



# E-SWITCH®



**SELECTION** ◆ **SERVICE** ◆ **SPEED**

**PRODUCT MATRIX**

# TABLE OF CONTENTS

## DO YOU NEED A SWITCH?

Questions To Ask When Specifying A Switch .....3-5

## PRODUCT MATRIX

	Anti-vandal Switch Series Comparison .....6-9
	Pushbutton Switch Series Comparison .....10-17
	Subminiature Pushbuttons.....10
	PCB Mount Pushbuttons.....12-13
	Panel Mount Pushbuttons .....14-17
	Tactile Switch Series Comparison .....18-23
	Snap Action Switch Series Comparison .....24-25
	Rocker Switch Series Comparison .....26-31
	Subminiature Rockers .....27
	Rectangular Panel Mount Rockers .....28-29
	Oval / Round Panel Mount Rockers .....30-31
	Toggle Switch Series Comparison .....32-33
	Slide Switch Series Comparison .....34-35
	DIP Switch Series Comparison .....36-37
	Glossary / IP Rating Chart .....38
	Recommended Soldering Guidelines .....39



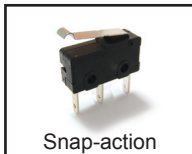
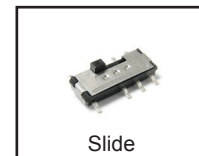
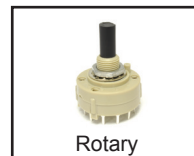
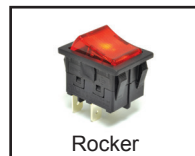
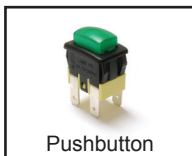
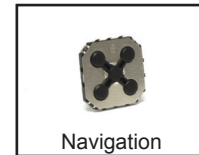
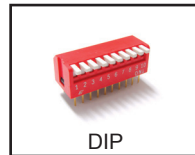
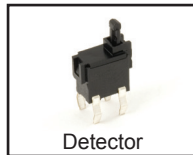
# Do You Need A Switch?

E-Switch has prepared a 7-step process to help guide users to determine the type of switch best suited to their needs.

1

## WHAT TYPE OF SWITCH ARE YOU LOOKING FOR?

The switch categories below show the different types to choose from.



2

## WHAT ELECTRICAL RATINGS ARE NEEDED?

1. Is the product AC or DC?
  - Common Voltages for AC: 125VAC, 250VAC
  - Common Voltages for DC: 3, 6, 12, 24 and 48VDC
2. How many amperes does the switch need to handle?
  - Low Power is in the milliamps
  - Medium Power is from 2 amps to 5 amps
  - High Power is greater than 6 amps
3. If you're looking at medium to high power, what agency approvals are needed?
  - Where the product is sold determines what approvals are needed.



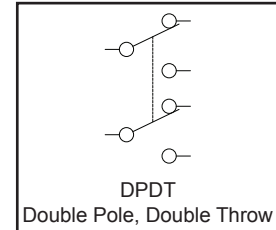
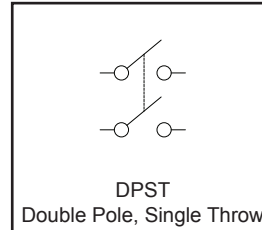
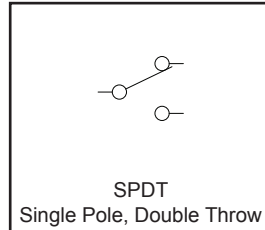
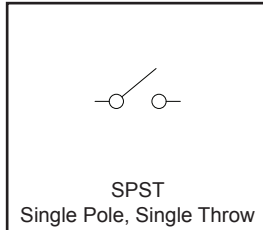
## 3

### HOW MANY POLES AND THROWS DO YOU NEED?

Poles are the number of closed independent circuits.

Throws are the number of positions in which a given pole is closed.

*Common pole/throw configurations are:*



*Basic examples of above configurations are:*

**SPST - Flashlight:** 1 pole for turning the light on or off.

**SPDT - Vacuum Cleaner:** 1 pole for power, 1 throw for low speed, 1 throw for high speed.

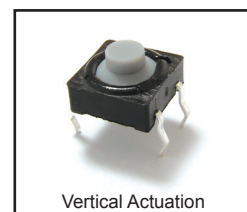
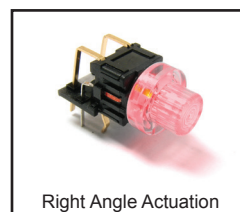
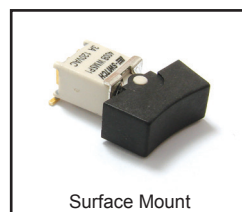
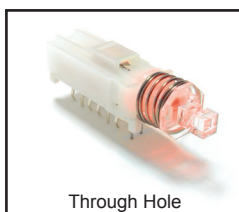
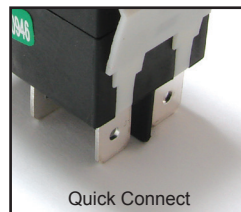
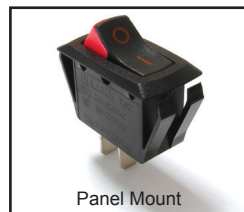
**DPST - Air Conditioner:** 1 pole controls the chiller, 1 pole controls the fan.

**DPDT - Hair Dryer:** 1 pole controls the heater, 1 pole controls the fan, 1 throw is for low speed, 1 throw is for high speed.

## 4

### HOW DOES THE SWITCH ATTACH TO YOUR PRODUCT?

1. Panel Mount
  - What is the panel cutout size?
  - What is the thickness of the panel?
  - What type of termination?
    - » Quick connect or solder lug
2. PC Board Mount
  - What type of termination?
    - » Through hole or surface mount
  - What type of actuation?
    - » Right angle or vertical
  - Do you need a process sealed component?



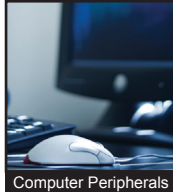
# 5

## WHAT IS YOUR APPLICATION?

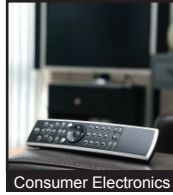
Knowing the application that the switch goes into aids us in the ability to look for unique instances where certain switches work better than others. Below are some examples of industries we sell our switches to.



Audio / Visual



Computer Peripherals



Consumer Electronics



Electrical Housewares



Floor Care Appliances



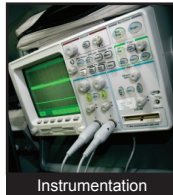
Gaming and Computer



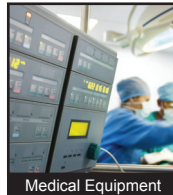
Handheld Devices



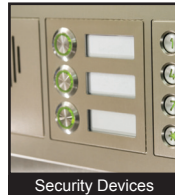
Industrial Controls



Instrumentation



Medical Equipment



Security Devices



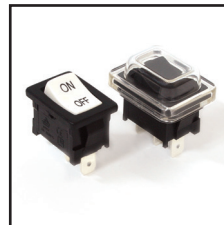
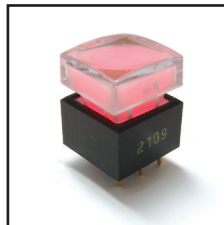
White Goods

# 6

## ARE THERE ANY ADDITIONAL REQUIREMENTS?

Many products have requirements that are not initially thought of. Some might make the switch more aesthetically pleasing and others will help the switch perform better under special circumstances. Below are examples that should be brought up during discussion:

- Momentary or Latching
- Illumination
- Sealed Protection (IP Rating)
- Custom Cap Options
  - » Colors
  - » Graphics
  - » Styles
- Long Life Expectancy
- High Inrush or Horse Power Rating
- Extreme Temperature Rating
- Custom User Requirements



# 7

## WHAT IS THE ESTIMATED ANNUAL USAGE (EAU)?

If you are looking for a custom switch, it is important to know an accurate EAU for your project. Once we know, we are able to determine how feasible certain customizations are. Since unique requirements sometimes incur additional tooling charges, knowing in the beginning will help expedite the process.







**E**-Switch offers a large selection of anti-vandal switches in the marketplace. Diameter sizes range from 6mm to 40mm, depending on the switch series. The anti-vandal series offer an esthetically pleasing switch due to the quality housing materials and multi-illumination options in pattern style – ring, dot, power symbol, ring/power symbol combo, plus numerous choices in LED colors including bi-color and RGB.

All PV switch series provide dust and moisture protection rating of IP65, excluding the PVA6 and PVL, which offer IP67 rating. A UL-certified series - ULV4, ULV 7, ULV 8 - are sealed to IP67 rating for dust and moisture resistance. Not only durable to resist damage of sharp or heavy objects, the long-life expectancy of the PV and ULV series, make these switches excellent choices for high security locations, harsh and rugged industrial-use environments. E-Switch's anti-vandal switches can be found in vending and parking kiosks, security control boxes, commercial appliances, industrial controls, medical equipment and transport vehicles, such as motor boats.



# ANTI-VANDAL SWITCH SERIES

		Electrical Ratings	Cutout Diameter / Panel Depth	Functions Available	Terminal Options	Actuator Options	Material Options	Illumination Options	Ingress Protection
	<b>PV0</b>	2A, 36VDC	Diameter: 12mm Max. Depth: 6mm	1 Pole: Off-(On)	Solder Lug	High	Stainless Steel Black Anodized	Dot Ring	IP65
	<b>PV1</b>	2A, 36VDC	Diameter: 19mm Max. Depth: 8mm	1 Pole: Off-(On)	Screw Solder Lug	Domed Flat High	Black Anodized Gold Plated Brass Nickel Plated Brass Stainless Steel	N/A	IP65
	<b>PV2</b>	2A, 36VDC	Diameter: 16mm Max. Depth: 6mm	1 Pole: Off-(On)	Screw Solder Lug	Domed Flat High	Black Anodized Gold Plated Brass Nickel Plated Brass Stainless Steel	N/A	IP65
	<b>PV3</b>	2A, 48VDC	Diameter: 16mm Max. Depth: 8mm	1 Pole: On-(On) 2 Pole: On-(On)	Solder Lug	Flat Guarded High	Black Anodized Gold Plated Brass Nickel Plated Brass Stainless Steel	Bi-Color Dot Ring	IP67 Optional
	<b>PV4</b>	2A, 24VDC .7A 125VAC (cURus)	Diameter: 19mm Max. Depth: 11mm	1 Pole: On-On On-(On) 1P Off-(On) + 1P On-(Off) 2 Pole: On-On On-(On)	Screw Solder Lug	Flat High	Black Anodized Stainless Steel	Bi-Color Dot Ring Arrow	IP65
	<b>PV5</b>	2A, 36VDC	Diameter: 12mm Max. Depth: 5mm	1 Pole: Off-(On)	Screw Solder Lug	Raised Domed	Black Anodized Nickel Plated Brass Stainless Steel	N/A	IP65
	<b>PV6</b>	2A, 48VDC	Diameter: 16mm Max. Depth: 10mm	1 Pole: Off-(On)	Solder Lug	Flat High	Black Anodized Nickel Plated Brass Stainless Steel	Bi-Color Dot Ring	IP65

