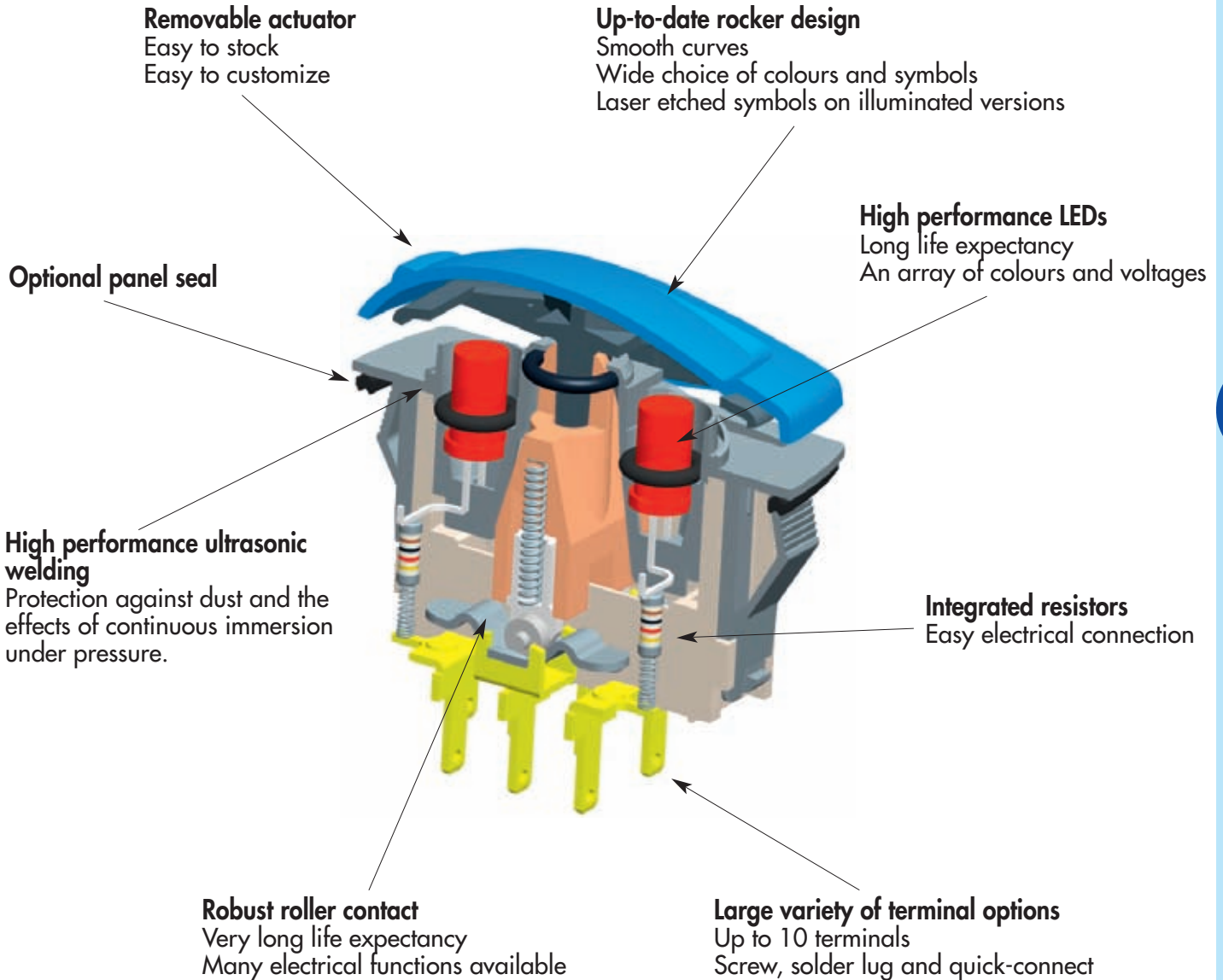


Attractive rugged rocker switch



APEM will be happy to develop custom product solutions. Please contact us with your requirements.

KR series

Power rocker switches

Specifications



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

ELECTRICAL SPECIFICATIONS

- Current/voltage rating with resistive load :
 - Silver contacts (A) : 5A 24VDC, 100.000 cycles
 - 10A 24VDC, 10.000 cycles (terminals 6.35 x 0.8 only)
 - Gold plated contacts (D) : 20mA 12V, 150.000 cycles
- Current/voltage rating with lamp load - silver contacts (A) :
 - functions 1 & 6 : 100W 24VDC, 10.000 cycles
 - other functions : 60W 24VDC, 10.000 cycles
- Initial contact resistance : 10 mΩ max.
- Insulation resistance : 1.000 MΩ min. at 500VDC
- Dielectric strength : 2.000 Vrms 50 Hz min. between terminals
- Mechanical life : 150.000 cycles min.

ENVIRONMENTAL SPECIFICATIONS

- Degree of protection of sealed versions : frontal sealing to IP68 acc. to IEC 60529 (submersion under 1 meter of water for more than 30 minutes)
- 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

