

MT series

Sealed selector switches

Distinctive features - Specifications

U1603R2US



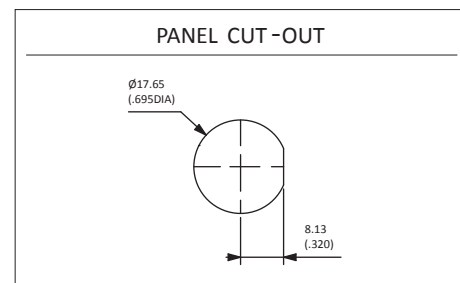
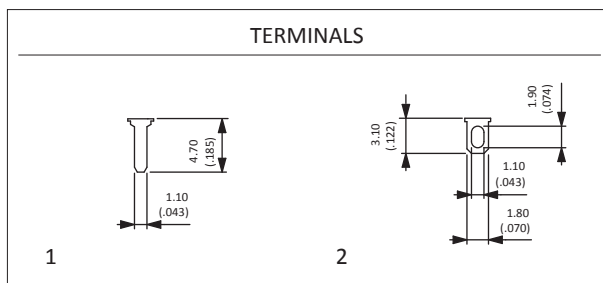
- ❑ Environmentally sealed selector switch (IP68)
- ❑ Multiple functions available
- ❑ Various contact materials that allow usage from dry circuit applications up to 4A

ELECTRICAL AND GENERAL SPECIFICATIONS

- Max. current/voltage rating with resistive load
 - Silver contacts (A) : 4A 30VDC
 - Gold plated silver contacts (AD) : 4A 30VDC (gold plating withstands up to 100mA 30VDC)
 - Gold plated brass contacts (CD) : 0,4VA 20VAC or DC
- Minimal load :
 - A contacts : 50mA 10VDC
 - AD and CD contacts : 10mA 50mV - 10µA 5V
- Initial contact resistance : 10mΩ max.
- Insulation resistance : 1.000 MΩ min. at 500VDC
- Dielectric strength : 1.000 Vrms 50Hz min. between terminals
1.500 Vrms 50Hz min. between terminals and frame
- Contact bounce : 2ms max.
- Electrical life at full load : 50,000 cycles
- Low level or mechanical life : 100,000 cycles
- Panel thickness : 11.5 mm (.452) max.
- Operating temperature : -40°C to +85°C

MATERIALS

- Actuator : 6/6 nylon
soft touch: thermoplastic elastomer over 6/6 nylon
- Bushing : brass, chrome plated
- Contacts
 - A: silver
 - AD: silver, gold plated
 - CD: brass, gold plated
- Terminal seal : epoxy



Dimensions: First dimensions are in mm while inches are shown as bracketed numbers.



Mounting accessories: Standard hardware supplied : 1 hex nut 20.64 mm (.813) across flats and 1 sealing gasket.



Packaging unit: 40 pieces per tray

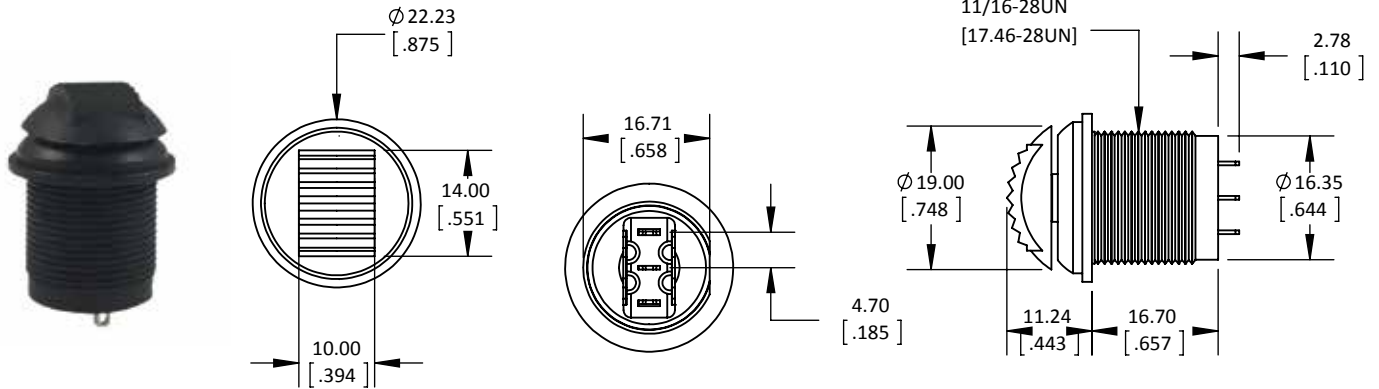
Note: The company reserves the right to change specifications without notice.

MT series Sealed selector switches

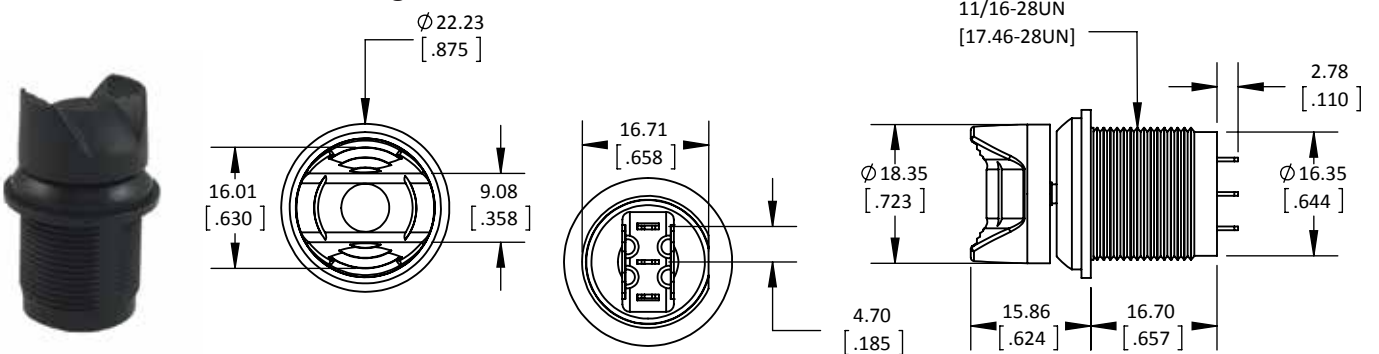
Distinctive features - Specifications

MT					
SERIES	Bushing finish		Electrical functions		Terminals
	Blank	Bright chrome	6 ON - ON	9 ON OFF ON	1 Straight PC
	G	Matte black (std)	7 MOM OFF MOM	8 ON OFF MOM	2 Solder lug
			2 ON - MOM		
			Contact materials		Actuators
			A Silver		2 Rocker, black
			AD Gold plated silver		3 Winged, black
			CD Gold plated brass		4 Paddle, black
					5 Winged, soft touch, black
					6 Paddle, soft touch, black
					Other : on request.

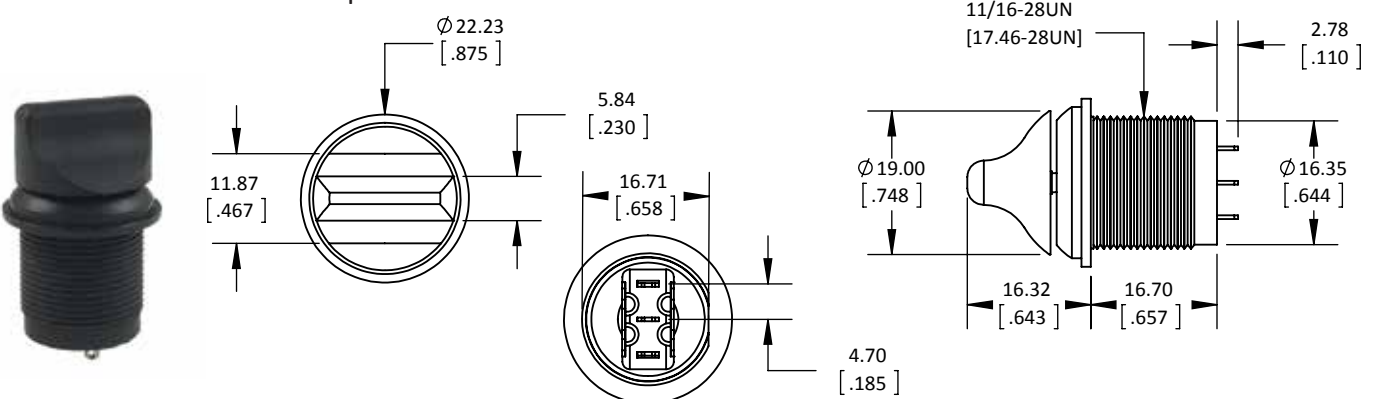
Sealed selector switch with rocker actuator



Sealed selector switch with winged actuator



Sealed selector switch with paddle actuator



Note: The company reserves the right to change specifications without notice.

7000 series

Rocker and paddle switches



DISTINCTIVE FEATURES

- Wide variety of actuators and terminals
- Many mounting styles for panel or PCB
- 4 contact materials
- 8 electrical functions, maintained or momentary
- UL and CSA approved - for VDE, refer to 57000



ELECTRICAL SPECIFICATIONS

- Current/voltage rating with resistive load :

Contact	Maximum	Minimum	Level *
Silver A	4 A 30 VDC	50 mA 10 VDC	III and IV
Silver, gold plated AD	4 A 30 VDC Gold plating withstands up to 100 mA 30 VDC	10 mA 50 mV 10 μ A 5 V	I to IV
Brass, gold plated CD	0.4 VA at 20 VAC or DC	10 mA 50 mV 10 μ A 5 V	I and II

* For details, see "Technical information" on website.

- For inductive, lamp or capacitive loads, consult factory.
- Initial contact resistance : 10 m Ω
- Insulation resistance : 1,000 M Ω min. at 500 VDC
- Dielectric strength :
 - 1,000 Vrms 50 Hz min. between terminals
 - 1,500 Vrms 50 Hz min. between poles
 - 1,500 Vrms 50 Hz min. between terminals and frame
- Contact bounce : 2 ms max.
- Electrical life : 50,000 cycles at full load



GENERAL SPECIFICATIONS

- Low level or mechanical life : 100,000 cycles
- Panel thickness : 1 (.039) to 2.5 mm(.098)
- Operating temperature : -40 °C to +85 °C (-40 °F to +185 °F)

The company reserves the right to change specifications without notice.



7000 series

Rocker and paddle switches



MATERIALS

- Case : diallylphthalate (DAP) or high temperature plastic material (UL94-V0)
- Actuator : polyamide
- Housing : stainless steel or steel tin plated
- Bracket : steel, tin plated
- Contacts :
- A : silver
- AD : silver, gold plated
- CD : brass, gold plated
- X601 : brass, silver plated
- Terminal seal : epoxy

APEM products may be recycled at end-of-life for the re-claiming of valuable metal components.

AGENCY APPROVALS



3 A 250 VAC
6 A 125 VAC

For VDE, refer to 57000 series.

Availability : consult factory for details of approved models.

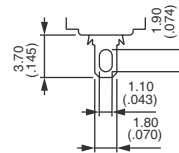
Marking : to order switches marked UL or CSA, complete appropriate box of ordering format.



ELECTRICAL FUNCTIONS



TERMINALS



Solder lug



Straight PC

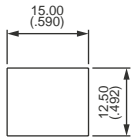
7000 series

Rocker and paddle switches

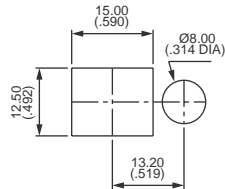


PANEL CUT-OUT

7600 - 7200 - 7400 - 7200Z MODELS

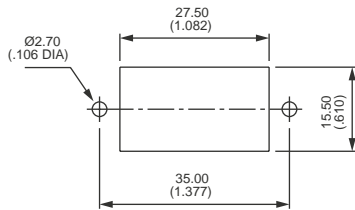


With or without bezel **U1200**

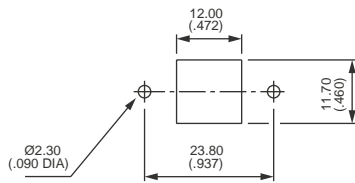


With bezel **U1210**

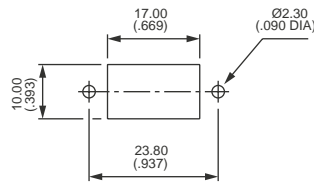
7700 - 7900 MODELS



7700N - 7900N MODELS

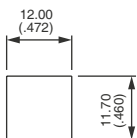


With small rocker **U730**
or small paddle **U700**

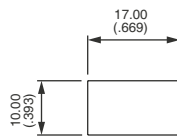


With medium rocker **U620**
or medium paddle **U610**

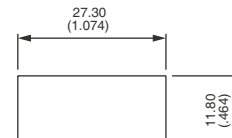
7900W AND 7000Y - Y6 MODELS



With small rocker **U730**
or small paddle **U700**



With medium rocker **U620**
or medium paddle **U610**



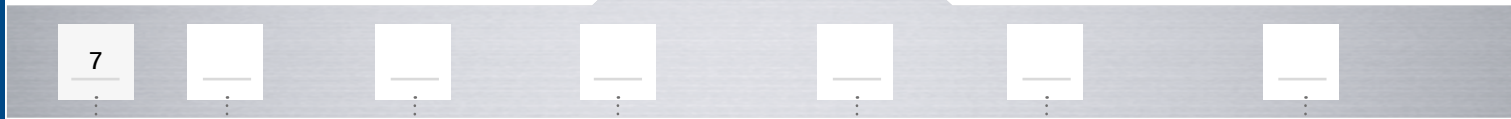
With large rocker **U1010**

7000 series

Rocker and paddle switches

BUILD YOUR PART NUMBER

BASIC PART NUMBER



SERIES

NUMBER OF POLES

TERMINALS

TERMINALS

ELECTRICAL FUNCTIONS

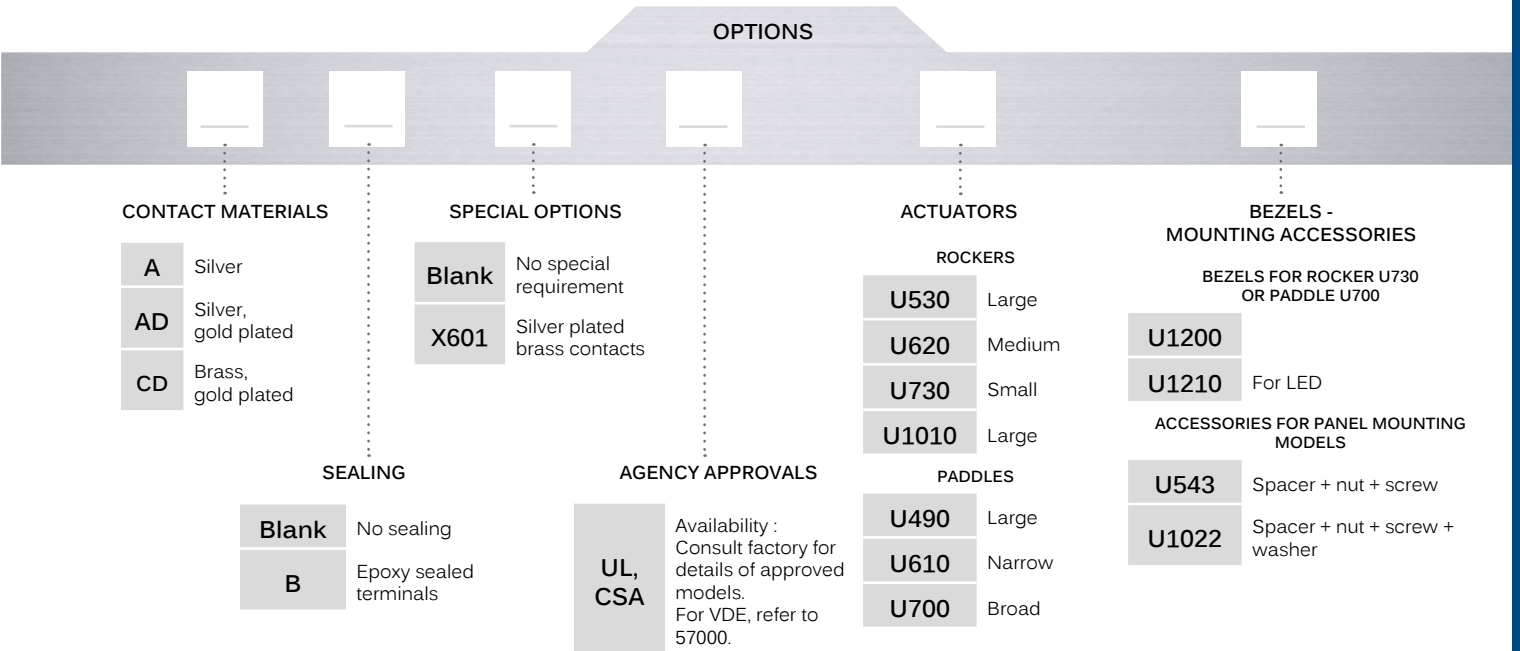
CONNECTIONS FOR FUNCTION 4

MOMENTARY FOR FUNCTION 4

<p>7</p> <p>Right angle terminals or straight PC terminals with bracket</p> <p>2</p> <p>Straight PC or quick-connect terminals, 4.7 (.185) terminal spacing, snap-in mounting</p> <p>6</p> <p>Solder lug terminals, snap-in mounting</p> <p>7</p> <p>Solder lug terminals, panel mounting</p> <p>9</p> <p>Straight PC or quick-connect terminals, 4.7 (.185) terminal spacing, panel mounting Right angle terminals</p>	<p>3 Single pole</p> <p>4 Double pole</p> <p>Consult factory for three and four pole models.</p>	<p>Blank</p> <p>Solder lugs or straight PC depending on model</p> <p>W</p> <p>Right angle, horizontal mounting (7900 switches)</p> <p>Y</p> <p>Bracket mounting (7000 switches)</p> <p>Y6</p>	<p>MOUNTING PLATE</p> <p>N</p> <p>Mounting with small plate</p>	<table border="0"> <tr> <td>6</td> <td>ON</td> <td>-</td> <td>ON</td> </tr> <tr> <td>9</td> <td>ON</td> <td>OFF</td> <td>ON</td> </tr> <tr> <td>7</td> <td>MOM</td> <td>OFF</td> <td>MOM</td> </tr> <tr> <td>8</td> <td>ON</td> <td>OFF</td> <td>MOM</td> </tr> <tr> <td>2</td> <td>ON</td> <td>-</td> <td>MOM</td> </tr> <tr> <td>4</td> <td>ON</td> <td>ON</td> <td>ON</td> </tr> <tr> <td></td> <td>ON</td> <td>ON</td> <td>MOM ▲</td> </tr> <tr> <td></td> <td>MOM</td> <td>ON</td> <td>MOM ▲</td> </tr> </table> <p>Function 4 Must not have blank in "connections" box. ▲ Must not have blank in "momentary" box.</p>	6	ON	-	ON	9	ON	OFF	ON	7	MOM	OFF	MOM	8	ON	OFF	MOM	2	ON	-	MOM	4	ON	ON	ON		ON	ON	MOM ▲		MOM	ON	MOM ▲	<p>TH</p> <p>Standard</p> <p>CT</p> <p>Reversed</p> <p>For functions 4, 41R, 42R Leave blank for all other functions.</p>	<p>1R</p> <p>ON ON MOM</p> <p>2R</p> <p>MOM ON MOM</p> <p>Leave blank for other functions.</p>
6	ON	-	ON																																			
9	ON	OFF	ON																																			
7	MOM	OFF	MOM																																			
8	ON	OFF	MOM																																			
2	ON	-	MOM																																			
4	ON	ON	ON																																			
	ON	ON	MOM ▲																																			
	MOM	ON	MOM ▲																																			

7000 series

Rocker and paddle switches



ABOUT THIS SERIES

On the following pages, you will find successively basic part numbers of switches and options in the same order as in above chart.



Notice : please note that not all combinations of above numbers are available. Refer to the following pages for further information.

7000 series

Rocker and paddle switches

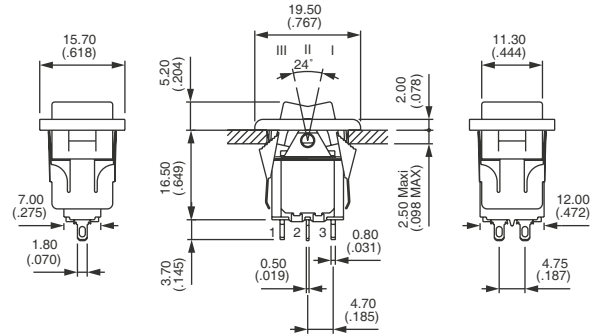
SNAP-IN MOUNTING

SOLDER LUG TERMINALS : 7600



		III 2-3 5-6	II	I 1-2 4-5
Single pole	Double pole			
7636	7646	ON	-	ON
7639	7649	ON	OFF	ON
7637	7647	MOM	OFF	MOM
7638	7648	ON	OFF	MOM
7632	7642	ON	-	MOM
	7644*	ON	ON	ON
	7644 1R*	ON	ON	MOM
	7644 2R*	MOM	ON	MOM

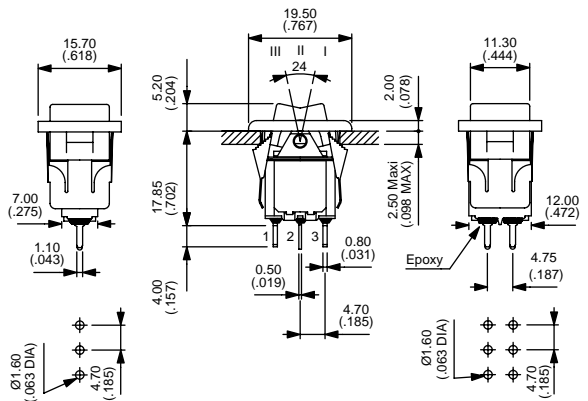
Shown with rocker U730 and bezel U1200



SNAP-IN MOUNTING - STRAIGHT PC TERMINALS SPACING 4.7 (.185) : 7200



		III 2-3 5-6	II	I 1-2 4-5
Single pole	Double pole			
7236 B	7246 B	ON	-	ON
7239 B	7249 B	ON	OFF	ON
7237 B	7247 B	MOM	OFF	MOM
7238 B	7248 B	ON	OFF	MOM
7232 B	7242 B	ON	-	MOM
	7244 B*	ON	ON	ON
	7244 1R B*	ON	ON	MOM
	7244 2R B*	MOM	ON	MOM

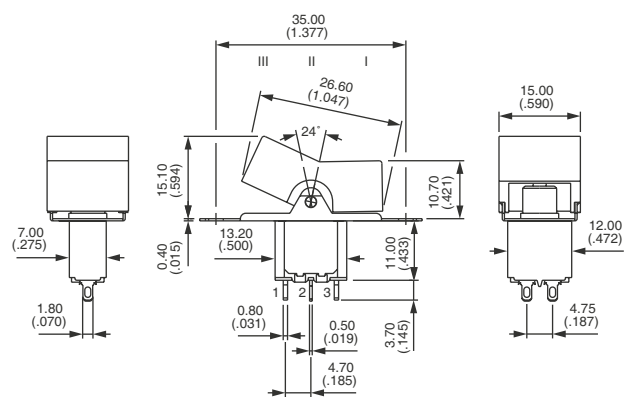


PANEL MOUNTING - LARGE ACTUATOR SOLDER LUG TERMINALS : 7700



		III 2-3 5-6	II	I 1-2 4-5
Single pole	Double pole			
7736	7746	ON	-	ON
7739	7749	ON	OFF	ON
7737	7747	MOM	OFF	MOM
7738	7748	ON	OFF	MOM
7732	7742	ON	-	MOM
	7744*	ON	ON	ON
	7744 1R*	ON	ON	MOM
	7744 2R*	MOM	ON	MOM

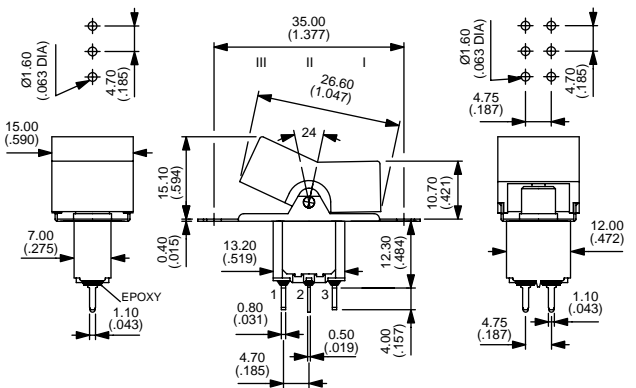
Shown with rocker U530



PANEL MOUNTING - LARGE ACTUATOR STRAIGHT PC TERMINALS : 7900



		III 2-3 5-6	II	I 1-2 4-5
Single pole	Double pole			
7936 B	7946 B	ON	-	ON
7939 B	7949 B	ON	OFF	ON
7937 B	7947 B	MOM	OFF	MOM
7938 B	7948 B	ON	OFF	MOM
7932 B	7942 B	ON	-	MOM
	7944 B*	ON	ON	ON
	7944 1R B*	ON	ON	MOM
	7944 2R B*	MOM	ON	MOM



* Function 4 : SP in DP case, specify CT or TH connections, see "Technical information" on website.

7000 series

Rocker and paddle switches

SHORT BRACKET - WIDTH 15.75 (.620) - SINGLE POLE : 7030Y



	III	II	I
	2-3		1-2
	5-6		4-5
7036Y B	ON	-	ON
7039Y B	ON	OFF	ON
7037Y B	MOM	OFF	MOM
7038Y B	ON	OFF	MOM
7032Y B	ON	-	MOM

SHORT BRACKET - WIDTH 15.75 (.620) - DOUBLE POLE : 7040Y



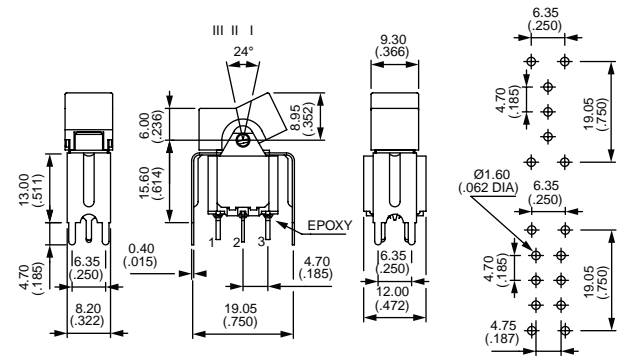
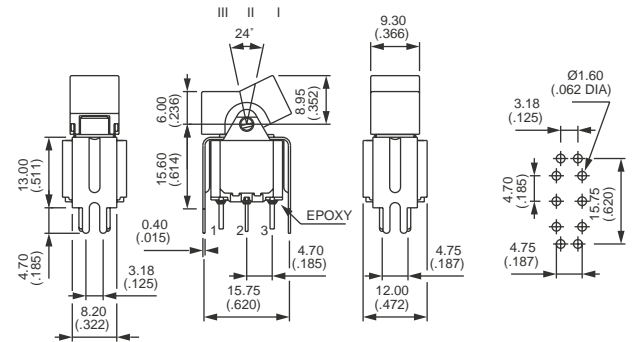
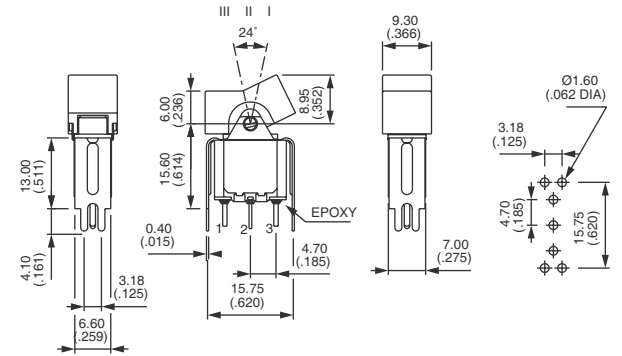
	III	II	I
	2-3		1-2
	5-6		4-5
7046Y B	ON	-	ON
7049Y B	ON	OFF	ON
7047Y B	MOM	OFF	MOM
7048Y B**	ON	OFF	MOM
7042Y B**	ON	-	MOM
7044Y B*	ON	ON	ON
7044Y 1R B*	ON	ON	MOM
7044Y 2R B*	MOM	ON	MOM

SHORT BRACKET - WIDTH 19.05 (.750) : 7000Y6



Single pole	Double pole	III	II	I
		2-3		1-2
		5-6		4-5
7036Y6 B	7046Y6 B	ON	-	ON
7039Y6 B	7049Y6 B	ON	OFF	ON
7037Y6 B	7047Y6 B	MOM	OFF	MOM
7038Y6 B	7048Y6 B**	ON	OFF	MOM
7032Y6 B	7042Y6 B**	ON	-	MOM
	7044Y6 B*	ON	ON	ON
	7044Y6 1R B*	ON	ON	MOM
	7044Y6 2R B*	MOM	ON	MOM

Shown with rocker U620

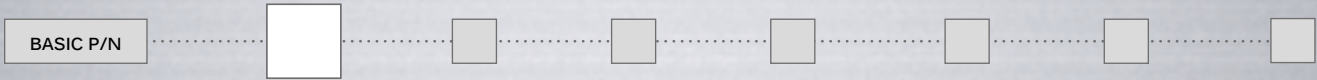


* Function 4 : SP in DP case, specify CT or TH connections, see "Technical information" on website.

7000 series

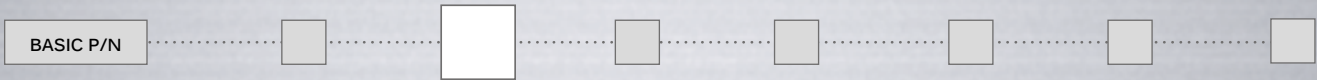
Rocker and paddle switches

CONTACT MATERIALS



- A Silver
- AD Silver, gold plated
- CD Brass, gold plated

SEALING



- Blank No sealing
- B Epoxy sealed terminals



B

SPECIAL OPTIONS



- Blank No special requirement
- X601 Silver plated brass contacts
Current voltage rating for an electrical life of 20,000 cycles : 0.5 A 30 VDC
Minimum quantity : 5,000 pieces per model and shipment.

AGENCY APPROVALS



- UL All standard models
- CSA All standard models
- Blank No agency approval required.

Availability

Consult factory for details of approved combinations or options.

Marking

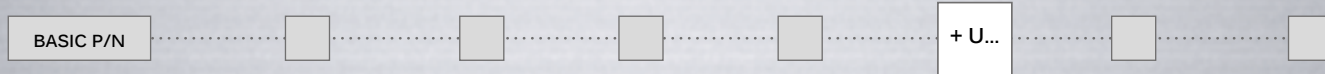
To order switches marked UL or CSA, complete above box with desired approvals in this order, without space (ex. ULCSA).

VDE (with UL & CSA) : Refer to 57000 series.

7000 series

Rocker and paddle switches

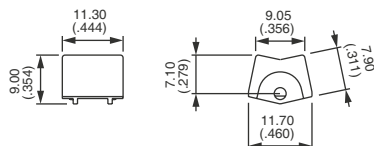
ACTUATORS



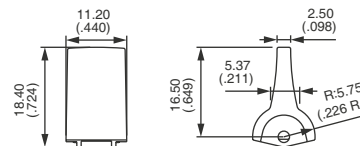
For actuator color, replace last "0" by number :

- 1 Blue
- 1/4 Dark blue
- 2 Black
- 3 Green
- 4 Grey
- 5 Yellow
- 6 Red
- 7 Ivory
- 7/1 White
- 9 Orange

FOR SNAP-IN MOUNTING MODELS : 7600 - 7200 - 7400

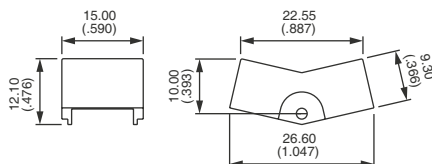


U730
Small rocker

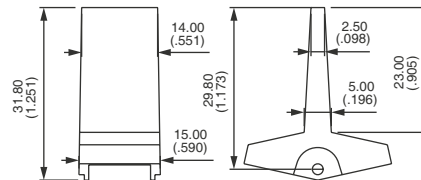


U700
Broad paddle

FOR 7700 AND 7900 MODELS

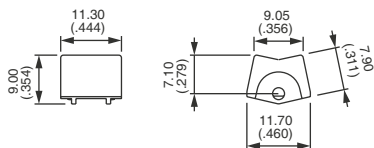


U530
Large rocker

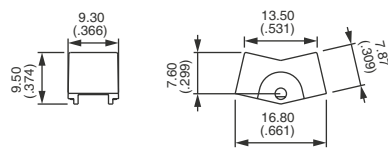


U490
Large paddle

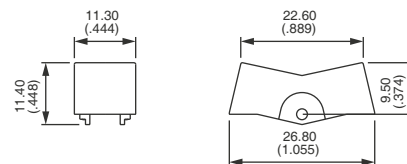
FOR 7700N - 7900N - 7900W AND 7000Y MODELS



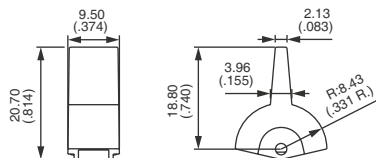
U730
Small rocker



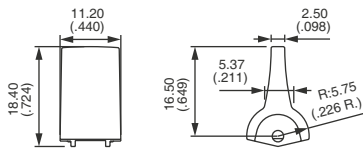
U620
Medium rocker



U1010
Large rocker
For 7900W, available on DP only.



U610
Narrow paddle

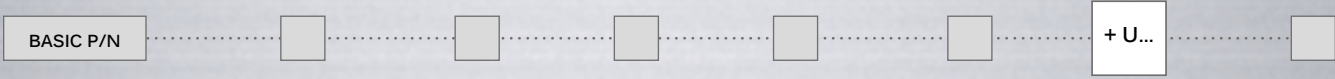


U700
Broad paddle

7000 series

Rocker and paddle switches

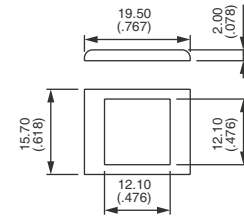
BEZELS



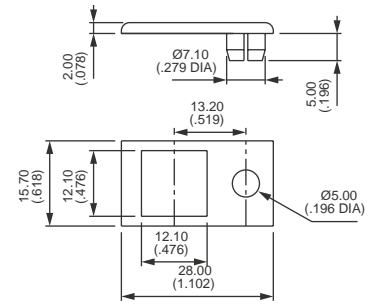
For bezels color, replace last "0" by number :

- 1 Blue
- 1/4 Dark blue
- 2 Black
- 3 Green
- 4 Grey
- 5 Yellow
- 6 Red
- 7 Ivory
- 7/1 White
- 9 Orange

BEZELS FOR PADDLE U700 AND ROCKER U730



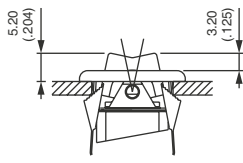
U1200



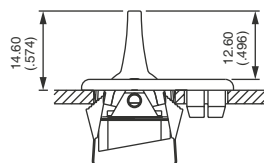
U1210
For LED Ø 5 (.196) - not supplied

STANDARD PANEL MOUNTING

Panel thickness with bezel 1 to 2.5 mm (.039 to .098)

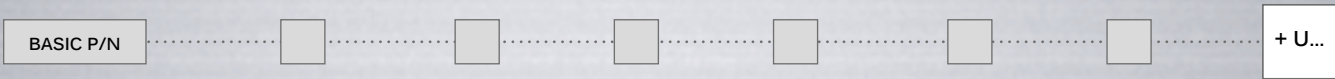


U730 + U1200

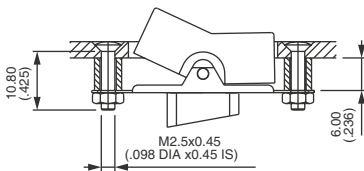


U700 + U1210

MOUNTING ACCESSORIES

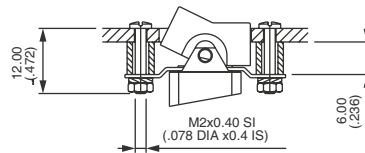


FOR ROCKER U530 OR PADDLE U490



U543
Spacers, screws and nuts

FOR ROCKERS U620 OR U730, FOR PADDLES U610 OR U700



U1022
Spacers, screws, nut and washers

KG series

Power rocker switches



DISTINCTIVE FEATURES

Protected rocker

Illuminated or non-illuminated

VDE (EN 61058-1) approved

Sealed to IP65



ENVIRONMENTAL SPECIFICATIONS

- Degree of protection : IP65 according to IEC 60529
- Shock resistance : 100 g according to IEC 512-4, test 6c
- Vibration resistance : 10-500 Hz - 10 g according to IEC 512-4, test 6d
- Salt spray resistance : 96 hours according to IEC 512-6, test 11f
- Operating temperature :
 - 2 position models : -40 °C to + 85 °C (-40 °F to +185 °F)
 - 3 position models : -10 °C to + 65 °C (-14 °F to +149 °F)



ELECTRICAL AND GENERAL SPECIFICATIONS

- Current/voltage rating :
 - functions 1 (ON-OFF) and 6 (ON-ON) : 15 A 12 VDC, 10 A 24 VDC max., 10 mA 14 VDC min.
 - functions 4 (ON ON ON) and 4-1R (ON ON MOM) : 8 A 12 VDC, 5A 24VDC max.
 - other functions : 10 A 12 VDC, 8 A 24 VDC max.
- Initial contact resistance : 10 mΩ max. at 1 A 2 VDC
- Insulation resistance : 1,000 MΩ min. at 500 VDC
- Dielectric strength : 2,000 Vrms 50 Hz min. between terminals
- Electrical life : 10,000 cycles min.
- Mechanical life : 2 position models : 100,000 cycles min.
3 position models : 30,000 cycles min.
- Panel cut-out : 36.80 x 21.08 mm (1.149 x .830)
- Panel thickness : 0.8 mm to 4.6 mm
- Recommended thickness : between 2 mm and 3.5 mm

The company reserves the right to change specifications without notice.



KG series

Power rocker switches

AGENCY APPROVAL



12(4) A 250 VAC
T85/55 °C

EN 61058-1

Availability : double pole models, functions ON-OFF and ON-ON.

Marking : to order switches marked VDE, add "VDE" at the end of model number..

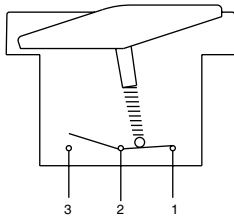


MATERIALS

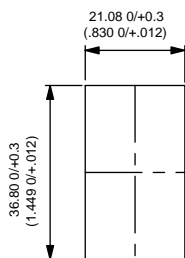
- Case : thermoplastic UL94-V0
- Terminals : brass, silver plated
- Contacts : silver grain
- Contact roller : brass, nickel plated



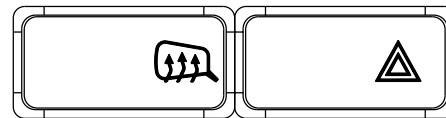
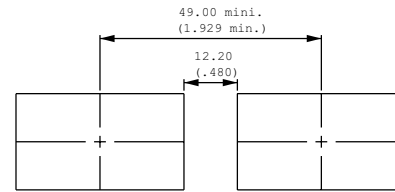
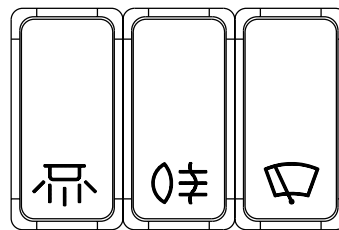
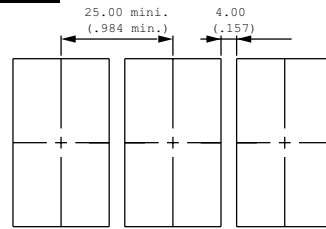
ELECTRICAL FUNCTIONS



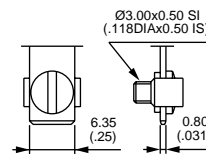
PANEL CUT-OUT



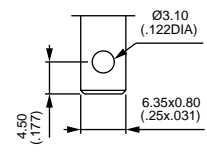
MATRIX MOUNTING



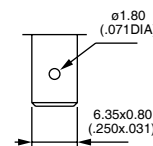
TERMINALS



Screw



Solder lug / quick-connect



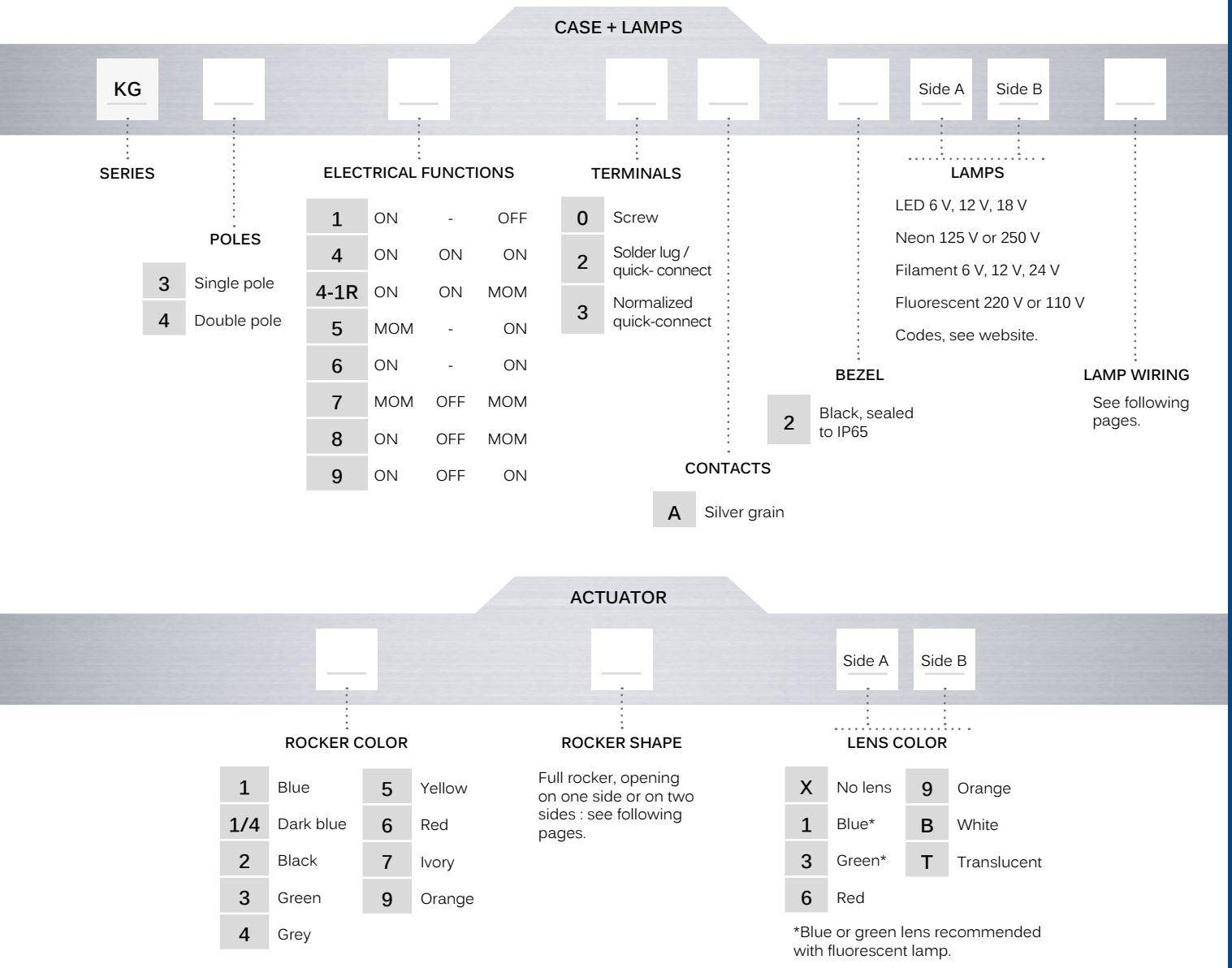
Normalized quick-connect 6.35x0.8

KG series

Power rocker switches



BUILD YOUR PART NUMBER



Actuator marking and symbols : see end of the series.



ABOUT THIS SERIES

- ⚠ **Notice** : please note that not all combinations of above numbers are available. Refer to the following pages for further information.
- 🔒 **Sealing boot** are available to protect the switches against dust and water. See "Sealing Boots" section of website.

KG series

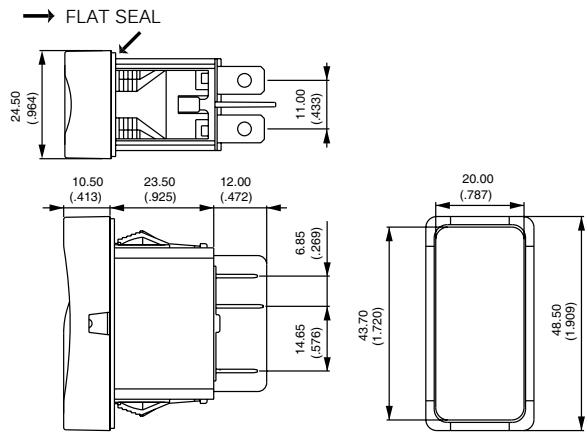
Power rocker switches

SOLDER LUG / QUICK-CONNECT TERMINALS

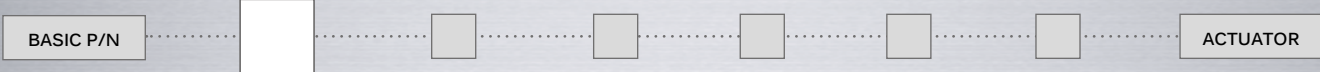


	Single pole	Double pole	2-3 5-6	1-2 4-5
KG31		KG41	ON	OFF
		KG44*	ON	ON
		KG44-1R*	ON	MOM
KG35		KG45	MOM	ON
KG36		KG46	ON	ON
KG37		KG47	MOM	OFF
KG38		KG48	ON	OFF
KG39		KG49	ON	ON

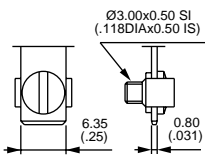
* Function 4 : single pole in double pole case



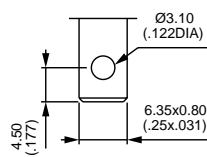
CASE + LAMPS



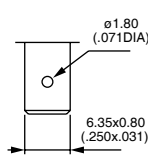
- 0 Screw
- 2 Solder lug / quick-connect
- 3 Normalized quick-connect



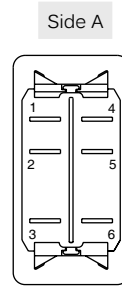
0



2



3

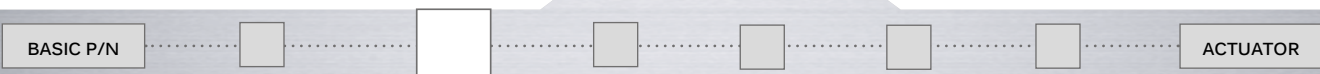


Side A

Side B

Terminals 1 to 6 are marked on the case.
Side A : terminals 1 and 4
Side B : terminals 3 and 6

CASE + LAMPS



- A Silver grain

CASE + LAMPS



- 2 Black, sealed to IP65

BEZEL

KG series

Power rocker switches

CASE + LAMPS

LAMPS

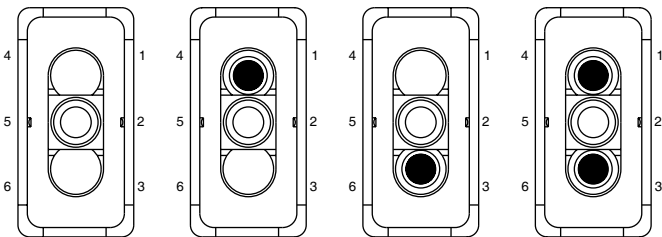


Complete each enlarged box with one of the codes listed below.

- X Without LED
- M Neon 125 V
- N Neon 250 V
- O Filament 6 V
- P Filament 12 V
- R Filament 24 V
- S Fluorescent 220 V
- T Fluorescent 110 V

	Red	Green	Yellow	Blue	White
6 VDC	A	B	C	1	W
12 VDC	D	E	F	Z	V
18 VDC	G	H	I	-	-
24 VDC	J	K	L	Y	U

Side A



Side B

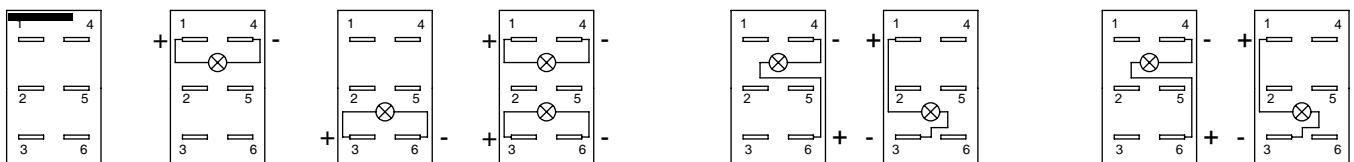
CASE + LAMPS

LAMP WIRING



The lamp wiring diagram is shown on the case.

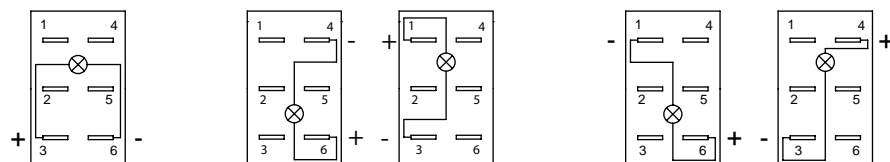
To order case only (without rocker), finish your order number with the lamp wiring code.



A standard

B

C



D *

E

F

* For function 1 (on-off) with LED on side A

Note : If not available, terminals are added to connect the LED.

KG series

Power rocker switches

ACTUATOR

ROCKER COLOR



To order rocker only (without case), begin the order number with code KGR, then follow the order format from "rocker color" until the end of the options.

- | | | | |
|-----|-----------|---|--------|
| 1 | Blue | 5 | Yellow |
| 1/4 | Dark blue | 6 | Red |
| 2 | Black | 7 | Ivory |
| 3 | Green | 9 | Orange |
| 4 | Grey | | |

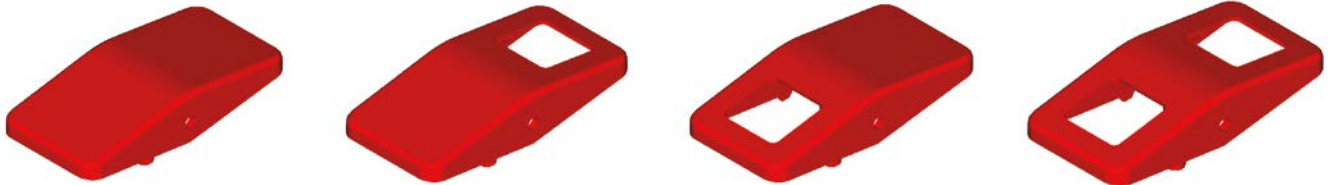
ACTUATOR

ROCKER SHAPE



- | | |
|---|--------------------------|
| 1 | Full rocker |
| 4 | Opening on side A |
| 6 | Opening on side B |
| 8 | Opening on sides A and B |

Other rocker shapes on customer specifications : on request.



1

4

6

8

ACTUATOR

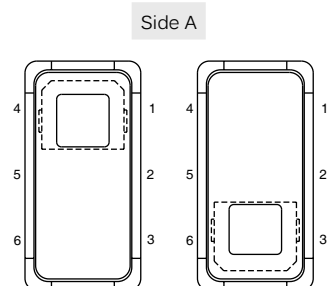
LENS COLOR



To order lenses only, begin the order number with the codes : KGLA for lens A and KGLB for lens B, then follow the order format from "lens color" until the end of the options.

Complete each enlarged box with one of the codes listed below.

- | | |
|---|-------------|
| X | No lens |
| 1 | Blue * |
| 3 | Green * |
| 6 | Red |
| 9 | Orange |
| B | White |
| T | Translucent |



Side B

* Blue or green lens recommended with fluorescent lamp.

KG series

Power rocker switches

ACTUATOR

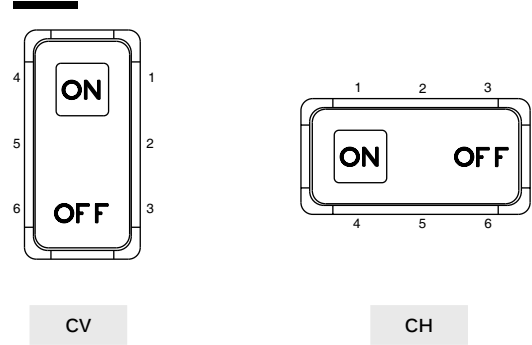
MARKING



If no marking required, leave box blank.

Marking by hot stamping

Other orientations : on request



ACTUATOR

SYMBOLS



XX No symbol

Available symbols

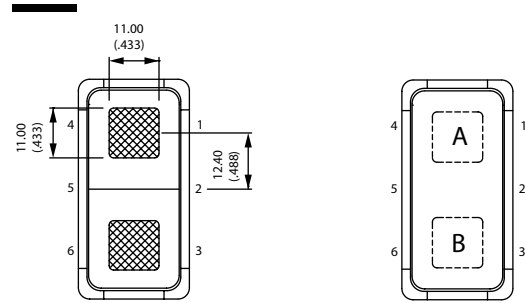
Complete each enlarged box with the one of the codes listed on the following pages.

Marking color

White marking for black rockers - Black marking for color rockers

Marking area

For illuminated versions. The symbol will be included in the hatched area.



K range

Power rocker switches and indicators • symbols and accessories

Most symbols meet the ISO 7000 standard “graphical symbols for use on equipment” (code given in bracket in the description).
Contact us for symbols not featured in the following tables.



CODE	SYMBOL	DESCRIPTION
XX	None	-
01	ON	-
02	OFF	-
03	○	-
04	I	-
05	II	-
06	STOP	-
07	A	Stop
08	M	Motion
09	▲	Up motion
10	▼	Down motion
11	☀	Hot
12	❄	Cold
13	⚠	Hazard warning (0085)
14	☀	Traveller lighting
15	☀	Driver lighting (1421)

CODE	SYMBOL	DESCRIPTION
16	☀	Revolving light
17	☀	Rear ventilator
18	☀	Heating (0637)
19	🚪	Door opening
20	☀	Windshield demister/ defroster (0635)
21	☀	Windshield wiper (0086)
22	☀	Windshield washer (0088)
23	☀	Ventilator fan (0089)
24	☀	Side mirror defroster
25	⚙	Restarting pump
26	☀	Front fog lights (0633)
27	☀	Rear fog lights (0634)
28	☀	Propulsion system trim
29	☀	Beacon (1141)
30	⚓	Anchor
31	🔌	Electric motor (0011)

CODE	SYMBOL	DESCRIPTION
32	🚑	Emergency first aid vehicle (2565)
33	🚛	Load tipping (1557)
34	🚛	Loading light (2457)
35	🚛	Tractor, rear-ward (1667)
36	🚛	Combine, direction of movement (1678)
37	🚛	Use no forks (2406)
38	⚙	Transmission (1166)
39	☀	Working spot light (1145)
40	🚗	Engine (0640)
41	📢	Horn (0244)
42	🔒	Lock (1656)
43	TAXI	Taxi sign light (2551)
44	☀	Working light (1204)
45	☀	Working light symmetric (1204)
46	🔌	-
47	ASM	-

The company reserves the right to change specifications without notice.

K range

Power rocker switches and indicators • symbols and accessories

CODE	SYMBOL	DESCRIPTION	CODE	SYMBOL	DESCRIPTION	CODE	SYMBOL	DESCRIPTION
48		All wheel drive	69		Engine idle control	90		ECAS reset
49		Differential lock (1662)	70		Cruise res/set	91		Driver windows heating
50		-	71		Driver windows up/down	92		Cruise set
51		-	72		Middle door opening	93		Air bag up/down
52		-	73		Front door opening	94		Read lighting
53		-	74		Lighting in baggage room	95		Lighting main switch
54		Rear window wiper (0097)	75		Cruise on/off	96		Heating using water
55		Rear window washer (0099)	76		TV	97		Low beam
56		Lower load (2223)	77		Pump	98		Position lights
57		Cab lock (1560)	78		Toilet	99		Diesel acceleration
58		Extraction	79		Toilet decontamination	A1		Manual mode
59		Pumping in	80		Front windshield heating	A2		Clockwise cabin rotation
60		Rear PTO (1572)	81		Aus	A3		Anticlockwise cabin rotation
61		Front PTO	82		Radiator fan	A4		-
62		Rockshaft down	83		Remove retarder	A5		-
63		Rockshaft up	84		Restricted speed	A6		Parking brake
64		Indicator	85		Preheater	A7		-
65		Brake release	86		ABS detection	A8		-
66		Baggage room left door	87		ECAS detection	A9		-
67		Baggage room right door	88		Engine stop	AA		-
68		Power blinds	89		Cruise res/cancel	AB		-

K range

Power rocker switches and indicators • symbols and accessories

CODE	SYMBOL	DESCRIPTION
AC		-
AD		-
AE		-
AF		-
AG		Battery charging condition (0247)
AH		Turn signals (0084)
AJ		High beam (0082)
AK		Differential lock, bogie (2600)
AL		Brushing with a rotating brush (0070)
AM		Differential lock, transfer case 4x4 (2475)
AN		Loader bucket, float (1441)
AP		Loader bucket (1437)
AQ		Rear window washer & wiper (0098)
AR		Header, Header drive (1579)
AS		Excavator/backhoe boom side shift (2091)
AT		Chemical water treatment (1851)
AU		Grapple skidder, single funct° boom (1762)

CODE	SYMBOL	DESCRIPTION
AV		-
AW		-
AY		-
AZ		-
B1	HIGH	-
B2	LOW	-
B3		-

Legend scale

Depending on space available on the product (see "Symbols" section at the end of each series).

K range

Power rocker switches and indicators • symbols and accessories

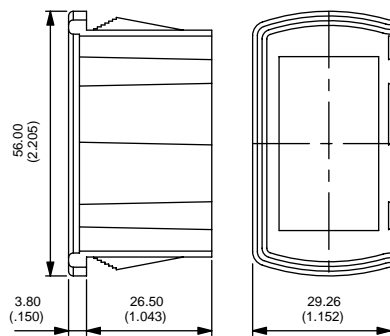
MOUNTING PANELS

(NOT AVAILABLE FOR USE WITH THE KH SERIES)

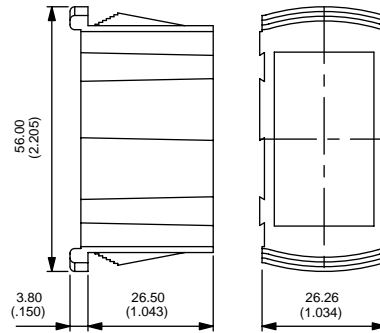
MOUNTING PANEL END

MOUNTING PANEL MIDDLE

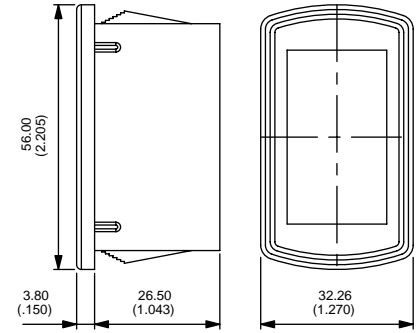
SINGLE MOUNTING PANEL



U2261



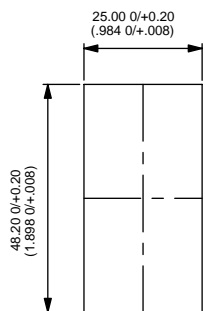
U2262



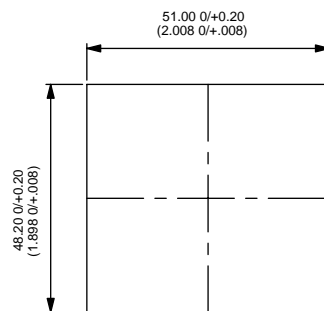
U2267

Recommended panel thickness : 1.10 mm - 1.80 mm - 2.60 mm - 3.40 mm - 4.20 mm - 5 mm - 5.80 mm

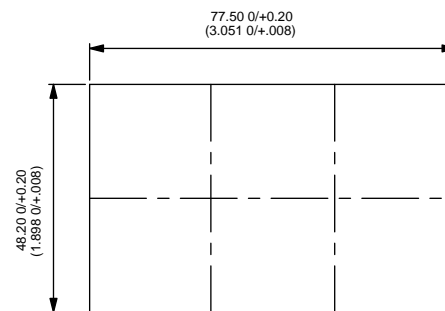
MOUNTING PANEL CUT-OUT



For 1 element U2267



For 2 elements U2261



For 3 elements (2xU2261 + 1x U2262)

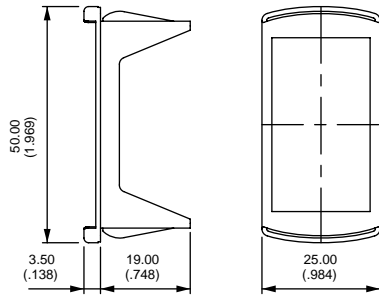
For additional elements, add 26.40 mm (1.039)

K range

Power rocker switches and indicators • symbols and accessories

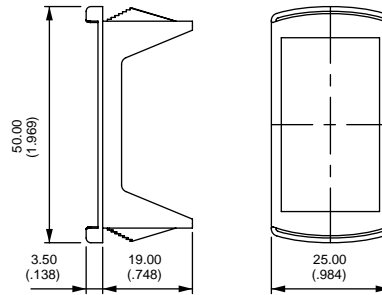
22 X 44 ADAPTERS

FRONT PANEL DISMOUNTING



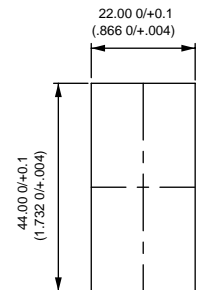
U3060

REAR PANEL DISMOUNTING



U3070

PANEL CUT-OUT



Recommended panel thickness

U3060 0.60 mm to 1.50 mm

U3070 1.60 mm -0.1/0 to 5.60 mm -0.1/0 in stages of 0.40 mm

Adapter colors (replace 0 with code)

- 1/4 Dark blue
- 2 Black
- 4 Grey
- 5 Yellow
- 6 Red
- 7/1 White

ACTUATOR REMOVING TOOL

(NOT SUITABLE FOR USE WITH KH1 MODELS - 4-SIDE PROTECTION GUARDS)

Extract actuator (KR only)

Allows the extraction of the rocker / rocker support assembly. Place the 2 claws under the support and push as indicated by the arrow.

Extract rocker (KR only)

Allows to separate the rocker from its support. Insert the tool between rocker and support as indicated by the arrow. Pull out the tool in the opposite direction.

Extract switch (KR, KL and KI)

Allows to extract switch from panel mounting units. 2 Tools are necessary. Insert the tools between switch and panel mounting units from the rear to compress the snap-in device. Pull off switch manually.



U3052

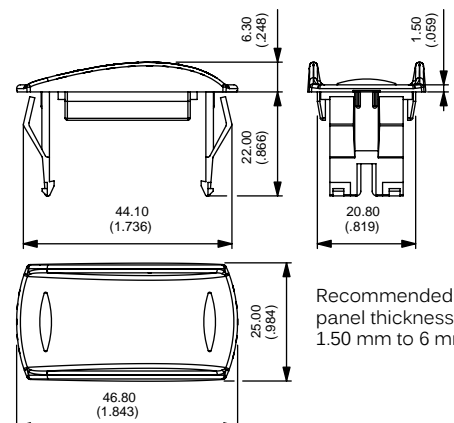
2 tools are supplied

BLANKING CAPS

Usefull for future extensions.

Connectors can be hanged on specific hole plugs. Contact APEM.

- | | | | |
|---------|-----------|-------|--------|
| U2271 | Blue | U2275 | Yellow |
| U2271/4 | Dark blue | U2276 | Red |
| U2272 | Black | U2277 | Ivory |
| U2273 | Green | U2279 | Orange |
| U2274 | Grey | | |



K range

Power rocker switches and indicators • symbols and accessories

CONNECTORS

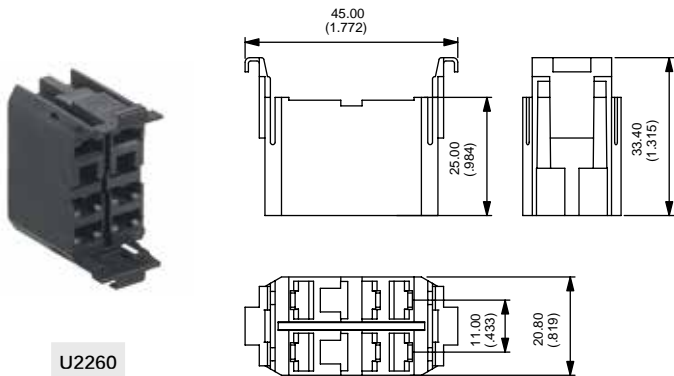
Standard color : black. Other colors : on request. Connectors cannot be combined with wiring types H and I.

U2260 6 terminal version. For use with terminals type 2, 3, 4 or 5.
6.35 (1/4) tabs to be fitted by the user (example : TE42282-2).
Can be used for the KG series.

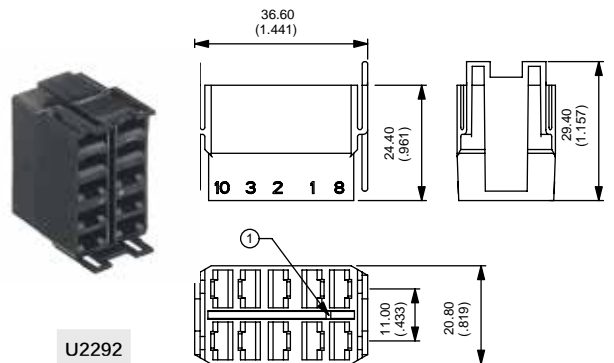
U2282 10 terminal version. For use with terminals type H or J.
2.8 (.110) tabs to be fitted by the user (example : AMP/Tyco 0-927779-3).

U2292 10 terminal version : For use with terminals type B, C, E or F.
6.35 (1/4) tabs to be fitted by the user (example : TE42282-2).

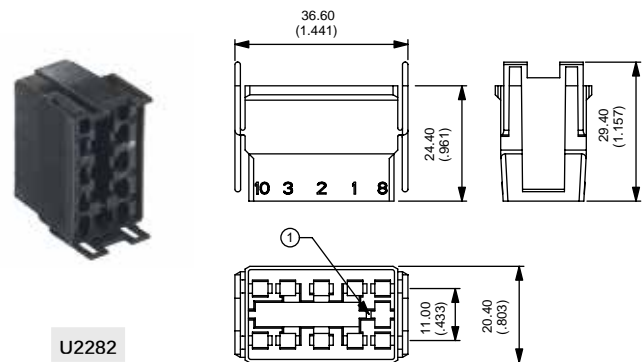
U3152 10 terminal version. For use with terminals type B, C, E or F.
6.35 (1/4) tabs to be fitted by the user (example : "Timer" terminals TE927833-2)



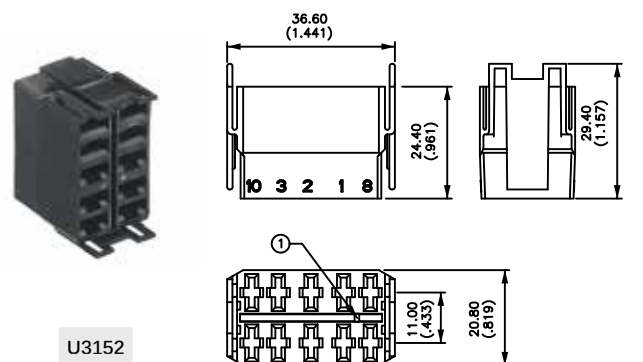
U2260



U2292



U2282



U3152

KH series

Power rocker switches with protection guard



DISTINCTIVE FEATURES

- Protected against accidental actuation
- Wide choice of colors
- Laser etched or pad printed symbols
- Illuminated or non-illuminated
- Sealed to IP69K



ENVIRONMENTAL SPECIFICATIONS

- Front panel sealing : IP69K according to DIN 40050-9
- Salt spray resistance : 96 hours according to IEC 512-6, test 11f
- Vibration resistance : 10-500 Hz / 10 g per IEC 60068-2-6
- Operating temperature : -40 °C to +85 °C (-40 °F to +185 °F)



ELECTRICAL SPECIFICATIONS

- Current/voltage rating with resistive load :
 - Silver plated contacts (A) : 5 A 24 VDC, 100,000 cycles
10 A 24 VDC, 10,000 cycles (terminals 6.35 x 0.8 only)
 - Gold plated contacts (D) : 20 mA 12 V, 150,000 cycles
- Current/voltage rating with lamp load - silver contacts (A) :
 - functions 6 : 100 W 24 VDC, 10,000 cycles
 - other functions : 60 W 24 VDC, 10,000 cycles
- Initial contact resistance : 10 mΩ max.
- Insulation resistance : 1,000 MΩ min. at 500 VDC
- Dielectric strength : 2,000 Vrms 50 Hz min. between terminals



GENERAL SPECIFICATIONS

- Mechanical life : 150,000 cycles min.
- Panel thickness : 0.8 mm to 4.6 mm
- Recommended panel thickness : between 2 mm and 3.5 mm

The company reserves the right to change specifications without notice.



KH series

Power rocker switches with protection guard



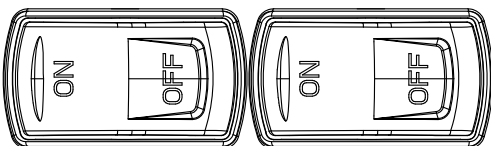
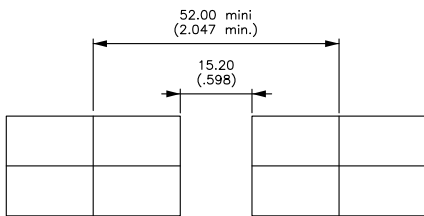
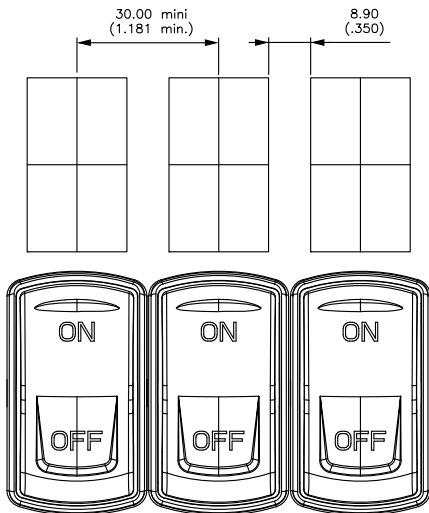
MATERIALS

- Case : PA 6-6
- Actuator : ABS
- Bezel : PA 6-6
- Contacts & terminals :
brass, solid silver grain, silver plated (A)
or brass, solid silver grain, gold plated (D)
- Contact roller : brass, nickel plated

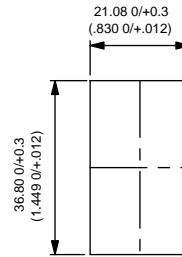
APEM products may be recycled at end-of-life for the re-claiming of valuable metal components.



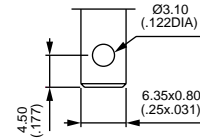
MATRIX MOUNTING



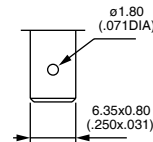
PANEL CUT-OUT



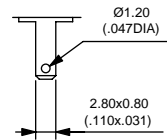
TERMINALS



Solder lug / quick-connect



Normalized quick-connect 6.35x0.8



Normalized quick-connect 2.8x0.8

Power rocker switches with protection guard



ELECTRICAL FUNCTIONS AND CONNECTIONS

In the tables below, terminal connections as viewed from bottom of switch. Only the contact area is represented. For single pole models, only terminals 1, 2 and 3 are to be considered (not terminals 6, 5, 4).

o = with terminal
 ▲ = momentary

2 POSITIONS

Function 5 KH35 - KH45		
Function 6 KH36-K46		

3 POSITIONS

Function 7 KH37-KH47			
Function 8 KH38-KH48			
Function 9 KH39-KH49			
Function 4 KH44			
Function 4-1R KH44-1R			

KH series

Power rocker switches with protection guard

BUILD YOUR PART NUMBER

CASE + LEADS

KH							Side A	Side B	
SERIES	PROTECTION GUARDS	ELECTRICAL FUNCTIONS	CONTACTS	SEALING	LEADS		WIRING		
1 On 4 sides		4 ON ON ON	A Silver	Z IP69K Standard	See following pages.				
2 On 2 sides		4-1R ON ON MOM	D Gold plated						
	POLES	5 MOM - ON							
	3 Single pole	6 ON - ON			X None	F LED 12 V yellow			
	4 Double pole	7 MOM OFF MOM			A LED 6 V red	N LED 12 V blue			
		8 ON OFF MOM			B LED 6 V green	S LED 12 V white			
		9 ON OFF ON			C LED 6 V yellow	J LED 24 V red			
					M LED 6 V blue	K LED 24 V green			
					R LED 6 V white	L LED 24 V yellow			
					D LED 12 V red	P LED 24 V blue			
					E LED 12 V green	T LED 24 V white			
							etc.		
			TERMINALS						
	Solder lug/quick-connect	Normalized quick-connect 6.35x0.8	Normalized quick-connect 2.8x0.8						
	A 10 term. with barrier	D 10 term. with barrier	G 10 term. with barrier						
	B 10 term. w/o barrier	E 10 term. w/o barrier	H 10 term. w/o barrier						
	C 10 terminals for use with connector U2292 or U3152	F 10 term. for use with connector U2292 or U3152	J 10 terminals for use with connector U2282						

ACTUATOR

			Area A	Area M	Area B
TYPE	COLOR	MARKING ORIENTATION	SYMBOLS		
1 For non-illuminated application	1 Blue	5 Yellow			
2 For illuminated application	1/4 Dark blue	6 Red			
	2 Black	7 Ivory			
	3 Green	9 Orange			
	4 Grey	A Aluminum bright			
		N North	Symbols & Accessories : see end of the series.		
		O West	Drawings on following pages.		
		S South			
		E East			

NOTICE : please note that not all combinations of above numbers are available. Refer to the following pages for further information.

Power rocker switches with protection guard

PROTECTION GUARD ON 4 SIDES - KH1



Single pole	Double pole	2-3 5-6		1-2 4-5
		KH144*	KH145	ON
	KH144-1R*	ON	ON	MOM
KH135	KH145	MOM	-	ON
KH136	KH146	ON	-	ON
KH137	KH147	MOM	OFF	MOM
KH138	KH148	ON	OFF	MOM
KH139	KH149	ON	OFF	ON

*Function 4 : single pole in double pole case

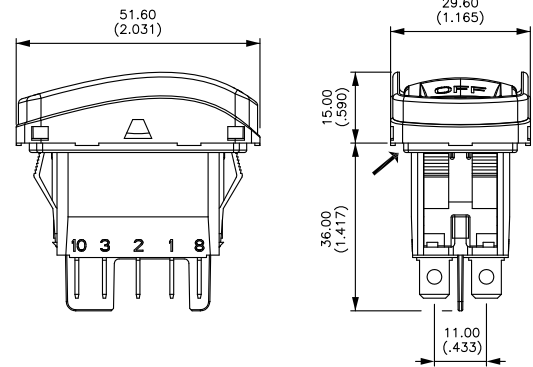
PROTECTION GUARD ON 2 SIDES - KH2



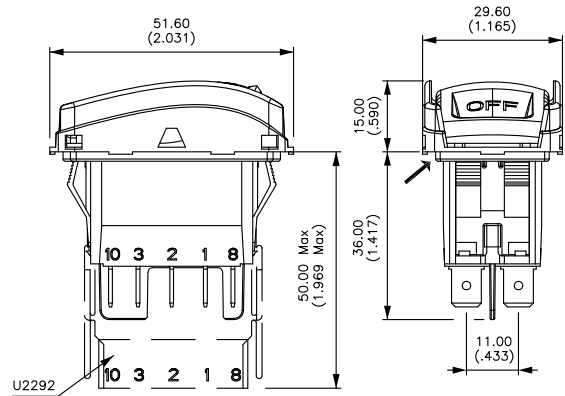
Single pole	Double pole	2-3 5-6		1-2 4-5
		KH244*	KH245	ON
	KH244-1R*	ON	ON	MOM
KH235	KH245	MOM	-	ON
KH236	KH246	ON	-	ON
KH237	KH247	MOM	OFF	MOM
KH238	KH248	ON	OFF	MOM
KH239	KH249	ON	OFF	ON

*Function 4 : single pole in double pole case

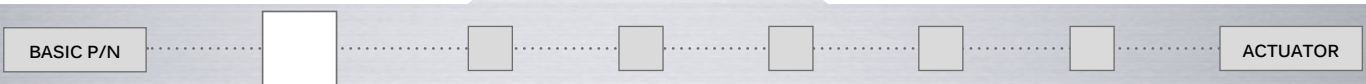
→ FLAT SEAL



→ FLAT SEAL

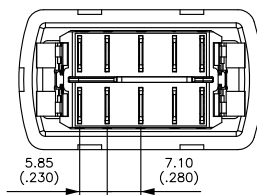
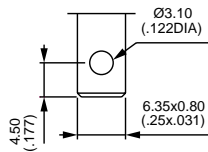


CASE + LEDS



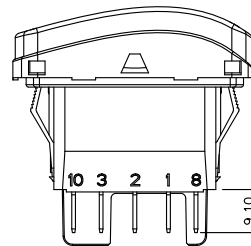
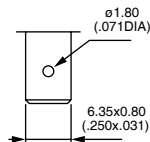
SOLDER LUG / QUICK-CONNECT

- A 10 terminals with barrier
- B 10 terminals w/o barrier
- C 10 terminals for use with connector U2292 or U3152



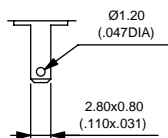
NORMALIZED QUICK-CONNECT 6.35X0.8

- D 10 terminals with barrier
- E 10 terminals w/o barrier
- F 10 terminals for use with connector U2292 or U3152



NORMALIZED QUICK-CONNECT 2.8X0.8

- G 10 terminals with barrier
- H 10 terminals w/o barrier
- J 10 terminals for use with connector U2282



Terminals are marked on the case. The drawings show the maximum possible number of terminals.