Specifications subject to change without notice





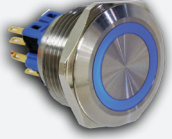





**E-SWITCH®**

www.e-switch.com

800.867.2717

7



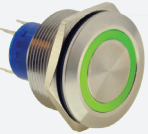
# ANTI-VANDAL SWITCH SERIES

	Electrical Ratings	Cutout Diameter / Panel Depth	Functions Available	Terminal Options	Actuator Options	Material Options	Illumination Options	Ingress Protection	
	<b>PV7</b>	2A, 48VDC	<b>Diameter:</b> 22mm <b>Max. Depth:</b> 8mm (Momentary), 12mm (Maintained)	<b>1 Pole:</b> 1P Off-On + 1P On-Off 1P Off-(On) + 1P On-(Off)	Solder Lug	Flat	Black Anodized Nickel Plated Brass Stainless Steel	Bi-Color Dot Ring	IP65
	<b>PV8</b>	2A, 48VDC	<b>Diameter:</b> 25mm <b>Max. Depth:</b> 10mm (Momentary), 12mm (Maintained)	<b>1 Pole:</b> 1P Off-On + 1P On-Off 1P Off-(On) + 1P On-(Off) <b>2 Pole:</b> 2P Off-On + 2P On-Off 2P Off-(On) + 2P On-(Off)	Solder Lug	Flat	Black Anodized Nickel Plated Brass Stainless Steel	Bi-Color Dot Ring	IP65
	<b>PV9</b>	2A, 48VDC	<b>Diameter:</b> 28mm <b>Max. Depth:</b> 10mm	<b>1 Pole:</b> 1P Off-On + 1P On-Off 1P Off-(On) + 1P On-(Off) <b>2 Pole:</b> 2P Off-On + 2P On-Off 2P Off-(On) + 2P On-(Off)	Solder Lug	Flat	Nickel Plated Brass Stainless Steel	Bi-Color Dot Ring	IP65
	<b>PV10</b>	2A, 48VDC	<b>Diameter:</b> 40mm <b>Max. Depth:</b> 5mm	<b>1 Pole:</b> 1P Off-On + 1P On-Off 1P Off-(On) + 1P On-(Off) <b>2 Pole:</b> 2P Off-On + 2P On-Off 2P Off-(On) + 2P On-(Off)	Solder Lug	Flat	Stainless Steel	Bi-Color Dot Ring	IP65
	<b>PVA3</b>	2A, 36VDC	<b>Diameter:</b> 16mm <b>Max. Depth:</b> 8mm	<b>1 Pole:</b> On-On On-(On)	Solder Lug	Flat High	Black Anodized Nickel Plated Brass Stainless Steel	Bi-Color Ring	IP65
	<b>PVA6</b>	2A, 36VDC	<b>Diameter:</b> 16mm <b>Max. Depth:</b> 6-8mm	<b>1 Pole:</b> Off-(On)	Solder Lug Wire-Lead	Rounded Flat High	Black Anodized Clear Anodized Stainless Steel Brushed Stainless Steel	Ring Power Symbol	IP67
	<b>PVL</b>	N/A	<b>Diameter:</b> 6-19mm <b>Max. Depth:</b> 6mm to 10mm (depending on mounting diameter)	N/A	Solder Lug	Flat	Stainless Steel Black	Pilot Lamp	IP67
	<b>PVT4</b>	50mA, 24VDC	<b>Diameter:</b> 19mm <b>Max. Depth:</b> 6mm	<b>1 Pole:</b> Off-(On)	Solder Lug Wire-Lead	Flat	Stainless Steel	Ring	IP65

Specifications subject to change without notice



# ANTI-VANDAL SWITCH SERIES (UL CERTIFIED)

	Electrical Ratings	Cutout Diameter / Panel Depth	Functions Available	Terminal Options	Actuator Options	Material Options	Illumination Options	Ingress Protection
	<b>ULV4</b> 3A 125/250VAC (cURus)	<b>Diameter:</b> 19mm <b>Max. Depth:</b> 10mm	<b>1 Pole:</b> On-On On-(On) <b>2 Pole:</b> On-On On-(On)	Solder Lug	Flat	Black Anodized Nickel Plated Brass Stainless Steel	Bi-Color Dot Ring Power	IP67
	<b>ULV7</b> 3A 125/250VAC (cURus)	<b>Diameter:</b> 22mm <b>Max. Depth:</b> 10mm	<b>1 Pole:</b> On-On On-(On) <b>2 Pole:</b> On-On On-(On)	Solder Lug	Flat	Anodized Aluminum Stainless Steel	Bi-Color Ring Ring w/ Power	IP67
	<b>ULV8</b> 3A 125/250VAC (cURus)	<b>Diameter:</b> 25mm <b>Max. Depth:</b> 10mm	<b>1 Pole:</b> On-On On-(On) <b>2 Pole:</b> On-On On-(On)	Solder Lug	Flat	Black Anodized Stainless Steel	Ring Bi-color	IP67

Specifications subject to change without notice



**P**ushbutton switches, by definition, open or close an electrical circuit by pressing on the actuator or, in some cases, pulling on the actuator. Deciding on the size, style and functionality of the pushbutton is often determined by the application. E-Switch offers a wide range of pushbutton switches from miniature size with low current ratings to industrial use switches with high power and horsepower ratings. Several pushbutton switches provide an IP rating of IP54, IP65 or IP67 depending the switch series.

The shapes and styles of pushbutton switches are endless from E-Switch. Shape options include square, round, oval, rectangle and some switches offer caps. Multiple termination options are available within the pushbutton family - solder lug, PCB pin, right angle PCB pins, Vertical PCB pins, surface mount, socket and tab.



# PUSHBUTTON SWITCH SERIES (SUBMINIATURE)

	General Ratings	Electrical Ratings	Poles / Throws / Functions Travel	Bushing Options	Terminal Options	Ingress Protection	
	<b>700</b>	<b>Life Cycles:</b> 50,000 <b>Operating Force:</b> 200gf <b>Operating Temperature:</b> -30°C to 85°C <b>Contact Resistance:</b> 20mΩ Max. <b>Insulation Resistance:</b> 1,000MΩ Min.	<b>Silver:</b> 3A, 120VAC [cURus] 3A, 28VDC 1A, 250VAC [cURus]  <b>Gold:</b> 0.4VA, Max. 20V (AC or DC)	1.0mm  <b>SPDT:</b> On-(On)  <b>DPDT:</b> On-(On)	Flat Non-Threaded Flat Threaded Keyway Non-Threaded Keyway Threaded	Right Angle PCB Pin Solder Lug Vertical PCB Pin Vertical PCB Pin with Bracket Wire Wrap	N/A
	<b>700A</b>	<b>Life Cycles:</b> 50,000 <b>Operating Force:</b> 300gf <b>Operating Temperature:</b> -30°C to 85°C <b>Contact Resistance:</b> 20mΩ Max. <b>Insulation Resistance:</b> 1,000MΩ Min.	<b>Silver:</b> 3A, 120VAC [cURus] 3A, 28VDC 1A, 250VAC [cURus]  <b>Gold:</b> 0.4VA, Max. 20V (AC or DC)	1.0mm  <b>SPDT:</b> On-(On)  <b>DPDT:</b> On-(On)	Non-Threaded Threaded	Right Angle PCB Pin Solder Lug Vertical PCB Pin Vertical PCB Pin with Bracket	IP67
	<b>700C</b>	<b>Life Cycles:</b> 50,000 <b>Operating Force:</b> 400gf SP7, 600gf DP7 <b>Operating Temperature:</b> -30°C to 85°C <b>Contact Resistance:</b> 20mΩ Max. <b>Insulation Resistance:</b> 1,000MΩ Min.	<b>Silver:</b> 3A, 120VAC [cURus] 3A, 28VDC 1A, 250VAC [cURus]  <b>Gold:</b> 0.4VA, Max. 20V (AC or DC)	3.0mm  <b>SPDT:</b> On-On	Flat Non-Threaded Flat Threaded Keyway Non-Threaded Keyway Threaded	Right Angle PCB Pin Solder Lug Vertical PCB Pin Vertical PCB Pin with Bracket	N/A
	<b>800</b>	<b>Life Cycles:</b> 50,000 <b>Operating Force:</b> 200gf <b>Operating Temperature:</b> -30°C to 85°C <b>Contact Resistance:</b> 10mΩ Max. <b>Insulation Resistance:</b> 1,000MΩ Min.	<b>Silver:</b> 3A, 120VAC [cURus] 3A, 28VDC 1A, 250VAC [cURus]  <b>Gold:</b> 0.4VA, Max. 20V (AC or DC)	0.9mm  <b>SPST:</b> Off-(On)  <b>SPDT:</b> On-(On)	Flat Non-Threaded Flat Threaded Non-Threaded	Right Angle PCB Pin Solder Lug Right Angle PCB Pin with Bracket Vertical PCB Pin Vertical PCB Pin with Bracket	N/A
	<b>800A</b>	<b>Life Cycles:</b> 50,000 <b>Operating Force:</b> 200gf <b>Operating Temperature:</b> -30°C to 85°C <b>Contact Resistance:</b> 10mΩ Max. <b>Insulation Resistance:</b> 1,000MΩ Min.	<b>Silver:</b> 3A, 120VAC or 28VDC [cURus] 1A, 250VDC  <b>Gold:</b> 0.4VA, Max. 20V (AC or DC)	0.9mm  <b>SPST:</b> Off-(On)  <b>SPDT:</b> On-(On)	Non-Threaded	Right Angle PCB Pin Vertical PCB Pin	IP67
	<b>800B</b>	<b>Life Cycles:</b> 50,000 <b>Operating Force:</b> 200gf <b>Operating Temperature:</b> -30°C to 85°C <b>Contact Resistance:</b> 20mΩ Max. <b>Insulation Resistance:</b> 1,000MΩ Min.	<b>Gold:</b> 0.4VA, Max. 20V (AC or DC)	0.9mm  <b>SPST:</b> Off-(On)  <b>SPDT:</b> On-(On)	Non-Threaded	Surface Mount	IP67
	<b>800C</b>	<b>Life Cycles:</b> 6,000 <b>Operating Force:</b> 350gf <b>Operating Temperature:</b> -30°C to 85°C <b>Contact Resistance:</b> Silver: 50mΩ Max initial Gold: 20mΩ Max initial <b>Insulation Resistance:</b> 1,000MΩ Min.	<b>Silver:</b> 3A, 120VAC or 28VDC 1A, 250VAC  <b>Gold:</b> 0.4VA, Max. 20V (AC or DC)	Electrical Make: 1.34mm Full travel: 1.88mm  <b>SPDT:</b> On-On	Non-Threaded Threaded	Right Angle PCB Pin Solder Lug Vertical PCB Pin	N/A
	<b>800U</b>	<b>Life Cycles:</b> 6,000 <b>Operating Force:</b> 250gf <b>Operating Temperature:</b> -30°C to 85°C <b>Contact Resistance:</b> 100mΩ Initial <b>Insulation Resistance:</b> 500MΩ Min.	<b>Gold:</b> 0.4VA, Max. 20V (AC or DC)	1.0mm  <b>SPDT:</b> On-(On)  <b>DPDT:</b> On-(On)	Non-Threaded	PC thru-hole Right Angle, PC thru-hole Vertical Right angle, PC thru-hole	IP67

Specifications subject to change without notice



# PUSHBUTTON SWITCH SERIES (PCB MOUNT)

	General Ratings	Electrical Ratings	Operating Force Options	Poles / Throws Travel	Mounting Options	Terminal Options	Illumination Options	Ingress Protection
	<b>5500</b> Life Cycles: 500,000 Operating Temperature: -25°C to 65°C Contact Resistance: 50mΩ Max. Insulation Resistance: 50MΩ Min.	300mA, 12VDC	255gf Max.	2.5mm	SPDT	PCB	PCB Pin	1 or 2 Dot N/A
	<b>FS5700</b> Life Cycles: 30,000 Operating Temperature: -10°C to 70°C Contact Resistance: 50mΩ Max. Insulation Resistance: 100MΩ Min.@500VDC	1A, 9VDC	1000gf to 3000gf	2.7mm to 5.0mm	SPDT DPDT 3PDT	PCB Panel Mount	PCB Pin Soldering Lugs	N/A N/A
	<b>KS1100</b> Life Cycles: 50,000,000 Operating Temperature: -10°C to 70°C Contact Resistance: 100mΩ Max. Insulation Resistance: 100MΩ Min.@100VDC	10mA, 12VDC	60gf	4.0mm	SPST	PCB	PCB Pin	N/A N/A
	<b>LC</b> Life Cycles: 10,000 Operating Temperature: -20°C to 85°C Contact Resistance: 20mΩ Max. Insulation Resistance: 100MΩ Min.	300mA, 30VDC	200gf to 330gf	3.5mm	SPDT DPDT	PCB	Right Angle PCB Pin	N/A N/A
	<b>LP11</b> Life Cycles: 1,000,000 Operating Temperature: -40°C to 85°C Contact Resistance: 200mΩ Max. Insulation Resistance: 100MΩ Min.	100mA, 12VDC	160(M) 200(L)	4.5mm (M) 3.5mm (L)	SPST	PCB	PCB Pin	Full N/A
	<b>LP15</b> Life Cycles: 300,000 Operating Temperature: -20°C to 70°C Contact Resistance: 200mΩ Max. Insulation Resistance: 100MΩ Min.	1mA, 20VDC	125gf	1.3mm	SPST	PCB	PCB Pin	Full N/A
	<b>LP16</b> Life Cycles: 50,000,000 Operating Temperature: -5°C to 60°C Contact Resistance: 150mΩ Max. Insulation Resistance: 10MΩ Min.	100mA, 20VDC	250gf	3.3mm	SPST	PCB	PCB Pin	Full N/A
	<b>LP2</b> Life Cycles: 300,000 Operating Temperature: -20°C to 70°C Contact Resistance: 200mΩ Max. Insulation Resistance: 100MΩ Min.	1mA, 20VDC 5mA, 5VDC	125gf	1.3mm	SPST	PCB	PCB Pin	Full N/A
	<b>LP4</b> Life Cycles: 50,000 Operating Temperature: -20°C to 70°C Contact Resistance: 50mΩ Max. Insulation Resistance: 100MΩ Min.	100mA, 30VDC	250gf	<b>Full:</b> 1.5mm <b>Latching:</b> 1.0mm	DPDT	PCB	PCB Pin	Full N/A
	<b>LP6</b> Life Cycles: 200,000 Operating Temperature: -20°C to 70°C Contact Resistance: 50mΩ Max. Insulation Resistance: 100MΩ Min.	12mA, 12VDC	150gf SPST 200gf DPST	2.2mm	SPST DPST	PCB	PCB Pin	Full N/A

Specifications subject to change without notice



**E-SWITCH®**

www.e-switch.com

800.867.2717

12

# PUSHBUTTON SWITCH SERIES (PCB MOUNT)

	General Ratings	Electrical Ratings	Operating Force Options	Poles / Throws Travel	Mounting Options	Terminal Options	Illumination Options	Ingress Protection		
	<b>PBH</b>	Life Cycles: 6,000 Operating Temperature: -20°C to 70°C Contact Resistance: 100mΩ Max. Insulation Resistance: 100MΩ Min.	100mA, 30VDC	230gf DPDT 280gf 4PDT 380gf 6PDT	5.5mm	DPST DPDT	PCB	Right Angle PCB Pin	N/A	N/A
	<b>PB300</b>	Life Cycles: 20,000 Operating Temperature: -40°C to 95°C Contact Resistance: 50mΩ Max. Initial Insulation Resistance: 100MΩ Min.	30mA, 28VDC	ST: 490gf DT 1st position: 600gf 2nd position: 1150gf	2.0mm	SPST SPDT	PCB	PCB Pin	N/A	N/A
	<b>PB400</b>	Life Cycles: 6,000 Cycles Operating Temperature: -5°C to 60°C Contact Resistance: 30mΩ Max. Insulation Resistance: 500MΩ Min.	3A, 30VDC	3N-7N	1.8- 3.2mm	DPST	PCB	PCB Pin	N/A	N/A
	<b>TL2201 TL4201</b> <i>*TL2201 Pictured</i>	Life Cycles: 10,000 Operating Temperature: -20°C to 70°C Contact Resistance: 100mΩ Max. Insulation Resistance: 100MΩ Min.	100mA, 30VDC	220gf DPDT 300gf 4PDT	2.5mm	DPDT 4PDT	PCB	PCB Pin	N/A	N/A
	<b>TL2203</b>	Life Cycles: 10,000 Operating Temperature: -20°C to 70°C Contact Resistance: 100mΩ Max. Insulation Resistance: 100MΩ Min.	100mA, 30VDC	180gf	1.9mm	DPDT	PCB	PCB Pin	N/A	N/A
	<b>TL2205</b>	Life Cycles: 10,000 Operating Temperature: -20°C to 70°C Contact Resistance: 100mΩ Max. Insulation Resistance: 100MΩ Min.	100mA, 30VDC	250gf	Full: 2.5mm Lock: 1.5mm	DPDT	PCB	PCB Pin	Dot	N/A
	<b>TL2230</b>	Life Cycles: 10,000 Operating Temperature: -20°C to 70°C Contact Resistance: 100mΩ Max. Insulation Resistance: 100MΩ Min.	100mA, 30VDC	140gf 230gf	1.8mm	DPDT	PCB	PCB Pin	N/A	N/A
	<b>TL2285</b>	Life Cycles: 10,000 Operating Temperature: -20°C to 70°C Contact Resistance: 100mΩ Max. Insulation Resistance: 100MΩ Min.	100mA, 30VDC	180gf	2.5mm	DPDT	PCB	PCB Pin	N/A	N/A
	<b>WBL</b>	Life Cycles: 10,000 Operating Temperature: -20°C to 70°C Contact Resistance: 50mΩ Max. Insulation Resistance: 100MΩ Min.	300mA, 30VDC	200gf	Full: 3.3mm Lock: 2.5mm	DPDT 4PDT	PCB	Right Angle PCB Pin	Full	N/A

Specifications subject to change without notice




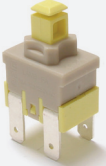


# PUSHBUTTON SWITCH SERIES (PANEL MOUNT)

	General Ratings	Electrical Ratings	Operating Force Options	Poles / Throws / Functions	Travel	Panel Cutout Dimensions	Terminal Options	Illumination Options	Ingress Protection		
	<b>700</b>	<b>Life Cycles:</b> 50,000 <b>Operating Force:</b> 200gf <b>Operating Temperature:</b> -30°C to 85°C <b>Contact Resistance:</b> 20mΩ Max. <b>Insulation Resistance:</b> 1,000MΩ Min.	<b>Silver:</b> 3A, 120VAC [cURus] 3A, 28VDC 1A, 250VAC [cURus]  <b>Gold:</b> 0.4VA, Max. 20V (AC or DC)		200gf	1.0mm	<b>SPDT:</b> On-(On)  <b>DPDT:</b> On-(On)	12.7mm x 15.7mm	Quick Connect Solder Lug	N/A	N/A
	<b>D16</b>	<b>Electrical / Mechanical Life:</b> 50,000 / 100,000 Cycles <b>Operating Temperature:</b> -20°C to 55°C <b>Contact Resistance:</b> 100mΩ Max. <b>Insulation Resistance:</b> 1,000MΩ Min.	8A, 125VAC [cURus, CSA] 5A, 250VAC [cURus, VDE] 6A, 24VDC [cURus, CSA]		300gf	3.0mm	<b>SPDT, DPDT, 3PDT, 4PDT</b> On-On On-(On)	16mm Diameter	Solder Lug	Full	N/A
	<b>L16</b>	<b>Operating Temperature:</b> -25°C to 55°C	N/A		N/A	N/A	Signal Light	16mm Diameter	Solder Lug	Full Signal Light	N/A
	<b>LA</b>	<b>Electrical / Mechanical Life:</b> 50,000 / 100,000 Cycles <b>Operating Temperature:</b> -20°C to 55°C <b>Contact Resistance:</b> 100mΩ Max. <b>Insulation Resistance:</b> 1,000MΩ Min.	8A, 125VAC [cURus] 5A, 250VAC [cURus] 2A, 250VDC [cURus] 6A, 24VDC [cURus]		300gf	3.0mm	<b>SPDT, DPDT, 3PDT, 4PDT</b> On-On On-(On)	22mm Diameter 25.5mm Diameter 30.5mm Diameter	Socket Solder Tab	Full Signal Light	IP65
	<b>LP1</b>	<b>Electrical / Mechanical Life:</b> 50,000 / 50,000 Cycles <b>Operating Temperature:</b> -40°C to 85°C <b>Contact Resistance:</b> 50mΩ Max. <b>Insulation Resistance:</b> 100MΩ Min.	100mA, 30VDC		250gf	1.8mm	<b>SPST</b> Off-(On)	8mm Diameter	Solder Lug	Full	N/A
	<b>P16</b>	<b>Electrical / Mechanical Life:</b> 50,000 / 100,000 Cycles <b>Operating Temperature:</b> -20°C to 55°C <b>Contact Resistance:</b> 100mΩ Max. <b>Insulation Resistance:</b> 1,000MΩ Min.	8A, 125VAC cURus 5A, 250VAC [VDE] 6A, 24VDC		300gf	3.0mm	<b>SPDT, DPDT, 3PDT, 4PDT</b> On-On On-(On)	16mm Diameter	Socket	Full	N/A

Specifications subject to change without notice



# PUSHBUTTON SWITCH SERIES (PANEL MOUNT)

	General Ratings	Electrical Ratings	Operating Force Options	Travel	Poles / Throws / Functions	Panel Cutout Dimensions	Illumination Terminal Options	Ingress Protection
	<b>PA4</b>	<b>Electrical / Mechanical Life:</b> 10,000 / 50,000 Cycles <b>Operating Temperature:</b> -20°C to 65°C -20°C to 125°C <b>Contact Resistance:</b> 20mΩ Max. <b>Insulation Resistance:</b> 100MΩ Min.	16A, 125VAC [cURus] 16A, 250VAC [cURus] 16(4)A, 250VAC [ENEC] 16(8)A, 250VAC [ENEC]	500gf	4.5mm	SPST Off-On Off-(On)	13mm x 19mm PCB	PCB Pin Solder Tab Full IP54
	<b>PA5</b>	<b>Electrical / Mechanical Life:</b> 10,000 / 50,000 Cycles <b>Operating Temperature:</b> -20°C to 125°C <b>Contact Resistance:</b> 20mΩ Max. <b>Insulation Resistance:</b> 100MΩ Min.	16A, 125VAC [cURus] 16A, 250VAC [cURus] 16(4)A, 250VAC [ENEC] 16(8)A, 250VAC [ENEC]	500gf	5.5mm	SPST Off-On Off-(On)  DPST Off-On Off-(On)	Capture Mount PCB	PCB Pin Solder Tab N/A N/A
	<b>PB1973</b>	<b>Electrical / Mechanical Life:</b> 10,000 / 30,000 Cycles <b>Operating Temperature:</b> -10°C to 55°C <b>Contact Resistance:</b> 20mΩ Max. <b>Insulation Resistance:</b> 1,000MΩ Min.	15A, 125VAC [cURus] 15A, 250VAC [cURus] 10(4)A, 250VAC [VDE]	300gf to 800gf	2.8mm	SPST Off-On Off-(On)  DPST Off-On Off-(On)	13mm x 19.2mm	Tab Full N/A
	<b>PB2</b>	<b>Electrical / Mechanical Life:</b> 6,000 / 50,000 Cycles <b>Operating Temperature:</b> -20°C to 85°C <b>Contact Resistance:</b> 50mΩ Max. <b>Insulation Resistance:</b> 5MΩ Min.	20A, 125VAC [UR] 12A, 250VAC [UR]	600gf	3.1mm	SPST Off-On On-On  DPST Off-On On-On	22mm x 30mm	Tab Dot IP54

Specifications subject to change without notice



# PUSHBUTTON SWITCH SERIES (PANEL MOUNT)

	General Ratings	Electrical Ratings	Operating Force Options	Travel	Poles / Throws / Functions	Panel Cutout Dimensions	Illumination Terminal Options	Ingress Protection
 <p><b>PP1</b></p>	<p><b>Electrical / Mechanical Life:</b> 6,000 / 50,000 Cycles</p> <p><b>Operating Temperature:</b> 0°C to 85°C</p> <p><b>Contact Resistance:</b> 50mΩ Max.</p> <p><b>Insulation Resistance:</b> 2MΩ Min.</p>	<p>16A, 125VAC [cURus] 12A, 250VAC [cURus] 1HP, 125/250VAC [cURus]</p>	<p>300gf to 500gf</p>	<p><b>Push Only</b> Push: 9.4mm</p> <p><b>Push-Pull</b> Push: 5.0mm Pull: 5.7mm</p>	<p><b>SPDT</b> On<sub>2</sub>-On<sub>1</sub>-(On<sub>2</sub>) Push-Pull On-(On)</p>	<p>13.3mm x 28.2mm</p>	<p>Tab</p>	<p>N/A</p>
 <p><b>PP2</b></p>	<p><b>Electrical / Mechanical Life:</b> 6,000 / 50,000 Cycles</p> <p><b>Operating Temperature:</b> 0°C to 85°C</p> <p><b>Contact Resistance:</b> 50mΩ Max.</p> <p><b>Insulation Resistance:</b> 10MΩ Min.</p>	<p><i>Rating Option 1:</i> 10R(4)A 277VAC 5E4 [UL]</p> <p><i>Rating Option 2:</i> 16A, 125VAC [cURus] 12A, 250VAC [cURus] 1HP, 125/250VAC [cURus]</p>	<p>300gf to 500gf</p>	<p><b>Push Only</b> Push: 9.4mm</p> <p><b>Push-Pull</b> Push: 5.0mm Pull: 5.7mm</p>	<p><b>DPDT</b> On<sub>2</sub>-On<sub>1</sub>-(On<sub>2</sub>) Push-Pull On-(On)</p>	<p>13.5mm x 36mm</p>	<p>Tab</p>	<p>N/A</p>
 <p><b>PR1</b></p>	<p><b>Electrical / Mechanical Life:</b> 50,000 / 100,000 Cycles</p> <p><b>Operating Temperature:</b> -20°C to 105°C [cURus] -20°C to 125°C [ENEC]</p> <p><b>Contact Resistance:</b> 35mΩ Max.</p> <p><b>Insulation Resistance:</b> 100MΩ Min.</p>	<p>16A, 125VAC [cURus] 3/4HP, 250VAC [cURus] 16(6)A, 250VAC [ENEC] 10(4)A, 250VAC [ENEC]</p>	<p>1,800gf</p>	<p>6.2mm</p>	<p><b>SPST</b> Off-On Off-(On)</p> <p><b>DPST</b> Off-On Off-(On)</p>	<p>25mm Diameter</p>	<p>Tab</p>	<p>Full</p> <p>IP54 Optional</p>
 <p><b>RP3508</b></p>	<p><b>Electrical / Mechanical Life:</b> 6,000 / 20,000 Cycles</p> <p><b>Operating Temperature:</b> 0°C to 65°C</p> <p><b>Contact Resistance:</b> 100mΩ Max.</p> <p><b>Insulation Resistance:</b> 1,000MΩ Min.</p>	<p>3A, 125VAC [cURus] 1.5A, 250VAC [cURus]</p>	<p>500gf</p>	<p>3.5mm</p>	<p><b>SPST</b> Off-On Off-(On)</p>	<p>16mm Diameter</p>	<p>Solder Lug</p>	<p>Full</p> <p>N/A</p>
 <p><b>RP8100</b></p>	<p><b>Electrical / Mechanical Life:</b> 500,000 Cycles</p> <p><b>Operating Temperature:</b> -30°C to 85°C</p> <p><b>Contact Resistance:</b> 50mΩ Max.</p> <p><b>Insulation Resistance:</b> 1,000MΩ Min.</p>	<p>125mA, 125 VAC 100mA, 50 VDC</p>	<p>350gf</p>	<p>1.5mm</p>	<p><b>SPST</b> Off-(On)</p>	<p>13.6mm Diameter</p>	<p>Solder Lug</p>	<p>Dot</p> <p>IP67</p>
 <p><b>RP8200</b></p>	<p><b>Electrical / Mechanical Life:</b> 200,000 Cycles</p> <p><b>Operating Temperature:</b> -30°C to 85°C</p> <p><b>Contact Resistance:</b> 100mΩ Max.</p> <p><b>Insulation Resistance:</b> 1,000MΩ Min.</p>	<p>100mA, 24VDC</p>	<p>560gf</p>	<p>2.5mm</p>	<p><b>SPST</b> Off-On</p>	<p>13.6mm Diameter</p>	<p>Solder Lug</p>	<p>Dot</p> <p>IP67</p>