MATERIALS

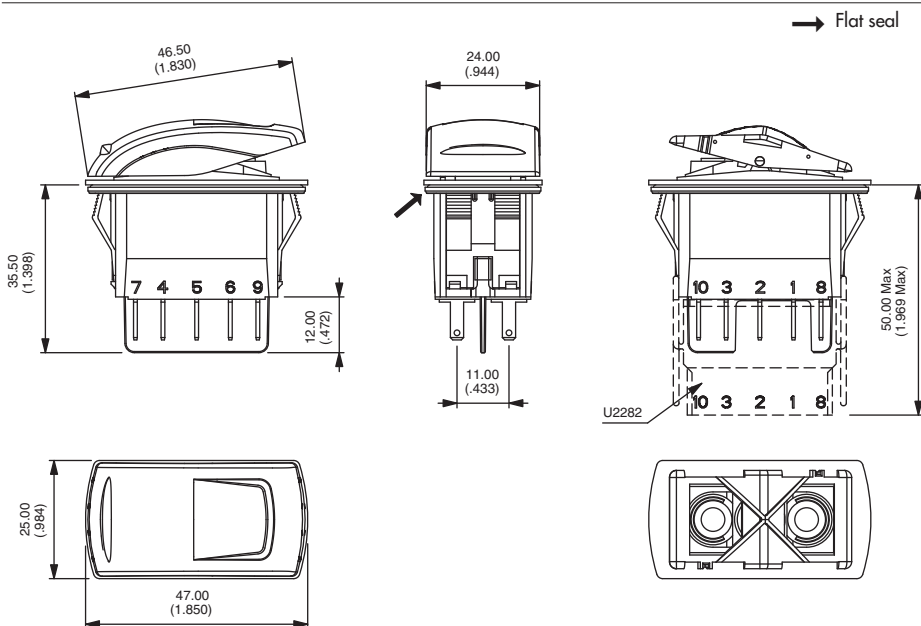
- Case : PA 6-6
- Actuator : ABS
- Bezel : PA 6-6
- Terminals : brass, silver plated
- Contacts : silver (A) or silver, gold plated (D)
- Contact roller : brass, nickel plated

SEALING

Sealing is optional.

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

DIMENSIONS



Packaging unit : 40 pieces

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

HOW TO ORDER

- 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.

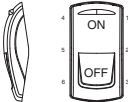



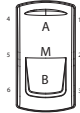
CASE + LEADS

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--------------------------------|---|-----|-----|--|--|--|--|---|-------------|---------------|---|----|----|----|------|----|----|-----|---|-----|---|----|---|----|---|----|---|-----|-----|-----|---|----|-----|-----|---|----|-----|----|---------------------------|---------------|---|----------------------|
| KR | | | | | | | Side A | Side B | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SERIES | Electrical functions | | | | | | Contacts | Sealing | LEDS | Wiring | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Poles | <table border="0"> <tr><td>1</td><td>ON</td><td>-</td><td>OFF</td></tr> <tr><td>4</td><td>ON</td><td>ON</td><td>ON</td></tr> <tr><td>4-1R</td><td>ON</td><td>ON</td><td>MOM</td></tr> <tr><td>5</td><td>MOM</td><td>-</td><td>ON</td></tr> <tr><td>6</td><td>ON</td><td>-</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>9</td><td>ON</td><td>OFF</td><td>ON</td></tr> </table> <p>Function 1 only for 6-terminal versions. Functions 5 and 6 cannot be combined with "H" wiring.</p> | | | | | | 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 | A Silver D Gold plated | X No K Yes | X None A LED 6V red B LED 6V green C LED 6V yellow M LED 6V blue R LED 6V white D LED 12V red E LED 12V green F LED 12V yellow N LED 12V blue S LED 12V white J LED 24V red K LED 24V green L LED 24V yellow P LED 24V blue T LED 24V white ... | See following pages. |
| 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 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 Single pole 4 Double pole | | | | | | | Terminals | Terminals (continued) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | 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 Quick-connect 6,35x0,8 3 6 terminals with barrier | Quick-connect 6,35x0,8 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 Quick-connect 2,8x0,8 G 10 term. with barrier H 10 term. w/o barrier J 10 terminals for use with connector U2282 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

ACTUATOR

| | |
|--|---|
| | |
| Type | Colour |
| 1 For non-illuminated application 2 For illuminated application | 1 Blue 1/4 Dark blue 2 Black 3 Green 4 Grey 5 Yellow 6 Red 7 Ivory 9 Orange A Aluminium bright |

ACTUATOR MARKING

| | | | |
|--|---|---------------|---------------|
| | Area A | Area M | Area B |
| Orientation | Symbols | | |
| N  O  S  E  |  | | |

Symbols & Accessories : see end of section D.



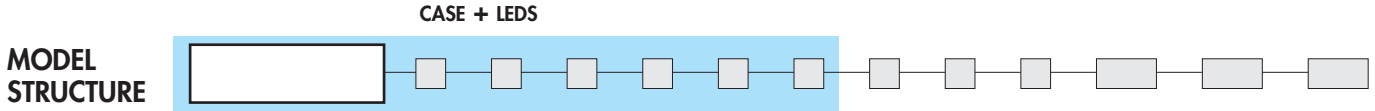
NOTICE : please note that not all combinations of above numbers are available. Refer to the following pages for further information.


KR series

Power rocker switches

Case

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



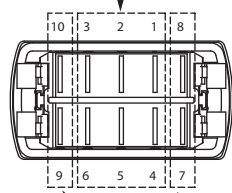


| | | |
|----------------------------|----------------------------|-------------|
| | 2-3 5-6 | 1-2 4-5 |
| Single pole KR31 | Double pole KR41 | ON - OFF |
| | KR44* | ON ON ON |
| | KR44-1R* | ON ON MOM |
| KR35 | KR45 | MOM - ON |
| KR36 | KR46 | ON - ON |
| KR37 | KR47 | MOM OFF MOM |
| KR38 | KR48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

