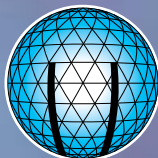


APEM

K range

Power rocker switches and indicators

- Wide range
- Laser etched symbols
- Illuminated or non-illuminated
- Optionally sealed to IP68



A P E M

**Unique
rocker design**

K range

Power rocker switches and indicators

The K range at a glance

A range of mix and match products



KR rocker switches

Attractive rugged rocker switches with more than 3.000.000 possible combinations. Custom laser etching.

Page 3



KL locking rocker switches

Available with 2 or 3 positions, with one locked position. Patented intuitive ergonomics.

Page 12



KI indicators

A complete indicator series with a wide choice of colours and a large number of LEDs. Long life expectancy.

Page 21



KG rocker switches

With a raised protection bezel preventing inadvertent actuation of the rocker.

Page 26

Accessories - Page 34



Hole plug

For future extensions.



Connector

For separate wiring.



Mounting panel units

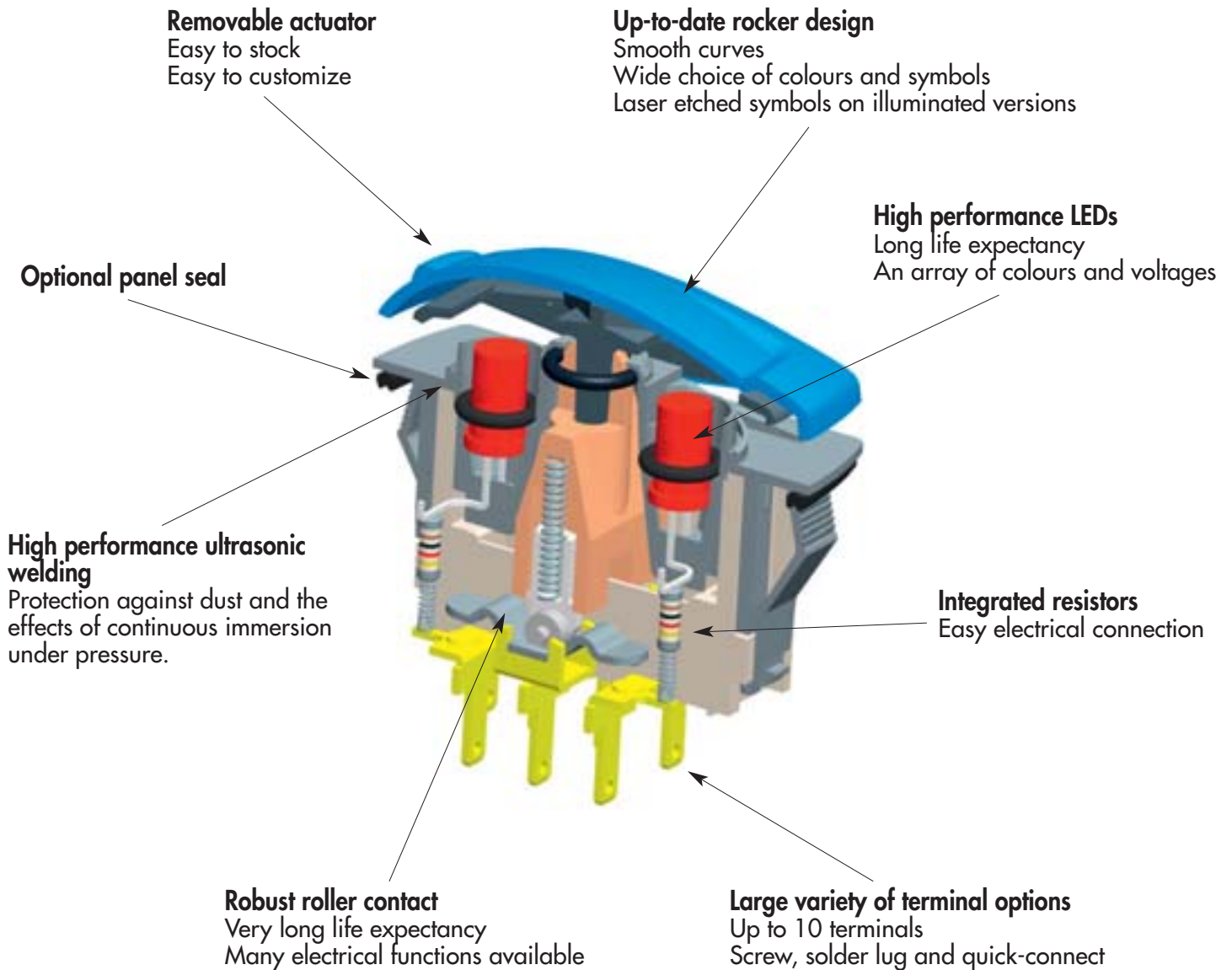
To limit the number of cut-outs.



Removing tool

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

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
- 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 according 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

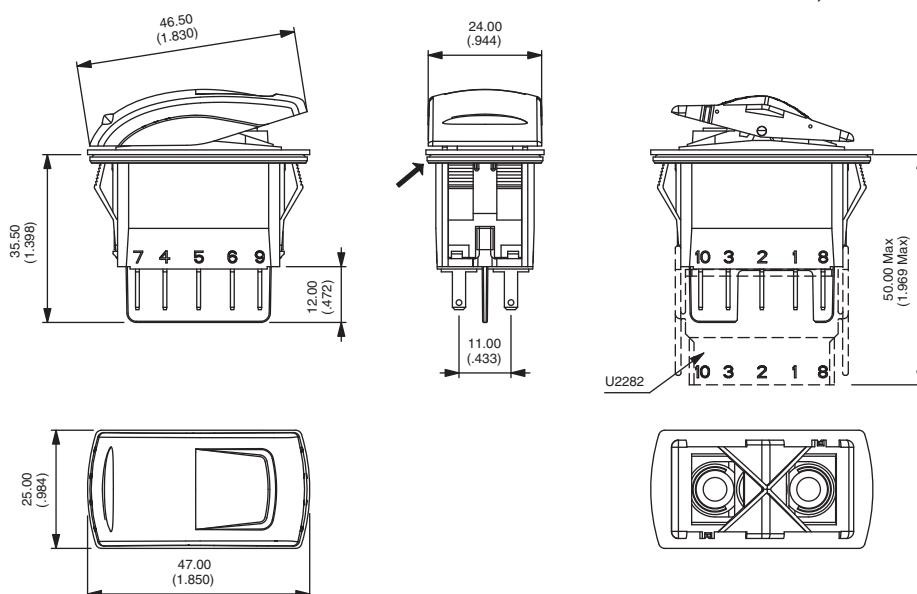
SEALING

Sealing is optional.