KH series

Power rocker switches with protection guard

CASE + LEDS

CONTACT MATERIALS

BASIC P/N

ACTUATOR

- A Silver
- D Silver, gold plated

CASE + LEDS

SEALING

BASIC P/N

ACTUATOR

- Z IP69K - standard

CASE + LEDS

LEDS

BASIC P/N

Side A

Side B

ACTUATOR

Complete each enlarged box with one of the codes listed below.

- X Without LED

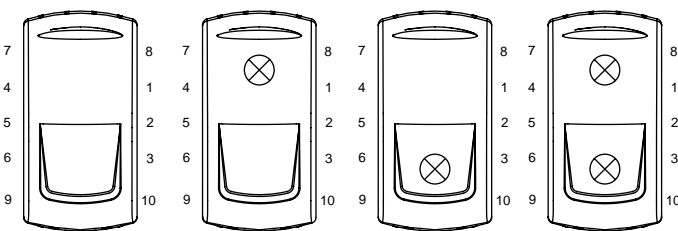
	Red	Green	Yellow	Blue	White	Amber	Red/green
6 VDC	A	B	C	M	R	4	1
12 VDC	D	E	F	N	S	5	2
24 VDC	J	K	L	P	T	6	3
No resistor	U	V	W	Y	Z	9	8

LED consumption : 20 mA @ nominal voltage (25 °C / 77 °F)
 Other illumination solutions : on request.

For non-stabilized on-board power supplies submitted to potential voltage surges due to the alternator, 15 V and 30 V LED configurations are also available on request.

LED Tolerance ±10 %

Side A



Side B

Power rocker switches with protection guard

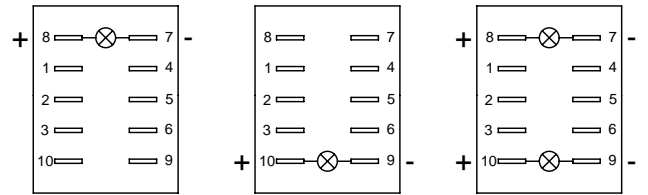
CASE + LEDS

WIRING

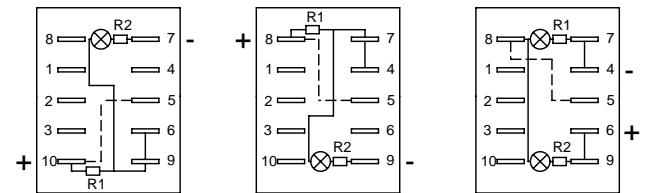


The LED wiring diagram is shown on the case.

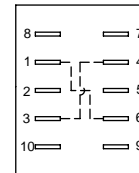
- G** Standard, to have independent LED.
- H** To obtain 2 symbol illumination levels (night illumination when OFF and higher illumination when ON).
 - H wiring with LED on side A available with functions 6, 8, 9 and 44.
 - H wiring with LED on side B available with functions 5, 6 and 9.
 - H wiring with 2 LEDs available with functions 8 and 9.
 More information (H wiring schematics) : on request.
Dotted line = external wiring, continuous line = internal wiring
 Available in Single Pole only, with H and J quick-connect terminals.
- I** To have a polarity inversion (typical application : fan motor).
Dotted line = external wiring
 Power supply between 2 and 5 - Load between 1 and 4 or 3 and 6.
 Available with H and J quick-connect terminals.



G



H

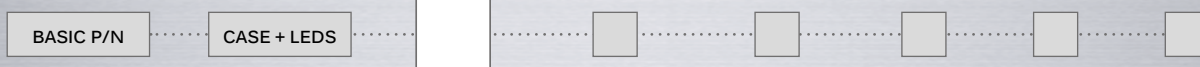


I

Please contact us for other wiring solutions.

ACTUATOR

ACTUATOR TYPE



- 1 For non-illuminated application
- 2 For illuminated application

Other rocker design : on request.



KH series

Power rocker switches with protection guard

ACTUATOR

ACTUATOR COLOR

BASIC P/N

CASE + LEDS

1	Blue	6	Red
1/4	Dark blue	7	Ivory
2	Black	7/1	White
3	Green	9	Orange
4	Grey	A	Aluminum bright
5	Yellow		



Note : colors 7 and 7/1 not available on illuminated versions.
A **soft-touch varnish** can be added. Consult us.

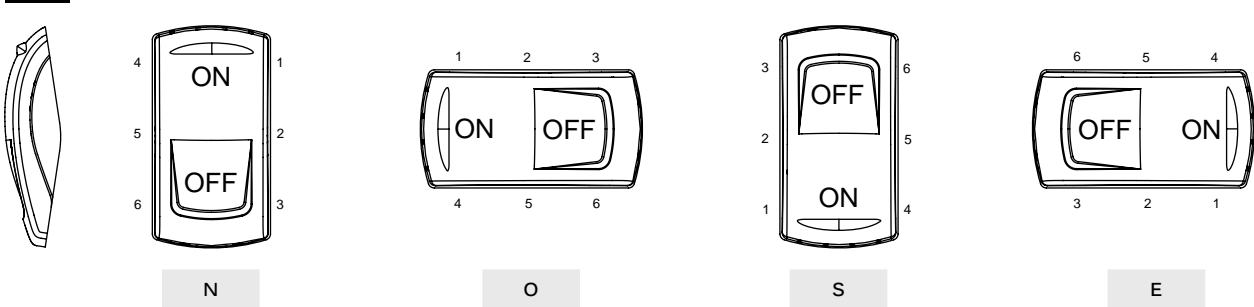
ACTUATOR

MARKING ORIENTATION

BASIC P/N

CASE + LEDS

If no marking required, complete the box with code **N**. Other orientations : on request.



ACTUATOR

SYMBOLS

BASIC P/N

CASE + LEDS

Area A

Area M

Area B

XX No symbol

Available symbols : Complete each enlarged box with the one of the codes listed on the following pages.

Marking color : White marking for illuminated rockers (laser etching) and non-illuminated black rockers (pad printing). Black marking for non-illuminated color rockers (pad printing). Other : on request.

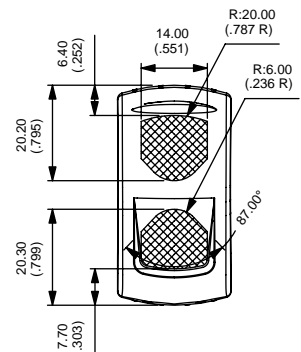
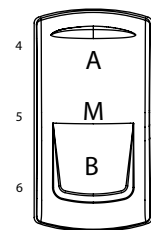
Laser etching resistance

- Water and petrol resistant according to EN 61058-1
- Tear resistant (cross-cut test) according to NF ISO 2409 : class 0
- UV resistant according to ISO 4892-2

Marking area

For illuminated versions. The symbol will be included in the hatched area. Marking in M area : on request.

MARKING AREA



K range

Power rocker switches and indicators • symbols and accessories

Most symbols meet the ISO 7000 standard “graphical symbols for use on equipment” (code given in bracket in the description).
Contact us for symbols not featured in the following tables.



CODE	SYMBOL	DESCRIPTION
XX	None	-
01	ON	-
02	OFF	-
03	○	-
04	I	-
05	II	-
06	STOP	-
07	A	Stop
08	M	Motion
09	▲	Up motion
10	▼	Down motion
11	☀	Hot
12	❄	Cold
13	⚠	Hazard warning (0085)
14	☀	Traveller lighting
15	☀	Driver lighting (1421)

CODE	SYMBOL	DESCRIPTION
16	☀	Revolving light
17	☀	Rear ventilator
18	☀	Heating (0637)
19	🚪	Door opening
20	☀	Windshield demister/ defroster (0635)
21	☀	Windshield wiper (0086)
22	☀	Windshield washer (0088)
23	☀	Ventilator fan (0089)
24	☀	Side mirror defroster
25	⚙	Restarting pump
26	☀	Front fog lights (0633)
27	☀	Rear fog lights (0634)
28	☀	Propulsion system trim
29	☀	Beacon (1141)
30	⚓	Anchor
31	🔌	Electric motor (0011)

CODE	SYMBOL	DESCRIPTION
32	🚑	Emergency first aid vehicle (2565)
33	🚛	Load tipping (1557)
34	🚛	Loading light (2457)
35	🚜	Tractor, rear-ward (1667)
36	🚛	Combine, direction of movement (1678)
37	🚛	Use no forks (2406)
38	⚙	Transmission (1166)
39	☀	Working spot light (1145)
40	🚗	Engine (0640)
41	📢	Horn (0244)
42	🔒	Lock (1656)
43	TAXI	Taxi sign light (2551)
44	☀	Working light (1204)
45	☀	Working light symmetric (1204)
46	🔌	-
47	ASM	-

The company reserves the right to change specifications without notice.

K range

Power rocker switches and indicators • symbols and accessories

CODE	SYMBOL	DESCRIPTION	CODE	SYMBOL	DESCRIPTION	CODE	SYMBOL	DESCRIPTION
48		All wheel drive	69		Engine idle control	90		ECAS reset
49		Differential lock (1662)	70		Cruise res/set	91		Driver windows heating
50		-	71		Driver windows up/down	92		Cruise set
51		-	72		Middle door opening	93		Air bag up/down
52		-	73		Front door opening	94		Read lighting
53		-	74		Lighting in baggage room	95		Lighting main switch
54		Rear window wiper (0097)	75		Cruise on/off	96		Heating using water
55		Rear window washer (0099)	76		TV	97		Low beam
56		Lower load (2223)	77		Pump	98		Position lights
57		Cab lock (1560)	78		Toilet	99		Diesel acceleration
58		Extraction	79		Toilet decontamination	A1		Manual mode
59		Pumping in	80		Front windshield heating	A2		Clockwise cabin rotation
60		Rear PTO (1572)	81		Aus	A3		Anticlockwise cabin rotation
61		Front PTO	82		Radiator fan	A4		-
62		Rockshaft down	83		Remove retarder	A5		-
63		Rockshaft up	84		Restricted speed	A6		Parking brake
64		Indicator	85		Preheater	A7		-
65		Brake release	86		ABS detection	A8		-
66		Baggage room left door	87		ECAS detection	A9		-
67		Baggage room right door	88		Engine stop	AA		-
68		Power blinds	89		Cruise res/cancel	AB		-

K range

Power rocker switches and indicators • symbols and accessories

CODE	SYMBOL	DESCRIPTION
AC		-
AD		-
AE		-
AF		-
AG		Battery charging condition (0247)
AH		Turn signals (0084)
AJ		High beam (0082)
AK		Differential lock, bogie (2600)
AL		Brushing with a rotating brush (0070)
AM		Differential lock, transfer case 4x4 (2475)
AN		Loader bucket, float (1441)
AP		Loader bucket (1437)
AQ		Rear window washer & wiper (0098)
AR		Header, Header drive (1579)
AS		Excavator/backhoe boom side shift (2091)
AT		Chemical water treatment (1851)
AU		Grapple skidder, single funct° boom (1762)

CODE	SYMBOL	DESCRIPTION
AV		-
AW		-
AY		-
AZ		-
B1	HIGH	-
B2	LOW	-
B3		-

Legend scale

Depending on space available on the product (see "Symbols" section at the end of each series).

K range

Power rocker switches and indicators • symbols and accessories

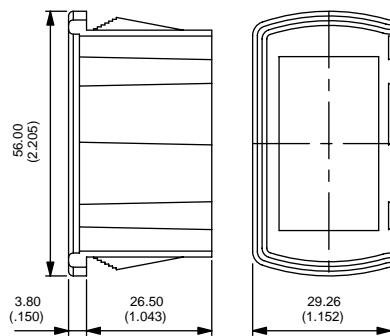
MOUNTING PANELS

(NOT AVAILABLE FOR USE WITH THE KH SERIES)

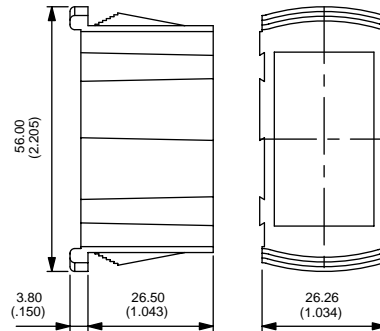
MOUNTING PANEL END

MOUNTING PANEL MIDDLE

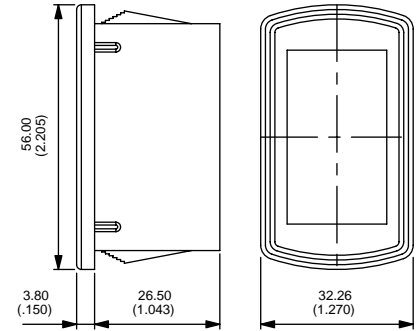
SINGLE MOUNTING PANEL



U2261



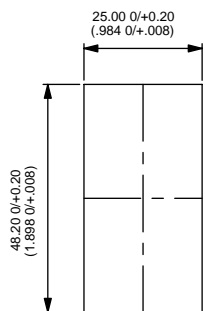
U2262



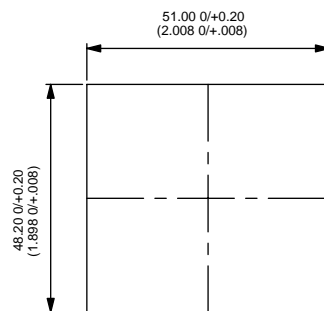
U2267

Recommended panel thickness : 1.10 mm - 1.80 mm - 2.60 mm - 3.40 mm - 4.20 mm - 5 mm - 5.80 mm

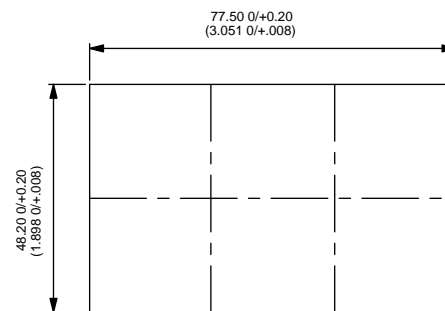
MOUNTING PANEL CUT-OUT



For 1 element U2267



For 2 elements U2261



For 3 elements (2xU2261 + 1x U2262)

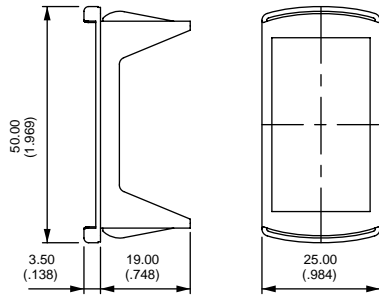
For additional elements, add 26.40 mm (1.039)

K range

Power rocker switches and indicators • symbols and accessories

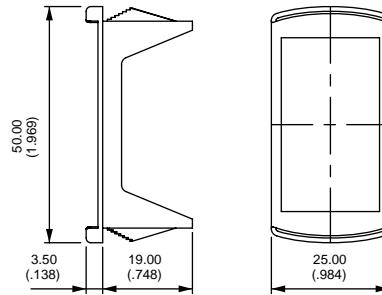
22 X 44 ADAPTERS

FRONT PANEL DISMOUNTING



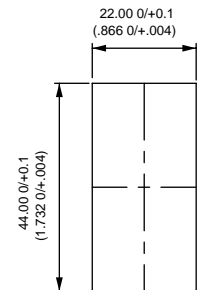
U3060

REAR PANEL DISMOUNTING



U3070

PANEL CUT-OUT



Recommended panel thickness

U3060 0.60 mm to 1.50 mm

U3070 1.60 mm -0.1/0 to 5.60 mm -0.1/0 in stages of 0.40 mm

Adapter colors (replace 0 with code)

- 1/4 Dark blue
- 2 Black
- 4 Grey
- 5 Yellow
- 6 Red
- 7/1 White

ACTUATOR REMOVING TOOL

(NOT SUITABLE FOR USE WITH KH1 MODELS - 4-SIDE PROTECTION GUARDS)

Extract actuator (KR only)

Allows the extraction of the rocker / rocker support assembly. Place the 2 claws under the support and push as indicated by the arrow.

Extract rocker (KR only)

Allows to separate the rocker from its support. Insert the tool between rocker and support as indicated by the arrow. Pull out the tool in the opposite direction.

Extract switch (KR, KL and KI)

Allows to extract switch from panel mounting units. 2 Tools are necessary. Insert the tools between switch and panel mounting units from the rear to compress the snap-in device. Pull off switch manually.



U3052

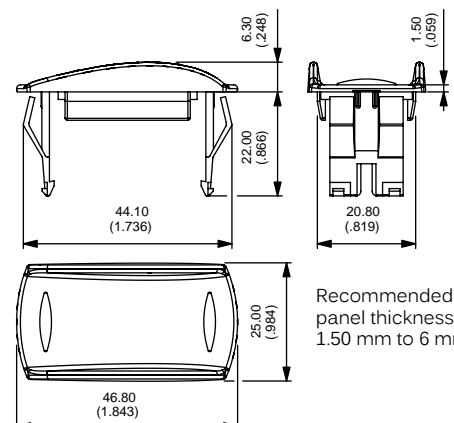
2 tools are supplied

BLANKING CAPS

Usefull for future extensions.

Connectors can be hanged on specific hole plugs. Contact APEM.

- | | | | |
|---------|-----------|-------|--------|
| U2271 | Blue | U2275 | Yellow |
| U2271/4 | Dark blue | U2276 | Red |
| U2272 | Black | U2277 | Ivory |
| U2273 | Green | U2279 | Orange |
| U2274 | Grey | | |



K range

Power rocker switches and indicators • symbols and accessories

CONNECTORS

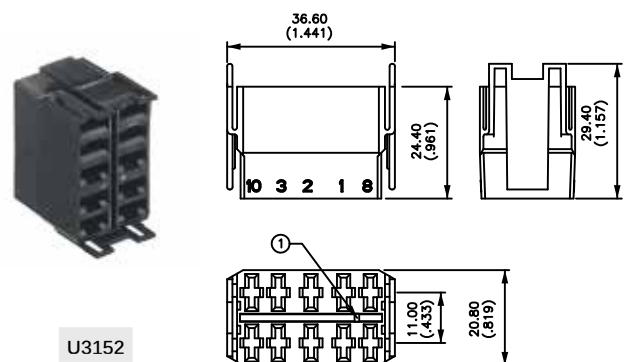
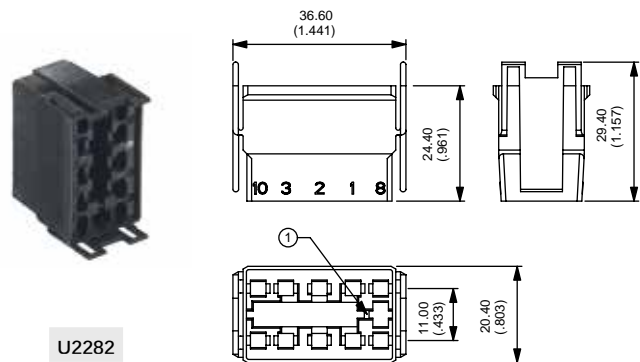
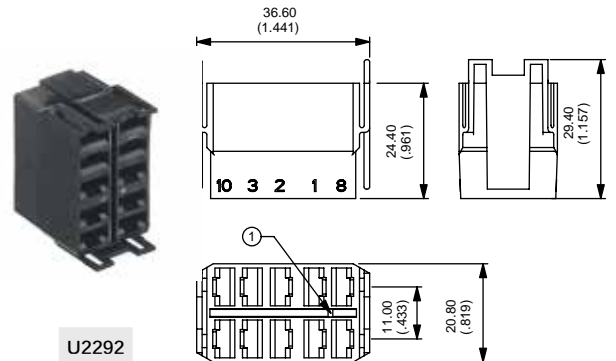
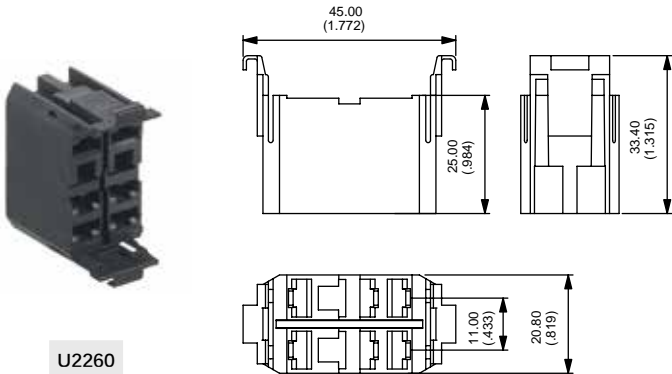
Standard color : black. Other colors : on request. Connectors cannot be combined with wiring types H and I.

U2260 6 terminal version. For use with terminals type 2, 3, 4 or 5.
6.35 (1/4) tabs to be fitted by the user (example : TE42282-2).
Can be used for the KG series.

U2282 10 terminal version. For use with terminals type H or J.
2.8 (.110) tabs to be fitted by the user (example : AMP/Tyco 0-927779-3).

U2292 10 terminal version : For use with terminals type B, C, E or F.
6.35 (1/4) tabs to be fitted by the user (example : TE42282-2).

U3152 10 terminal version. For use with terminals type B, C, E or F.
6.35 (1/4) tabs to be fitted by the user (example : "Timer" terminals TE927833-2)



KI series

LED indicators



DISTINCTIVE FEATURES

- Wide choice of bezel colors
- Wide choice of LEDs
- Laser etched symbols
- Long life expectancy



ENVIRONMENTAL SPECIFICATIONS

- Salt spray resistance : 96 hours according to IEC 512-6, test 11f
- Operating temperature : -40 °C to +85 °C (-40 °F to +185 °F)



ELECTRICAL AND GENERAL SPECIFICATIONS

- Operating voltage : 6 VDC, 12 VDC or 24 VDC
- Nominal current : 20 mA per LED
- Panel thickness : 0.8 mm to 4.6 mm
- Recommended panel thickness : between 2 mm and 3.5 mm

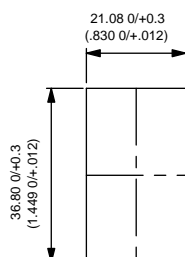


MATERIALS

- Case : ABS
- Bezel : ABS
- Terminals : brass, silver plated



PANEL CUT-OUT



The company reserves the right to change specifications without notice.

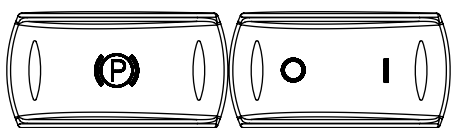
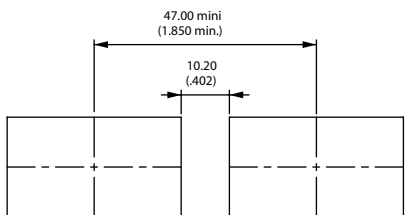
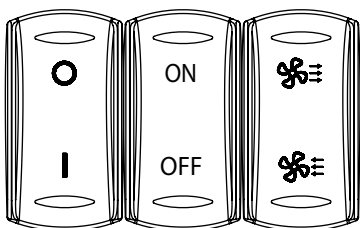
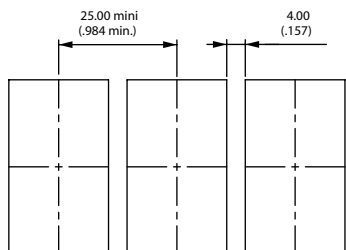


KI series

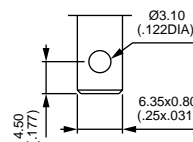
LED indicators



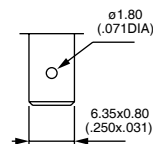
MATRIX MOUNTING



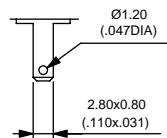
TERMINALS



Solder lug / quick-connect



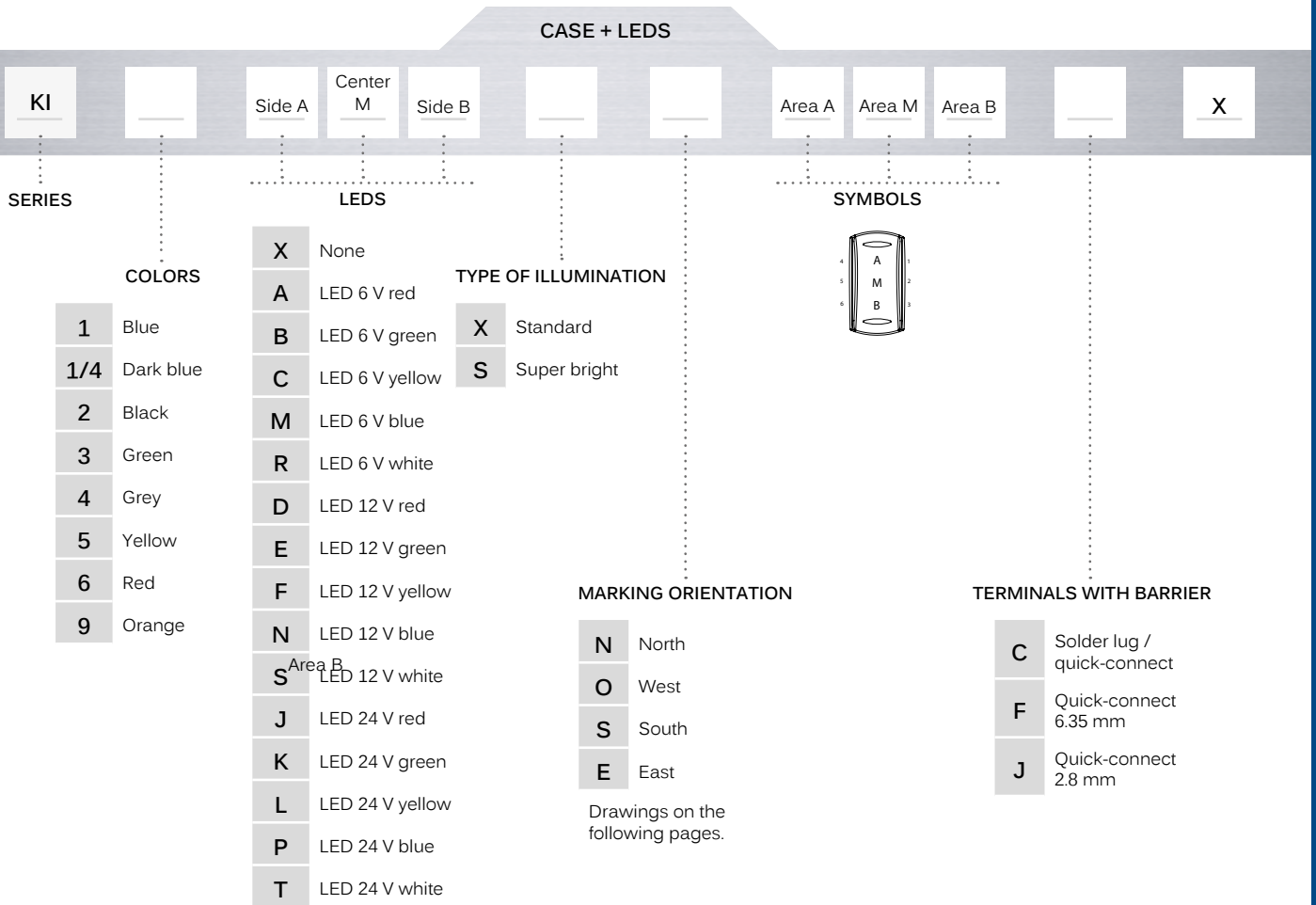
Normalized quick-connect 6.35x0.8



Normalized quick-connect 2.8x0.8



BUILD YOUR PART NUMBER



On request : 48 VDC voltage - AC voltage - new design.
Symbols & Accessories : see end of the series.



ABOUT THIS SERIES

Notice : please note that not all combinations of above numbers are available. Refer to the following pages for further information.

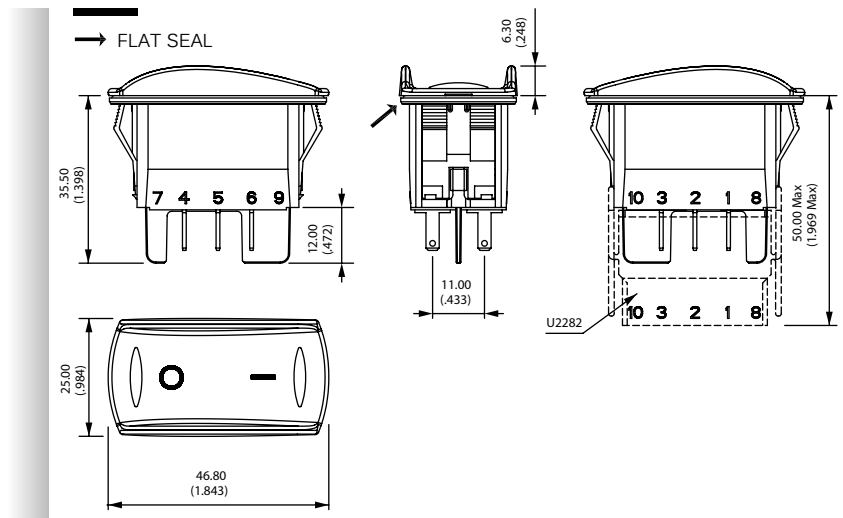
KI series

LED indicators

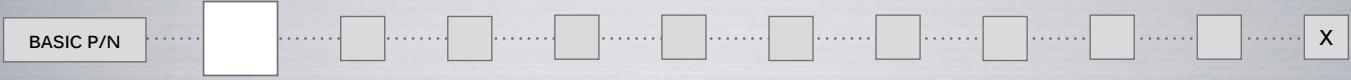
DIMENSIONS



KI

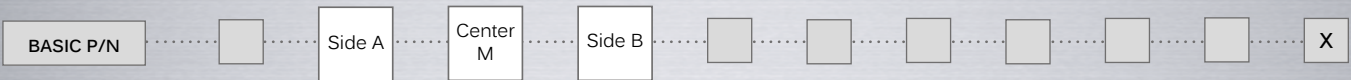


BEZEL COLOR



- 1 Blue
- 1/4 Dark blue
- 2 Black
- 3 Green
- 4 Grey
- 5 Yellow
- 6 Red
- 9 Orange

LEDS



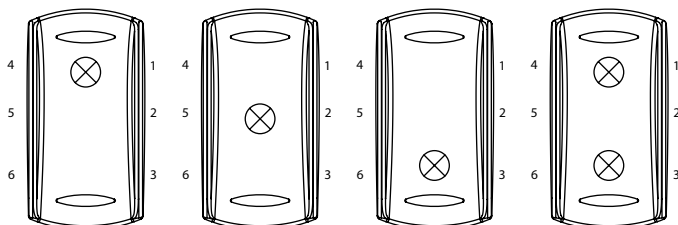
Complete each enlarged box with one of the codes listed below.

X Without LED

	Red	Green	Yellow	Blue	White	Amber	Red/green
6 VDC	A	B	C	M	R	4	1
12 VDC	D	E	F	N	S	5	2
24 VDC	J	K	L	P	T	6	3
No resistor	U	V	W	Y	Z	9	8

LED consumption : 20 mA
 @ nominal voltage (25 °C / 77 °F)
 Other illumination solutions : on request.

Side A



Side B

TYPE OF ILLUMINATION

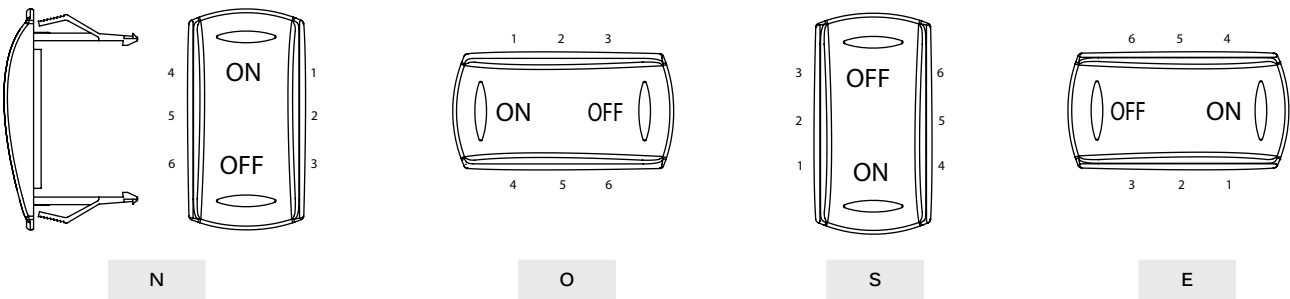


- X Standard
- S Super bright

MARKING ORIENTATION



If no marking required, leave box blank.
Other orientations : on request



SYMBOLS



- XX No symbol

Available symbols

Complete each enlarged box with the one of the codes listed on the following pages.

Marking color

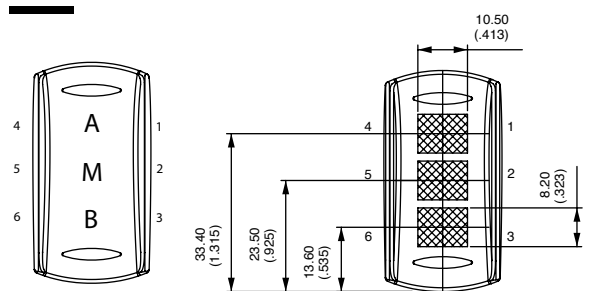
White (laser etching)

Laser etching resistance

- Water and petrol resistant according to EN61058-1
- Tear resistant (cross-cut test) according to NF ISO 2409 : class 0
- UV resistant according to ISO 4892-2

Marking area

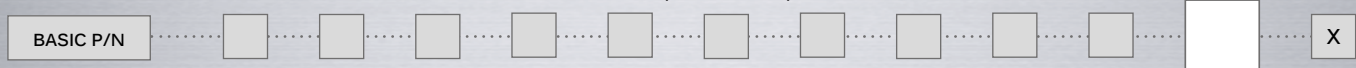
The symbol will be included in the hatched area.



KI series

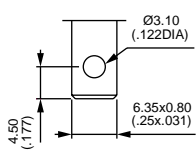
LED indicators

TERMINALS
(WITH BARRIER)

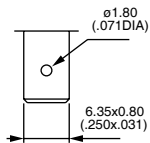


- C Solder lug / quick-connect : 10 terminals for use with connector U2292
- F Normalized quick-connect 6.35x0.8 : 10 terminals for use with connector U2292
- J Normalized quick-connect 2.8x0.8 : 10 terminals for use with connector U2292

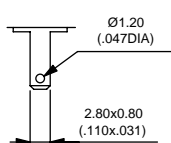
Terminals are marked on the case.



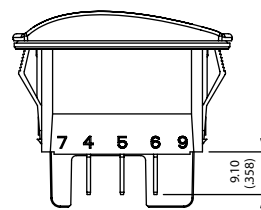
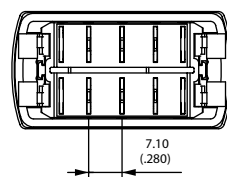
C



F



J



K range

Power rocker switches and indicators • symbols and accessories

Most symbols meet the ISO 7000 standard “graphical symbols for use on equipment” (code given in bracket in the description).
Contact us for symbols not featured in the following tables.



CODE	SYMBOL	DESCRIPTION
XX	None	-
01	ON	-
02	OFF	-
03	○	-
04	I	-
05	II	-
06	STOP	-
07	A	Stop
08	M	Motion
09	▲	Up motion
10	▼	Down motion
11	☀	Hot
12	❄	Cold
13	⚠	Hazard warning (0085)
14	☀	Traveller lighting
15	☀	Driver lighting (1421)

CODE	SYMBOL	DESCRIPTION
16	☀	Revolving light
17	☀	Rear ventilator
18	☀	Heating (0637)
19	☀	Door opening
20	☀	Windshield demister/ defroster (0635)
21	☀	Windshield wiper (0086)
22	☀	Windshield washer (0088)
23	☀	Ventilator fan (0089)
24	☀	Side mirror defroster
25	☀	Restarting pump
26	☀	Front fog lights (0633)
27	☀	Rear fog lights (0634)
28	☀	Propulsion system trim
29	☀	Beacon (1141)
30	☀	Anchor
31	☀	Electric motor (0011)

CODE	SYMBOL	DESCRIPTION
32	☀	Emergency first aid vehicle (2565)
33	☀	Load tipping (1557)
34	☀	Loading light (2457)
35	☀	Tractor, rear-ward (1667)
36	☀	Combine, direction of movement (1678)
37	☀	Use no forks (2406)
38	☀	Transmission (1166)
39	☀	Working spot light (1145)
40	☀	Engine (0640)
41	☀	Horn (0244)
42	☀	Lock (1656)
43	☀	Taxi sign light (2551)
44	☀	Working light (1204)
45	☀	Working light symmetric (1204)
46	☀	-
47	ASM	-

The company reserves the right to change specifications without notice.