* Function 4 : single pole in double pole case

Bottom view

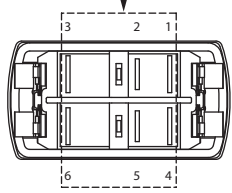
Contact area



LED area

10 terminal version

Contact & LED area



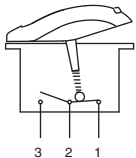
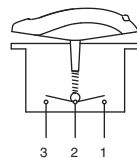
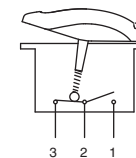
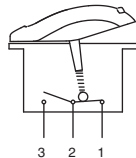
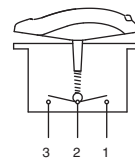
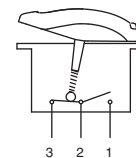
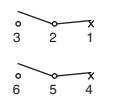
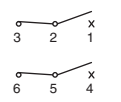
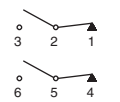
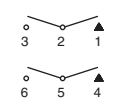



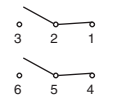
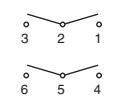
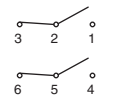
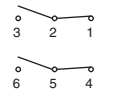

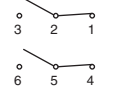
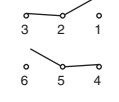
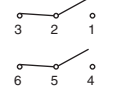
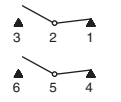
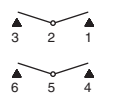
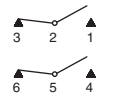
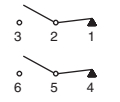
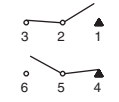
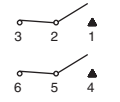
6 terminal version

D

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).

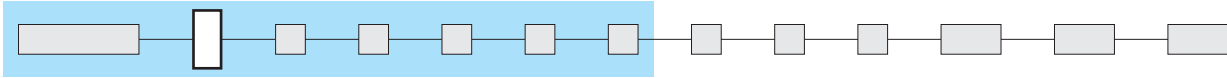
x = w/o terminal
o = with terminal
▲ = momentary

| | Positions | | | | Positions | | |
|---------------------------|---|---|---|--------------------------|---|---|---|
| |  |  |  | |  |  |  |
| Function 1 * KR31-KR41 |  | |  | Function 8 KR38-KR48 |  |  |  |
| Function 5 KR35-KR45 |  | |  | Function 9 KR39-KR49 |  |  |  |
| Function 6 KR36-KR46 |  | |  | Function 4 KR44 |  |  |  |
| Function 7 KR37-KR47 |  |  |  | Function 4-1R KR44-1R |  |  |  |

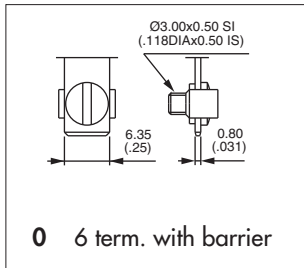
* Function 1 only available for 6 terminal versions.

TERMINALS

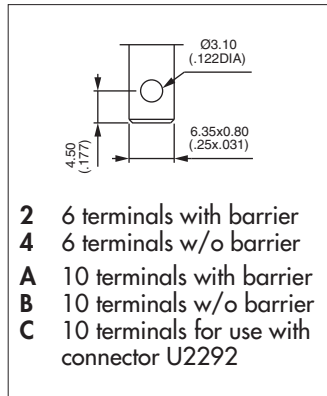
CASE + LEDS



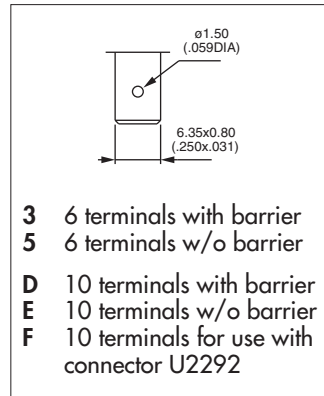
Screw



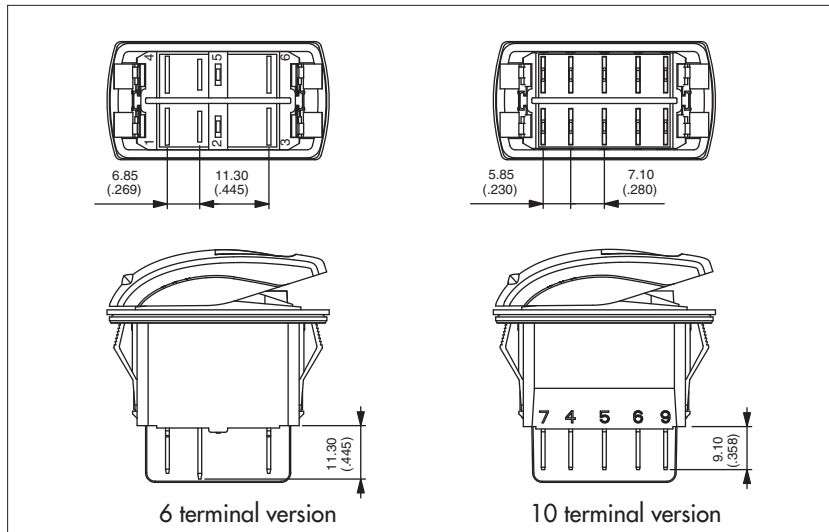
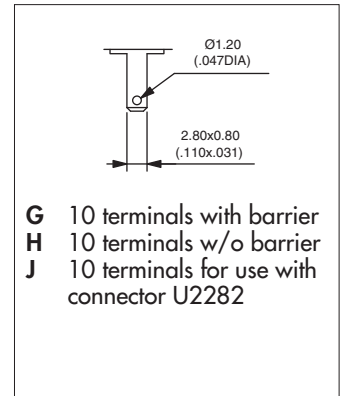
Solder lug / quick-connect



Normalized quick-connect 6,35x0,8



Normalized quick-connect 2,8x0,8

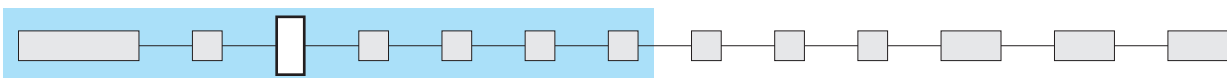


Terminals are marked on the case.