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

DIMENSIONS

→ Flat seal



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

Tolerance : The general tolerance for dimensions in this brochure is $\pm 0,3$ (.012). Overall dimension tolerance is $\pm 0,5$ (.020).



Packaging unit : 40 pieces

Dimensions, specifications and data shown in this brochure are subject to change without notice.

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.

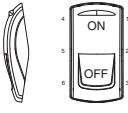

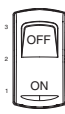

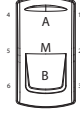
CASE + LEDS

| | | | | | | | | | |
|--------------------------------|---|--|--|---|--|--|--------|----------------------|--|
| KR | | | | | | | Side A | Side B | |
| SERIES | Electrical functions | | | Contacts | Sealing | LEDS | | Wiring | |
| Poles | 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 diagrams page 9. | |
| 3 Single pole 4 Double pole | | | | 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 Quick-connect 6,35x0,8 3 6 terminals with barrier | Terminals (continued) 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 : see page 31.
Accessories : see page 34.



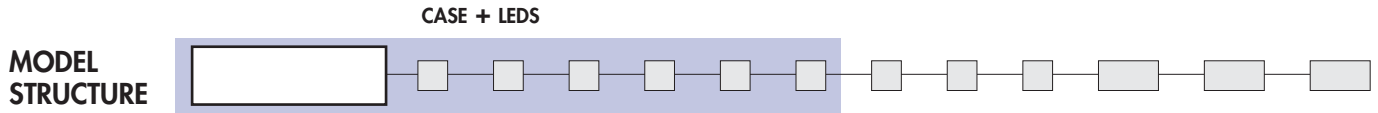
NOTICE : please note that not all combinations of above numbers are available. Refer to the following pages for further information.

KR series

Power rocker switches

Case

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



| | Single pole | Double pole | 2-3 5-6 | 1-2 4-5 |
|------|-------------|-------------|------------|------------|
| 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 |

Bottom view

10 terminal version

6 terminal version

* Function 4 : single pole in double pole case

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

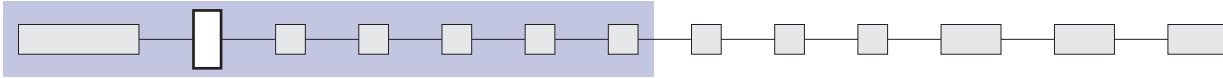
| | Positions | | |
|---------------------------|-----------|--|--|
| | | | |
| Function 1 * KR31-KR41 | | | |
| Function 5 KR35-KR45 | | | |
| Function 6 KR36-KR46 | | | |
| Function 7 KR37-KR47 | | | |

| | Positions | | |
|--------------------------|-----------|--|--|
| | | | |
| Function 8 KR38-KR48 | | | |
| Function 9 KR39-KR49 | | | |
| Function 4 KR44 | | | |
| Function 4-1R KR44-1R | | | |

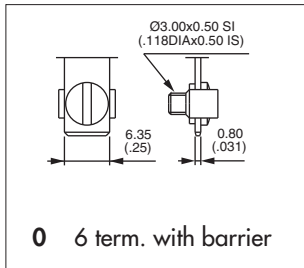
* Function 1 only available for 6 terminal versions.

TERMINALS

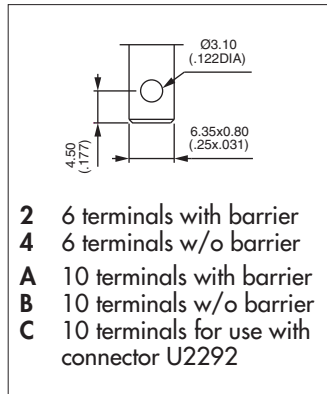
CASE + LEDS



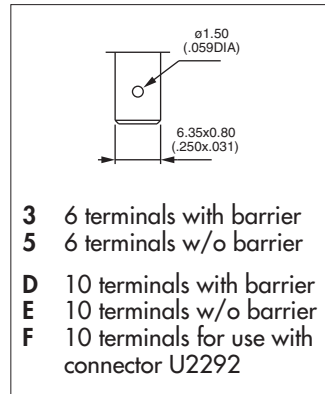
Screw



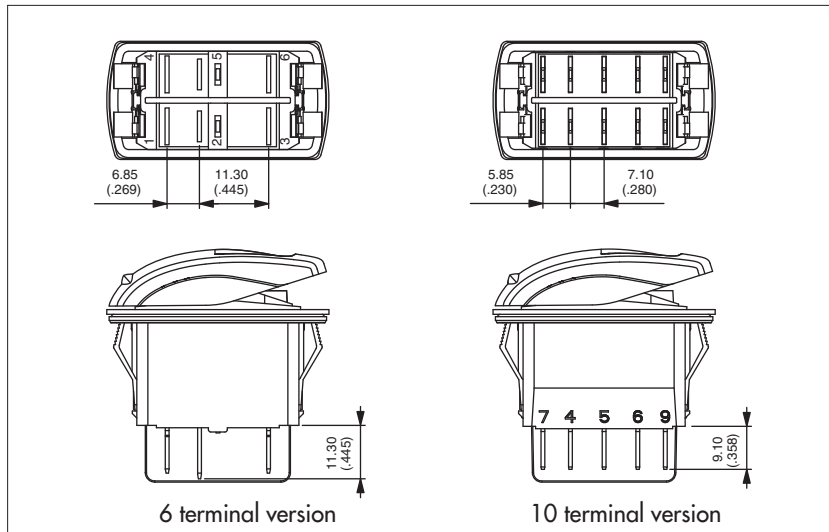
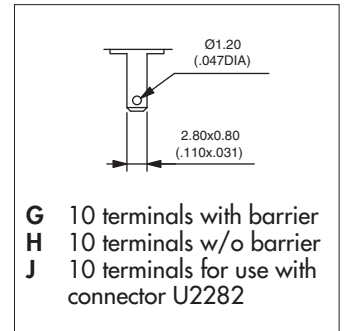
Solder lug / quick-connect



Normalized quick-connect 6,35x0,8



Normalized quick-connect 2,8x0,8

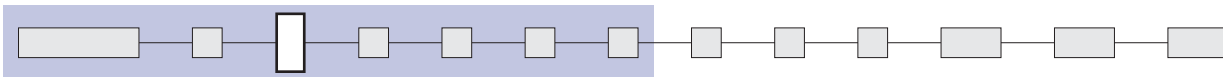


Terminals are marked on the case.

The drawings show the maximum possible number of terminals.

CONTACT MATERIALS

CASE + LEDS

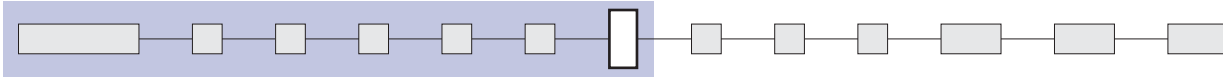


- A** Silver
D Silver, gold plated

WIRING

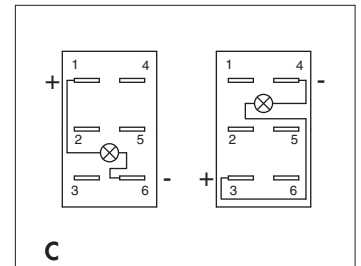
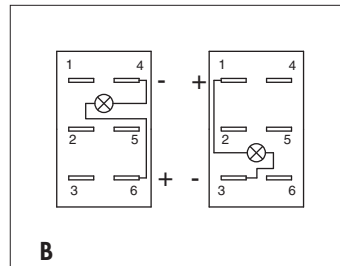
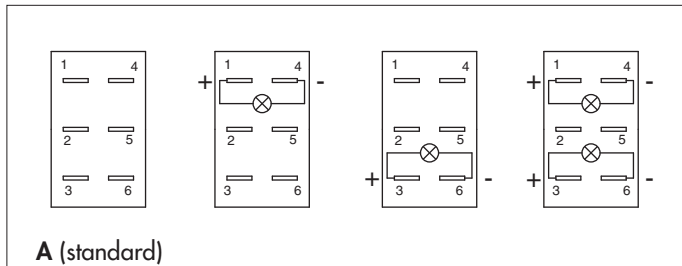
The LED wiring diagram is shown on the case.

CASE + LEDs

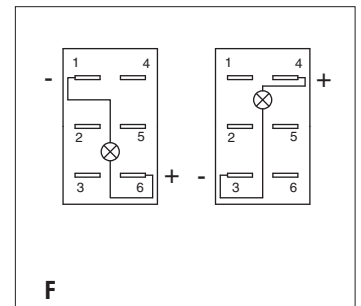
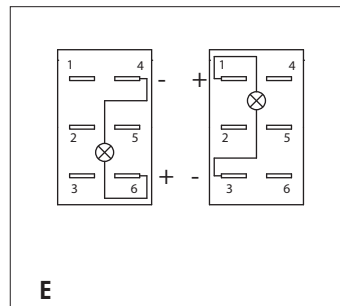
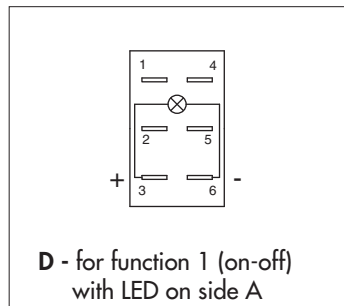


• For 6 terminal versions

LED connected to the load

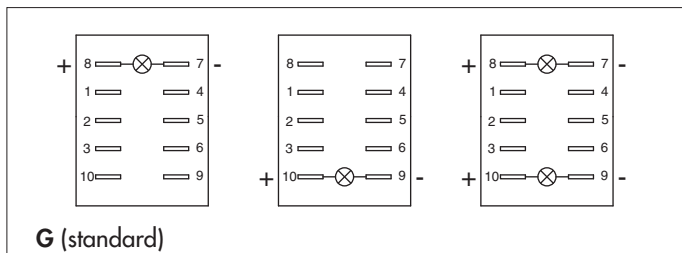


Note : If not available, terminals are added to connect the LED.

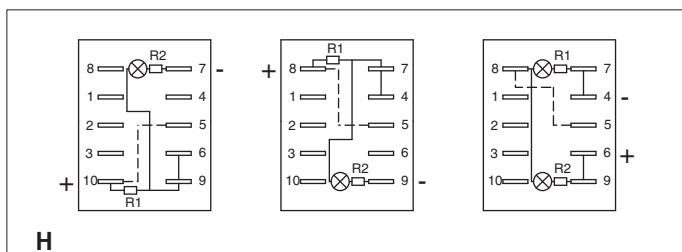


• For 10 terminal versions

Independent LED or integrated functions



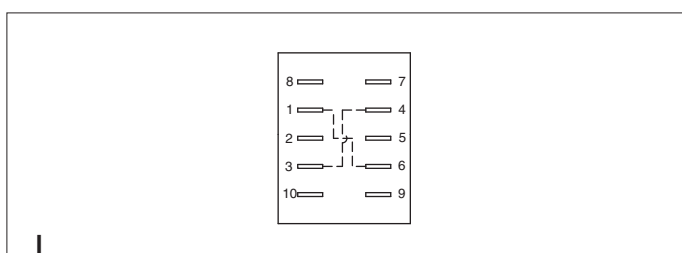
To have independent LEDs.



Available in Single Pole only, with H and J quick-connect terminals.

To obtain 2 symbol illumination levels (night illumination when OFF and higher illumination when ON).

Dotted line = external wiring, continuous line = internal wiring



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 = internal wiring, continuous line = internal wiring

Please contact us for other wiring solutions.

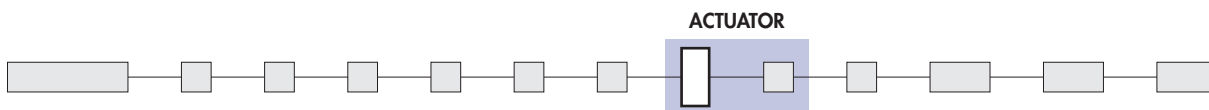
KR series

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.

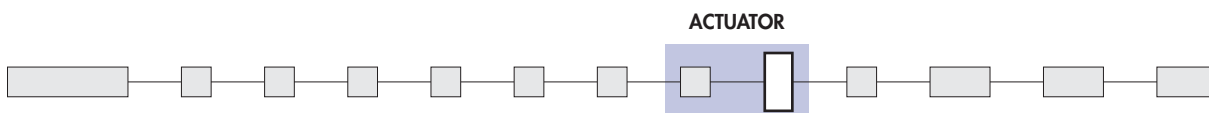
ACTUATOR TYPE



- 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 |
|------|------------------|
| 9 | Orange |
| A | Aluminium bright |

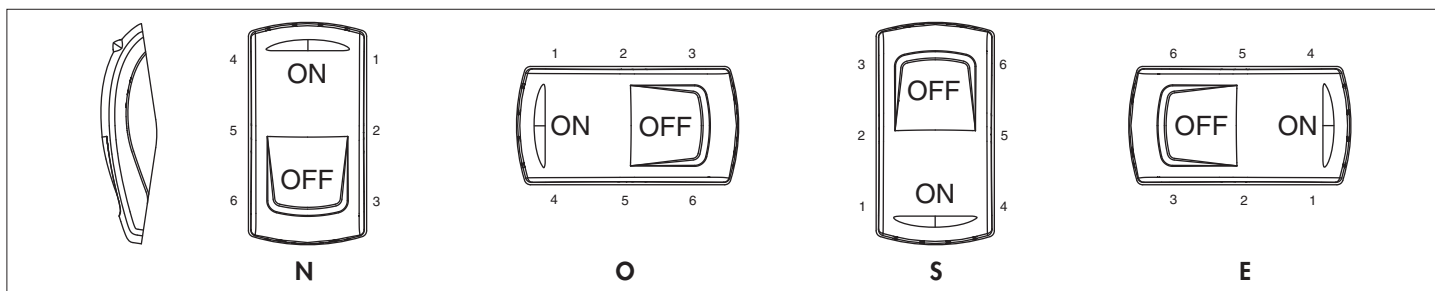
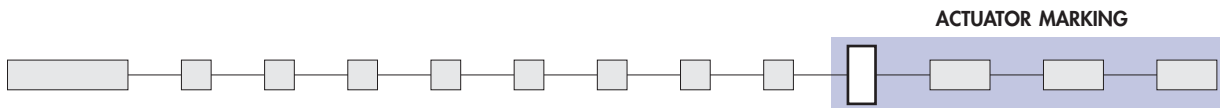
Note : colour 7 not available on illuminated versions.

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



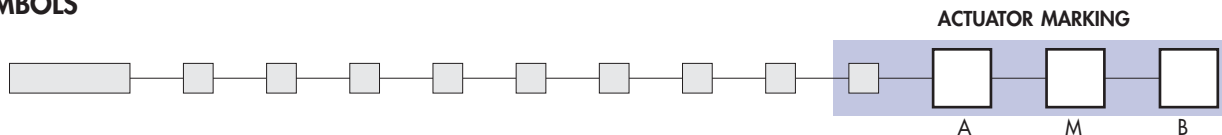
MARKING ORIENTATION

If no marking required, leave box blank.



Other orientations : on request

SYMBOLS



Available symbols : see page 31.

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.

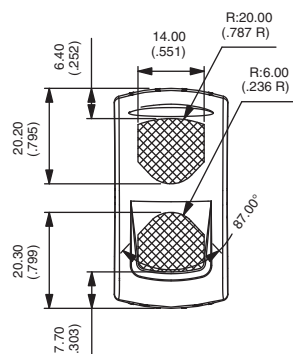
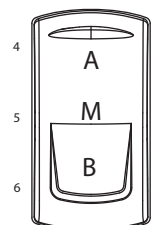
Laser etching resistance

- 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.

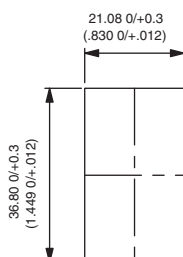
Marking in M are : on request.



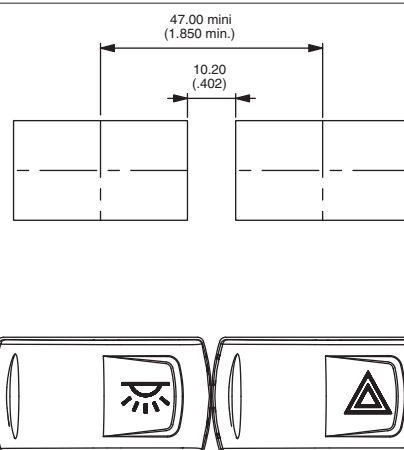
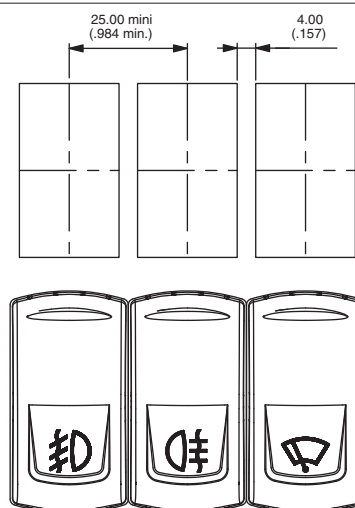
SWITCH PANEL CUT-OUT

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

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



MATRIX MOUNTING



KL series

Locking rocker switches

Distinctive features

Unlocking actuator

Each KL rocker switch includes an unlocking actuator.

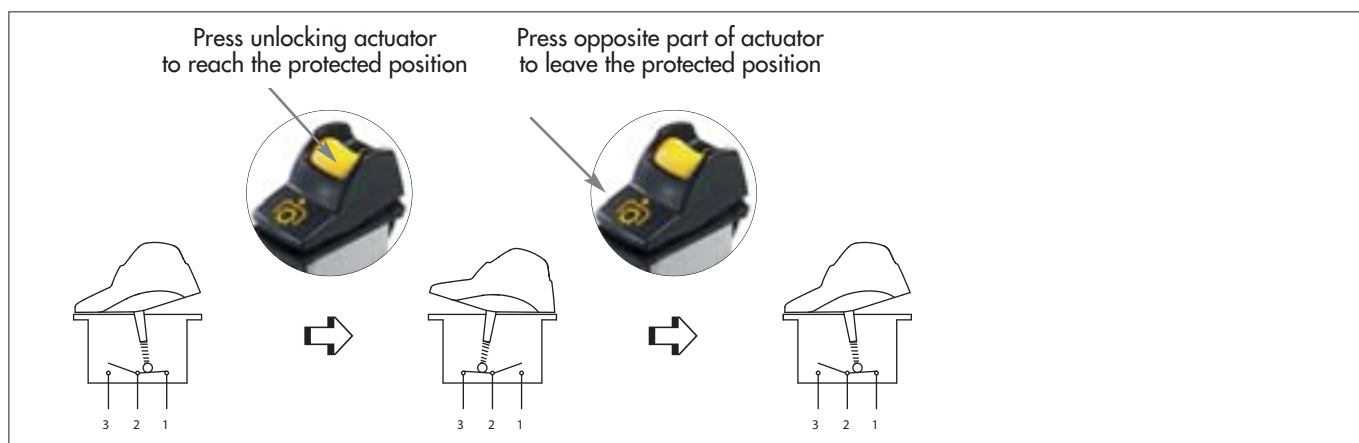
This actuator must be pressed to activate the protected function of the rocker.

Moreover, two frames protect the unlocking actuator from untimely activation.

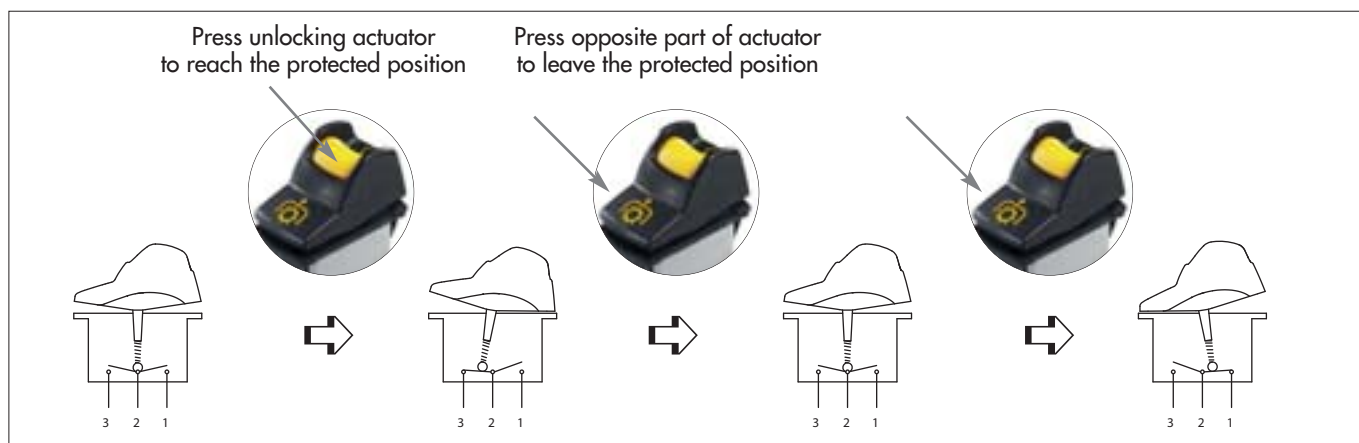
This intuitive and secured ergonomics is patented by APEM.



2 position versions (electrical functions 1, 5 and 6)



3 position versions (electrical functions 7, 8, 9 4, 4-1R)





- ☐ One protected position
- ☐ Patented intuitive ergonomics
- ☐ Wide choice of colours
- ☐ Laser etched symbols
- ☐ Illuminated or non-illuminated

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
- 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.

MATERIALS

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

ENVIRONMENTAL SPECIFICATIONS

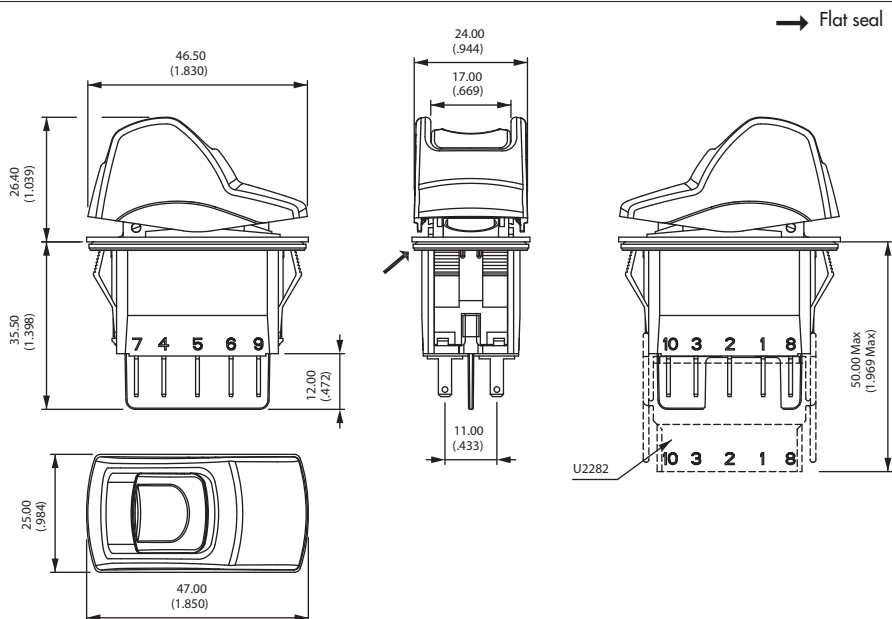
- Degree of protection of sealed versions : frontal sealing to IP68 according to IEC 60529 (submersion under 1 meter of water for more than 30 minutes)
- Salt spray resistance : 96 hours according to IEC 512-6, test 11f
- Operating temperature : -40°C to +85°C

SEALING

Sealing is optional.

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

DIMENSIONS



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

Tolerance : The general tolerance for dimensions in this brochure is $\pm 0,3$ (.012). Overall dimension tolerance is $\pm 0,5$ (.020).



Packaging unit : 40 pieces

Dimensions, specifications and data shown in this brochure are subject to change without notice.

KL series

Locking rocker switches

Selection guide

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

CASE + LEDS

| | | | | | | | |
|--|---|--|---|--|--|--|-----------------------|
| KL | | | | | | Side B | |
| SERIES | Electrical functions | | Contacts | | Sealing | LEDS | Wiring |
| Poles 3 Single pole 4 Double pole | 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 diagrams page 18. |
| | | | 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 | Rocker colour | Unlocking actuator colour |
| 1 For non-illum. 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 | 1 Blue 1/4 Dark blue 2 Black 3 Green 4 Grey 5 Yellow 6 Red 7 Ivory 9 Orange |

ACTUATOR MARKING

| | | | |
|--|----------------|--------|--|
| | Area A | Area B | |
| Orientation | Symbols | | Marking colour |
| | | | Illuminated models Blank White Non-illuminated 1 Blue 2 Black 3 Green 4 Grey 5 Yellow 6 Red 7 White 9 Orange |
| Symbols : see page 31. Accessories : see page 34. | | | |



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

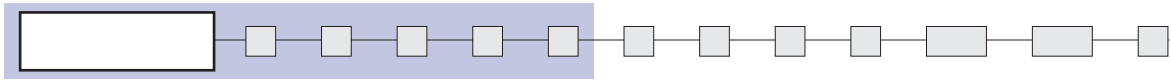
KL series

Locking rocker switches

Case

MODEL STRUCTURE

CASE + LEDS



Single pole
KL31

Double pole
KL41
KL44*
KL44-1R*

KL35
KL36
KL37
KL38
KL39

2-3
5-6

1-2
4-5

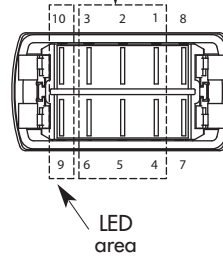
ON - OFF
ON ON ON
ON ON MOM
MOM - ON
ON - ON
MOM OFF MOM
ON OFF MOM
ON OFF ON

* Function 4 : single pole in double pole case

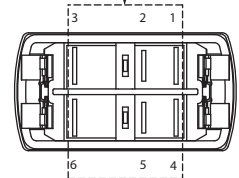
Bottom view

Contact area

Contact & LED area



10 terminal version



6 terminal 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 | |
|---------------------------|-------------|--|
| | | |
| 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 | | | |

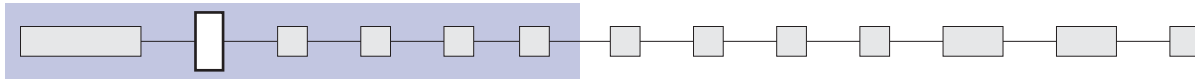
KL series

Locking rocker switches

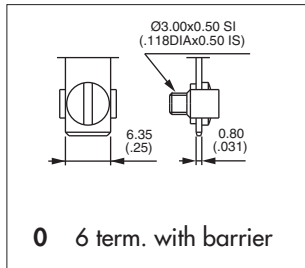
Case

TERMINALS

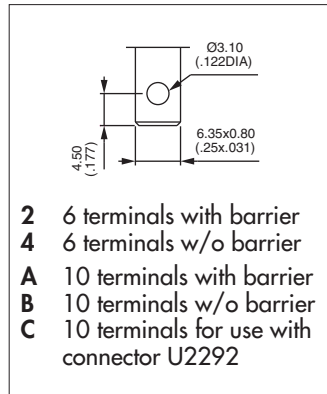
CASE + LEDS



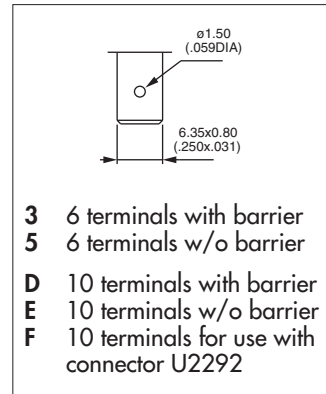
Screw



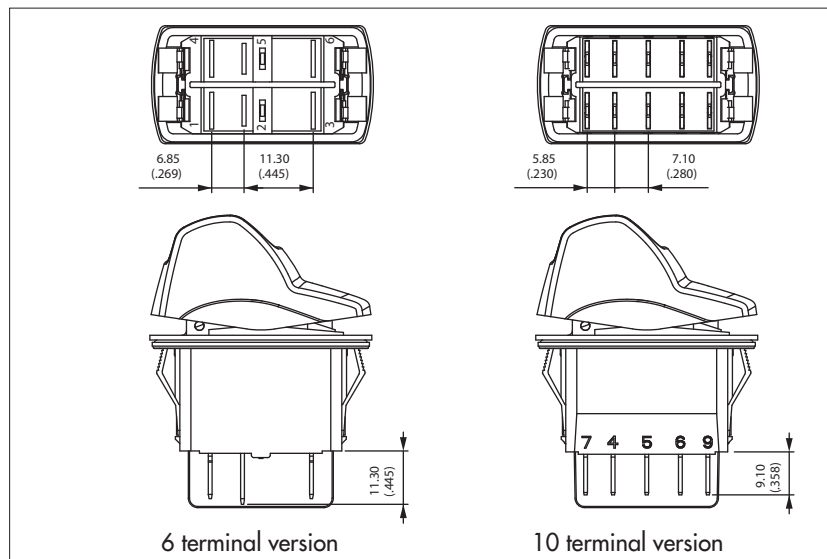
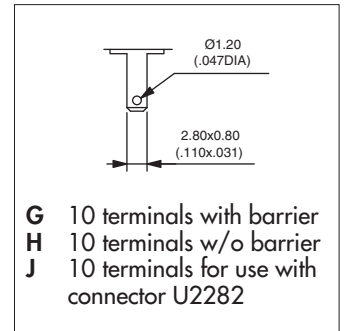
Solder lug / quick-connect



Normalized quick-connect 6,35x0,8



Normalized quick-connect 2,8x0,8

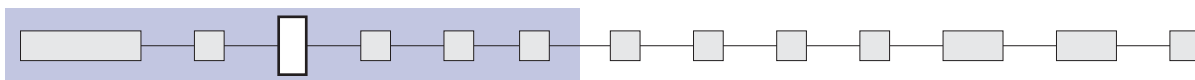


Terminals are marked on the case.

The drawings show the maximum possible number of terminals.

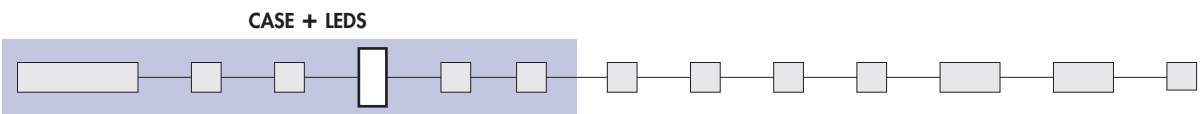
CONTACT MATERIALS

CASE + LEDS



- A Silver
- D Silver, gold plated

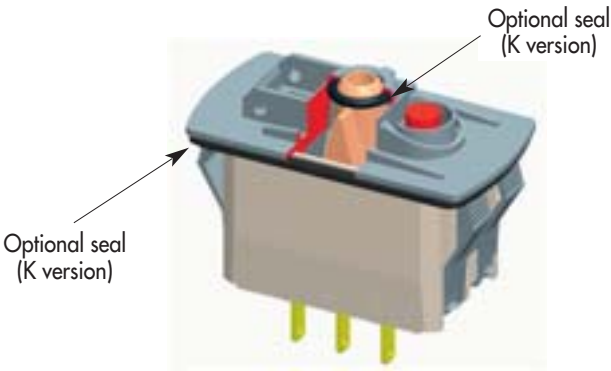
SEALING



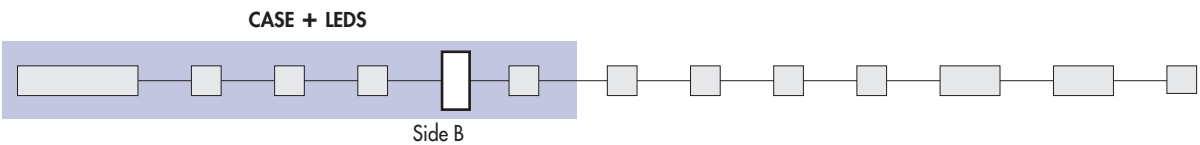
- X No sealing
- K IP68 (switch assembled on panel)

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

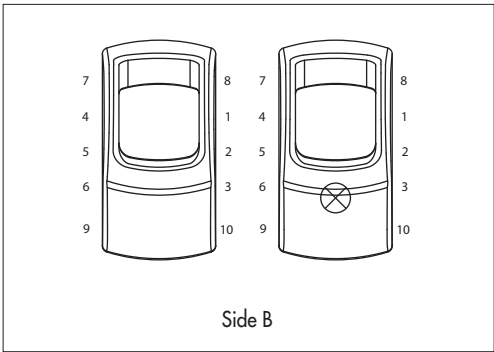


Complete enlarged box with one of the codes listed below.

- X Without LED

| | Red | Green | Yellow | Blue | White |
|-------|-----|-------|--------|------|-------|
| 6VDC | A | B | C | M | R |
| 12VDC | D | E | F | N | S |
| 24VDC | J | K | L | P | T |

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



KL series

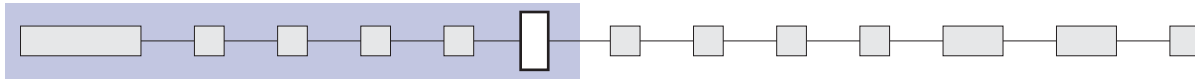
Locking rocker switches

Case - LED

WIRING

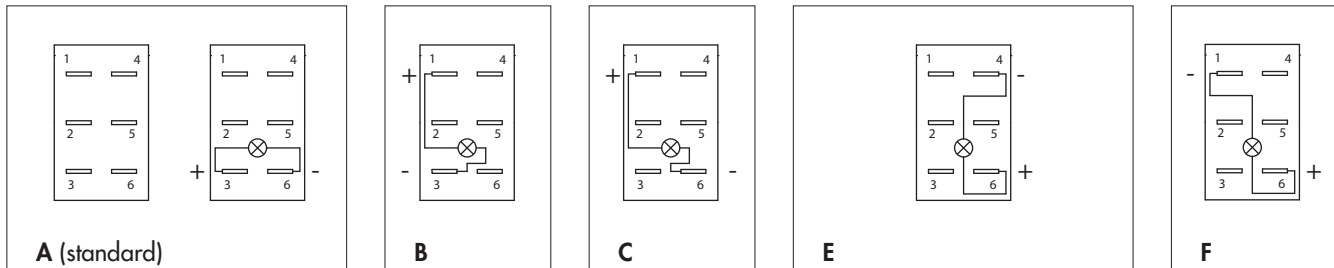
The LED wiring diagram is shown on the case.

CASE + LED



• For 6 terminal versions

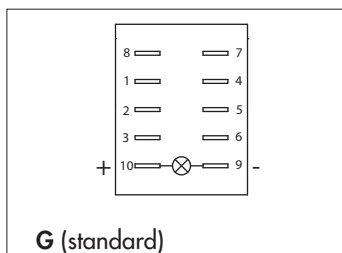
LED connected to the load



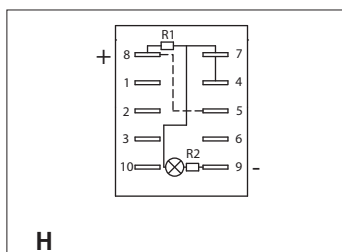
Note : If not available, terminals are added to connect the LED.

• For 10 terminal versions

Independent LED or integrated functions

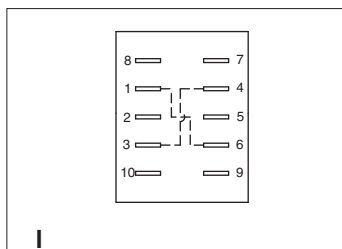


To have independent LED.



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.

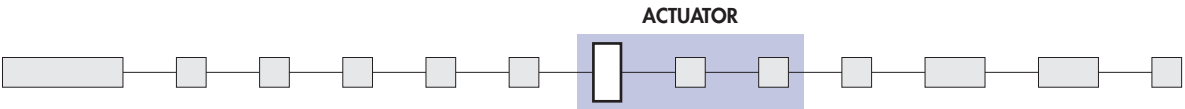


To have a polarity inversion (typical application : fan motor).
Dotted line = internal wiring, continuous line = internal wiring

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

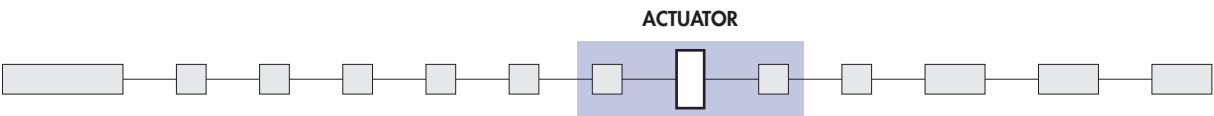
Please contact us for other wiring solutions.

ACTUATOR TYPE



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

ROCKER COLOUR



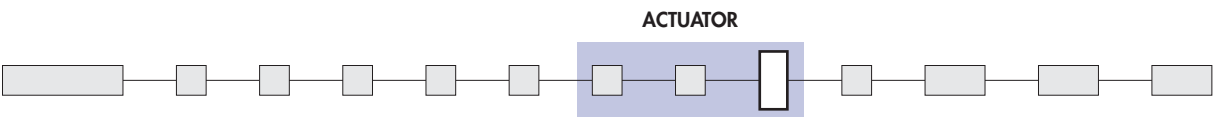
| Code | Colour |
|------|-----------|
| 1 | Blue |
| 1/4 | Dark blue |
| 2 | Black |

| Code | Colour |
|------|--------|
| 3 | Green |
| 4 | Grey |
| 5 | Yellow |

| Code | Colour |
|------|--------|
| 6 | Red |
| 7 | Ivory |
| 9 | Orange |

Note : colour 7 not available on illuminated versions

UNLOCKING ACTUATOR COLOUR



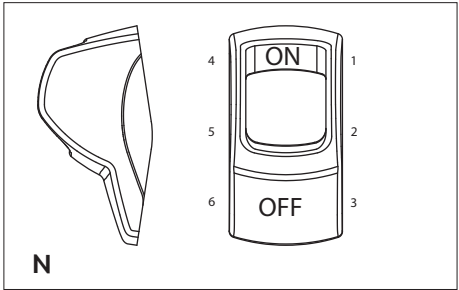
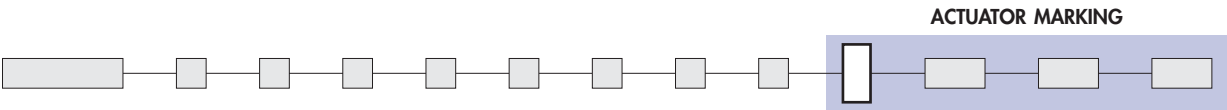
| Code | Colour |
|------|-----------|
| 1 | Blue |
| 1/4 | Dark blue |
| 2 | Black |

| Code | Colour |
|------|--------|
| 3 | Green |
| 4 | Grey |
| 5 | Yellow |

| Code | Colour |
|------|--------|
| 6 | Red |
| 7 | Ivory |
| 9 | Orange |

MARKING ORIENTATION

If no marking required, leave box blank.



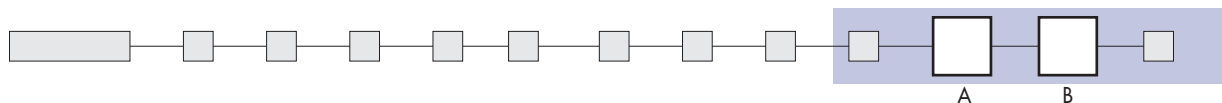
Other orientations : on request

KL series

Locking rocker switches

Marking - Mounting

SYMBOLS

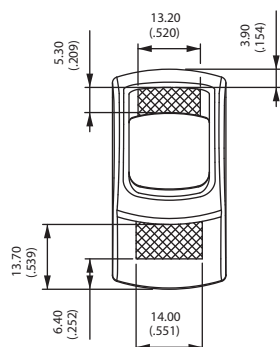
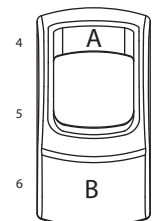


Available symbols : see page 31.

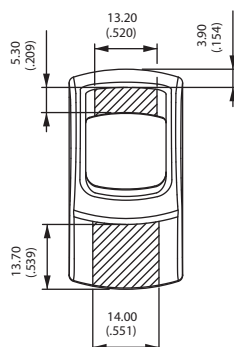
Laser etching resistance

- 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.

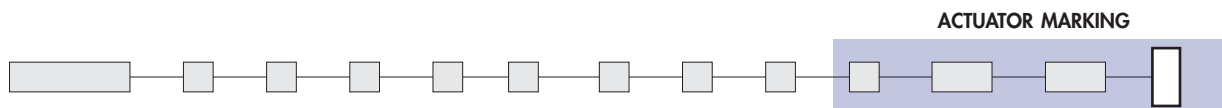


For illuminated versions



For non-illuminated versions

MARKING COLOUR



Illuminated models (laser etching)

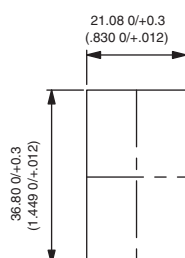
Blank White

Non-illuminated models (pad printing)

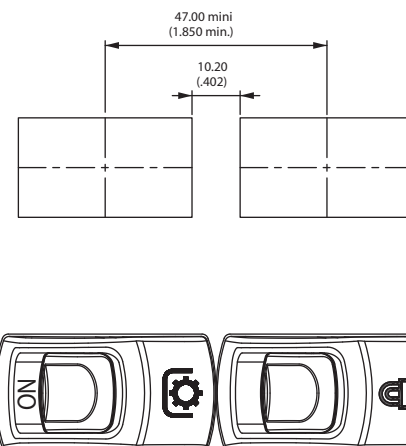
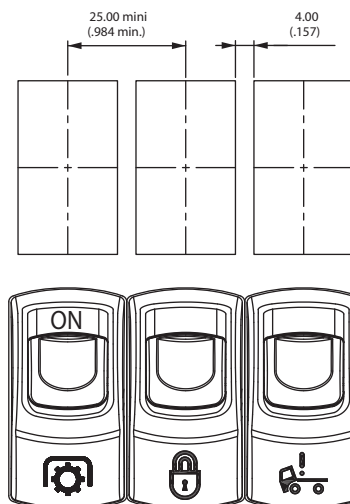
1 : Blue - 2 : Black - 3 : Green - 4 : Grey - 5 : Yellow - 6 : Red - 7 : White - 9 : Orange

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





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

ELECTRICAL SPECIFICATIONS

- Operating voltage : 6VDC, 12VDC or 24VDC
- Nominal current : 20mA per LED

ENVIRONMENTAL SPECIFICATIONS

- