.90	1.75	1.59	--
SPDT on-off-on	733-878	2.75	2.56	2.37	2.15	--
DPST	151-135	2.85	2.70	2.50	2.27	--
DPDT	151-136	3.42	3.18	2.94	2.67	--
DPDT on-off-on	NEW 767-4058	4.69	4.36	4.04	3.66	--
Illuminated						
DPST, Red	152-266	4.90	4.55	4.21	3.82	--
DPST, Green	149-286	5.41	5.03	4.65	4.22	--

Miniature - Coloured Rocker



Bezel=21 x 15
Depth=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 rocker switches with coloured section visible in the ON position
- SPST and DPST fits standard panel cut out
- CSA and VDE approved. UL recognised

Rating SPST	6A @ 250Vac	Contact Resistance	20 x 10 ⁻³ R
	6A @ 28Vdc	Insulation Resistance	> 50 x 10 ⁶ R
Rating DPST	6(6)A @ 250Vac	Dielectric Strength	Up to 3.5kV ac
	16A @ 12Vdc	Mechanical Life	>100000 operations

213128

	Order Code	1+	25+	100+	250+	+
SPST, Red	312-1677	1.92	1.71	1.50	1.23	--
SPST, Green	312-1689	1.92	1.71	1.50	1.23	--
SPST, Blue	312-1690	1.92	1.71	1.50	1.23	--
SPST, Yellow	312-1707	1.92	1.71	1.50	1.23	--
DPST, Red	312-1719	2.37	2.16	1.89	1.50	--
DPST, Green	312-1720	2.37	2.16	1.89	1.50	--
DPST, Blue	312-1732	2.37	2.16	1.89	1.50	--

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+	+
SPST, Red	120-3337	2.26	2.07	1.85	1.43	--
SPST, Green	120-3338	2.24	2.05	1.83	1.42	--
DPST, Red	120-3339	2.87	2.33	2.11	1.70	--
DPST, Green	120-3340	2.87	2.33	2.11	1.70	--

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+	25+	50+	100+	+
SPST	678-120	1.53	1.42	1.32	1.19	--
SPST, I/O	678-132	1.58	1.47	1.36	1.23	--

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

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
	H8500XBAAAC=390-010	H8550XBAAAC=566-147	H8553VBNAO=150-388

213097

Non-Illuminated	Rocker/Marking	Order Code	1+	25+	100+	250+	+
SPST	Black with I/O Red	389-997	2.05	1.83	1.61	1.35	--
SPST	Black with I/O Green	390-010	2.05	1.83	1.61	1.35	--
DPST	Black	149-905	2.50	2.32	2.15	1.95	--
DPST	Black with I/O White	273-200	3.12	2.90	2.68	1.64	--
DPST	Black/Red with I/O	390-021	2.55	2.33	2.02	1.64	--
DPST	Black/Green with I/O	566-147	2.55	2.33	2.02	1.64	--
Illuminated							
DPST	Red	149-863	3.98	3.70	3.42	3.10	--
DPST	Green	149-864	4.49	4.17	3.86	3.50	--
DPST	Amber	150-388	4.08	3.79	3.51	3.18	--

Splash Proof Covers



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

Mfrs. List No.
L167=149-287, F0180L0=151-575

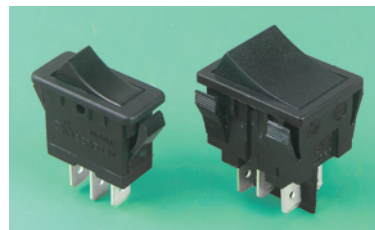
213090

Order Multiple=10		Order Code	10+	100+	250+	500+
Mfrs. List No.						
F0167L0AAA		149-287	0.97	0.87	0.78	0.69
F0180L0AAA		151-575	1.02	0.92	0.82	0.72

Standard - 40 Series Single pole,

50 Series Double pole

10(4)A @ 250V ac



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

- Standard Range of Rocker Switches available in single and double pole

Mechanical Life	>100000 ops
Operating Temperature	0°C to +85°C
Dielectric Strength	3.5KV ac

Mfrs. List No. MC33428-001-11=956-2290
MC33412-041-11=956-2346
MC33523-001-91=956-2303

- CSA approved. Single pole also VDE approved.

Insulation Resistance	>50MR
Contact Resistance	20mR

MC33523-011-91=956-2311
MC3350-041-91=956-2354

213293

	Order Code	1+	50+	100+	250+	+
SPST	956-2290	2.46	1.86	1.65	1.14	--
SPDT centre off	956-2346	3.03	2.10	1.92	1.32	--
DPST	956-2303	2.91	1.97	1.76	1.42	--
DPDT	956-2311	4.21	2.97	2.67	1.82	--
DPDT centre off	956-2354	4.21	3.33	2.82	1.88	--

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 C1501ATAAA=480-381 C1510ATAAA=150-550 C1520ATAAA=150-551 C1550ATAAD=150-554 C1560ATAAB=150-555 C1570ATAAJ=150-556	C5403ATNAA=151-574 C5503PTNAM=150-552 C5503PTNAN=150-553 C1553ATNAE=151-573 C5503ATGN=311-6888 C1553PTNAB=150-557 C1553PTNAO=150-558	C1350ATAAB=242-822 C1353ATNAN=242-834 C1353AT0/1GRN=521-942 C1522ATAAA=767-4180 C1572ATAAA=767-4201 C1561ATAAA=767-4210
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213115

	Order Code	1+	25+	50+	100+	+
Non-Illuminated						
SPST	150-549	1.89	1.75	1.62	1.47	--
SPST mom-off	480-381	3.24	3.04	2.81	2.55	--
SPDT	150-550	2.50	2.32	2.15	1.95	--
SPDT centre off	150-551	2.45	2.28	2.11	1.91	--
SPDT mom-off-mom	NEW 767-4180	4.28	3.98	3.68	3.34	--
DPST	150-554	2.81	2.61	2.41	2.19	--
DPDT	150-555	4.90	4.55	4.21	3.82	--
DPDT on-mom	NEW 767-4210	7.75	7.21	6.67	6.05	--
DPDT centre off	150-556	4.90	4.55	4.21	3.82	--
DPDT mom-off-mom	NEW 767-4201	7.55	6.31	5.47	4.92	--
Illuminated						
SPST, red	151-574	3.37	3.13	2.89	2.63	--
SPST, green	311-6888	4.08	3.79	3.51	3.18	--
SPST, spot red	150-552	4.35	4.17	3.86	3.50	--
SPST, spot green	150-553	5.01	4.84	4.47	4.06	--
DPST, red	151-573	5.30	4.93	4.56	4.14	--
DPST, spot red	150-557	6.22	5.79	5.35	4.85	--
DPST, spot green	150-558	6.83	6.36	5.88	5.33	--
High Inrush, with I/O marking						
DPST, non-illuminated	242-822	3.98	3.70	3.42	3.10	--
DPST, red illuminated	242-834	6.32	5.88	5.44	4.93	--
DPST, green illumination	521-942	6.89	6.40	5.92	5.37	--

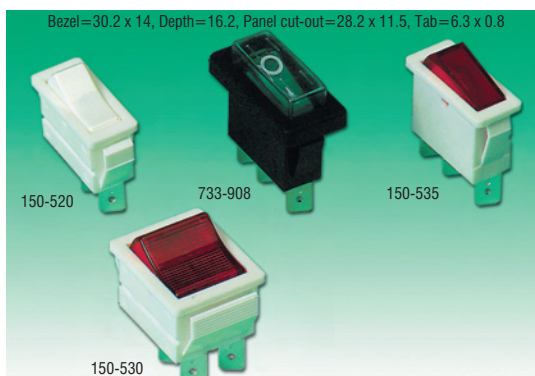
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Standard - 1500 Series

16(4)A @ 250V ac

Arcolectric



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	C5503FQNAE=150-535
C1500VQAAJ=150-520	C1553VQNAI=150-529	C5503FQNAH=150-536
C1510VQASB=150-525	C1553VQNAM=150-530	C5503ALNEA=733-891
C1510VQAAH=150-526	C1553VQNAL=150-531	C5503ALNEB=733-908
C1560VQAAA=150-533	C1553VQNAP=150-532	

213241

	Body Colour	Order Code	1+	50+	100+	250+	+	+
Non-Illuminated (Curved Rocker)								
SPST	Black	150-519	2.30	2.14	2.05	1.76	--	--
SPST	White	150-520	2.30	2.14	2.05	1.76	--	--
SPDT	Black	150-525	3.12	2.84	2.65	1.80	--	--
SPDT	White	150-526	2.87	2.61	2.46	2.08	--	--
DPDT	Black	150-533	6.55	6.08	5.61	3.59	--	--
DPDT	White	150-534	4.54	4.06	3.91	3.37	--	--
Illuminated (Curved Rocker)								
DPST, red	Black	150-529	6.68	6.21	5.73	3.53	--	--
DPST, red	White	150-530	6.08	5.45	5.13	4.35	--	--
DPST, green	Black	150-531	7.37	6.84	6.30	3.91	--	--
DPST, green	White	150-532	6.31	5.83	5.63	5.31	--	--
Illuminated, High Brightness (Flat Rocker)								
SPST, red	White	150-535	4.22	3.94	3.59	2.24	--	--
SPST, green	White	150-536	4.95	4.57	4.22	2.58	--	--
Splashproof								
SPST, red illumination		733-891	6.33	5.92	5.48	3.40	--	--
SPST, green illumination		733-908	7.06	6.46	6.08	3.78	--	--

Standard - 1350 Series, High Inrush Positive Break

Arcolectric

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



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

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	C1353VQNAC=149-904	C1350ALGAE=480-356
C1350VQ0/1BLK=521-954	C1353VQ0/1RED=521-966	C1353ALGNF=480-368
C1353VQNAA=149-902	C1353VQ0/1GRN=521-978	C1353ALGNE=480-370
C1353VQNAB=149-903	C1300ALGAA=733-880	

213096

Prices are in Singapore Dollars and exclusive of GST.
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prices are subject to change without notice.

Non-Illuminated	Order Code	Price Each				
		1+	50+	100+	250+	+
DPST	149-901	4.41	3.94	3.43	2.11	--
DPST, I/O marking	521-954	4.41	3.94	3.43	2.11	--
Illuminated						
DPST, red	149-902	6.77	6.33	5.83	3.56	--
DPST, amber	149-903	6.77	6.33	5.83	3.56	--
DPST, green	149-904	7.72	7.06	6.46	3.94	--
DPST, I/O marking, red	521-966	6.77	6.33	5.83	3.56	--
DPST, I/O marking, green	521-978	9.14	8.79	8.44	7.72	--
Splashproof						
SPST, non-illuminated	733-880	4.50	4.03	3.56	2.36	--
DPST, non-illuminated	480-356	5.42	5.17	4.79	3.56	--
DPST, red illumination	480-368	9.23	8.60	8.16	7.12	--
DPST, green illumination	480-370	10.05	9.39	8.91	7.75	--

Sealed - IP68
16A @ 28Vdc, 10A @ 250Vac



- 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

Rocker	Order Code	Price Each				
		1+	25+	50+	100+	+
SPST Black	113-8732	16.25	14.36	13.55	11.11	--
SPST Black I/O	113-8733	17.70	15.62	14.77	12.09	--
DPST Black I/O	113-8773	23.69	20.92	19.78	16.18	--

Standard - H11/21 Series
16(4)A @ 250V ac



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

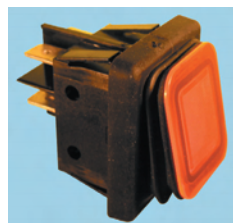
- Attractively styled dark grey plastic bezels and silk-chrome finish rockers
- Illuminated type has integral neon viewed through red polycarbonate lens

Maximum Working Temperature +85°C

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

Non-Illuminated	Order Code	Price Each				
		1+	50+	100+	250+	+
SPST	996-8270	13.78	12.34	11.62	9.71	--
DPST	996-8296	14.13	12.70	11.96	10.02	--
Illuminated						
SPST, red	996-8261	18.74	17.37	16.38	13.61	--
DPST, red	996-8288	19.76	17.69	16.71	13.84	--

Illuminated, Sealed 16A



- Illuminated DPST rocker switches sealed to IP65
- Protection against dust and liquids is provided by a bellows-style cover without the need for a cap
- Attractive bright red, amber and green rockers
- Panel mounting with 6.3mm faston terminals

Bezel=36.6 x 29.9, depth = 25.7
Panel cut-out=29.8 x 22, Tabs 6.3 x 0.8

Rating 16(8)A @ 250V ac Panel Cut-Out 22 x 30mm
Maximum operating temperature 55°C Bezel Dimensions 30 x 36mm
Mechanical Life 300000 ops Approvals BEAB, VDE, UL, CSA
Actuating Force <15N

Colour	Mfrs. List No.	Order Code	Price Each				
			1+	25+	100+	250+	+
Red	B4MASK48E1R0000	582-9744	5.44	5.11	4.88	4.65	--
Amber	B4MASK48E1A0000	582-9460	5.44	5.11	4.88	4.65	--
Green	B4MASK48E1V0000	582-9800	5.76	5.44	5.18	4.95	--

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
¾HP @ 125V to 250V ac

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

	Order Code	Price Each				
		1+	25+	100+	250+	+
SPST, red	120-3341	2.93	2.58	2.24	1.76	--
SPST, green	120-3342	2.93	2.58	2.24	1.76	--

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 C1350ABAA=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

			Price Each				
	Rocker	Order Code	1 +	25 +	50 +	100 +	+
Non-Illuminated							
SPDT	Black	678-170●	2.70	2.51	2.32	2.11	--
Non-Illuminated, High Inrush							
SPST	Black, I/O	273-211●	2.39	2.05	1.70	1.17	--
SPST	Black/Red	273-223●	2.96	2.55	2.14	1.48	--
DPST	Black, I/O	273-235●	3.31	2.87	2.43	1.64	--
DPST	Black/Red	273-247●	3.84	3.31	2.80	1.95	--
DPST	Black/Green	678-223●	3.84	3.31	2.80	1.95	--
Illuminated, High Inrush							
SPST	Red, I/O	678-211●	4.19	3.91	3.59	2.20	--
DPST	Red, I/O	521-929●	7.15	6.55	5.95	3.56	--
DPST	Green, I/O	521-930●	8.13	7.31	6.52	3.94	--

Front/Rear Panel Mount - C1250 AN/AP
10(6)A @ 240V ac



480-344 481-087
Panel cut-out=26.2 x 12.4 (snap-in fixing) Panel cut-out=27.2 x 12.4 (snap-in fixing)
Facia=23.8 x 13.1 with 3.4 radius corners 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

		Price Each			
Caps		10+	20+	50+	100+
Black	108-2525	0.47	0.41	0.38	0.34
Green	108-2526	0.47	0.41	0.38	0.34
Red	108-2527	0.47	0.41	0.38	0.34

Subminiature Washable, Momentary

0.4VA @ 20V ac/dc

Cannon
ITT Industries
Engineered for life



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 -30°C to +85°C
Mfrs. List No.	EP11SD1CBE=957-4662 EP12SD1CBE=957-4670	EP11SD1ABE=957-4689 EP12SD1ABE=957-4697	EP11SD1AVBE=957-4700 EP12SD1AVBE=957-4719

SW265/213226

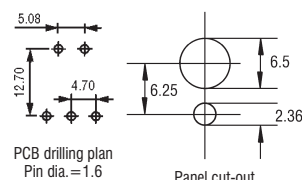
		Price Each				
Vertical	Order Code	1+	25+	50+	100+	+
SPST- off-mom	957-4662	5.24	4.58	4.12	3.67	--
SPDT- off-mom	957-4670	5.34	4.65	4.20	3.75	--
Type 1, Horizontal						
SPST- off-mom	957-4689	8.18	7.57	5.91	4.70	--
SPDT- on-mom	957-4697	5.70	5.07	4.56	4.14	--
Type 2, Horizontal						
SPST- off-mom	957-4700	8.18	7.57	5.91	4.70	--
SPDT- on-mom	957-4719	5.76	5.12	4.61	4.18	--

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



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

- 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

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

SW226/213192

Switches	Mfrs.	Price Each				
	List No.	Order Code	1+	25+	100+	250+
SPDT, Solder lug	18535CD	108-2278	8.53	7.80	7.19	6.45
DPDT, Solder lug	18545CD	108-2281	13.43	12.25	11.26	10.21
SPDT,PCB	18235WCD3.	108-2277	13.49	10.95	9.51	8.08
Caps			10+	50+	100+	500+
Black	U482	108-2522	0.38	0.34	0.33	0.29
Green	U483	108-2523	0.38	0.34	0.33	0.28
Red	U486	108-2524	0.38	0.34	0.33	0.28



RoHS Directive

Worried about the part number lottery?
Count on us for traceability
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**Don't risk anyone
else for RoHS**

Miniature, ESD Proof

100mA @ 30V dc

Knitter-switch



- >1kV of ESD protection between button and terminals
- Case material to UL 94V-0

Switch function SPDT, momentary, normally closed
Contact rating 100mA, 30V dc max.
Operating temperature -20°C to +85°C
Operating life >60000 operations
Insulation resistance >1000MR
Contact resistance <50mR
Dielectric strength 1000V ac @ 50Hz, 1 minute

H=24.2 (excl. pins), W=12.7, D=6.6

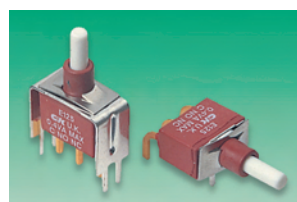
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			Price Each			
Termination	Mfrs. List No.	Order Code	1+	25+	100+	250+
Solder tags	EPS 113 FB	854-6916	13.80	9.77	8.24	7.68
PCB	EPS 113 FB-PC	854-6924	14.88	10.51	8.85	8.27

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SPDT Momentary - Sealed

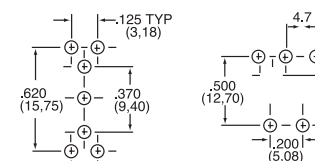
1A @ 120V ac/28V dc



H=20.4 (excl. pins) H=6.6 (excl. pins)
W=8.13 W=12.7
D=15.75 D=26.6 (overall)
Plunger L=7.16, Dia.=1.1
Pin dia.=1.85

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

- 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



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

SW227/213193

		Price Each			
Mounting	Order Code	1+	50+	100+	500+
Vertical	957-5430	7.24	5.48	4.82	3.70
Horizontal	957-5448	8.45	6.45	5.61	4.27

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

		Price Each				
Switches	Order Code	1+	25+	50+	100+	+
SPNO, Solder Lug	108-2343	6.49	5.79	5.53	5.00	--
SPNC, Solder Lug	108-2342	6.62	5.95	5.67	4.68	--
SPNO, PCB	108-2341	7.99	6.84	5.67	4.20	--
Sealing Hood	108-2521	7.83	7.02	6.30	4.92	--
Caps						
Black	108-2525	0.47	0.41	0.38	0.34	
Green	108-2526	0.47	0.41	0.38	0.34	
Red	108-2527	0.47	0.41	0.38	0.34	

Switches

44

Compliant
Non-compliant
RoHS
Limited stock - RoHS replacement available

SPNO and SPNO/SPNC Momentary

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



L=26.5, Dia=10, Bush thread= 1/4 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

Switches	Order Code	1+	25+	50+	100+	+
SPNO, Silver	108-2344	7.38	6.62	5.50	4.04	--
SPNO, Gold	108-2345	5.41	4.90	4.26	3.76	--
SPNO/SPNC, Gold	108-2347	8.33	7.44	7.00	5.79	--
Caps		10+	50+	100+	500+	
Black	108-2522	0.38	0.34	0.33	0.29	
Green	108-2523	0.38	0.34	0.33	0.28	
Red	108-2524	0.38	0.34	0.33	0.28	

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=1/4 x 28 UNF, Panel cut-out=6.35

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

SW48/213340

	Order Code	1+	50+	100+	250+	+
Red	422-204	7.40	5.45	4.38	3.68	--
Black	422-216	7.40	5.45	4.38	3.68	--

SPNO and SPNC Momentary



- Panel mounting miniature push button switches
- Ideal for school prototyping, not recommended for industrial applications.

599-270 L=28.3, Dia.=10.0 Panel cut-out=7.0
599-281 L=30.0, Dia.=12 Panel cut-out=7.0

Rating Order Code.
SPNO Push to make Red 0.3A @ 50V dc 599-270
SPNC Push to break Black 0.5A @ 50V dc 599-281

SW45/213338

10 Per Pack	Order Code	1+	10+	50+	100+	+
SPNO	599-270	8.08	7.25	5.70	5.26	--
SPNC	599-281	9.74	9.00	7.54	6.78	--

SPNO and SPNC Momentary

1.5A @ 12V dc, 0.5A @ 50V ac

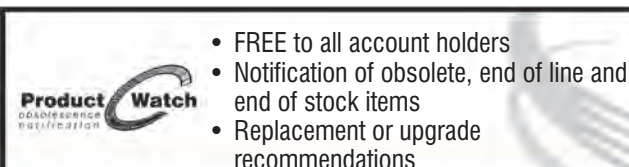


Mfrs. List No. 1301.9536=143-353
1301.9537=143-354

L=32.4 (body 16.0), Dia=9.4, Panel cut-out=7.4

SW44/213337

	Order Code	1+	25+	100+	250+	+
SPNO	143-353	6.36	5.45	5.17	4.41	--
SPNC	143-354	5.07	4.79	4.50	4.23	--



- FREE to all account holders
- Notification of obsolete, end of line and end of stock items
- Replacement or upgrade recommendations

**Advanced warning of
obsolete components**

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

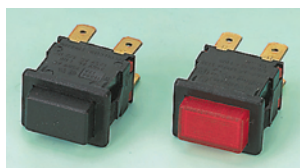
Bezel=21 x 15, Body=16.9 x 12.1, Depth=23,
Panel cut-out=19.3 x 13, Tab=2.5 x 0.5

SW318/213261

Type	Mfrs. List No.	Order Code	1+	100+	250+	500+
Momentary	T1101BB	733-921	4.44	3.65	3.21	2.68

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

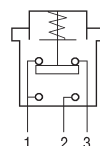
Insulation Resistance >20MR
Insulation Class II
Operating Life 10000 Cycles
Operating Temperature 0°C to +105°C

SW361/213303

	Order Code	1+	25+	50+	100+	+
Non-Illuminated Switch						
Momentary	389-973	3.73	3.47	3.17	2.87	--
Latching	389-948	3.99	3.71	3.39	3.07	--
Illuminated Switch						
Red, Latching	389-950	5.25	5.13	4.69	4.24	--
Green, Latching	389-961	5.82	5.61	5.13	4.65	--

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

Mfrs. 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+	+
Black	108-2275	4.79	4.06	3.40	2.58	--
Red	108-2276	4.84	4.10	3.43	2.61	--

SPNO Momentary

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



- Polished chrome bezel
- Screw terminal connections

Mfrs. 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+	+
Red	422-228	14.11	10.21	8.69	6.96	--
Black	422-230	13.92	10.05	8.22	6.87	--

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

L=23.8, Dia.=18.0,
Depth behind panel=20.7
Max panel thickness=6.0,
Panel cut-out=16.2



SW269/213231

	Order Code	1 +	25 +	50 +	100 +
Curved Actuator	108-2435	15.95	14.83	13.72	12.43
Flat Actuator	108-2430	14.75	13.72	12.69	11.50
Curved Actuator with Chamfer	108-2431	16.96	15.77	14.58	13.22

'Vandal Resistant' - IP67

10A @ 250V ac

Switches



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
Contact resistance 25mΩ max.
Insulation resistance 1000MΩ min
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

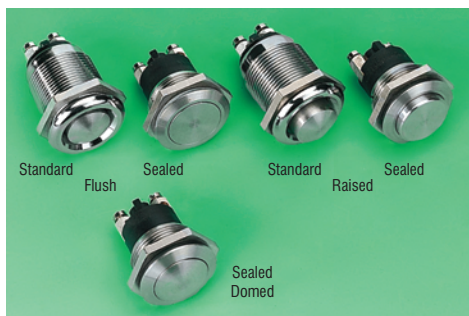
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Button Dia.	Order Code	1 +	10 +	25 +	100 +
15mm	438-9463	25.20	23.73	22.56	21.45
19mm	438-9475	27.75	26.40	25.08	23.85
25mm	438-9487	31.35	29.85	28.38	26.97

SPNO Momentary

1A @ 50V dc 'Vandal Resistant', Screw Terminals

BULGIN



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
Dielectric Strength 2.5kV ac
Contacts Silver
Operating Temperature -20°C to +85°C (150-379)
-20°C to +70°C (560-431)

Mfrs. List No. MP0013=150-379 MP0013/2=311-4594 MP0037/3=324-8835
MP0037=560-431 MP0037/2=311-4648

SW145/213108

Flush Actuator	Order Code	1 +	25 +	100 +	250 +
Standard	150-379	14.43	12.69	11.62	9.76
Sealed, low profile	560-431	21.92	19.56	17.39	14.55
Raised Actuator					
Standard	311-4594	14.43	12.69	11.62	9.76
Sealed, low profile	311-4648	21.92	19.56	17.39	14.55
Domed Actuator					
Sealed, low profile	324-8835	17.70	16.16	15.12	13.73

Vandal Resistant - 8300 Series

16(4)A @ 250V ac/8(8)A @ 250V ac - ENEC

Arcolectric



- 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
Contact Resistance 100mR
Electrical Life 10000 ops
Operating Temp 0°C to +85°C
Contact Gap 3.0mm
Mechanical Life 50000 ops

Mfrs. List No. H8350RPAAA=767-4228

H8351RPAAA=767-4236

347648

	Order Code	1 +	25 +	50 +	100 +	+
DPST Latching	767-4228	22.06	20.51	18.97	17.21	-
DPST Momentary	767-4236	26.17	21.97	18.98	17.06	-

Vandal Resistant - IP66

50mA @ 24V dc

BULGIN



L = 31.0mm, Bezel = 22mm dia., Panel cut-out - 19.2mm



L = 32.7mm, 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
Contact resistance 100mR
Insulation resistance 1000MR
Temperature range -30°C to 70°C

241611

Colour Illumination	Mfrs. List No.	Order Code	1 +	25 +	50 +	100 +
Dot Illumination						
Red 2.8mm tab	MPI001/28/RD	324-8859	35.51	33.02	30.36	27.69
Amber 2.8mm tab	MPI001/28/AM	NEW 765-9008	35.51	33.02	30.36	27.69
Green 2.8mm tab	MPI001/28/GN	324-8860	35.51	33.02	30.36	27.69
Blue 2.8mm tab	MPI001/28/BL	430-3052	36.92	34.34	31.57	28.80
Red Screw	MPI001/TERM/RD	324-8872	35.51	33.02	30.36	27.69
Amber Screw	MPI001/TERM/AM	NEW 765-9016	35.51	33.02	30.36	27.69
Green Screw	MPI001/TERM/GN	324-8884	35.51	33.02	30.36	27.69
Blue Screw	MPI001/TERM/BL	430-3064	36.92	34.34	31.57	28.80
Ring Illumination						
Red 2.8mm tab	MPI002/28/RD	324-8896	35.51	33.02	30.36	27.69
Amber 2.8mm tab	MPI002/28/AM	NEW 765-9024	35.51	33.02	30.36	27.69
Green 2.8mm tab	MPI002/28/GN	324-8902	35.51	33.02	30.36	27.69
Blue 2.8mm tab	MPI002/28/BL	430-3076	36.92	34.34	31.57	28.80
Red Screw	MPI002/TERM/RD	324-8914	35.51	33.02	30.36	27.69
Amber Screw	MPI002/TERM/AM	NEW 733-7024	35.51	33.02	30.36	27.69
Green Screw	MPI002/TERM/GN	324-8926	35.51	33.02	30.36	27.69
Blue Screw	MPI002/TERM/BL	430-3088	36.92	34.34	31.57	28.80

Switches

44

Compliant
Non-compliant
RoHS
Limited stock - RoHS replacement available

'Miniature Vandal Resistant' - IP67

Illuminated and Non-Illuminated - 400mA @ 32V ac

ITW Switches



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	1+	25+	50+	100+
Non-Illuminated					
	438-9396	14.55	13.53	12.37	11.21
Illuminated					
Green	438-9402	19.48	18.12	16.56	15.00
Red	438-9414	19.48	18.12	16.56	15.00

SPNO/SPNC Momentary - Low Profile

5A @ 250V ac, 'Vandal Resistant', Solder Tags

BULGIN



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
Dielectric Strength 2kV ac

Contacts Operating Temperature Silver -20°C to +70°C

Mfrs. List No. MP0031=152-253 MP0032=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	1+	25+	100+	250+
Dia. 21.5mm - Flush Actuator					
Sealed	152-253	23.09	21.92	20.60	20.13
Dia. 21.5mm - Raised Actuator					
Sealed	311-4624	27.81	25.39	23.56	22.65
Dia. 21.5mm - Domed Actuator					
Sealed	324-8811	26.37	24.35	22.52	20.44
Dia. 27.8mm - Flush Actuator					
Non-Sealed	519-297	31.97	29.26	26.62	22.77
Sealed	733-799	32.07	28.60	26.90	22.84
Dia. 27.8mm - Raised Actuator					
Non-Sealed	311-4612	31.97	29.26	26.62	22.77
Sealed	311-4650	32.07	28.60	26.90	22.84
Dia. 27.8mm - Domed Actuator					
Non-Sealed	324-8823	29.30	26.65	25.01	22.71
Sealed	324-8847	29.42	26.93	25.14	22.84

Vandal Resistant - Brass, Chrome Plated

BULGIN



MPB 031, MPB 037, MPB 038

- Low cost
- Front panel sealed
- Shock resistant

Mfrs. List No. MPB031
Terminations Solder tag
Contacts SPDT momentary momentary action
Switch rating 5A @ 250V ac
Panel Hole Dia. 19.2mm
Contact resistance 10mR
Insulation resistance 1000MR
Temperature range -20°C to 70°C

- Single Pole switches
- Tactile feel
- Choice of screw or solder tag termination

MPB038 Solder tag
SPDT momentary push to make
5A @ 250V ac
25.8mm
10mR
1000MR
-20°C to 70°C

MPB037 Screw terminal
SPDT momentary push to make
1A @ 50V ac
19.2mm
10mR
100000MR
-20°C to 70°C

242035

Front Panel Sealed to:	Mfrs. List No.	Order Code	1+	25+	100+	250+
IP66	MPB031	421-2277	19.75	17.99	16.88	15.34
IP66	MPB038	421-2290	22.05	20.10	18.84	17.10
IP68	MPB037	421-2289	13.26	12.13	11.34	10.33

SPNO and SPNC Momentary-Flush Mounting

5A @ 250V ac, Vandal Resistant

BULGIN



27mm

L=27.64, Dia=27.0, Depth behind panel=31.6
Max. panel thickness=2.64, Panel cut-out=22.6
Mounting bracket centres=33.3 for 2 x 2BA studs

20mm

L=28.3, Dia=20.0, Depth behind panel=28.3
Max. panel thickness=2.64, Panel cut-out=18.9
Mounting bracket centres=27.6 for 2 x 2BA studs

- 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

Contacts Operating Temperature Silver -20°C to +70°C

Mfrs. List No. MP0025=238-193 MP0034=519-303
MP0025/2=311-4600 MP0034/2=311-4636
MP0034/3=324-8800

SW197/213161

	Order Code	1+	25+	100+	250+
Flush Actuator					
27mm	238-193	27.81	25.96	23.18	21.83
20mm	519-303	29.07	27.12	24.26	22.84
Raised Actuator					
27mm	311-4600	29.30	26.65	25.01	22.74
20mm	311-4636	28.79	26.37	23.97	20.51
Domed Actuator					
20mm	324-8800	25.61	24.00	21.86	19.88

Vandal-Proof Piezo Switches

SPNO illuminated

SCHURTER
ELECTRONIC COMPONENTS

M22

M27

M30

M24

- Vandal resistant
- Switch has no moving parts
- High reliability

- Sealed to **IP67**
- LED illumination

Switch Types Connector type
M22 FASTON terminated leads, 90mm o/a length
M24 Leads, 200mm length
M27 Leads, 200mm length
M30 Leads, 200mm length

Illumination
Point illuminated, red 24V led
Ring illuminated, red/green 24V led's
Ring illuminated, red/green 24V led's
Ring illuminated, red/green 24V led's

Voltage, switching dc max. 60
Voltage, switching ac max. 42
Current, switching max. 0.1
Capacity, breaking max. 1W
Life, at breaking capacity 50>Cycles
Resistance, isolation 10>MR

Resistance, initial contact <20R
Capacitance 30pF
Current, led (I_f) 2.0mA
Temperature, operating -2060°C to °C
Force, operating min. 1.53N
Travel (contact) 0.002mm

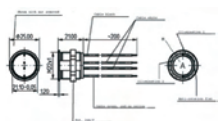
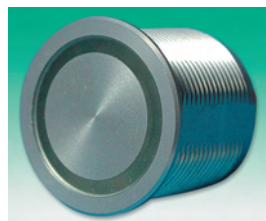
Prices are in Singapore Dollars and exclusive of GST.
Due to the volatile nature of certain products,
prices are subject to change without notice.