The drawings show the maximum possible number of terminals.

CONTACT MATERIALS

CASE + LEDS



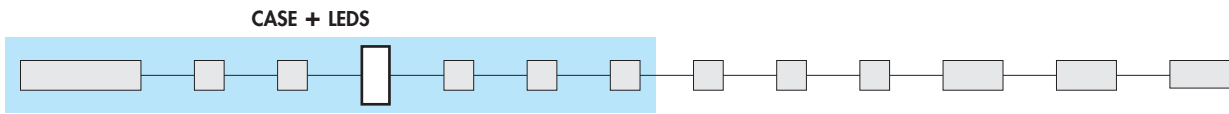
- A** Silver
- D** Silver, gold plated

KR series

Power rocker switches

Case - LEDs

SEALING

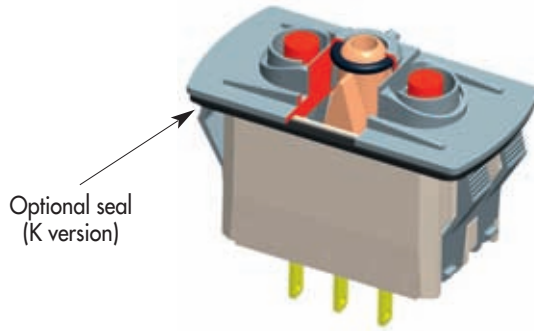


X No sealing

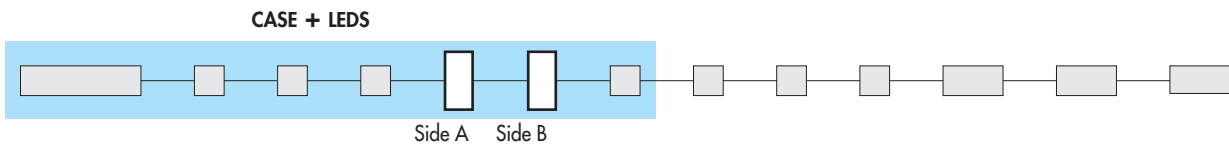
K IP68 (switch assembled on panel)

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.

*The product shall be installed professionally.
Test conditions available on request.*



LEDS

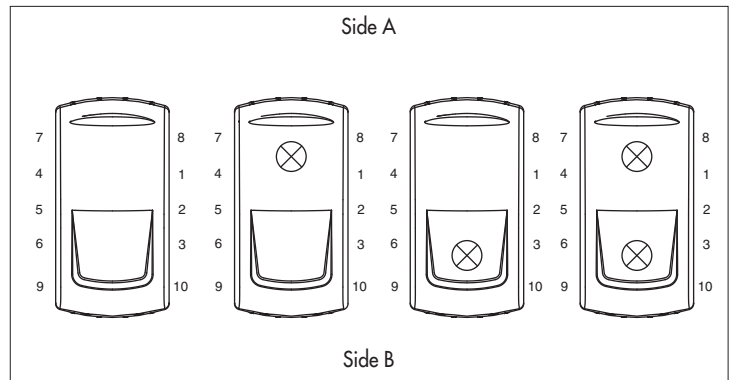


Complete each enlarged box with one of the codes listed below.

X Without LED

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

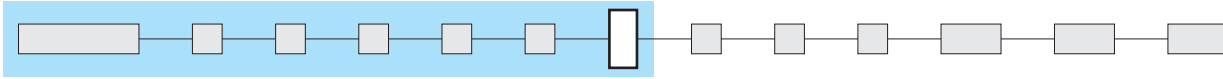
LED consumption : 20mA @ nominal voltage (25°C)
Other illumination solutions : on request.



WIRING

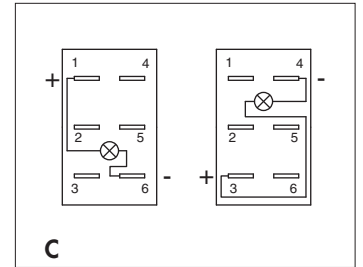
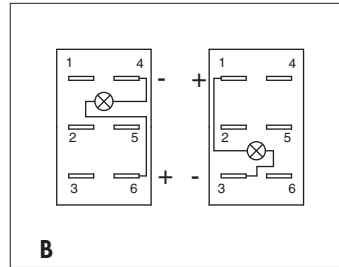
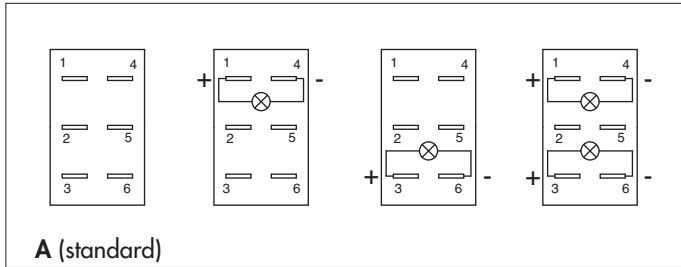
The LED wiring diagram is shown on the case.

CASE + LEDs

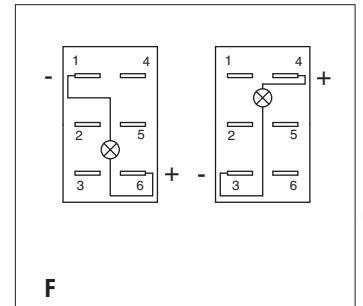
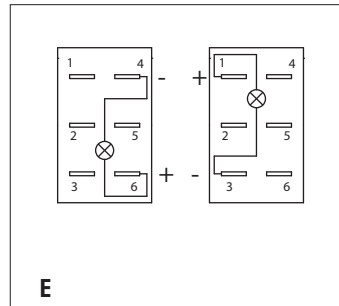
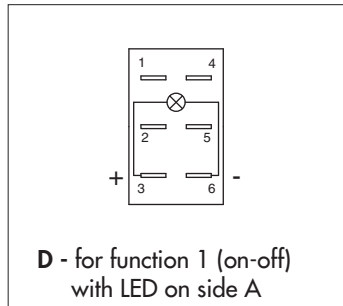


• For 6 terminal versions

LED connected to the load

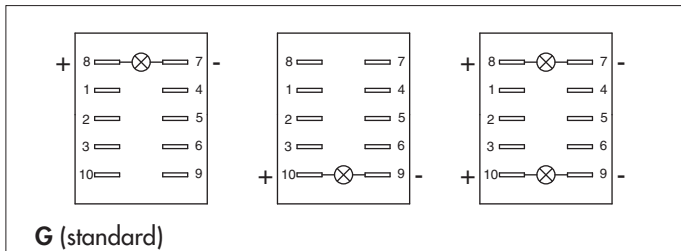


Note : If not available, terminals are added to connect the LED.

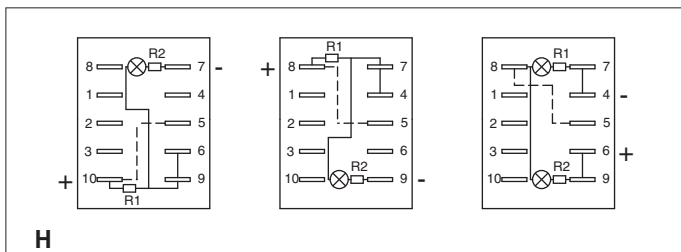


• For 10 terminal versions

Independent LED or integrated functions



To have independent LEDs.



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.

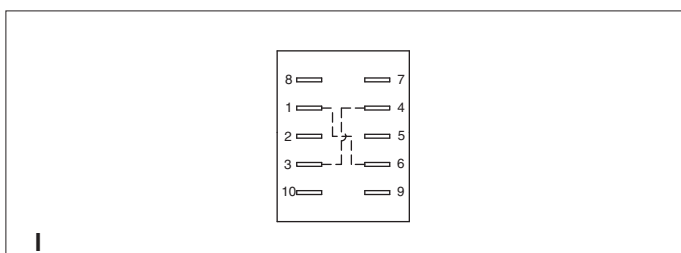
H wiring with LED on side B available with functions 5, 6 and 9.

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.



Power supply between 2 and 5 - Load between 1 and 4 or 3 and 6. Available with H and J quick-connect terminals.

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

Dotted line = external wiring

Please contact us for other wiring solutions.

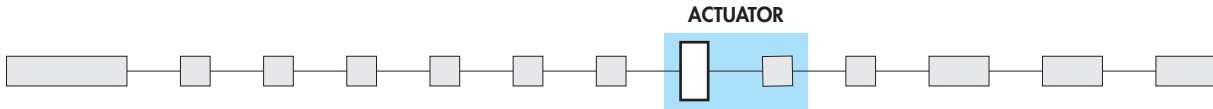
KR series

Power rocker switches

Actuator - Marking

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.

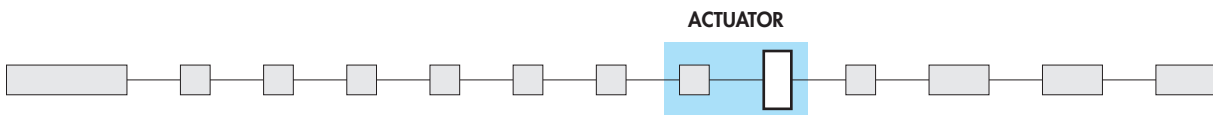
ACTUATOR TYPE



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

Other rocker design : on request.

ACTUATOR COLOUR



| Code | Colour |
|------|-----------|
| 1 | Blue |
| 1/4 | Dark blue |
| 2 | Black |
| 3 | Green |

| Code | Colour |
|------|--------|
| 4 | Grey |
| 5 | Yellow |
| 6 | Red |
| 7 | Ivory |

| Code | Colour |
|------|------------------|
| 7/1 | White |
| 9 | Orange |
| A | Aluminium bright |

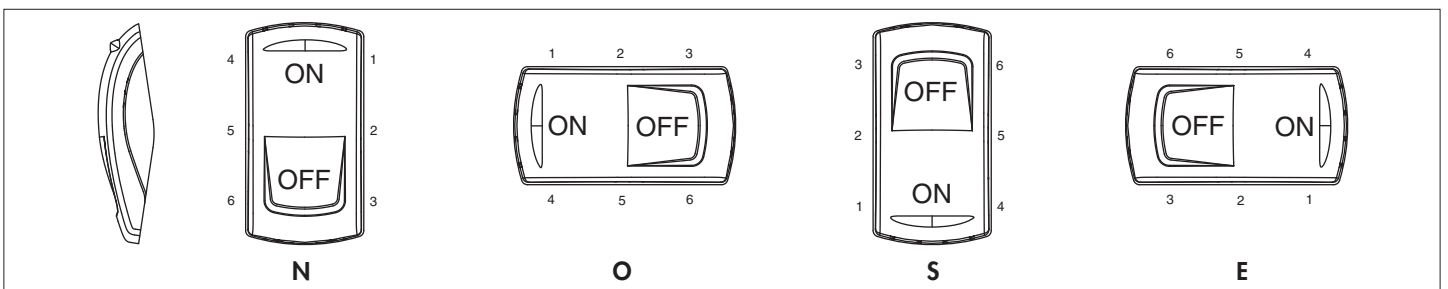
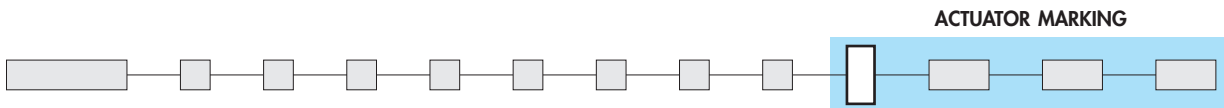
Note : colours 7 and 7/1 not available on illuminated versions.

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



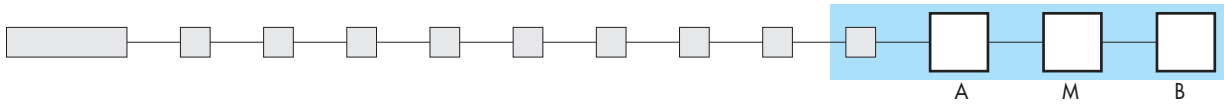
MARKING ORIENTATION

If no marking required, leave box blank.



Other orientations : on request

SYMBOLS



XX No symbol

Available symbols : see end of section D.

Marking colour

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

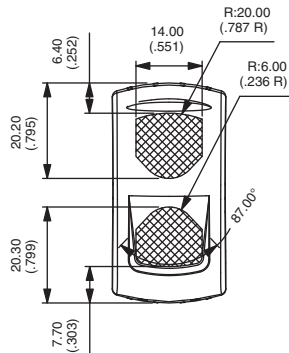
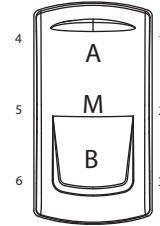
Laser etching resistance

- 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

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

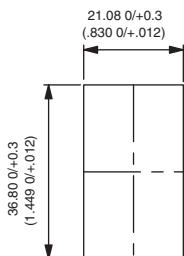
Marking in M area : on request.



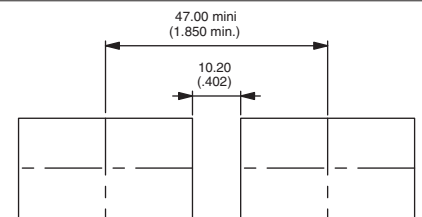
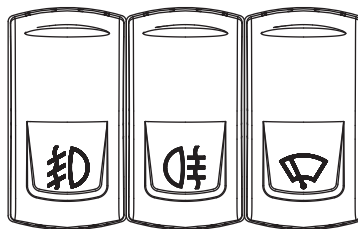
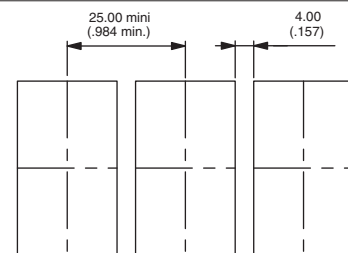
SWITCH PANEL CUT-OUT

Panel thickness : 0,8 mm to 4,6 mm

Recommended panel thickness :
between 2 mm and 3,5 mm



MATRIX MOUNTING



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

Legend scale :

KR series : 1:1

KL, KG and KI series : depending on space available on the product (see "Symbols" section at the end of each series).

| CODE | SYMBOL | DESCRIPTION | CODE | SYMBOL | DESCRIPTION | CODE | SYMBOL | DESCRIPTION |
|------|---|------------------------|------|---|--------------------------------------|------|---|---------------------------------------|
| XX | None | - | 16 |  | Revolving light | 32 |  | Emergency first aid vehicle (2565) |
| 01 | ON | - | 17 |  | Rear ventilator | 33 |  | Load tipping (1557) |
| 02 | OFF | - | 18 |  | Heating (0637) | 34 |  | Loading light (2457) |
| 03 | O | - | 19 |  | Door opening | 35 |  | Tractor, rear-ward (1667) |
| 04 | I | - | 20 |  | Windshield demister/defroster (0635) | 36 |  | Combine, direction of movement (1678) |
| 05 | II | - | 21 |  | Windshield wiper (0086) | 37 |  | Use no forks (2406) |
| 06 | STOP | - | 22 |  | Windshield washer (0088) | 38 |  | Transmission (1166) |
| 07 | A | Stop | 23 |  | Ventilator fan (0089) | 39 |  | Working spot light (1145) |
| 08 | M | Motion | 24 |  | Side mirror defroster | 40 |  | Engine (0640) |
| 09 |  | Up motion | 25 |  | Restarting pump | 41 |  | Horn (0244) |
| 10 |  | Down motion | 26 |  | Front fog lights (0633) | 42 |  | Lock (1656) |
| 11 |  | Hot | 27 |  | Rear fog lights (0634) | 43 |  | Taxi sign light (2551) |
| 12 |  | Cold | 28 |  | Propulsion system trim | 44 |  | Working light (1204) |
| 13 |  | Hazard warning (0085) | 29 |  | Beacon (1141) | 45 |  | Working light symmetric (1204) |
| 14 |  | Traveller lighting | 30 |  | Anchor | 46 |  | - |
| 15 |  | Driver lighting (1421) | 31 |  | Electric motor (0011) | 47 | ASM | - |

K range

Power rocker switches and indicators









































Symbols

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

Legend scale :

KR series : 1:1

KL, KG and KI series : depending on space available on the product (see "Symbols" section at the end of each series).

















| CODE | SYMBOL | DESCRIPTION | CODE | SYMBOL | DESCRIPTION | CODE | SYMBOL | DESCRIPTION |
|------|---|---------------------------|------|---|--------------------------|------|---|--------------------------|
| 48 |  | All wheel drive | 64 |  | Indicator | 80 |  | Front windshield heating |
| 49 |  | Differential lock (1662) | 65 |  | Brake release | 81 | AUS | Aus |
| 50 |  | - | 66 |  | Baggage room left door | 82 |  | Radiator fan |
| 51 |  | - | 67 |  | Baggage room right door | 83 |  | Remove retarder |
| 52 |  | - | 68 |  | Power blinds | 84 |  | Restricted speed |
| 53 | N | - | 69 |  | Engine idle control | 85 |  | Preheater |
| 54 |  | Rear window wiper (0097) | 70 | CRUISE RES/SET | Cruise res/set | 86 |  | ABS detection |
| 55 |  | Rear window washer (0099) | 71 |  | Driver windows up/down | 87 |  | ECAS detection |
| 56 |  | Lower load (2223) | 72 |  | Middle door opening | 88 |  | Engine stop |
| 57 |  | Cab lock (1560) | 73 |  | Front door opening | 89 | CRUISE RES/CAN | Cruise res/cancel |
| 58 |  | Extraction | 74 |  | Lighting in baggage room | 90 |  | ECAS reset |
| 59 |  | Pumping in | 75 | CRUISE ON/OFF | Cruise on/off | 91 |  | Driver windows heating |
| 60 |  | Rear PTO (1572) | 76 | TV | TV | 92 | CRUISE SET+/SET- | Cruise set |
| 61 |  | Front PTO | 77 |  | Pump | 93 |  | Air bag up/down |
| 62 |  | Rockshaft down | 78 | WC | Toilet | 94 |  | Read lighting |
| 63 |  | Rockshaft up | 79 |  | Toilet decontamination | 95 |  | Lighting main switch |

















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






Legend scale :

KR series : 1:1

KL, KG and KI series : depending on space available on the product (see "Symbols" section at the end of each series).

| CODE | SYMBOL | DESCRIPTION |
|------|---|------------------------------|
| 96 |  | Heating using water |
| 97 |  | Low beam |
| 98 |  | Position lights |
| 99 |  | Diesel acceleration |
| A1 |  | Manual mode |
| A2 |  | Clockwise cabin rotation |
| A3 |  | Anticlockwise cabin rotation |
| A4 |  | - |
| A5 |  | - |
| A6 |  | Parking brake |
| A7 |  | - |
| A8 |  | - |
| A9 |  | - |
| AA |  | - |
| AB |  | - |
| AC |  | - |

| CODE | SYMBOL | DESCRIPTION |
|------|---|---|
| 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) |

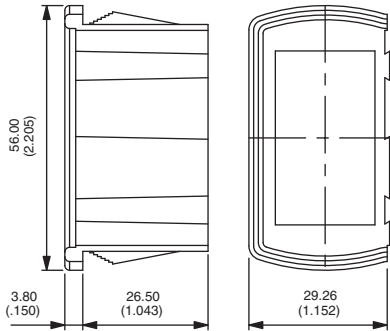
| CODE | SYMBOL | DESCRIPTION |
|------|---|-------------|
| AV |  | - |
| AW |  | - |
| AY |  | - |
| AZ |  | - |
| B1 | HIGH | - |
| B2 | LOW | - |
| B3 |  | - |

K range

Power rocker switches and indicators

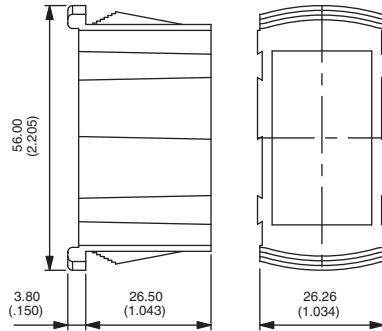
Accessories for KR, KL and KI series

MOUNTING PANEL END



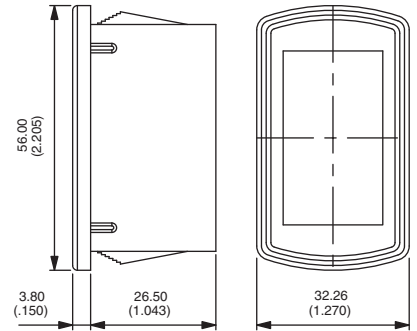
U2261

MOUNTING PANEL MIDDLE



U2262

SINGLE MOUNTING PANEL



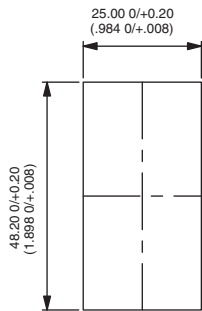
U2267

Recommended panel thickness : 1,10 mm - 1,80 mm - 2,60 mm - 3,40 mm - 4,20 mm - 5 mm - 5,80 mm

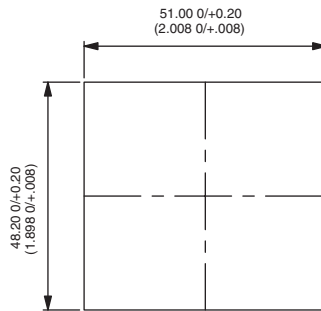
MOUNTING PANEL CUT-OUT

For additional elements, add 26,40 mm (1.039)

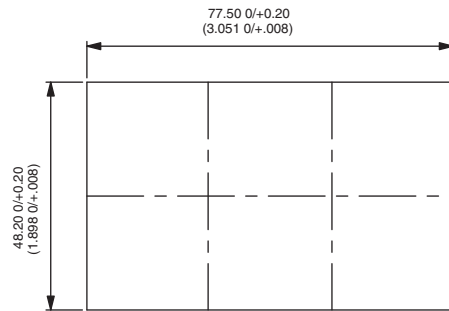
For 1 element U2267



For 2 elements U2261

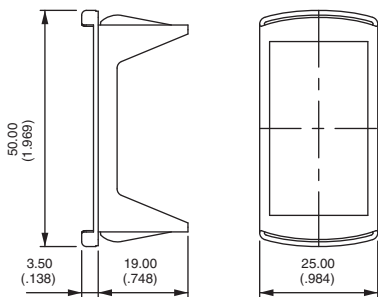


For 3 elements (2xU2261 + 1x U2262)



22 x 44 ADAPTER

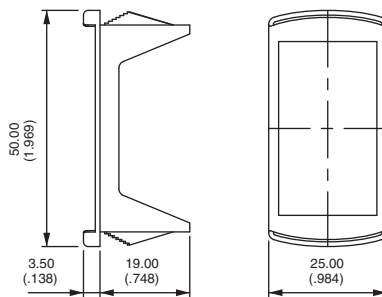
Front panel dismounting



U3060

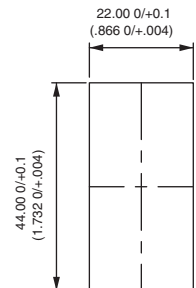
22 x 44 ADAPTER

Rear panel dismounting



U3070

PANEL CUT-OUT



Adapter colours (replace 0 with code)
 1/4 : dark blue - 2 : black - 4 : grey
 5 : yellow - 6 : red - 7/1 : white

Recommended panel thickness : 0,60 mm to 1,50 mm

Recommended panel thickness : 1,60 mm -0,1/0 to 5,60 mm -0,1/0 in stages of 0,40 mm

ACTUATOR REMOVING TOOL



U3052

2 tools are supplied

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.

CONNECTORS

Standard colour : black. Other colours : 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 : AMP/Tyco 0-0141013-2).
Can be used for the KG series.



U2282

10 terminal version

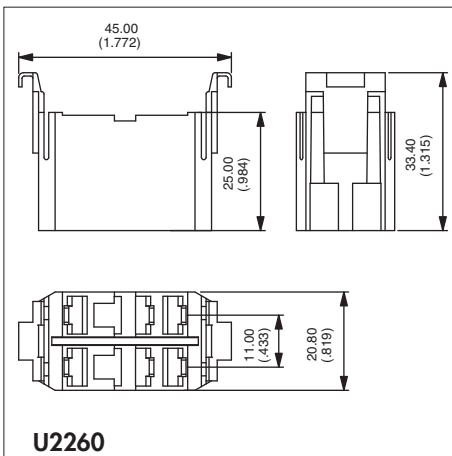
For use with terminals type H or J.
2,8 (.110) tabs to be fitted by the user
(example : AMP/Tyco 0-927779-3).



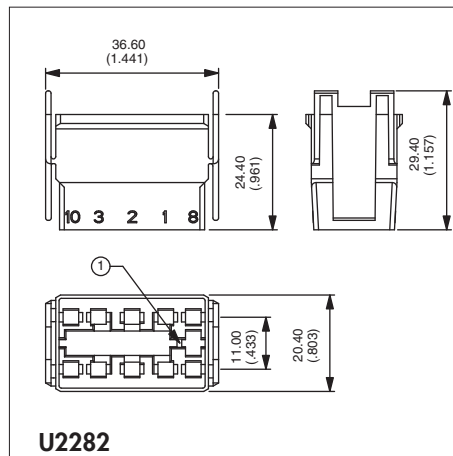
U2292

10 terminal version

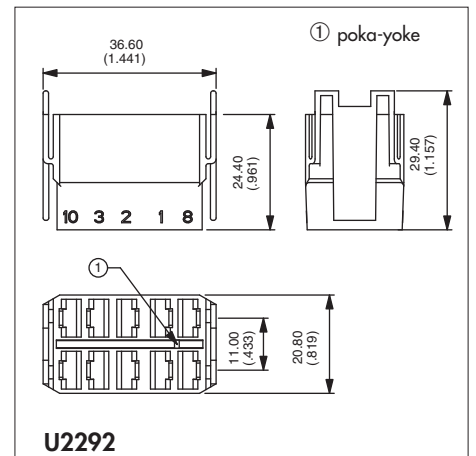
For use with terminals type B, C, E or F.
6,35 (1/4) tabs to be fitted by the user
(example : AMP/Tyco 0-0141013-2).



U2260



U2282



U2292

K range

Power rocker switches and indicators

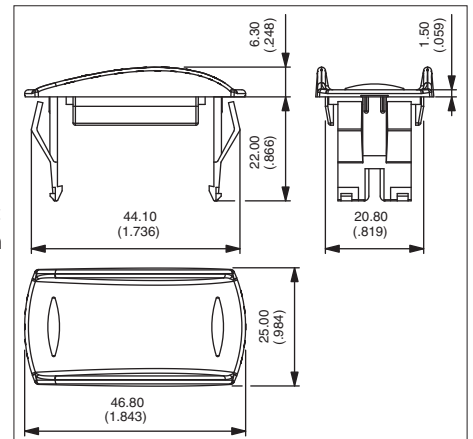
Accessories for KR, KL and KI series

HOLE PLUGS

Usefull for future extensions.

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

Recommended panel thickness :
1,50 mm to 6 mm



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

D