Specifications subject to change without notice



# PUSHBUTTON SWITCH SERIES (PANEL MOUNT)

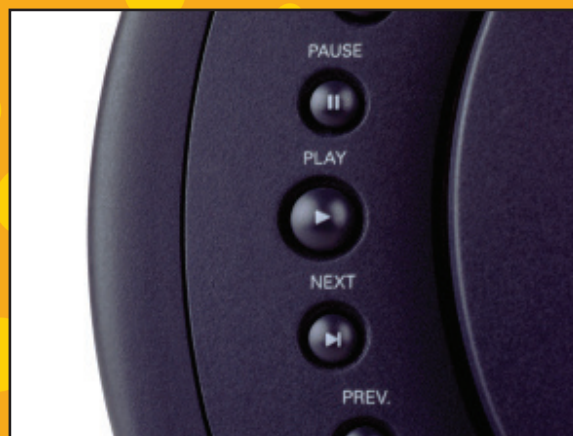
	General Ratings	Electrical Ratings	Operating Force Options	Poles / Throws / Functions Travel	Panel Cutout Dimensions	Terminal Options	Illumination Options	Ingress Protection
	<b>RP8300</b>	<b>Electrical / Mechanical Life:</b> 500,000 Cycles <b>Operating Temperature:</b> -30°C to 85°C <b>Contact Resistance:</b> 50mΩ Max. <b>Insulation Resistance:</b> 1,000MΩ Min.	200mA, 50VDC	350gf 1.5mm	13.6mm Diameter	Solder Lug	Dot	IP67
	<b>RP8400</b>	<b>Electrical / Mechanical Life:</b> 500,000 Cycles <b>Operating Temperature:</b> -30°C to 85°C <b>Contact Resistance:</b> 50mΩ Max. <b>Insulation Resistance:</b> 1,000MΩ Min.	200mA, 50VDC	350gf 1.5mm	13.6mm Diameter	Solder Lug	Dot	IP67
	<b>RP8500</b>	<b>Electrical / Mechanical Life:</b> 500,000 Cycles <b>Operating Temperature:</b> -30°C to 85°C <b>Contact Resistance:</b> 50mΩ Max. <b>Insulation Resistance:</b> 1,000MΩ Min.	125mA, 125VAC 100mA, 50VDC	350gf 1.5mm	13.6mm Diameter	Solder Lug	Dot	IP67
	<b>RP8600</b>	<b>Electrical / Mechanical Life:</b> 50,000 / 100,000 Cycles <b>Operating Temperature:</b> -30°C to 85°C <b>Contact Resistance:</b> 200mΩ Initial @2-4VDC, 100mA <b>Insulation Resistance:</b> 100MΩ @50VDC	0.4VA Max @20V Max (AC or DC)	630gf 0.65mm	16.0mm Diameter	Solder Lug	N/A	IP67
	<b>ULP</b>	<b>Electrical / Mechanical Life:</b> 200,000 / 1,000,000 Cycles <b>Operating Temperature:</b> -20°C to 70°C <b>Contact Resistance:</b> 50mΩ Max. (Silver) 100mΩ Max. (Gold) <b>Insulation Resistance:</b> 100MΩ Min.	<b>Silver:</b> 500mA, 25VDC  <b>Gold:</b> 0.4VA, Max. at 28V (AC or DC)	<b>SPDT</b> 200gf  <b>DPDT</b> 300gf  2.2mm	15.8mm x 16mm PCB  15.8mm x 18mm Panel Mount Cut-out size	PCB Pin Solder Lug	Full	N/A

Specifications subject to change without notice



**T**actile, a.k.a tact, switches are used to close an electrical circuit when pressed. When the switch is released, it opens the circuit. Tact switches come in a wide range of styles and sizes. E-Switch offers tact switches from miniature to 12.4mm square in size and numerous styles – illuminated, non-illuminated, some offer caps, round, square, rectangle and oval. Tact switches typically offer two mounting options - surface mount or thru-hole mount and some right-angle options. Several tact switches have very low profiles, from 0.35mm – 0.65mm and up.

Reliability, long operation life and compact size make tact switches ideal for the growing market of wearable technology and handheld devices. Several other common markets include audio/visual equipment, telecommunications, computer electronics and peripheral equipment, instrumentation controls and medical devices.



# TACTILE SWITCH SERIES (PART 1)

		General Ratings	Electrical Ratings	Travel	Body Dimensions	Operating Force Options (gf)	Mounting Options	Washable
	<b>320</b>	Multiple Actuator Styles Life Cycles: 1,000,000 Operating Temp: -20°C to 70°C Contact Resistance: 50mΩ Max. Insulation Resistance: 1,000MΩ Min.	25mA, 50VDC	0.6mm	12.4mm x 12.4mm 12.4mm x 22.0mm	135	PCB Pin	N/A
	<b>TL1014</b>	Life Cycles: up to 200,000 Operating Temp: -40°C to 85°C Contact Resistance: 100mΩ Max. Insulation Resistance: 100MΩ Min.	50mA, 12VDC	0.25mm (160 gf) 0.30mm (220 gf)	4.7mm x 3.5mm	160, 220	SMT (Gull Wing)	N/A
	<b>TL1015</b>	Life Cycles: 200,000 Operating Temp: -20°C to 70°C Contact Resistance: 100mΩ Max. Insulation Resistance: 100MΩ Min.	50mA, 12VDC	0.20mm	2.9mm x 3.9mm	160	SMT (Gull Wing)	N/A
	<b>TL1100</b>	Multiple Actuator Styles Life Cycles: 100,000 Operating Temp: -20°C to 70°C Contact Resistance: 100mΩ Max. Insulation Resistance: 100MΩ Min.	50mA, 12VDC	0.3mm	12.0mm x 12.0mm	160, 260	PCB Pin	N/A
	<b>TL1105</b>	Caps Available Life Cycles: 100,000 Operating Temp: -20°C to 70°C Contact Resistance: 100mΩ Max. Insulation Resistance: 100MΩ Min.	50mA, 12VDC	0.25mm	6.0mm x 6.0mm	100, 160, 250	PCB Pin	N/A
	<b>TL1107</b>	Multiple Actuator Styles Life Cycles: 30,000 (260gf), 50,000 (130gf & 180gf) Operating Temp: -20°C to 70°C Contact Resistance: 100mΩ Max. Insulation Resistance: 100MΩ Min.	50mA, 12VDC	0.25mm	3.5mm x 6.0mm	130, 180, 260	PCB Pin	N/A
	<b>TL1220</b>	Caps Available Life Cycles: 500,000 Operating Temp: -20°C to 70°C Contact Resistance: 100mΩ Max. Insulation Resistance: 100MΩ Min.	50mA, 12VDC	0.2mm	7.5mm x 7.5mm 10.0mm x 14.0mm 10.0mm x 19.0mm 7, 8, 10mm Dia	180	PCB Pin	N/A
	<b>TL1240</b>	Caps Available / LED Illuminated Life Cycles: 100,000 Operating Temp: -20°C to 70°C Contact Resistance: 100mΩ Max. Insulation Resistance: 100MΩ Min.	50mA, 12VDC	0.25mm	6.0mm x 6.0mm	160	PCB Pin	N/A
	<b>TL1250</b>	Life Cycles: 50,000 Operating Temp: -20°C to 70°C Contact Resistance: 100mΩ Max. Insulation Resistance: 100MΩ Min.	50mA, 12VDC	0.2mm	7.0mm x 8.3mm	120, 180, 280	PCB Pin	N/A

Specifications subject to change without notice



# TACTILE SWITCH SERIES (PART 2)

		General Ratings	Electrical Ratings	Travel	Body Dimensions	Operating Force Options (gf)	Mounting Options	Washable
	<b>TL1260</b>	Caps Available / LED Illuminated Life Cycles: 50,000 Operating Temp: -20°C to 70°C Contact Resistance: 100mΩ Max. Insulation Resistance: 100MΩ Min.	50mA, 12VDC	0.2mm	6.8mm x 7.0mm	160	PCB Pin	N/A
	<b>TL1265</b>	Caps Available / LED Illuminated Life Cycles: 500,000 Operating Temp: -20°C to 70°C Contact Resistance: 100mΩ Max. Insulation Resistance: 100MΩ Min.	50mA, 12VDC	0.2mm	6.8mm x 7.0mm	160	PCB Pin	N/A
	<b>TL2243</b>	Double Stacked Low Profile Life Cycles: 30,000 Operating Temp: -20°C to 70°C Contact Resistance: 100mΩ Max. Insulation Resistance: 100MΩ Min.	50mA, 12VDC	0.25mm	7.3mm x 9.1mm	180	PCB Pin	N/A
	<b>TL3200</b>	Single or Dual LED Illumination Life Cycles: 30,000 Operating Temp: -25°C to 85°C Contact Resistance: 500mΩ Max. Insulation Resistance: 100MΩ Min.	50mA, 12VDC	0.25mm	6.8mm x 4.5mm	160	SMT (Gull Wing)	N/A
	<b>TL3210</b>	LED Illuminated Life Cycles: 100,000 Operating Temp: -20°C to 70°C Contact Resistance: 500mΩ Max. Insulation Resistance: 100MΩ Min.	50mA, 12VDC	0.2mm	5.6mm x 3.4mm	160	SMT (Gull Wing)	N/A
	<b>TL3215</b>	LED Illuminated Life Cycles: 1,000,000 Operating Temp: -40°C to 85°C Contact Resistance: 100mΩ Max. Insulation Resistance: 100MΩ Min.	50mA, 12VDC	0.25mm	4.9mm x 4.9mm	160	SMT (Gull Wing)	N/A
	<b>TL3240</b>	LED Illuminated / Caps Available Life Cycles: up to 200,000 Operating Temp: -25°C to 70°C Contact Resistance: 100mΩ Max. Insulation Resistance: 100MΩ Min.	50mA, 12VDC	0.2mm	6.1mm x 6.1mm	100, 160, 260	SMT (Gull Wing)	N/A
	<b>TL3253</b>	LED Illuminated Life Cycles: up to 500,000 Operating Temp: -20°C to 70°C Contact Resistance: 100mΩ Max. Insulation Resistance: 100MΩ Min.	50mA, 12VDC	0.25mm	8.4mm x 10.55mm	160	Right Angle PCB Pin	N/A
	<b>TL3265</b>	Multiple Actuator Styles Life Cycles: up to 500,000 Operating Temp: -20°C to 70°C Contact Resistance: 100mΩ Max. Insulation Resistance: 100MΩ Min. @ 500VDC	5mA, 12VDC	0.2mm	6.8mm x 7.0mm	160	SMT	N/A
	<b>TL3300</b>	Multiple Actuator Styles Life Cycles: up to 200,000 Operating Temp: -25°C to 70°C Contact Resistance: 100mΩ Max. Insulation Resistance: 100MΩ Min.	50mA, 12VDC	0.35mm	12mm x 12mm	160, 260, 320, 520	SMT (Gull Wing)	N/A
	<b>TL3301</b>	Caps Available / Multiple Actuator Styles Life Cycles: 100,000 Operating Temp: -20°C to 70°C Contact Resistance: 100mΩ Max. Insulation Resistance: 100MΩ Min.	50mA, 12VDC	0.25mm	6.0mm x 6.0mm	100, 160, 260	SMT (Gull Wing)	N/A