248883

Mfrs. List No.	Order Code	1+	25+	50+
1241.3020	979-3763	43.92	40.19	37.34
1241.3010	979-3739	101.37	101.37	94.17
1241.3011	979-3747	91.99	91.99	85.46
1241.3012	979-3755	109.49	109.49	101.71

Vandal Resistant Piezo Switch

PSE M22 with Ring Illumination



- PSE M22 with ring illumination
- Extremely high reliability - greater than 20 million operations

- No mechanical parts
- Vandal resistant
- Cable termination
- Normally-open contacts

Voltage, switching dc max.	60V dc	Life, at breaking capacity	≥20 million cycles
Voltage, switching ac max.	42V ac	Temperature, operating	-20°C to 60°C
Current, switching max.	0.1A	Force, operating min.	1.5 - 3N
Capacity, breaking max.	1W	Travel (contact)	0.002mm

333523/405614

Illumination	Mfrs. List No.	Order Code	1+	10+	50+
Red	1241.3256	469-1260	117.18	105.23	96.67
Green	1241.3257	469-1271	117.18	105.23	96.67
Red/Green	1241.3258	469-1283	119.36	107.42	98.85

Vandal-Proof Capacitive Switches

M16, Ring Illumination



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.

- Robust electronic switch
- No actuating force required
- 210mm long wire termination
- Sealed to IP67

Voltage, switching max.	724+ to + 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)	7.5R
Resistance, isolation (housing)	1.5
Temperature, operating	-2085°C to °C

248921

Switch Action Type	Mfrs. List No.	Order Code	Price Each 1+
Red Illumination			
Latching	1243.1218.11	979-3810	79.06
Momentary	1243.1318.11	979-3828	92.99
Green illumination			
Momentary	1243.1318.21	979-3836	92.99
Impulse	1243.1118.21	979-3844	93.92
Impulse	1243.5203.21	979-3852	60.23

SPNO Momentary

3A @ 250V ac, 6A @ 12V dc



- Phenolic moulding
- Fitted with 6.35mm tab terminals

Mfrs. List No. SM365POT

H=24, W=13, D=28, Bush thread = 1/8 x 32 NS,
Panel cut-out=12.7 dia

SW106/213071

Order Code	1+	50+	100+	250+	+
422-253	15.72	11.94	9.14	8.26	--

SCHURTER

SCHURTER

BULGIN

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

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

213334

Switches	Order Code	1+	25+	50+	100+	+
SPDT momentary	108-2337	13.05	11.42	10.59	8.08	--
SPDT latching	108-2338	13.05	11.42	10.59	8.08	--
DPDT Momentary	108-2339	14.95	14.22	13.78	13.05	--
DPDT latching	108-2340	17.53	15.36	14.25	11.10	--
Caps		10+	50+	100+	500+	
Black	108-2522	0.38	0.34	0.33	0.29	
Green	108-2523	0.38	0.34	0.33	0.28	
Red	108-2524	0.38	0.34	0.33	0.28	

Miniature, Heavy Duty

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

knitter-switch



- Case material meets UL 94 V-0
- Metal parts are nickel plated

Contact rating	4A @ 30V dc, 3A @ 250V ac
Insulation resistance	>1000MR
Contact resistance	<10mR
Dielectric strength	1500V ac @ 50Hz, 1 minute
Operating temperature	45°C to +140°C
Operating life	>30000 operations
Terminals	Solder tags, copper alloy silver-plated

H=30.7 (excl. pins), W=13, D=8 (SP), 13(DP)

381977

Switch Function	Mfrs. List No.	Order Code	1+	25+	100+	250+
SPDT on-mom	MPG 106 F	854-6878	26.30	18.62	15.62	14.58
SPDT on-on	MPG 106 D	854-6886	26.30	18.62	15.62	14.58
DPDT on-mom	MPG 206 R	854-6894	31.09	22.00	18.52	17.25
DPDT on-on	MPG 206 N	854-6908	31.09	22.00	18.52	17.25

SPDT Momentary - VAQ Series

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

OMRON



- Pure silver contacts
- Choice of coloured buttons

RoHS Buttons:		
Black =	990-1566	Red = 990-1582
Green =	990-1590	

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

Mfrs. List No.	VAQ-OV-15-1C5=990-1655	VAQ-BR=990-1582	VAQ-BG=990-1590
	VAQ-BB=990-1566		

SW37/213312

	Order Code	1+	50+	100+
SPDT Switch	990-1655	14.99	12.98	11.59
All Buttons		2.22	1.89	1.62

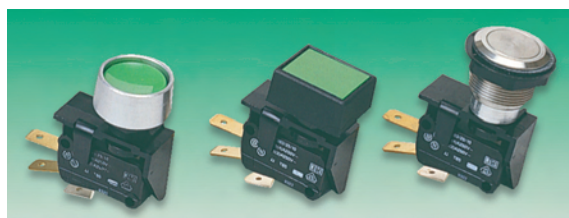
Switches

44

Compliant
Non-compliant
RoHS
+ Limited stock - RoHS replacement available

SPDT Momentary and Latching 15A @ 250V ac

Arcolectric



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

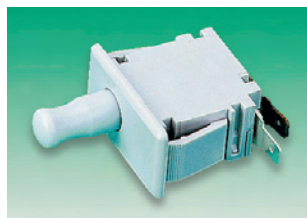
Vandal resist = C0911VAAA

SW200/213165

Colour	Order Code	1+	25+	100+	250+	+
Momentary, Round Metal Bezel						
Black	242-731	12.85	11.94	11.06	6.74	--
Green	242-743	12.85	11.94	11.06	6.74	--
Red	242-755	12.85	11.94	11.06	6.74	--
Latching, Round Metal Bezel						
Black	678-235	15.59	14.52	13.58	8.85	--
Green	678-259	15.59	14.52	13.58	8.85	--
Red	678-247	15.59	14.52	13.58	8.85	--
Momentary, Rectangular Plastic Bezel						
Black	242-767	11.12	10.36	9.58	5.83	--
Green	242-779	11.12	10.36	9.58	5.83	--
Red	242-780	11.12	10.36	9.58	5.83	--
Momentary, Vandal Resist Stainless Steel						
480-400		24.32	22.81	21.36	17.89	--

SPDT and DPDT, Panel Mounting 10(4)A @ 250V ac

CHERRY



- 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).

SW38/213322

Mfrs. List No.	Order Code	1+	25+	50+	100+	+
SPDT switch	UF69-30A	118-0027	6.99	5.83	5.51	4.38
DPDT switch	UF79-30A	118-0028	11.62	9.70	9.17	7.28

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

ITW Switches



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

Order Code	1+	25+	50+	100+
All Switches	17.01	15.90	15.06	13.83

SW137/213100

Miniature, Sealed, Snap-In 125mA @ 125V ac

APC



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

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

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+	25+	50+	100+
Blue	IBR3SAD1	108-2436	9.09	8.45	7.82	7.09
Black	IBR3SAD2	108-2438	9.09	8.45	7.82	7.09
Green	IBR3SAD3	108-2439	9.09	8.45	7.82	7.09
Red	IBR3SAD6	108-2440	9.09	8.45	7.82	7.09

SPNO Momentary

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

ITW Switches



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

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+	+
Metal Bezel Switches	13.07	12.37	11.31	10.24	--
Plastic Bezel Switches	8.43	7.84	7.17	6.49	--

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The very latest NEW products

Series 59, Maintained Action

400mA @ 32V ac, 100mA @ 50V dc, 125mA @ 125V ac

ITW Switches



- Panel sealed to IP67
- Small size, robust construction
- Constructed from moulded PBT
- Choice of 7 actuator colours

Dimensions: Bezel = 17.45mm, Depth = 22.5mm, Cut-out = 14.2mm.

Contacts	Gold plated nickel	Electrical life	100000 ops
Contact resistance	50mR	Mechanical life	100000 ops
Dielectric strength	1000V ac	Operating temperature	-40°C to +105°C
Contact resistance	50mR		

Black =	769-8488	Green =	769-8500	Yellow =	769-8526
Red =	769-8496	White =	769-8518	Blue =	769-8534
Orange =	769-8542				

347659/405484

Mfrs. List No.	Order Code	1+	25+	50+	100+	+
59-811	769-8488	16.71	15.53	14.20	12.86	--
59-812	769-8496	16.71	15.53	14.20	12.86	--
59-813	769-8500	16.71	15.53	14.20	12.86	--
59-814	769-8518	16.71	15.53	14.20	12.86	--
59-815	769-8526	16.71	15.53	14.20	12.86	--
59-816	769-8534	16.71	15.53	14.20	12.86	--
59-817	769-8542	16.71	15.53	14.20	12.86	--

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	Mfrs. List No.	Order Code	1+	25+	50+	100+
Black	IPR3SAD2101	108-2446	23.69	22.04	20.38	18.48
Black	IPR3SAD3101	108-2447	25.84	23.07	21.16	20.14
Black	IPR3SAD6101	108-2448	25.84	23.07	21.16	20.14

ON OFF Latching - For Harsh Environments

2A @ 125V ac, 100mA @ 24V dc



Latching - Non illuminated Illuminated

- 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	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	20mA
Terminals	Solder lugs, 5.2 x 2.0mm		

244901

Colour (Non illuminated)	Mfrs. List No.	Order Code	1+	25+	50+	100+
Bezel Button						
Black	IPR1SAD2	108-2441	21.11	19.63	18.16	16.47
Chrome	IPR1SAD2101	108-2442	26.41	24.56	22.71	20.59
Colour (Illuminated)	Mfrs. List No.	Order Code	1+	25+	50+	100+
Bezel & button Central LED						
Black	IPR1SAD2LOS	108-2444	28.87	26.85	24.83	22.51
Black	IPR1SAD2LOG	108-2443	28.87	26.85	24.83	22.51
Black	IPR1SAD2LOY	108-2445	28.87	26.85	24.83	22.51

SPST - R13 Series

3A @ 125Vac, 1.5A @ 250Vac



- Push button switches with raised actuator
- Positive tactile feel with momentary and latching actions
- Black case with actuator
- Solder lug terminals
- CSA approved

Bezel = 15.5 x 15.5, Depth = 22.9(excl.tabs), panel cut out $\varnothing$ = 12.2 for panel thickness 4. Solder lug terminals = 2.1 x 0.9mm

Mechanical life:	100000 ops	Case/bezel:	Phenolic base, UL recognised
Rating:	1.5A @ 250VAC	Terminals:	Brass
Operating temperature:	-20°C to +65°C	Contacts:	Silver alloy

SW406/227868

Mfrs. List No.	Button	Order Code	1+	10+	25+	50+	+
Momentary							
R13-23AR-05	SPST Red	117-1206	3.15	2.74	2.46	2.02	--
R13-23AB-05	SPST Black	117-1207	3.15	2.74	2.46	2.02	--
R13-23AW-05	SPST White	117-1208	3.15	2.74	2.46	2.02	--
Latching							
R13-23BR-05	SPST Red	117-1209	3.56	3.12	2.80	2.30	--
R13-23BB-05	SPST Black	117-1210	3.56	3.12	2.80	2.30	--
R13-23BW-05	SPST White	117-1211	3.56	3.12	2.80	2.30	--

SPNO and SPNC Momentary and Latching

10A @ 250V ac, Impact Resistant

ITW Switches



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	1000MR
Minimum contact rating	10mA @ 5V dc	Electrical life @ 20°C	100000 ops
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, Domed=76-9450/439088B + colour, 76-9430/439088NBlue=607-630	Raised=76-9420/439088B + colour Rotary=76-9470/439088G 76-9440/439088NBlue=607-642
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SW184/222299

Colour	Order Code	1+	10+	25+	50+	+	+
Flush Actuator, Momentary							
Black	109-280	26.07	24.81	24.33	21.42	--	--
Green	109-281	26.07	24.81	24.33	21.42	--	--
Red	109-282	26.07	24.81	24.33	23.49	--	--
Blue	273-120	27.60	25.29	23.64	20.82	--	--
Raised Actuator, Momentary							
Black	109-283	26.07	24.81	24.33	21.42	--	--
Green	109-284	26.07	24.81	24.33	21.42	--	--
Red	109-285	26.07	24.81	24.33	21.42	--	--
Blue	273-132	27.60	25.29	23.64	20.82	--	--
Domed Actuator, Momentary							
Black	241-507	32.01	30.66	29.97	26.34	--	--
Green	241-519	32.01	30.66	29.91	26.31	--	--
Red	241-520	33.18	29.82	28.98	25.50	--	--
Large Circular Actuator, Latching							
Blue	607-630	32.82	31.29	30.69	27.00	--	--
Large Circular Actuator, Momentary							
Blue	607-642	36.93	34.98	34.53	30.39	--	--
Rotary Actuator, Latching							
Green	241-532	32.34	30.93	30.15	26.49	--	--
Red	241-544	32.34	30.96	30.18	26.52	--	--

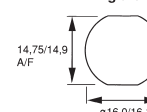
SPNO Momentary - 49-59 Series

0.4A @ 32V ac, 'Sealed'

ITW Switches



Suggested Panel Cut Out utilising the 'D'-flats



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

311643

- 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+
Round Bezel						
Black	49-59111	734-070	16.86	15.72	14.88	14.07
Red	49-59112	734-081	16.86	15.72	14.88	14.07
Green	49-59113	734-093	16.86	15.72	14.88	14.07
White	49-59114	734-100	16.86	15.72	14.88	14.07
Yellow	49-59115	734-111	16.86	15.72	14.88	14.07
Blue	49-59116	734-123	16.86	15.72	14.88	14.07
Square Bezel						
Black	49-59211	734-135	16.86	15.72	14.88	14.07
Red	49-59212	734-147	16.86	15.72	14.88	14.07
Green	49-59213	734-159	16.86	15.72	14.88	14.07
White	49-59214	734-160	16.86	15.72	14.88	14.07
Yellow	49-59215	734-172	16.86	15.72	14.88	14.07
Blue	49-59216	734-184	16.86	15.72	14.88	14.07

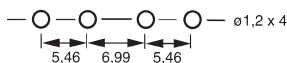
SPNO/SPNC Momentary - 49-59 Series

10A @ 250V ac, 'Microswitch'

ITW Switches



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	10000000 ops
Insulation resistance	1000MR @ 500V dc	Operating temperature	-55°C to +135°C

SW319/213262

Colour	Mfrs. List No.	Order Code	1+	25+	50+	100+
Round Bezel						
Black	49-59121	734-196	16.40	15.60	14.97	14.34
Red	49-59122	734-202	17.37	16.23	15.36	14.49
Green	49-59123	734-214	17.37	16.23	15.36	14.49
Yellow	49-59125	734-238	18.93	17.67	16.44	14.49
Blue	49-59126	734-240	17.37	16.23	15.36	14.49
Square Bezel						
Black	49-599081	734-251	17.37	16.23	15.36	14.49
Red	49-59222	734-263	17.37	16.23	15.36	14.49
Green	49-59223	734-275	17.37	16.23	15.36	14.49

SPNO and SPNC Momentary

10mA @ 5V dc, 10A @ 250V ac IP67 Sealed

ITW Switches



Bezel dia=21.5, D(behind panel)=31, Panel cut-out dia=19.25

Contacts	Silver	Insulation resistance	1000MR
Contact resistance	25mR	Electrical life	500000 ops
Dielectric strength	1kV ac	Operating temperature	-30°C to +105°C

- Vandal resistant
- Attractively machined in stainless steel, available in six colours
- Low profile bezel protrudes only 2.5mm
- Solder terminals
- Panel sealed to IP67

Colour	Order Code	1+	25+	100+	100+
Red	443-4468	23.46	22.05	21.12	--
Green	443-4470	23.46	22.05	21.12	--
Black	443-4481	23.46	22.05	21.12	--
Gold	443-4493	23.46	22.05	21.12	--
Blue	443-4500	23.46	22.05	21.12	--
Purple	443-4511	25.45	23.92	22.92	22.13

Series 76-97 - Coloured, Panel-Sealed

10A @ 250V ac

ITW Switches



- 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	1+	25+	50+	100+
Momentary						
Red/Yellow	76-9711/439088R	770-5492	25.56	23.78	21.74	19.68
Green/Yellow	76-9711/439088G	770-5506	25.56	23.78	21.74	19.68
Black/Red	76-9711/439088B	770-5514	25.24	23.78	21.74	19.68
Latching						
Red/Yellow	76-9712/439088R	770-5522	26.59	24.72	22.60	20.47
Green/Yellow	76-9712/439088G	770-5530	26.59	24.72	22.60	20.47
Black/Red	76-9712/439088B	770-5549	26.27	24.72	22.60	20.47

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	1+	5+	10+	25+	+	+
Flush Dome Actuator							
Red	113-8748	12.77	12.07	11.24	10.47	--	--
Black	113-8749	12.77	12.07	11.24	10.47	--	--
Yellow	113-8750	12.77	12.07	11.24	10.47	--	--
Blue	113-8752	12.77	12.07	11.24	10.47	--	--
Grey	113-8754	12.77	12.07	11.24	10.47	--	--
White	113-8755	12.77	12.07	11.24	10.47	--	--
White	311-3565	12.77	12.07	11.24	10.47	--	--
Raised Dome Actuator							
Red	113-8756	12.77	12.07	11.24	10.47	--	--
Black	113-8757	12.77	12.07	11.24	10.47	--	--
Yellow	113-8758	12.77	12.07	11.24	10.47	--	--
Green	113-8759	12.77	12.07	11.24	10.47	--	--
Blue	113-8760	12.77	12.07	11.24	10.47	--	--
Grey	113-8761	12.77	12.07	11.24	10.47	--	--
White	113-8762	12.77	12.07	11.24	10.47	--	--

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

Prices are in Singapore Dollars and exclusive of GST. Due to the volatile nature of certain products, prices are subject to change without notice.

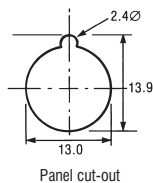
		Price Each					
Order Code	1+	10+	25+	50+	+	+	+
Flush Dome Actuator, Momentary							
Red 113-8742	23.12	21.58	20.44	17.83	--	--	--
Black 113-8743	23.12	21.58	20.44	17.83	--	--	--
Green 113-8744	23.12	21.58	20.44	17.83	--	--	--
Raised Dome Actuator, Momentary							
Red 113-8745	23.12	21.58	20.44	17.83	--	--	--
Black 113-8746	23.12	21.58	20.44	17.83	--	--	--
Green 113-8747	23.12	21.58	20.44	17.83	--	--	--
Flush Dome Actuator, Latching							
Black 113-8769	33.11	30.84	29.26	25.92	--	--	--
Green 351-2046	33.11	30.84	29.26	25.92	--	--	--
Raised Dome Actuator, Latching							
Black 113-8770	33.11	30.84	29.26	25.92	--	--	--

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			Actuator Colour		
Round Bezel	Mfrs. List No.	Order Code	Square Bezel	Mfrs. List No.	Order Code
Switch			Switch		
Red	12411104793	150-242	Red	12411100793	150-247
Yellow	12411104791	150-243	Green	12411100795	150-248
Black	12411104797	150-244	Black	12411100797	150-249
Green	12411104795	150-245	Yellow	12411100791	150-250
Grey	12411104796	150-246	Grey	12411100796	150-251
Actuator Colour					
'O' Ring					
Sealing Kit	0098.9201	148-921			
Contact resistance	110 to 115mR		Mechanical life	1000000 ops	SW1/213066

		Price Each			
Order Code	1+	100+	250+	1K+	
All Switches	6.08	5.48	5.36	5.17	
Price Per Pack					
5 Per Pack	1+	100+	250+	1K+	
Sealing Kit	148-921	7.96	7.23	6.18	5.25

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 + 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		

SW378/227869

		Price Each					
Order Code	1+	25+	50+	100+	+	+	+
Push Button Actuators - momentary							
29mm dia, plastic	A0207Y	108-2390	11.17	10.83	10.50	9.96	--
29mm dia, metal	A0210Y	108-2392	15.85	15.51	15.18	14.01	--
29 x 29	A0204Y	108-2388	11.17	10.83	10.23	9.96	--
Push Button Actuators - latching							
29mm dia, plastic	A0207X	108-2389	12.72	12.36	11.97	11.34	--
29mm dia, metal	A0210X	108-2391	17.41	17.07	16.74	15.57	--
29 x 29	A0204X	108-2387	12.73	12.36	11.97	11.34	--

		Price Each					
Order	1+	25+	50+	100+	+	+	+
Indicators							
29mm dia, plastic	A0275	108-2407	15.12	12.13	11.36	10.97	--
29mm dia, metal	A0277	108-2408	15.43	12.73	12.11	11.36	--
29 x 29	A0273	108-2406	15.12	12.13	11.36	10.97	--
			5+	25+	50+	100+	+
29mm dia. Lens							
Red	A0236B	108-2393	0.81	0.72	0.63	0.60	--
Green	A0263E	108-2404	0.81	--	--	--	--
Clear	A0263G	108-2405	0.81	0.72	0.63	0.60	--
29 x 29 Lens							
Red	A0262B	108-2400	0.81	0.72	0.63	0.60	--
Green	A0262E	108-2402	2.09	--	--	--	--
Clear	A0262G	108-2403	0.81	0.72	0.63	0.60	--
			1+	25+	50+	100+	+
Contact Blocks							
1NO	A02501	108-2394	9.80	9.32	9.04	8.40	--
1NC	A02502	108-2396	9.70	9.23	8.95	8.32	--
2NO	A02503	108-2397	15.40	14.65	14.24	13.20	--
2NC	A02504	108-2398	14.74	14.02	13.58	12.60	--
1NO + 1NC	A02505	108-2399	15.40	14.65	14.24	13.20	--

Standard 16mm - A01 Series

Emergency Stop Switch - 6A 250V ac



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

		Price Each		
Switch	Order Code	1+	25+	50+
Label	108-2379	30.91	28.74	26.58
	108-2386	2.70	2.51	2.32

Pushbutton - Voltage Loss Protection

16A @ 230V ac



H = 57, W = 54, D = 38mm Horizontal mounting holes = 42mm



Rear sealing boot



Vertical mount - Seals



H = 74, W = 35, D = 38mm
Vertical mounting holes = 62mm

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.

UL recognised and VDE approved

Push-button Operated Switch	Bipolar
Contacts	230V ac @ 50Hz
Rated Operational Voltage	AC1-16(A), AC3-14.5(A)
Rated Operational Current	6.3 x 0.8mm fast-on
Connection	Aux. contact - 2.8 x 0.8mm fast-on
Fixing	Snap-in
Cut Out	45.3 X 21.8mm
Protection - TP2351-20	IP 40
Protection - TP2351-21	IP 40(rear), IP65 (front)

Mfrs. List No.	Order Code	Mfrs. List No.	Order Code	Mfrs. List No.	Order Code
3251-20-01/52	996-8431	AAE003-251/038-01	996-8466	AAE003-251/Z037	996-8490
3251-21-01/52	996-8440	3251-20-01	996-8474	AAE003-251/Z037-01	996-8504
AAE003-251/Z038	996-8458	3251-21-01	996-8482		

245123

Description	Order Code	1+	5+	10+
Horizontal Mounting Holes				
Standard Pushbutton	996-8431	27.22	25.39	22.84
Standard Pushbutton (Aux contact)	996-8440	31.43	29.30	26.37
Seal, Yellow	996-8458	9.06	8.61	7.74
Seal, Black	996-8466	9.06	8.61	7.74
Boot, rear sealing	424-5325	13.41	12.75	11.49
Vertical Mounting Holes				
Standard Pushbutton	996-8474	27.49	25.64	23.07
Standard Pushbutton (Aux contact)	996-8482	31.12	29.01	26.11
Seal, Yellow	996-8490	9.06	8.61	7.74
Seal, Black	996-8504	9.06	8.61	7.74
Boot, rear sealing	424-5325	13.41	12.75	11.49

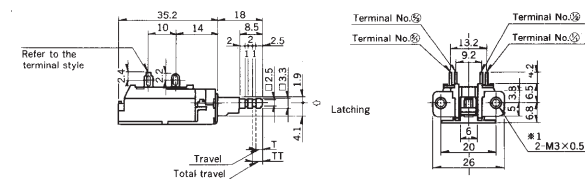
Subminiature Interlocking

Horizontally Actuated
4A @ 250V

ALPS



- CSA, VDE, NEMKO, DEMKO, SEMKO approved.
- UL recognised



213245

	Mfrs. List No.	Order Code	1+	50+	100+
DPST, PCB	SDDFA32100	112-3867	13.92	11.56	10.40
DPST, Solder Tag	SDDFA31500	112-3868	13.32	11.18	10.08

Right Angle Miniature Pushbutton Switch
Series 100

ITW Switches



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

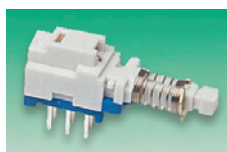
NEW

- 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+	25+	50+
Actuators					
DPDT - Latching	100-510-502	993-5010	4.49	4.26	3.84
DPDT - Momentary	100-510-501	993-5002	4.49	4.26	3.84
SPDT - Latching	100-510-507	993-5029	3.68	3.48	2.99
SPDT - Momentary	100-510-508	993-5037	3.68	3.48	2.99
Colour					
Black Rectangular	055-002-230	993-5045	1.16	--	--
Grey Rectangular	055-002-231	993-5053	1.16	--	--
Chrome Rectangular	055-002-234	993-5061	2.33	--	--
Grey Square	80-397010	993-5070	1.66	1.50	1.17
Black Square	80-397012	993-5088	1.66	1.50	1.17

Multipole, Momentary and Latching
100mA @ 30V dc

L (body) 2 pole=14.1
4 pole=21.6
6 pole=29.1
H (excluding pins)=9.0

Contact resistance	<20mR @ 5V dc	Withstand voltage	500V ac @ 1 min
Insulation resistance	100MR	Electrical life	10000 ops
Contact material	Brass, Silver plated	Operating temperature	-10°C to +60°C

Mfrs. List No.	PV0001-041=176-477	PV0001-048=176-478	PV0001-043=176-479
	PV0001-049=176-480	PV0001-050=176-482	

Note: For interlocking operation, momentary switches are required

222295

	Order Code	1+	50+	100+	250+	+
DPDT, momentary	176-477	4.95	4.32	4.03	3.43	--
DPDT, latching	176-478	5.45	4.79	4.57	3.84	--
4PDT, momentary	176-479	5.45	4.79	4.57	3.84	--
4PDT, latching	176-480	6.49	5.67	5.39	4.66	--
6PDT, latching	176-482	8.57	7.47	7.18	6.05	--

Navigation Switches

Multidirectional Switch

Cannon

ITT Industries
Engineered for life

Subminiature TPA



- Normally open momentary contacts
- Scanning in the diagonal closes two contacts simultaneously (giving 8 scanning positions)
- Non washable - Sealed IP50 contacts protected against flux migration

A multi-function sub-miniature switch with normally open contacts. Actuating the shaft in the up/down, right/left direction individually closes four momentary contacts, which provide the scanning function. The fifth contact (TPA5 only) is a push-to-select contact, which can be actuated in any shaft position. The metal dome contacts provide positive tactile feedback in any direction.

Mfrs. List No.	Power (VA)	Voltage (V)	Current Min/Max (mA)	Dielectric strength VDC	resistance mΩ	Insulation resistance MΩ's	Operating temp. min/max °C
TPA511G	1	24	1/50	250	200	10	-40 to 85
TPA413G	0.2	24	1/10	250	200	10	-40 to 110

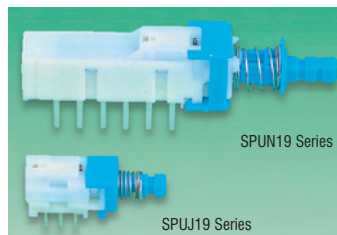
241263

Mfrs. List No.	Description	Order Code	1+	50+	100+
TPA511G	4 way + select	SMD120-1403	4.50	3.97	3.31
TPA413G	4 way - NO select	SMD120-1404	4.50	3.97	3.31

Keyboard Switches & Accessories

Horizontally Actuated

ALPS



Contact rating	0.1A 30Vdc	Life cycles	10000
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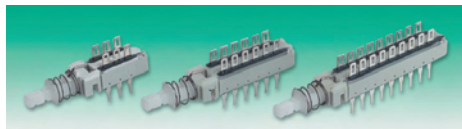
213243

Standard	Mfrs. List No.	Order Code	1+	50+	100+
2 Pole Latching	SPUN191400	112-3855	1.63	1.46	1.30
4 Pole Latching	SPUN194700	112-3856	3.02	2.55	2.30
Miniature					
2 Pole Latching	SPUJ190900	112-3857	2.17	1.80	1.61
4 Pole Latching	SPUJ193700	112-3858	3.12	2.68	2.39
6 Pole Latching	SPUJ195500	112-3859	4.34	3.69	3.31
2 Pole Momentary	SPUJ191500	112-3860	2.24	1.89	1.73

Rectangular Caps for Standard Switches			Price Each		
			10+	50+	100+
Black	PB015000B	112-3884	0.52	0.46	0.42
Grey	PB015000G	112-3885	0.52	0.46	0.42
Red	PB015000R	112-3886	0.52	0.46	0.42
White	PB015000W	112-3887	0.52	0.46	0.42
Rectangular Caps for Miniature Switches					
Black	PB015100B	112-3888	0.57	0.50	0.46
Grey	PB015100G	112-3891	0.52	0.46	0.42
Red	PB015100R	112-3892	0.52	0.46	0.42
White	PB015100W	112-3893	0.52	0.46	0.42

Push-button side actuated

0.5A, 125V ac 30V dc

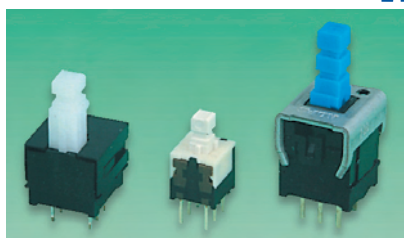


- Momentary and push/push functions
- PCB and solder terminals on the same switch
- Non-shorting switch contacts
- Long life - in excess of 100,000 operations
- Low operating force 3.5N (2U), 5N (4U), 6.5N(6U)

Switching power	Switching voltage	Switching current	Contact resistance	Operating temp.
50VA/15W	125V ac/30V dc	0.5A ac/dc	10mR	-40°C to +70°C

241331

Mfrs. List No.	Order Code	Number of units	Price Each		
		Momentary	1+	50+	100+
SF 2U OA	415-6328	2	3.43	3.02	2.51
SF 2U EE	415-6330	2	3.69	3.27	2.74
SF 4U EE	415-6341	4	4.96	4.36	3.63
SF 6U EE	415-6353	6	5.57	4.93	4.07
Buttons for SF switches					
FG BK - BLACK	415-6365		0.32	0.29	0.26
FG RD - RED	415-6377		0.32	0.29	0.26

Vertically Actuated

SPPH11 Series SPPH21 Series SPEC12 Series

213244

	Mfrs. List No.	Order Code	1+	50+	100+
Standard - Low Profile					
2 Pole Latching Standard	STSPPH11 (F3710889M)	112-3861	4.33	3.68	3.45
2 Pole Momentary Standard	SPPH110300	112-3862	3.59	3.09	2.80
Miniature					
2 Pole Latching Miniature	SPPH210100	112-3863	4.63	3.87	3.50
2 Pole Momentary Miniature	SPPH210500	112-3864	3.63	3.12	2.83
Standard					
2 Pole Latching Standard	SPEC121100	112-3866	5.46	4.60	4.16

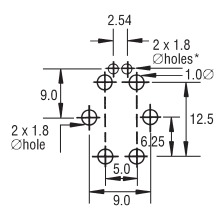
Hinge - B3J Series, SPNO

50mA @ 24V dc



176-461 176-451

L=18, W=12, D=10.3



PCB Drilling plan

*Not required on non-illuminated keyswitch

- Black, hinge type keyswitch with tactile feedback and short keystroke
- Available with or without red LED illumination.