K range

Power rocker switches and indicators • symbols and accessories

CODE	SYMBOL	DESCRIPTION	CODE	SYMBOL	DESCRIPTION	CODE	SYMBOL	DESCRIPTION
48		All wheel drive	69		Engine idle control	90		ECAS reset
49		Differential lock (1662)	70		Cruise res/set	91		Driver windows heating
50		-	71		Driver windows up/down	92		Cruise set
51		-	72		Middle door opening	93		Air bag up/down
52		-	73		Front door opening	94		Read lighting
53		-	74		Lighting in baggage room	95		Lighting main switch
54		Rear window wiper (0097)	75		Cruise on/off	96		Heating using water
55		Rear window washer (0099)	76		TV	97		Low beam
56		Lower load (2223)	77		Pump	98		Position lights
57		Cab lock (1560)	78		Toilet	99		Diesel acceleration
58		Extraction	79		Toilet decontamination	A1		Manual mode
59		Pumping in	80		Front windshield heating	A2		Clockwise cabin rotation
60		Rear PTO (1572)	81		Aus	A3		Anticlockwise cabin rotation
61		Front PTO	82		Radiator fan	A4		-
62		Rockshaft down	83		Remove retarder	A5		-
63		Rockshaft up	84		Restricted speed	A6		Parking brake
64		Indicator	85		Preheater	A7		-
65		Brake release	86		ABS detection	A8		-
66		Baggage room left door	87		ECAS detection	A9		-
67		Baggage room right door	88		Engine stop	AA		-
68		Power blinds	89		Cruise res/cancel	AB		-

K range

Power rocker switches and indicators • symbols and accessories

CODE	SYMBOL	DESCRIPTION
AC		-
AD		-
AE		-
AF		-
AG		Battery charging condition (0247)
AH		Turn signals (0084)
AJ		High beam (0082)
AK		Differential lock, bogie (2600)
AL		Brushing with a rotating brush (0070)
AM		Differential lock, transfer case 4x4 (2475)
AN		Loader bucket, float (1441)
AP		Loader bucket (1437)
AQ		Rear window washer & wiper (0098)
AR		Header, Header drive (1579)
AS		Excavator/backhoe boom side shift (2091)
AT		Chemical water treatment (1851)
AU		Grapple skidder, single funct° boom (1762)

CODE	SYMBOL	DESCRIPTION
AV		-
AW		-
AY		-
AZ		-
B1	HIGH	-
B2	LOW	-
B3		-

Legend scale

Depending on space available on the product (see "Symbols" section at the end of each series).

K range

Power rocker switches and indicators • symbols and accessories

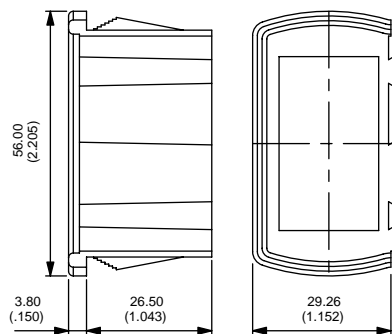
MOUNTING PANELS

(NOT AVAILABLE FOR USE WITH THE KH SERIES)

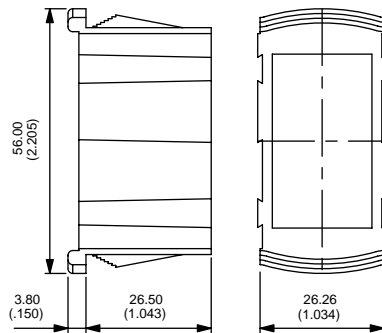
MOUNTING PANEL END

MOUNTING PANEL MIDDLE

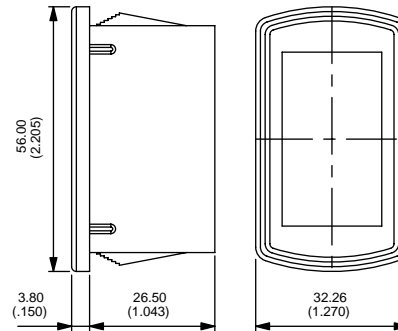
SINGLE MOUNTING PANEL



U2261



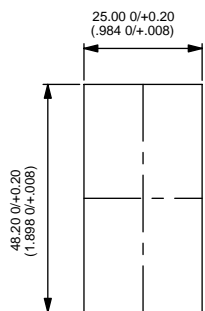
U2262



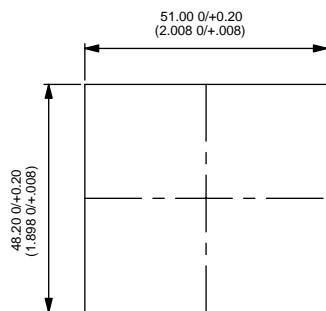
U2267

Recommended panel thickness : 1.10 mm - 1.80 mm - 2.60 mm - 3.40 mm - 4.20 mm - 5 mm - 5.80 mm

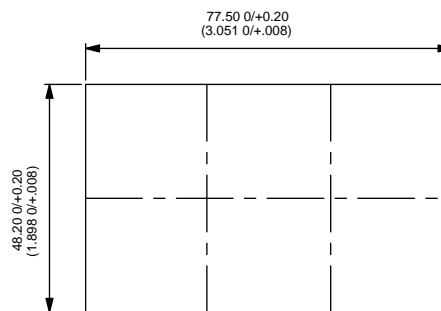
MOUNTING PANEL CUT-OUT



For 1 element U2267



For 2 elements U2261



For 3 elements (2xU2261 + 1x U2262)

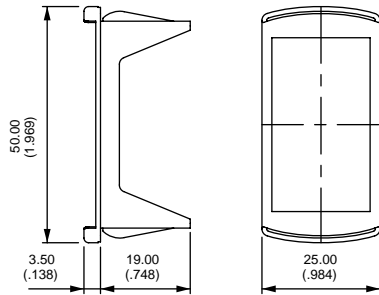
For additional elements, add 26.40 mm (1.039)

K range

Power rocker switches and indicators • symbols and accessories

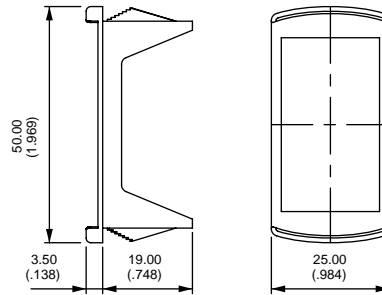
22 X 44 ADAPTERS

FRONT PANEL DISMOUNTING



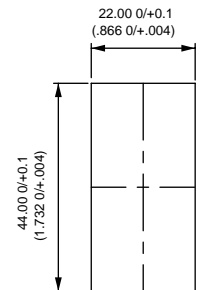
U3060

REAR PANEL DISMOUNTING



U3070

PANEL CUT-OUT



Recommended panel thickness

U3060 0.60 mm to 1.50 mm

U3070 1.60 mm -0.1/0 to 5.60 mm -0.1/0 in stages of 0.40 mm

Adapter colors (replace 0 with code)

- 1/4 Dark blue
- 2 Black
- 4 Grey
- 5 Yellow
- 6 Red
- 7/1 White

ACTUATOR REMOVING TOOL

(NOT SUITABLE FOR USE WITH KH1 MODELS - 4-SIDE PROTECTION GUARDS)

Extract actuator (KR only)

Allows the extraction of the rocker / rocker support assembly. Place the 2 claws under the support and push as indicated by the arrow.

Extract rocker (KR only)

Allows to separate the rocker from its support. Insert the tool between rocker and support as indicated by the arrow. Pull out the tool in the opposite direction.

Extract switch (KR, KL and KI)

Allows to extract switch from panel mounting units. 2 Tools are necessary. Insert the tools between switch and panel mounting units from the rear to compress the snap-in device. Pull off switch manually.



U3052

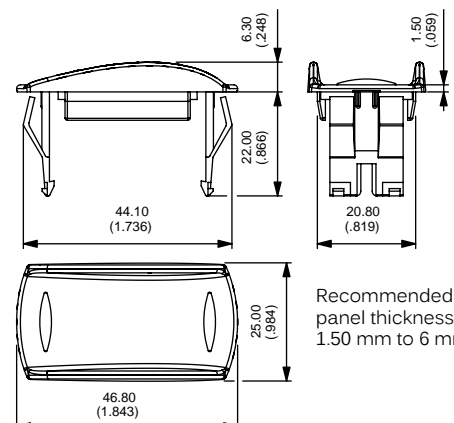
2 tools are supplied

BLANKING CAPS

Usefull for future extensions.

Connectors can be hanged on specific hole plugs. Contact APEM.

- | | | | |
|---------|-----------|-------|--------|
| U2271 | Blue | U2275 | Yellow |
| U2271/4 | Dark blue | U2276 | Red |
| U2272 | Black | U2277 | Ivory |
| U2273 | Green | U2279 | Orange |
| U2274 | Grey | | |



K range

Power rocker switches and indicators • symbols and accessories

CONNECTORS

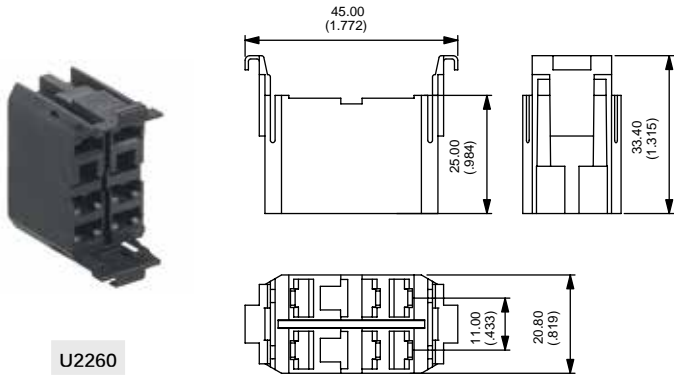
Standard color : black. Other colors : on request. Connectors cannot be combined with wiring types H and I.

U2260 6 terminal version. For use with terminals type 2, 3, 4 or 5.
6.35 (1/4) tabs to be fitted by the user (example : TE42282-2).
Can be used for the KG series.

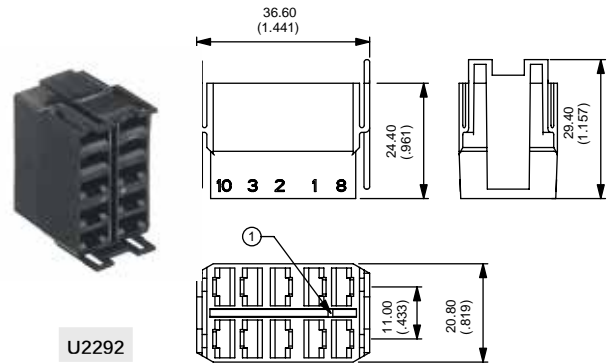
U2282 10 terminal version. For use with terminals type H or J.
2.8 (.110) tabs to be fitted by the user (example : AMP/Tyco 0-927779-3).

U2292 10 terminal version : For use with terminals type B, C, E or F.
6.35 (1/4) tabs to be fitted by the user (example : TE42282-2).

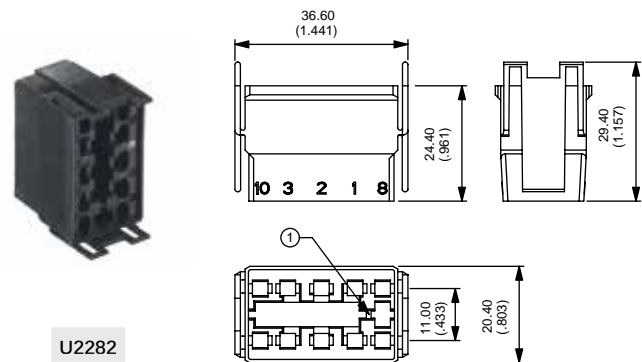
U3152 10 terminal version. For use with terminals type B, C, E or F.
6.35 (1/4) tabs to be fitted by the user (example : "Timer" terminals TE927833-2)



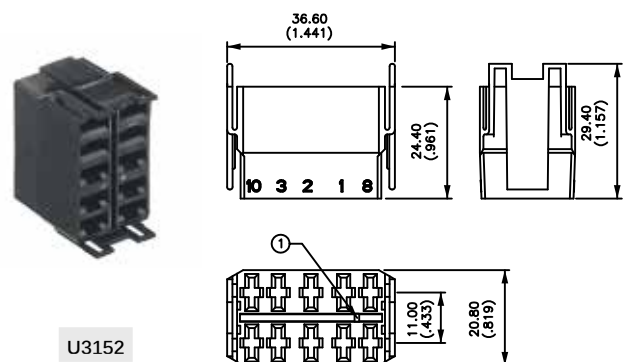
U2260



U2292



U2282



U3152

KL series

Locking power rocker switches



DISTINCTIVE FEATURES

- One protected position
- Patented intuitive ergonomics
- Laser etched symbols
- Illuminated or non-illuminated
- Optionally sealed to IP69K



ENVIRONMENTAL SPECIFICATIONS

- Sealing options :
 - K : IP68 to front panel components of switch only according to IEC 60529
 - Z : IP69K panel sealing according to DIN 40050-9
- Salt spray resistance : 96 hours according to IEC 512-6, test 11f
- Operating temperature : -40 °C to +85 °C (-40 °F to +185 °F)



ELECTRICAL SPECIFICATIONS

- Current/voltage rating with resistive load :
 - Silver plated contacts :
 - A : 5 A 24 VDC, 100,000 cycles
 - 10 A 24 VDC, 10,000 cycles (terminals 6.35 x 0.8 only)
 - S : 20 A 12 V, 10,000 cycles (see "Build your part number")
 - Gold plated contacts (D) : 20 mA 12 V, 150,000 cycles
- Initial contact resistance : 10 mΩ max.
- Insulation resistance : 1,000 MΩ min. at 500 VDC
- Dielectric strength : 2,000 Vrms 50 Hz min. between terminals
- Mechanical life : 150,000 cycles min.



GENERAL SPECIFICATIONS

- Mechanical life : 150,000 cycles min.
- Panel thickness : 0.8 mm to 4.6 mm
- Recommended panel thickness : between 2 mm and 3.5 mm

The company reserves the right to change specifications without notice.



KL series

Locking power rocker switches

MATERIALS

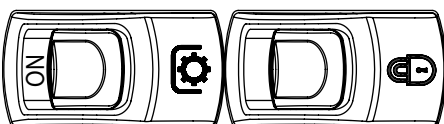
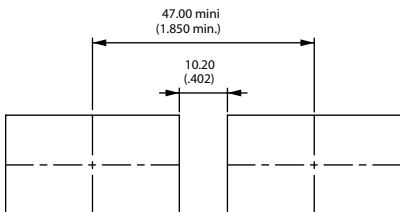
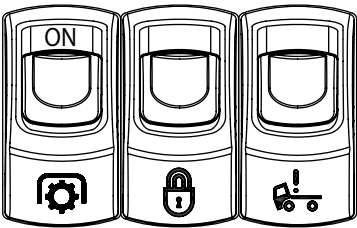
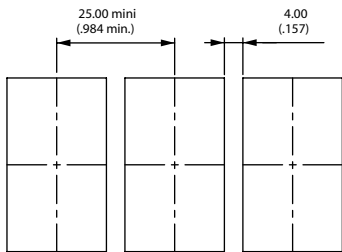
- Case : PA 6-6
- Actuator : ABS
- Unlocking actuator : ABS or elastomeric membrane
- Bezel : PA 6-6
- Contacts & terminals : brass, solid silver grain, silver plated (A or S) or brass, solid silver grain, gold plated (D)
- Contact roller : brass, nickel plated

APEM products may be recycled at end-of-life for the re-claiming of valuable metal components.

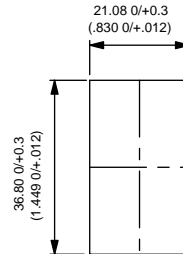
SEALING

- Sealing is optional. To order a sealed product, complete the appropriate box of ordering format on the following pages.

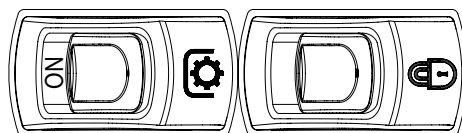
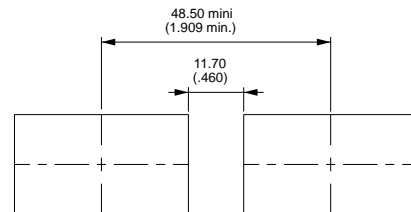
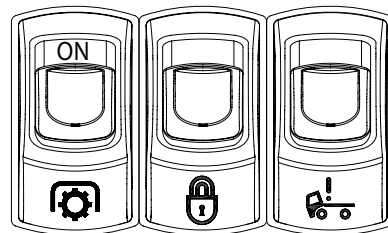
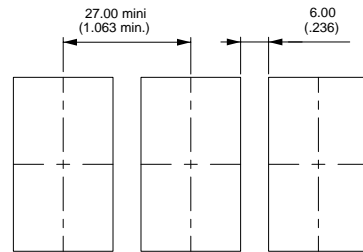
MATRIX MOUNTING



PANEL CUT-OUT



SPECIFIC MATRIX MOUNTING FOR Z VERSION





ELECTRICAL FUNCTIONS AND CONNECTIONS

In the tables below, terminal connections as viewed from bottom of switch. Only the contact area is represented. For single pole models, only terminals 1, 2 and 3 are to be considered (not 6, 5, 4).

x = w/o terminal
o = with terminal
▲ = momentary

2 POSITIONS

Press unlocking actuator to unlock.

Function 1 * KL31-KL41		
Function 5 KL35 - KL45		
Function 6 KL36-KL46		

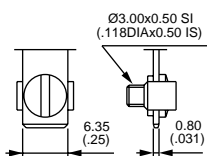
* Function 1 : Only available for 6 terminal versions, illuminated versions only available with "A" wiring.

3 POSITIONS

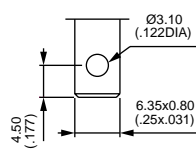
Function 7 KL37-KL47			
Function 8 KL38-KL48			
Function 9 KL39-KL49			
Function 4 KL44			
Function 4-1R KL44-1R			



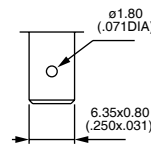
TERMINALS



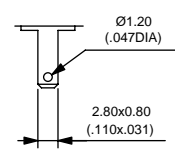
Screw



Solder lug / quick-connect



Normalized quick-connect 6.35x0.8



Normalized quick-connect 2.8x0.8

KL series

Locking power rocker switches



BUILD YOUR PART NUMBER

To order a complete product, fill in all the boxes of the following order guide.

CASE + LEADS



SERIES

KL

POLES

- 3** Single pole
- 4** Double pole

ELECTRICAL FUNCTIONS

1	ON	-	OFF
4	ON	ON	ON
4-1R	ON	ON	MOM
5	MOM	-	ON
6	ON	-	ON
7	MOM	OFF	MOM
8	ON	OFF	MOM
9	ON	OFF	ON

Function 1 only for 6-terminal versions.
Functions 5 and 6 cannot be combined with "H" wiring.

CONTACTS

A	Silver
D	Gold plated
S	Silver 20 A***

SEALING

X	No
K	IP68
Z	IP69K

LEADS

X	None
A	LED 6 V red
B	LED 6 V green
C	LED 6 V yellow
M	LED 6 V blue
R	LED 6 V white
D	LED 12 V red
E	LED 12 V green

WIRING

See following pages.

F	LED 12 V yellow
N	LED 12 V blue
S	LED 12 V white
J	LED 24 V red
K	LED 24 V green
L	LED 24 V yellow
P	LED 24 V blue
T	LED 24 V white

etc.

TERMINALS

Screw

0 6 terminals with barrier

Solder lug/quick-connect

- 2** 6 terminals with barrier
- 4** 6 terminals w/o barrier
- A** 10 term. with barrier
- B** 10 term. w/o barrier
- C** 10 terminals for use with connector U2292

Normalized quick-connect 6.35x0.8

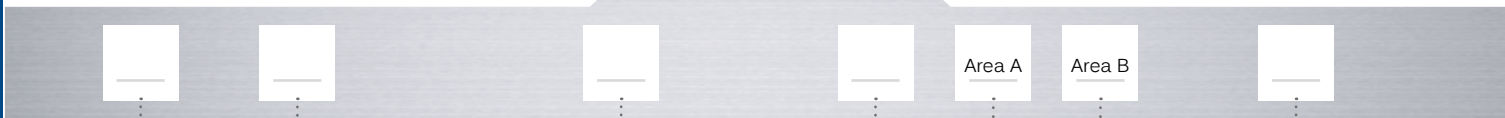
- 3** 6 terminals with barrier
- 5** 6 terminals w/o barrier
- D** 10 term. with barrier
- E** 10 term. w/o barrier
- F** 10 term. for use with connector U2292 or U3152

Normalized quick-connect 2.8x0.8

- G** 10 term. with barrier
- H** 10 term. w/o barrier
- J** 10 terminals for use with connector U2282

*** S contacts for all functions except 5 and 4-1R - for normalized quick-connect terminals 6.35x0.8 only.

ACTUATOR



TYPE

- 1** For non-illuminated application
- 2** For illuminated application

UNLOCKING ACTUATOR COLOR

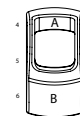
Hard plastic (ABS)

1	Blue	5	Yellow
1/4	Dark blue	6	Red
2	Black	7	Ivory
3	Green	9	Orange
4	Grey		

Elastomer

Y	Yellow
R	Red
G	Green

SYMBOLS



MARKING COLOR

Illuminated models

Blank White

Non-illuminated

- 1** Blue
- 2** Black
- 3** Green
- 4** Grey
- 5** Yellow
- 6** Red
- 7** White
- 9** Orange

ROCKER COLOR

1	Blue	3	Green	6	Red
1/4	Dark blue	4	Grey	7	Ivory
2	Black	5	Yellow	9	Orange

MARKING ORIENTATION



Symbols & Accessories : see end of the series.

NOTICE : please note that not all combinations of above numbers are available. Refer to following pages for further information.

KL series

Locking power rocker switches

6 TERMINAL VERSION



		2-3 5-6		1-2 4-5
Single pole	Double pole			
KL31	KL41	ON	-	OFF
	KL44*	ON	ON	ON
	KL44-1R*	ON	ON	MOM
KL35	KL45	MOM	-	ON
KL36	KL46	ON	-	ON
KL37	KL47	MOM	OFF	MOM
KL38	KL48	ON	OFF	MOM
KL39	KL49	ON	OFF	ON

*Function 4 : single pole in double pole case

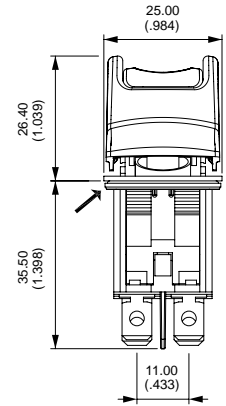
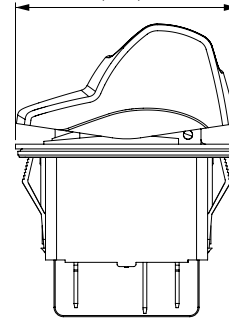
10 TERMINAL VERSION



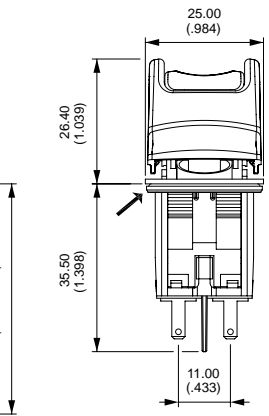
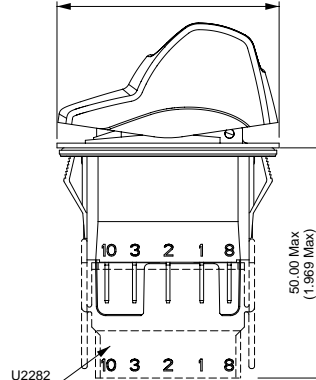
		2-3 5-6		1-2 4-5
Single pole	Double pole			
KL31	KL41	ON	-	OFF
	KL44*	ON	ON	ON
	KL44-1R*	ON	ON	MOM
KL35	KL45	MOM	-	ON
KL36	KL46	ON	-	ON
KL37	KL47	MOM	OFF	MOM
KL38	KL48	ON	OFF	MOM
KL39	KL49	ON	OFF	ON

*Function 4 : single pole in double pole case

→ FLAT SEAL
47.00
(1.850)

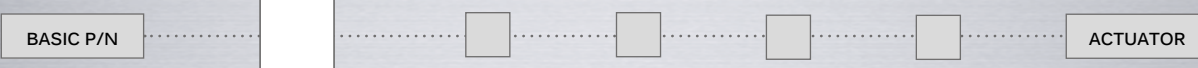


→ FLAT SEAL
47.00
(1.850)



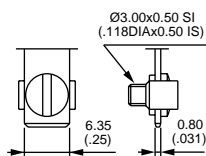
CASE + LEDS

TERMINALS



SCREW

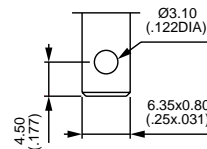
0 6 terminals with barrier



screw

SOLDER LUG / QUICK-CONNECT

- 2 6 terminals with barrier
- 4 6 terminals w/o barrier
- A 10 terminals with barrier
- B 10 terminals w/o barrier
- C 10 terminals for use with connector U2292 or U3152

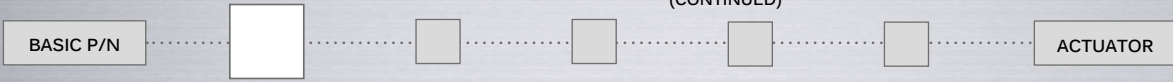


Solder lug / quick-connect

KL series

Locking power rocker switches

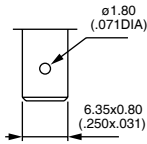
CASE + LEDS



TERMINALS (CONTINUED)

NORMALIZED QUICK-CONNECT 6.35X0.8

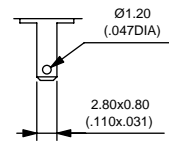
- 3 6 terminals with barrier
- 5 6 terminals w/o barrier
- D 10 terminals with barrier
- E 10 terminals w/o barrier
- F 10 terminals for use with connector U2292 or U3152



Normalized quick-connect 6.35x0.8

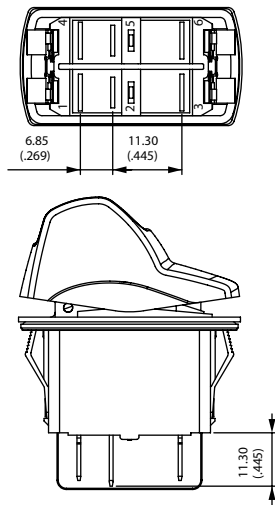
NORMALIZED QUICK-CONNECT 2.8X0.8

- G 10 terminals with barrier
- H 10 terminals w/o barrier
- J 10 terminals for use with connector U2282

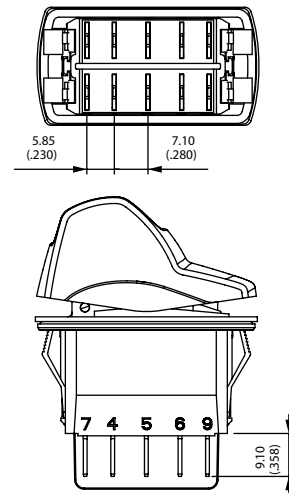


Normalized quick-connect 2.8x0.8

6 TERMINAL VERSION

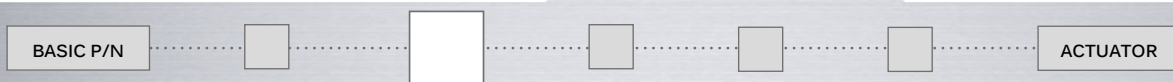


10 TERMINAL VERSION



Terminals are marked on the case. The drawings show the maximum possible number of terminals.

CASE + LEDS



CONTACT MATERIALS

- A Silver
- D Silver, gold plated
- S Silver 20A. For all functions except 4 and 4-1R - for normalized quick-connect terminals 6.35x0.8 only.

KL series

Locking power rocker switches

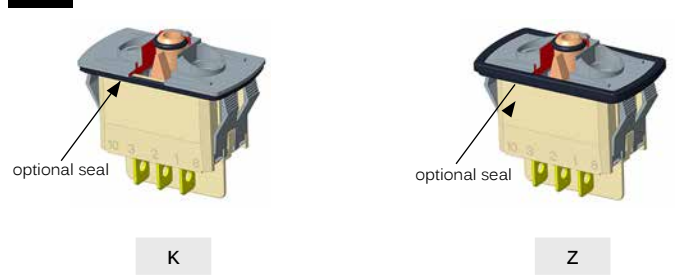
CASE + LEDS

SEALING



- X No sealing
- K IP68 (front panel components of switch only)
- Z IP69K - Installation notice available on request

Ultrasonic welding of frame to case is standard on all versions. The ultrasonic welding and the optional panel seal prevent water and dust from introducing into the switch housing.



CASE + LEDS

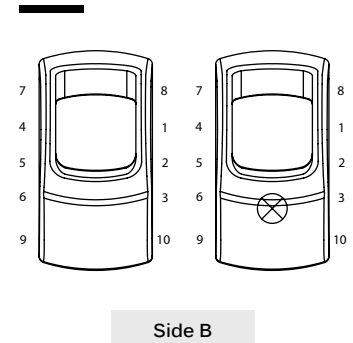
LEDS



Complete enlarged box with one of the codes listed below.

- X Without LED

	Red	Green	Yellow	Blue	White	Amber	Red/green
6 VDC	A	B	C	M	R	4	1
12 VDC	D	E	F	N	S	5	2
24 VDC	J	K	L	P	T	6	3
No resistor	U	V	W	Y	Z	9	8



LED consumption : 20 mA @ nominal voltage (25 °C / 77 °F)
Other illumination solutions : on request.

For non-stabilized on-board power supplies submitted to potential voltage surges due to the alternator, 15 V and 30 V LED configurations are also available on request. LED Tolerance ±10 %

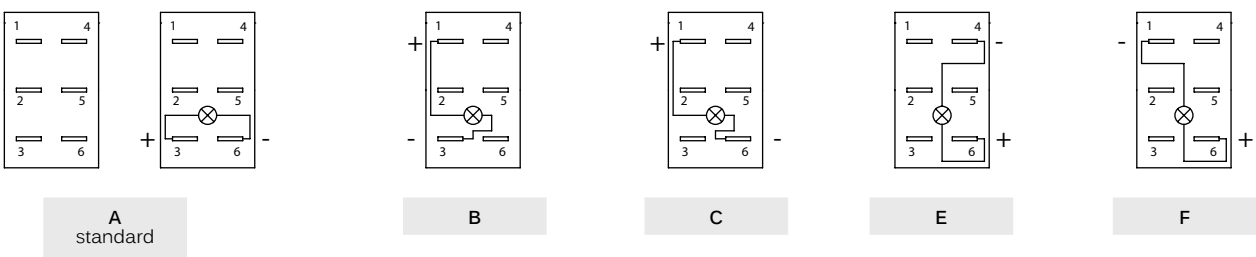
CASE + LEDS

WIRING



The LED wiring diagram is shown on the case.

FOR 6 TERMINAL VERSIONS - LED CONNECTED TO THE LOAD



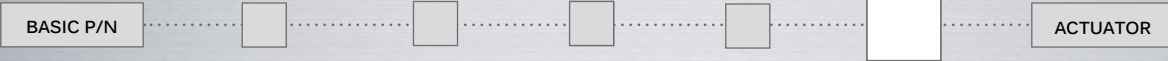
Note : If not available, terminals are added to connect the LED.

KL series

Locking power rocker switches

CASE + LEDES

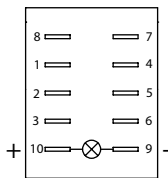
WIRING (CONTINUED)



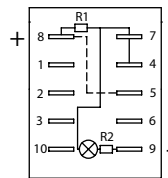
FOR 10 TERMINAL VERSIONS - INDEPENDENT LED OR INTEGRATED FUNCTIONS

- G** Standard, to have independent LED.
- H** To obtain 2 symbol illumination levels (night illumination when OFF and higher illumination when ON).
Dotted line = external wiring, continuous line = internal wiring
 Available in Single Pole only, with H and J quick-connect terminals
- I** To have a polarity inversion (typical application : fan motor).
Dotted line = external wiring
 Power supply between 2 and 5 - Load between 1 and 4 or 3 and 6.
 Available with H and J quick-connect terminals.

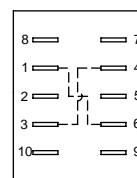
Please contact us for other wiring solutions.



G



H



I

ACTUATOR

ACTUATOR TYPE



- 1 For non-illuminated application
- 2 For illuminated application

ACTUATOR

ROCKER COLOR



- 1 Blue
- 1/4 Dark blue
- 2 Black
- 3 Green
- 4 Grey
- 5 Yellow
- 6 Red
- 7 Ivory
- 9 Orange

Note : color 7 not available on illuminated versions

KL series

Locking power rocker switches

ACTUATOR

UNLOCKING ACTUATOR



HARD PLASTIC (ABS)

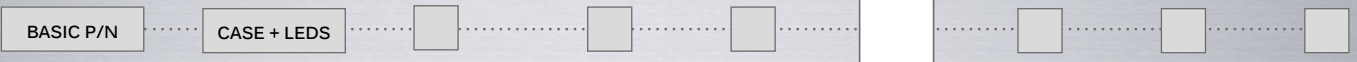
- | | | | |
|-----|-----------|---|--------|
| 1 | Blue | 5 | Yellow |
| 1/4 | Dark blue | 6 | Red |
| 2 | Black | 7 | Ivory |
| 3 | Green | 9 | Orange |
| 4 | Grey | | |

ELASTOMER

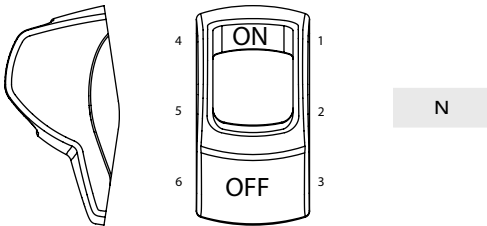
- | | |
|---|--------|
| Y | Yellow |
| R | Red |
| G | Green |

ACTUATOR

MARKING ORIENTATION



If no marking required, complete the box with code N.
Other orientations : on request



ACTUATOR

SYMBOLS



XX No symbol

Available symbols

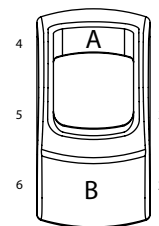
Complete each enlarged box with the one of the codes listed on the following pages.

Laser etching resistance

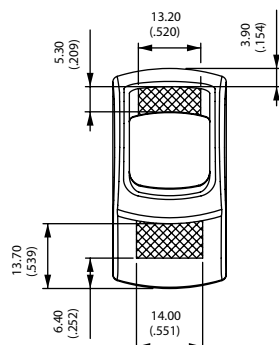
- Water and petrol resistant according to EN61058-1
- Tear resistant (cross-cut test) according to NF ISO 2409 : class 0
- UV resistant according to ISO 4892-2

Marking area

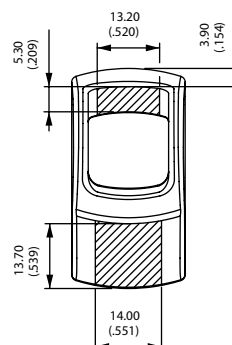
The symbol will be included in the hatched area.



For illuminated versions



For non-illuminated versions



KL series

Locking power rocker switches

ACTUATOR

MARKING COLOR



ILLUMINATED MODELS - LASER ETCHING

Blank White

NON-ILLUMINATED MODELS - PAD PRINTING

- 1 Blue
- 2 Black
- 3 Green
- 4 Grey
- 5 Yellow
- 6 Red
- 7 White
- 9 Orange

K range

Power rocker switches and indicators • symbols and accessories

Most symbols meet the ISO 7000 standard “graphical symbols for use on equipment” (code given in bracket in the description).
Contact us for symbols not featured in the following tables.



CODE	SYMBOL	DESCRIPTION
XX	None	-
01	ON	-
02	OFF	-
03	○	-
04	I	-
05	II	-
06	STOP	-
07	A	Stop
08	M	Motion
09	▲	Up motion
10	▼	Down motion
11	☀	Hot
12	❄	Cold
13	⚠	Hazard warning (0085)
14	☀	Traveller lighting
15	☀	Driver lighting (1421)

CODE	SYMBOL	DESCRIPTION
16	☀	Revolving light
17	☀	Rear ventilator
18	☀	Heating (0637)
19	☀	Door opening
20	☀	Windshield demister/ defroster (0635)
21	☀	Windshield wiper (0086)
22	☀	Windshield washer (0088)
23	☀	Ventilator fan (0089)
24	☀	Side mirror defroster
25	☀	Restarting pump
26	☀	Front fog lights (0633)
27	☀	Rear fog lights (0634)
28	☀	Propulsion system trim
29	☀	Beacon (1141)
30	☀	Anchor
31	☀	Electric motor (0011)

CODE	SYMBOL	DESCRIPTION
32	☀	Emergency first aid vehicle (2565)
33	☀	Load tipping (1557)
34	☀	Loading light (2457)
35	☀	Tractor, rear-ward (1667)
36	☀	Combine, direction of movement (1678)
37	☀	Use no forks (2406)
38	☀	Transmission (1166)
39	☀	Working spot light (1145)
40	☀	Engine (0640)
41	☀	Horn (0244)
42	☀	Lock (1656)
43	☀	Taxi sign light (2551)
44	☀	Working light (1204)
45	☀	Working light symmetric (1204)
46	☀	-
47	ASM	-

The company reserves the right to change specifications without notice.


















K range






Power rocker switches and indicators • symbols and accessories

CODE	SYMBOL	DESCRIPTION	CODE	SYMBOL	DESCRIPTION	CODE	SYMBOL	DESCRIPTION
48		All wheel drive	69		Engine idle control	90		ECAS reset
49		Differential lock (1662)	70		Cruise res/set	91		Driver windows heating
50		-	71		Driver windows up/down	92		Cruise set
51		-	72		Middle door opening	93		Air bag up/down
52		-	73		Front door opening	94		Read lighting
53		-	74		Lighting in baggage room	95		Lighting main switch
54		Rear window wiper (0097)	75		Cruise on/off	96		Heating using water
55		Rear window washer (0099)	76		TV	97		Low beam
56		Lower load (2223)	77		Pump	98		Position lights
57		Cab lock (1560)	78		Toilet	99		Diesel acceleration
58		Extraction	79		Toilet decontamination	A1		Manual mode
59		Pumping in	80		Front windshield heating	A2		Clockwise cabin rotation
60		Rear PTO (1572)	81		Aus	A3		Anticlockwise cabin rotation
61		Front PTO	82		Radiator fan	A4		-
62		Rockshaft down	83		Remove retarder	A5		-
63		Rockshaft up	84		Restricted speed	A6		Parking brake
64		Indicator	85		Preheater	A7		-
65		Brake release	86		ABS detection	A8		-
66		Baggage room left door	87		ECAS detection	A9		-
67		Baggage room right door	88		Engine stop	AA		-
68		Power blinds	89		Cruise res/cancel	AB		-

K range

Power rocker switches and indicators • symbols and accessories

CODE	SYMBOL	DESCRIPTION
AC		-
AD		-
AE		-
AF		-
AG		Battery charging condition (0247)
AH		Turn signals (0084)
AJ		High beam (0082)
AK		Differential lock, bogie (2600)
AL		Brushing with a rotating brush (0070)
AM		Differential lock, transfer case 4x4 (2475)
AN		Loader bucket, float (1441)
AP		Loader bucket (1437)
AQ		Rear window washer & wiper (0098)
AR		Header, Header drive (1579)
AS		Excavator/backhoe boom side shift (2091)
AT		Chemical water treatment (1851)
AU		Grapple skidder, single funct° boom (1762)

CODE	SYMBOL	DESCRIPTION
AV		-
AW		-
AY		-
AZ		-
B1	HIGH	-
B2	LOW	-
B3		-

Legend scale

Depending on space available on the product (see "Symbols" section at the end of each series).

K range

Power rocker switches and indicators • symbols and accessories

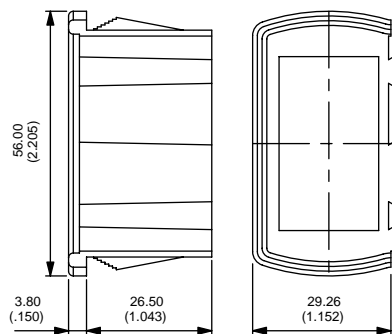
MOUNTING PANELS

(NOT AVAILABLE FOR USE WITH THE KH SERIES)

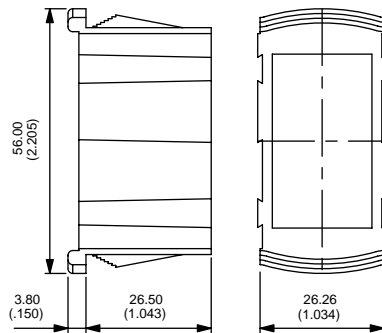
MOUNTING PANEL END

MOUNTING PANEL MIDDLE

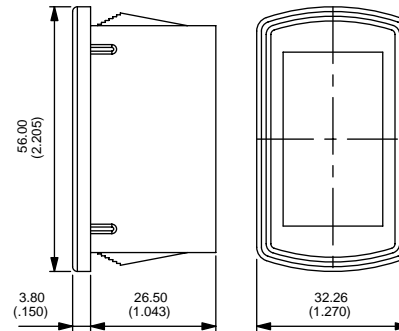
SINGLE MOUNTING PANEL



U2261



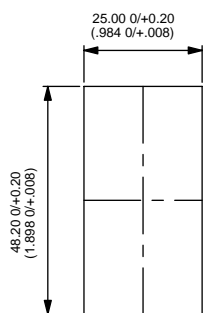
U2262



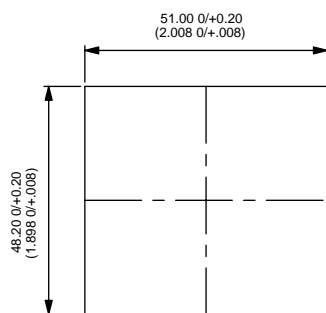
U2267

Recommended panel thickness : 1.10 mm - 1.80 mm - 2.60 mm - 3.40 mm - 4.20 mm - 5 mm - 5.80 mm

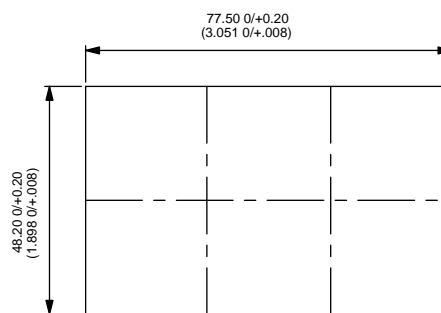
MOUNTING PANEL CUT-OUT



For 1 element U2267



For 2 elements U2261



For 3 elements (2xU2261 + 1x U2262)

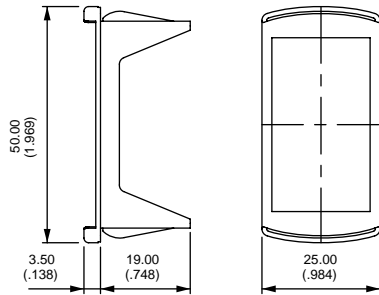
For additional elements, add 26.40 mm (1.039)

K range

Power rocker switches and indicators • symbols and accessories

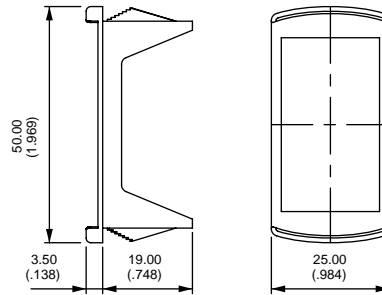
22 X 44 ADAPTERS

FRONT PANEL DISMOUNTING



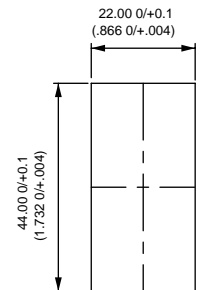
U3060

REAR PANEL DISMOUNTING



U3070

PANEL CUT-OUT



Recommended panel thickness

U3060 0.60 mm to 1.50 mm

U3070 1.60 mm -0.1/0 to 5.60 mm -0.1/0 in stages of 0.40 mm

Adapter colors (replace 0 with code)

- 1/4 Dark blue
- 2 Black
- 4 Grey
- 5 Yellow
- 6 Red
- 7/1 White

ACTUATOR REMOVING TOOL

(NOT SUITABLE FOR USE WITH KH1 MODELS - 4-SIDE PROTECTION GUARDS)

Extract actuator (KR only)

Allows the extraction of the rocker / rocker support assembly. Place the 2 claws under the support and push as indicated by the arrow.

Extract rocker (KR only)

Allows to separate the rocker from its support. Insert the tool between rocker and support as indicated by the arrow. Pull out the tool in the opposite direction.

Extract switch (KR, KL and KI)

Allows to extract switch from panel mounting units. 2 Tools are necessary. Insert the tools between switch and panel mounting units from the rear to compress the snap-in device. Pull off switch manually.



U3052

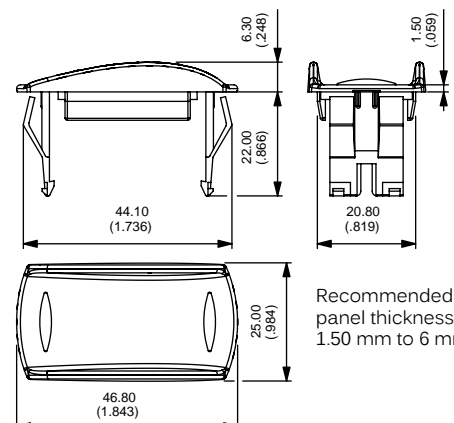
2 tools are supplied

BLANKING CAPS

Usefull for future extensions.

Connectors can be hanged on specific hole plugs. Contact APEM.

- | | | | |
|---------|-----------|-------|--------|
| U2271 | Blue | U2275 | Yellow |
| U2271/4 | Dark blue | U2276 | Red |
| U2272 | Black | U2277 | Ivory |
| U2273 | Green | U2279 | Orange |
| U2274 | Grey | | |



K range

Power rocker switches and indicators • symbols and accessories

CONNECTORS

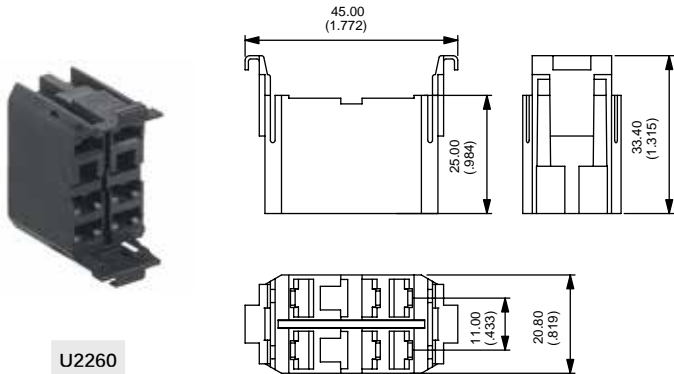
Standard color : black. Other colors : on request. Connectors cannot be combined with wiring types H and I.

U2260 6 terminal version. For use with terminals type 2, 3, 4 or 5.
6.35 (1/4) tabs to be fitted by the user (example : TE42282-2).
Can be used for the KG series.

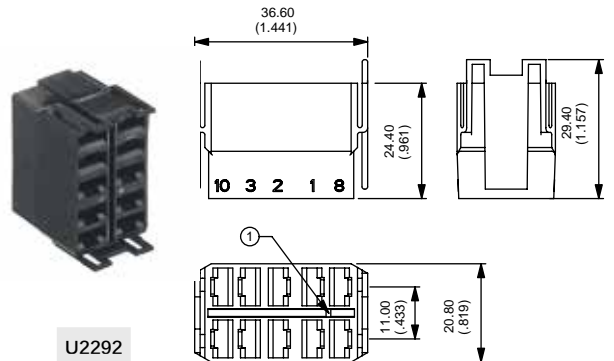
U2282 10 terminal version. For use with terminals type H or J.
2.8 (.110) tabs to be fitted by the user (example : AMP/Tyco 0-927779-3).

U2292 10 terminal version : For use with terminals type B, C, E or F.
6.35 (1/4) tabs to be fitted by the user (example : TE42282-2).

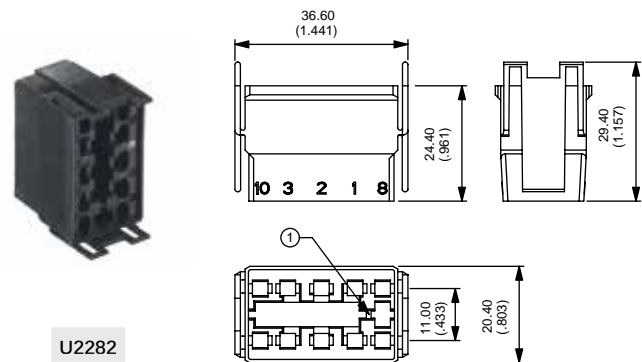
U3152 10 terminal version. For use with terminals type B, C, E or F.
6.35 (1/4) tabs to be fitted by the user (example : "Timer" terminals TE927833-2)



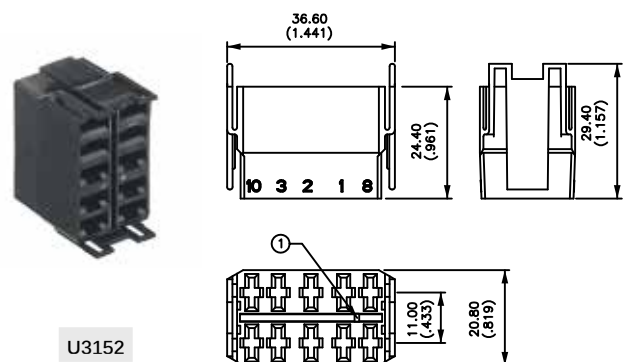
U2260



U2292



U2282



U3152

KR series

Power rocker switches



DISTINCTIVE FEATURES

- Unique rocker design
- Wide choice of colors
- Laser etched symbols
- Illuminated or non-illuminated
- Optionally sealed to IP68 or IP69K



ENVIRONMENTAL SPECIFICATIONS

- Sealing options :
 - K : IP68 to front panel components of switch only according to IEC 60529
 - Z : IP69K panel sealing according to DIN 40050-9
- Salt spray resistance : 96 hours according to IEC 512-6, test 11f
- Vibration resistance : 10-500 Hz / 10 g per IEC 60068-2-6
- Operating temperature : -40 °C to +85 °C (-40 °F to +185 °F)



ELECTRICAL SPECIFICATIONS

- Current/voltage rating with resistive load :
 - Silver plated contacts :
 - A : 5 A 24 VDC, 100,000 cycles
 - 10 A 24 VDC, 10,000 cycles (terminals 6.35 x 0.8 only)
 - S : 20 A 12 V, 10,000 cycles (see "Build your part number")
 - Gold plated contacts (D) : 20 mA 12 V, 150,000 cycles
- Current/voltage rating with lamp load - silver contacts (A) :
 - functions 1 & 6 : 100 W 24 VDC, 10,000 cycles
 - other functions : 60 W 24 VDC, 10,000 cycles
- Initial contact resistance : 10 mΩ max.
- Insulation resistance : 1,000 MΩ min. at 500 VDC
- Dielectric strength : 2,000 Vrms 50 Hz min. between terminals



GENERAL SPECIFICATIONS

- Mechanical life : 150,000 cycles min.
- Panel thickness : 0.8 mm to 4.6 mm
- Recommended panel thickness : between 2 mm and 3.5 mm

The company reserves the right to change specifications without notice.



KR series

Power rocker switches



MATERIALS

- Case : PA 6-6
- Actuator : ABS
- Bezel : PA 6-6
- Contacts & terminals :
brass, solid silver grain, silver plated (A or S)
or brass, solid silver grain, gold plated (D)
- Contact roller : brass, nickel plated

APEM products may be recycled at end-of-life for the re-claiming of valuable metal components.

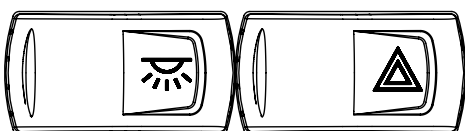
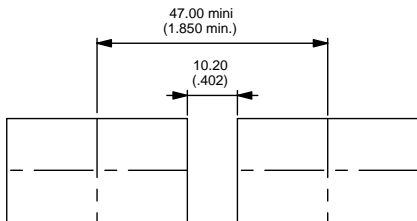
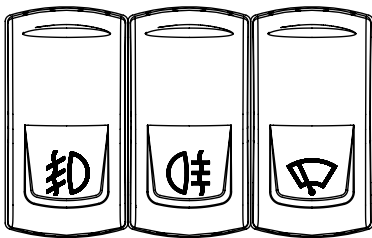
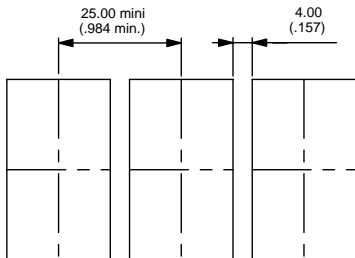


SEALING

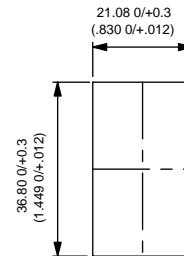
- Sealing is optional. To order a sealed product, complete the appropriate box of ordering format on the following pages.



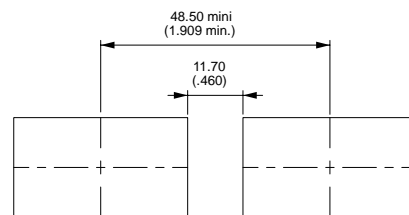
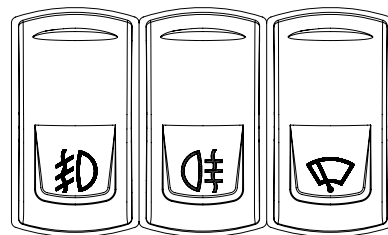
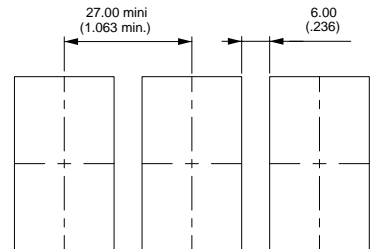
MATRIX MOUNTING



PANEL CUT-OUT



SPECIFIC MATRIX MOUNTING FOR Z VERSION





ELECTRICAL FUNCTIONS AND CONNECTIONS

In the tables below, terminal connections as viewed from bottom of switch. Only the contact area is represented. For single pole models, only terminals 1, 2 and 3 are to be considered (not terminals 6, 5, 4).

x = w/o terminal
 o = with terminal
 ▲ = momentary

2 POSITIONS

Function 1 * KR31-KR41		
Function 5 KR35 - KR45		
Function 6 KR36-KR46		

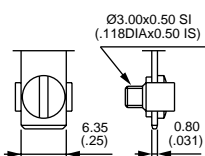
* Function 1 : Only available for 6 terminal versions.

3 POSITIONS

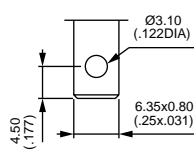
Function 7 KR37-KR47			
Function 8 KR38-KR48			
Function 9 KR39-KR49			
Function 4 KR44			
Function 4-1R KR44-1R			



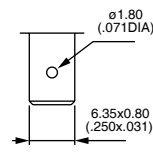
TERMINALS



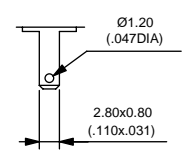
Screw



Solder lug / quick-connect



Normalized quick-connect 6.35x0.8



Normalized quick-connect 2.8x0.8

KR series

Power rocker switches



BUILD YOUR PART NUMBER

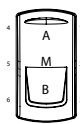
- To order a complete product, fill in all the boxes of the following order guide.
- To order case only (without actuator), finish your order number with the LED wiring code.
- To order actuator only (without case), begin the order number with code KRR, then follow the order format from "actuator type" until the end of the options.

CASE + LEADS

KR							Side A	Side B	
SERIES	POLES	ELECTRICAL FUNCTIONS			CONTACTS	SEALING	LEDS		
		1 ON - OFF			A Silver	X No			
3 Single pole		4 ON ON ON			D Gold plated	K IP68			
4 Double pole		4-1R ON ON MOM			S Silver 20A***	Z IP69K	X None	F LED 12 V yellow	
		5 MOM - ON					A LED 6 V red	N LED 12 V blue	
		6 ON - ON					B LED 6 V green	S LED 12 V white	
		7 MOM OFF MOM					C LED 6 V yellow	J LED 24 V red	
		8 ON OFF MOM					M LED 6 V blue	K LED 24 V green	
		9 ON OFF ON					R LED 6 V white	L LED 24 V yellow	
		Function 1 only for 6-terminal versions.					D LED 12 V red	P LED 24 V blue	
							E LED 12 V green	T LED 24 V white	
									etc.
					TERMINALS				
					Screw	Normalized quick-connect 6.35x0.8	Normalized quick-connect 2.8x0.8		
					0 6 terminals with barrier	3 6 terminals with barrier	G 10 term. with barrier		
					Solder lug/quick-connect	5 6 terminals w/o barrier	H 10 term. w/o barrier		
					2 6 terminals with barrier	D 10 term. with barrier	J 10 terminals for use with connector U2282		
					4 6 terminals w/o barrier	E 10 term. w/o barrier			
					A 10 term. with barrier	F 10 term. for use with connector U2292 or U3152			
					B 10 term. w/o barrier				
					C 10 terminals for use with connector U2292				

***S contacts for all functions except 5 and 4-1R - for normalized quick-connect terminals 6.35x0.8 only.

ACTUATOR

				Area A	Area M	Area B
TYPE	COLOR	MARKING ORIENTATION	SYMBOLS			
1 For non-illuminated application	1 Blue	5 Yellow	N North			
2 For illuminated application	1/4 Dark blue	6 Red	O West	Symbols & Accessories : see end of the series.		
	2 Black	7 Ivory	S South			
	3 Green	9 Orange	E East			
	4 Grey	A Aluminum bright	Drawings on following pages.			

NOTICE : please note that not all combinations of above numbers are available. Refer to the following pages for further information.

KR series

Power rocker switches

6 TERMINAL VERSION



		2-3 5-6		1-2 4-5
Single pole	Double pole			
KR31	KR41	ON	-	OFF
	KR44*	ON	ON	ON
	KR44-1R*	ON	ON	MOM
KR35	KR45	MOM	-	ON
KR36	KR46	ON	-	ON
KR37	KR47	MOM	OFF	MOM
KR38	KR48	ON	OFF	MOM
KR39	KR49	ON	OFF	ON

*Function 4 : single pole in double pole case

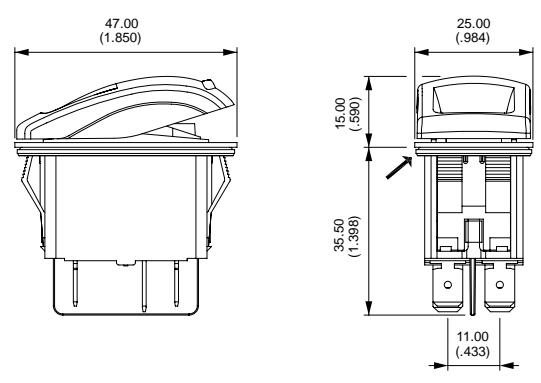
10 TERMINAL VERSION



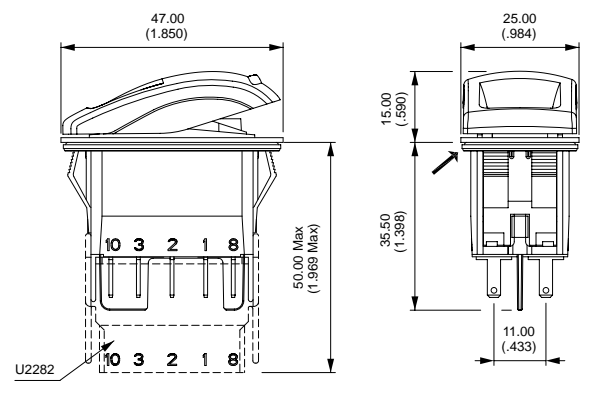
		2-3 5-6		1-2 4-5
Single pole	Double pole			
KR31	KR41	ON	-	OFF
	KR44*	ON	ON	ON
	KR44-1R*	ON	ON	MOM
KR35	KR45	MOM	-	ON
KR36	KR46	ON	-	ON
KR37	KR47	MOM	OFF	MOM
KR38	KR48	ON	OFF	MOM
KR39	KR49	ON	OFF	ON

*Function 4 : single pole in double pole case

→ FLAT SEAL



→ FLAT SEAL



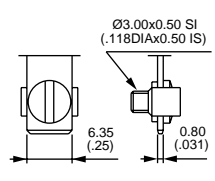
CASE + LEDS



To order case only (without actuator), finish your order number with the LED wiring code.

SCREW

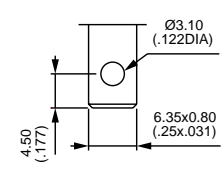
0 6 terminals with barrier



screw

SOLDER LUG / QUICK-CONNECT

- 2 6 terminals with barrier
- 4 6 terminals w/o barrier
- A 10 terminals with barrier
- B 10 terminals w/o barrier
- C 10 terminals for use with connector U2292 or U3152



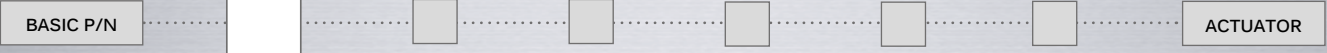
Solder lug / quick-connect

KR series

Power rocker switches

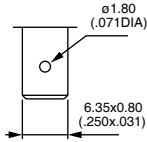
CASE + LEDS

**TERMINALS
(CONTINUED)**



NORMALIZED QUICK-CONNECT 6.35X0.8

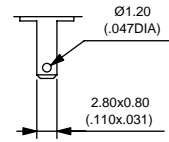
- 3** 6 terminals with barrier
- 5** 6 terminals w/o barrier
- D** 10 terminals with barrier
- E** 10 terminals w/o barrier
- F** 10 terminals for use with connector U2292 or U3152



Normalized quick-connect 6.35x0.8

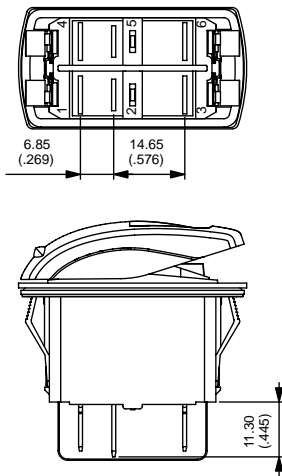
NORMALIZED QUICK-CONNECT 2.8X0.8

- G** 10 terminals with barrier
- H** 10 terminals w/o barrier
- J** 10 terminals for use with connector U2282

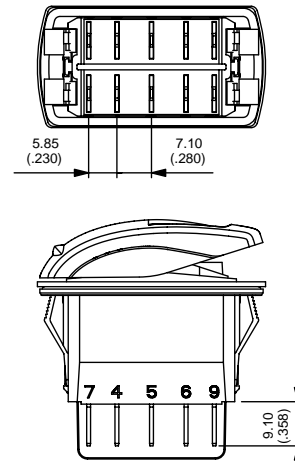


Normalized quick-connect 2.8x0.8

6 TERMINAL VERSION



10 TERMINAL VERSION



Terminals are marked on the case. The drawings show the maximum possible number of terminals.

CASE + LEDS

CONTACT MATERIALS



- A** Silver
- D** Silver, gold plated
- S** Silver 20A. For all functions except 4 and 4-1R - for normalized quick-connect terminals 6.35x0.8 only.

KR series

Power rocker switches

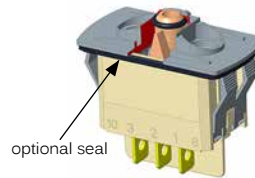
CASE + LEADS

SEALING

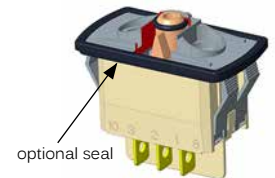


- X No sealing
- K IP68 (front panel components of switch only)
- Z IP69K - Installation notice available on request

Ultrasonic welding of frame to case is standard on all versions. The ultrasonic welding and the optional panel seal prevent water and dust from introducing into the switch housing.



K



Z

CASE + LEADS

LEADS



Complete each enlarged box with one of the codes listed below.

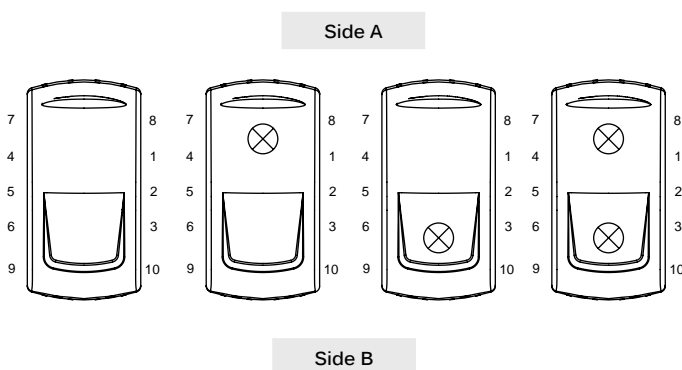
- X Without LED

	Red	Green	Yellow	Blue	White	Amber	Red/green
6 VDC	A	B	C	M	R	4	1
12 VDC	D	E	F	N	S	5	2
24 VDC	J	K	L	P	T	6	3
No resistor	U	V	W	Y	Z	9	8

LED consumption : 20 mA @ nominal voltage (25 °C / 77 °F)
 Other illumination solutions : on request.

For non-stabilized on-board power supplies submitted to potential voltage surges due to the alternator, 15 V and 30 V LED configurations are also available on request.

LED Tolerance $\pm 10\%$



KR series

Power rocker switches

CASE + LEDS

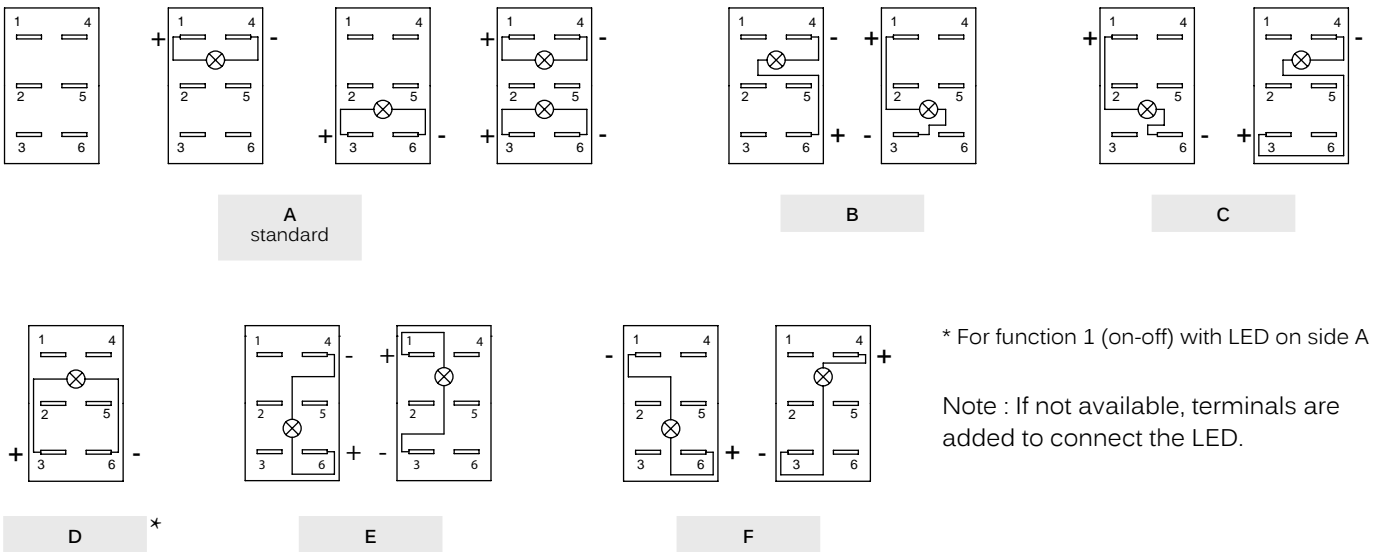
WIRING

BASIC P/N

ACTUATOR

The LED wiring diagram is shown on the case.

FOR 6 TERMINAL VERSIONS - LED CONNECTED TO THE LOAD



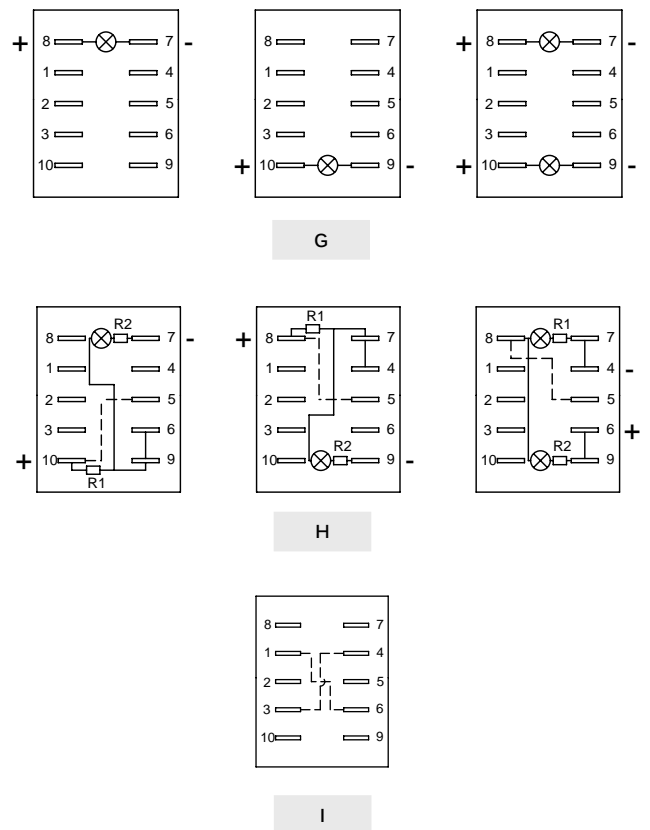
FOR 10 TERMINAL VERSIONS - INDEPENDENT LED OR INTEGRATED FUNCTIONS

G Standard, to have independent LED.

H To obtain 2 symbol illumination levels (night illumination when OFF and higher illumination when ON).
 - H wiring with LED on side A available with functions 6, 8, 9 and 44.
 - H wiring with LED on side B available with functions 5, 6 and 9.
 - H wiring with 2 LEDs available with functions 8 and 9.
 More information (H wiring schematics) : on request.

I To have a polarity inversion (typical application : fan motor).

Dotted line = external wiring, continuous line = internal wiring
 Available in Single Pole only, with H and J quick-connect terminals.
 Power supply between 2 and 5 - Load between 1 and 4 or 3 and 6.
 Available with H and J quick-connect terminals.



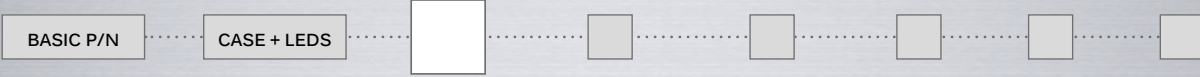
Please contact us for other wiring solutions.

KR series

Power rocker switches

ACTUATOR

ACTUATOR TYPE



To order actuator only (without case), begin the order number with code KRR, then follow the order format from "actuator type" until the end of the options.

- 1 For non-illuminated application
- 2 For illuminated application

Other rocker design : on request.



ACTUATOR

ACTUATOR COLOR



- 1 Blue
- 1/4 Dark blue
- 2 Black
- 3 Green
- 4 Grey
- 5 Yellow
- 6 Red
- 7 Ivory
- 7/1 White
- 9 Orange
- A Aluminum bright



Note : colors 7 and 7/1 not available on illuminated versions.

A soft-touch varnish can be added. Consult us.

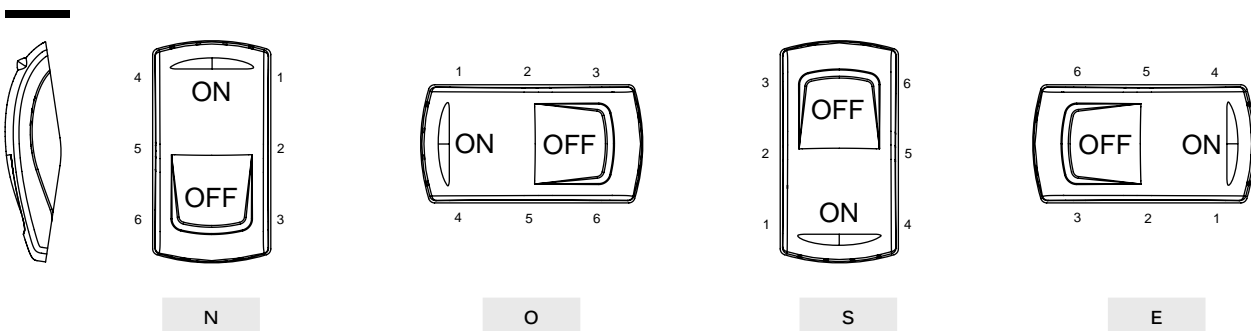
ACTUATOR

MARKING ORIENTATION



If no marking required, complete the box with code N.

Other orientations : on request



KR series

Power rocker switches

ACTUATOR

SYMBOLS



XX No symbol

Available symbols : Complete each enlarged box with the one of the codes listed on the following pages.

Marking color : White marking for illuminated rockers (laser etching) and non-illuminated black rockers (pad printing). Black marking for non-illuminated color rockers (pad printing).
Other : on request.

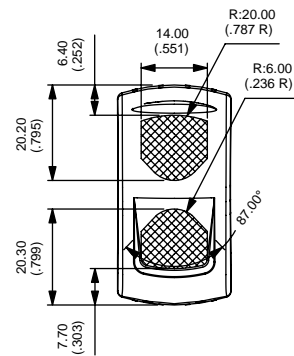
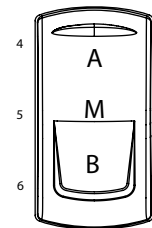
Laser etching resistance

- Water and petrol resistant according to EN 61058-1
- Tear resistant (cross-cut test) according to NF ISO 2409 : class 0
- UV resistant according to ISO 4892-2

Marking area

For illuminated versions. The symbol will be included in the hatched area. Marking in M area : on request.

MARKING AREA



K range

Power rocker switches and indicators • symbols and accessories

Most symbols meet the ISO 7000 standard “graphical symbols for use on equipment” (code given in bracket in the description).
Contact us for symbols not featured in the following tables.



CODE	SYMBOL	DESCRIPTION
XX	None	-
01	ON	-
02	OFF	-
03	○	-
04	I	-
05	II	-
06	STOP	-
07	A	Stop
08	M	Motion
09	▲	Up motion
10	▼	Down motion
11	☀	Hot
12	✖	Cold
13	⚠	Hazard warning (0085)
14	☀	Traveller lighting
15	☀	Driver lighting (1421)

CODE	SYMBOL	DESCRIPTION
16	☀	Revolving light
17	☐	Rear ventilator
18	☀	Heating (0637)
19	☐	Door opening
20	☀	Windshield demister/ defroster (0635)
21	☀	Windshield wiper (0086)
22	☀	Windshield washer (0088)
23	☀	Ventilator fan (0089)
24	☀	Side mirror defroster
25	⚙	Restarting pump
26	☀	Front fog lights (0633)
27	☀	Rear fog lights (0634)
28	☀	Propulsion system trim
29	☀	Beacon (1141)
30	⚓	Anchor
31	🔌	Electric motor (0011)

CODE	SYMBOL	DESCRIPTION
32	🚑	Emergency first aid vehicle (2565)
33	🚛	Load tipping (1557)
34	🚛	Loading light (2457)
35	🚜	Tractor, rear-ward (1667)
36	🚛	Combine, direction of movement (1678)
37	🚛	Use no forks (2406)
38	⚙	Transmission (1166)
39	☀	Working spot light (1145)
40	🚗	Engine (0640)
41	📢	Horn (0244)
42	🔒	Lock (1656)
43	TAXI	Taxi sign light (2551)
44	☀	Working light (1204)
45	☀	Working light symmetric (1204)
46	🔌	-
47	ASM	-

The company reserves the right to change specifications without notice.


















K range






Power rocker switches and indicators • symbols and accessories

CODE	SYMBOL	DESCRIPTION	CODE	SYMBOL	DESCRIPTION	CODE	SYMBOL	DESCRIPTION
48		All wheel drive	69		Engine idle control	90		ECAS reset
49		Differential lock (1662)	70		Cruise res/set	91		Driver windows heating
50		-	71		Driver windows up/down	92		Cruise set
51		-	72		Middle door opening	93		Air bag up/down
52		-	73		Front door opening	94		Read lighting
53		-	74		Lighting in baggage room	95		Lighting main switch
54		Rear window wiper (0097)	75		Cruise on/off	96		Heating using water
55		Rear window washer (0099)	76		TV	97		Low beam
56		Lower load (2223)	77		Pump	98		Position lights
57		Cab lock (1560)	78		Toilet	99		Diesel acceleration
58		Extraction	79		Toilet decontamination	A1		Manual mode
59		Pumping in	80		Front windshield heating	A2		Clockwise cabin rotation
60		Rear PTO (1572)	81		Aus	A3		Anticlockwise cabin rotation
61		Front PTO	82		Radiator fan	A4		-
62		Rockshaft down	83		Remove retarder	A5		-
63		Rockshaft up	84		Restricted speed	A6		Parking brake
64		Indicator	85		Preheater	A7		-
65		Brake release	86		ABS detection	A8		-
66		Baggage room left door	87		ECAS detection	A9		-
67		Baggage room right door	88		Engine stop	AA		-
68		Power blinds	89		Cruise res/cancel	AB		-

K range

Power rocker switches and indicators • symbols and accessories

CODE	SYMBOL	DESCRIPTION
AC		-
AD		-
AE		-
AF		-
AG		Battery charging condition (0247)
AH		Turn signals (0084)
AJ		High beam (0082)
AK		Differential lock, bogie (2600)
AL		Brushing with a rotating brush (0070)
AM		Differential lock, transfer case 4x4 (2475)
AN		Loader bucket, float (1441)
AP		Loader bucket (1437)
AQ		Rear window washer & wiper (0098)
AR		Header, Header drive (1579)
AS		Excavator/backhoe boom side shift (2091)
AT		Chemical water treatment (1851)
AU		Grapple skidder, single funct° boom (1762)

CODE	SYMBOL	DESCRIPTION
AV		-
AW		-
AY		-
AZ		-
B1	HIGH	-
B2	LOW	-
B3		-

Legend scale

Depending on space available on the product (see "Symbols" section at the end of each series).

K range

Power rocker switches and indicators • symbols and accessories

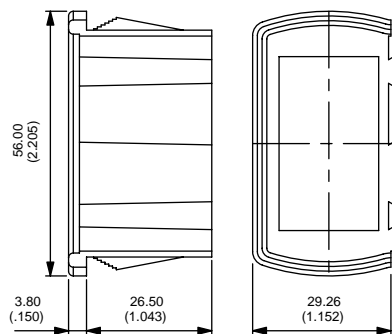
MOUNTING PANELS

(NOT AVAILABLE FOR USE WITH THE KH SERIES)

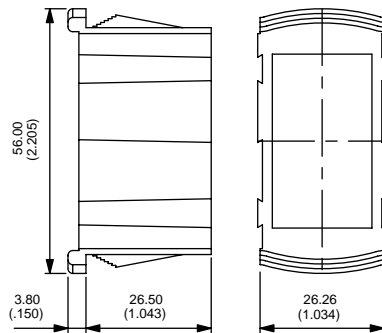
MOUNTING PANEL END

MOUNTING PANEL MIDDLE

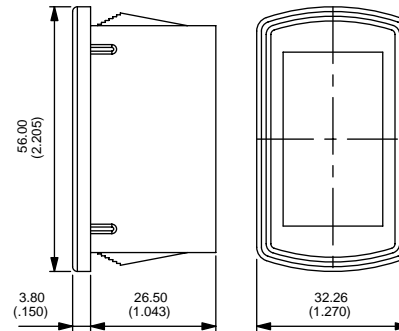
SINGLE MOUNTING PANEL



U2261



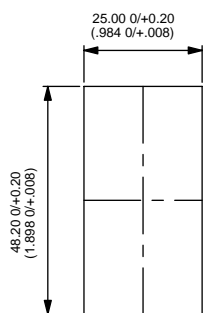
U2262



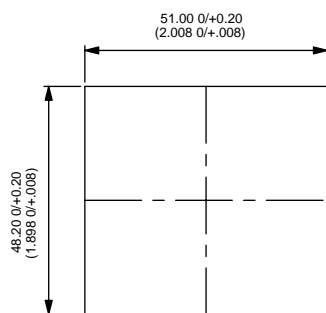
U2267

Recommended panel thickness : 1.10 mm - 1.80 mm - 2.60 mm - 3.40 mm - 4.20 mm - 5 mm - 5.80 mm

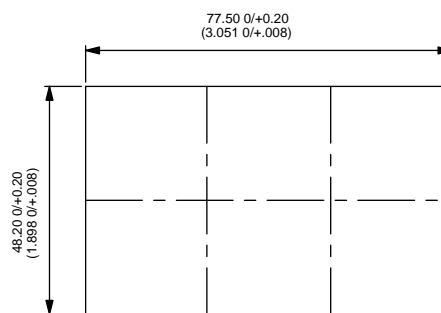
MOUNTING PANEL CUT-OUT



For 1 element U2267



For 2 elements U2261



For 3 elements (2xU2261 + 1x U2262)

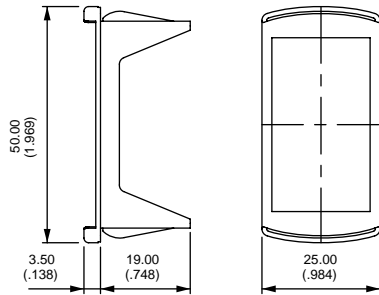
For additional elements, add 26.40 mm (1.039)

K range

Power rocker switches and indicators • symbols and accessories

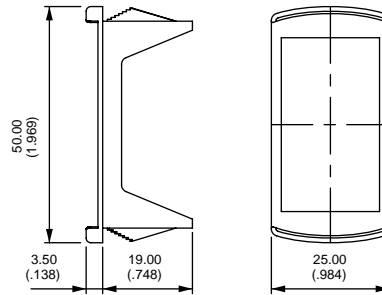
22 X 44 ADAPTERS

FRONT PANEL DISMOUNTING



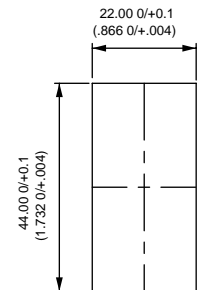
U3060

REAR PANEL DISMOUNTING



U3070

PANEL CUT-OUT



Recommended panel thickness

U3060 0.60 mm to 1.50 mm

U3070 1.60 mm -0.1/0 to 5.60 mm -0.1/0 in stages of 0.40 mm

Adapter colors (replace 0 with code)

- 1/4 Dark blue
- 2 Black
- 4 Grey
- 5 Yellow
- 6 Red
- 7/1 White

ACTUATOR REMOVING TOOL

(NOT SUITABLE FOR USE WITH KH1 MODELS - 4-SIDE PROTECTION GUARDS)

Extract actuator (KR only)

Allows the extraction of the rocker / rocker support assembly. Place the 2 claws under the support and push as indicated by the arrow.

Extract rocker (KR only)

Allows to separate the rocker from its support. Insert the tool between rocker and support as indicated by the arrow. Pull out the tool in the opposite direction.

Extract switch (KR, KL and KI)

Allows to extract switch from panel mounting units. 2 Tools are necessary. Insert the tools between switch and panel mounting units from the rear to compress the snap-in device. Pull off switch manually.



U3052

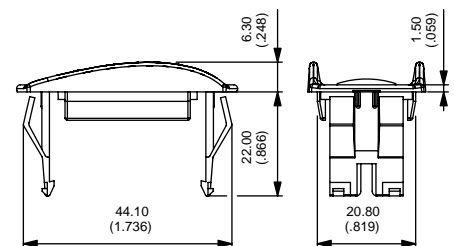
2 tools are supplied

BLANKING CAPS

Usefull for future extensions.

Connectors can be hanged on specific hole plugs. Contact APEM.

- | | | | |
|---------|-----------|-------|--------|
| U2271 | Blue | U2275 | Yellow |
| U2271/4 | Dark blue | U2276 | Red |
| U2272 | Black | U2277 | Ivory |
| U2273 | Green | U2279 | Orange |
| U2274 | Grey | | |



Recommended panel thickness : 1.50 mm to 6 mm



K range

Power rocker switches and indicators • symbols and accessories

CONNECTORS

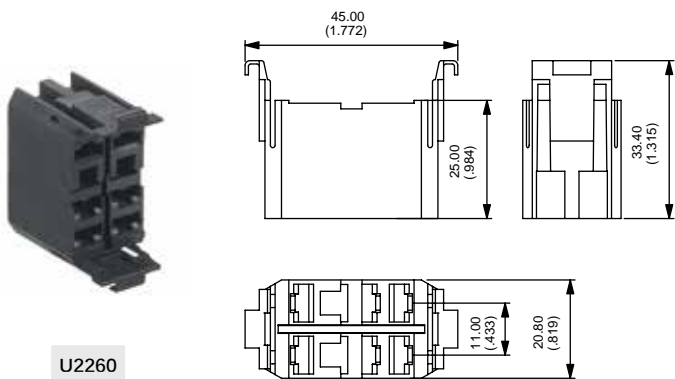
Standard color : black. Other colors : on request. Connectors cannot be combined with wiring types H and I.

U2260 6 terminal version. For use with terminals type 2, 3, 4 or 5.
6.35 (1/4) tabs to be fitted by the user (example : TE42282-2).
Can be used for the KG series.

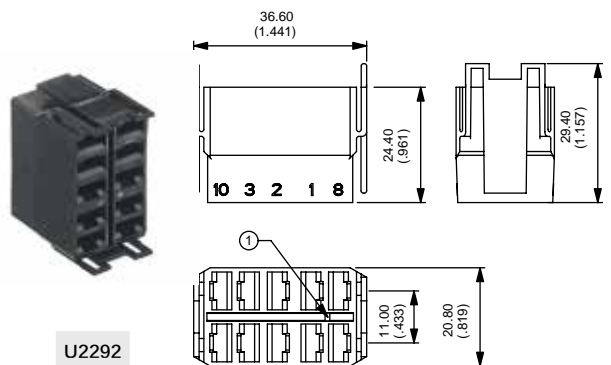
U2282 10 terminal version. For use with terminals type H or J.
2.8 (.110) tabs to be fitted by the user (example : AMP/Tyco 0-927779-3).

U2292 10 terminal version : For use with terminals type B, C, E or F.
6.35 (1/4) tabs to be fitted by the user (example : TE42282-2).

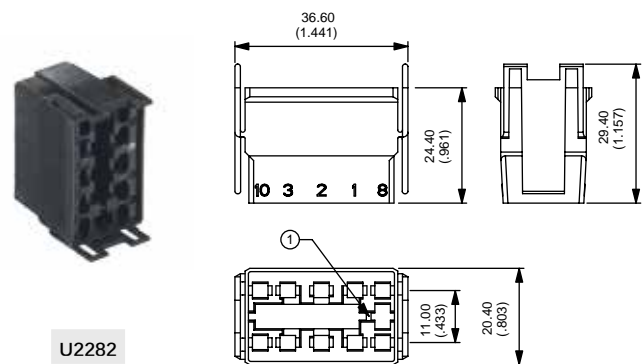
U3152 10 terminal version. For use with terminals type B, C, E or F.
6.35 (1/4) tabs to be fitted by the user (example : "Timer" terminals TE927833-2)



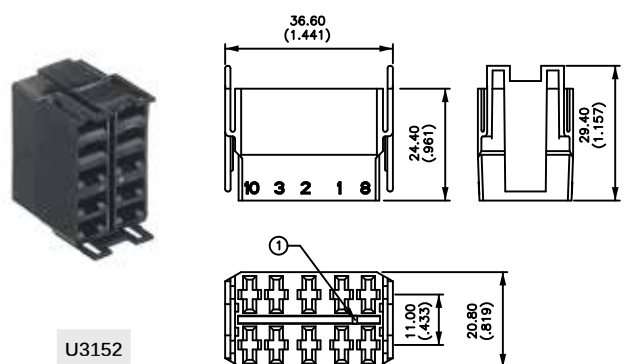
U2260



U2292



U2282



U3152

S series

Washable rocker and paddle switches



DISTINCTIVE FEATURES

- Process sealed
- Front and rear sealing
- Process compatible
- Wave solderable
- Washable



ENVIRONMENTAL SPECIFICATIONS

- Operating temperature : -20 °C to +85 °C (-4 °F to +185 °F)
- Storage temperature : -40 °C to +85 °C (-40 °F to +185 °F)
- Moisture : The insulating materials employed and the complete seal permit the switches to withstand a 56 days moisture test (IEC 68-2-3).
- Solderability : The switches are tested at 235 °C (455 °F) according to IEC 68-2-20 after accelerated aging.



ELECTRICAL SPECIFICATIONS

- Max. current/voltage rating with resistive load :
 - silver contacts (A) : 4 A 30 VDC
 - brass, gold plated contacts (CD) : 0.4 VA 20 VAC or DC
 - silver, gold plated contacts (AD) : 4 A 30 VDC (300 mA 30 VDC for gold plating)
- Initial contact resistance : 10 mΩ max.
- Insulation resistance : 1,000 MΩ min.
- Dielectric strength : 1,000 Vrms 50 Hz min.
- Electrical life with nominal load :

Contacts	Number of cycles	
	2 positions	3 positions
A	40,000	40,000
CD	100,000	50,000
AD	40,000	40,000

The company reserves the right to change specifications without notice.



S series

Washable rocker and paddle switches



GENERAL SPECIFICATIONS

- Mechanical strength : Terminals are strengthened by a bracket or a ground plate ensuring the rigidity of the switch on the board. Actuator strength 10 N max.
- Soldering - thermal shock : The switches are especially designed for flow soldering at 260 °C (500 °F) during 5 seconds owing to high temperature polymer parts.



MATERIALS

- Case and cover : UL94-V0, polyamide, glass filled or PES
- Actuator : polyamide
- Contacts
 - CD : brass, gold plated
 - A : silver
 - AD : silver, gold plated
- Terminal seal : epoxy

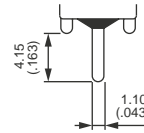
APEM products may be recycled at end-of-life for the re-claiming of valuable metal components.



ELECTRICAL FUNCTIONS



TERMINALS



Straight PC

AGENCY APPROVAL



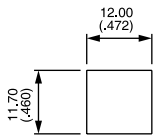
2 A 250 VAC
4 A 125 VAC

Availability : consult factory for details of approved models.

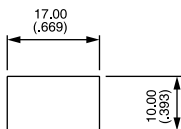
Marking : to order switches marked UL, complete appropriate box of ordering format.



PANEL CUT-OUT



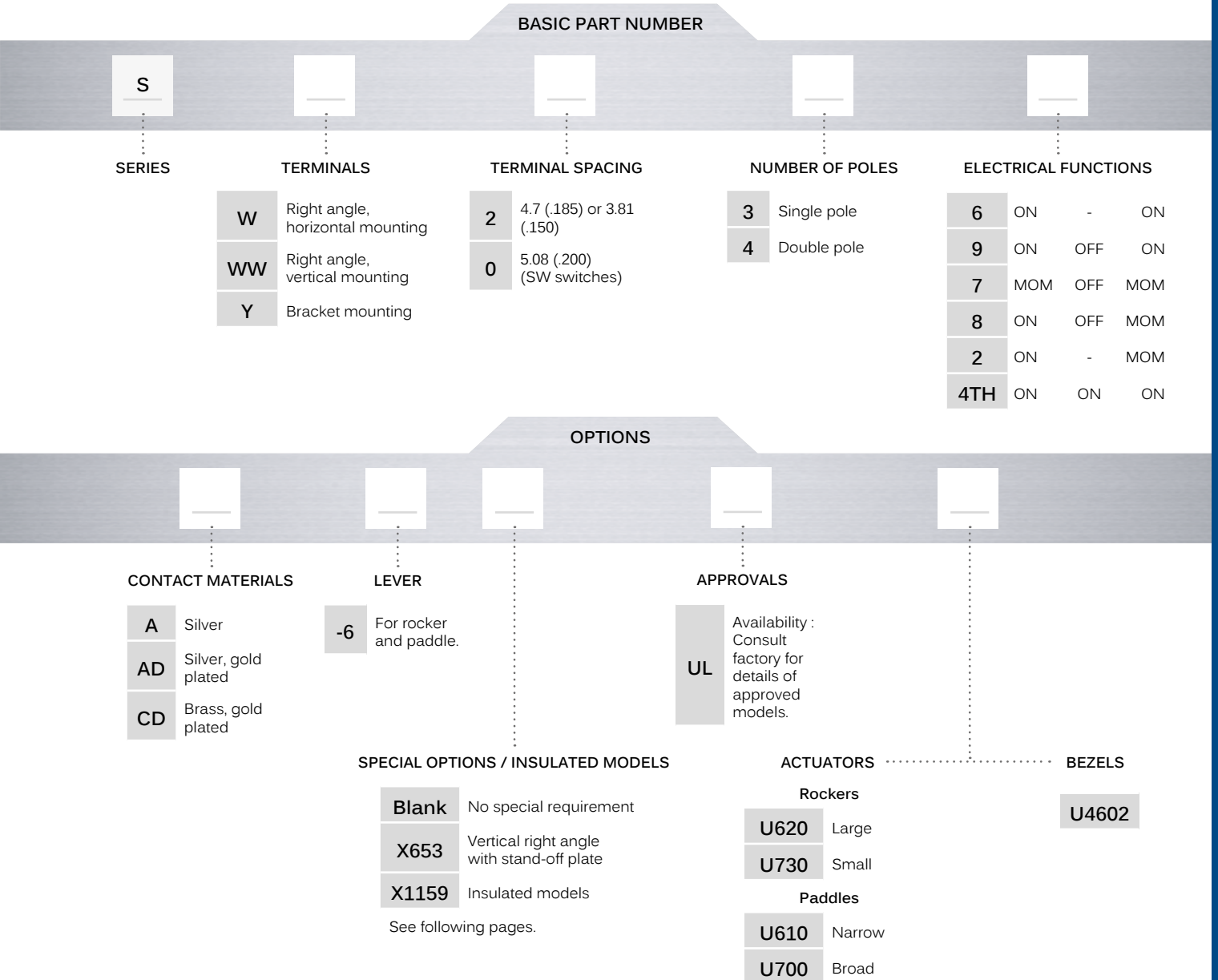
With rocker **U730** or paddle **U700**



With rocker **U620** or paddle **U610**



BUILD YOUR PART NUMBER



ABOUT THIS SERIES

On the following pages, you will find successively basic part numbers of switches and options in the same order as in above chart.



Notice : please note that not all combinations of above numbers are available. Refer to the following pages for further information.

S series

Washable rocker and paddle switches

RIGHT ANGLE TERMINALS - HORIZONTAL SPACING 4.7 (.185)



	Single pole	Double pole	III	II	I
	SW236-6	SW246-6	ON	-	ON
	SW239-6	SW249-6	ON	OFF	ON
	SW237-6	SW247-6	MOM	OFF	MOM
	SW238-6	SW248-6	ON	OFF	MOM
	SW232-6	SW242-6	ON	-	MOM
		SW244TH-6*	ON	ON	ON

*Function 4 : SP in DP case - TH connection, see "Technical information" on website. Single pole with stand-off plate, double pole without.

RIGHT ANGLE TERMINALS - VERTICAL



	Single pole	Double pole	III	II	I
	SWW236-6	SWW246-6	ON	-	ON
	SWW239-6	SWW249-6	ON	OFF	ON
	SWW237-6	SWW247-6	MOM	OFF	MOM
	SWW238-6	SWW248-6	ON	OFF	MOM
	SWW232-6	SWW242-6	ON	-	MOM
		SWW244TH-6*	ON	ON	ON

*Functions 2 and 8 : reversed connection available. Consult factory.

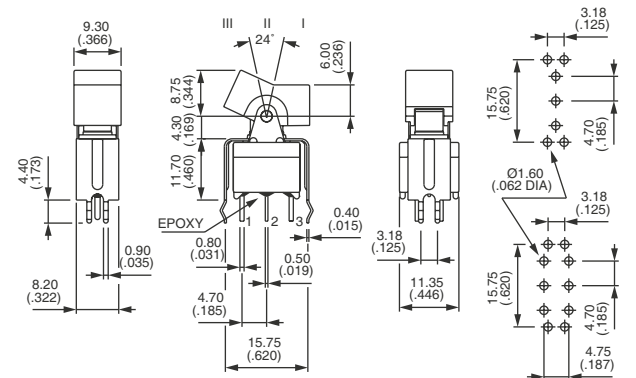
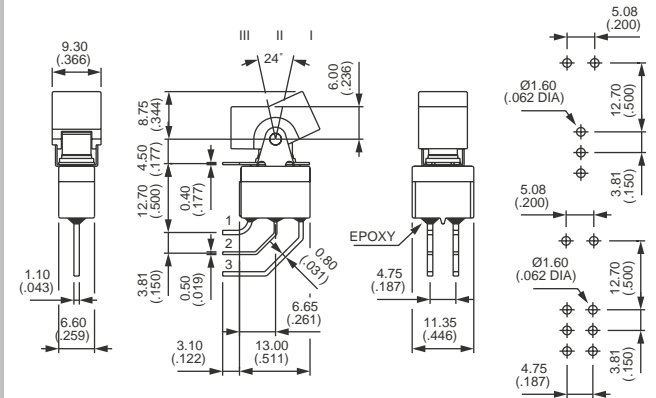
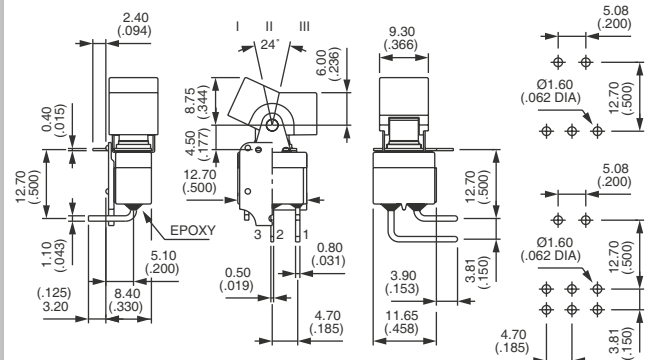
BRACKET MOUNTING



	Single pole	Double pole	III	II	I
	SY236-6	SY246-6	ON	-	ON
	SY239-6	SY249-6	ON	OFF	ON
	SY237-6	SY247-6	MOM	OFF	MOM
	SY238-6	SY248-6	ON	OFF	MOM
	SY232-6	SY242-6	ON	-	MOM
		SY244TH-6*	ON	ON	ON

*Function 4 : SP in DP case - TH connection, see "Technical information" on website.

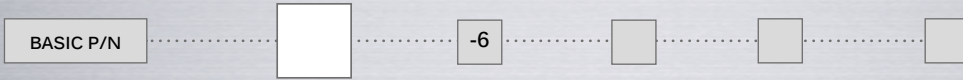
Shown with rocker U620



S series

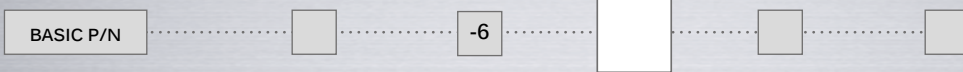
Washable rocker and paddle switches

CONTACT MATERIALS



- A Silver
- AD Silver, gold plated
- CD Brass, gold plated

SPECIAL OPTIONS / INSULATED MODELS



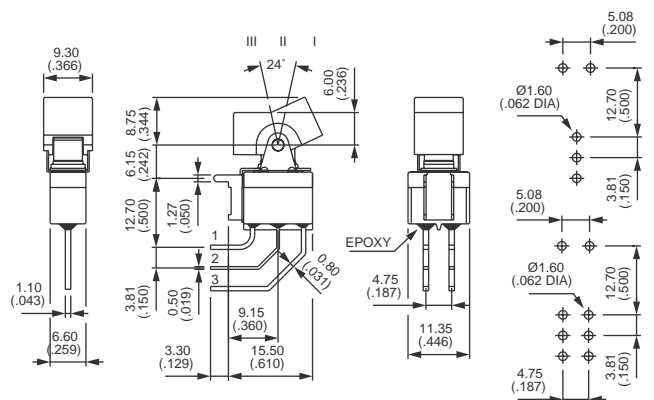
- X601** Silver plated brass contacts
Current/voltage rating for an electrical life of 20,000 cycles : 0.5 A 30 VDC
Minimum quantity : 5,000 per type and shipment.
- X653** Vertical right angle with stand-off plate
- X1159** Insulated model protected against E.S.D. up to 12 KV - Vertical right angle
Available with all actuators shown on next page.

OPTION X653



	III	II	I
Single pole			
SWW236-6 X653	ON	-	ON
SWW239-6 X653	ON	OFF	ON
SWW237-6 X653	MOM	OFF	MOM
SWW238-6 X653	ON	OFF	MOM
SWW232-6 X653	ON	-	MOM
Double pole			
SWW246-6 X653	ON	-	ON
SWW249-6 X653	ON	OFF	ON
SWW247-6 X653	MOM	OFF	MOM
SWW248-6 X653**	ON	OFF	MOM
SWW242-6 X653**	ON	-	MOM
SWW244TH-6 X653*	ON	ON	ON

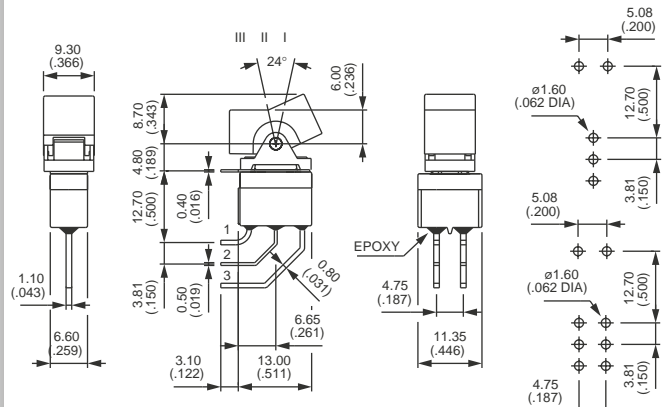
Shown with rocker U620



OPTION X1159



	III	II	I
Single pole			
SWW236-6 X1159	ON	-	ON
SWW239-6 X1159	ON	OFF	ON
SWW237-6 X1159	MOM	OFF	MOM
SWW238-6 X1159	ON	OFF	MOM
SWW232-6 X1159	ON	-	MOM
Double pole			
SWW246-6 X1159	ON	-	ON
SWW249-6 X1159	ON	OFF	ON
SWW247-6 X1159	MOM	OFF	MOM
SWW248-6 X1159**	ON	OFF	MOM
SWW242-6 X1159**	ON	-	MOM
SWW244TH-6 X1159*	ON	ON	ON



* Function 4 : SP in DP case - TH connection, see "Technical information" on website.
** Functions 2 and 8 : reversed connection available. Consult factory.

S series

Washable rocker and paddle switches

AGENCY APPROVAL



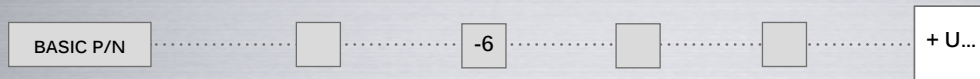
UL

Blank No agency approval required

Availability : consult factory for details of approved models.

Marking : to order switches marked with the UL symbol, complete above box with "UL".

ACTUATORS

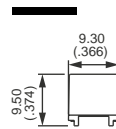


ROCKERS AND PADDLES

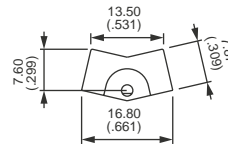
- U620** Large rocker
- U730** Small rocker
- U610** Narrow paddle
- U700** Broad paddle

For cap colors, replace "0" with number :

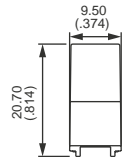
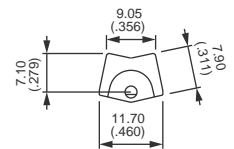
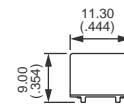
- 1** Blue
- 1/4** Dark blue
- 2** Black
- 3** Green
- 4** Grey
- 5** Yellow
- 6** Red
- 7/1** White
- 9** Orange



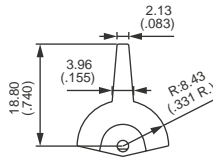
U620



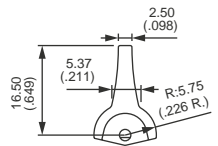
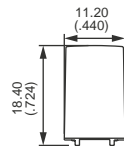
U730



U610

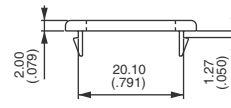
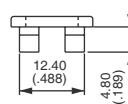


U700

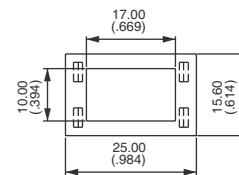


BEZEL

U4602 Black bezel - for rocker U620 only



U4602



SR series

Washable rocker and paddle switches



DISTINCTIVE FEATURES

- Process sealed
- Front and rear sealing
- Large rocker



ENVIRONMENTAL SPECIFICATIONS

- Operating temperature : -20 °C to +85 °C (-4 °F to +185 °F)
- Storage temperature : -40 °C to +85 °C (-40 °F to +185 °F)
- Moisture : The insulating materials employed and the complete seal permit the switches to withstand a 56 days moisture test (IEC 68-2-3).
- Iron soldering : 300 °C (572 °F) 5 sec. max.
- Solderability : The switches are tested at 235 °C (455 °F) according to IEC 68-2-20 after accelerated aging.



ELECTRICAL SPECIFICATIONS

- Max. current/voltage rating with resistive load :
 - silver contacts (A) : 4 A 30 VDC
 - brass, gold plated contacts (CD) : 0.4 VA 20 VAC or DC
 - silver, gold plated contacts (AD) : 4 A 30 VDC (300 mA 30 VDC for gold plating)
- Initial contact resistance : 10 mΩ max.
- Insulation resistance : 1,000 MΩ min.
- Dielectric strength : 1,000 Vrms 50 Hz min.
- Electrical life with nominal load :

Contacts	Number of cycles	
	2 positions	3 positions
A	40,000	40,000
CD	100,000	50,000
AD	40,000	40,000



GENERAL SPECIFICATIONS

- Mechanical strength : Terminals are strengthened by a ground plate ensuring the rigidity of the switch on the board. Actuator strength is 10 N max.

The company reserves the right to change specifications without notice.



SR series

Washable rocker and paddle switches

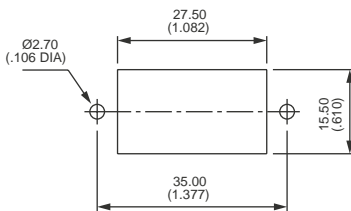


MATERIALS

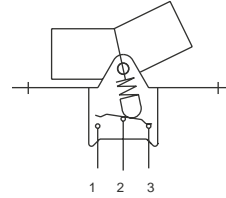
- Case and cover : UL94-V0, polyamide, glass filled or PES
- Actuator : polyamide
- Contacts
 - 0 : brass, gold plated
 - 1 : silver
 - 2 : silver, gold plated
 - 5 : special, lower rating
- Terminal seal : epoxy



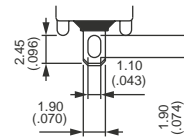
PANEL CUT-OUT



ELECTRICAL FUNCTIONS



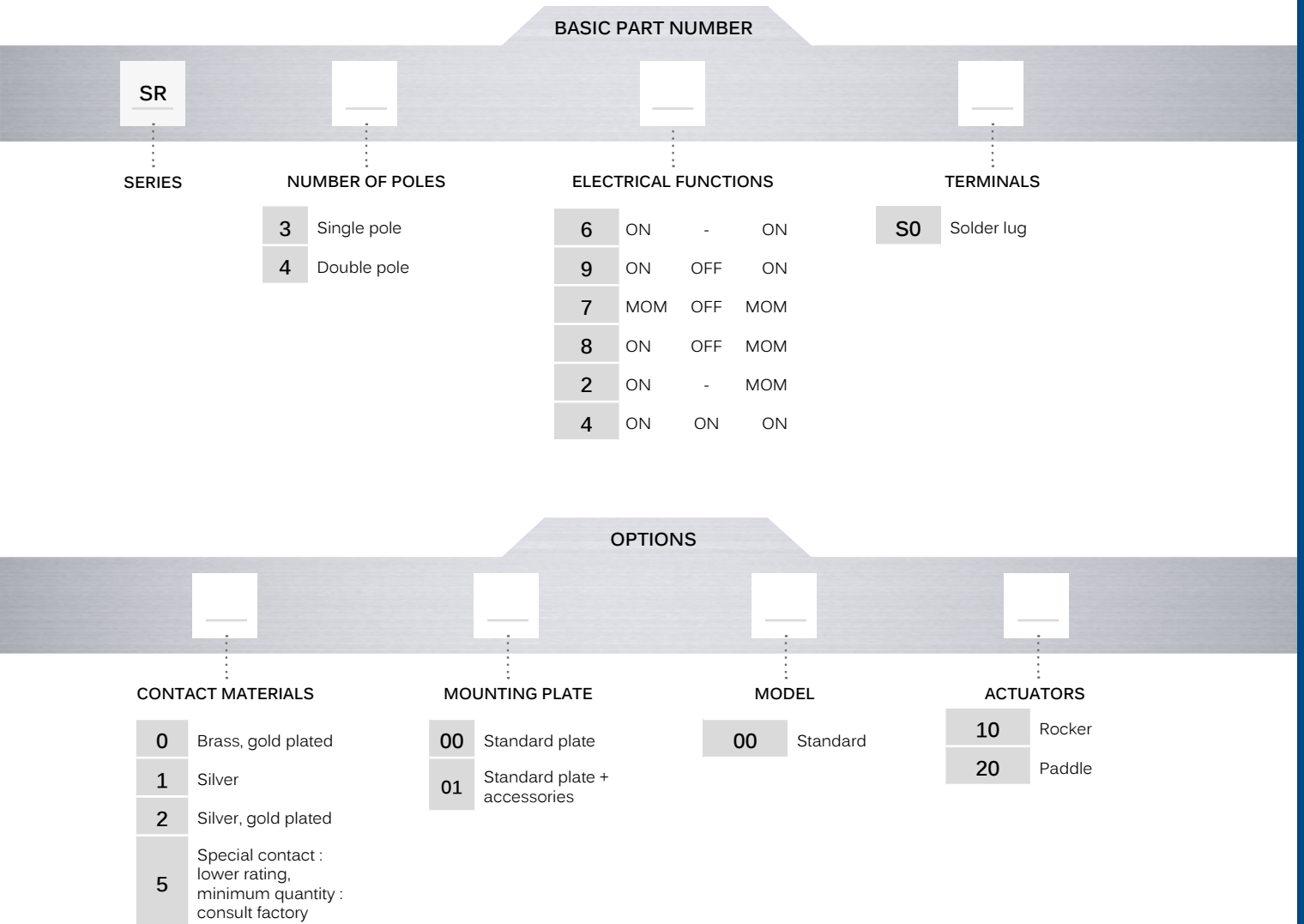
TERMINALS



Solder lug



BUILD YOUR PART NUMBER



ABOUT THIS SERIES

On the following pages, you will find successively basic part numbers of switches and options in the same order as in above chart.



Notice : please note that not all combinations of above numbers are available. Refer to the following pages for further information.

SR series

Washable rocker and paddle switches

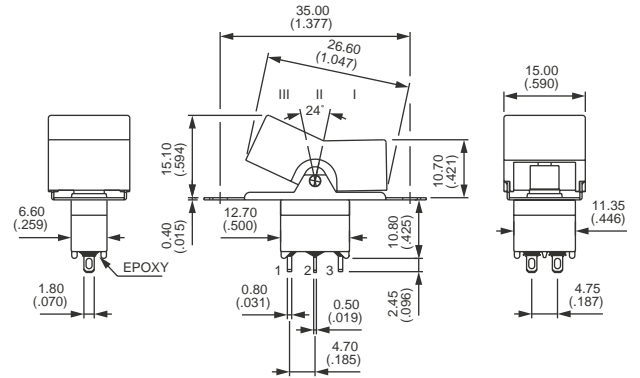
SOLDER LUG TERMINALS



		III	II	I
Single pole	Double pole			
SR36S0	SR46S0	ON	-	ON
SR39S0	SR49S0	ON	OFF	ON
SR37S0	SR47S0	MOM	OFF	MOM
SR38S0	SR48S0	ON	OFF	MOM
SR32S0	SR42S0	ON	-	MOM
	SR44S0*	ON	ON	ON

* Function 4 : SP in DP case - TH connection, see "Technical information" on website.

Shown with standard mounting plate (code 00)



CONTACT MATERIALS

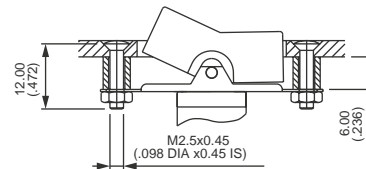


- 0 Brass, gold plated
- 1 Silver
- 2 Silver, gold plated
- 5 Special contact, lower rating, minimum quantity : consult factory.

MOUNTING PLATE



- 00 Standard mounting plate
- 01 Standard mounting plate + mounting accessories (spacers, screws and nuts)



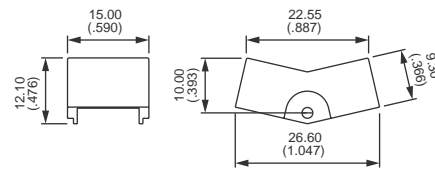
ACTUATORS



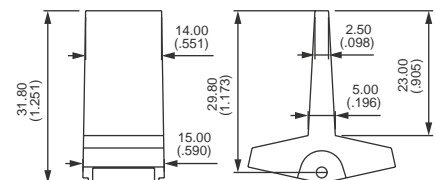
- 10 Rocker
- 20 Paddle

For cap colors, replace "0" with number :

- 1 Blue
- 1/4 Dark blue
- 2 Black
- 3 Green
- 4 Grey
- 5 Yellow
- 6 Red
- 7/1 White
- 9 Orange



10



20

2600 series

Power rocker switches

Distinctive features and specifications

UG1410A



- Three rocker shapes : plain, V-shaped or concave
- Various rocker colours
- Frame with protection guard on 2600LP models
- Illuminated or non-illuminated
- UL, CSA, VDE and NF (EN 61058-1) approved

ELECTRICAL SPECIFICATIONS

- Max. current/voltage rating with resistive load and approved ratings : see table below.
- Initial contact resistance : 10mΩ max.
- Insulation resistance : 1.000 MΩ min. at 500VDC
- Dielectric strength : 2.500 Vrms 50 Hz min. between terminals
3.000 Vrms 50 Hz min. between terminals and metal panel
- Electrical life : 10.000 cycles at full load

FUNCTIONS	APPROVED RATINGS				DIRECT CURRENT	
	CSA (double pole) CSA 22-2	UL (double pole) UL 1054	VDE EN 61058-1	NF EN 61058-1	24 VDC	12 VDC
ON - OFF ON - ON	1/6 HP 125VAC 16A 125VAC 16A 250VAC 1/3 HP 250VAC	1/6 HP 125VAC 16A 125VAC 16A 250VAC 1/3 HP 250VAC	10(4)A 250VAC T 85/55	-	10A	15A
ON - OFF - ON	10A 125VAC 10A 250VAC 1/6 HP 125/250VAC	10A 125VAC 10A 250VAC 1/6 HP 125/250VAC	L1 option 10(4)A 250VAC	L1 option 10(4)A 250VAC	8A	10A
ON - ON - ON	-	-	-	-	5A	8A
OTHERS	10A 125VAC 10A 250VAC 1/6 HP 250VAC	-	L1 option 10(4)A 250VAC	L1 option 10(4)A 250VAC	8A	10A

MATERIALS

- Case : melamine/polyester
- Frame : polyamide
- Actuator : polyamide
- Contacts :
- A : silver
- C : copper, silver plated

GENERAL SPECIFICATIONS

- Panel thickness : 0,8 mm to 4 mm (.031 to .157)
- Operating temperature :
 - silver contacts (A) : -20°C to +85°C
 - silver plated contacts (C) : -10°C to +55°C

AGENCY APPROVALS



EN 61058-1 EN 61058-1

Availability : consult factory for details of approved models.

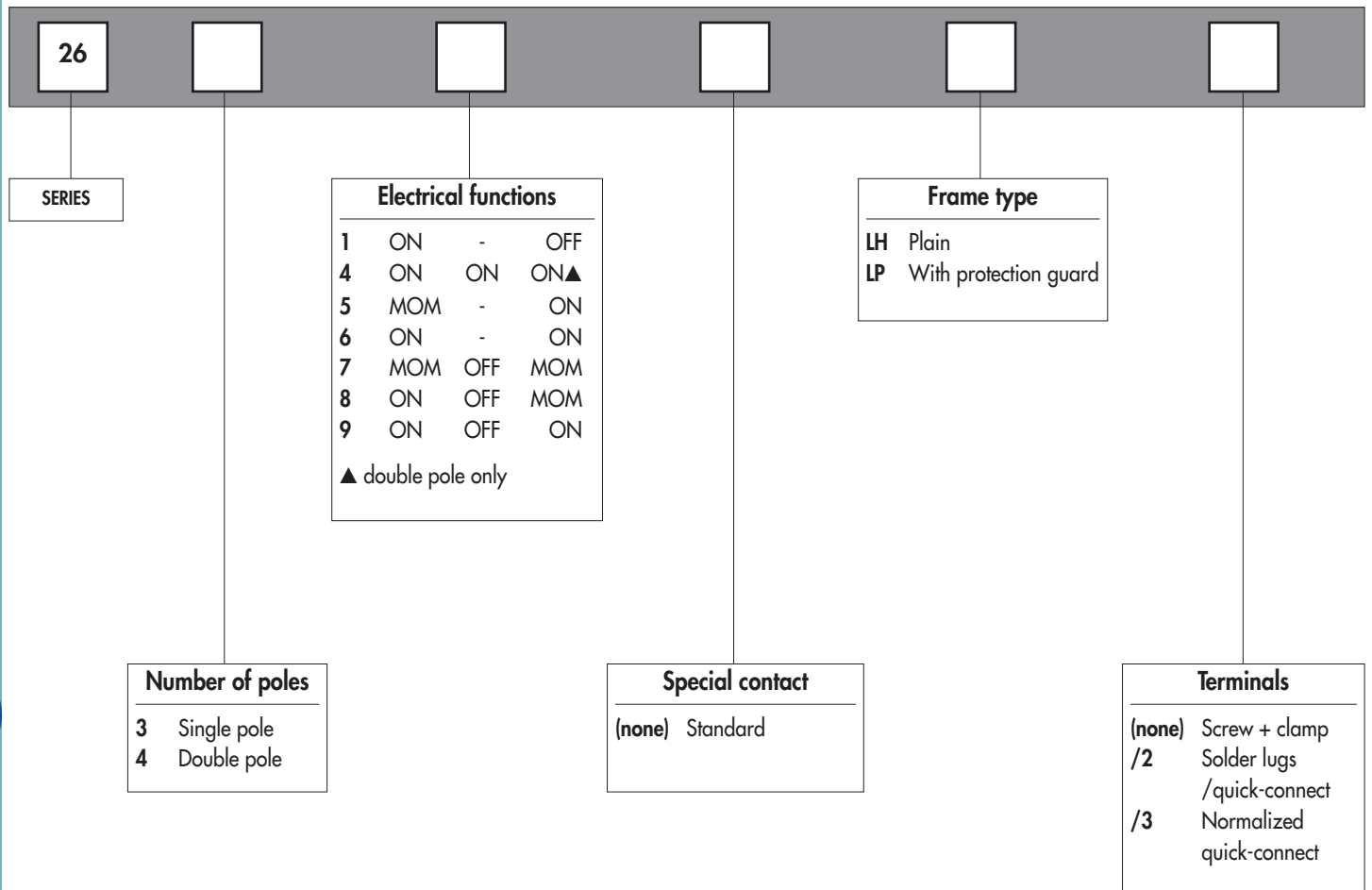
Marking : approved models are standard marked.

The company reserves the right to change specifications without notice.

2600 series

Power rocker switches

Overview



ABOUT THIS SERIES

On the following pages, you will find successively :

- model structure of switches
- options in the same order as in above chart

Dimensions : first dimensions are in mm while inches are shown as bracketed numbers.



Sealing boot U21 50 available to protect the switches against dust and water. See section H.



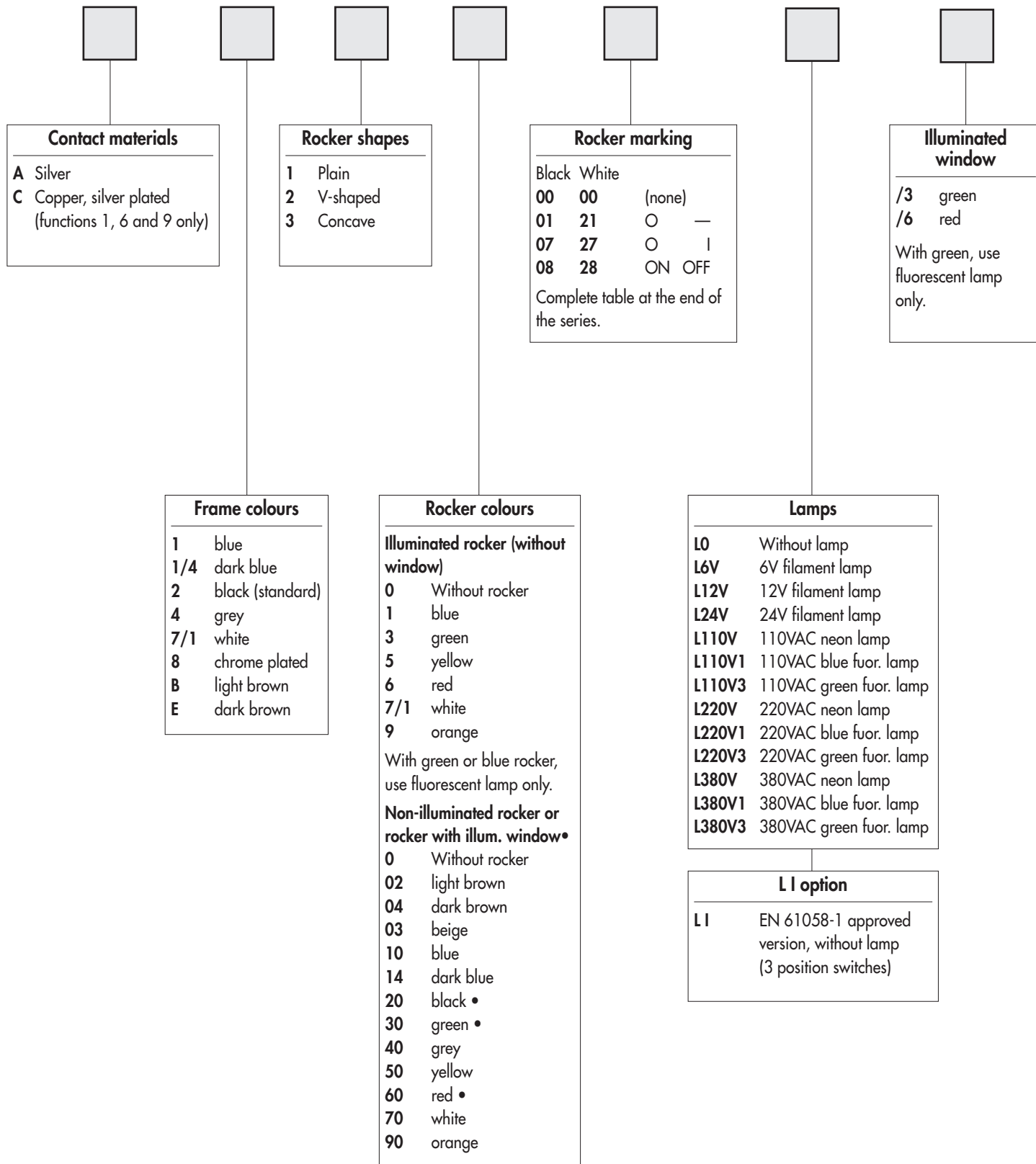
NOTICE : please note that not all combinations of above numbers are available. Refer to the following pages for further information.



2600 series

Power rocker switches

Overview

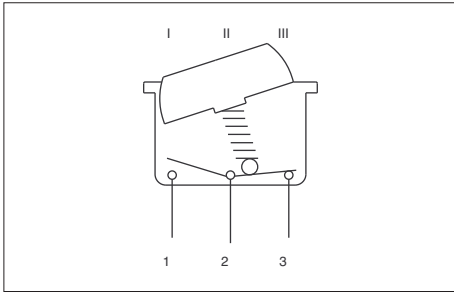


Packaging unit : 20 pieces per type and colour.

2600 series

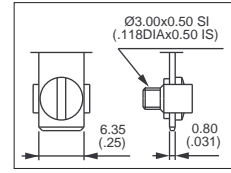
Power rocker switches

MODEL
STRUCTURE

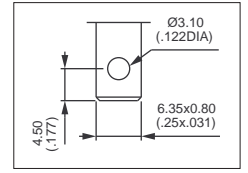


- Model 2600LP with protection guard
- 1 and 2 pole configurations

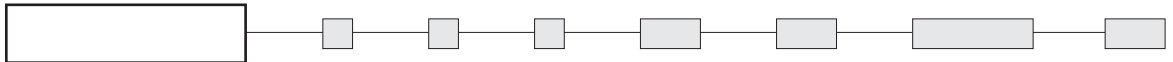
2640LH



2640LH/2



MODEL
STRUCTURE



2600LH - single pole

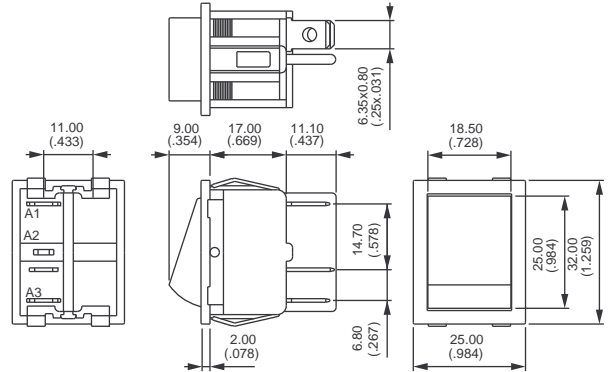


Screw term.
+ clamp

Solder lug/
quick-connect

III II I
A2-A1 A2-A3

ON	-	OFF
MOM	-	ON
ON	-	ON
MOM	OFF	MOM
ON	OFF	MOM
ON	OFF	ON



2600LH - double pole

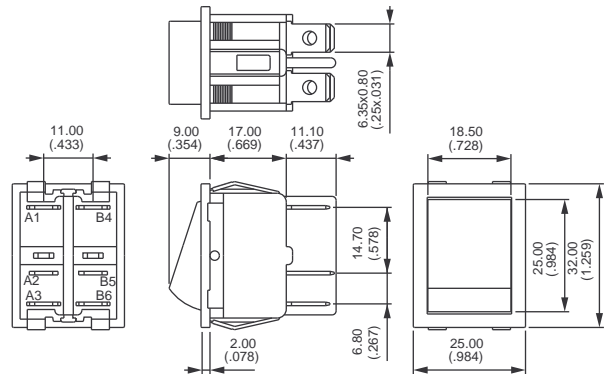


Screw term.
+ clamp

Solder lug/
quick-connect

III II I
A2-A1 A2-A3
B5-B4 B5-B6

ON	-	OFF
ON	ON	ON
MOM	-	ON
ON	-	ON
MOM	OFF	MOM
ON	OFF	MOM
ON	OFF	ON



* Function 4 : SP in DP case, see end of catalogue.

2600LP - with protection guard - single pole

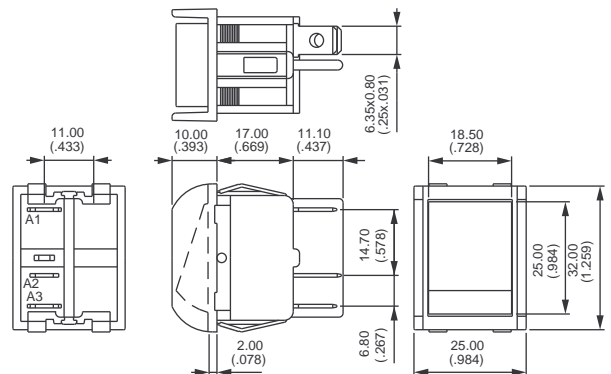


Screw term.
+ clamp

Solder lug/
quick-connect

III II I
A2-A1 A2-A3

ON	-	OFF
MOM	-	ON
ON	-	ON
MOM	OFF	MOM
ON	OFF	MOM
ON	OFF	ON





2600 series

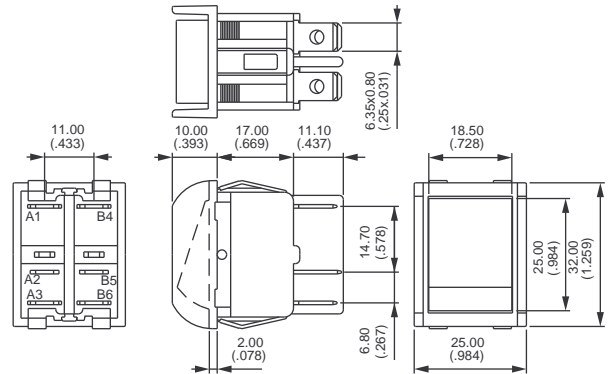
Power rocker switches

2600LP - with protection guard - double pole

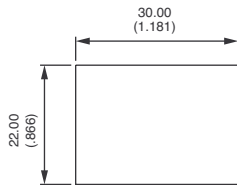


	III	II	I
	A2-A1	A2-A3	
	B5-B4	B5-B6	
Screw term. + clamp			
Solder lug/ quick-connect			
2641LP	2641LP/2	ON - OFF	
2644LP*	2644LP/2*	ON ON ON	
2645LP	2645LP/2	MOM - ON	
2646LP	2646LP/2	ON - ON	
2647LP	2647LP/2	MOM OFF MOM	
2648LP	2648LP/2	ON OFF MOM	
2649LP	2649LP/2	ON OFF ON	

* Function 4 : SP in DP case, see end of catalogue.



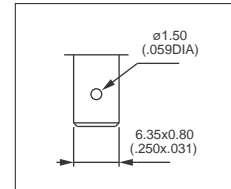
PANEL CUT-OUT



TERMINAL OPTION

Specify after LH or LP.

/3 Normalized quick-connect terminals 6,35 x 0,8 (.250 x .031)

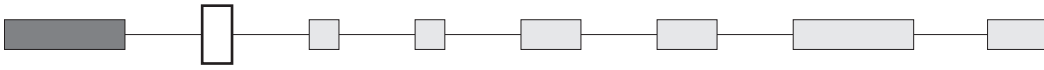


2600 series

Power rocker switches

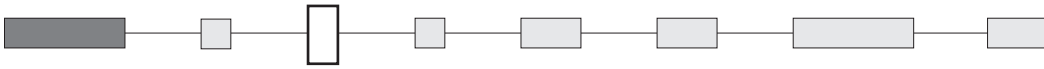
OPTIONS
● ● ●

CONTACT MATERIALS



- A Silver
- C Copper, silver plated (available with functions 1, 6 and 9 only)

FRAME COLOURS

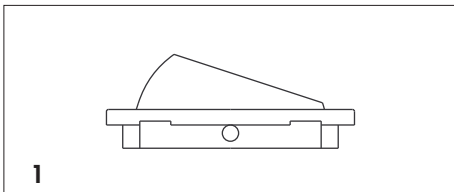
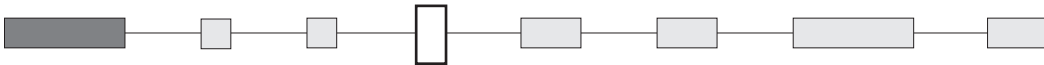


- 1 Blue
- 1/4 Dark blue
- 2 Black (standard)
- 4 Grey
- 7/1 White
- 8 Chrome plated
- B Light brown
- E Dark brown



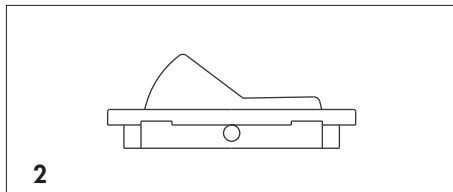
This option has UL approval only.

ROCKER SHAPES



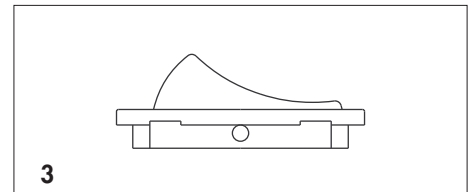
1

Plain



2

V-shaped

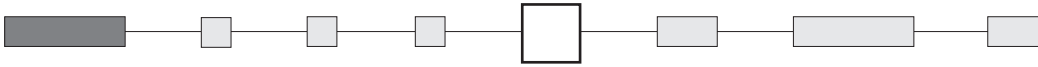


3

Concave



ROCKER COLOURS



For illuminated switches

	Without rocker	Blue*	Green*	Yellow	Red	White	Orange
Plain rocker P/N	-	U881	U883	U885	U886	U887	U889
V-shaped rocker P/N	-	U861	U863	U865	U866	U867	U869
Concave rocker P/N	-	U871	U873	U875	U876	U877	U879
Colour code	0	1	3	5	6	7/1	9

* With green or blue rocker, use fluorescent lamp only.

For non-illuminated switches or switches with illuminated window (•)

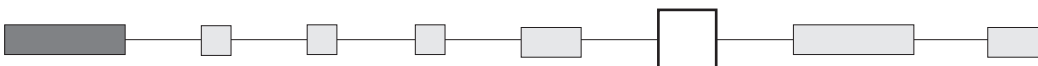
	Without rocker	Light brown	Dark brown	Beige	Blue	Dark blue	Black	Green	Grey	Yellow	Red	White	Orange
Plain rocker P/N	-	U1250B	U1250BF	U1250	U1251	U1251/4	U1252	U1253	U1254	U1255	U1256	U1257	U1259
V-shaped rocker P/N	-	U1270B	U1270BF	U1270	U1271	U1271/4	U1272	U1273	U1274	U1275	U1276	U1277	U1279
Concave rocker P/N	-	U1260B	U1260BF	U1260	U1261	U1261/4	U1262	U1263	U1264	U1265	U1266	U1267	U1269
Colour code	0	02	04	03	10	14	20•	30•	40	50	60•	70	90

Complete box with one of above colour codes.

To order rockers separately, use their P/N (U....) and complete box with code 0.

Rockers with illuminated windows (codes 20, 30, 60) : part numbers on request.

ROCKER MARKING



MARKING \ COLOUR	MARKING												
	-	○	A M	○	○	OFF ON	STOP	STOP	STOP		○ 	△ ▽	
Black	00	01	02	06	07	08	03	04	05*	40	43*	46	
Red	00	11	12	16	17	18	13	14	15*	41	44*	47	
White	00	21	22	26	27	28	23	24	25*	42	45*	48	

* Not available on V-shaped rockers

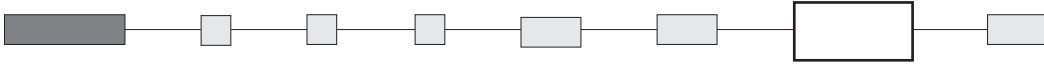
Special markings and marking on rockers with illuminated window : consult factory.

2600 series

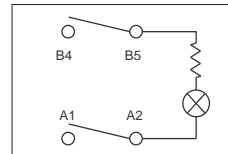
Power rocker switches

OPTIONS
● ● ●

LAMP



L0	Non-illuminated switch
L6V	Filament lamp 6V
L12V	Filament lamp 12V
L24V	Filament lamp 24V
L110V	Neon lamp 110VAC
L110V1	BLUE fluorescent lamp 110VAC
L110V3	Green fluorescent lamp 110VAC
L220V	Neon lamp 220VAC
L220V1	BLUE fluorescent lamp 220VAC
L220V3	Green fluorescent lamp 220VAC
L380V	Neon lamp 380VAC
L380V1	BLUE fluorescent lamp 380VAC
L380V3	Green fluorescent lamp 380VAC
LI	EN61058-1 approved version without lamp (3 position switches)

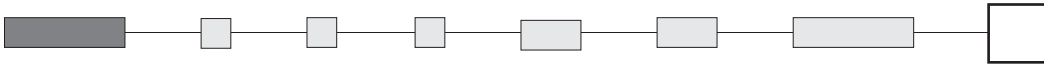


For illuminated models, the lamp is always connected between center terminals 2 and 5.



Lamps L380V, L380V1 and L380V3 are not UL/CSA approved.

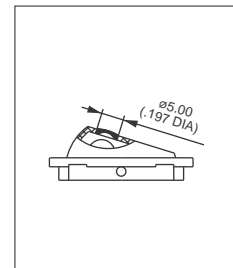
ILLUMINATED WINDOW



For black, green and red rockers only

/3 Green
/6 Red

With green, use fluorescent lamp only.
No marking available on illuminated windows.



D

UG1410A



- Double insulation
- Epoxy sealed terminals
- UL and CSA approved

ELECTRICAL AND GENERAL SPECIFICATIONS

- Max. current/voltage rating with resistive load :
 - silver contacts (code 1) and gold plated silver contacts (code 2) : 4A 30VDC
 - gold plated brass contacts (code 0) : 0,4VA 20V AC or DC
- Initial contact resistance : 10 mΩ max.
- Insulation resistance : 10.000 MΩ min.
- Dielectric strength :
 - 1.000 Vrms 50 Hz min. between terminals
 - 4.000 Vrms 50 Hz min. between terminals and metal panel
- Electrical life : 50.000 cycles
- Panel thickness : 1 (.039) to 3 mm (.118) max.
- Operating temperature : -40°C to +85°C

MATERIALS

- Case : PES
- Actuator : polyamide
- Contacts
 - 0 : brass, gold plated
 - 1 : silver
 - 2 : silver, gold plated
 - 5 : special contact, lower rating
- Minimum quantity : consult factory.
- Terminal seal : epoxy

APPROVALS



2A 250VAC
4A 125VAC

Availability : consult factory for details or approved models.

Marking : to order switches marked with above approvals, complete last box of ordering format.

ABOUT THIS SERIES

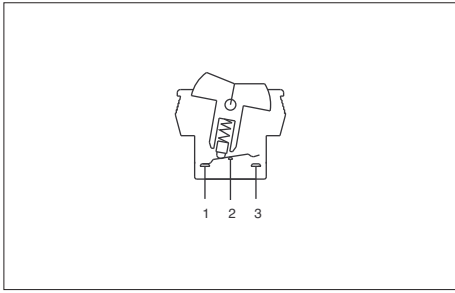
Dimensions : first dimensions are in mm while inches are shown as bracketed numbers.



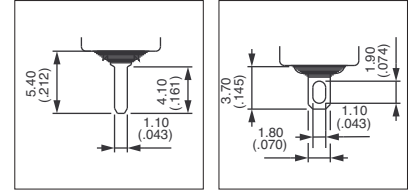
Packaging unit : 50 pieces.

AS series

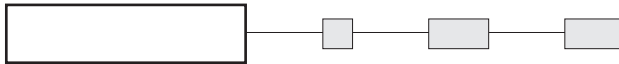
Snap-in rocker switches



- Black body
- Single pole configuration



MODEL
STRUCTURE

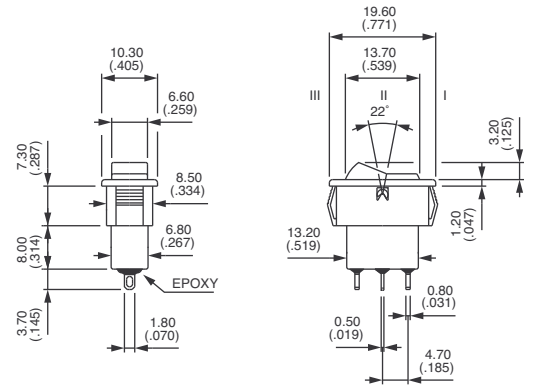


Solder lug terminals



AS36S0
AS39S0
AS37S0
AS38S0
AS32S0

III	II	I
ON	-	ON
ON	OFF	ON
MOM	OFF	MOM
ON	OFF	MOM
ON	-	MOM

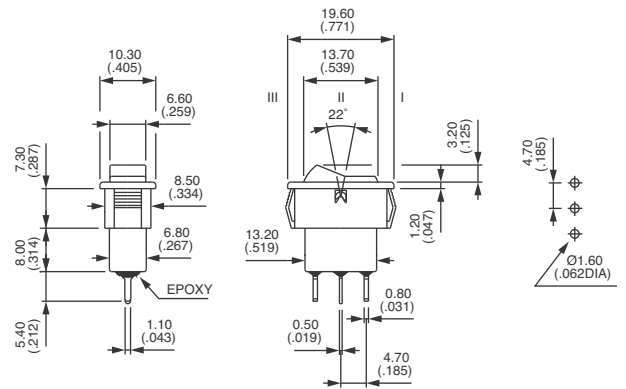


Straight PC terminals

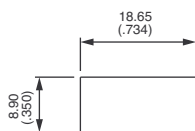


AS36P0
AS39P0
AS37P0
AS38P0
AS32P0

III	II	I
ON	-	ON
ON	OFF	ON
MOM	OFF	MOM
ON	OFF	MOM
ON	-	MOM



PANEL CUT-OUT

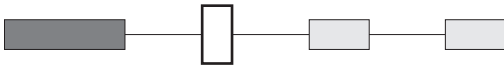




AS series

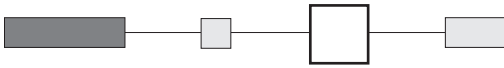
Snap-in rocker switches

CONTACT MATERIALS



- 0 Brass, gold plated
- 1 Silver
- 2 Silver, gold plated
- 5 Special contact, lower rating
Minimum quantity. Consult factory

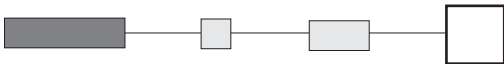
ACTUATORS



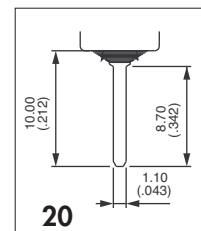
- 00 Black
- 01 Red
- 02 Grey
- 03 Blue
- 04 Ivory
- 07 White
- 09 Dark blue

For marking on actuator, consult factory.

OTHER OPTIONS



- 10 With **UL-CSA** marking
- 20 10 mm (.393) long straight PC terminals



FM series

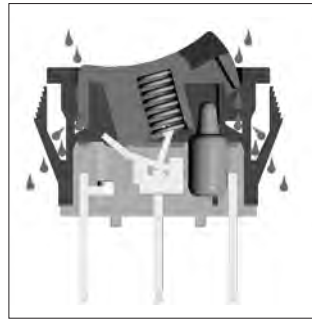
Snap-in rocker switches - panel cut-out 19 x 13 (.750 x .508)

Distinctive features and specifications

UG1410A

- Illuminated and non-illuminated**
- For class II appliances**
- VDE and UL approved**
- Protection against moisture by double-shell case**

When the switch is submitted to moisture (drops, condensation), the double-shell case conducts the liquid outside, thus protecting the contact area and terminals. The light dripping inside the equipment resulting from this should be evacuated by adequate arrangement on back of panel.



- Protection by boot**

In case of sand or splashing water, the best protection consists of insulating the rocker from these aggressive elements. This can be achieved with transparent PVC boot **U5720**. Order separately, see section H.

AGENCY APPROVALS



EN 61058-1



Availability : functions 1 and 6

Marking : approved models are standard marked.

Dimensions : first dimensions are in mm while inches are shown as bracketed numbers.



Packaging unit : 50 pieces.

The company reserves the right to change specifications without notice.

FM series

Snap-in rocker switches - panel cut-out 19 x 13 (.750 x .508)

Single pole - non-illuminated

- Approved ratings (functions 1 and 6) :
VDE : 10(4)A 250VAC T85°C - **UL** : 6A 250VAC & 125VAC T65°C
- Max. contact rating :
 - functions 1 and 6 : see above.
 - function 3 : 4A 250VAC
 - functions 8 and 9 : 6A 250VAC
- Initial contact resistance : 20mΩ max.
- Insulation resistance : 1.000 MΩ min. at 500VDC
- Dielectric strength : - functions 1 and 6 : 2.500 Vrms between terminals
 - functions 3, 8 and 9 : 1.500 Vrms between terminals
- Electrical life at full load : 10 000 cycles

- Operating temperature :
 -20°C to +85°C
- Case, frame, rocker : PA6/6
- Contacts : silver
- Terminals : silver plated
- Panel cut-out :

Panel thickness	Dim. Y	Dim. Z
0,75 to 1,25 mm	19,2 +0/-0,1	12,9 +0,15/-0
1,25 to 2 mm	19,4 +0/-0,1	12,9 +0,15/-0
2 to 3 mm	19,8 +0/-0,1	12,9 +0,15/-0

FM	C			A			0	0	
----	---	--	--	---	--	--	---	---	--

SERIES	Electrical functions	Contacts	Frame colour	Rocker colours	Lamp	Lens colour	Marking *
	1 ON - OFF 3 MOM - OFF 6 ON - ON 8 ON OFF MOM 9 ON OFF ON	A Silver	2 Black Others : on request.	1 Blue 2 Black (std) 3 Green 4 Grey 5 Yellow 6 Red (std) 7 Ivory 7/1 White 9 Orange	0 None	0 No lens	000 None 001 0 002 0 - 003 0 I 004 I 0 II 005 #0 Z
Rocker		Terminals					
C Non illum. Concave		2 Solder lug 8 Quick-conn. 9 Straight PC (funct. 1 & 6)					

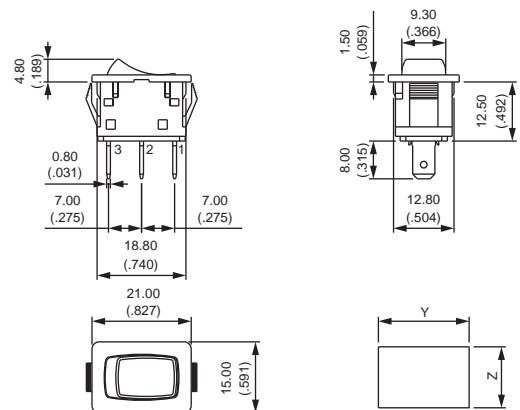
* Colour of marking : white for black rockers - black for other colours - Other : on request.

Single throw and double throw switch



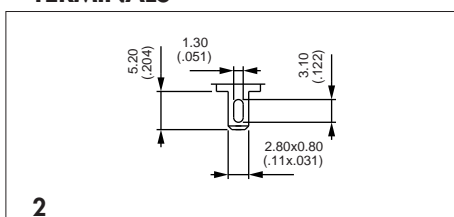
FMC1
FMC3
FMC6
FMC8
FMC9

1-2	2-3
ON - OFF	ON - OFF
MOM - OFF	MOM - OFF
ON - ON	ON - ON
ON OFF MOM	ON OFF MOM
ON OFF ON	ON OFF ON



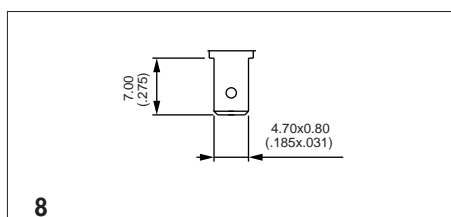
Shown with quick-connect terminals

TERMINALS



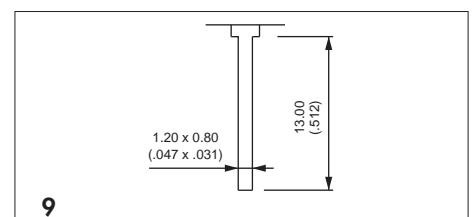
2

Solder lug



8

Quick-connect



9

Straight PC (functions 1 and 6 only)

FM series

Snap-in rocker switches - panel cut-out 19 x 13 (.750 x .508)

Single pole - illuminated

- Approved ratings :
VDE : 10(4)A 250VAC T85°C - **UL** : 6A 250VAC & 125VAC T65°C
- LED types available :
 3,3V (4V max.) 10mA LED (resistor to be series connected by the user)
 5V or 12V LED with integrated resistor
- Initial contact resistance : 20mΩ max.
- Insulation resistance : 1.000 MΩ min. at 500VDC
- Dielectric strength : 2.500 Vrms between terminals
- Electrical life at full load : 10 000 cycles
- Operating temperature: - 20°C to + 85°C
- Case, frame and rocker : PA6/6

- Lens : PC
- Contacts : silver
- Terminals : silver plated
- Lamp terminal : no plating
- Fluorescent lamp for blue or green lens, neon lamp for other colours
- Panel cut-out :

Panel thickness	Dim. Y	Dim. Z
0,75 to 1,25 mm	19,2 +0/-0,1	12,9 +0,15/-0
1,25 to 2 mm	19,4 +0/-0,1	12,9 +0,15/-0
2 to 3 mm	19,8 +0/-0,1	12,9 +0,15/-0

FM	L	1	8	A						
SERIES	Electr. function		Contacts		Rocker colour		Lens colour		Lamp	Marking *
	1 ON - OFF		A Silver		1 Blue 2 Black (std) 3 Green 4 Grey 5 Yellow 6 Red (std) 7 Ivory 7/1 White 9 Orange		1 Blue * 3 Green * 5 Yellow 6 Red 8 Translucent 9 Orange * w. fluorescent lamp		A 220V neon B 220V fluor. C 110V neon D 110V fluor.	000 None 001 <input type="text" value="0"/>
	Rocker	Terminals		Frame colour				LED 3,3V 10mA	LED 5V	LED 12V
	L Illumin. concave	8 Quick-connect		2 Black Others : on request.				E Blue F Red/green G Green H Yellow J White K Red L Orange No resistor**	N Green P Yellow Q Red	T Green U Yellow V Red

* **Colour of marking** : white for black rockers - black for other colours - Other : on request.

** Resistor value = $\frac{\text{supply voltage} - \text{LED forward voltage}}{\text{LED forward current}}$

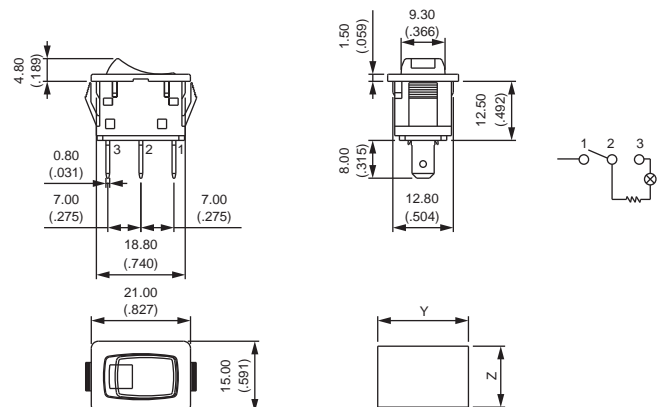
Illuminated switches - quick-connect terminals



FML1

ON - OFF

For LED models, terminal 2 = cathode (-), terminal 3 = anode (+)



SMT TR series

Surface mount tiny washable rocker switches

Distinctive features and specifications

UG1410A



- Entirely designed for surface mount
- Tape and reel packaging
- Reflow solderable
 - High temperature plastic materials
 - Tin plated ground plate
 - Terminal coating : pure tin plating over nickel barrier
 - Terminals turned to the outside, preventing the shadow effect in infrared soldering and permitting visual inspection of solder joints
 - Distance between case and circuit : 0,55 mm (.021)
 - End stackable with 10,16 mm (.40) pitch
 - Available with positioning pins to ensure switch orientation during the reflow process and increasing switch mechanical resistance
- Protected against electrostatic discharges (ESD) up to 10 KV
- Washable

Construction withstands cleaning processes, including hot water under pressure

ELECTRICAL SPECIFICATIONS

- Max. current/voltage rating with resistive load : 0,4VA 20V max. AC or DC
- Minimum load : 10mA 50mV or 10µA 5VDC
- Initial contact resistance : 20 mΩ max
- Insulation resistance : 1.000 MΩ min. at 500VDC
- Dielectric strength : 1.000 Vrms. 50 Hz min. between terminals and frame 500 Vrms. 50 Hz min. between terminals
- Electrical life at full load :
 - 2 position switches : 60.000 cycles
 - 3 position switches : 30.000 cycles
- Static resistance : 10 KV (Schaffner equipment)

GENERAL SPECIFICATIONS

- Operating temperature : -40°C to +85°C
- Moisture resistance : 21 days per IEC 512-6 test 11c
- Vibration resistance : 10-500 Hz / 10 g per IEC 512-4 test 6d
- Shock resistance : 50 g per IEC 512-4 test 6c

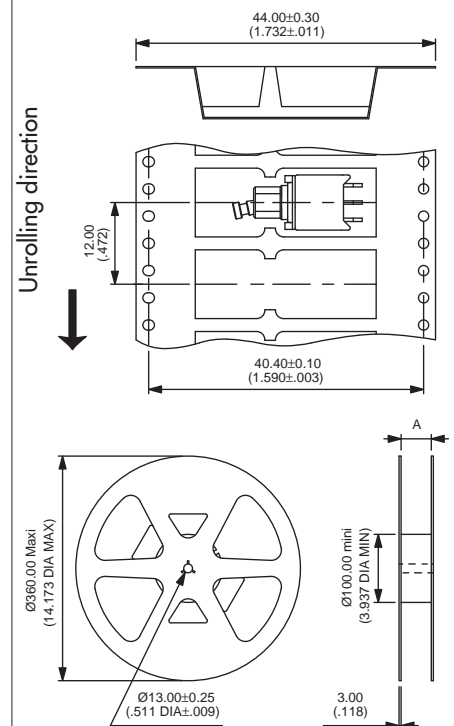
MATERIALS

- Case : high temperature plastic material UL94-V0
- Actuator : high temperature plastic rocker
- Ground plate and positioning pins : steel, tin plated
- Contacts : brass, gold plated
- Terminals : brass, with pure tin plating over nickel barrier

SOLDERING AND CLEANING

- Reflow soldering : infrared, vapor phase or infrared convection
- Washable per IEA-RS448-2 :
 - water + detergent - preferred
 - solvents
- Further information on reflow soldering : see end of catalogue.

PACKAGING



Tape width	24.00 (.944)	44.00 (1.732)
Reel (dimension A)	24.40+2.00/0.00 (.960+.078/.000)	44.40+2.00/0.00 (1.748+.078/.000)

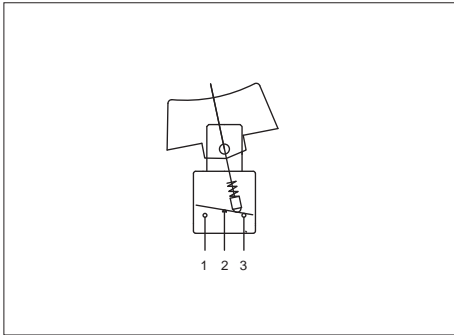
Standard packaging unit : 700 pieces
 Tape meeting international standard IEC - Publication 286-3 (EIA481A)
 Start leader : 400 mm min.

Dimensions : First dimensions are in mm while inches are shown as bracketed numbers.

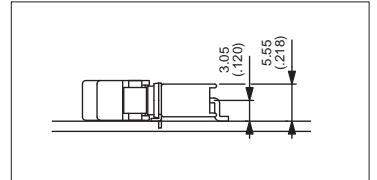
The company reserves the right to change specifications without notice.

SMT TR series

Surface mount tiny washable rocker switches



- With or without positioning pins
- Single pole

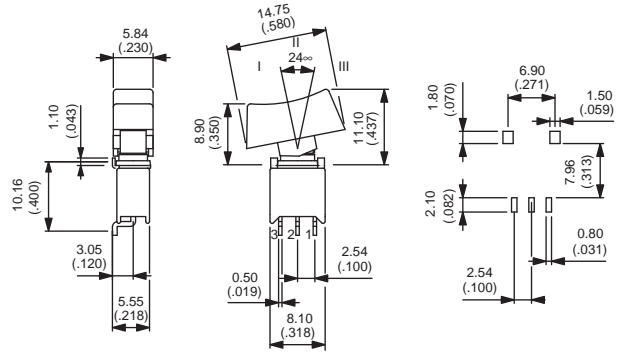


Without positioning pins



TR36WS80000
TR39WS80000
TR37WS80000
TR38WS80000
TR32WS80000

III	II	I
ON	-	ON
ON	OFF	ON
MOM	OFF	MOM
ON	OFF	MOM
ON	-	MOM



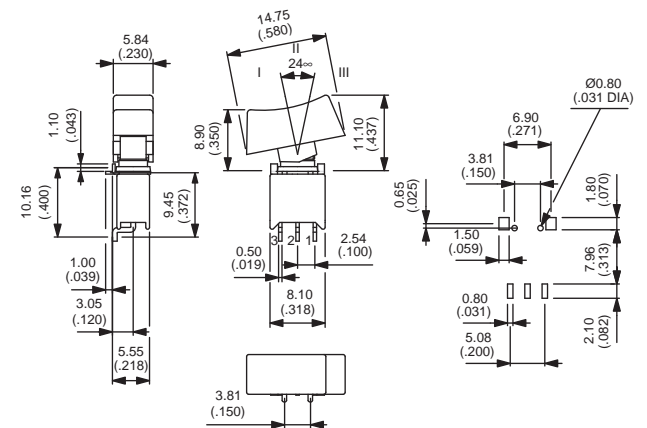
Supplied without rocker.

With positioning pins



TR36WS80065
TR39WS80065
TR37WS80065
TR38WS80065
TR32WS80065

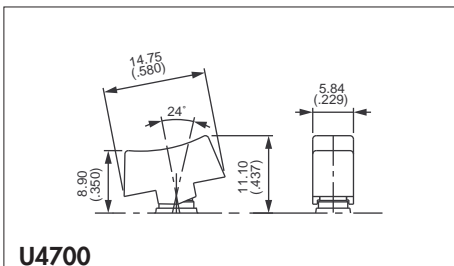
III	II	I
ON	-	ON
ON	OFF	ON
MOM	OFF	MOM
ON	OFF	MOM
ON	-	MOM



Supplied without rocker.

ROCKERS

Order separately.



Rocker colours

Replace last "0" by number

1	blue	5	yellow
1/4	dark blue	6	red
2	black	7	ivory
3	green	7/1	white
4	grey	9	orange

TR series

Tiny washable rocker switches

Distinctive features and specifications

UG1410A



Sealed

- Single piece case
- O-ring seal between actuator and bushing
- Epoxy sealed terminals

Wide variety of contact materials

Same PCB layout as tiny toggle (TL), pushbutton (TP) and slide switches (TG)

ELECTRICAL SPECIFICATIONS

- Max. current/voltage rating with resistive load :
 - gold plated contacts : 0,4VA 20V max. AC or DC
 - silver plated contacts : 0,5A 48V max. AC or DC
- Minimum load : 10mA 50mV - 10 μ A 5VDC
- Contact resistance : 20 m Ω max.
- Insulation resistance : 1.000 M Ω min. at 500VDC
- Dielectric strength :
 - 1.000 Vrms 50 Hz min. between terminals and frame
 - 500 Vrms 50 Hz min. between terminals
- Electrical life at full load :

Contacts	Number of cycles	
	2 positions	3 positions
Gold plated	60.000	30.000
Silver plated	20.000	10.000

MATERIALS

- Case : PBT
- Actuator : polyamide
- Contacts and terminals :
 - 0 : brass, gold plated
 - 1 : brass, silver plated
 - 3 : brass, gold plated (1,27 micron gold)
 - 8 : contact brass, gold plated + tin plated terminals
 - 9 : contact brass, gold plated (1,27 micron gold) + tin plated terminals
- Terminal seal : epoxy

GENERAL SPECIFICATIONS

- Strength of terminals : pull-out force - 10N max.
- Operating temperature : -30°C to +85°C
- Moisture : 21 days 95 % (NFC 20-603 - IEC 68-2-3)
- Cleaning : solvents or water + detergent
- Wave soldering : 260°C - 5 sec.

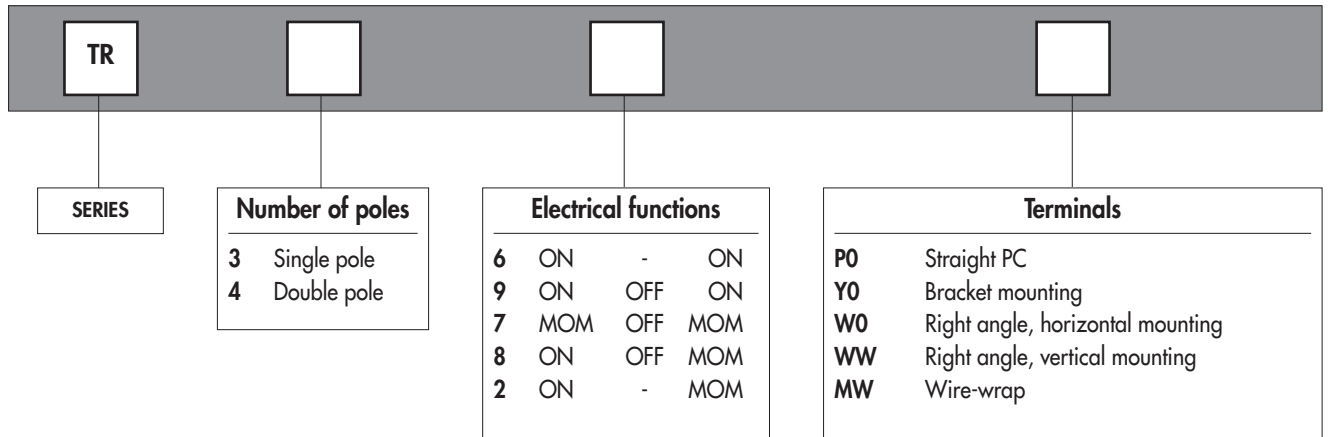
The company reserves the right to change specifications without notice.

TR series

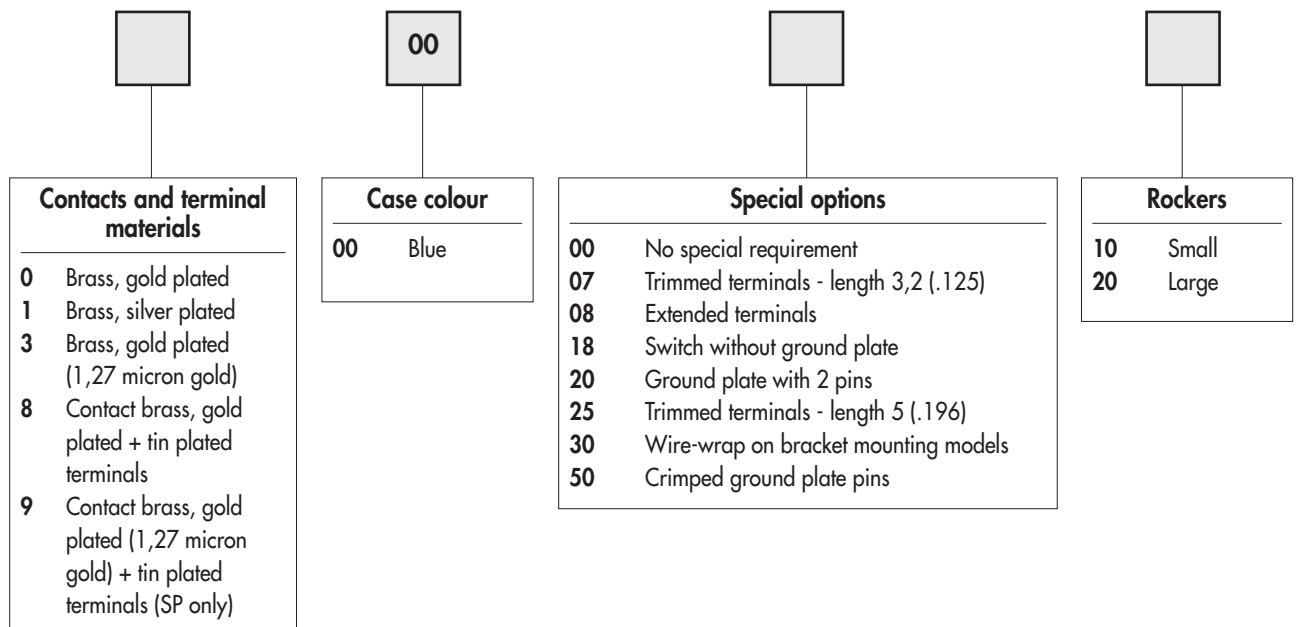
Tiny washable rocker switches

Overview

MODEL
STRUCTURE



OPTIONS



ABOUT THIS SERIES

On the following pages, you will find successively :

- model structure of switches
- options in the same order as in above chart

Dimensions : first dimensions are in mm while inches are shown as bracketed numbers.



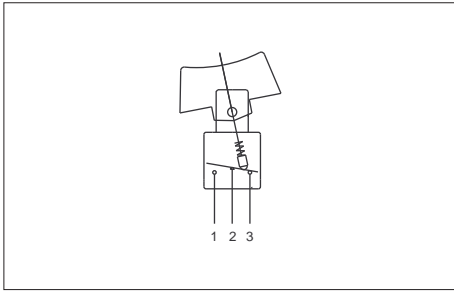
NOTICE : please note that not all combinations of above numbers are available. Refer to the following pages for further information.



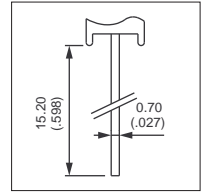
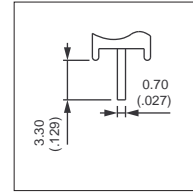
Packaging unit : 50 pieces.

TR series

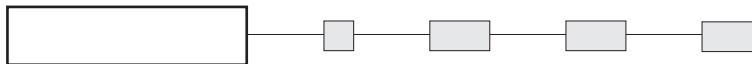
Tiny washable rocker switches



- Straight PC, right angle or wire-wrap terminals
- 1 and 2 pole configurations



MODEL
STRUCTURE



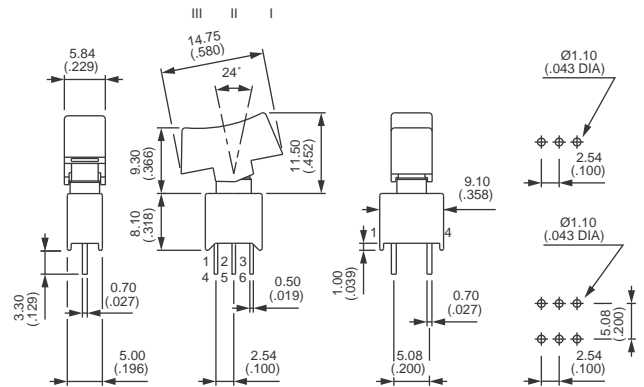
Shown with small rocker (code 10)

Straight PC terminals : TR..PO



Single pole	Double pole
TR36PO	TR46PO
TR39PO	TR49PO
TR37PO	TR47PO
TR38PO	TR48PO
TR32PO	TR42PO

III	II	I
ON	-	ON
ON	OFF	ON
MOM	OFF	MOM
ON	OFF	MOM
ON	-	MOM

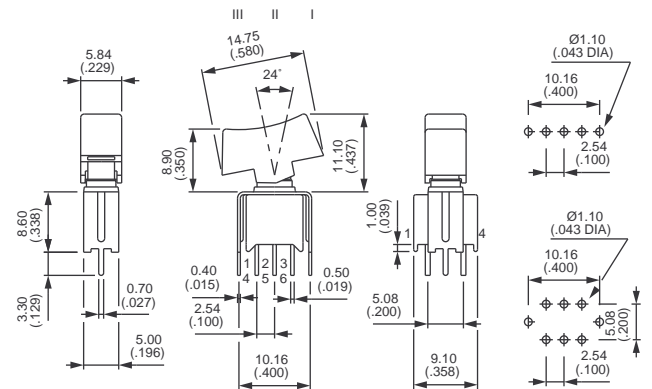


Straight terminals - bracket mounting : TR..YO



Single pole	Double pole
TR36YO	TR46YO
TR39YO	TR49YO
TR37YO	TR47YO
TR38YO	TR48YO
TR32YO	TR42YO

III	II	I
ON	-	ON
ON	OFF	ON
MOM	OFF	MOM
ON	OFF	MOM
ON	-	MOM

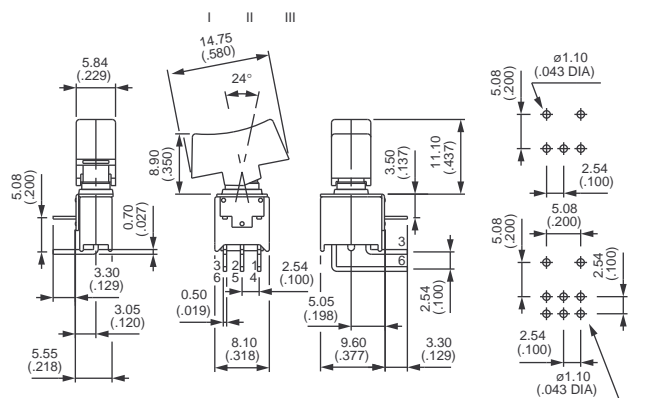


Right angle terminals - horizontal mounting : TR..WO



Single pole	Double pole
TR36WO	TR46WO
TR39WO	TR49WO
TR37WO	TR47WO
TR38WO	TR48WO
TR32WO	TR42WO

III	II	I
ON	-	ON
ON	OFF	ON
MOM	OFF	MOM
ON	OFF	MOM
ON	-	MOM





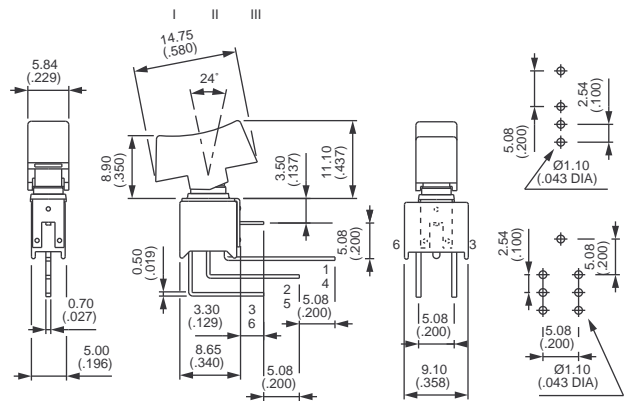
TR series

Tiny washable rocker switches

Right angle terminals - vertical mounting : TR..WW



	Single pole	Double pole	III	II	I
TR36WW	ON	-	ON		
TR39WW	ON	OFF	ON		
TR37WW	MOM	OFF	MOM		
TR38WW*	ON	OFF	MOM		
TR32WW*	ON	-	MOM		

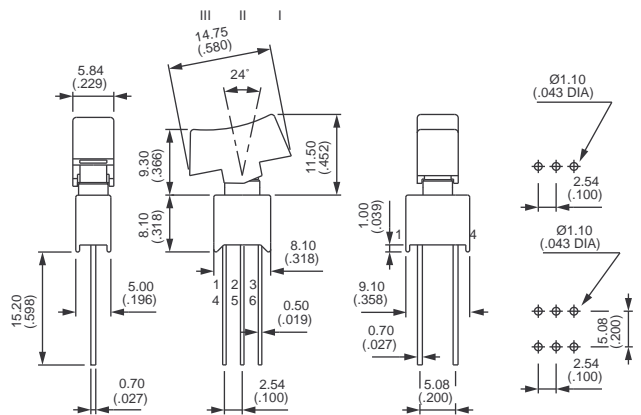


* Functions 2 and 8 : reversed connection available . Consult factory.

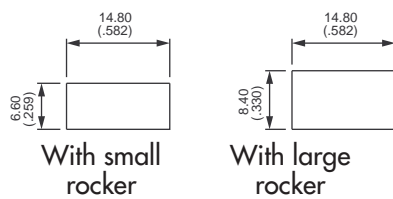
Wire-wrap terminals : TR..MW



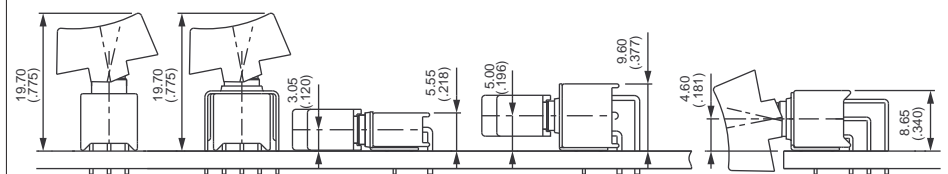
	Single pole	Double pole	III	II	I
TR36MW	ON	-	ON		
TR39MW	ON	OFF	ON		
TR37MW	MOM	OFF	MOM		
TR38MW	ON	OFF	MOM		
TR32MW	ON	-	MOM		



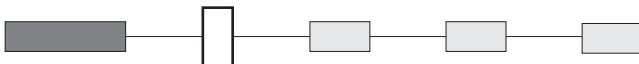
PANEL CUT-OUT



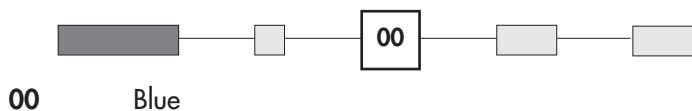
PCB MOUNTING



CONTACT AND TERMINAL MATERIALS



CASE COLOUR

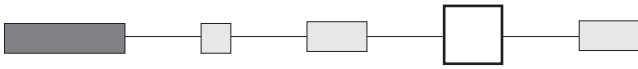


TR series

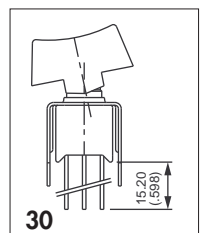
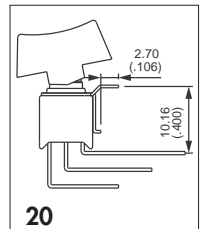
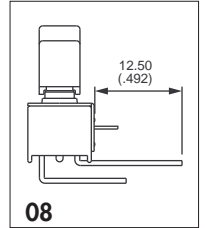
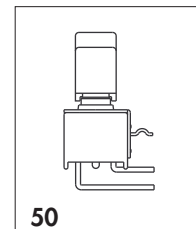
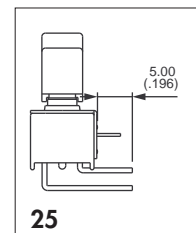
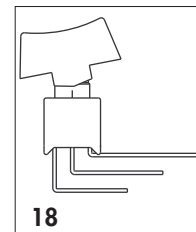
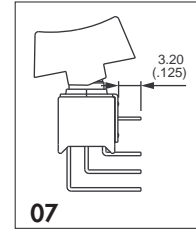
Tiny washable rocker switches



SPECIAL OPTIONS

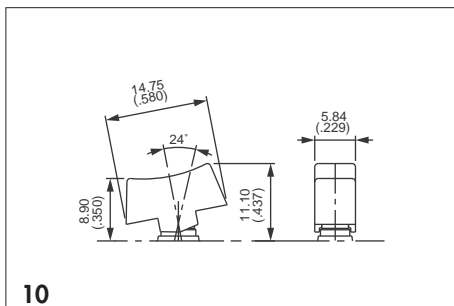
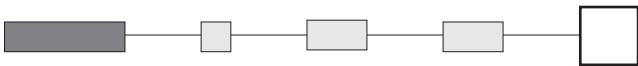


- 00 No special requirement
- 07 **Trimmed terminals** - length 3,2 mm (.125) for TR..WW models only
- 08 **Extended terminals** for TR..WO models only
- 18 Switch **without ground plate** for TR..WW models only
- 20 **Ground plate with 2 pins** for TR..WW models only
- 25 **Trimmed terminals** - length 5 mm (.196) for all models, except TR..WW
- 30 **Wire-wrap terminals** on models with mounting **bracket**
- 50 **Crimping of ground plate pins.**
Retains switch on PCB during handling and wave soldering.
For models TR..WO, TR..WW and TR..YO single and double pole.

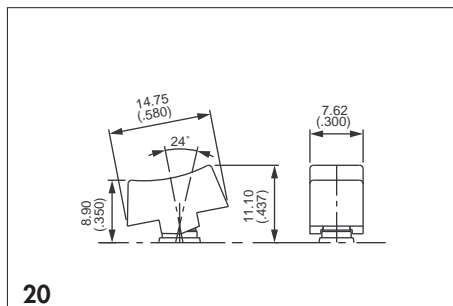


Marking on rocker : consult factory.

ROCKERS



10
Small



20
Large

Rocker colours	
Replace "0" by number	
1	blue
1/4	dark blue
2	black
3	green
4	grey
5	yellow
6	red
7	ivory
7/1	white
9	orange

57000 series

VDE approved rocker and paddle switches



DISTINCTIVE FEATURES

VDE marked as standard

UL and CSA approvals also available

Single and double pole configurations



ELECTRICAL SPECIFICATIONS

- Class I (normal insulation)
- Small contact opening : μ (< 3 mm (.118))
- Current/voltage rating with resistive load : 3 A 250 VAC - 6 A 125 VAC
- Dielectric strength :
2,000 Vrms 50 Hz min. between poles and between terminals and frame
1,000 Vrms 50 Hz min. between terminals
- Special case for increased creepage distance and air gap : 3 mm (.118)



MATERIALS

- Contacts : silver
- Case : diallyphthalate (DAP)
- Actuator : polyamide
- Housing : stainless steel or steel tin plated
- Terminal seal : epoxy

APEM products may be recycled at end-of-life for the re-claiming of valuable metal components.

FURTHER SPECIFICATIONS : see 7000 series.

AGENCY APPROVALS

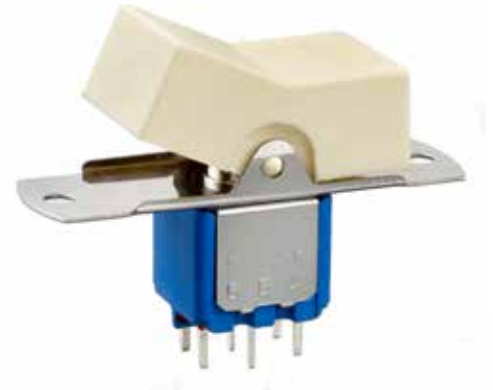


EN 61058-1



Complete appropriate box of ordering format.

The company reserves the right to change specifications without notice.



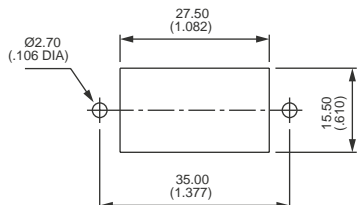
57000 series

VDE approved rocker and paddle switches

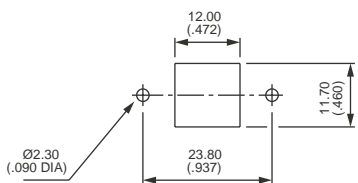


PANEL CUT-OUT

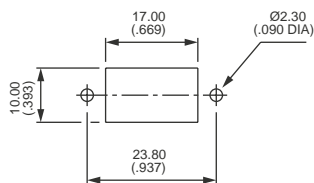
57700 - 57900



57700N - 57900N



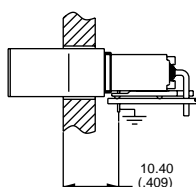
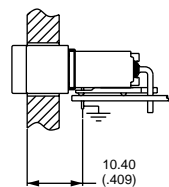
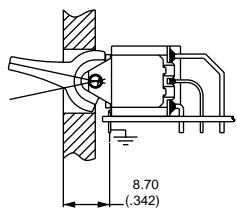
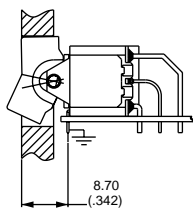
With small rocker **U730**
or small paddle **U700**



With medium rocker **U620**
or medium paddle **U610**



MOUNTING RECOMMENDATIONS

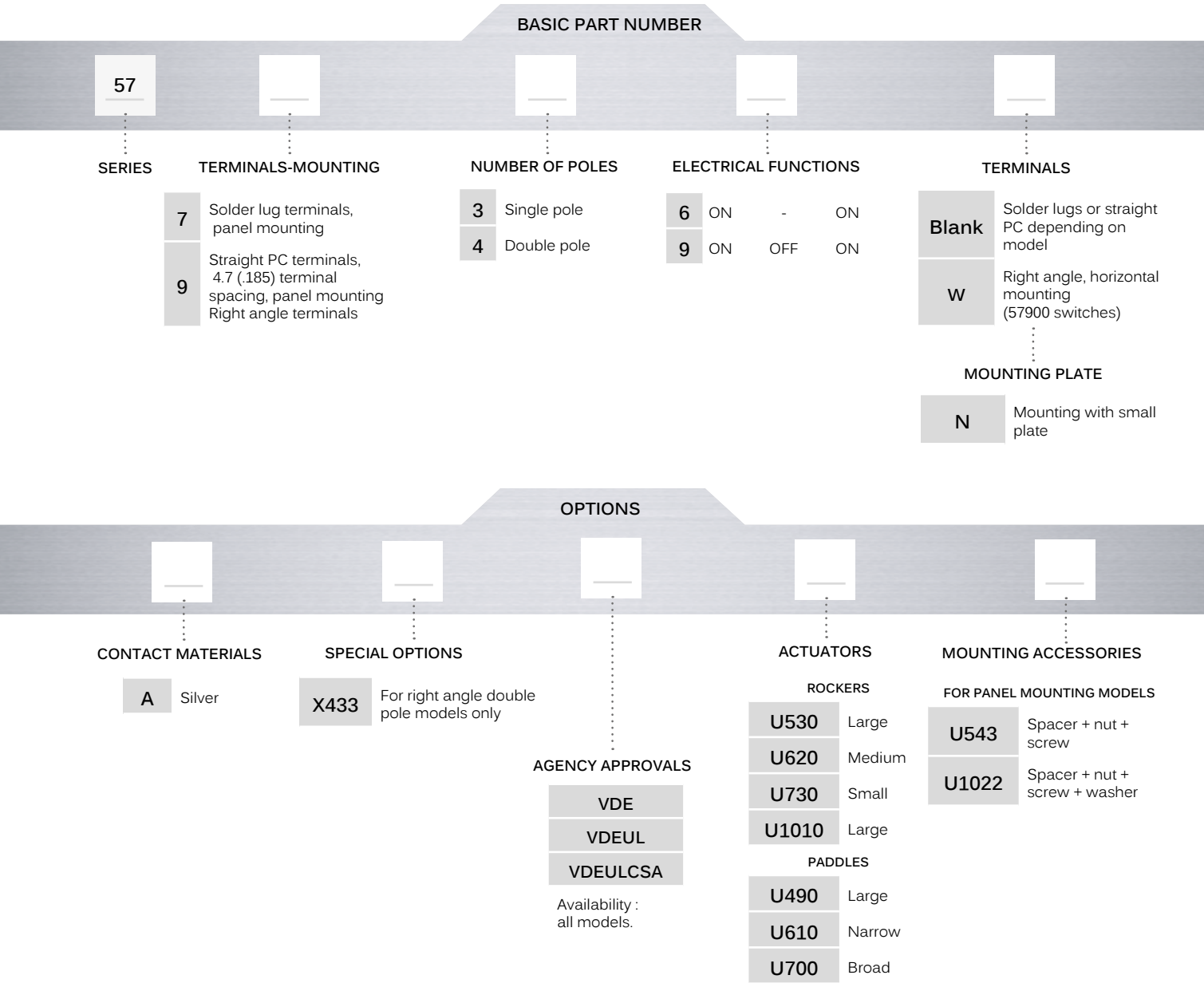


57000 series

VDE approved rocker and paddle switches



BUILD YOUR PART NUMBER



ABOUT THIS SERIES

On the following pages, you will find successively basic part numbers of switches and options in the same order as in above chart.

Notice: please note that not all combinations of above numbers are available. Refer to the following pages for further information.

57000 series

VDE approved rocker and paddle switches

PANEL MOUNTING - SOLDER LUG TERMINALS LARGE ROCKER OR PADDLE



		III	II	I
Single pole	Double pole	2-3		1-2
57736A	57746A	5-6	-	4-5
		ON		ON
57739A	57749A	ON	OFF	ON

PANEL MOUNTING - STRAIGHT PC TERMINALS LARGE ROCKER OR PADDLE



		III	II	I
Single pole	Double pole	2-3		1-2
57936A	57946A	5-6	-	4-5
		ON		ON
57939A	57949A	ON	OFF	ON

PANEL MOUNTING - SOLDER LUG TERMINALS SMALL OR MEDIUM ROCKER OR PADDLE



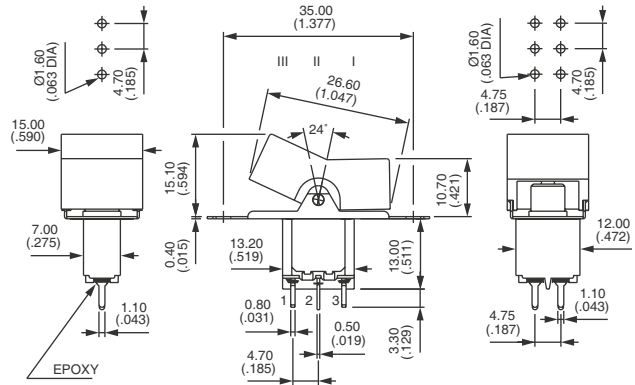
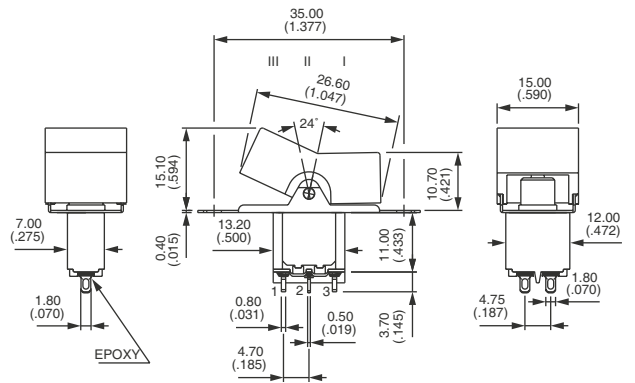
		III	II	I
Single pole	Double pole	2-3		1-2
57736NA	57746NA	5-6	-	4-5
		ON		ON
57739NA	57749NA	ON	OFF	ON

PANEL MOUNTING - STRAIGHT PC TERMINALS SMALL OR MEDIUM ROCKER OR PADDLE

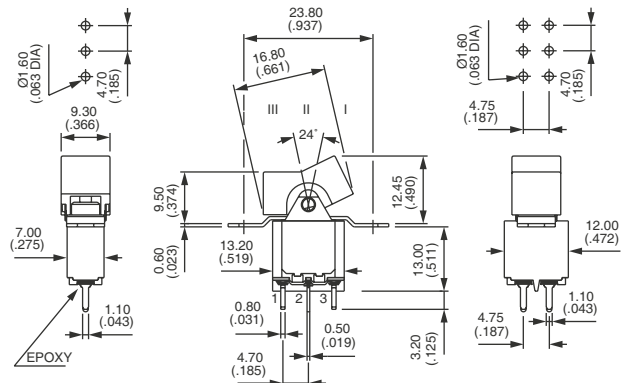
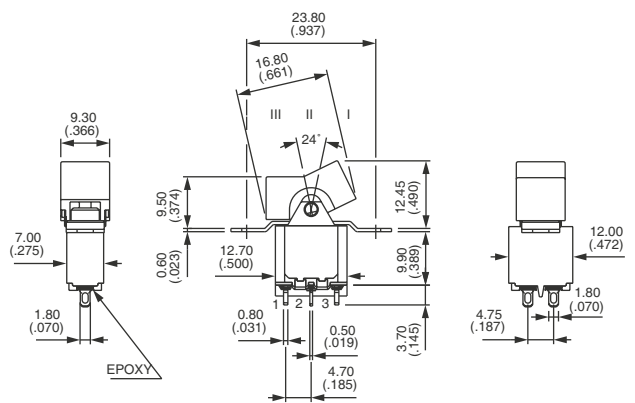


		III	II	I
Single pole	Double pole	2-3		1-2
57936NA	57946NA	5-6	-	4-5
		ON		ON
57939NA	57949NA	ON	OFF	ON

Shown with rocker U530



Shown with rocker U620



57000 series

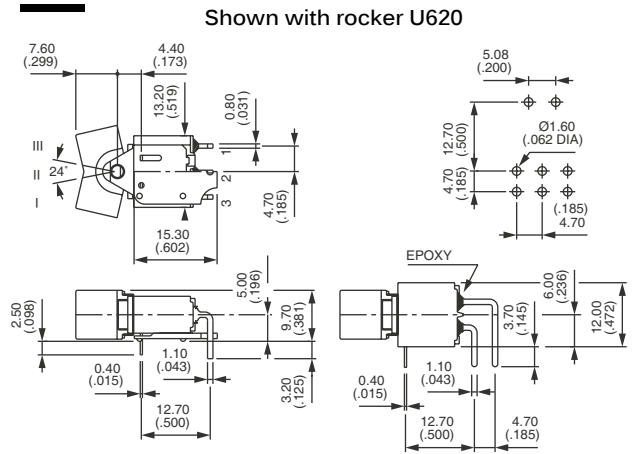
VDE approved rocker and paddle switches

RIGHT ANGLE TERMINALS - HORIZONTAL

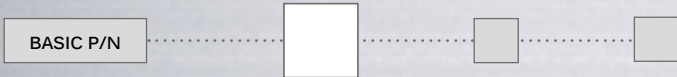


	III	II	I
Single pole	2-3		1-2
Double pole*	5-6		4-5
57936WA	57946WAX433	ON	ON
57939WA	57949WAX433	ON	OFF ON

* In double pole W models, spacing between poles on PCB is different from standard : 4.7 mm (.185) instead of 3.81 mm (.150). Part number X433. Also available for VERTICAL mounting (on request).



AGENCY APPROVALS



VDE
VDEUL
VDEULCSA

To order a switch marked UL and/or CSA, complete above box with desired approvals (specify VDE even if the product is systematically marked).

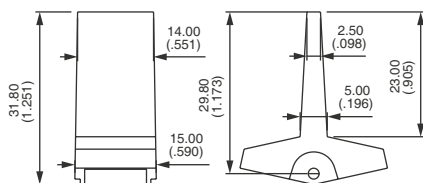
ACTUATORS



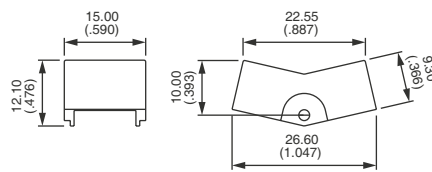
For actuator colors, replace "0" with number :

- 1 Blue
- 1/4 Dark blue
- 2 Black
- 3 Green
- 4 Grey
- 5 Yellow
- 7 Ivory
- 7/1 White
- 9 Orange

FOR 57000A MODELS



U490
Large paddle

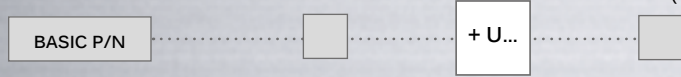


U530
Large rocker

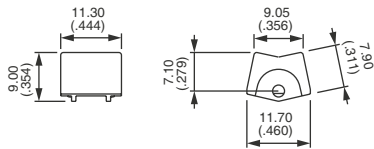
57000 series

VDE approved rocker and paddle switches

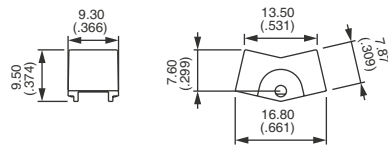
ACTUATORS (CONTINUED)



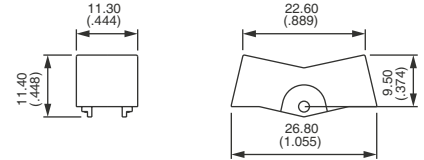
FOR 57000NA AND 57000WA MODELS



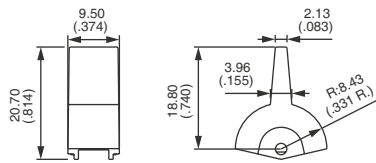
U730
Small rocker



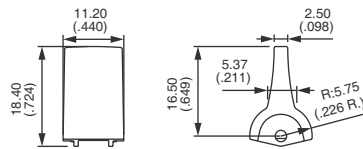
U620
Medium rocker



U1010
Large rocker
For 57000WA, available on DP only.

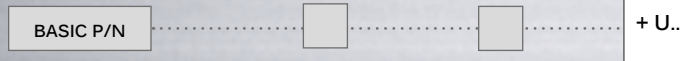


U610
Narrow paddle

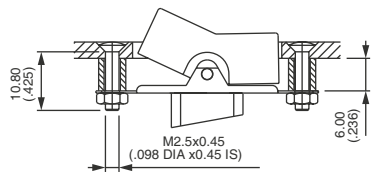


U700
Broad paddle

MOUNTING ACCESSORIES

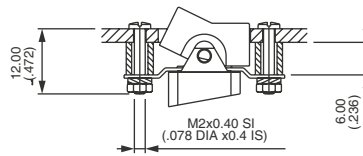


FOR ROCKER U530 OR PADDLE U490



U543
Spacers, screws and nuts

FOR ROCKERS U620 OR U730
FOR PADDLES U610 OR U700



U1022
Spacers, screws, nut and washers