Specifications subject to change without notice



**E-SWITCH®**

www.e-switch.com

800.867.2717

20

# TACTILE SWITCH SERIES (PART 3)

	General Ratings	Electrical Ratings	Travel	Body Dimensions	Operating Force Options (gf)	Mounting Options	Washable
	<b>TL3302</b> Multiple Actuator Styles Life Cycles: 20,000 - 50,000 Operating Temp: -20°C to 70°C Contact Resistance: 100mΩ Max. Insulation Resistance: 100MΩ Min.	50mA, 12VDC	0.25mm	3.5mm x 6.0mm	130, 180, 260	SMT (Gull Wing)	N/A
	<b>TL3303</b> Multiple Actuator Styles Life Cycles: 100,000 Operating Temp: -20°C to 70°C Contact Resistance: 100mΩ Max. Insulation Resistance: 100MΩ Min.	50mA, 12VDC	0.25mm	6.0mm x 6.0mm	100, 160, 260	SMT (Gull Wing)	N/A
	<b>TL3305</b> Life Cycles: up to 500,000 Operating Temp: -20°C to 70°C Contact Resistance: 100mΩ Max. Insulation Resistance: 100MΩ Min.	50mA, 12VDC	0.20mm	4.5mm x 4.5mm	160, 260	SMT (Gull Wing)	N/A
	<b>TL3312</b> Life Cycles: 500,000(160gf) 50,000 (235 gf) Operating Temp: -40°C to 85°C Contact Resistance: 100mΩ Max. Insulation Resistance: 100MΩ Min.	50mA, 12VDC	0.15mm	3.7mm x 3.7mm	160, 235	SMT (Gull Wing)	N/A
	<b>TL3313</b> Life Cycles: 100,000 Operating Temp: -20°C to 70°C Contact Resistance: 50mΩ Max. Insulation Resistance: 100MΩ Min.	50mA, 12VDC	0.25mm	4.8mm x 4.8mm	100, 160, 250	SMT (Gull Wing)	N/A
	<b>TL3315</b> Life Cycles: 1,000,000 (100gf), 500,000 (160gf), 200,000 (250gf) Operating Temp: -20°C to 70°C Contact Resistance: 200mΩ Max. Insulation Resistance: 50MΩ Min.	50mA, 12VDC	0.2mm	4.5mm x 4.5mm	100, 160, 250	SMT (Gull Wing)	N/A
	<b>TL3330</b> Life Cycles: 50,000 (130gf), 30,000 (260gf) Operating Temp: -20°C to 70°C Contact Resistance: 100mΩ Max. Insulation Resistance: 100MΩ Min.	50mA, 12VDC	0.25mm	6.9mm x 3.3mm	130, 260	Right Angle SMT (Gull Wing)	N/A
	<b>TL3340</b> Life Cycles: 100,000 Operating Temp: -35°C to 85°C Contact Resistance: 500mΩ Max. Insulation Resistance: 100MΩ Min.	50mA, 12VDC	0.2mm	4.25mm x 3.3mm	160	Right Angle SMT (Gull Wing)	N/A
	<b>TL3342</b> Life Cycles: 100,000 Operating Temp: -20°C to 70°C Contact Resistance: 20mΩ Max. Insulation Resistance: 100MΩ Min.	50mA, 12VDC	0.25mm	5.2mm x 5.2mm	160, 250	SMT (Gull Wing)	N/A
	<b>TL3360</b> Life Cycles: 200,000 Operating Temp: -25°C to 70°C Contact Resistance: 100mΩ Max. Insulation Resistance: 100MΩ Min.	50mA, 12VDC	0.15mm	6.5mm x 6mm	185, 260	Right Angle SMT (Gull Wing)	N/A
	<b>TL3365</b> Life Cycles: 100,000 Operating Temp: -20°C to 70°C Contact Resistance: 100mΩ Max. Insulation Resistance: 100MΩ Min.	50mA, 12VDC	0.20mm	4.2mm x 3.2mm	180	SMT (Gull Wing)	N/A

Specifications subject to change without notice



# TACTILE SWITCH SERIES (PART 4)

		General Ratings	Electrical Ratings	Travel	Body Dimensions	Operating Force Options (gf)	Mounting Options	Washable
	<b>TL3700</b>	Life Cycles: 100,000 Operating Temp: -40°C to 85°C Contact Resistance: 500mΩ Max. Insulation Resistance: 100MΩ Min.	20mA, 15VDC	0.15mm	3.0mm x 2.6mm	100, 160	SMT (Gull Wing)	N/A
	<b>TL3780</b>	Life Cycles: up to 500,000 Operating Temp: -40°C to 85°C Contact Resistance: 500mΩ Max. Insulation Resistance: 50MΩ Min	50mA, 12VDC	0.13mm	2.0mm x 3.0mm	100, 160, 240, 330	SMT (Gull Wing)	N/A
	<b>TL3901</b>	Life Cycles: 50,000 Operating Temp: -40°C to 85°C Contact Resistance: 500mΩ Max. Insulation Resistance: 100MΩ Min	50mA, 12VDC	0.3mm	5.4mm x 5.0mm	180	Right Angle Edge (Gull Wing)	N/A
	<b>TL4100</b>	Life Cycles: 1,000,000 Operating Temp: -40°C to 85°C Contact Resistance: 100mΩ Max. Insulation Resistance: 100MΩ Min.	50mA, 12VDC	0.15mm	3.5mm x 6.2mm	120, 240	Right Angle Edge (Gull Wing)	N/A
	<b>TL4105</b>	Life Cycles: 200,000 Operating Temp: -40°C to 85°C Contact Resistance: 1Ω Max. Insulation Resistance: 100MΩ Min.	50mA, 12VDC	0.15mm	2.9mm x 4.8mm	160	Right Angle Edge (Gullwing)	N/A
	<b>TL4110</b>	Life Cycles: 300,000 Operating Temp: -40°C to 85°C Contact Resistance: 500mΩ Max. Insulation Resistance: 50MΩ Min.	20mA, 15VDC	0.13mm	2mm x 2.8mm	160	SMT	N/A
	<b>TL52</b>	IP67 Rated Life Cycles: 100,000 Operating Temp: -25°C to 85°C Contact Resistance: 100mΩ Max. Insulation Resistance: 100MΩ Min.	50mA, 12VDC	0.3mm	8.0mm x 8.0mm	160, 260	PCB Pin	●
	<b>TL58</b>	Multiple Actuator Styles Life Cycles: 100,000 Operating Temp: -20°C to 70°C Contact Resistance: 100mΩ Max. Insulation Resistance: 100MΩ Min.	50mA, 12VDC	0.25mm	6.2mm x 6.2mm	100, 160, 260	Right Angle PCB Pin	N/A
	<b>TL59</b>	Multiple Actuator Styles Life Cycles: 100,000 Operating Temp: -20°C to 70°C Contact Resistance: 100mΩ Max. Insulation Resistance: 100MΩ Min.	50mA, 12VDC	0.25mm	6.2mm x 6.2mm	100, 160, 260	PCB Pin	N/A
	<b>TL6100</b>	Multiple Actuator Styles Life Cycles: up to 1,000,000 Operating Temp: -40°C to 85°C Contact Resistance: 100mΩ Max. Insulation Resistance: 100MΩ Min.	50mA, 12VDC	0.5mm	7.4mm x 7.4mm	130, 160, 300, 500	PCB Pin	●

Specifications subject to change without notice



**E-SWITCH®**

www.e-switch.com

800.867.2717

22

# TACTILE SWITCH SERIES (PART 5)

	General Ratings	Electrical Ratings	Travel	Body Dimensions	Operating Force Options (gf)	Mounting Options	Washable
	<b>TL6105</b> Multiple Actuator Styles Life Cycles: up to 1,000,000 Operating Temp: -40°C to 85°C Contact Resistance: 100mΩ Max. Insulation Resistance: 100MΩ Min.	50mA, 12VDC	0.5mm	7.4mm x 7.4mm	130, 160, 300, 500	PCB Pin w/ Earth ground terminal	●
	<b>TL6110</b> Multiple Actuator Styles Life Cycles: up to 1,000,000 Operating Temp: -40°C to 85°C Contact Resistance: 100mΩ Max. Insulation Resistance: 100MΩ Min.	50mA, 12VDC	0.5mm	5.8mm x 8.3mm	130, 160, 300, 500	Right Angle PCB Pin	●
	<b>TL6120</b> Multiple Actuator Styles Life Cycles: up to 1,000,000 Operating Temp: -40°C to 85°C Contact Resistance: 100mΩ Max. Insulation Resistance: 100MΩ Min.	50mA, 12VDC	0.5mm	7.4mm x 7.4mm	130, 160, 300, 500	SMT (Gull Wing)	●
	<b>TL6190</b> Life Cycles: 100,000 Operating Temp (Switch): -40°C to 105°C Operating Temp (Cap): -40°C to 85°C Contact Resistance: 100mΩ Max. Insulation Resistance: 100MΩ Min.	50mA, 12VDC	0.5mm	12.0mm x 11.5mm	220	Right Angle PCB Pin	●
	<b>TL6200</b> Life Cycles: 10,000,000 Operating Temp: -40°C to 85°C Contact Resistance: 30mΩ Max. Insulation Resistance: 10MΩ Min.	50mA, 24VDC	1.0mm	6.9mm x 6.2mm	300	SMT (Gull Wing) PCB Pin	●
	<b>TL6210</b> LED Illuminated Life Cycles: 100,000 Operating Temp: -20°C to 70°C Contact Resistance: 500mΩ Max. Insulation Resistance: 100MΩ Min.	50mA, 12VDC	0.45mm	6.2mm x 4.6mm	200	SMT (Gull Wing)	●
	<b>TL6215</b> Caps Available / LED Illuminated Life Cycles: 500,000 Operating Temp: -20°C to 70°C Contact Resistance: 100mΩ Max. Insulation Resistance: 100MΩ Min.	50mA, 12VDC	0.45mm	7.7mm x 6.37mm	200, 450	Vertical or Right Angle PCB Pin	●
	<b>TL6330</b> Life Cycles: 200,000 Operating Temp: -40°C to 85°C Contact Resistance: 100mΩ Max. Insulation Resistance: 1GΩ Min.	50mA, 32VDC	0.25mm	2.8mm x 4.6mm	200	SMT	●
	<b>TL6700</b> Life Cycles: 500,000 (160gf), 100,000 (260gf) Operating Temp: -20°C to 70°C Contact Resistance: 100mΩ Max. Insulation Resistance: 100MΩ Min.	50mA, 12VDC	0.35mm	6.9mm x 6.2mm	160, 260	SMT (Gull Wing J-Bend)	●
	<b>TL9100</b> Life Cycles: 100,000(200gf); 30,000(350gf) Operating Temp: -40°C to 85°C Contact Resistance: 100mΩ Max Insulation Resistance: 100MΩ @500 VDC.	50mA, 12VDC	1.3mm	6.0mm x 6.0mm	200, 350	SMT (J-Bend)	N/A
	<b>TL9210</b> Life Cycles: 100,000 Operating Temp: -20°C to 70°C Contact Resistance: 100mΩ initial Insulation Resistance: 100MΩ Min.@100VDC	50mA, 12VDC	1.3mm	6.0mm x 6.0mm	200	SMT (J-Bend)	N/A

Specifications subject to change without notice









Snap Action switches, also called microswitches, are switch devices that can open and/or close an electrical circuit at a rapid speed. Triggered by an external force, either human or physical object, which is applied to the actuator requires very little pressure to operate. Snap action switches offer multiple actuator options, such as pin plunger, lever, roller or simulated roller lever.

Reliability and long operating life make snap action switches ideal for counter top appliances, timer controls, vending machines, gaming devices, power tools and industrial controls.