Contact arrangement	SPNO	Insulation resistance	100MR min @ 250V dc
Min permissible load	1mA @ 5V dc	Dielectric strength	500V ac for 1min
Contact resistance	100mR max	Mech+elec life	30000000 ops

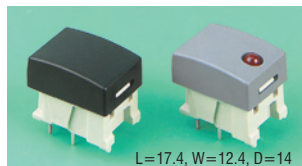
Mfrs. List No. B3J1100=176-461, B3J2100=176-451

213077

	Order Code	1+	50+	100+
Without LED	176-461	3.81	3.34	2.93
With red LED	176-451	6.08	5.32	4.69

Hinge - Series 96 SPCO

Sealed 42V/100mA



L=17.4, W=12.4, D=14

Max. Rating	42V/100mA	Contact Bounce:	<2.5mS
Contact Resistance:	<1000mR	LED Vf at 20mA:	2.2V
Mechanical Life:	>5000000ops	Lens Size:	17.4 x 12.4mm

213289

	Mfrs. List No.	Order Code	1+	10+	100+
Switch Without LED					
Black Momentary	K96-901.01BLK	185-322	5.89	5.20	4.69
Grey Momentary	K96-901.81GRY	185-346	5.89	5.20	4.69
Switch With Red LED					
Black Momentary	K96-902.01BLK/2	185-360	7.94	7.02	6.30
Black Latching	K96-906.01BLK/2	185-371	10.46	9.26	8.35
Grey Momentary	K96-902.81/2GRY	185-383	7.94	7.02	6.30

'K' Series, SPDT

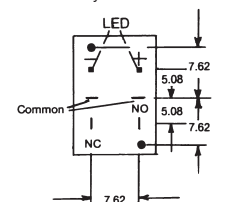
10mA @ 24V dc, 20mA @ 20V dc



Full key 12.3 x 16.7

Full key 17.3 x 16.7

- Momentary microswitch action, PCB mountable switches with ABS housing
- Choice of button colours
- Button width of 17.3mm
- Buttons are detachable and interchangeable
- Versions are available with LED indicator
- Gold plated contacts

Body: H=14.0, W=12.3, L=17.1
Panel cut-out=17.3 x 12.5 or 17.5

Switches without LED		Button colour	
Full Key 12.3 x 16.7 :	Black=143-635,	Grey=143-636,	Red=143-637,
Full Key 17.3 x 16.7 :	Black=145-213,	Grey=145-214	

Switches with LED		
Full Key 12.3 x 16.7 :	Black with Red LED=116-5218,	Black with Green LED=116-5219,
Full Key 17.3 x 16.7 :	Grey with Red LED=116-5220,	Grey with Green LED=116-5261

Switch action	SPDT momentary	LED	
Bounce	<1ms	Forward current I _F (max)	50mA
Operating temperature	-25°C to +85°C	Forward voltage (V _F @ I _F =20mA)	1.6V
Mechanical life	5000000 ops	Power dissipation	100mW
Operating force	1 to 1.5N	Intensity	0.8mcd
Mfrs. List No.	Mfrs. List No.	Mfrs. List No.	
623300.000.000.030=143-636	623300.000.000.060=143-637	623300.000.000.010=143-635	
623300.001.060.010=116-5219	623300.050.000.010=145-213	623300.001.020.010=116-5218	
623300.051.020.030=116-5220	623300.051.060.030=116-5261	623300.050.000.030=145-214	

213240

	Order Code	1+	25+	100+	250+	+
Without LED	All Order Codes	11.18	9.42	6.65	4.76	--
With LED	All Order Codes	15.72	11.94	8.95	6.71	--



RoHS Directive



Download your personalised
certificate of compliance at
www.farnell-newarkinone.com.sg

**Don't risk anyone
else for RoHS**

Switches

44

Compliant
Non-compliant
Limited stock - RoHS replacement available

RoHS



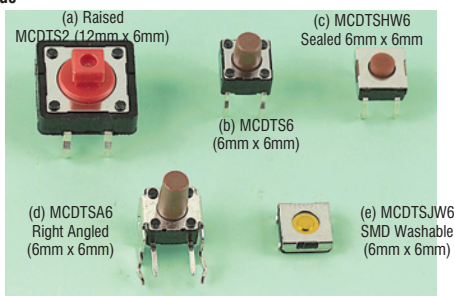
44

213076

Tact Switches - SPNO

50mA @ 12Vdc

multicomp



- Comprehensive range of SPNO tact switch
- High reliability, long operating life
- Select by overall height, body and actuator length, and operating force

Current rating	50mA	Voltage rating	12Vdc min.
Contact resistance	100mR max	Insulation resistance	10MR 500 Vdc
Dielectric strength	250Vac/1 minute	Stop strength	3kgf 15S
Operating temperature	-25°C to +70°C	Wave solder	260°C max 5S 1.6mm PCB
Electrical life	100000 operations min	Hand solder	320°C 2S 30W iron
PCB Hole dia.	1.0 +/- 0.05mm		

213130

Order Code	Price Each				
	5+	50+	100+	250+	+
Actuator style/Operating Force (gf)					
MCDS2 Series (12mm x 12mm) - PCB drilling 12.5mm x 5.0mm					
Raised/160	947-1634	0.96	0.87	0.78	0.63
Flat/160	947-1642	0.96	0.87	0.78	0.63
Raised/260	947-1650	1.03	0.90	0.81	0.66
Flat/260	947-1669	0.99	0.90	0.81	0.66
MCDS6 Series (6mm x 6mm) - PCB drilling 6.5mm x 4.5mm					
Overall height/Operating Force (gf)					
4.3mm/100	947-1677	0.60	0.54	0.49	0.39
4.3mm/160	947-1685	0.60	0.54	0.49	0.39
4.3mm/260	947-1693	0.60	0.54	0.49	0.40
5mm/160	947-1707	0.69	0.63	0.56	0.46
5mm/260	947-1715	0.72	0.63	0.57	0.47
7mm/100	947-1723	0.69	0.63	0.57	0.46
7mm/160	947-1731	0.69	0.63	0.57	0.46
7mm/260	947-1740	0.72	0.63	0.58	0.47
9.5mm/100	947-1758	0.73	0.67	0.59	0.47
9.5mm/160	947-1766	0.72	0.66	0.58	0.47
9.5mm/260	947-1774	0.72	0.66	0.59	0.47
MCDTSHW6 Series (6mm x 6mm) Washable - PCB drilling 6.5mm x 4.0mm					
3.8mm/160	947-1782	1.26	1.14	1.02	0.84
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	0.94	0.85	0.75	0.68
8.35mm/160	947-1804	0.87	0.78	0.69	0.57
8.35mm/260	947-1820	0.87	0.78	0.72	0.57
3.85mm/100	947-1839	0.84	0.78	0.69	0.56
3.85mm/160	947-1847	0.84	0.78	0.69	0.56
3.85mm/260	947-1855	0.88	0.78	0.69	0.56
MCDTSJW6 Series (6mm x 6mm) SMD Washable					
Overall height/Operating force (gf)					
2.3mm/160	947-1863	1.40	1.23	1.11	0.90
3.1mm/160	947-1871	1.55	1.38	1.23	0.99

Tact Switch - Miniature

KSR/KMR Sealed

Cannon

ITT Industries
Engineered for life

- Extremely small overall dimensions
- 3 different actuating forces
- Designed for easy pick and place operations
- KMR micro-miniature features sharp tactile feedback in the smallest dimensions available

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 (V)	Current (mA)	Contact resistance (mΩ)	Insulation resistance (MΩ's)	Operating temp. (°C)
KSR221J	1	20/50	1/50	100	1000	-40 to 85
KSR231J	1	20/50	1/50	100	1000	-40 to 85
KSR251J	1	20/50	1/50	100	1000	-40 to 85
KSR251J	1	50V dc max	1/50	100	1000	-40 to 85

241370

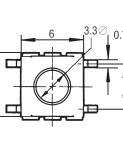
Mfrs. List No.	Operating force (N)	Order Code	1+	25+	50+
KSR221J	1.2	SMD 120-1421	0.95	0.84	0.77
KSR231J	3	SMD 120-1422	1.00	0.89	0.81
KSR251J	4.5	SMD 120-1423	1.06	0.95	0.87
KMR221G	2	SMD 120-1424	0.96	0.85	0.78

SPNO B3S Series - Sealed

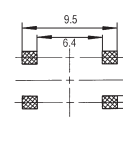
OMRON



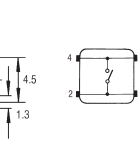
Flat plunger H (max)=4.3



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

SMD

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	-20°C to +70°C
Mfrs. List No.	B3S1000=177-807, B3S1002=959-728		

213174

Actuation force	Order Code	1+	25+	50+	100+	+
General purpose	SMD 177-807	1.21	1.08	0.99	0.88	--
High-Force	SMD 959-728	1.21	1.08	0.99	0.88	--

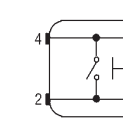
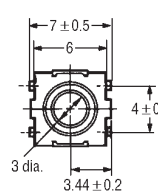
SPNO B3SN Series - Sealed

OMRON

30mA @ 24V dc

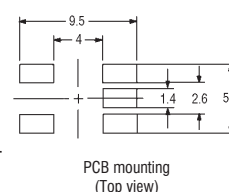


Flat plunger H=3.1



Terminal Arrangement (Top view)

- 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

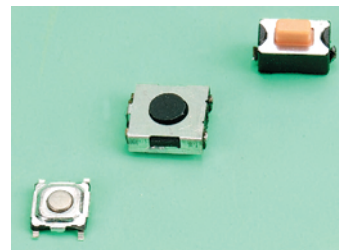
213281

Ground Terminal Version	Order Code	1+	25+	50+	100+	+
With	SMD 990-2031	1.40	1.25	1.12	1.02	--
Without	SMD 118-1018	1.79	1.66	1.53	1.40	--

Tact Switches - SPNO

multicomp

50mA @ 12Vdc - Sharp Click



TM-533-T/R

DTSG-61K-B

DTSM-32S-B

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 Nylon, UL recognised

Operation Force (gf)	Stroke (mm)	Dimensions (l x w x h mm)	Mfrs. List No.	Order Code
160	0.25	6.2 x 5.2 x 1.5	TM-533-T/R	947-1880
160	0.25	6 x 3.5 x 5	DTSM-32S-B	947-1898
160	0.25	6.2 x 6.4 x 2.5	DTSG-61K-B	947-1901
160	0.25	6.2 x 6.4 x 2.5	DTSL-61R-B	947-1910

Switches

44

Compliant
Non-compliant
RoHS
Limited stock - RoHS replacement available

Switch Bodies	Order Code	1+	50+	100+	250+	+
Momentary/silver	113-2859	7.03	6.00	4.87	3.68	--
Latching/silver	113-2860	7.50	6.38	5.25	4.13	--
Momentary/gold	113-2876	9.37	8.24	7.49	7.13	--
Latching/gold	113-2877	10.25	9.02	8.20	7.78	--
Legend Buttons	All O/Codes	2.43	2.07	1.74	1.61	--
Support Bracket	113-2873	8.95	7.88	7.16	6.80	--

		10+	50+	100+	250+	+
Bezels	All O/Codes	0.81	0.72	0.56	0.47	--
Plain buttons	All O/Codes	0.78	0.69	0.56	0.47	--

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	1000000 operations		
Operating temperature	-40°C to +115°C (through hole)		
	-40°C to +160°C (surface mount)		



213221

Stand Alone Switches



1132875 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

213222

	Mfrs. List No.	Order Code	1+	50+	100+	500+
Standard Height, 6.4mm Button						
White	RA3CTL6	113-2874	3.10	2.73	2.33	2.00
Black	RA3CTL9	113-2875	3.10	2.73	2.56	--
Extended Height, Black Button						
8mm	RA3ETL98	113-2879	3.16	2.83	2.43	2.03
9.5mm	RA3ETL995	113-2881	3.16	2.83	2.43	2.03
10.4mm	RA3ETL9104	113-2883	3.16	2.83	2.43	2.03
12mm	RA3ETL912	113-2884	3.16	2.83	2.43	2.03
15mm	RA3ETL9-15	113-2953	3.16	2.83	2.43	2.03
Surface Mount Switch						
Black 6.4mm	RA3CSH9	113-2899	3.38	2.99	2.56	2.19

With Caps and Bezels



1132885, 1132885, 113-2892, 1132896, 1132900, 1132915, 113-2913

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

Round caps :	Black = 113-2886	Grey = 113-2887	Red = 113-2888
	Blue = 113-2912	Yellow = 113-2913	White = 113-2914
Square caps :	Black = 113-2889	Grey = 113-2890	Red = 113-2892
Rect. caps :	Black = 113-2893	Grey = 113-2894	Red = 113-2895
		White = 113-2915	
Square bezels :	Black = 113-2896	Grey = 113-2897	Red = 113-2898



213223

Mfrs. List No. Round caps=1Dxx, Square caps=1Kxx16, Rectangular caps=1Pxx, Square bezels=2Kxx, where xx=00 (blue), 02 (green), 03 (grey), 04 (yellow), 06 (white), 08 (red), 09 (black)

213223

	Mfrs. List No.	Order Code	1+	50+	100+	500+
PCB	RA3FTL6	113-2885	3.16	2.83	2.43	2.03
Surface mount	RA3FSH9	113-2900	3.38	2.99	2.56	2.19
Right angle	RA3FTL6RAS	113-2916	4.33	3.84	3.41	2.91

		10+	50+	100+	500+
Round caps	All Order Codes	0.66	0.59	0.47	0.38
Square caps	All Order Codes	3.19	2.93	2.54	2.33
Rectangular caps	All Order Codes	0.66	0.59	0.47	0.38
Bezels to fit square caps	All Order Codes	0.78	0.69	0.53	0.42

Illuminated with Caps and Bezels



1132904, 1132911, 1132898, 1132901, 1132906, 1132902, 1132907

Dimensions as non-illuminated types (above)

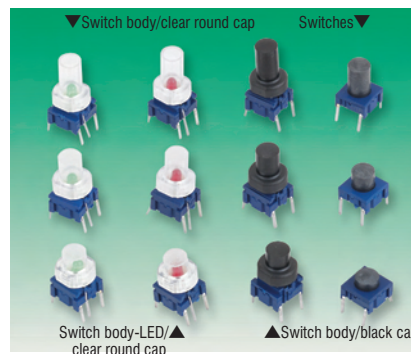
- Switches incorporate either red or green, blue or bicolour red/green LED's for illumination
- Caps have clear lenses within the coloured moulding and can therefore be used with either colour LED
- Round or rectangular caps available in black or grey
- Transparent square cap is supplied with diffuser. Custom legends may be placed between cap and diffuser
- Bezels are available and recommended for use with square caps
- Extended height versions offer 16, 19 or 22.5mm overall height

FOR SUITABLE BEZELS FOR SQUARE CAPS
SEE ORDER CODES 113 - 2896 / 2897 / 2898.

213219

	Mfrs. List No.	Order Code	1+	50+	100+	500+
Switch Body with LED						
Green LED	RA3FTL620	113-2901	6.99	6.13	5.29	4.56
Red LED	RA3FTL680	113-2902	6.99	6.13	5.29	4.56
Blue LED	RA3FTL600	113-2954	8.78	8.25	7.92	7.55
Red/Green LED	RA3FTL68020	113-2955	6.97	6.08	5.25	4.53
H.I. Green LED	RA3FTL622	113-2903	9.71	8.58	7.38	6.33
H.I. Red LED	RA3FTL688	113-2904	9.71	8.58	7.38	6.33
Caps with Clear Lens						
Square, with diffuser	1K1116	113-2911	2.33	--	--	--
Caps with Clear Lens			10+	50+	100+	500+
Round Black	1E091	113-2905	1.40	1.23	0.96	0.78
Round Grey	1E031	113-2906	1.40	1.23	0.96	0.78
Rectangular Black	1Q091	113-2907	1.40	1.23	0.96	0.79
Rectangular Grey	1Q031	113-2909	1.40	1.23	0.96	0.79
Extended Height Caps with Clear Lens - Round						
16mm	1S11-16	113-2951	0.66	0.59	0.50	0.44
19mm	1S11-19	113-2952	0.66	0.59	0.50	0.44
10mm Extender	2S09	113-2920	0.69	0.63	0.53	0.47

Variable Height Kit - Components



- 10 million cycle mechanical life
- 1 mm travel with 2.5N force
- 55°C to +115°C operational temp. range
- IP67 sealed switches
- 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



Switches

44

Compliant
Non-compliant
Limited stock - RoHS replacement available

RoHS



233715

Description	Kit Qty.	Mfrs. List No.	Order Code	1+	50+	100+	500+
PCB Switch Body	15	RA3FTL6	113-2885	3.16	2.83	2.43	2.03
				10+	50+	100+	500+
Extender 5mm	5	2S09-05	113-2956	0.56	0.50	0.47	0.44
Extender 6mm	5	2S09-06	113-2958	0.56	0.50	0.47	0.44
Extender 7mm	5	2S09-07	113-2959	0.56	0.50	0.47	0.44
Extender 8mm	5	2S09-08	113-2961	0.56	0.50	0.47	0.44
Extender 9mm	5	2S09-09	113-2962	0.56	0.50	0.47	0.44
Extender 10mm	5	2S09	113-2920	0.69	0.63	0.53	0.47
Extender Cap 16mm	5	1S09-16	113-2917	0.66	0.59	0.50	0.44
Extender Cap 19mm	5	1S09-19	113-2918	0.66	0.59	0.50	0.44
Extender Cap 22.5mm	5	1S09-22.5	113-2919	0.66	0.59	0.50	0.44
				1+	50+	100+	500+
Switch, White 6.4mm	3	RA3CTL6	113-2874	3.10	2.73	2.33	2.00
Switch, Black 8mm	3	RA3ETL98	113-2879	3.16	2.83	2.43	2.03
Switch, Black 9.5mm	3	RA3ETL995	113-2881	3.16	2.83	2.43	2.03
Switch, Black 10.4mm	3	RA3ETL9104	113-2883	3.16	2.83	2.43	2.03
Switch, Black 12mm	3	RA3ETL912	113-2884	3.16	2.83	2.43	2.03
Switch, Black 15mm	3	RA3ETL9-15	113-2953	3.16	2.83	2.43	2.03
Switch Body Red LED	3	RA3FTL680	113-2902	6.99	6.13	5.29	4.56
Switch Body Green LED	3	RA3FTL620	113-2901	6.99	6.13	5.29	4.56
				10+	50+	100+	500+
Round Cap, Clear 16mm	3	1S11-16	113-2951	0.66	0.59	0.50	0.44
Round Cap, Clear 19mm	3	1S11-19	113-2952	0.66	0.59	0.50	0.44
Round Cap, Clear 22.5mm	3	1S11-22.5	311-2469	0.66	0.59	0.50	0.44

Panel Seal Kit - Components



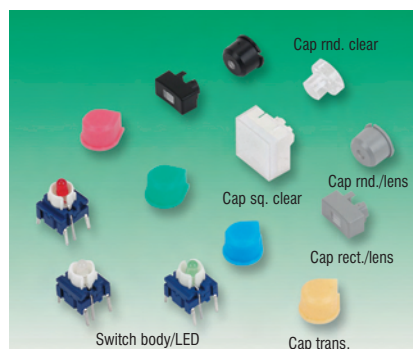
- IP67 sealed cap and switch
- 10 million cycle mechanical life
- 1mm travel with 2.5N force
- Select switch & cap & bush & boot for full panel seal solution
- Use transparent cap/boot for illuminated applications
- Boot made from silicone, 2 million cycles -40°C to +85°C



233716

Description	Kit Qty.	Mfrs. List No.	Order Code	1+	50+	100+	500+
PCB Switch Body	10	RA3FTL6	113-2885	3.16	2.83	2.43	2.03
Switch Body, red LED	2	RA3FTL680	113-2902	6.99	6.13	5.29	4.56
Switch Body, green LED	2	RA3FTL620	113-2901	6.99	6.13	5.29	4.56
Panel bush 0.5 - 2.5	5	AQN0.5	113-2963	6.98	--	--	--
Panel bush 2.5 - 4.0	5	AQN2.5	113-2964	13.95	--	--	--
				10+	50+	100+	500+
Cap, black 24.2 mm	5	AQC09-24.2	113-2965	0.60	0.53	0.49	0.47
Cap, black 25.2 mm	5	AQC09-25.2	113-2966	0.60	0.53	0.49	0.47
Cap, transparent 24.2 mm	5	AQC11-24.2	113-2967	0.60	0.53	0.49	0.47
Cap, transparent 25.2 mm	5	AQC11-25.2	113-2968	0.60	0.53	0.49	0.47
				1+	50+	100+	500+
Sealing boot - black	5	AQB0109	113-2971	3.81	3.42	3.06	2.84
Sealing boot - transparent	5	AQB0111	113-2972	3.81	3.42	3.06	2.84

Illumination Kit - Components



- 10 million cycle mechanical life
- 1 mm travel with 2.5N force
- Green, yellow, red, blue and bicolor LED's
- IP67 sealed switches



233717

Description	Kit Qty.	Mfrs. List No.	Order Code	1+	50+	100+	500+
Order Multiple = 1							
Switch Body, blue LED	2	3FTL600	311-3759	8.46	7.96	7.64	7.28
Switch Body, green LED	5	3FTL620	678-030	6.62	5.80	5.01	4.32
Switch Body, red LED	5	3FTL680	678-041	6.62	5.80	5.01	4.32
Switch Body, red/green LED	2	3FTL68020	311-3760	6.65	5.80	5.01	4.32
Order Multiple = 10							
Cap, round black. Clear lens	5	1E091.	678-077	1.40	1.23	0.96	0.78
Cap, round grey. Clear lens	5	1E031.	678-089	1.40	1.23	0.96	0.78
Cap, rectangular black. Clear lens	5	1Q091.	678-090	1.40	1.23	0.96	0.79
Cap, rectangular grey. Clear lens	5	1Q031.	678-107	1.40	1.23	0.96	0.79
Round cap, clear 16mm	5	1S11-16.	311-2445	0.66	0.59	0.50	0.44
Round cap, clear 19mm	5	1S11-19.	311-2457	0.66	0.59	0.50	0.44
Round cap, clear 22.5mm	5	1S11-22.5	311-2469	0.66	0.59	0.50	0.44
1N cap, translucent blue	5	1N10	369-3405	0.57	0.50	0.47	0.44
1N cap, translucent green	5	1N12	369-3417	0.57	0.50	0.47	0.44
Order Multiple = 1							
Switch body, HI green LED	2	3FTL622	678-053	9.23	8.16	7.02	6.02
Switch body, HI red LED	2	3FTL688	678-065	9.23	8.16	7.02	6.02
Cap, square, clear with diffuser	5	1K1116.	678-119	2.33	--	--	--

Non-Illuminated, Low Profile



- SPNO momentary keyboard switches for PCB mounting
- Gold crosspoint contacts, keypads are ochre coloured

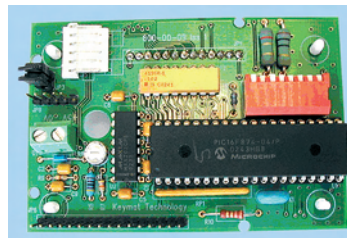


213388

	Order Code	1+	25+	100+
Low profile switch module	118-0016	1.89	1.61	1.35
Keycap for 118-0016	175-518	3.49	2.76	2.37

Keyboards & Keypads

Universal Keypad + Keyboard Encoder



W=88.9, D=60

NEW

The Storm 420 Series encoder allows interfacing between keypad and host system.

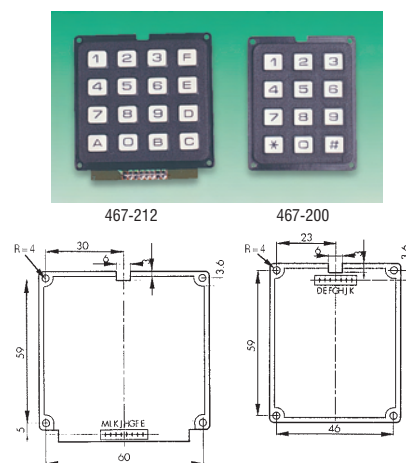
- Input Power + 5V ± 0.25V dc
- RS232 Output via 6 pin Molex 2.54mm (.100") Pitch KK® connector
- Direct connection to underpanel mounted 12-, 16- and 20 way Storm Keypads
- Ribbon Cable needed for top panel fixing 4-, 12- and 16 way Storm Keypads
- Can drive LCD display on Storm FT series keypads
- Overall footprint 89mm x 66mm

346031

Mfrs. List No.	Order Code	1+	5+	25+	+
4200-001-FEC	980-9988	172.74	155.46	141.33	--

Low Cost Miniature Keypads

ECO Series



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).

Prices are in Singapore Dollars and exclusive of GST.
Due to the volatile nature of certain products,
prices are subject to change without notice.

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	1+	10+	50+
Keypad, 12 way	113-0805	12.60	11.47	10.49
Keypad, 16 way	113-0806	15.75	14.33	13.14

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
- Individual yellow LED illuminated keys (option)
- 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	Keypoint travel	1.3±0.3mm
LED operating voltage	2.5V max.	Actuation force	1 to 3 N
Individual LED current	20mA	Front face seal	IP67
Life time 4 million operation			

213191

	Mfrs. List No.	Order Code	1+	10+	50+
12 Key Telephone Keypad Non Illuminated	S.12X00.342	NEW 100-6085	109.63	95.37	81.54
12 Key Calculator Layout with A and B, Non-Illuminated	S.12X00.343	NEW 100-6086	109.63	95.37	81.54
12 Key Non-Illuminated Calculator with 4 Arrow Keys CLR on * and Ent on #	S.12X00.344	NEW 100-6087	116.79	102.47	89.77
12 Key Illuminated tel markings	S.12150.241	113-0817	137.34	123.61	116.74
12 Key Illuminated telephone High Brightness	S.12X00.345	NEW 100-6088	164.90	155.49	140.94
16 Key Illuminated hex markings	S.16350.241	113-0818	181.12	163.01	153.97

Low Profile Keypad

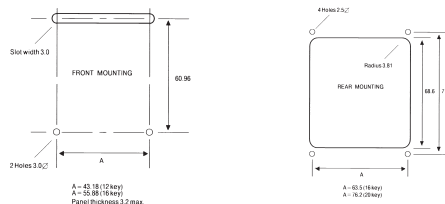


Key Layouts

12 Key	16 Key (A)	16 Key (B)	20 Key
1 2 3 4 5 6 7 8 9 * 0 #	1 2 3 A 4 5 6 B 7 8 9 C 0 F E D	0 1 2 3 4 5 6 7 8 9 A B C D E F	

Front Mounting Types: H=68.6, W=50.8 (12 key), 63.5 (16 key), D=4.83 (front panel)
Rear Mounting Types: H=76.2, W=68.6 (16 key), 81.3 (20 key), D=4.83

Mounting Details



- Moulded keys with black character on white key
 - Outputs are either single pole or matrix
- Contact rating 50mA @ 28V dc (Precious metal)
Connections 0.1" single in line
Contact bounce 3ms

213248

Front Mounting	Order Code	1+	10+
12 Key, SP	170-604	39.17	--
12 Key, 4 3	170-605	39.29	--
16 Key, 4 4 (A)	103-651	48.83	47.15
16 Key, 4 4 (B)	170-606	48.35	46.69
Rear Mounting			
16 Key, 4 4 (A)	103-653	49.74	47.71
16 Key, SP (A)	103-654	48.83	46.40
20 Key, 4 5 (blank)	170-608	62.58	59.98

Sealed and Rugged Keypads - IP67
Storm 700 Series and 900 Series

Illuminated keypads

- Excellent tactile characteristics
- Interchangeable legends fit into recess in keys
- Dual LEDs allow red or green illumination of any key

Operating voltage	24V max.	Operating temp. range	-55°C to +125°C (700 series)
Operating current	50mA max.		-25°C to +85°C (900 Series)
Breakdown voltage	500V max.	Keypoint travel	1.5mm nominal
Insulating resistance	50MR	Actuation force	160g typ
Contact resistance	100R max.	Environ sealing	BS5490 IP67
Contact bounce	5ms max.	Illuminated keypads only:	
Operational life to 70°C	2 million cycles	LED drive current	20mA typ. 25mA max.
Material:		LED drive voltage	3.3V typ.
Keypad surface	Engineering grade silicone rubber.	LED drive voltage	(single diode)
Keypad chassis	Anodised aluminium		(double diode)

213253

Non illuminated	Mfrs. List No.	Order Code	1+	10+	50+
Grey, 4 way	70040101	981-0021	41.08	38.05	36.70
Black, 4 way	70040201	981-0030	41.08	39.09	37.14
Grey, 12 way	70120101	981-0048	54.27	50.27	48.48
Black, 12 way	70120201	981-0056	54.27	51.66	49.08
Grey, 16 way	70160101	981-0064	75.57	70.02	67.50
Black, 16 way	70160201	981-0072	75.57	71.91	68.36
QWERTY, Grey	70360101	981-0080	122.41	115.57	111.42
QWERTY, Black	70360201	981-0099	122.41	118.72	112.80
Illuminated					
Keypad, 4 way	90040101	981-0102	69.46	64.42	62.09
Keypad, 12 way	90120101	981-0110	105.46	99.60	96.01
Keypad, 16 way	90160101	981-0129	142.95	134.95	130.10
Rear Panel Mounting Kits					
4 way	7004CL01	207-524	5.30	--	--
12/16 way	7012CL01	207-536	10.61	--	--
Keypoint Legend Tiles					
Non-Illuminated					
Set A	70A00101	207-275	9.00	8.64	8.22
Set B	70B00101	207-287	9.00	8.64	8.22
Set C	70C00101	207-299	9.00	8.64	8.22
Set D	70D00101	207-305	9.00	8.64	8.22
Set E	70E00101	207-317	9.00	8.64	8.22
Set F	70F00101	207-329	9.00	8.64	8.22
Illuminated					
Set A	90A00101	207-354	9.00	8.64	8.22
Set B	90B00101	207-366	9.00	8.64	8.22
Set C	90C00101	207-378	9.00	8.64	8.22
Set D	90D00101	207-380	9.00	8.64	8.22
Set E	90E00101	207-391	9.00	8.64	8.22

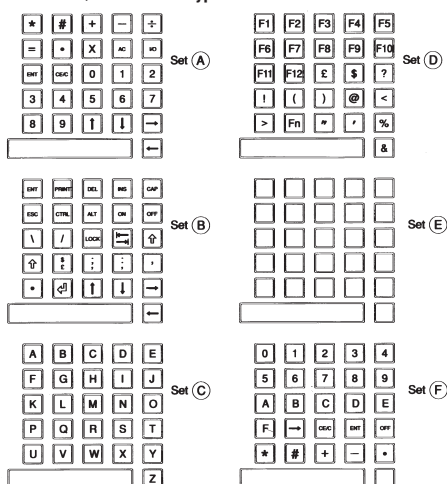
Switches

44

Compliant
Non-compliant
RoHS
Limited stock - RoHS replacement available

Legend Tile Character Library

STORM Graphic and 700/900 Series Keypads

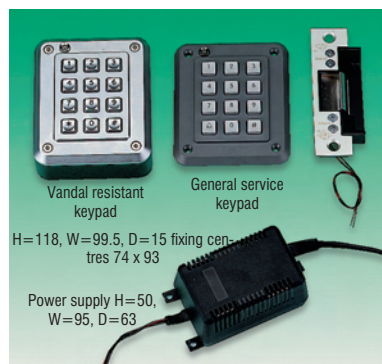


Library of standard format keypad character sets ('A' to 'F') for use with STORM Graphic and 700/900 series keypads.

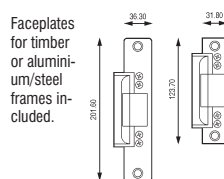
213254

Storm Keypads for Access Control

Strikemaster/Codemaster



Electric door strike Depth behind panel=38



Storm AXS keypads provide rapid and reliable access control in "high-traffic" applications. Robust construction for outdoor and exposed locations.

Codemaster

Converts codes entered via the keypad into industry standard 26 and 32 bit Weigand data. Suitable for use as a replacement for (or in conjunction with) most standard card readers. The units comply with current and forthcoming standards and are quick and easy to install.

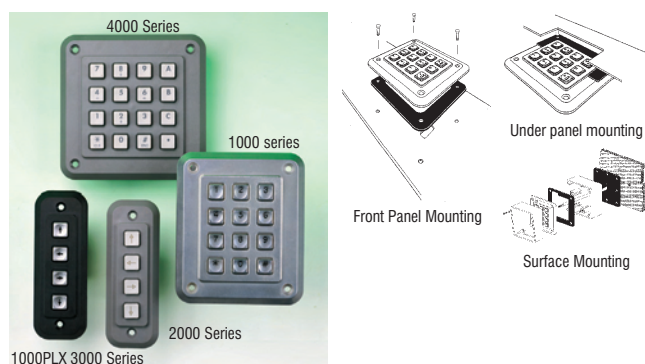
Import Permit may be required in Malaysia

222294

	Order Code	1+	2+	5+	10+
Keypad for local door control - Strikemaster					
Vandal resistant	773-920	418.04	357.65	351.16	349.45
General service	773-931	344.92	306.11	--	--
Electric door strike	773-943	239.70	228.27	222.92	--
12V dc power supply	773-955	105.00	96.48	93.48	--
Weigand Data Keypad - Codemaster					
Vandal resistant	773-967	314.06	278.72	--	--
General service	773-979	275.00	244.03	--	--
Privacy Shroud	986-513	52.26	50.22	48.60	46.73

Storm Multi-Purpose Keypad Range - Up to IP67

Storm 'K' 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)
- Privacy shroud provides added security for financial transactions, access control and other applications where PIN protection from observation is required
- 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 Keytops
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	Keytops

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
 SW313/230750

	Order Code	1+	10+	50+
1000 Series - Vandal Resistant - IP67				
4 Key (F1, F2, F3, F4)	980-9805	79.60	72.67	69.55
4 Key (▲▲▲▲)	980-9791	79.60	72.67	69.55
12 Key Calc. style	980-9813	116.95	108.93	105.59
12 Key Tel. style	980-9821	114.66	106.66	102.19
16 Key Calc. style	980-9830	143.85	133.97	129.87
16 Key Tel. style	980-9848	141.03	131.20	125.53
1000PLX Series - Vandal Resistant - IP65				
4 Key (▲▲▲▲)	981-0200	69.27	63.22	59.85
12 Key Calc. style	981-0218	99.76	92.77	88.35
12 Key Tel. style	981-0226	99.76	92.77	88.35
16 Key Calc. style	981-0234	122.69	114.09	108.67
16 Key Tel. style	981-0242	122.69	114.09	108.67
2000 Series - Impact Resistant - IP65				
4 Key (F1,F2,F3,F4)	980-9910	51.75	47.22	45.20
4 Key (▲▲▲▲)	980-9902	51.75	47.22	45.20
12 Key Calc. style	980-9929	80.48	73.46	70.31
12 Key Tel. style	980-9937	80.48	73.46	70.31
16 Key Calc. style	980-9945	99.00	90.34	86.47
3000 Series - General Service - IP64				
4 Key (▲▲▲▲)	980-9953	36.19	33.01	31.63
12 Key Tel. style	980-9961	56.32	51.41	49.20
16 Key Tel. style	980-9970	69.30	63.25	60.54
4000 Series - Light Duty				
4 Key (F1,F2,F3,F4)	980-9996	25.33	23.12	22.11
12 Key Calc. style	981-0005	39.44	36.00	34.46
12 Key Tel. style	981-0013	39.44	36.00	34.46
Privacy Shroud for 12 way Keypads				
Mounting box for 12 way keypads	986-513	52.26	50.22	48.60
Blank Keys				
1000 series (set of 4)	480-009	12.00	10.92	9.99
2000/3000 series (set of 4)	546-379	4.09	3.39	3.09

Rugged PC Keyboard - IP65

Storm 1100 Series



H=42, W=366, D=155



- Rugged polymer/stainless steel design - resistant to abuse or accidental damage
- Tactile key action for rapid and reliable data entry
- Resistant to solvents, detergents and corrosive substances
- High level of protection against dust and water (IP65)
- Compatible with current industry standard PC's
- Supplied with cable assembly with mini DIN plug

Key life >4 million cycles
 Output codes TTL level data with PC compatible codes
 Vibration resistance MIL Stan. 810D. Method 514 3-1 to 3-3
 Shock resistance Designed to MIL Stan. 810D
 Operating temperature -25°C(dry) to +85°C

222309

	Order Code	1+	5+	25+
Under panel mounting clips	546-513	42.53	36.12	32.91

Miniature, Vandal-Resistant PC Keyboard - IP65

Storm 1200 Series



- Sealed against water and dust to IP65 specification
- Very small footprint
- Integrated PS2/USB encoding electronics
- Protected against RFI/EMI in accordance with current/forthcoming EU and US directives
- Resistant to most corrosives and cleaning agents

H=38.5, W=290, D=117.6 mm

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

Developed for use in hostile environments such as public data entry terminals. The robust construction is highly resistant to hard use, abuse and vandalism.

241482

	Order Code	1+	3+	5+
1200 keyboard	980-9783	563.85	523.37	499.41
2.5m PS/2 cable w/6 pin mini-DIN connector	980-9767	21.44	--	--
2.5m USB cable w/USB type connector	980-9775	21.44	--	--

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').

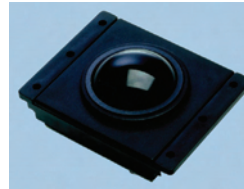
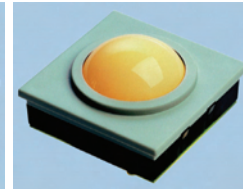
- Weather and vandal resistant for outdoor and unsupervised public environments
- 20 character x 4 line, illuminated LCD display (optional)
- Rapid, responsive and reliable data entry
- Stainless steel brushed front plate
- Easily and securely installed in vending machines, automated teller machines, public telephones, ticketing machines, car parking control equipment etc.

227873

Description	Mfrs. List No.	Order Code	Price Each 1+
No-Display Version			
R - Graphics Keys	FT4K1001	981-0161	183.87
VR - Metal Keys	FT1K0501	981-0137	274.59
VR - Polymer Keys	FT2K0501-FEC	101-5745	242.37
Display Version			
R - Graphics Keys	FT4K0901	981-0153	298.40
VR - Metal Keys	FT1K0801	981-0145	389.12
VR - Polymer Keys	FT2K0801-FEC	101-5747	364.01

Tracker Balls

38mm Compact

P38
H=38.1, W=74, D=57K38
H=38.3, W=57, D=57

- 38mm ball
- Panel- and keyboard-mount variants
- Three external switch inputs (left, centre and right)
- IP65 sealing option on panel mount version

	Unsealed	Sealed
Supply voltage	5V dc ±5%	
Supply current	10mA	
Transducer	Optical encoders with LED	
Resolution	241 pulses per revolution	
Operating temperature	0°C to +70°C	
Tracking force	8gf	50gf
Mechanical life	>10 million revolutions	>2 million revolutions

380993

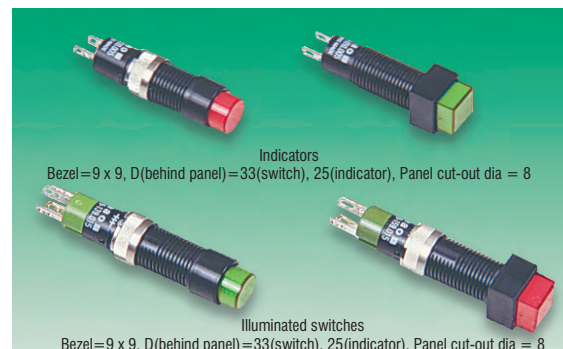
Panel Mount	Mfrs. List No.	Order Code	1+	5+	10+	+
Output SealingInterface						
IP40 10-way header	P38-100410	323-7084	125.55	118.91	116.25	--
IP40 USB, 2.2m lead	P38-150410-L	323-7114	158.71	153.45	--	--

Illuminated Push-Button Switches

Miniature 8mm - 19 Series



Illuminated Push Buttons and Indicators

Indicators
Bezel=9 x 9, D(behind panel)=33(switch), 25(indicator), Panel cut-out dia = 8Illuminated switches
Bezel=9 x 9, D(behind panel)=33(switch), 25(indicator), Panel cut-out dia = 8

- SPNO momentary or latching switches with gold or silver contacts
- Round or square bezelled 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°C to +45°C
 -25°C to +65°C

Note: Lamps must be run with a 20% reduced voltage to prevent excessive heating of the actuator.

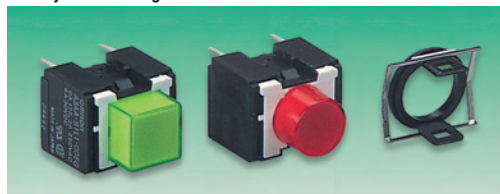
224506

Indicator	Mfrs. List No.	Order Code	1+	25+	100+
Round	19-030-005	146-206	3.17	2.70	2.41
Square	19-050-0005	146-207	3.17	2.70	2.41
Switch, Momentary					
Round, silver contacts	19-139-015	146-208	15.59	12.85	11.37
Round, gold contacts	19-431-035	150-583	13.73	11.34	10.05
Square, silver contacts	19-159-015	146-209	15.59	12.85	11.37

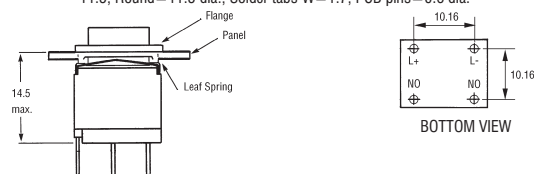
Indicator	Mfrs. List No.	Order Code	1+	Price Each	25+	100+
Switch, Momentary						
Square, gold contacts	19-451-035	150-584 ●	13.73	11.34	10.05	
Switch, Latching						
Round, silver contacts	19-279-015	146-210 ●	16.51	13.61	12.10	
Round, gold contacts	19-471-035	150-585 ●	14.36	11.88	10.52	
Square, silver contacts	19-289-015	146-211 ●	16.51	13.61	12.10	
Square, gold contacts	19-481-035	150-586 ●	14.36	11.88	10.52	
Square Lens						
Red	19-951-2	146-216 ●	1.75	1.44	1.38	
Yellow	19-951-4	146-217 ●	1.75	1.44	1.38	
Green	19-951-5	146-218 ●	1.75	1.44	1.38	
White	19-951-9	146-219 ●	1.75	1.44	1.38	
Round Lens						
Red	19-931-2	146-220 ●	1.37	1.23	1.08	
Yellow	19-931-4	146-221 ●	1.37	1.23	1.08	
Green	19-931-5	146-222 ●	1.37	1.23	1.08	
White	19-931-9	146-223 ●	1.37	1.23	1.08	

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.



- 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.

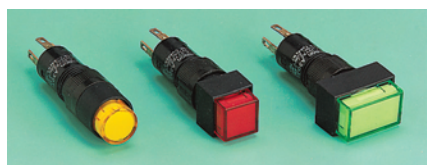
Contacts	SPNO
Contact switch rating	From 1mA @ 5V dc to 6A @ 125V ac, 2A @ 250V ac
LED ratings	V=2.1V (3.0V max.), I=10mA (20mA max.)
Operating force	250g max.
Insulation resistance	100MR @ 500V dc

213205

	Mfrs. List No.	Order Code	1+	Price Each	10+	50+	100+
Switch with square Cap, PCB Terminals							
Momentary, Red	A3AA-91K1-00ER	673-717	19.94	17.89	15.37	12.35	
Momentary, Green	A3AA-91K1-00EG	118-1286 ●	18.55	16.93	14.48	12.69	
Latching, Red	A3AA-91L1-00ER	673-742	20.73	18.59	16.00	12.82	
Latching, Green	A3AA-91L1-00EG	673-766	20.73	18.59	16.00	12.82	
Switch with Round Cap, Solder Terminals							
Momentary, Red	A3AT-90K1-00ER	118-1287 ●	23.44	21.01	18.18	14.55	
Latching, Green	A3AT-90L1-00EG	118-1288 ●	25.33	22.68	19.53	15.66	
Switch with Round Cap, PCB Terminals							
Momentary, Red	A3AT-91K1-00ER	673-833	22.14	19.84	17.17	13.73	
Momentary, Yellow	A3AT-91K1-00EY	673-845	22.14	19.84	17.17	13.73	
Latching, Green	A3AT-91L1-00EG	673-882	22.93	20.54	17.73	14.21	
Order Multiple=5							
Flanges			5+	10+	50+	100+	
Square	A3A-211	176-430 ●	0.97	0.90	0.78	0.72	
Round	A3A-221	176-431 ●	0.97	0.90	0.78	0.72	

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

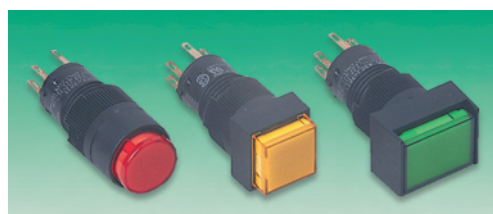
Note: Built-in LED requires appropriate current limiting resistor.
Red/Green LED IF=20mA/VF=1.7V, Yellow LED IF=20mA/VF=2.2V

213284

	Mfrs. List No.	Order Code	1+	10+	Price Each	50+	100+	+
Switch Body - Momentary								
Round	A3DT-7111	118-1349 ●	13.23	12.91	12.60	12.13	--	--
Square	A3DA-7111	118-1351 ●	13.23	12.91	12.60	12.13	--	--
Rectangular	A3DJ-7111	118-1352 ●	13.23	12.91	12.60	12.13	--	--
Switch Body - Latching								
Round	A3DT-7121	118-1353 ●	14.18	13.86	13.70	12.44	--	--
Square	A3DA-7121	118-1354 ●	14.18	13.86	13.70	12.44	--	--
Rectangular	A3DJ-7121	118-1355 ●	14.18	13.86	13.70	12.44	--	--
Lens - Round								
Red	A3DT-500R	959-911 ●	7.07	--	--	--	--	--
Green	A3DT-500GY	959-923 ●	6.83	--	--	--	--	--
Yellow	A3DT-500Y	959-935 ●	7.07	--	--	--	--	--
Lens - Square								
Red	A3DA-500R	985-958 ●	6.75	6.51	--	--	--	--
Green	A3DA-500GY	985-960 ●	7.07	--	--	--	--	--
Yellow	A3DA-500Y	985-971 ●	7.07	--	--	--	--	--
Lens - Rectangular								
Red	A3DJ-500R	985-983 ●	7.07	--	--	--	--	--
Green	A3DJ-500GY	985-995 ●	7.07	--	--	--	--	--
Yellow	A3DJ-500Y	986-008 ●	7.07	--	--	--	--	--

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

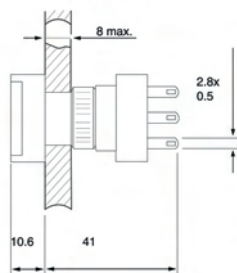
	Mfrs. List No.	Order Code	1+	Price Each	50+	100+
Switch Bodies - Momentary						
Round	A3CT-7011	118-1356 ●	21.64	19.12	17.99	
Square	A3CA-7011	619-220 ●	20.79	18.36	18.04	
Rectangular	A3CJ-7011	118-1357 ●	19.63	18.68	17.64	
Switch Bodies - Latching						
Round	A3CT-7021	118-1358 ●	20.25	19.27	18.20	
Square	A3CA-7021	619-255 ●	21.42	18.96	17.89	
Rectangular	A3CJ-7021	118-1359 ●	20.25	19.27	18.20	
Indicator Bodies						
Round	M2CT-7001	118-1360 ●	14.71	13.74	13.15	
Square	M2CA-7001	619-280	14.97	13.48	12.71	
Rectangular	M2CJ-7001	118-1362 ●	14.71	13.74	13.15	
Lens - Round						
Red	A3CT-500R	619-309 ●	4.62	4.41	4.17	
Green	A3CT-500G	619-310 ●	4.62	4.41	4.17	
Green (LED illumination)	A3CT-500GY	619-322 ●	4.46	4.02	3.81	
Yellow	A3CT-500Y	619-334 ●	4.62	4.41	4.17	
White	A3CT-500W	619-346 ●	4.62	4.41	4.17	
Lens Square						
Red	A3CA-500R	619-358 ●	4.46	4.02	3.81	
Green	A3CA-500G	619-360 ●	4.46	4.02	3.81	
Green (LED illumination)	A3CA-500GY	619-371 ●	4.00	3.16	3.12	
Yellow	A3CA-500Y	619-383 ●	4.46	4.02	3.81	
White	A3CA-500W	619-395 ●	4.46	4.02	3.81	
Lens - Rectangular						
Red	A3CJ-500R	619-401 ●	4.65	4.41	4.20	
Green	A3CJ-500G	619-413 ●	4.65	4.41	4.20	
Green (LED illumination)	A3CJ-500GY	619-425 ●	4.00	3.16	3.12	
Yellow	A3CJ-500Y	619-437 ●	4.00	3.16	3.12	
White	A3CJ-500W	619-449 ●	4.65	4.41	4.20	

Raised/Ultra Flush Mounted IP65 Sealed - 61 Series

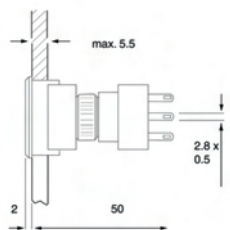
Illuminated Push Buttons, Indicators, Emergency Stop Push Buttons 5A @ 250Vac



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

	Mfrs. List No.	Order Code	1+	25+	50+
Flush Mount Push Button Actuators and Indicator					
Momentary	61-1100.0	311-6086	11.48	10.45	9.76
Latching	61-1200.0	311-6098	14.45	13.15	12.28
Indicator	61-0000.02	311-6104	10.32	9.39	8.77
Bezels for Flushmount Bodies*					
24 x 24mm Square Plastic	61-9930.0	618-457	5.21	4.75	4.44
24 x 30mm					
Rectangular Plastic	61-9931.0	618-469	5.55	5.05	4.71
25mm Round Aluminium	61-9933.0	311-6128	12.64	11.50	10.75
25mm Round Plastic	61-9933.10	311-6130	5.21	4.75	4.44
Round Flush Lenses					
Red	61-9642.2	618-470	6.13	5.58	5.21
Yellow	61-9642.4	311-6153	6.13	5.58	5.21
Green	61-9642.5	618-494	6.13	5.58	5.21
Clear	61-9642.7	618-500	6.13	5.58	5.21
Square Flush Lenses					
Red	61-9671.2	311-6207	3.42	3.11	2.91
Yellow	61-9671.4	311-6219	3.42	3.11	2.91
Green	61-9671.5	311-6220	3.42	3.11	2.91
Clear	61-9671.7	311-6232	3.42	3.11	2.91
Rectangular Flush Lenses					
Red	61-9681.2	311-6244	3.42	3.11	2.91
Yellow	61-9681.4	311-6256	3.42	3.11	2.91
Green	61-9681.5	311-6268	3.42	3.11	2.91
Clear	61-9681.7	311-6281	3.42	3.11	2.91
Raised Push Button Actuators and Indicators					
Rectangular 18 x 24					
Momentary	61-1130.0	311-6300	10.58	9.63	8.99
Latching	61-1230.0	311-6311	13.35	12.15	11.35
Indicator	61-0030.02	311-6323	9.55	8.69	8.11
Raised Rectangular Lenses					
Red	61-9331.2	311-6384	2.58	2.35	2.19
Yellow	61-9331.4	311-6396	2.58	2.35	2.19
Green	61-9331.5	311-6402	2.58	2.35	2.19
Clear	61-9331.7	311-6414	2.58	2.35	2.19
Contact Blocks - Gold					
1 N/O	61-8410.22	618-597	14.25	12.97	12.12
2 N/O	61-8420.22	618-603	17.42	15.85	14.80
1 N/O, 1 N/C	61-8470.22	618-615	17.42	15.85	14.80
Foolproof Emergency Stop Actuator					
Arrow Marking	61-3440.4/1	618-627	61.21	55.70	52.03
Stop Marking	61-3440.4/2	618-639	61.21	55.70	52.03
Slow Make Contact Block for Emergency Stop					
2 N/C	61-8755.17	618-652	13.48	12.27	11.46
Tool Kit					
Lens remover, contact remover, mounting key and LAMP/LED remover	K61-999.100	618-676	24.25	22.07	20.61

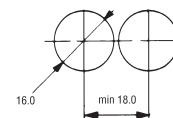
eao

Standard 16mm - EMF Series

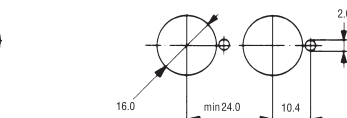
Illuminated Push Buttons and Indicators - 5A 250V ac



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



18 x 18mm units



Panel cut-outs

18 x 24mm units

- Standard series for screw on panel mounting through 16mm hole diameter
- Round, square and rectangular bezeled 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.	Mfrs. List No.
0041-2321	114-8216	0041-2352	114-8228	0854-0584
0041-2322	114-8218	0035-5501	114-8231	0854-0583
0041-2371	114-8219	0854-0622	114-8232	0854-0871
0041-2372	114-8220	0854-0624	114-8233	0853-0621
0041-2311	114-8221	0854-0623	114-8234	300-0001
0041-2312	114-8222	0854-0873	114-8235	0853-0622
0041-2361	114-8223	0854-0602	114-8236	0886-0001
0041-2362	114-8224	0854-0604	114-8237	0886-0003
0041-2301	114-8225	0854-0603	114-8238	200-5009-00
0041-2302	114-8226	0854-0872	114-8239	200-6008-00
0041-2351	114-8227	0854-0582	114-8240	141-240

Contact rating	5A @ 250V ac	Insulation resistance	10000MR @ 500V dc
Contacts	Gold over silver	Protection class II	ICES36
Mechanical lifetime	2000000 ops	Operating temperature	°C to +°C

222297

	Order Code	1+	20+	50+	100+
18mm Diameter Bezeled Units					
SPDT momentary	114-8216	20.76	18.14	15.40	13.29
DPDT momentary	114-8218	32.82	28.38	23.47	20.70
SPDT latching	114-8219	23.56	20.38	17.14	14.99
DPDT latching	114-8220	34.96	30.49	25.55	22.05
		10+	+	+	+
18mm Dia Lens					
Red	114-8232	0.51	--	--	--
Yellow	114-8233	0.51	--	--	--
Green	114-8234	0.51	--	--	--
Diffuser/legend insert	114-8235	0.47	--	--	--
		1+	20+	50+	100+
18 x 18mm Bezeled Units					
SPDT momentary	114-8221	20.98	18.14	15.34	13.29
DPDT momentary	114-8222	32.82	28.38	23.50	20.70
SPDT latching	114-8223	23.56	20.41	17.14	14.99
DPDT latching	114-8224	35.34	30.84	25.83	22.30
		1+	20+	50+	100+
18 x 18mm Bezeled Units					
Red	114-8226	32.82	28.38	23.50	20.70
Yellow	114-8237	0.51	--	--	--
Green	114-8238	0.51	--	--	--
Diffuser/legend insert	114-8239	0.47	--	--	--
18 x 24mm Bezeled Units					
SPDT momentary	114-8225	20.98	18.14	15.34	13.29
DPDT momentary	114-8226	32.82	28.38	23.50	20.70
SPDT latching	114-8227	23.56	20.41	17.14	14.99
DPDT latching	114-8228	35.34	30.84	25.83	22.30
Indicator (body only)	114-8231	10.98	9.69	8.06	7.13
		1+	20+	50+	100+
18 x 24mm Transparent Lens					
Red	114-8240	0.51	--	--	--
Yellow	114-8241	0.51	--	--	--
Green	114-8243	0.51	--	--	--
Diffuser/legend insert	114-8244	0.47	--	--	--

Switches

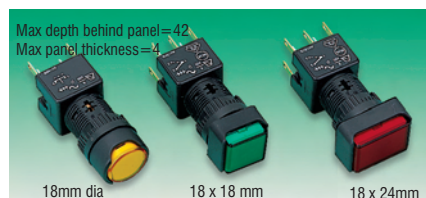
44

Compliant
Non-compliant
RoHS
+ Limited stock - RoHS replacement available

	Order Code	1+	20+	50+	100+
Accessories					
Lamp extractor	149-227	8.05	--	--	--
Lens extractor	141-235	11.28	--	--	--
Socket key	149-230	7.86	--	--	--
18 x 18 splashproof cover	114-8245	13.35	11.82	9.99	8.61
18 x 18 protection cover	114-8246	10.26	9.15	7.68	6.60
18 x 24 splashproof cover	141-239	8.83	--	--	--
18 x 24 protection cover	141-240	6.02	--	--	--

Standard 16mm - A01 Series

Illuminated Push Buttons and Indicators - 6A @ 250V ac

Protection Covers
18mm dia/18 x 18mm 18 x 24mm

- 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 6A @ 250V ac max.	Mechanical life	Momentary>1 millionops Latching>100,000 ops
Contact resistance	10mR @ 4V dc, 1A	Operating temperature	-20°C to +55°C
Insulation resistance	>50MR		

224507

	Mfrs. List No.	Order Code	1+	25+	50+
Push Button Actuators - Momentary					
18mm dia	A0109Y	108-2429	8.46	8.10	7.77
18 x 18mm	A0105Y	108-2351	8.46	8.10	7.77
18 x 24mm	A0101Y	108-2349	8.46	8.10	7.77
Push Button Actuators - Latching					
18mm dia	A0109X	108-2352	9.14	8.76	8.43
18 x 18mm	A0105X	108-2350	9.14	8.76	8.43
18 x 24mm	A0101X	108-2348	9.14	8.76	8.43
Indicator Body					
18mm dia	A0173	108-2372	9.65	7.70	7.25
18 x 18mm	A0172	108-2370	9.75	7.78	7.32
18 x 24mm	A0171	108-2369	9.75	7.78	7.32
Contact Blocks					
Single pole	A0151B	108-2353	7.80	7.54	7.28
Double pole	A0152B	108-2354	10.50	10.15	9.83
			5+	25+	50+
Ø18mm Round Lens					
Red	A0163B	108-2365	0.63	0.56	0.50
Amber	A0163C	108-2366	0.63	0.56	0.50
Green	A0163E	108-2367	0.63	0.56	0.50
Blue	A0163F	108-2368	0.63	0.56	0.50
18 x 18mm Lens					
Red	A0162B	108-2361	0.63	0.56	0.50
Amber	A0162C	108-2362	0.63	0.56	0.50
Green	A0162E	108-2363	0.63	0.56	0.50
Blue	A0162F	108-2364	0.63	0.56	0.50
18 x 24mm Lens					
Red	A0161B	108-2355	0.63	0.56	0.50
Amber	A0161C	108-2356	0.63	0.56	0.50
Green	A0161E	108-2357	0.63	0.56	0.50
Blue	A0161F	108-2359	0.63	0.50	0.50
			1+	25+	50+
Tools					
Bulb remover	30-0002	925-639	3.60	3.27	2.91
Lens remover	30-0006	925-640	3.60	3.27	2.91
Tool kit (all above)	30-0126	108-2291	10.14	9.72	9.33
Protection Covers					
18mm dia/18 x 18	A01FG2	108-2382	4.06	3.90	3.72
18 x 24	A01FG1	108-2381	4.06	3.90	3.72

Standard 16mm - A01 Series

Key Switches and Rotary Lever Switches - 6A @ 250V ac

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

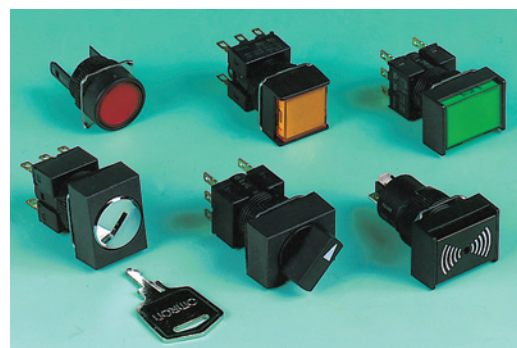
213385

Key Switch Actuator	Mfrs. List No.	Order Code	1+	25+	50+
18mm dia two position	A018301	108-2375	22.35	21.45	20.55
18 x 18mm two position	A018201	108-2374	22.35	21.45	20.55
18 x 24mm two position	A018101	108-2373	22.35	21.45	20.55
Rotary Lever Actuator					
18mm dia two position	A019501	108-2378	9.00	8.64	8.28
18 x 18mm two position	A019301	108-2377	9.00	8.64	8.28
18 x 24mm two position	A019101	108-2376	9.00	8.64	8.28
Contact Blocks					
Single Pole	A0151B	108-2353	7.80	7.54	7.28
Double Pole	A0152B	108-2354	10.50	10.15	9.83

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

	Mfrs. List No.	Order Code	1+	10+	50+	100+	+
SPDT socket	A16-1	118-1289	9.26	8.66	8.19	7.12	--
DPDT socket	A16-2	118-1290	15.47	14.46	13.70	11.97	--
Dummy socket	M16-0	118-1291	2.53	2.40	2.28	2.04	--
Socket/Lens removal tool	A16Z-5080	311-9970	5.40	5.13	4.89	--	--

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	Mfrs. 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	312-0120
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+	+
All Momentary Switch Bodies		5.98	5.61	5.32	4.84	--
All Latching Switch Bodies		8.79	8.16	7.75	6.74	--
118-1292●		66.02	62.81	59.54	52.98	--
312-0120		27.93	26.30	25.16	24.05	--
118-1301●		63.96	60.15	57.61	55.01	--

Emergency Stop Switch

- 40mm Button size
- Contact gap exceeds 3mm
- Sealed to IP65
- Conforms to EN418, EN60947-5-1

Mfrs List No: A165E-M-02

213162

	Order Code	1+	10+	50+	100+	+
Switch	311-8095	79.88	75.91	72.10	68.49	--
Yellow Nameplate	311-9968●	6.06	5.76	5.46	4.86	--

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)	Mfrs. 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

213237

	Order Code	1+	10+	50+	100+	+
All Lamps		3.18	3.09	2.94	2.46	--
All Neons		4.65	4.41	4.17	3.72	--
All LEDs		9.73	9.42	8.82	7.88	--

Lens Screen

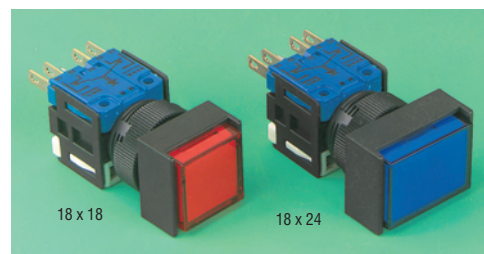
- Round, square or rectangular options to match bodies
- Choice of 6 colours

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	118-1315	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	1+	10+	50+	100+	+
All Colours	2.56	2.43	2.31	2.07	--

Compact, 16mm hole mounting - 35mm Series
Illuminated Push Buttons and Indicators - 6A @ 250V ac

Panel cut-out dia. = 16

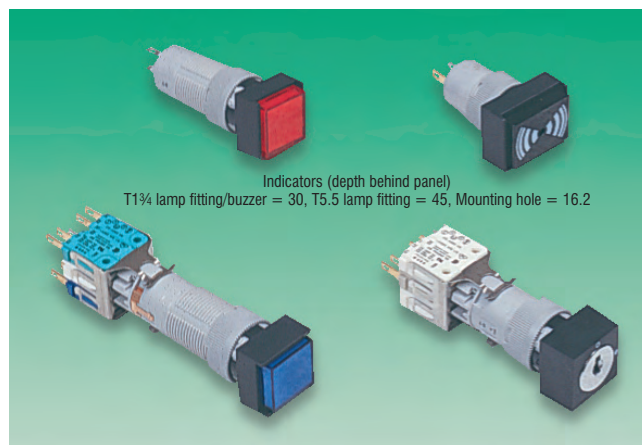
- 35mm maximum back panel depth
- Removable contact blocks for pre-wiring
- Lamp or LED Illumination T 1¼ midget groove
- IP40 and IP65 version available
- Gold plated snap action switch
- Complete switch = Actuator + Contact Block + Lens + Light Source
- VDE, CSA, SEV and SEMKO approved. UL recognised.