# SNAP ACTION SWITCH SERIES

	General Ratings	Electrical Ratings	Functions	Operating Force Options*	Actuator Options	Terminal Options	Body Options
	<b>LS</b>	<b>Electrical Life:</b> 50,000 Cycles <b>Mechanical Life:</b> 1,000,000 Cycles <b>Operating Temp:</b> -25°C to 85°C <b>Contact Resistance:</b> 100mΩ Max.	<b>Silver</b> <b>cURus, VDE:</b> 15A, 125/250VAC  <b>Gold:</b> 0.4VA, 20V (AC or DC)	SPST N.O. SPST N.C. SPDT	25-250 (*Depending upon actuator)	Pin Plunger Lever Roller Simulated Roller	Quick Connect Right Angle PCB Pin Left Angle PCB Pin Solder Lug  <b>Width:</b> 27.9mm <b>Height:</b> 15.9mm <b>Depth:</b> 10.3mm
	<b>MS</b>	<b>Electrical Life:</b> 50,000 Cycles <b>Mechanical Life:</b> 1,000,000 Cycles <b>Operating Temp:</b> -25°C to 85°C <b>Contact Resistance:</b> 100mΩ Max.	<b>Silver</b> <b>cURus:</b> 5A, 125/250VAC  <b>Gold:</b> 0.4VA, 20V (AC or DC)	SPST N.O. SPDT	10-295 (*Depending upon actuator)	Pin Plunger Lever Roller Simulated Roller Custom	Quick Connect PCB Pin Right Angle PCB Pin Left Angle PCB Pin Solder Lug  <b>Width:</b> 19.8mm <b>Height:</b> 10.6mm <b>Depth:</b> 6.4mm
	<b>SS</b>	<b>Electrical Life:</b> 10,000 Cycles <b>Mechanical Life:</b> 1,000,000 Cycles <b>Operating Temp:</b> -25°C to 75°C <b>Contact Resistance:</b> 100mΩ Max.	<b>Silver</b> <b>cURus:</b> 3A, 125VAC 1.5A, 250VAC 0.1A, 5VDC  <b>Gold:</b> 0.4VA, 20V (AC or DC)	SPDT	15-130 (*Depending upon actuator)	Pin Plunger Lever Simulated Roller	PCB Pin PCB Retention Right Angle PCB Pin Left Angle PCB Pin Solder Lug  <b>Width:</b> 12.7mm <b>Height:</b> 6.5mm <b>Depth:</b> 5.75mm
	<b>TS</b>	<b>Electrical Life:</b> 50,000 Cycles <b>Mechanical Life:</b> 100,000 Cycles <b>Operating Temp:</b> -25°C to 85°C <b>Contact Resistance:</b> 300mΩ Max.	300mA, 6VDC	SPDT	20	Lever	Vertical PCB Pin Right Angle PCB Pin Short Left Angle PCB Pin Short Right Angle PCB Pin Long Left Angle PCB Pin Long  <b>Width:</b> 8.2mm <b>Height:</b> 6.6mm <b>Depth:</b> 2.7mm
	<b>TS2</b>	<b>Electrical Life:</b> 3,000,000 Cycles <b>Mechanical Life:</b> 3,000,000 Cycles <b>Operating Temp:</b> -25°C to 85°C <b>Contact Resistance:</b> 300mΩ Max.	100mA, 125VAC 100mA, 48VDC	SPST	70	Pin Plunger	SMT Terminals  <b>Width:</b> 8.6mm <b>Height:</b> 3.0mm <b>Depth:</b> 4.8mm
	<b>WS</b>	<b>Electrical Life:</b> 10,000 Cycles <b>Mechanical Life:</b> 1,000,000 Cycles <b>Operating Temp:</b> -25°C to 85°C <b>Contact Resistance:</b> 100mΩ Max. <b>Ingress Protection:</b> IP67	0.5A, 42VDC 1A, 24VDC 2A, 12VDC 3A, 125 /250VAC	SPDT	50-70 (*Depending upon actuator)	Pin Plunger Lever Simulated Roller	PCB Pins Soldering Lugs  <b>Width:</b> 13.3mm <b>Height:</b> 7.0mm <b>Depth:</b> 5.3mm

Specifications subject to change without notice

\*Not all force options work with all actuator options.



**E-SWITCH®**

www.e-switch.com

800.867.2717

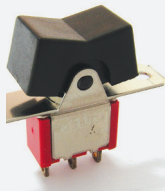




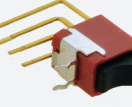
25

**R**ocker switches are commonly used as an on/off switch that rocks (rather than trips) when pressed, meaning the rocker opens or closes the circuit. This means that one side of the rocker switch is raised while the other side is depressed much like a seesaw or a rocking horse.

E-Switch offers a range of rocker switches, from miniature size with low current ratings to industrial use switches with high power ratings and with horsepower ratings. Several rocker switches provide an IP rating of IP67, IP55 or IP54 depending the switch series. Panel mount installation is most common; however, a few E-Switch rocker series provide PC mount options. Additional options include non-illuminated or illuminated, plus actuator shapes such as rectangle, round, oval and paddle style actuators.



# ROCKER SWITCH SERIES (SUBMINIATURE)

	Electrical Ratings	Poles / Functions	Actuator Options	Mounting Options	Terminal Options	Ingress Protection
 <b>300</b>	<b>Silver:</b> 5A, 120VAC [cURus] 5A, 28VDC 2A, 250VAC [cURus]  <b>Gold:</b> 0.4VA, 20V (AC or DC)	<b>1, 2, 3, or 4 Pole:</b> On-On On-(On) On-Off-On (On)-Off-(On) On-Off-(On)  <b>2 Pole:</b> On-On-On On-On-(On) (On)-On-(On)  <b>4 Pole:</b> On-On-On	Paddle Rocker	<b>Panel Mount:</b> Quick Connect Vertical Solder Lug  <b>PC Mount:</b> Horizontal Right Angle Horizontal Right Angle with Bracket Vertical Vertical Right Angle Vertical with Bracket	PCB Pin Quick Connect Solder Lug	N/A
 <b>300A</b>	<b>Silver:</b> 5A, 120VAC [cURus] 5A, 28VDC 2A, 250VAC [cURus]  <b>Gold:</b> 0.4VA, 20V (AC or DC)	<b>1 or 2 Pole:</b> On-On On-(On) On-Off-On (On)-Off-(On) On-Off-(On)	Paddle Rocker	<b>Panel Mount:</b> Quick Connect Vertical Solder Lug  <b>PC Mount:</b> Horizontal Right Angle Horizontal Right Angle with Bracket Vertical Vertical Right Angle Vertical with Bracket	PCB Pin Quick Connect Solder Lug	IP67
 <b>400</b>	<b>Silver:</b> 3A, 120VAC [cURus] 3A, 28VDC 1A, 250VAC [cURus]  <b>Gold:</b> 0.4VA, 20V (AC or DC)	<b>1 Pole:</b> On-On On-(On) On-Off-On (On)-Off-(On) On-Off-(On) Off-On  <b>2 Pole:</b> On-On On-(On) On-Off-On	Rocker	<b>Panel Mount:</b> Vertical Solder Lug  <b>PC Mount:</b> Horizontal Right Angle Horizontal Right Angle with Bracket Vertical Vertical Right Angle Vertical Right Angle with Bracket Vertical with Bracket	PCB Pin Solder Lug	N/A
 <b>400A</b>	<b>Silver:</b> 3A, 120VAC [cURus] 3A, 28VDC 1A, 250VAC [cURus]  <b>Gold:</b> 0.4VA, 20V (AC or DC)	<b>1 Pole:</b> On-On On-(On) On-Off-On (On)-Off-(On) On-Off-(On) Off-On  <b>2 Pole:</b> On-On On-(On) On-Off-On	Rocker	<b>Panel Mount:</b> Vertical Solder Lug  <b>PC Mount:</b> Horizontal Right Angle Horizontal Right Angle with Bracket Vertical Vertical Right Angle Vertical Right Angle with Bracket Vertical with Bracket	PCB Pin Solder Lug	IP67
 <b>400B</b>	<b>Silver:</b> 3A, 120VAC [cURus] 1A, 250VAC [cURus]	<b>1 Pole:</b> On-On On-(On) On-Off-On (On)-Off-(On) On-Off-(On)	Rocker	<b>PC Mount:</b> Surface Mount	SMT	IP67
 <b>400U</b>	<b>Gold:</b> 0.4VA@ 24V AC or DC	<b>2 Pole:</b> On-None-On	Rocker Lever	<b>PC Mount:</b> Vertical Right Angle, PC thru-hole Right Angle, PC thru-hole PC thru-hole	PCB Pin	IP67

Specifications subject to change without notice



**E-SWITCH®**

www.e-switch.com

800.867.2717

27

# ROCKER SWITCH SERIES (RECTANGULAR PANEL MOUNT)

\*See data sheet for more information

		Electrical Ratings	Poles / Functions	Panel Cutout Dimensions	Actuator Options	Illumination Options	Ingress Protection
	<b>R1966</b>	15A, 125VAC T65 [cURus]	<b>1 Pole:</b> On-Off On-Off-On Off-(On) On-Off-(On)	On-On On-(Off) On-(On) (On)-Off-(On)	13mm x 19.2mm	Curved	Full N/A
	<b>R1973</b>	9A, 125VAC T65 [cURus]	<b>1 Pole:</b> On-Off  <b>2 Pole:</b> On-Off		13mm x 19.2mm	Curved	Full N/A
	<b>R4</b>	20A, 125VAC T65 [cURus]	<b>1 Pole:</b> On-Off On-Off-On Off-(On) On-(Off)	On-On On-(On) (On)-Off-(On) On-Off-(On)	11mm x 30mm	Curved	Full Dott N/A
	<b>R5</b>	20A, 125VAC T65 [cURus]	<b>2 Pole:</b> On-Off On-Off-On Off-(On) On-(Off)	On-On On-(On) (On)-Off-(On) On-Off-(On)	22mm x 30mm	Curved	Full N/A
	<b>R6</b>	10A, 125VAC T65 [cURus]	<b>1 Pole:</b> On-Off	(On)-Off	6.65mm x 19.2mm	Curved	N/A N/A
	<b>R7</b>	16(8)A, 125/250VAC [cURus]	<b>1 or 2 Pole:</b> On-Off (On)-Off On-(Off) On-Off-On	On-On (On)-On (On)-Off-(On) (On)-Off-(On)	21.1mm x 37mm	Hard PC or TPR	Multiple Lens Options IP67
	<b>RA1</b>	16A, 125VAC 1/3HP T105 [cURus]	<b>1 Pole:</b> Off-On On-(On) Off-(On) On-Off-On	On-(Off) On-Off-(On) On-On (On)-Off-(On)	13mm x 19mm	Bi-Color Curved Custom	Full Signal Light IP54 with cap
	<b>RA2</b>	16A, 125VAC 1/3HP T105 [cURus]	<b>1 Pole (Each Actuator):</b> Off-On Off-(On) On-(Off)	On-On On-Off-On	22mm x 19mm	Curved	Signal Light IP54 with cap
	<b>RA4</b>	16A, 125VAC 1/3HP T105 [cURus]	<b>1 or 2 Pole:</b> Off-On Off-(On) On-(Off)	On-On On-Off-On On-(On)	22mm x 19.2mm	Curved Paddle	Full IP54 with cap

Specifications subject to change without notice



# ROCKER SWITCH SERIES (RECTANGULAR PANEL MOUNT)

\*See data sheet for more information

		Electrical Ratings	Poles / Functions	Panel Cutout Dimensions	Actuator Options	Illumination Options	Ingress Protection
	<b>RA8</b>	16A, 125VAC 1/3HP T105 [cURus]	1 Pole: Off-On  2 Pole: Off-On		13mm x 19mm	Bi-color Curved	Full Signal Light  IP54 with cap
	<b>RB1</b>	20A, 125VAC 1/4HP T65 [cURus]	1 Pole: Off-On On-(Off) On-(On) Off-(On) On-Off-On  On-(Off) On-(On) (On)-Off-(On)		11mm x 30mm	Curved Flat	Dot Full Signal Light  IP54 with cap
	<b>RB2</b>	20A, 125VAC 1/4HP T65 [cURus]	1 or 2 Pole: Off-On On-Off-On (On)-Off-(On)  2 Pole Only: Off-(On)  On-On On-Off-(On)  On-(On)		22mm x 30mm	Curved Flat	Dot Full Signal Light  IP54 with cap
	<b>RBW2</b>	16(16)A, 125VAC 5E4 T85 [cURus]	2 Pole: Off-On  *On-On		22mm x 30mm	Curved	Full  IP66
	<b>RD1</b>	16A, 125VAC 1/3HP T105 [cURus]	1 Pole: Off-On		6.8mm x 19.2mm	Curved	N/A  N/A
	<b>RSC</b>	20A, 125VAC 1/4HP T105 [cURus]	1 Pole: Off-On Off-(On)  On-On		28.6mm x 13.9mm 27.2mm x 12.1mm 27.2mm x 13.9mm 28.6mm x 12.1mm	Bi-Color Curved Flat	Full Signal Light  N/A
	<b>RVW</b>	20A, 125VAC [cURus UL508] Momentary Switches: 1.5HP, 220-240VAC [cURus UL508]	1 or 2 Pole: Off-On Off-(On) On-(Off) On-Off-(On)  On-On On-Off-On On-(On) (On)-Off-(On)		21mm x 36.8mm	Curved	N/A  IP54
	<b>WB2</b>	Maintained Switches: 20A, 125/250VAC T65/T85 [cURus] Momentary Switches: 20A, 125/250VAC T65/T85 [cURus]	2 Pole: Off-On Off-(On) (On)-Off-(On)  On-On On-Off-On On-(On)		22mm x 30mm	Curved	N/A  IP55

Specifications subject to change without notice

\*Option only available with non-illuminated version.



**E-SWITCH®**

www.e-switch.com

800.867.2717

29

# ROCKER SWITCH SERIES (OVAL / ROUND PANEL MOUNT)

\*See data sheet for more information

	Electrical Ratings	Poles / Functions	Panel Cutout Dimensions	Actuator Options	Illumination Options	Ingress Protection
	<b>RE1</b> 16A, 125VAC 1/3HP T105 [cURus]	<b>1 Pole:</b> Off-On On-On	On-Off-On 13.5mm x 23.3mm (Oval)	Curved	Full	N/A
	<b>RR1</b> 16A, 125VAC 1/3HP T105 [cURus]	<b>1 Pole:</b> Off-On Off-(On) On-(Off) On-Off-(On)	On-On On-Off-On On-(On)	20mm Diameter Curved	Dot Full Signal Light	IP54 with cap
	<b>RR3112</b> 16A, 125VAC T65 [cURus] 10A, 250VAC T65 [cURus]	<b>1 Pole:</b> On-Off On-Off-On	On-On Off-(On) 20.2mm Diameter	Curved	Full	N/A
	<b>RR3130</b> 10A, 125VAC T65 [cURus] 6A, 250VAC T65 [cURus]	<b>1 Pole:</b> On-Off <b>2 Pole:</b> On-On	On-On 18.2mm Diameter	Curved	N/A	N/A
	<b>RR3402</b> 6A, 125VAC [cURus] 3A, 250VAC [cURus]	<b>1 Pole:</b> On-Off On-Off-On	On-On 15mm Diameter	Paddle	N/A	N/A

Specifications subject to change without notice



# ROCKER SWITCH SERIES (OVAL / ROUND PANEL MOUNT)

*\*See data sheet for more information*



**RR5**

20A, 125VAC T65 [cURus]  
12A, 250VAC T65 [cURus]

**1 Pole:**  
Off-On

Off-(On)

20mm Diameter

Curved

N/A

N/A



**RR8**

16A, 125VAC 1/3HP T105 [cURus]  
10A, 250VAC 1/3HP T105 [cURus]

**1 Pole:**  
Off-On

**2 Pole:**  
Off-On

20mm Diameter

Curved

Full

N/A



**RRA**

15A, 125VAC 1/3HP T105 [cURus]  
10A, 250VAC 1/3HP T105 [cURus]

**1 Pole:**  
Off-On  
On-Off-On

On-On

**2 Pole:**  
Off-On  
On-Off-On

On-On

22mm Diameter

Curved

Full

IP54 with cap



**RRG3**

16A, 125VAC 1/3HP T105 [cURus]  
10A, 250VAC 1/3HP T105 [cURus]

**1 Pole:**  
Off-On  
Off-(On)  
On-(Off)  
On-Off-(On)

On-On  
On-Off-On  
On-(On)

20mm Diameter

Curved

N/A

N/A



**RRGA**

16A, 125VAC 1/3HP T105 [cURus]  
10A, 250VAC 1/3HP T105 [cURus]

**1 Pole:**  
Off-On  
Off-(On)  
On-(Off)  
On-Off-(On)

On-On  
On-Off-On  
On-(On)

22mm Diameter

Curved

N/A

N/A

*Specifications subject to change without notice*



**E-SWITCH®**

www.e-switch.com

800.867.2717






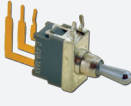



31

The toggle switch is characterized by the presence of a manually operated handle or lever which controls the flow of electrical current from power supply to device such as household appliance. E-Switch offers toggle switches with multiple options such as actuators, bushings, terminals, as well as low to high current ratings, plus some with horsepower ratings for industrial applications.

Smaller size toggles are often used in equipment and devices for telecommunications, networking, instrumentation and medical devices. High power toggles are used in industrial control panels, motor-sports vehicles, commercial appliances, restaurant equipment and recreational vehicles.



# TOGGLE SWITCH SERIES

	General Ratings	Electrical Ratings	Poles / Functions	Actuator Options	Bushing Options	Terminal Options	Ingress Protection	
	<b>100</b>	<b>Electrical Life:</b> 6,000 Cycles <b>Mechanical Life:</b> 40,000 Cycles <b>Operating Temp:</b> -30°C to 85°C <b>Contact Resistance:</b> 10mΩ Max.	<b>Silver:</b> 5A, 120VAC [cURus] 5A, 28VDC 2A, 250VAC [cURus]  <b>Gold:</b> 0.4VA, 20V Max. (AC or DC)	<b>1 or 3 Pole:</b> On-On            On-(On) On-Off-On      (On)-Off-(On) On-Off-(On)  <b>2 or 4 Pole:</b> On-On            On-(On) On-Off-On      (On)-Off-(On) On-Off-(On) On-On-On      On-On-On On-On-(On)    (On)-On-(On)	Flat Locking Metal Plastic	High Torque Non-Threaded Threaded Splash Proof	Quick Connect Right Angle PCB Pin Solder Lug Vertical PCB Pin Wire Wrap	N/A
	<b>100A</b>	<b>Electrical Life:</b> 6,000 Cycles <b>Mechanical Life:</b> 30,000 Cycles <b>Operating Temp:</b> -30°C to 85°C <b>Contact Resistance:</b> 10mΩ Max.	<b>Silver:</b> 5A, 120VAC [cURus] 5A, 28VDC 2A, 250VAC [cURus]  <b>Gold:</b> 0.4VA, 20V Max. (AC or DC)	<b>1 Pole:</b> On-On            On-(On) On-Off-On      (On)-Off-(On) On-Off-(On)  <b>2 Pole:</b> On-On            On-(On) On-Off-On      (On)-Off-(On) On-Off-(On)	Metal Plastic	Non-Threaded Threaded	Right Angle PCB Pin Solder Lug Vertical PCB Pin Wire Wrap	IP67
	<b>200</b>	<b>Electrical Life:</b> 6,000 Cycles <b>Mechanical Life:</b> 30,000 Cycles <b>Operating Temp:</b> -20°C to 85°C <b>Contact Resistance:</b> 20mΩ Max.	<b>Silver:</b> 3A, 120VAC [cURus] 3A, 28VDC 1A, 250VAC [cURus]  <b>Gold:</b> 0.4VA, 20V Max. (AC or DC)	<b>1 Pole:</b> On-On            On-(On) On-Off-On      (On)-Off-(On) On-Off-(On)  <b>2 Pole:</b> On-On            On-(On) On-Off-On      On-Off-(On)	Metal	Non-Threaded Threaded	Right Angle PCB Pin Solder Lug Vertical PCB Pin	N/A
	<b>200A</b>	<b>Electrical Life:</b> 6,000 Cycles <b>Mechanical Life:</b> 30,000 Cycles <b>Operating Temp:</b> -30°C to 85°C <b>Contact Resistance:</b> 20mΩ Max.	<b>Silver:</b> 3A, 120VAC [cURus] 3A, 28VDC 1A, 250VAC [cURus]  <b>Gold:</b> 0.4VA, 20V Max. (AC or DC)	<b>1 Pole:</b> On-On            On-(On) On-Off-On      (On)-Off-(On) On-Off-(On)  <b>2 Pole:</b> On-On            On-(On) On-Off-(On)	Metal Plastic	Non-Threaded	Right Angle PCB Pin Vertical PCB Pin	IP67
	<b>200B</b>	<b>Electrical Life:</b> 6,000 Cycles <b>Mechanical Life:</b> 50,000 Cycles <b>Operating Temp:</b> -30°C to 85°C <b>Contact Resistance:</b> 20mΩ Max.	<b>Gold:</b> 0.4VA, 20V Max. (AC or DC)	<b>1 Pole:</b> On-(On)        On-Off-On (On)-Off-(On) On-Off-(On)	Metal Plastic	Non-Threaded	Surface Mount	IP67
	<b>200R</b>	<b>Electrical Life:</b> 6,000 Cycles <b>Mechanical Life:</b> 40,000 Cycles <b>Operating Temp:</b> -30°C to 85°C <b>Contact Resistance:</b> 50mΩ Max.	<b>Gold:</b> 0.4VA, 48V Max. (AC or DC)	<b>1 or 2 Pole:</b> On-None-On    On-None-(On) On-None-(On) On-Off-On      (On)-Off-(On) On-Off-(On)	Metal	Non-Threaded	Surface Mount Right Angle PCB Pin Vertical Right Angle PCB Pin	N/A
	<b>200U</b>	<b>Electrical Life:</b> 40,000 Cycles <b>Mechanical Life:</b> 40,000 Cycles <b>Operating Temp:</b> -30°C to 85°C <b>Contact Resistance:</b> 100mΩ Max.	<b>Gold:</b> 0.4VA, 20V Max. (AC or DC)	<b>1 or 2 Pole:</b> Off-On            On-On On-Off-On	Plastic	Non-Threaded	PCB Pin Right Angle PCB Pin Vertical Right Angle-PCB Pin	IP67
	<b>ST1 ST2</b> <i>*ST2 Pictured</i>	<b>Electrical Life:</b> 6,000 Cycles <b>Mechanical Life:</b> 100,000 Cycles <b>Operating Temp:</b> -20°C to 85°C <b>Contact Resistance:</b> 50mΩ Max.	<b>Maintained Switches:</b> 20A, 125VAC [cURus] 15A, 277VAC [cURus] 2HP, 125-277VAC [cURus] <b>Momentary Switches:</b> 20A, 125VAC [cURus] 15A, 277VAC [cURus] 1.5HP, 125-277VAC [cURus]	<b>2 Pole:</b> Off-On            On-On Off-(On)        On-Off-(On) On-Off-(On)	Metal	Threaded	Quick Connect Screw Solder Lug Wire Leads	N/A
	<b>ST3</b>	<b>Electrical Life:</b> 6,000 Cycles <b>Mechanical Life:</b> 100,000 Cycles <b>Operating Temp:</b> -20°C to 85°C <b>Contact Resistance:</b> 50mΩ Max.	<b>Maintained Switches:</b> 24A, 125VAC [cURus] 15A, 277VAC [cURus] 2HP, 125-277VAC [cURus]	<b>3 Pole:</b> Off-On            On-On On-Off-On	Metal	Threaded	Quick Connect Screw Solder Lug Wire Leads	N/A

Specifications subject to change without notice

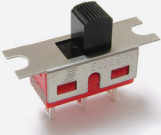



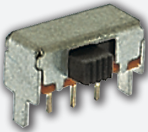
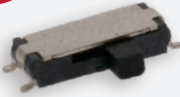

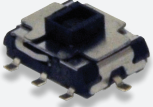


A slide switch utilizes a mechanical lever turning electrical current on and off. Depending on the number of positions available, the lever can move (slide) between an open or closed state. Compact in size, E-Switch offers slide switches with multiple termination options.

Slide switches are commonly used in computer server/peripheral equipment, instrumentation devices, test & measurement equipment and consumer electronics and household appliances.



# SLIDE SWITCH SERIES

	Electrical Ratings	Number of Poles	Number of Positions	Terminal Options	Panel Mount Capable	Ingress Protection
	<b>500</b> Silver: 5A, 120VAC [cURus] 2A, 250VAC [cURus] Gold: 0.4VA, 20V (AC or DC)	Up to 2 Poles	Up to 3 Positions	PCB Pin Solder Lug Quick Connect Wire Wrap	●	N/A
	<b>500A</b> Silver: 3A, 120VAC [cURus] 1A, 250VAC [cURus] Gold: 0.4VA, 20V (AC or DC)	Up to 2 Poles	Up to 3 Positions	PCB Pin	N/A	N/A
	<b>500R</b> Gold: 0.4VA, 20V (AC or DC)	Up to 2 Poles	Up to 3 Positions	Right Angle PCB Pin Vertical PCB Pin	N/A	IP67
	<b>600</b> Silver: 1A, 30VDC Gold: 0.4VA, 20V (AC or DC)	1 Pole	Up to 3 Positions	Right Angle PCB Pin Vertical PCB Pin Surface Mount	●	N/A
	<b>EG</b> 200mA, 30VDC	Up to 6 Poles	Up to 6 Positions	PCB Pin Surface Mount	●	N/A
	<b>EG1215</b> 25mA, 24VDC	1 Pole	2 Positions	Surface Mount	N/A	N/A
	<b>EG1315</b> 25mA, 24VDC	1 Pole	3 Positions	Surface Mount	N/A	N/A
	<b>EGL2290</b> 300mA, 6VDC	2 Poles	2 Positions	Surface Mount	N/A	N/A

Specifications subject to change without notice

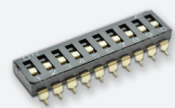


**D**IP switch refers to a set of electrical switches packaged in a small box or housing, which are arranged in a line or circle (rotary DIP). The function is to provide a range of electrical inputs to an electronic device based on the position of the individual switches within the line or circle. The main advantage of a DIP switch is the ability to quickly change positions.

Common applications for DIP switches include computer server/peripheral equipment, instrumentation devices, test & measurement equipment, audio/visual equipment, consumer electronics and medical equipment.



# DIP SWITCH SERIES



**KAE**

Life Cycles: 2,000  
Operating Force: 1,000gf Max.  
Operating Temp: -20°C to 85°C

Switch: 25mA, 24VDC  
Carry: 100mA, 50VDC

Height: 3.05  
Width: 6.3  
Length: Varies per # of positions

1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 12

Extended Recessed

SMT (Gull Wing)  
PCB Pin (Splayed or straight)

Tape and Reel  
Tube

●



**KAN**

Life Cycles: 2,000  
Operating Force: 500gf Max.  
Operating Temp: -40°C to 85°C

Switch: 25mA, 24VDC  
Carry: 100mA, 50VDC

Height: 1.5  
Width: 4.5  
Length: Varies per # of positions

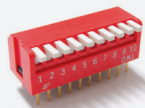
2, 4, 6, 8, 10

Recessed

SMT (Gull Wing)

Tape and Reel  
Tube

●



**KAP**

Life Cycles: 2,000  
Operating Force: 400gf Max.  
Operating Temp: -40°C to 85°C

Switch: 25mA, 24VDC  
Carry: 100mA, 50VDC

Height: 10.8  
Width: 10.2  
Length: Varies per # of positions

2, 3, 4, 5, 6, 7, 8, 9, 10, 12

Extended Recessed

PCB Pin

Tube

●



**KAC**

Life Cycles: 2,000  
Operating Force: 800gf Max.  
Operating Temp: -20°C to 85°C

Switch: 25mA, 24VDC  
Carry: 100mA, 50VDC

Height: 5.0  
Width: 6.0  
Length: Varies per # of positions

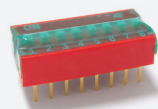
2, 4, 6, 8, 10

Extended

SMT (Gull Wing)  
PCB Pin (Splayed)

Tape and Reel  
Tube

N/A



**KAS**

Life Cycles: 2,000  
Operating Force: 1,000gf Max.  
Operating Temp: -40°C to 85°C

Switch: 25mA, 24VDC  
Carry: 100mA, 50VDC

Height: 6.0  
Width: 9.9  
Length: Varies per # of positions

2, 3, 4, 5, 6, 7, 8, 9, 10, 12

Extended Recessed

PCB Pin (Vertical & Right Angle)

Tube

●



**DR**

2x3, 3x3, 4x1 Layout  
Life Cycles: 15,000 Steps  
Operating Force: 500gf-cm Max.  
Operating Temp: -40°C to 85°C

Switch: 25mA, 24VDC  
Carry: 100mA, 50VDC

Height: 4.5  
Width: 9.8  
Length: 9.9

10, 16

Extended Flush

PCB Pin

Tape and Reel  
Tube

N/A



**RDM**

3x3 Layout  
Life Cycles: 25,000 Steps  
Operating Force: 120gf-cm Max.  
Operating Temp: -60°C to 125°C

Switch: 100mA, 42VDC  
Carry: 400mA, 42VDC

Height: 3.65 (Vert)  
Height: 5.80 (RA)  
Width: 7.4  
Length: 7.4

10, 16

Extended Flush

PCB Pin (Vertical & Right Angle)  
SMT

Tape and Reel  
Tube

IP67



**RDT**

2x3, 3x3 Layout  
Life Cycles: 10,000 Steps  
Operating Force: 700gf-cm Max.  
Operating Temp: -40°C to 85°C (Through Hole), -60°C to 125°C (SMT)

Switch: 150mA, 42VDC  
Carry: 200mA, 42VDC

Height: 6.50 (Vert)  
Height: 12.05 (RA)  
Width: 10.0  
Length: 10.0

04, 06, 08, 10, 16

Extended Flush

PCB Pin (Vertical & Right Angle)  
SMT

Tape and Reel  
Tube

IP67

Specifications subject to change without notice



**E-SWITCH®**

www.e-switch.com

800.867.2717

37

The screenshot shows the E-Switch website interface with the following callout boxes:

- Web Forms**: Points to the top navigation bar.
- Resources**: Points to the 'Product Catalog' and 'Training' tabs.
- Monthly Marketing**: Points to the 'Introducing E-Bits Video' section.
- E-Bits Video Series**: Points to the video player for 'E-Bits KS1100 Introduction'.
- Product Catalog**: Points to the 'Product Catalog' sidebar menu.
- Digital Postcards**: Points to the 'For marketing postcards click here' link.
- E-Switch News**: Points to the 'E-Switch Announcements' section.
- Virtual Solutions**: Points to the 'E-Switch Virtual Solutions' section at the bottom.
- Distributor Stock Check**: Points to the 'Distributor Stock Check' link in the top navigation.
- Extranet Login**: Points to the 'Extranet Login' link in the top navigation.
- Social Media**: Points to the social media icons (Twitter, LinkedIn, Facebook, YouTube, etc.).
- 3D Drawing Request**: Points to the '3D Models' section.
- Product Matrix**: Points to the 'Product Matrix' section.
- Featured Products**: Points to the 'Featured Product' section.
- Virtual Applications**: Points to the 'Virtual Applications' section.
- Training Center**: Points to the 'Training Center' section.
- New Product Alerts Signup**: Points to the 'New Product Sign-up' form.

Visit [www.e-switch.com](http://www.e-switch.com) to download 3D models, ROHS certifications, PDF specifications and drawings.

Plus, see our newest product releases and follow E-Switch on social media by clicking on the icons.



# RECOMMENDED SOLDERING GUIDELINES & IP RATINGS

Most contamination problems can be prevented by exercising care during the cleaning and soldering process. Care should be taken not to immerse or spray unsealed switches during flux removal. Contact E-Switch for specific soldering recommendations and specifications not found in this catalog. Generalized soldering procedures are outlined below.

## HAND SOLDERING AND TEMPERATURES

Recommend soldering irons of 30 watt maximum with a tip temperature of 345°C (650°F) for 2-3 seconds and solder of 0.030 - 0.040 diameter.

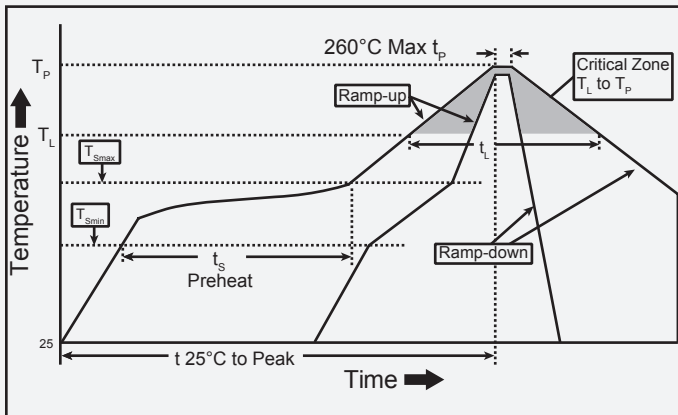
## SMT REFLOW (LEAD AND LEAD-FREE)

### “TYPICAL” SMT REFLOW (Pb and Pb-Free)

Profile Feature	Sn-Pb Eutectic Assembly	Pb-Free Assembly
Average Ramp-Up Rate ( $T_{Smax}$ to $T_p$ )	3°C/second max.	3°C/second max.
<b>Preheat</b>		
-Temperature Min. ( $T_{Smin}$ )	100°C	150°C
-Temperature Max. ( $T_{Smax}$ )	150°C	200°C
-Time ( $t_{Smin}$ to $t_{Smax}$ )	60-120 seconds	60-180 seconds
Time maintained above:		
-Temperature ( $T_L$ )	183°C	217°C
-Time ( $t_l$ )	60-150 seconds	60-150 seconds
Time within 5°C of actual Peak Temperature ( $t_p$ )	10-30 seconds	20-40 seconds
Ramp-Down Rate	6°C/second max.	6°C/second max.
Time 25°C to Peak Temperature	6 minutes max.	8 minutes max.

Note 1: All temperatures refer to topside of the package, measured on the package body surface.

### Classification Reflow Profile

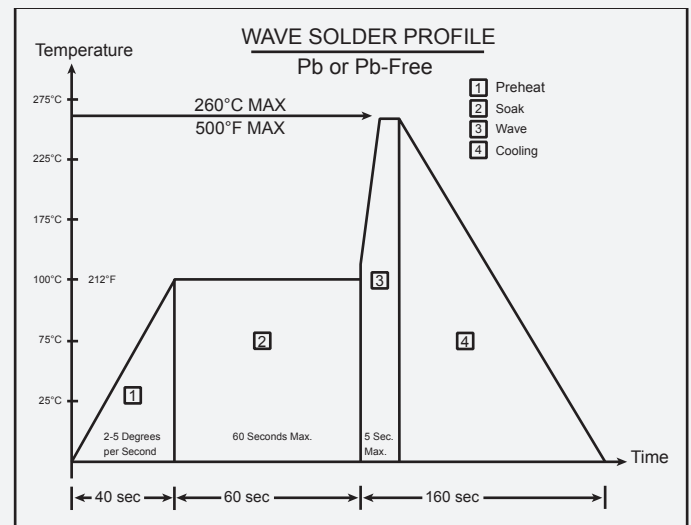


## WAVE SOLDER TIME AND TEMPERATURES

When wave soldering, we recommend using a no-clean flux soldering process, rather than a process that requires washing. The fluxing process must be controlled so as not to have flux migrate inside the switch.

### WAVE SOLDER

(Includes Pb-Free, max. component side preheat temp-130°C)



Good venting is required. No-clean flux vapors can enter the switch if adequate venting is not available. The vapors will condense on the internal contacts and become an insulator when they solidify.

- Preheat temperature/time: Circumferential temperature of the P.C. Board not to exceed 100°C (212°F) for 60 seconds.
- Soldering temperature/time: not to exceed 260°C (500°F) for 5 seconds.

## IP Rating Chart

First Number	Definition	Second Number	Definition
Protection against solid objects		Protection against liquids	
0	No protection	0	No protection
1	Protected against solid objects over 50mm (e.g. accidental touch by hands)	1	Protected against vertically falling drops of water
2	Protected against solid objects over 12mm (e.g. fingers)	2	Protected against direct sprays up to 15° from the vertical
3	Protected against solid objects over 2.5mm (e.g. tools and wires)	3	Protected against direct sprays up to 60° from vertical
4	Protected against solid objects over 1mm (e.g. tools, wires and small wires)	4	Protected against sprays from all directions - limited ingress permitted
5	Protected against dust - limited ingress (no harmful deposit)	5	Protected against low pressure jets if water from all directions - limited ingress permitted
6	Totally protected against dust	6	Protected against strong jets of water (e.g. for use on shipdecks - limited ingress permitted)
		7	Protected against the effects of temporary immersion between 15cm and 1m. Duration of test 30 min.
		8	Protected against long periods of immersion under pressure





# E-SWITCH®

## About Us

E-Switch, headquartered in Minneapolis, Minnesota, has been delivering quality electromechanical switches to the telecom, high tech, medical, electronics, instrumentation, industrial, audio/visual, appliance and consumer markets since 1979. With international offices in Singapore and Hong Kong, E-Switch's global reach includes North America, Europe, Asia and Latin America.

### **E-Switch, Inc.**

Address: 7153 Northland Drive N  
Minneapolis, MN 55428-1514  
USA

Phone: 763-504-3525

Toll Free (USA): 800-867-2717

Fax: 763-531-8235

### **E-Switch Asia**

Address: 8 Burn Road  
#09-04, Trivex  
Singapore 369977

Phone: +65-69090863



[www.e-switch.com](http://www.e-switch.com)



[@ESwitch](https://twitter.com/ESwitch)



[E-Switch, Inc.](https://www.linkedin.com/company/e-switch-inc)



[E-Switch, Inc.](https://www.youtube.com/channel/UC...)



[@EswitchSwitches](https://plus.google.com/+ESwitchSwitches)



[eswitch.wordpress.com](http://eswitch.wordpress.com)