224508

	Mfrs. List No.	Order Code	1+	10+	100+
18 x 18mm Bezeled Actuators					
Momentary IP40	680-4000-00	185-644●	13.23	11.91	10.74
Momentary IP65	680-4000-WO	185-656●	17.91	16.14	14.55
Latching IP40	600-4000-00	185-668●	14.29	12.90	11.61
18 x 24mm Bezeled Actuators					
Momentary IP40	680-6000-00	185-700●	13.23	11.91	10.74
Momentary IP65	680-6000-WO	185-711●	17.91	16.14	14.55
Latching IP40	600-6000-00	185-723●	14.29	12.90	11.61
Latching IP65	600-6000-WO	185-735●	18.78	16.92	15.24
18 x 18mm Lenses					
Red	600-3120-00	185-760●	3.00	2.70	2.46
Yellow	600-3170-00	185-772●	3.00	2.70	2.46
Green	600-3140-00	185-784●	3.00	2.70	2.46
Blue	600-3150-00	185-796●	3.00	2.70	2.46
18 x 24mm Lenses					
Red	600-5120-00	185-802●	3.00	2.70	2.46
Yellow	600-5170-00	185-814●	3.00	2.70	2.46
Green	600-5140-00	185-826●	3.00	2.70	2.46
Blue	600-5150-00	185-838●	3.00	2.70	2.46
Contact Blocks					
1 NO/1 NC	601-0000-00	185-840●	15.12	13.36	12.03
2 NO/2 NC	602-0000-00	185-851●	32.63	28.29	24.51
Indicator Lamp Block	600-0000-00	185-863●	4.96	4.41	3.99

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 = 16.2Switches (depth behind panel)
T1¼ lamp fitting/key switch = 55, T5.5 lamp fitting = 70, Mounting Hole = 16.2

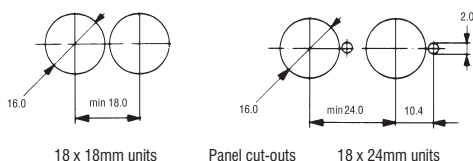
Switches

44

Compliant
Non-compliant
Limited stock - RoHS replacement available

RoHS

213315



- 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,
990-000-K0+200-6000-00=141-209, 770-6012=113-0804,
770-6012=113-0804,
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,
201-0500-00=141-243, 201-0800=143-030

224509

18 x 18mm Bezeled Units	Order Code	1+	10+	40+	200+
Indicator body T5.5	141-200	11.38	10.24	8.96	7.61
Indicator body T1¼	141-201	10.68	9.83	8.72	7.58
Switch SPDT T5.5	141-202	34.68	30.65	26.71	22.81
Switch SPDT T1¼	141-203	34.78	30.71	26.81	22.87
Switch DPDT T5.5	141-204	52.64	46.49	40.54	34.59
Switch DPDT T1¼	141-205	51.19	45.23	39.47	33.64
Keyswitch, 2 position	151-153	65.39	57.77	50.40	42.97

18 x 18mm Clear Lens with Diffuser	Order Code	1+	10+	40+	200+
Red	141-225	1.81	1.62	1.41	1.23
Yellow	141-226	1.81	1.62	1.41	1.23
Green	141-227	1.81	1.62	1.41	1.23
Blue	141-228	1.81	1.62	1.41	1.23
White	141-229	1.81	1.62	1.41	1.23

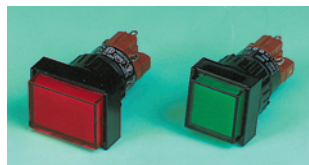
18 x 24mm Bezeled Units	Order Code	1+	10+	40+	200+
Indicator body T5.5	141-208	11.38	10.24	8.96	7.61
Indicator body T1¼	141-209	11.59	10.64	9.44	7.88
Buzzer, 12V	113-0804	57.27	51.57	44.98	38.37
Switch SPDT T5.5	141-210	34.68	30.65	26.71	22.81
Switch SPDT T1¼	141-211	34.68	30.65	26.71	22.81
Switch DPDT T5.5	141-212	52.64	46.49	40.54	34.59
Switch DPDT T1¼	141-213	50.12	44.23	38.62	32.92

18 x 24mm Clear Lens with Diffuser	Order Code	1+	10+	40+	200+
Red	141-230	1.81	1.62	1.41	1.23
Yellow	150-241	1.81	1.62	1.41	1.23
Green	141-232	1.81	1.62	1.41	1.23
Blue	141-233	1.81	1.62	1.41	1.23
White	141-234	1.81	1.62	1.41	1.23

Accessories	Order Code	1+	10+	40+	200+
Lens extractor	141-235	11.28	--	--	--
Lamp extractor	141-236	2.49	--	--	--
18 x 24 splashproof cover	141-239	8.83	--	--	--
18 x 24 protection cover	141-240	6.02	--	--	--
Contact element, green	141-242	11.18	--	--	--
Contact element, blue	141-243	11.15	--	--	--
Contact element, grey	143-030	11.15	--	--	--

Tactile Snap Action, 16mm hole mounting - 31 Series

Illuminated Pushbuttons and Indicators 5A, 250Vac, IP40



Depth behind panel Panel cut-out = 16mm
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

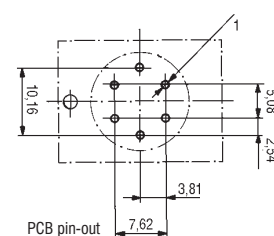
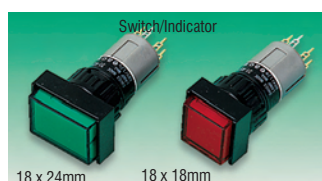
- Tactile self-cleaning elements
- One or two changeover elements
- Square or rectangular front bezels
- Gold plated silver contacts
- VDE, CSA, SEV approved, UL recognised

Order Multiple=1

Mfrs. List No.	Order Code	1+	10+	100+
18 x 24mm Bezeled				
1N/O + 1N/C Momentary Units	31-121.025	311-2081	35.56	31.41 27.91
2NO + 2NC Momentary Units	31-122.025	311-2093	52.64	46.49 41.33
1 NO + 1 NC Latching	31-261.025	311-2100	41.83	36.95 32.85
2NO + 2NC Latching	31-262.025-2	311-2111	52.64	46.49 41.33
Indicator	31-040.005	311-2123	11.86	10.69 9.47
18 x 18mm Bezeled Units				
1 C/O Momentary Units	31-151.025	311-2135	35.56	31.41 27.91
2 C/O Momentary Units	31-152.025	311-2147	52.64	46.49 41.33
1 C/O Latching	31-281.025	311-2159	41.83	36.95 32.85
2 C/O Latching	31-282.025	311-2160	52.64	46.49 41.33
Indicator	31-050.005	311-2172	11.86	10.69 9.47
Order Multiple=3				
Lenses - See Above			3+	15+ 60+
Rectangular	All Order Codes		2.31	2.19 2.04
Square	All Order Codes		2.31	2.19 2.04

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

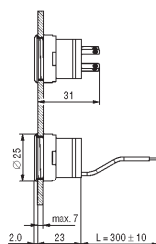
Mfrs. List No.	Order Code	1+	10+	100+
18 x 24mm Bezeled Units				
1 N/O Momentary	31-425.036	925-093	21.96	20.92 18.90
1 N/O + 1 N/C Momentary	31-423.036	925-100	34.15	32.51 29.61
2 N/O Momentary	31-421.036	925-111	34.15	32.51 29.61
1 N/O + 1 N/C Latching	31-463.036	925-123	40.16	38.27 34.84
2 N/O Latching	31-461.036	925-135	40.16	38.27 34.84
Indicator unit	31-041.006	925-147	13.22	12.69 11.55
18 x 18mm Bezeled Units				
1 N/O Momentary	31-455.036	925-032	21.96	20.92 18.90
1 N/O & 1 N/C Momentary	31-453.036	925-044	34.15	32.51 29.61
2 N/O Momentary	31-451.036	925-056	34.15	32.51 29.61
1 NO + 1 NC Latching	31-483.036	925-068	40.16	38.27 34.84
2 NO Latching	31-481.036	925-070	40.16	38.27 34.84
Indicator unit	31-051.006	925-081	13.22	12.69 11.55
18 x 24mm Lenses				
			3+	15+ 60+
Red	31.903.2	925-159	2.31	2.19 2.04
Orange	31.903.3	925-160	2.31	2.19 2.04
Yellow	31.903.4	925-172	2.31	2.19 2.04
Green	31.903.5	925-184	2.31	2.19 2.04
Blue	31.903.6	925-196	2.31	2.19 2.04
Clear	31.903.7	925-202	2.31	2.19 2.04
18 x 18mm Lenses				
			3+	15+ 60+
Red	31.953.2	925-214	2.31	2.19 2.04
Orange	31.953.3	925-226	2.31	2.19 2.04
Yellow	31.953.4	925-238	2.31	2.19 2.04
Green	31.953.5	925-240	2.31	2.19 2.04
Blue	31.953.6	925-251	2.31	2.19 2.04
Clear	31.953.7	925-263	2.31	2.19 2.04
Accessories				
			1+	10+ 100+
PCB adaptor	31-940	925-275	5.99	5.79 5.31
Lens removing tool	02-905	925-287	8.58	7.71 6.63
Lamp/LED remover	02-906	925-299	3.99	3.60 3.09

Prices are in Singapore Dollars and exclusive of GST.
Due to the volatile nature of certain products,
prices are subject to change without notice.

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

		Price Each		
Mfrs. List No.	Order Code	1+	10+	100+
Push Button Illuminated - Solder Terminal				
Red K84-603.2105	113-0811	42.87	37.86	33.04
Yellow K84-603.2909	113-0812	42.87	37.86	33.04
Green K84-603.3311	113-0813	42.87	37.86	33.04
Push Button Illuminated - Flying Lead				
Red K84-603.2205	113-0814	51.03	45.05	39.31
Yellow K84-603.3009	113-0815	51.03	45.05	39.31
Green K84-603.3411	113-0816	51.03	45.05	39.31
Accessories				
Mounting Tool 84-997	619-085	6.54	5.88	5.13
Lens remover 61-9730.0	619-097	7.62	6.90	5.97
for switch unit 84-998	619-103	3.06	2.76	2.40

'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

		Price Each			
	Order Code	1+	25+	50+	100+
Non-illuminated	108-2432	29.54	26.89	24.82	22.45
Illuminated					
Red	108-2434	43.10	39.22	36.20	32.75
Green	108-2433	43.10	39.22	36.20	32.75

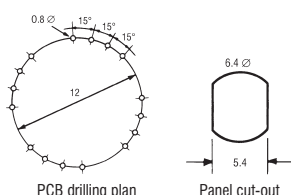
Rotary Switches

Miniature Waterproof

0.4W @ 20V ac



Body dia = 12.5, Shaft L = 19, Shaft dia = 3.2,
H (above board) = 8



- 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

Contact resistance	<100mR (2V dc @ 200mA)	Water proofing	1m depth for 30mins
Insulation resistance	100MR	Contacts	Gold plate over nickel/non-shorting
Mfrs. List No.	MRJE1-12FN = 112-4185 MRJE2-604FN = 118-6545	MRJE3-404FN = 118-6546	

213363

eao

			Price Each			
Poles	Positions	Order Code	1+	25+	100+	250+
1	12	112-4185	29.33	25.70	24.31	22.94
2	6	118-6545	29.65	25.99	24.57	23.18
3	4	118-6546	30.07	26.37	24.95	23.56

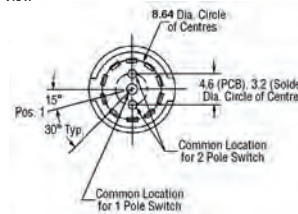
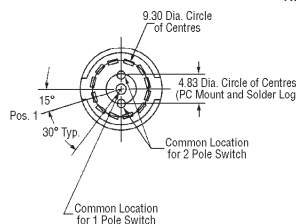
Miniature Sealed - 56 Series

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
Spindle: L = 9.53, Dia = 3.18

Rear View



- Miniature size - ideal for portable and compact equipment
- Adjustable stop facility
- Shorting and non shorting types available
- PCB or solder terminations

Contact resistance	100mR	Contact material	Gold over Silver
Insulation resistance	10000MR		

Mfrs. List No.

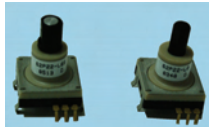
56SD30-01-1-AJN = 119-0375	56SDP36-01-1-AJN = 119-0381	56SDP30-01-2-AJS = 119-0387
56SD30-01-2-AJN = 119-0376	56SDP36-01-2-AJN = 119-0382	56SD36-01-1-AJS = 119-0388
56SDP30-01-1-AJN = 119-0377	56SD30-01-1-AJS = 119-0383	56SD36-01-2-AJS = 119-0389
56SDP30-01-2-AJN = 119-0378	56SD30-01-2-AJS = 119-0384	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		

222311

Poles	Positions	Termination	Order Code	1+	10+	25+	50+	+
Non-Shorting - 30° Indexing								
1	12	Solder	119-0375	30.24	26.46	25.19	23.50	--
2	6	Solder	119-0376	33.40	29.23	27.83	25.94	--
1	12	PCB	119-0377	31.15	27.28	25.97	24.22	--
2	6	PCB	119-0378	34.31	30.04	28.61	26.66	--
Non-Shorting - 36° Indexing								
1	10	Solder	119-0379	29.30	25.65	24.41	22.75	--
2	5	Solder	119-0380	32.45	28.42	27.05	25.23	--
1	10	PCB	119-0381	30.24	26.46	25.19	23.50	--
2	5	PCB	119-0382	33.40	29.23	27.83	25.94	--
Shorting - 30° Indexing								
1	12	Solder	119-0383	31.15	27.28	25.97	24.22	--
2	6	Solder	119-0384	34.31	30.04	28.61	26.66	--
1	12	PCB	119-0385	32.09	28.09	26.72	24.93	--
2	6	PCB	119-0387	36.00	31.51	29.98	27.96	--
Shorting - 36° Indexing								
1	10	Solder	119-0388	30.24	26.46	25.19	23.50	--
2	5	Solder	119-0389	34.31	30.04	28.61	26.66	--
1	10	PCB	119-0390	31.15	27.28	25.97	24.22	--
2	5	PCB	119-0391	35.06	30.69	29.23	27.24	--

PCB Mount Optical Encoders

Series 62P



Voltage 5V dc ±0.25V dc
Current 30mA maximum @ 5V dc
Contact Resistance <10Ω (TTL or CMOS compatible)
Logic Outputs High: 3.0V min.
Low: 1.0V max.

Contact Bounce <4mS @ make and <10mS @ break
Actuation Life (Rotations) 3000000
Operating Temperature -40 to 85°C

415389

Description	Mfrs. List No.	Order Code	1+	10+	25+
Push/Rotary Optical Encoder	62P22-L6S	100-5754	27.21	24.35	20.41
Rotary Optical Encoder	62P22-L0S	100-5755	23.96	21.45	17.94

Switches

44

Compliant
Non-compliant
RoHS
Limited stock - RoHS replacement available

Miniature - MX Series
0.5A @ 115V

— NSF —



- 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

213306

Poles	Positions	No of Wafers	Order Code	1+	10+	25+	100+	+
Non-Shorting								
1	12	1	116-5280	65.99	58.34	55.06	51.38	--
2	6	1	116-5281	68.36	60.45	57.11	53.06	--
3	4	1	116-5222	71.44	65.49	60.45	55.06	--
4	3	1	116-5223	74.12	67.88	62.68	57.11	--
2	12	2	116-5224	96.58	88.48	81.68	75.24	--
4	6	2	116-5282	100.83	89.08	84.17	78.54	--
6	4	2	116-5225	100.99	93.30	86.15	82.58	--
8	3	2	116-5226	97.62	92.93	87.49	86.44	--
Shorting								
1	12	1	116-5228	65.99	58.34	55.06	51.38	--
2	6	1	116-5229	71.10	60.45	57.11	53.06	--
3	4	1	116-5230	100.83	89.08	84.17	72.92	--
2	12	2	116-5231	85.35	79.75	75.24	--	--
6	4	2	116-5232	100.99	93.30	86.15	82.58	--

25.4mm - 44/42 Series
1A @ 115V ac or 28V dcGrayhill
An ISO-9001 Company

- 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	1+	5+	10+	25+	+
Non-Shorting - 30° Indexing								
1	2-12	1	119-0368	103.69	96.99	90.85	56.64	--
2	2-6	1	119-0371	108.34	101.08	93.87	59.19	--
Non-Shorting - 36° Indexing								
1	2-10	1	119-0372	98.31	92.07	87.73	56.86	--
2	2-5	1	119-0373	96.81	91.51	87.13	57.52	--

25.4mm - MA Series, 2A

— NSF —

Mechanisms - 500mA @ 30V ac/dc, 50mA @ 300V ac/dc

- 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

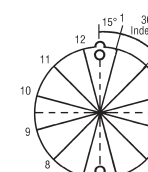
(non switching)	2A	Overall length	100mm
Contact resistance	<10mR	Metal	84mm
Insulation resistance	500MR	Plastic	

Spindle diameter	6mm	Maximum number of wafers per switch	8
Spindle length		Plastic (8 poles max or 4 wafers, whichever is the greater)	
Metal	13mm	(N.B. dependant upon spacers used)	
Plastic	39mm	Bush thread	M10
Stop setting	Adjustable		
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+	+
30° indexing (metal)	116-5268	14.16	13.53	13.26	12.45	--
30° indexing (plastic)	116-5269	9.73	7.02	6.12	5.25	--
36° indexing (metal)	116-5270	18.63	16.59	14.97	12.84	--

Wafers and Accessories - MA Series

— NSF —

**Note:** Dummy wafer has 12 clips but no rotor.

PCB diagram
12 holes 1.4 on 25.3 dia circle
mtg holes 2.2 @ 20.6 ctrs

Mfrs. List No.	MA112N 454623/1/MA= 146-049	MAS6 SPACER 220012 6MM= 116-5272
	MA403N 454626/1/MA= 146-052	MA304N 454625/1/MA= 146-051
	MB205N 454631/1/MA= 146-055	MB110N 454630/1/MA= 146-054
	455767MA= 149-173	MA112S 454623MA= 146-057
	455772MA= 149-178	MA000D 454628MA= 146-059
	MAS3 SPACER 220012 3MM= 116-5271	455769MA= 149-175
	MA206N 454624/1/MA= 146-050	MA206S 454624MA= 146-058
	MA602N 454627/1/MA= 146-053	455771MA= 149-177
	455768MA= 149-174	

213082

Poles	Positions	Order Code	1+	25+	50+	100+	+
Standard, Non-Shorting							
1	12	146-049	7.59	7.15	6.80	6.27	--
2	6	146-050	7.59	7.15	6.80	6.27	--
3	4	146-051	8.51	7.97	7.81	7.28	--
4	3	146-052	10.14	9.54	9.36	8.73	--
6	2	146-053	10.59	--	--	--	--
Standard, Non-Shorting, 36° Indexing							
1	10	146-054	8.44	7.31	6.71	5.51	--
2	5	146-055	8.44	7.31	6.71	5.51	--
Standard, Shorting							
1	12	146-057	8.47	8.00	7.84	7.34	--
2	6	146-058	8.54	8.13	7.97	7.40	--
PCB, Non-Shorting							
1	12	149-173	13.70	12.19	10.74	9.24	--
2	6	149-174	13.70	12.19	10.74	9.24	--
3	4	149-175	13.70	12.19	10.74	9.24	--
PCB, Non-Shorting Right Angle							
1	12	149-177	16.73	15.75	13.04	11.24	--
2	6	149-178	16.73	15.75	13.04	11.24	--
Accessories							
Dummy wafer		146-059	7.99	7.05	6.42	5.34	--
Spacer, 3mm		116-5271	0.24	--	--	--	--
Spacer, 6mm		116-5272	0.24	--	--	--	--

32mm - MK Series, 5A

— NSF —

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)

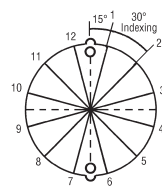
213360

Mechanisms	Order Code	1+	10+	50+	100+	+
Mechanism, 30° indexing	116-5262	20.09	18.15	17.79	14.76	--

Prices are in Singapore Dollars and exclusive of GST.
Due to the volatile nature of certain products,
prices are subject to change without notice.

Wafers and Accessories - MK Series

— NSF —



Note: Dummy wafer has 12 clips but no rotor

Mfrs. List No.

MK112N 454633/1/MK= 146-034
 MK403N 454636/1/MK= 146-037
 MK000D 454638MK= 146-040
 MKS33 SPACER 221805 3MM= 116-5265
 MK206N 454634/1/MK= 146-035
 MK112S 454633MK= 146-038

MK1120C 454639MK= 146-041
 MKS6 SPACER 221805 6MM= 116-5266
 MK304N 454635/1/MK= 146-036
 MK206S 454634MK= 146-039
 MKSH SCREEN 105921= 116-5263
 MKS10 SPACER 221805 10MM= 116-5267

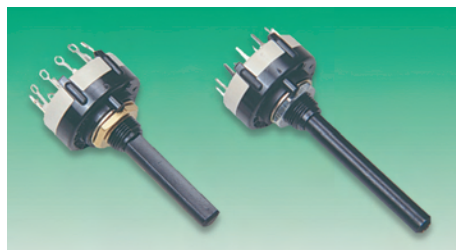
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Poles	Positions	Order Code	1+	25+	50+	100+
1	12	146-034	8.82	7.84	7.69	6.27
2	6	146-035	8.82	7.84	7.69	6.30
3	4	146-036	9.42	8.41	8.19	6.68
4	3	146-037	10.58	9.42	9.07	7.53
1	12	146-038	8.82	7.84	7.69	6.30
2	6	146-039	8.82	7.84	7.69	6.30
Dummy wafer		146-040	9.23	—	—	—
Rotating open circuit wafer		146-041	8.08	7.32	7.17	6.00
Electrostatic screen		116-5263	0.56	0.53	0.52	0.44
Spacer, 3mm		116-5265	0.25	—	—	—
Spacer, 6mm		116-5266	0.25	—	—	—
Spacer, 10mm		116-5267	0.25	—	—	—

CK Series

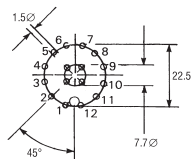
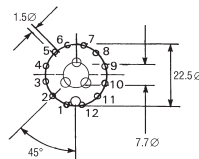
— LORLIN —

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

PCB layout
(1, 2, 4 pole)PCB layout
(3 pole)

- 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

Mfrs. List No.

CK1029= 112-3705 CK1024= 112-3687 CK1025= 112-3688 CK1026= 112-3704
 CK1027= 112-3689 CK1034= 112-3690 CK1035= 112-3691 CK1036= 112-3692
 CK1037= 112-3693 CK1049= 112-3694 CK1050= 112-3696 CK1051= 112-3697
 CK1052= 112-3698 CK1061= 112-3702 CK1060= 112-3700 CK1061= 112-3702
 CK1062= 112-3703 CK1031= 112-3707 CK1032= 112-3708 CK1060= 112-3700

213364

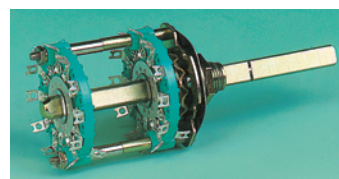
Poles	Positions	Order Code	1+	25+	100+	250+	+
Imperial with Solder Terminals							
Non-shorting							
1	12	112-3687	2.89	2.52	2.08	1.86	—
2	6	112-3688	2.28	2.05	1.81	—	—
3	4	112-3704	2.89	2.52	2.08	1.86	—
4	3	112-3689	2.89	2.52	2.08	1.86	—

Poles	Positions	Order Code	1+	25+	100+	250+	+
Shorting							
1	12	112-3690	3.06	2.68	2.20	1.98	—
2	6	112-3691	2.86	2.60	2.21	2.12	—
3	4	112-3692	3.06	2.68	2.20	1.98	—
4	3	112-3693	2.86	2.60	2.21	2.12	—
Metric with PCB Terminals							
Non-shorting							
1	12	112-3694	3.15	2.77	2.30	2.08	—
2	6	112-3696	3.15	2.77	2.30	2.08	—
3	4	112-3697	3.15	2.77	2.30	2.08	—
4	3	112-3698	3.15	2.77	2.30	2.08	—
Shorting							
1	12	112-3699	2.89	2.52	2.20	1.86	—
2	6	112-3700	2.89	2.86	—	—	—
3	4	112-3702	2.89	2.52	2.20	1.86	—
4	3	112-3703	2.89	2.52	2.20	1.86	—
Metric with Solder Terminals							
Non-shorting							
1	12	112-3705	2.89	2.52	2.08	1.86	—
2	6	112-3706	2.92	2.55	2.10	1.88	—
3	4	112-3707	2.73	2.47	2.12	1.99	—
4	3	112-3708	2.89	2.52	2.08	1.86	—

JMK Series - Non-Shorting

— NSF —

1A @ 28V dc, 100mA @ 250V ac, 50mA @ 300V dc



Spindle dia = 6.4mm (1/4"), Spindle L = 37, Bush thread = 3/8" 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

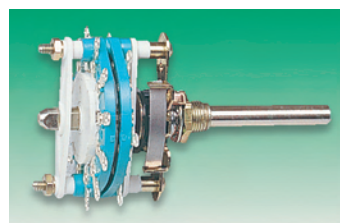
213365

Poles	Positions	No. of Wafers	Mfrs. List No.	Order Code	1+	25+	100+
1	12	1	459101JMK1	116-5221	55.25	45.86	40.19
1	12	2	459102JMK2	116-5273	75.10	63.50	55.66
2	7	1	459103JMK1	116-5274	55.12	47.19	41.49
4	4	1	459104JMK1	116-5275	51.75	45.67	40.48

MSD Series - Non-Shorting

— NSF —

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 = 3/8" 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	1+	25+	100+
1	12	1	116-5277	87.36	77.31	70.31
2	6	1	116-5279	92.01	79.82	71.19



RoHS Directive

Worried about the part number lottery?
 Count on us for traceability
 -visit www.rohs.info

**Don't risk anyone
 else for RoHS**

Switches

44

Compliant
 Non-compliant
 Limited stock - RoHS replacement available
RoHS

Key Operated Switches

PCB Mounting - MRK Series

20V dc, 0.4W



- Two- and three-circuit switching
- Key removable in all positions
- Gold plated contacts
- Each switch supplied with two keys

Contact rating 20V dc, 0.4W
Insulation resistance >100MR
Contact resistance <200mR
Dielectric strength 250V ac @ 50Hz, 1 minute
Operating temperature -25°C to +70°C
Operating life >10000 operations
Terminals Brass, nickel-plated

Mfrs. List Nos: MRK 1012 A 854-7033
MRK 1012 A - R 854-7041
MRK 1031 D 854-7050
MRK 1031 D - R 854-7068

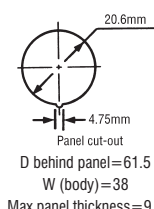
Straight Terminal Models: H=21 (excl. pins), W=15.74, D=14.5
Right-angled Terminal Models: H=16.3 (excl. pins), W=24.1, D=17.7

knitter-switch

Rating	Order Code	1+	10+	Price Each	25+	100+	+
Key Removable in Both Positions							
SPCO	120-1397	18.57	17.01	16.20	12.99	--	--
DPCO	120-1398	25.68	23.70	22.38	17.97	--	--
Key Removable in One Position Only							
SPCO	120-1399	20.73	19.17	18.46	16.57	--	--
DPCO	120-1400	25.86	23.76	22.56	18.09	--	--

2 Position - P5/3TMA/22/209

7A @ 250V ac, 10A @ 125V ac, 10A @ 12V dc



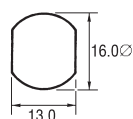
- 5 disc tumbler lock, 90° indexing
- Key removable in both positions
- 2 N/O + 2 N/C sets of fine silver contacts, break-before-make
- Each keyswitch is provided with two keys, random selection

213355

Order Code	1+	5+	10+	Price Each	25+
116-2582	70.98	67.08	62.47	57.94	

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
Current rating (non switching) 5A
Operating life >50000 ops
Indexing 90° (SPDT), 60° (DPDT)

Insulation resistance 100MR
Contact resistance 20mR max.
Operating temperature -20°C to +65°C

Mfrs. List No: SRL-5-E-D-2= 112-3677 SRL-5-D-D-2= 112-3678 SRL-5-M-D-2= 112-3679 SRL-5-L-D-2= 112-3680
SRL-5-E-S-2= 112-3681 SRL-5-D-S-2= 112-3682 SRL-5-M-S-2= 112-3684 SRL-5-L-S-2= 112-3685
901= 112-3686

213144

Random Key Profile	Order Code	1+	Price Each	25+	100+	250+
SPDT						
Key removable in 1 position	112-3677	10.29	9.42	9.01	8.35	
Key removable in 2 positions	112-3678	10.29	9.42	9.01	8.35	
DPDT						
Key removable in 1 position	112-3679	9.73	9.26	8.22	7.43	
Key removable in 2 positions	112-3680	9.73	8.79	8.22	7.43	
Common Key Profiles, SPDT						
Key removable in 1 position	112-3681	10.24	9.42	9.01	8.35	
Key removable in 2 positions	112-3682	10.24	9.42	9.01	8.35	
DPDT						
Key removable in 1 position	112-3684	9.89	8.98	8.22	7.47	
Key removable in 2 positions	112-3685	9.89	8.98	8.22	7.47	
		1+	10+	50+	100+	
Spare common keys (pair)	112-3686	5.60	5.14	4.65	4.30	

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

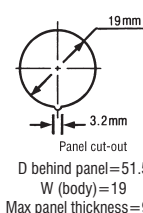
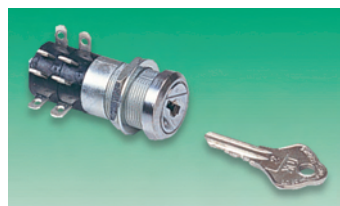
Depth behind panel=28.8
Maximum panel thickness=4.95

Mfrs. List No: Y1011U2C203NQ = 120-1397 Y101132C203NQ = 120-1399
Y2011U2C203NQ = 120-1398 Y201132C203NQ = 120-1400

213295

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°)

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

213351

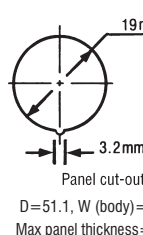
Switches	Order Code	1+	10+	Price Each	25+	100+	+
Mfrs List No							
P2/3TMA 209	116-2579	35.56	31.41	29.70	25.74	--	--
P2/3FDA 209	116-2580	35.92	31.72	30.00	26.00	--	--
P2/3FDA 206	116-2591	36.62	32.42	30.60	26.53	--	--
P2/3FCC 209	116-2583	36.62	32.42	30.60	26.53	--	--

Keys	Order Code	1+	10+	Price Each	25+	100+	+
TOK 3	116-2590	4.37	3.48	3.12	2.82	--	--
TOK 2	116-2592	4.37	3.48	3.12	2.82	--	--

3 Position - P2/3-TMA-1473

2A @ 250V ac, 4A @ 125V ac, 10A @ 12V dc

Ideal for 'Off' - 'Test' - 'Set Alarm' applications



- 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	1+	5+	10+	Price Each	25+
116-2581	30.33	29.00	27.01	25.44	

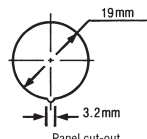
Prices are in Singapore Dollars and exclusive of GST.
Due to the volatile nature of certain products,
prices are subject to change without notice.

2 and 3 Position - K2/3

2A @ 250V ac, 4A @ 125V ac, 10A @ 12V dc



saia-burgess



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

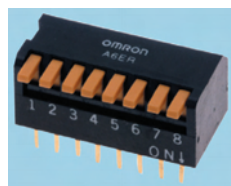
	Order Code	1+	5+	10+	25+
2 positions, 2 N/O sets of contacts, (DP Off/On)	116-2584	30.51	28.84	26.85	24.83
2 positions 1 N/O, 1 N/C sets of contacts, (cross connection give SPDT)	116-2586	30.51	28.84	26.85	25.06
3 positions SPDT, centre off	116-2578	30.51	28.84	26.85	25.53

DIL Switches

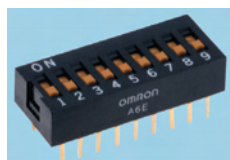
Sealed A6E & A6ER Series

25mA @ 24V dc

OMRON



A6E Series



A6ER Series

NEW

- The sealed bottom prevents flux penetration
- A variety of models with short or long actuators (levers) available

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 Malfunction: 300m/s ² min.
Vibration Resistance	1.18 to 2.45 x 10 ⁻² N.m
Shock Resistance	Mechanical: 1000 operations min.
Operating Force	Electrical: 1000 operations min.
Life Expectancy	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)
Weight	

386003/405575

No. of Ways	Mfrs. List No.	Order Code	1+	25+	100+	250+
A6E Series						
Flat Actuator	Flat Actuator					
2	A6E2101	877-4072	2.86	2.08	1.69	1.59
4	A6E4101	877-4099	3.16	2.28	1.86	1.73
6	A6E6101	877-4110	3.84	2.77	2.31	2.15
8	A6E8101	877-4137	4.98	3.61	2.96	2.73
10	A6E0101	877-4056	5.79	4.13	3.48	3.16
Raised Actuator						
2	A6E2104	877-4080	2.96	2.15	1.76	1.63
4	A6E4104	877-4102	3.35	2.41	1.99	1.82
6	A6E6104	877-4129	4.00	2.86	2.41	2.25
8	A6E8104	877-4145	5.27	3.78	3.09	2.86
10	A6E0104	877-4064	6.51	4.65	3.87	3.61
A6ER Series						
Side Actuator (Short Lever)						
2	A6ER2101	877-4170	5.14	3.68	3.03	2.80
4	A6ER4101	877-4196	5.53	3.97	3.29	3.03
6	A6ER6101	877-4218	6.64	4.75	3.94	3.68
8	A6ER8101	877-4234	7.42	5.34	4.39	4.07
10	A6ER0101	877-4153	9.83	7.06	5.86	5.44
Side Actuator (Long Lever)						
2	A6ER2104	877-4188	5.37	3.84	3.19	2.93
4	A6ER4104	877-4200	5.83	4.17	3.48	3.19
6	A6ER6104	877-4226	6.97	4.98	4.13	3.84
8	A6ER8104	877-4242	7.78	5.57	4.62	4.26
10	A6ER0104	877-4161	10.29	7.39	6.15	5.66

Sealed Low Profile - A6D Series

100mA @ 50V dc

OMRON



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

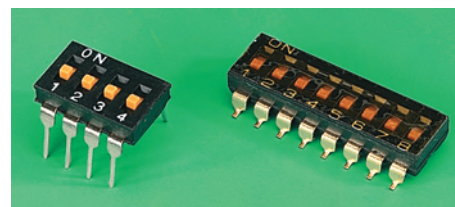
Contacts	Beryllium contact (Bifurcated, auto cleaning)	Dielectric strength	500V dc
Contact resistance	100mR max	Operating temperature	-20°C to 70°C
Insulation resistance	100MR @ 250V dc	Mechanical life	5000 ops min

213078

No. of Ways	Length	Mfrs. List No.	Order Code	1+	25+	50+	100+
Top Actuated							
2	7.1	A6D2100	114-8638	4.23	3.87	3.71	3.55
4	12.2	A6D-4100	990-1680	4.52	4.13	4.04	3.81
6	17.3	A6D6100	990-1698	6.10	5.37	4.87	4.03
8	22.4	A6D8100	990-1701	6.51	5.92	5.76	5.47
10	27.4	A6D-0100	990-1710	11.41	10.04	9.10	7.54
Piano Key Actuated							
4	12.2	A6DR-4100	990-1728	9.60	8.45	7.67	6.35
6	17.3	A6DR-6100	990-1736	11.31	9.95	9.02	7.47
8	22.4	A6DR-8100	990-1744	12.91	11.36	10.30	8.53
10	27.4	A6DR-0100	990-1752	17.21	15.14	13.61	11.37

Low Profile - A6T/A6S Series

OMRON



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 328-1899 and 328-1905)
- Auto insertable

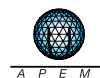
Contacts	Beryllium Copper	Operating temperature	-20°C to 70°C
Contact rating	25mA @ 24Vdc	Dielectric strength	500Vac

213137

No. of Ways	Length	Mfrs. List No.	Order Code	1+	25+	50+
Through Hole - A6T Series						
2	6.02	A6T-2104	990-1809	2.80	2.47	2.24
4	11.10	A6T-4104	990-1817	3.30	2.91	2.64
6	16.18	A6T-6104	990-1825	4.00	3.52	3.19
8	21.26	A6T-8104	990-1833	5.00	4.40	3.99
10	26.34	A6T-0104	990-1841	5.80	5.11	4.63
Surface Mount - A6S Series						
2	6.02	A6S-2102	SMD 990-1850	2.86	2.60	2.51
4	11.10	A6S-4101	SMD 990-1868	3.12	2.83	2.70
6	16.18	A6S-6101	SMD 990-1876	3.68	3.35	3.19
8	21.26	A6S-8102	SMD 990-1884	4.49	4.07	3.91
10	26.34	A6S-0102	SMD 990-1892	7.16	6.54	6.35

Low Profile

100mA @ 20 Vdc



- Low profile DIL switches, tape sealed to allow washing
- | | | | |
|---------------------|----------|-----------------------|----------------|
| Dielectric strength | 500V dc | Operating temperature | -40°C to 100°C |
| Mechanical life | 2000 ops | | |
- H=3.3, W=7.1, Pins=7.62x2.54 spacing

213146

No. of Ways	Length	Mfrs. List No.	Order Code	1+	25+	100+	250+
DIL							
2	5.6	M402SNL	996-8300	3.15	2.74	2.20	1.89
4	10.70	M404SNL	996-8318	3.82	3.24	2.83	2.29
8	21.3	M408SNL	996-8326	4.68	3.98	3.40	2.77
SMD							
2	5.5	M4025MGNL	SMD 996-8342	2.83	2.64	2.48	2.35
4	10.5	M4045MGNL	SMD 996-8350	3.98	3.76	3.49	3.34
8	21.3	M4085MGNL	SMD 996-8334	4.95	4.72	4.72	4.57

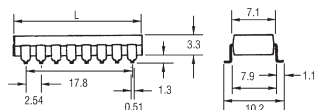
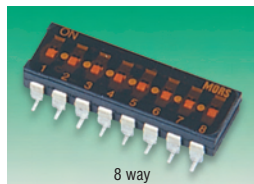
Switches

44

Compliant
Non-compliant
Limited stock - RoHS replacement available

RoHS

Low Profile



Surface mount version of M40S series DIL switch, tape sealed to allow washing

Rating	100mA @ 20V dc	Dielectric strength	500V dc
Rating (non-switching)	100mA @ 50V dc	Mechanical life	2000operations
Initial contact resistance	20mR	Operating temperature	-40°C to 100°C
Insulation resistance	1000MR @ 500V dc	Flammability	UL recognised

213176

No. of Ways	Length	Mfrs. List No.	Order Code	1+	25+	100+	250+
2	5.5	M402SMG	SMD273-405 ▲	2.83	2.64	2.48	2.35
4	10.5	M404SMG	SMD273-417 ▲	3.98	3.76	3.49	3.34
8	21.3	M408SMG	SMD152-265 ▲	4.95	4.72	4.72	4.57

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

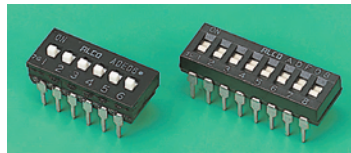
Contacts	Gold plated sliding auto cleaning	Dielectric strength	500V rms 50Hz
Contact rating	100mA @ 50V dc max	Capacitance	Less than 5pF
Contact resistance	Less than 50mR	Mechanical life	3000 ops
Insulation resistance	1000MR @ 500V dc	Operating temperature	-40°C to 85°C

213382

No. of Ways	Length	Mfrs. List No.	Order Code	1+	25+	100+	250+
2	6	NDIR02ST	108-2466 ●	2.80	2.67	2.51	2.21
4	11.1	NDIR04ST	108-2467 ●	3.48	3.26	3.06	2.73
6	16.1	NDIR06ST	108-2468 ●	3.68	3.45	3.26	2.83
8	21.2	NDIR08ST	108-2469 ●	4.13	3.81	3.53	3.15
10	26.3	NDIR10ST	108-2470 ●	5.28	4.90	4.54	4.01

Extended and Flush Actuator

tyco Electronics ALCOSWITCH



H=5.25, W=7.50

- 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

- Flush actuator types are machine insertable

Flammability rating	UL recognised	Insulation Resistance	1000MR min @ 100VDC
Contacts	Gold flashed copper alloy	Dielectric strength	500VAC
Contact rating	@ 24V dc max.	Operating life	1000
Contact Resistance	50mR max	Operating temperature	-45°C to 85°C

213313/405612

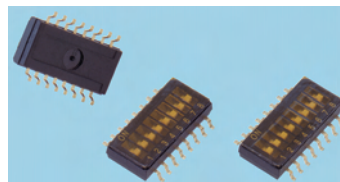
No. of Ways	Length	Mfrs. List No.	Order Code	1+	25+	100+	250+
Extended Actuator							
2	7.06	ADE02	112-3936 ●	1.97	1.73	1.58	1.39
4	12.14	ADE04	112-3938 ●	2.63	2.33	2.09	1.87
6	17.22	ADE06	112-3939 ●	2.55	2.24	2.03	1.82
7	19.76	ADE07	112-3940 ●	2.50	2.20	1.97	1.80
8	22.3	ADE08	112-3941 ●	3.39	3.00	2.70	2.42
9	24.84	ADE09	112-3942 ●	3.76	3.31	2.97	2.65
12	29.92	ADE12	112-3943 ●	6.43	5.67	5.10	4.59
Flush Actuator							
2	7.06	ADF02	112-3945 ●	2.58	2.27	2.08	1.83
4	12.14	ADF04	112-3946 ●	2.93	2.58	2.33	2.11

Half/Pitch Surface Mount A6H Series
25mA @ 24V dc

OMRON

NEW

SMD



- Very low profile of 1.55mm
- Mounting space reduced by 63% (compared with conventional models)
- Washable, seal tape models available
- Embossed taping models available

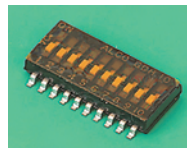
Switching Capacity	25 mA at 24VDC, 10µA (minimum current) at 3.5 VDC
Ambient Temperature	Operating: -20 to 70°C (with no icing or condensation) Storage: -40 to 85°C (with no icing or condensation)
Ambient Humidity	Operating: 35 to 90%
Insulation Resistance	100MΩ min. (at 250VDC)
Contact Resistance	200mΩ max. (initial value)
Dielectric Strength	300 VAC for 1min between terminals of the same polarity and between terminals of different polarity
Vibration Resistance	Malfunction: 10 to 55Hz, 1.5mm double amplitude
Shock Resistance	Malfunction: 300m/s ² min.
Life Expectancy	Mechanical: 1000 operations min. 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	Length	Mfrs. List No.	Order Code	1+	25+	100+	250+
4		A6H4101	877-4269 ●	4.39	3.16	2.64	2.44
6		A6H6101	877-4277 ●	5.05	3.61	2.99	2.77
8		A6H8101	877-4285 ●	5.53	3.97	3.29	3.03
10		A6H1011	877-4250 ●	6.84	4.92	4.07	3.78

Half Pitch - Surface Mount

tyco Electronics ALCOSWITCH



- Compact half pitch 1.27mm package
- Gold wiping contact system
- Flammability rating of UL94V-0

H=2.30, W=6.00, Pins = 7.6 x 1.27 spacing

Moving contacts	Gold over nickel over copper alloy	Insulation Resistance:	300
Fixed contact:	Gold over nickel over copper alloy	Operating life:	1000 ops
Contact rating	0.4VA25mA @ 24VDC	Operating temperature:	-30°C to 85°C
Initial contact resistance:	100mR		

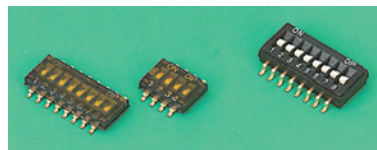
SW368/236365

No. of Ways	Length	Mfrs. List No.	Order Code	1+	25+	100+	250+
2	3.66	GDH02S	SMD312-678 ▲	4.63	4.06	3.69	3.31
4	6.20	GDH04SFN	SMD312-680 ▲	5.10	4.50	4.06	3.65
6	8.75	GDH06SFN	SMD312-691 ▲	6.74	5.95	5.36	4.82
8	11.92	GDH08SFN	SMD312-708 ▲	8.79	7.75	6.99	6.27
10	13.82	GDH10SFN	SMD312-710 ▲	10.77	9.32	8.10	7.21

Half Pitch
High or Low Profile

multicomp

SMD

Low Profile
H=1.5, W=4.5, L=6.31 - 4 way
11.39 - 8 way
High Profile
H=2.3, W=5.4, L=11.56

● 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.
	50Vdc non switching	Insulation resistance	100MR@500V
Operating temperature	-30°C to 85°C		
Dielectric Strength	300Vac 1 min.		

It is recommended to solder switches in the 'off' factory supplied position

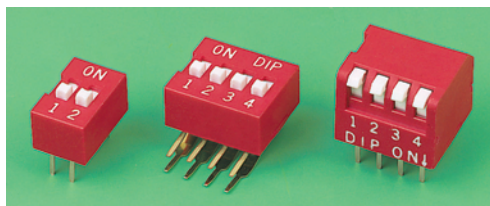
213299

	Order Code	1+	25+	50+	100+	+
Low Profile						
4	SMD947-2100 ●	4.41	3.87	3.60	2.88	--
8	SMD947-2118 ●	3.94	3.74	3.35	3.16	--
High Profile						
8	SMD947-2096 ●	4.14	3.95	3.51	3.32	--

Prices are in Singapore Dollars and exclusive of GST.
Due to the volatile nature of certain products,
prices are subject to change without notice.

DS and DP Series
100mA @ 50V dc

multicomp



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 50mR
Operating temperature -40°C to 70°C Insulation resistance 100MR @ 500V dc

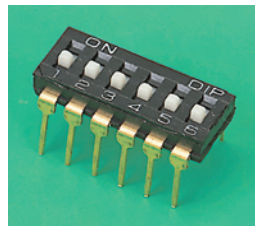
It is recommended to solder switches in the 'off' factory supplied position

213171

No. of Ways	Length	Mfrs. List No.	Order Code	1+	50+	100+	500+	+
Top Actuated								
2	6.60	MCDS02	947-2126	1.11	0.94	0.78	0.68	--
4	11.68	MCDS04	947-1570	1.30	0.91	0.85	0.78	--
6	16.76	MCDS06	947-1588	1.50	1.04	1.01	0.91	--
8	21.84	MCDS08	947-1596	1.65	1.38	1.15	1.02	--
10	26.92	MCDS10	947-2134	1.97	1.36	1.30	1.21	--
12	32.00	MCDS12	947-2142	2.27	1.61	1.55	1.42	--
Side Actuated								
4	11.72	MCDA04	947-1545	1.92	1.80	1.71	1.56	--
6	16.8	MCDA06	947-1553	2.07	1.98	1.86	1.68	--
8	21.88	MCDA08	947-1561	2.42	2.31	2.19	1.98	--
Piano Key Actuated								
4	11.71	MCDP04	947-1600	1.18	1.15	1.12	1.03	--
6	16.80	MCDP06	947-1618	1.29	1.26	1.20	1.11	--
8	21.87	MCDP08	947-1626	1.64	1.56	1.53	1.38	--

Low Profile

multicomp



- Single pole single throw DIL switches
- Flammability rating
- UL recognised

Lead Spacing 7.62 x 2.54
Contacts Gold plated over nickel
Contact rating 25mA24Vdc100mA
50Vdc non switching
Operating temperature -20°C to 70°C
Dielectric Strength 500Vac 1 min.
Terminals Life expectancy 2000 ops.
Insulation resistance 100MR@500V

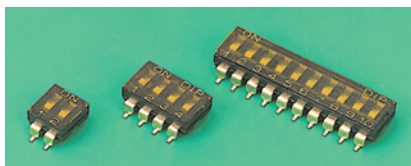
It is recommended to solder switches in the 'off' factory supplied position

213300

No. of Ways	Length	Mfrs. List No.	Order Code	1+	25+	50+	100+	+
2	6.02	MCNDI-02S	947-2150	1.23	1.11	0.84	0.72	--
4	11.1	MCNDI-04S	947-2169	1.33	1.12	0.88	0.79	--
6	16.18	MCNDI-06S	947-2177	1.59	1.14	1.11	0.96	--
8	21.26	MCNDI-08S	947-2185	1.89	1.50	1.26	1.11	--
10	26.34	MCNDI-10S	947-2193	2.25	1.56	1.50	1.35	--

Low Profile - Surface Mount

multicomp



Lead pitch 2.54

- Single pole single throw DIL switches
- UL recognised

Contacts Gold plated over nickel
Contact rating 25mA24Vdc100mA
50Vdc non switching
Operating temperature -20°C to 70°C
Dielectric Strength 500Vac 1 min.
Terminals Life expectancy 2000 ops.
Insulation resistance 100MR@500V

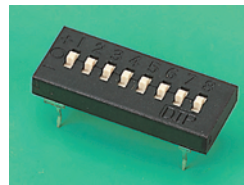
It is recommended to solder switches in the 'off' factory supplied position

No. of Ways	Length	Mfrs. List No.	Order Code	1+	25+	50+	100+	+
2	6.02	MCDM(R)-02-T	SMD 947-2029	2.43	2.31	2.31	2.04	--
4	11.1	MCDM(R)-04-T	SMD 947-2037	2.77	2.57	2.57	2.28	--
6	16.18	MCDM(R)-06-T	SMD 947-2045	3.35	3.12	3.12	2.77	--
8	21.26	MCDM(R)-08-T	SMD 947-2053	3.42	3.19	3.19	2.83	--
10	26.34	MCDM(R)-10-T	SMD 947-2061	4.00	3.71	3.71	3.32	--

213302

Tri State

multicomp



- Single pole tri state DIL switch
- UL recognised

H=3.6, W=24.3, D=10.0, Lead pitch 2.54

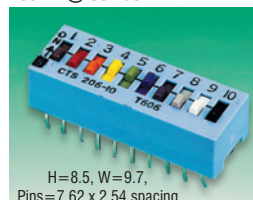
Contacts Gold plated over nickel
Contact rating 25mA24Vdc100mA
50Vdc non switching
Operating temperature -20°C to ±70°C
Dielectric Strength 500Vac 1 min.
Terminals Life expectancy 2000 ops.
Insulation resistance 100MR@500V

213298

No. of Ways	Mfrs. List No.	Order Code	1+	25+	50+	100+	+
8	MCTDS-08	947-2070	5.94	5.25	5.07	4.08	--

Colour Coded

100mA @ 50V dc



- Single throw style with 'ON' status clearly indicated.
- International colour coded actuators.
- Gold plated contacts for long term corrosion resistance.
- Umbrella style sliders prevent ingress of particles.
- Reliable positive wiping contact operation.
- Tape sealed suitable for flow soldering and solvent cleaning.

Initial contact resistance 50mR
Insulation resistance 100mR
Dielectric strength 500V ac
Operating temperature -55°C to 85°C

213091

No. of Ways	Length	Order Code	1+	50+	100+	500+	+
4 way	12.34	118-2360	5.23	4.16	3.75	3.18	--
8 way	22.5	118-2361	6.33	5.10	4.57	3.87	--

End Stackable - 014 Series

Erg Components

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

- End stackable
- Single throw style have 'ON' and 'OFF' status clearly indicated by arrowheads
- Double throw style will give break-before-make changeover action with pairs of pins on one side of the switch PCB linked
- International coded actuators ease identification and enhance appearance of circuit layout

Initial contact resistance 20mR
Body material glass filled polyamide
Insulation resistance 100000MR
Dielectric strength 500V rms
Capacitance Less than 1pF, between open contacts
Operating life 30000 ops within rated load is typical
Operating temperature -55°C to 100°C
(All ratings are at 20° and 70% RH)

Switches

44

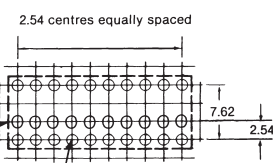
Compliant
Non-compliant
Limited stock - RoHS replacement available
RoHS

213366

No. of Ways	Length	Mfrs. List No.	Order Code	1+	10+	25+	50+
Single Throw Style							
2	5	SDS-2-014	422-630	4.47	4.10	3.72	3.09
4	10	SDS-4-014	422-642	6.24	5.61	5.10	4.38
6	15	SDS-6-014	422-654	8.16	7.34	6.68	5.67
8	20	SDS-8-014	422-666	8.95	7.97	7.25	6.33
10	25	SDS-10-014	422-678	11.47	10.27	9.26	8.00
Double Throw Style (PCB Linked)							
1	5	SDC-1-014	422-680	4.66	4.13	3.78	3.31
2	10	SDC-2-014	422-691	6.33	5.64	5.13	4.54
4	20	SDC-4-014	422-708	9.95	8.88	7.97	7.09

Recessed - 023 Series**1A @ 100V up to 10VA**H=8.8 (above PCB),
W=10.5

Single throw

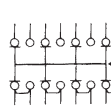
Double throw
(PCB linked)Double throw
Triple-in-Line

Ganged

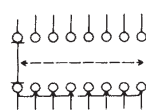
- International coded actuators
- Tape sealed suitable for flow soldering and solvent cleaning
- Meets requirements of **BS9566 F0001** and **BT08173** and exceeds requirements of **MIL-S-83504**
- Specification as End-Stackable 014 Series (see above)

213375

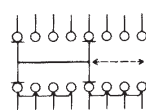
No. of Ways	Length	Mfrs. List No.	Order Code	1+	25+	50+	100+
Single Throw Style							
2	7	SDS-2-023	422-710	4.32	3.53	3.09	2.93
4	12	SDS-4-023	422-721	5.98	5.54	4.63	4.28
6	17	SDS-6-023	422-733	8.95	7.21	6.30	6.08
8	22	SDS-8-023	422-745	9.95	9.23	7.72	7.15
10	27	SDS-10-023	422-757	16.07	11.72	9.32	7.34
Double Throw Triple-in-Line							
2	7	SCS-2-023	422-769	6.21	4.98	4.35	4.16
4	12	SCS-4-023	422-770	11.47	9.26	8.10	7.75
6	17	SCS-6-023	422-782	15.84	12.69	11.06	10.62
8	22	SCS-8-023	422-794	17.51	14.96	13.58	12.54
Double Throw Style (PCB Linked)							
1	7	SDC-1-023	422-812	5.64	4.06	3.21	2.51
2	12	SDC-2-023	422-824	9.07	6.55	5.10	3.94
3	17	SDC-3-023	422-836	11.66	8.47	6.80	5.33
4	22	SDC-4-023	422-848	14.49	10.52	8.51	6.44
Ganged Style							
1	7	SDD-1-023	422-861	6.27	4.60	3.59	2.74
2	12	SDD-2-023	422-873	8.57	6.21	4.88	3.91
3	17	SDD-3-023	422-885	11.66	8.47	6.80	5.35

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

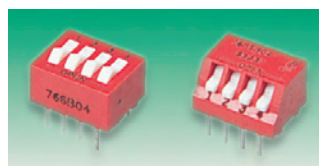
- Slide action, break-before-make contacts
- Tape sealed suitable for flow soldering and solvent cleaning
- Fitted with transparent hinged dust cover

Initial contact resistance	30mR	Dielectric strength	500V rms
Body material	Glass filled polyamide	Operating life	20000 ops
Insulation resistance	100000MR	Operating temperature	-55°C to 100°C

(All ratings are at 20° and 70% RH)

213386

	Mfrs. List No.	Order Code	1+	25+	100+	250+
1 Pole, 8 way	DS16C1-8	422-903	8.95	8.00	7.65	7.25
2 Pole, 4 way	DS16C2-4	422-915	7.94	7.12	6.77	6.48
4 Pole, 2 way	DS16C4-2	422-927	9.86	8.88	8.54	7.88

Rocker and Lever - 76 SeriesRocker: 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	5000MR @ 100V dc
Current rating	5A max @ 20°C rise	Dielectric resistance	500V rms
Initial contact resistance	<30mR	Capacitance	Less than 5pF
Body material	Moulded thermoplastic polyester	Operating life	35000 ops @ 50mA 30V dc
		Operating temperature	-40°C to +85°C

221805

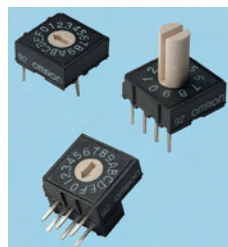
No. of Ways	Length	Mfrs. List No.	Order Code	1+	100+	500+
Rocker						
2	7.11	76SB02T	947-9155	2.93	2.30	2.08
4	12.19	76SB04T	947-9163	3.12	2.45	2.22
6	17.27	76SB06T	947-9171	3.28	2.58	2.33
8	22.35	76SB08T	947-9180	3.43	2.71	2.43
10	27.43	76SB10T	947-9198	3.50	2.77	2.49
12	32.51	76SB12T	947-9201	3.56	2.84	2.55
Rocker - Tape Sealed						
4	12.19	76SB04ST	947-9007	3.15	2.49	2.24
6	17.27	76SB06ST	947-9015	3.34	2.68	2.39
8	22.35	76SB08ST	947-9023	3.53	2.80	2.49
Lever Key						
4	12.19	76PSB04T	947-9210	3.56	2.84	2.55
6	17.27	76PSB06T	947-9228	3.75	2.96	2.68
8	22.35	76PSB08T	947-9236	3.91	3.12	2.80
10	27.43	76PSB10T	947-9244	4.19	3.31	2.96
Lever Key - Tape Sealed						
4	12.19	76PSB04ST	947-9139	3.69	2.90	2.61
8	22.35	76PSB08ST	947-9147	3.97	3.15	2.84

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
10 Positions	10 Positions	16 Positions	16 Positions	10 Positions

213242

Standard A6R & A6RV Series**25mA @ 24V dc**

- Series includes top-actuated, side-actuated, flat, and extended-shaft models
- The rotor has an O-ring sealed construction that prevents the ingress of dirt and dust
- Two different types of terminal arrangement are available for each model to allow flexibility in the circuit design

**NEW**

Switching Capacity	25 mA at 24VDC
Ambient Temperature	-25 to 80°C (no icing)
Ambient Humidity	35 to 95%
Insulation Resistance	100MΩ min. (at 250VDC)
Contact Resistance	200mΩ max. (initial value)
Dielectric Strength	250VAC for 1min between terminals of the same polarity
Vibration Resistance	Malfunction: 10 to 55Hz, 1.5mm double amplitude
Shock Resistance	Malfunction: Approx. 300m/s ² min.
Operating Force	1.18 to 2.451.96 x 10 ⁻² N.m Max.
Electrical Life Expectancy	5000 steps min.
Weight	4x1, top-actuated: 0.64g 3x3, top-actuated: 0.62g 4x1, side-actuated: 0.8g 3x3, side-actuated: 0.83g (Add 0.13g for extended-shaft version of each model)

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prices are subject to change without notice.

Terminal Arrangement	Output Code	Top-Actuated Flat (White)	Top-Actuated, Extended Shaft (White)	Side-Actuated Flat (White)	Side-Actuated, Extended Shaft, (White)
4 x 1	Real Code	A6R101RF	A6R101RS	A6RV101RF	A6RV101RS
3 x 3	Real Code	A6R102RF	A6R102RS		A6RV102RS
4 x 1	Real Code	A6R161RF	A6R161RS	A6RV161RF	A6RV161RS
3 x 3	Real Code	A6R162RF	A6R162RS	A6RV162RF	A6RV162RS

386005/405578

No. of Ways	Mfrs. List No.	Order Code	1+	25+	100+	250+
Top-Actuated, Flat						
10	A6R101RF	877-4293	8.33	5.99	4.98	4.56
10	A6R102RF	877-4315	8.33	5.99	4.98	4.56
16	A6R161RF	877-4331	8.89	6.38	5.34	4.92
16	A6R162RF	877-4358	8.89	6.38	5.34	4.92
Top-Actuated, Extended Shaft						
10	A6R101RS	877-4307	9.15	6.58	5.50	5.05
10	A6R102RS	877-4323	9.15	6.58	5.50	5.05
16	A6R161RS	877-4340	9.70	6.97	5.79	5.37
16	A6R162RS	877-4366	9.70	6.97	5.79	5.37
Side-Actuated, Flat						
10	A6RV101RF	877-4374	9.44	6.77	5.63	5.24
16	A6RV161RF	877-4412	9.99	7.16	5.99	5.53
16	A6RV162RF	877-4439	9.99	7.16	5.99	5.53
Side-Actuated, Extended Shaft						
10	A6RV101RS	877-4382	10.25	7.36	6.15	5.66
10	A6RV102RS	877-4404	10.25	7.36	6.15	5.66
16	A6RV161RS	877-4420	10.81	7.78	6.48	5.99
16	A6RV162RS	877-4447	10.81	7.78	6.48	5.99

Sealed 'IC Style' - A6C Series

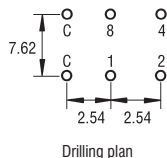
100mA @ 30V dc



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
- Screwdriver setting
- Low operating force
- Fully sealed construction, without tape seal
- Available BCD (10 positions, 0 - 9) and hex (16 positions, 0 - 9, A - F)

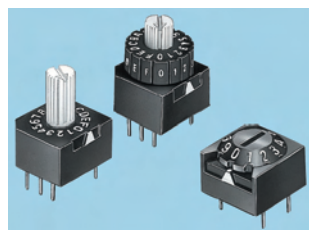
Min permissible load	100µA @ 3.5V dc	Mechanical life	10000 ops
Contact resistance	<100mR	Electrical life	2000 ops
Insulation resistance	100MR @ 250V dc	Operating temperature	-20°C to 70°C
Contact material	Gold over Nickel		

213111

Horizontal	Mfrs. List No.	Order Code	1+	50+	100+
BCD	A6C10R(N)	990-1760	8.98	7.97	7.40
Hex	A6C16R(N)	990-1779	8.22	7.59	7.25
Vertical					
BCD	A6CV-10R	990-1787	8.95	8.25	7.84
Hex	A6CV-16R	990-1795	9.01	8.19	7.62

DIP Switch (Rotary Type) - A6A Series

100mA @ 28V dc



- Series includes a standard type that can be operated from the top or side, an extended shaft type that can be operated while mounted on a panel, and a flat type
- A slider lock and rotating PCB system ensure stable contact reliability
- Completely sealed construction prevents flux entry during automatic flow soldering

NEW

Switching Capacity	1mA to 0.1A @ 5 to 28V DC (switching current)
Ambient Temperature	-10 to 70°C (no icing)
Ambient Humidity	85% max.
Insulation Resistance	10MΩ min. (at 250VDC)
Contact Resistance	200mΩ max. (initial value)
Dielectric Strength	500VAC at 50/60Hz for 1min between ground and the charging plates
	250VAC at 50/60Hz for 1min between terminals of the same polarity
Vibration Resistance	Malfunction: 10 to 55Hz, 1.5mm double amplitude
Shock Resistance	Malfunction: 300ms/s² min.
Operating Force	1.18 to 2.45 x 10 ⁻² N.m
Weight	Approx. 0.75g for 877-3939

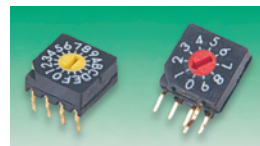
No. Switching Positions	Output Code	Standard Type (Black)	Flat Type (White)	Extended Shaft Type (White)	Thumbwheel Type (White)
10	BCD/hexadecimal 1-2-4-8 code	A6A10R	A6A10RF	A6A10RS	A6A10RW
	BCD/hexadecimal 1-2-4-8 complement code	A6A10C	A6A10CF	A6A10CS	A6A10CW
	BCD/hexadecimal 1-2-4-8 code	A6A16R	A6A16RF	A6A16RS	A6A16RW
	BCD/hexadecimal 1-2-4-8 complement code	A6A16C	A6A16CF	A6A16CS	A6A16CW

386002/405604

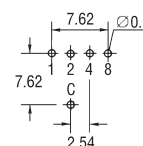
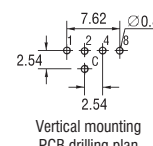
Mfrs. List No.	Order Code	1+	25+	100+	250+
10 Switching Positions					
BCD/hexadecimal 1-2-4-8 code					
A6A10R	877-3939	13.77	9.86	8.24	7.65
A6A10RF	877-3947	13.77	9.86	8.24	7.65
A6A10RS	877-3955	16.37	11.78	9.76	9.08
A6A10RW	877-3963	17.41	12.47	10.42	9.60
BCD/hexadecimal 1-2-4-8 complement code					
A6A10C	877-3890	13.77	9.86	8.24	7.65
A6A10CF	877-3904	13.77	9.86	8.24	7.65
A6A10CS	877-3912	15.62	11.20	9.37	8.66
A6A10CW	877-3920	17.35	12.40	10.38	9.57
16 Switching Positions					
BCD/hexadecimal 1-2-4-8 code					
A6A16R	877-4013	12.84	9.00	7.50	6.93
A6A16RF	877-4021	18.16	12.99	10.84	10.03
A6A16RS	877-4030	16.28	11.72	9.73	9.02
A6A16RW	877-4048	17.87	12.82	10.68	9.83
BCD/hexadecimal 1-2-4-8 complement code					
A6A16C	877-3971	13.12	9.41	7.88	7.23
A6A16CF	877-3980	14.32	10.32	8.56	7.91
A6A16CS	877-3998	16.28	11.72	9.73	9.02
A6A16CW	877-4005	17.87	12.82	10.68	9.83

Sealed PCB Mounting

100mA @ 50V dc (non-switching), 30mA @ 15V dc (switching)



Horizontal mounting
H=4.8, W=10, D=10
Vertical mounting
H=10, W=10, D=6.9
Pins = 0.65 x 0.35

Horizontal mounting
PCB drilling planVertical mounting
PCB drilling plan

- Very positive click action
- Washable
- Screwdriver setting
- Available BCD (10 positions, 0 - 9) and hex (16 positions, 0 - 9, A - F)

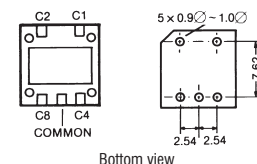
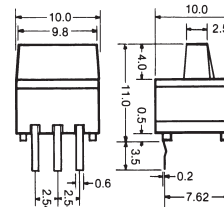
Contact material	Gold over Nickel	Dielectric strength	250V for 1 min
Contact resistance	<100mR	Mechanical life	20000ops
Insulation resistance	1000MR @ 250V dc	Operating temperature	-25°C to 75°C

213160

Horizontal	Mfrs. List No.	Order Code	1+	25+	100+	250+	+
BCD	DRS3010	119-0426	12.76	11.18	9.89	7.62	--
HEX	DRS3016	119-0425	12.76	11.18	9.89	7.62	--
HEX inverse	DRS3116	981-0455	12.76	11.18	9.89	7.62	--
Vertical							
BCD	DRR3010	119-0427	13.55	11.88	10.43	8.10	--
HEX	DRR3016	981-0439	13.69	12.00	10.53	8.18	--
HEX inverse	DRR3116	119-0431	13.55	11.88	10.43	8.10	--

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)	100mR
Body material	Black polyamide, UL recognised
Insulation resistance	1000MR @ 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

Switches

44

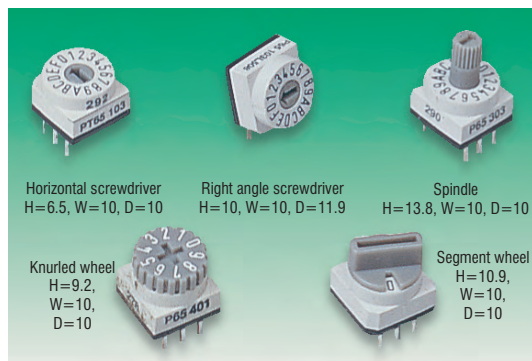
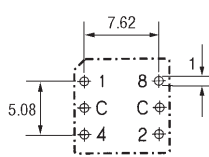
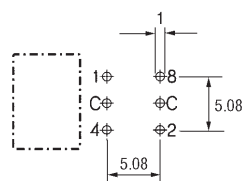
Compliant
Non-compliant
RoHS
Limited stock - RoHS replacement available

213332

	Knob Colour	Mfrs. List No.	Order Code	1+	25+	100+	250+
BCD	Red	ERG10-412/2	120-3413	17.99	12.35	9.32	8.13
BCD	Blue	ERG10-412/6	120-3414	16.76	11.72	8.95	7.65
BCD complement	Red	ERG10-422/2	120-3415	17.99	12.35	9.32	8.13
Hex	Red	ERG16-412/2	120-3416	18.65	12.79	9.70	8.38
Hex	Green	ERG16-412/5	120-3417	18.65	12.79	9.70	8.38
Hex	Blue	ERG16-412/6	120-3419	18.65	12.79	9.70	8.38
Hex complement	Red	ERG16-422/2	120-3420	18.65	12.79	9.70	8.38
Hex complement	Green	ERG16-422/5	120-3421	18.65	12.79	9.70	8.38
Hex complement	Blue	ERG16-422/6	120-3422	18.65	12.79	9.70	8.38

Sealed PCB Mounting400mA @ 24V dc (non-switching),
150mA @ 24Vdc (switching)

/HARTMANN

Horizontal screwdriver
H=6.5, W=10, D=10Right angle screwdriver
H=10, W=10, D=11.9Spindle
H=13.8, W=10, D=10Knurled wheel
H=9.2,
W=10,
D=10Segment wheel
H=10.9,
W=10,
D=10Standard mounting
(except right angle)
PCB drilling plans

Right angled mounting

- Wide variety of styles
- Gold plated terminals

- All types solder flux sealed and washable

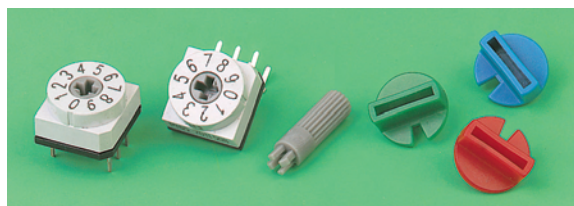
Initial contact resistance	<80mR	Mechanical life	10000 operations
Insulation resistance	>100MR	Operating temperature	-20°C to 70°C
Mfrs. List No.	PT65-101. = 108-2476 PT65-102. = 108-2478 PT65-103. = 108-2479 PT65-106 = 108-2481	PT65-121 = 108-2482 PT65-101-L508. = 108-2477 PT65-103-L508. = 108-2480 PT65-301. = 108-2483	PT65-303. = 108-2484 PT65-401. = 108-2485 PT65-501. = 108-2487 PT65-503. = 108-2488

213173

	Order Code	1+	25+	100+	250+	+
Horizontal Screwdriver						
BCD	108-2476	6.85	5.98	5.22	3.91	--
BCD complement	108-2478	7.89	6.87	5.95	4.45	--
Hex	108-2479	5.95	5.44	5.09	4.54	--
Hex complement	108-2481	7.49	6.55	5.67	4.62	--
Decimal 4 position	108-2482	6.92	6.04	5.22	4.23	--
Right Angle Screwdriver						
BCD	108-2477	9.06	7.89	6.84	5.12	--
Hex	108-2480	10.10	8.82	7.64	5.73	--
Spindle						
BCD	108-2483	8.86	7.67	6.69	5.21	--
Hex	108-2484	9.51	9.35	--	--	--
Knurled Wheel						
BCD	108-2485	10.10	8.82	7.64	5.73	--
Segment Wheel						
BCD	108-2487	10.78	9.45	8.18	6.14	--
Hex	108-2488	10.06	8.82	7.64	5.77	--

Sealed PCB MountingWith Spindles and Segment Wheels
400mA @ 24Vdc (non-switching),
150mA @ 24V dc (switching)

/HARTMANN

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.

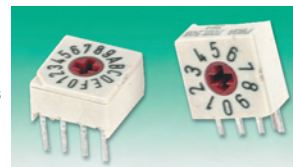
213225

Horizontal Cross Head	Order Code	1+	25+	100+	250+	+
BCD	108-2489	8.53	7.44	6.42	5.28	--
HEX	108-2491	9.64	8.43	7.25	5.95	--
HEX/COMP	108-2493	9.54	8.35	7.18	5.89	--
Right Angle Crosshead						
BCD	108-2490	8.96	7.83	6.75	5.53	--
HEX	108-2492	10.10	8.82	7.58	6.20	--
Spindles						
11.6mm	108-2494	1.26	1.11	0.96	0.78	--
13.3mm	108-2495	1.01	0.88	0.78	0.75	--
Segment Wheels						
Blue	108-2531	1.17	1.05	0.90	0.72	--
Black	108-2532	1.17	1.05	0.90	0.72	--
Green	108-2533	1.17	1.05	0.90	0.74	--
Red	108-2534	1.17	1.05	0.90	0.72	--

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 7.62Right angle cross-head:
H=10, W=10, D=10, Pins
(3 x 2.54) x 5.08

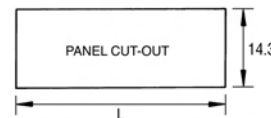
- Choice of horizontal or right angle orientation
- 4 + 1 Pin connection
- Press-fit activators
- Choice of two spindle heights
- Selection of segment wheel colours

241415

Horizontal Cross Head	Order Code	1+	25+	100+	250+	+
BCD	996-8369	8.08	7.28	6.97	6.04	--
HEX	996-8377	8.00	7.21	6.90	5.98	--
Right Angle Crosshead						
BCD	996-8385	8.46	7.64	7.32	6.30	--
HEX	996-8393	8.38	7.56	7.25	6.24	--
Spindles						
11.6mm	108-2494	1.26	1.11	0.96	0.78	--
13.3mm	108-2495	1.01	0.88	0.78	0.75	--
Segment Wheels						
Blue	108-2531	1.17	1.05	0.90	0.72	--
Black	108-2532	1.17	1.05	0.90	0.72	--
Green	108-2533	1.17	1.05	0.90	0.74	--
Red	108-2534	1.17	1.05	0.90	0.72	--

Modular Switches**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
Contact resistance <0.1R
Insulation resistance 1000MR
Dielectric strength 500V acOperating life 1000000 ops
Housing material PPO Noryl
Operating temperature -20°C to 80°CMfrs. List No. PAAA3000 = 118-0017 PACA3000 = 118-0018 PAPA3000 = 118-0019
6090801 = 118-0014 6090799 = 118-0013 6090803 = 118-0015

213086

Output Code	Readout	Order Code	1+	25+	100+	250+	+
Switch Modules							
Decimal	0 - 9	118-0017	15.25	12.79	11.28	10.33	--
BCD	0 - 9	118-0018	14.33	12.22	10.58	9.70	--
Single Pole	± alt.	118-0019	20.25	16.63	13.80	11.69	--
Accessories							
LH end cheek		118-0014	2.31	1.98	1.71	1.47	--
RH end cheek		118-0013	2.31	1.98	1.71	1.47	--
2.5mm spacer		118-0015	1.41	1.20	1.16	--	--

Sub-Miniature Push Button - PE Series

100mA @ 50V ac/dc

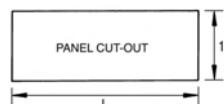


L = (N x 7.62) + 3 + (S x 2.5) where N = No of switches and S = No of spacers

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)



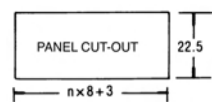
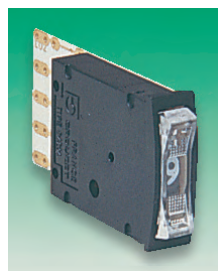
- As PA series detailed above, but switch height is 24mm instead of 15mm

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+	+
Switch Modules							
Decimal	0-9	118-0020	15.52	13.01	11.45	10.53	--
BCD + Complement	0-9	118-0021	17.55	14.71	12.98	11.91	--
Hex	0-9, A-F	118-0023	17.96	15.06	13.26	12.16	--
Accessories							
LH end cheek		118-0007	2.06	1.80	1.50	1.32	--
RH end cheek		118-0011	2.06	1.80	1.50	1.32	--
2.5mm spacer		118-0012	1.50	1.32	1.16	--	--

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 fitted 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

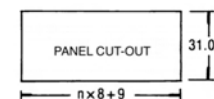
Output Code	Readout	Order Code	1+	50+	100+	250+	+
Switch Modules							
BCD	0 - 9	143-632	41.49	37.67	35.09	29.74	--
Decimal	0 - 9	143-633	41.49	37.67	35.09	29.74	--
Accessories							
End plates, pair		143-634	3.66	3.36	3.21	2.73	--
Spacer		143-640	3.03	2.85	2.70	2.34	--



RoHS Directive

Download your personalised
certificate of compliance at
www.farnell-newarkinone.com.sgDon't risk anyone
else for RoHSStandard Thumbwheel and
LED Readout Module

84210/84216 Series

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

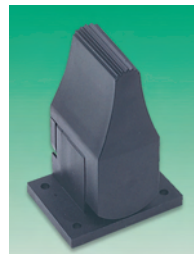
213347

Output Code	Readout	Order Code	1+	50+	100+	250+	+
Switch Modules							
BCD	0 - 9	143-616	33.11	30.27	28.82	23.75	--
Decimal	0 - 9	143-617	33.11	30.27	28.82	23.75	--
LED Readout Module							
BCD with memory, +5V		145-217	114.19	105.24	99.93	83.04	--
Accessories							
End plates, pair		143-618	3.75	3.60	3.33	2.79	--
Spacer		143-619	1.89	1.74	1.62	1.26	--
Separator		143-620	3.03	2.85	2.70	2.25	--

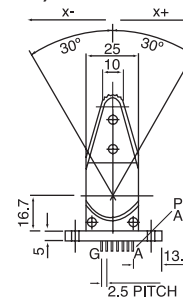
Joystick Controllers



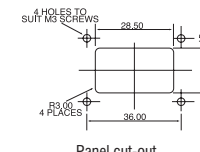
Single Axis (Potentiometer)



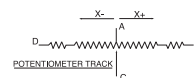
H = 70, Base W = 34, D = 46



Panel details



Panel cut-out



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

Padding resistance (each end)

Power dissipation

Wiper current

Current centre tap self-centre within tap width

Switch wiper current

Temperature range

5kR ± 20% total

0.5kR ± 20%

0.25W @ 20°C

5mA max.

± 2.5° nominal

2mA max.

-20°C to 70°C

213202

Mfrs. List No.	Order Code	1+	5+	10+	25+
JC100X	119-1277	108.99	103.79	98.60	93.43
Connector					
SA301649	119-1544	15.62	15.46	15.23	14.65

Switches

44

Compliant
Non-compliant
RoHS
Limited stock - RoHS replacement available

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

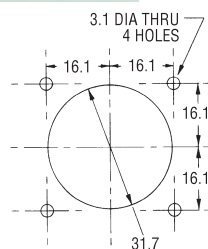
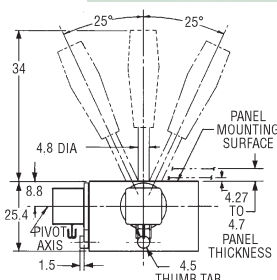
Potentiometer resistance 10kR
Operating life 300000 ops

H=33(above panel), W=34, D=34, Below panel depth=20

213311

	Order Code	1+	10+	50+
Absolute (put and stay)	114-8304	71.75	64.57	60.95
Self centering	114-8306	71.75	64.57	60.95

Dual Axis (Potentiometer)



Panel Cut Out

- 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

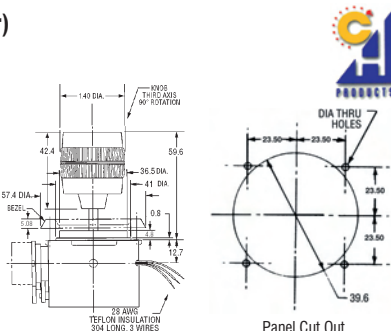
Joystick travel 25% from centre in all directions
Return to centre repeatability $\pm 1\%$
Potentiometer 5KR, 1W conductive plastic, set at centre of resistance

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+	+
M11Q061P	112-4084	133.81	123.17	121.75	--

Three Axis (Potentiometer)



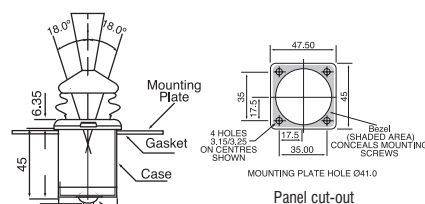
- Potentiometric three axis control rotational movement of the joystick knob gives control in the Z axis
- Supplied with a two piece bezel consisting of a textured ring and rubber boot for sealing

FOR TECHNICAL SPECIFICATION SEE ORDER CODE 112-4084

213189

Mfrs List No.	Order Code	1+	10+	25+	+
M31L081P-50	112-4085	305.30	279.88	274.59	--

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

Characteristics with 10V dc supply:

Current drain 15mA max.
Ripple 10mV max.
Centre tap voltage (V centre) 5V ± 30 mV
Self centre within V centre ± 20 mV
Voltage swing $\pm 1V \pm 10\%$
output voltage, normal range 4 to 6V $\pm 0.1V$
Operating voltage on detected failure <3.5V, >6.5V
Operating temperature range -25°C to +70°C

Connections:

Red Positive supply
Black Negative supply
Green Centre tap
Blue X axis
Yellow Y axis

213203

Mfrs. List No.	Order Code	1+	5+	10+	25+
JC200BS1K1Y	119-1278	126.25	115.60	111.16	106.12

Single, Dual and Three Axis (Non-Contacting)

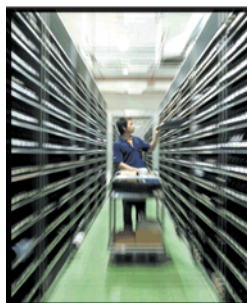


(All heights=above panel), Below panel depth=32.4 max.

- 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
Centre Output voltage 2.5V
Operating life 15000000 ops
Supply current 8mA (2 axis), 12mA (3 axis)
Travel 40° ($\pm 20^\circ$) self centering

213308

Axis	Handle type	Order Code	1+	10+	25+
Single	Taper	112-4089	154.60	146.85	139.14
Dual	Ball	112-4087	154.60	146.85	139.14
Dual	Taper	112-4088	154.60	146.85	139.14
Dual	Standard + switch	112-4090	179.68	170.67	161.69
Three	Standard	112-4091	285.08	270.81	256.57
Three	Standard + switch	112-4093	307.85	292.45	277.04
Three	Low profile	112-4094	285.08	270.81	256.57



In stock and ready to despatch,
300,000 products in our Asia, US
and Europe warehouses.

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Microswitch Joysticks

Panel/Surface Mount Sealed Joysticks



989-5736 989-5744
Fixing centres=64.0 Fixing centres=36.0

- 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

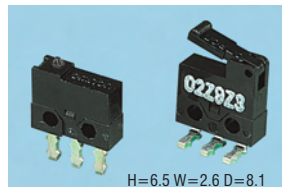
Contact rating 989-5744 989-5736
5A @ 250V ac 10A @ 250V ac
Contact type Double throw
Operation angle $\pm 12^\circ$
Termination Solder tab 6.3mm tag

Contact Rating	Mfrs. List No.	Order Code	1+	10+	100+
5 A	100113	989-5744	44.66	41.83	35.64
10 A	100114	989-5736	48.50	43.52	38.15

Microswitches

Microminiature PCB Mount - D2MQ Series

500mA @ 30V dc



H=6.5 W=2.6 D=8.1

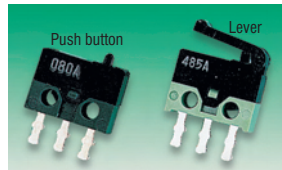
- Super miniature design
- Ideal for applications where size and weight restrictions are crucial

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

Vertical type	Mfrs. List No.	Order Code	1+	50+	100+
Plunger	D2MQ-1	990-1906	2.84	2.49	2.42
Lever	D2MQ-4L-1	990-1914	2.96	2.84	--
Right Angle Type					
Plunger	D2MQ-1-TR	990-1922	2.84	2.84	--
Lever	D2MQ-4L-1-R	990-1930	2.98	--	--

Microminiature PCB Mount- DH Series

50mA @ 30V dc (DH2 Series), 300mA @ 30V dc (DH3 Series)



H=6.2, W=2.7, D=8.2

- Very small in size.
- Button and lever actuated.
- Well suited for low energy circuits.
- PCB mounting

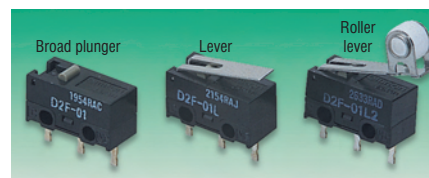
Contacts SPDT Electrical life 30000 ops.
Insulation resistance 100MR Mechanical life 50000 ops.
Contact resistance 50mR Operating temperature -25°C to 70°C to +

	Mfrs. List No.	Order Code	5+	50+	100+	250+	+
300mA Rated							
Push button actuated	DH3C-B1AA	NEW 373-1625	2.70	2.51	2.44	2.34	--
Lever actuated	DH3C-B1LA	NEW 373-1777	3.03	2.77	2.67	2.57	--

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	100M Ω @ 500V dc
Contact resistance (initial)	30mR (standard) 100mR (microload)	Electrical life	30000 ops. min.
Switch type		Operating temperature	-25°C to $+85^\circ\text{C}$
Operating force, max.		Broad plunger	Lever
Release force, min.		1.47N	0.78N
Pre-travel, max.		0.2N	0.05N
Over-travel, min.		0.5mm	--
Movement differential, max.		0.25mm	0.55mm
		0.12mm	0.05mm

213213

Mfrs. List No.	Order Code	1+	50+	100+	250+
Microvoltage/Current Load					
Broad plunger	D2F-01	990-1949	2.99	2.68	1.95
Lever	D2F-01L	990-1957	3.46	3.09	2.20
Roller lever	D2F-01L2	990-1965	5.07	4.47	3.24
Standard					
Broad plunger	D2F	990-1663	2.80	2.49	1.92
Lever	D2FL	990-1671	2.96	2.61	2.05
Roller lever	D2F-L2	990-1973	4.25	3.75	2.80

Ultra Subminiature, Sealed D2HW Series

OMRON



- The smallest sealed Snap-Action switch in the industry with a very long stroke for reliable On/Off action
- The case dimensions are 78% of conventional models, contributing to down-sizing of mechanical modules
- Extra-long stroke even without levers (OT: 1.4mm)
- All models are M3-screw mounting
- Made of environment-friendly materials
- All models are lead-free

NEW

Operating Speed	1mm to 500mm/s (for pin plunger models)
Operating Frequency	30 operations/min
Insulation Resistance	100M Ω min. (at 500VDC)
Contact Resistance	100m Ω max.
Dielectric Strength	600VAC, 50/60Hz for 1 min between terminals of same polarity 1500VAC, 50/60Hz for 1 min between current-carrying metal parts and ground, and between each terminal and non-current-carrying metal parts
Vibration Resistance	Malfunction: 10 to 55Hz, 1.5mm double amplitude
Shock Resistance	Malfunction: 300m/s ² min.
Life Expectancy	Mechanical: 1,000,000 operations min. (30 operations/min) Electrical: 100,000 operations min. (20 operations/min)
Degree of Protection	IP50
Degree of Protection Against Electric Shock	Class I
Proof Tracking Index	175
Operating Temperature	-40 to 85°C (with no icing)
Ambient Operating Humidity	95% max. (in temperature range 5 to 35°C)
Weight	Approx. 0.7g (for pin plunger models)

386007/405584

Actuator	Mfrs. List No.	Order Code	1+	25+	100+
SPDT Solder Terminals					
Pin Plunger	D2HWC201H	877-4480	5.31	3.81	3.12
Hinge Lever	D2HWC211H	877-4498	5.79	4.13	3.48
Long Hinge Lever	D2HWC221H	877-4501	5.79	4.13	3.48
Simulated Roller Lever	D2HWC231H	877-4510	5.79	4.13	3.48
Leaf Lever	D2HWC261H	877-4528	5.79	4.13	3.48
Simulated Leaf Lever	D2HWC271H	877-4536	6.05	4.30	3.61

- FREE to all account holders
- Notification of obsolete, end of line and end of stock items
- Replacement or upgrade recommendations

Product Watch

Advanced warning of obsolete components

Switches

44

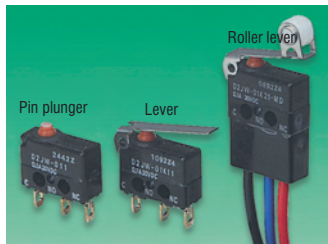
Compliant
Non-compliant
Limited stock - RoHS replacement available

RoHS

Subminiature, IP67 Sealed - D2JW Series

0.1A @ 30V dc

OMRON



- 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)	Electrical life	100000 ops.
	140mR (moulded lead)	Operating temperature	-40°C to +85°C
Contact rating	0.1A @ 30V dc (res.)		
Switch type	Broad plunger	Lever	Roller lever
Operating force, max.	2.45N	0.8N	0.95N
Release force, min.	0.98N	0.15N	0.19N
Pre-travel, max.	0.6mm	6.4mm	5.2mm
Over-travel, min.	0.3mm	1.4mm	1.1mm
Movement differential, max.	0.1mm	0.7mm	0.5mm
Actuator length	—	16.5	13.5

213208

Solder type	Mfrs. List No.	Order Code	1+	50+	100+
Pin plunger	D2JW-011	990-1981	22.11	19.15	16.10
Lever	D2JW-01K11	990-1990	22.84	19.72	16.57
Roller lever	D2JW-01K21	990-2007	23.88	20.73	17.39
Moulded Lead Type					
Roller lever	D2JW-01K21-MD	990-2023	24.28	21.58	18.42

Subminiature - Type 'J7'

5A @ 240V ac

OMRON



Body fixing centres conform to international standards.
Optional separate leaf spring actuator, length 13.1mm.

Contacts	SPDT	Return force, min	0.28g
Mechanical life	50000 ops	Pre-travel, max	0.6mm
Electrical life	50000 ops	Overtravel, min	0.1mm
Operating temp.	-25°C to 80°C	Movement differential, max	0.15mm
Operating force, max	1.4g		

H=8.9, W=5.1, D=12.7, Fixing centres=4.8

213390

Mfrs. List No.	Order Code	1+	50+	100+	250+
Switch J7	103-368	20.38	17.67	15.75	13.55
Actuator JAL	103-369	3.24	2.88	2.55	2.19

Subminiature 'V4' Style - SS Series

3A & 10A @ 250V ac

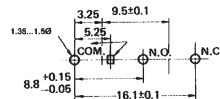
OMRON



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	30000000 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	SS5	103-443	3.75	3.28	2.99	2.58
Hinge Lever	SS5GL	103-444	4.28	3.81	3.37	2.90
Roller Lever	SS-5GL2	103-445	5.04	4.44	3.97	3.40
PCB Type - 3A						
Plunger	SS5D	170-566	3.75	3.28	2.96	2.52
Hinge Lever	SS-5GLD	170-567	4.28	3.75	3.37	2.90
Roller Lever	SS-5GL2D	170-568	5.04	4.44	3.97	3.40
Solder Type - 10A						
Pin Plunger	SS10	118-1019	4.46	4.00	3.55	3.19
Hinge Lever	SS10GL	118-1020	5.21	4.65	4.13	3.71
Hinge Roller Lever	SS10GL2	118-1021	5.92	5.31	4.72	4.23
PCB Type - 10A						
Pin Plunger	SS10D	118-1022	5.70	5.14	4.56	4.10
Hinge Lever	SS10GLD	118-1024	6.31	5.70	5.08	4.56
Hinge Roller Lever	SS10GL2D	118-1025	7.03	6.35	5.63	5.08

Subminiature SS-P Series

3A @ 125V ac

OMRON



- SS series compatible mounting with a simple construction and easy-to-use design concept
- Insert molded case provides enhanced resistance to flux
- Switch rating 3A at 125V ac possible with a single-leaf movable spring
- Models come with either solder or quick-connect terminals (#110)

NEW

Operating Speed	0.1mm to 1m/s (at pin plunger models)
Operating Frequency	Mechanical: 300 operations/min Electrical: 30 operations/min
Insulation Resistance	100MΩ max. (at 500 VDC)
Contact Resistance	50mΩ max.
Dielectric Strength	1000 VAC at 50/60Hz for 1min between terminals of the same polarities 1500VAC at 50/60Hz for 1min between current-carrying metal parts and ground, and between each terminal and non-current-carrying metal parts
Vibration Resistance	Malfunction: 10 to 55Hz, 1.5mm double amplitude Destruction: 1,000m/s ² (Approx. 100G) max
Shock Resistance	Malfunction: 300m/s ² (Approx 30G) max.
Durability	Mechanical: 1,000,000 operations min. (60 operations/min) Electrical: 70,000 operations min. (20 operations/min @ 125VAC) 100,000 operations min. (20 operations/min @ 30VDC)
Degree of Protection	IEC IP40
Degree of Protection against Electric Shock	Class I
Proof Tracking Index	175
Ambient Temperature	-25 to 85°C (at ambient humidity of 60% max.) (With no icing)
Ambient Humidity	85% max. (for 5 to 35°C)
Weight	Approx. 1.6g (pin plunger model)

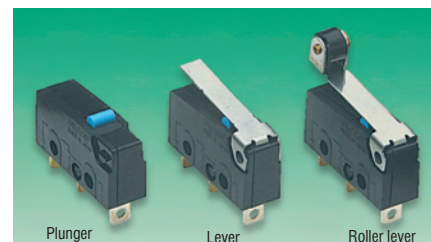
386010/405585

Actuator	Mfrs. List No.	Order Code	1+	25+	100+	250+
Solder Terminals						
	SS3GL13P	877-4625	1.86	1.33	1.14	1.04
	SS3GLP	877-4641	1.86	1.33	1.14	1.04
	SS3GP	877-4650	1.59	1.14	0.98	0.91
Quick-Connect Terminals						
	SS3GL13PT	877-4633	1.86	1.33	1.14	1.04

Subminiature 'V4' Style - SSG Series

Wide Temperature Range, 3A @ 250V ac

OMRON



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.U1 recognised

Contacts	SPDT	Electrical life	200000 ops.
Mechanical life	10000000 ops.	Operating temperature	25°C to 125°C
Switch type			
	Plunger	Lever	Roller Lever
Operating force, max.	153g	61g	61g
Release force, min.	0.25g	6g	6g
Pre-travel, max.	0.6mm	1mm	1mm
Over-travel, min.	0.4mm	0.8mm	0.8mm
Movement differential, max.	0.1mm	—	—
Actuator length	—	15.5mm	17mm

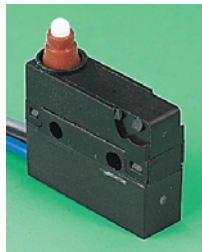
Prices are in Singapore Dollars and exclusive of GST.
Due to the volatile nature of certain products,
prices are subject to change without notice.

213201

Solder Type	Mfrs. List No.	Order Code	1+	50+	100+	250+
Plunger	SSG-5H	619-504	4.57	3.91	3.53	3.02
Lever	SSG-5L1H	619-516	5.17	4.54	4.03	3.43
Roller Lever	SSG-5L2H	619-528	6.08	5.36	4.69	4.03
Quick Connect Type (2.8 0.5)						
Plunger	SSG-5T	619-530	4.57	3.91	3.53	3.02
Lever	SSG-5L1T	619-541	5.17	4.54	4.03	3.31
Roller Lever	SSG-5L2T	619-553	6.08	5.36	4.69	4.03
PCB Type						
Plunger	SSG-5P	619-565	4.57	3.91	3.53	3.02
Lever	SSG-5L1P	619-577	5.17	4.54	4.03	3.43

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

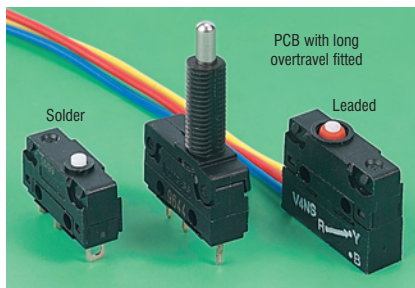
saia-burgess

213330

Mfrs. List No.	Order Code	1+	25+	50+	100+
V4LS	116-2617	14.44	12.76	11.84	10.05

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

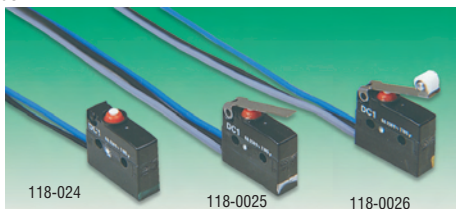
Contacts	SPCO
Contact rating	5A @ 240Vac
Mechanical life	1000000
Operating temperature	-40°C to 85°C

213327

Mfrs. List No.	Order Code	1+	25+	50+	100+
Microswitches - Unsealed					
Solder	V4NT7	116-2606	2.84	2.39	2.20
Microswitches - Sealed					
Solder	V4NST7	116-2607	5.13	4.50	4.25
Leaded	V4NS	116-2608	11.50	10.14	9.42
Long over travel kit	QA4	116-2609	4.34	4.11	3.96

Subminiature 'V4' Style, IP67 Sealed

6A @ 250V ac



CHERRY

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		

Order codes	118-0024	118-0025	118-0026
Operating force, max	2N	0.7N	0.8N
Pre-travel, max	1	5	5
Over-travel, max	0.6	1.5	1.5
Differential travel	0.1	0.6	0.6

213145

Mfrs. List No.	Order Code	1+	25+	50+	100+
UDC1C-C3AA	118-0024	10.86	9.92	9.51	9.10
UDC1C-C3LC	118-0025	12.00	10.62	10.02	9.45
UDC1C-C3RC	118-0026	12.88	11.43	10.77	10.14

Subminiature 'V4' Style - IP67 Sealed and Unsealed

5 (1) A @ 250V ac

ITW Switches



- 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		

IP67 Sealed Switches	Plunger	Lever	Long lever	Roller lever
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	21mm	3.45mm
Differential travel (Max.)	0.2mm	0.7mm	6.35mm	0.35mm
Actuator length	—	18mm	63mm	15mm
Unsealed Switches	Plunger	Lever	Long lever	Roller lever
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	21mm	3.45mm
Differential travel (Max.)	0.2mm	0.7mm	6.35mm	0.35mm
Actuator length	—	18mm	63mm	15mm

213177

IP67 Sealed Switches	List No.	Order Code	1+	50+	100+	250+
Plunger	19N402	521-840	4.89	4.29	3.84	3.12
Lever	19N402L18	521-851	4.80	4.38	4.08	3.48
Long lever	19N402L63	521-863	5.16	4.68	4.38	3.75
Roller lever	19N402R15	521-875	6.51	5.70	5.13	4.17
PCB Type	List No.	Order Code	1+	50+	100+	250+
Plunger	19N502	521-887	4.89	4.29	3.84	3.12
Lever	19N502L18	521-899	5.28	4.62	4.17	3.36
Long lever	19N502L63	521-905	5.67	4.95	4.47	3.63
Roller lever	19N502R15	521-917	6.51	5.70	5.13	4.17
Unsealed Switches	List No.	Order Code	1+	50+	100+	250+
Plunger	19N403	624-664	2.70	2.28	1.98	1.74
Lever	19N403L18	624-676	2.97	2.52	2.16	1.92
Long lever	19N403L63	624-688	3.15	2.67	2.31	2.04
Roller lever	19N403R15	624-690	3.57	3.06	2.64	2.28
PCB Type	List No.	Order Code	1+	50+	100+	250+
Plunger	19N503	624-706	2.70	2.28	1.98	1.74
Lever	19N503L18	624-718	2.97	2.52	2.16	1.92
Long lever	19N503L63	624-720	3.15	2.67	2.31	2.04
Roller lever	19N503R15	624-731	3.57	3.06	2.64	2.28

XC Series Microswitch, Subminiature

10A @ 250V ac

saia-burgess



- Wide range of actuating forces
- Long mechanical and electrical life
- Solder, PCB, faston (quick connect) terminals
- Silver change over contacts
- **CUL**, **CSA**, **ENEC** Approved, **UL** recognised

Dimensions: 19.9 x 9.5 x 6.4mm

Switches

44

Compliant
 Non-compliant
 Limited stock - RoHS replacement available
RoHS

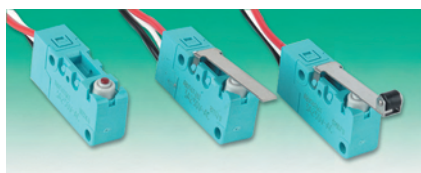
Force (N)	Operating Pos. (mm)	Terminal	Order Code
Plunger Actuator			
1.7	8.4	Solder terminals	777-1614
1.7	8.4	Solder terminals	777-1673
1.7	8.4	Faston terminals	777-1649
3	8.4	Solder terminals	777-1703
Plain Lever			
1.7	10.2	Solder terminals	777-1622
1.7	10.2	PCB terminals	777-1681
1.7	10.2	Faston terminals	777-1657
3	10.2	Solder terminals	777-1711
Roller Lever			
1.7	15.6	Solder terminals	777-1630
1.7	15.4	Faston terminals	777-1665
1.7	15.4	PCB terminals	777-1690
3	15.4	Solder terminals	777-1720

347667/405586

Mfrs. List No.	Order Code	1+	25+	50+	100+
XCG3-Z1	777-1614	2.45	2.24	2.08	1.88
XCG3-J1Z1	777-1622	2.75	2.52	2.34	2.12
XCG3-S1Z1	777-1630	2.86	2.61	2.43	2.20
XCG5-Z1	777-1649	2.45	2.24	2.08	1.88
XCG5-J1Z1	777-1657	2.78	2.55	2.36	2.14
XCG5-S1Z1	777-1665	2.89	2.64	2.45	2.22
XCG8-Z1	777-1673	2.45	2.24	2.08	1.88
XCG8-J1Z1	777-1681	2.75	2.52	2.34	2.12
XCG8-S1Z1	777-1690	2.86	2.61	2.43	2.20
XCF3-Z1	777-1703	2.55	2.33	2.17	1.96
XCF3-J1Z1	777-1711	2.86	2.61	2.43	2.20
XCF3-S1Z1	777-1720	2.96	2.71	2.51	2.28

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

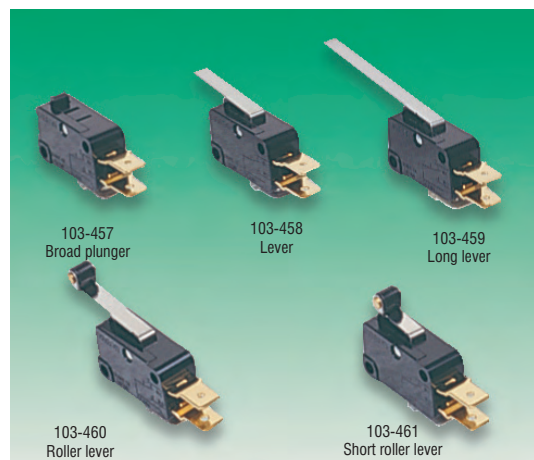
Contacts	SPDT	Insulation resistance		100MΩ @ dc
Contact resistance	100mR (solder)	Electrical life		100000 ops.
Contact rating	3A @ 250V ac	Mechanical life		5000000
Operating temperature	-40°C to +85°C			
Switch type		Pin plunger	Hinge lever	Roller lever
SPDT, Wire leads(side entry)				
Operating force, 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	15.97	14.28	13.01	11.93
Hinge Lever	ABV161261	372-7002	17.73	15.85	14.44	13.23
Roller lever	ABV161661	372-7014	20.52	18.36	16.71	15.30

Miniature 'V3' Style - V Series

15A @ 240V ac



OMRON

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		
RoHS Order Code	990-1604	990-1612	990-1620	990-1639	990-1647
Order code	103-457	103-458	103-459	103-460	103-461
Operating force, max	200gf(1.96N)	125gf(1.23N)	70gf(0.69N)	125gf(1.23N)	240gf(2.35N)
Return force, min	0.49g	0.14g	0.06g	0.14g	0.49g
Pre travel, max	1.6mm	4mm	9mm	4mm	1.6mm
Overtravel, min	0.8mm	1.6mm	3.2mm	1.6mm	0.8mm
Movement differential, max	0.6mm	1.5mm	2.8mm	1.5mm	0.6mm
Actuator length			103-463 20.6mm		

222320

Switches	Mfrs. List No.	Order Code	1+	50+	100+
Broad plunger	V151C5	990-1604	3.06	2.99	2.80
Lever	V1521C5	990-1612	6.17	5.80	5.42
Long lever	V1531C5	990-1620	5.32	4.66	4.19
Roller lever	V1561C5	990-1639	5.73	5.07	4.50
Short roller lever	V1551C5	990-1647	4.22	4.03	3.87
Actuators					
Roller leaf spring	VAL2	103-463	3.45	3.06	2.70

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

OMRON

NEW

Contacts	SPDT		Electrical life		100000 ops	
Mechanical life	10000000 ops		Operating temperature		-25°C to +105°C	
Order code	877-4560	877-4579	877-4587	877-4595	877-4609	877-4617
Operating force, max	1.96N(200gf)	125gf(1.23N)	70gf(0.69N)	125gf(1.23N)	240gf(2.35N)	1.23N(125gf)
Return force, min	50g	50g	14g	14g	50g	14g
Pre travel, max	1.6mm	1.2mm	4.0mm	4.0mm	1.6mm	4.0mm
Overtravel, min	0.8mm	1.0mm	1.6mm	1.6mm	0.8mm	1.6mm
Differential, max	0.6mm	0.4mm	1.5mm	1.5mm	0.6mm	1.5mm

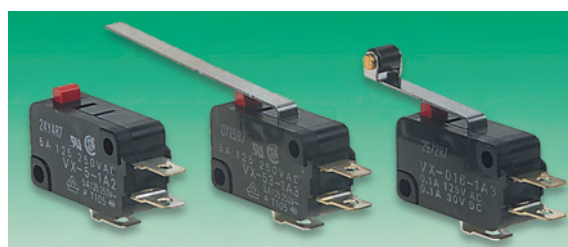
386009/405587

Model	Mfrs. List No.	Order Code	1+	25+	100+	250+
Short Hinge	D3V1611C5	877-4560	5.05	3.61	2.99	2.77
Pin Plunger	D3V1611C5	877-4579	3.97	2.83	2.38	2.21
Hinge Lever	D3V1621C5	877-4587	5.05	3.61	2.99	2.77
Simulated Roller Lever	D3V1641C5	877-4595	5.05	3.61	2.99	2.77
Short Hinge Roller Lever	D3V1651C5	877-4609	5.37	3.84	3.19	2.93
Hinge Roller Lever	D3V1661C5	877-4617	5.37	3.84	3.19	2.93

Miniature 'V3' Style, Long Life/
Low Operating Force - VX Series

5A @ 250V ac/30V dc

OMRON



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	9mm	4mm
Overtravel, min		1mm	3.2mm	1.6mm
Movement differential, max		0.3mm	2mm	0.8mm
Activator length		—	51.3mm	25.9mm

213206

Switches	Mfrs. List No.	Order Code	1+	50+	100+
Broad plunger	VX5-1A2	673-626	5.64	4.88	4.10
Long lever	VX53-1A3	673-638	6.93	6.02	5.04
Roller lever	VX56-1A3	673-640	7.62	6.58	5.54

Prices are in Singapore Dollars and exclusive of GST.
Due to the volatile nature of certain products,
prices are subject to change without notice.

Miniature D4 Series



H = 15.9, W = 27.8, D = 10.31



H = 15.9, W = 27.8, D = 10.31



H = 15.9, W = 27.8, D = 10.31

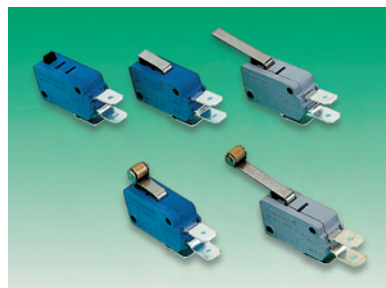
- Long Life Stainless Steel Coil Spring Mechanism
- Flame Retardant Case and Cover
- Reinforced Mounting Holes
- Contacts: SPDT
- Electrical Life: 50,000 operations
- Operating temperature: -40 °C to 125 °C

D4 series range of microswitches from Cherry, offer good mechanical reliability, small physical size and UL94V-O flammability rating at a low cost.

409077

Actuator Type	Mfrs. List No.	Order Code	1+	50+	100+	250+	+
Button	D413-V3AA	878-6410	3.19	2.83	2.38	2.28	--
Lever	D413-V3LD	878-6429	3.65	3.26	2.70	2.60	--
Roller	D413-V3RD	878-6437	4.13	3.65	3.06	2.93	--

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)

	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			
Mechanical life	30000000 ops			
Current rating	20A (high current) 16A (high temp.)			
	Electrical life			
	Operating temperature			
	100000 ops min. 85°C (high current) 150°C (high temp.)			

213359

	Mfrs. List No.	Order Code	1+	25+	50+	100+
High Current - 20A						
Plunger	V5A010CB	118-1138	3.97	3.69	3.39	3.10
Roller lever	V5A010CB4D	118-1139	5.67	5.27	4.85	4.42
Long roller lever	V5A010CB4E	118-1140	4.95	4.67	4.29	3.92
High Temperature - 150°C, 16A						
Plunger	V5B210CB	118-1141	3.97	3.69	3.39	3.10
Long lever	V5B210CB1C	118-1143	4.54	4.22	3.88	3.54
Roller lever	V5B210CB1D	118-1144	4.94	4.60	4.22	3.85
Long Roller lever	V5B210CB1E	118-1145	4.78	4.44	4.09	3.73

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	Faston terminals	Plunger	Silver/silver nickel	777-1550
1.4	IP40	14.9	Faston terminals	Plain Lever	Silver/silver nickel	777-1568
0.91	IP40	14.5	Faston terminals	Plain Lever	Silver/silver nickel	777-1576
0.65	IP40	13.7	Faston terminals	Plain Lever	Silver/silver nickel	777-1584
3.2	IP40	20.2	Faston terminals	Roller Lever	Silver/silver nickel	777-1592
1.55	IP40	20.1	Faston terminals	Roller Lever	Silver/silver nickel	777-1606

347668/405589

saia-burgess

Mfrs. List No.	Order Code	1+	25+	50+	100+
XGG2-88-Z1	777-1550	2.55	2.33	2.17	1.96
XGG2-88-J23Z1	777-1568	3.06	2.80	2.60	2.36
XGG2-88-J26Z1	777-1576	3.06	2.80	2.60	2.36
XGG2-88-J27Z1	777-1584	3.06	2.80	2.60	2.36
XGG2-88-S20Z1	777-1592	2.52	2.34	2.14	1.94
XGG2-88-S21Z1	777-1606	2.52	2.34	2.14	1.94

VT type micro-switch 16(4)A @ 250 Vac

multicomp



372-0810

372-0834

372-0846

- High current rating
- Conforms to IEC1058-1 and UL1054 standards
- Terminals are 6.4mm x 0.8mm quick-connect
- Approved to VDE and FIMKO,

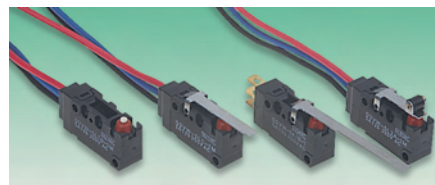
Contacts	SPDT	Electrical life	100000 ops
Mechanical life	10000000 ops	Operating temperature	-20°C to +85°C
Contact Resistance	15 mR max	Insulation Resistance	100 MR min @ 500 Vdc
Order code	372-0810	372-0822	372-0834
Operating force, max	250g	100g	60g
Pre travel, max	1.2mm	2.4mm	2.4mm
Overtravel, min	1.0mm	1.6mm	1.6mm
Movement differential, max	0.3mm	0.8mm	0.8mm
Operating Position	14.7 ±0.4mm	16.0 ±1.2mm	15.2 ±2.6mm
Actuator length	—	35	63.1
			34

233630

Switches	Mfrs. List No.	Order Code	1+	10+	25+
Broad plunger	VT16 00 1C	372-0810	4.41	4.11	3.27
Lever	VT16 02 1C	372-0822	4.82	4.48	3.61
Long lever	VT16 03 1C	372-0834	4.83	4.53	3.60
Roller lever	VT16 06 1C	372-0846	4.89	4.56	3.66
Short roller lever	VT16 05 1C	372-0858	4.94	4.61	3.70

Miniature 'V3' Style IP67 Sealed (Lead Type) - D2VW-5 Series 5A @ 250V ac/30V dc

OMRON



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

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	4mm	9mm	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	17.58	15.56
Lever	D2VW-5L1-1	673-559	18.27	16.13
Long lever	D2VW-5L1B-1	673-560	18.27	16.13
Short roller lever	D2VW-5L2A-1	673-572	18.84	16.69
Moulded Lead Type				
Plunger	D2VW-5-1M	673-584	23.50	20.76
Lever	D2VW-5L1-1M	673-596	24.35	21.55
Long lever	D2VW-5L1B-1M	673-602	24.35	21.55
Short roller lever	D2VW-5L2A-1M	673-614	25.17	22.21

Switches

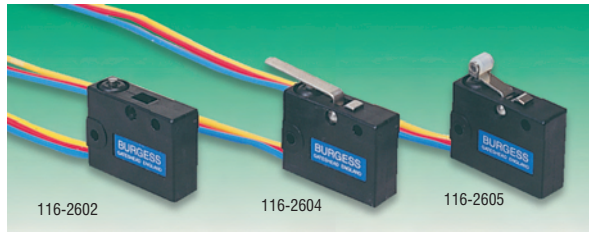
44

Compliant
Non-compliant
RoHS
Limited stock - RoHS replacement available

Miniature 'V3' Style IP67 Sealed - Type 'V3S'

5A @ 250V ac/30V dc

saia-burgess



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	10000000 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

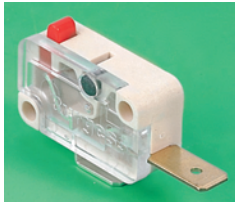
213163

	Mfrs. List No.	Order Code	1+	10+	100+	250+
Plunger	V3S UL	116-2602	27.78	25.55	24.57	24.03
Lever	V3SY1 UL	116-2604	32.86	—	—	—
Roller lever	V3SYR UL	116-2605	32.92	29.17	27.59	26.81

Miniature 'V3' Style - Failsafe - Positive Break BVM3 Series

10A @ 250V ac

saia-burgess



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	Lever	Roller
Operating force at contact break	450g	450g	500g
Operating force at total travel position	480g	480g	550g
Total travel position	Flush with case	14.1mm	19.0mm
Free position max	15.8mm	16.8mm	22.3mm

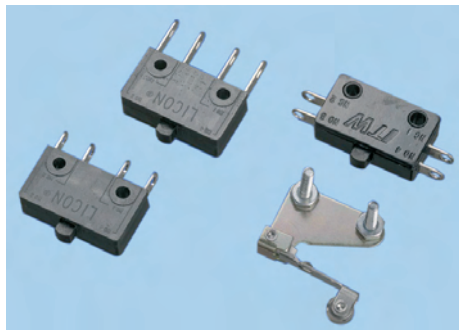
213329

	Mfrs. List No.	Order Code	1+	25+	50+	100+	+
Plunger	BVM3F	318-9673	9.70	9.01	8.66	5.67	—
Lever	BVM3FY-UL	318-9685	10.14	9.36	8.98	5.89	—
Roller	BVM3FYR	318-9697	12.47	11.65	11.01	7.28	—

Series 16 Microswitch

10A @ 250V ac

ITW Switches

18 x 18mm 18 x 24mm 18mm dia.
Max depth behind panel=42, max panel thickness=4

- Modular constructed key switch and rotary lever
- Form Z contacts - to cover all switching requirements
- Snap action - for positive switching
- Solder terminals for superior electrical contact

Contact rating	10A @ 250V ac	Mechanical life	>10 ⁷ ops.
Contact resistance	<25mR	Operating temperature	-55°C to +135°C
Insulation resistance	>1GR @ 500V dc		

347660/405591

Key Switch Actuator	Mfrs. List No.	Order Code	1+	Price Each 25+	100+
10A, Silver Contacts					
Solder terminals at side	16-104	117-6894	12.27	11.13	10.25
10A Silver Contacts					
Solder terminals at bottom	16-4044	205-9022	7.62	6.90	6.35
10A Silver Contacts					
long solder terminals	16-439088	772-4829	7.46	6.71	6.08
at bottom					
Accessories					
Roller Lever	76-1200	117-6948	5.24	4.72	4.33

General Purpose - Type 'Z'

15A @ 240V ac

OMRON



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 118-1248 Wire hinge lever

1181285 Pin plunger 103-894 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	118-1275	118-1276	118-1277	118-1278
Operating force	250 to 350gf	540gf max	350gf	250 to 350gf
Release force, min	114gf	114gf	114gf	114gf
Pre-travel, max mm	0.4	2.4	0.4	0.4
Overtravel, min mm	1.6	3.5	5.5	3.58
Movement diff, mm	0.05 max	0.06 max	0.05 max	0.05 max
Lever Types	118-1280	118-1281	118-1283	118-1284
Operating force, max	70gf	100gf	160gf	4gf
Release force, min	70gf	42gf	42gf	0.3gf
Pre-travel, mm	6.8 to 10	3.9 to 7.1	2.7 max	10 max
Overtravel, min mm	5 to 6	4	2.4	6
Movement diff, mm	0.18 to 1.27	0.10 to 1.02	0.5 max	0.9max
Actuator length, mm	63.5	48.5	26.6	110

Accessories
103-894 Phenolic resin terminal enclosure

213069

Plunger Switches	Mfrs. List No.	Order Code	1+	5+	10+
Short spring	Z-15GD-B7 SEV	118-1275	17.20	16.03	15.18
Spring	Z-15GK355-B7	118-1276	25.83	24.07	22.81
Panel Mounting	Z-15GQ-B7 SEV	118-1277	22.02	20.54	19.44
Panel mtg, cross roller	Z-15GQ21B	118-1278	24.48	22.85	22.10
Panel mtg, in-line roller	Z-15GQ22B	118-1279	26.52	24.73	23.40
Pin	Z-15G-B7 SEV+	118-1285	13.77	12.82	12.16

Prices are in Singapore Dollars and exclusive of GST.
Due to the volatile nature of certain products,
prices are subject to change without notice.

Plunger Switches	Mfrs. List No.	Order Code	1+	5+	10+
Lever Switches					
Hinge	Z-15GW-B7 +	118-1280	15.28	14.24	13.48
Hinge roller	Z-15GW2B	118-1281	16.00	14.90	14.08
Short hinge roller	Z-15GW22B	118-1283	16.98	15.81	14.99
Wire	Z-15HW78-B7	118-1284	23.22	21.64	20.51
Terminal Enclosures					
Phenolic	APB.	103-894	2.00	1.89	1.80

Special Purpose Safety - Type D2D
16A @ 250V ac

OMRON



- 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-NC, SPDT - NO/NC
Mechanical life 10000000 ops (min)
Electrical life 100000 ops (min)
Operating temperature -25°C to +80°C

Contact Arrangement	Mfrs.	Price Each				
Screw Mounting	List No.	Order Code	1+	50+	100+	250+
SPDT-NO/NC	D2D-1002	990-2040	11.91	10.52	9.80	8.28
SPDT-NO/NC	D2D-1000	990-2058	14.05	12.41	11.53	9.86
Screw Mounting (Pull to Lock)						
SPDT-NO/NC	D2D-2000	990-2066	15.97	14.05	13.97	--
Panel Mounting						
SPDT-NC	D2D-1100	990-2074	15.97	14.05	13.01	11.15
Panel Mounting (Pull to Lock)						
SPDT-NO/NC	D2D-2100	990-2082	16.70	14.77	13.70	11.66

Miniature Door Switch D3D Series
0.5A @ 250V ac

OMRON

- Unique mechanism, switches both micro and power loads
- Plunger or lever actuator
- Plunger model provides temporary sealing at the free position
- Low operating force of 2N max
- Quick-connection terminals for easier wiring
- High reliability gold contacts

Contacts	SPDT
Operating Speed	7.5 to 500 mm/s
Operating Frequency	Mechanical: 120 operations/min Electrical: 20 operations/min
Insulation Resistance	100MΩ min. (at 500VDC)
Contact Resistance	100mΩ max.
Dielectric Strength	1000VAC, 50/60Hz for 1 min between terminals of same polarity 1500VAC, 50/60Hz for 1 min between current-carrying metal parts and ground, and between each terminal and non-current-carrying metal parts
Vibration Resistance	Malfunction: 10 to 55Hz, 1.5mm double amplitude
Shock Resistance (See Note 1)	Destruction: 490m/s ² max. Malfunction: 300m/s ² max.
Durability	Mechanical: 300,000 operations min. (60 operations/min) Electrical: 100,000 operations min. (20 operations/min)
Degree of Protection	IP00
Degree of Protection Against Electric Shock	D3D - 1 Models (Plunger models): Class II D3D - 2 models (Lever models): Class 0
Proof Tracking Index	600
Operating Temperature	-30 to 60°C (with no icing)
Ambient Operating Humidity	85% max.
Weight	Approx. 4g

Note 1: The contacts do not open and close for more than 1ms

Actuator	Mfrs. List No.	Order Code	Price Each			
			1+	25+	100+	250+
Plunger	D3D111BYOMI	877-4544	1.99	1.40	1.17	1.11
Lever	D3D211BYOMI	877-4552	2.08	1.50	1.24	1.14

Reed Switches & Magnets

Reed Switch - Glass

SMD



NEW



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
Release range (AT)	2 - 13
Switch power (max)	5W
Switch voltage dc(max)	175V dc
Switch voltage ac rms(max)	140V ac
Switching current dc(max)	0.5A
Switching current ac rms(max)	250mA
Switch carry current (max)	0.5A
Contact resistance (max)	160mR
Insulation resistance (Min)	1000GR
Temperature, operating	-55 to +125°C

Mfrs. List No.	Order Code	Price Each				
		1+	25+	50+	100+	+
RI-80SMD0515-G1	SMD108-1703	8.27	7.65	6.84	6.02	--
RI-80SMD0515-G2	SMD108-1704	8.27	7.65	6.84	6.02	--
RI-80SMD0515-J1	SMD108-1705	9.02	8.33	7.45	6.54	--

Reed Switch - Moulded

CT Series



NEW



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			CT05			CT10		
Operate range (AT)			15 - 50			10 - 40		
Release range (AT)			5 - 45			3 - 35		
Switch power (max)			5W			10W		
Switch voltage dc(max)			140V dc			200V dc		
Switch voltage ac rms(max)			100V ac			140V ac		
Switching current dc(max)			500mA			500mA		
Switching current ac rms(max)			250mA			500mA		
Switch carry current (max)			500mA			500mA		
Contact resistance (max)			160mR			150mR		
Insulation resistance (Min)			1000GR			1000GR		
Temperature, operating			-40 to +125°C			-40 to +125°C		
Mfrs. List No.	Order Code	Feature	Mfrs. List No.	Order Code	Feature	Mfrs. List No.	Order Code	Feature
CT05-3050-G1	108-1694	Gull Wing	CT10-1530-G1	108-1696	Gull Wing	CT10-1540-G1	108-1697	Gull Wing
CT05-3050-J1	108-1695	J - Lead	CT10-2540-G1	108-1698	Gull Wing			

COIL	V dc	Ω ±10%	Order Code	1 +	25 +	Price Each	50 +	100 +	+
Model CT05 - SPST - NO			 108-1694 	8.43	7.81	6.97	6.12	--	
			 108-1695 	9.18	8.46	7.55	6.64	--	
Model CT10 - SPST - NO			 108-1696 	3.91	3.61	3.22	2.83	--	
			 108-1697 	3.91	3.61	3.22	2.83	--	
			 108-1698 	3.91	3.61	3.22	2.83	--	

Switches

44

Compliant
Non-compliant
Limited stock - RoHS replacement available

RoHS

249251

Reed Sensor

Magnet Detection - SMD

NEW

MEDER
electronic

MK15 - H = 2.5, W = 16, D = 2.5mm
MK16 - H = 2.3, W = 11.5, D = 2.3mm

Contact Form	
Contact resistance mR (max)	150
Switch power W (max)	10
Switch voltage V dc (max)	200
Switching current A (max)	0.5
Switch carry current A (max)	0.5
Breakdown voltage V dc	200
Temperature, operating °C	-40 to +130

417821

Pull in Range	Mfrs. List No.	Order Code	1+	10+	25+	50+
10 mm to 15 mm	MK15-B-2	SMD 107-9484	3.87	3.22	2.90	2.12
15 mm to 20mm	MK15-C-2	SMD 107-9485	3.87	3.22	2.90	2.12
10 mm to 15 mm	MK16-B-2	SMD 107-9486	4.30	3.58	3.22	2.38
15 mm to 20mm	MK16-C-2	SMD 107-9488	4.30	3.58	3.22	2.38

Reed Sensor

Magnet Detection

NEW

MEDER
electronic

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 resistance mR (max)	150
Switch power W (max)	10
Switch voltage V dc (max)	200
Switching current A (max)	0.5
Switch carry current A (max)	0.5
Breakdown voltage V dc	230
Temperature, operating °C	-20 to +85

417783

Pull in Range	Mfrs. List No.	Order Code	1+	10+	25+	50+
10 mm to 15 mm	MK06-5-B	107-9479	4.04	3.35	3.03	2.21
15 mm to 20 mm	MK06-5-C	107-9480	4.04	3.35	3.03	2.21
10 mm to 15 mm	MK06-8-B	107-9481	3.42	2.83	2.57	1.89
15 mm to 20 mm	MK06-8-H	107-9482	13.02	10.84	9.76	7.16

Glass Reed Switches

Switches and Magnets

HAMLIN



- 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

Glass L (mm)	Dia (mm)	Style	Voltage switching (V) dc max	breakdown (V) dc min	Current switching max (A)	carry max (A)	Resistance Contact (mR)	Order Code
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
15.24	2.66	N/O (Form A)	1000	2000	0.5	1.3	100	433-2465
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								
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	

Mfrs. List No.	Order Code	1+	25+	100+	250+	+	+
C O contacts							
DRR-DTH.	433-2349	8.13	7.56	6.39	5.01	--	--
N O contacts							
DRR-129.	433-2337	4.85	4.54	3.81	2.99	--	--
Miniature							
MRPR-8.	433-2350	1.64	1.54	1.32	1.01	--	--
MLRR-3.	433-2374	0.98	0.91	0.79	0.62	--	--
MARR-5.	433-2465	2.39	2.24	1.86	1.48	--	--
Sub miniature							
MDSR-7.	433-2362	0.98	0.91	0.79	0.62	--	--
MDCG-4.	433-2453	0.91	0.85	0.72	0.56	--	--
Ultra miniature							
MITI-3V1.	433-2441	1.73	1.61	1.39	1.07	--	--
Magnets							
H31	433-2386	0.93	0.87	0.75	0.59	--	--
H32	433-2398	2.28	2.13	1.77	1.41	--	--
H33	433-2404	1.02	0.96	0.81	0.63	--	--
H34	433-2416	2.91	2.70	2.28	1.77	--	--

Glass Reed Switches

ASSEMtech
EUROPE

All switches are UL recognised.

*Close Differential reed switch has drop-out typically 80% of pull-in sensitivity, e.g. if pull-in is at 15AT, drop-out is typically 12AT.

Glass L	Glass Dia.	Overall L	Contact Material	Contacts	ac or dc max. VA	ac or dc max. A	Voltage dc, V	ac (rms) max. V	Ampere Turns, at	Order Code
Standard Size										
52	5.4	79	Rhodium	NO (Form A)	120	3	3000	1500	60-70 AT	673-924
52	5.4	79	Rhodium	NO (Form A)	120	3	3000	1500	80-90 AT	673-936
Compact Size										
36	5.6	69.1	Rhodium	DT (Form C)	60	1	1000	400	60-70 AT	673-948
Miniature Size										
19	2.6	55	Rhodium	NO (Form A)	12	1	400	220	20-30 AT	560-480
Tiny Size										
14.1	2.3	55	Rhodium	NO (Form A)	10	0.5	250	100	20-30 AT	560-492
14	2.54	56.4	Rhodium	DT (Form C)	3	0.2	200	30	20-30 AT	673-950

213218

Mfrs. List No.	Order Code	1+	50+	200+	1K+
Miniature Size 2502-2722-023	560-480	2.49	1.83	1.45	1.23

Reed Switch - Glass

GOTO
Technology

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

NEW

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	40W
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
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)	100mR	100mR	90mR	150mR
Insulation resistance (Min)	1000GR	1000GR	1000GR	1000GR
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+	+
RI-23A	108-1699	4.04	3.74	3.35	2.93	--
RI-27A	108-1700	4.04	3.74	3.35	2.93	--
RI-46B	108-1701	4.04	3.74	3.35	2.93	--
RI-70GP0715	108-1702	7.55	6.97	6.22	5.47	--

Reed Switch

Rhodium Contacts



NEW

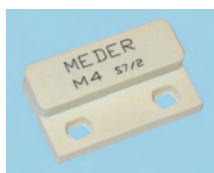
Model	1A35	1A66	1A80	1A87	1C90U
Dia. (body) mm	2.2	2.2	1.8	2	2.2
Length (body) mm	10.5	14	7	10	10.5
Length (overall) mm	34.5	44.1	14.3	10	10.5

Model	1A35	1A66	1A80	1A87	1C90U
Contact Form	1A	1A	1A	1A	1C
Contact resistance mR (max)	150	150	200	150	150
Rated power W (max)	20	20	20	20	20
Switch voltage V dc (max)	200	200	170	170	175
Switching current A (max)	1.3	1	0.5	0.5	0.5
Switch carry current A (max)	1.5	1.25	0.5	0.5	1
Breakdown voltage V dc	320	200	210	230	200
Insulation voltage V dc	1500	1500	1500	1500	1500
Time, operate/release ms (max)	0.5/0.1	0.5/0.1	0.5/0.1	0.5/0.1	2.6/0.1
Temperature, operating °C	-20130 to + -2070 to + -40125 to + -40125 to + -40180 to +				

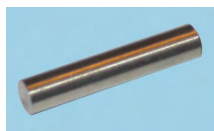
417762

Mfrs. List No.	Order Code	1+	10+	25+	50+
KSK-1A35-1520	107-9467	1.89	1.56	1.40	1.04
KSK-1A66-1020	107-9468	2.25	1.86	1.69	1.24
KSK-1A66-2030	107-9469	2.25	1.86	1.69	1.24
KSK-1A80-1020	107-9470	4.95	4.10	3.71	2.70
KSK-1A87-1020	107-9471	2.70	2.25	2.02	1.50
KSK-1C90U-2034	107-9472	8.63	7.19	6.48	4.75

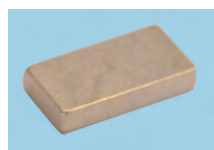
Sensor Magnets



M4



Bar



NdFeB



NEW

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.

Dimensions			Dimensions				
Order Code	H (mm)	W (mm)	D (mm)	107-9496	22	5	
107-9492	5.9	23	13.9	107-9497	4	3	
Order Code	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	5.47	4.56	4.10	3.03
ALNICO500 7.5X27MM	107-9493	4.04	3.35	3.03	2.21
ALNICO500 3X12MM	107-9494	1.27	1.04	0.94	0.68
ALNICO500 4X19MM	107-9495	1.63	1.33	1.20	0.88
ALNICO500 5X22MM	107-9496	4.23	3.52	3.16	2.31
SmCo					
SMCO5 3X4MM	107-9497	1.53	1.27	1.14	0.85
SMCO5 5X4MM	107-9498	2.41	2.02	1.82	1.33
NdFeB					
NDFEB 8X15MM	107-9500	2.80	2.31	2.08	1.53
NDFEB 10X5X1.9MM	107-9501	2.25	1.86	1.69	1.24

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Switches

44

Compliant
Non-compliant
Limited stock - RoHS replacement available

RoHS



Switches

44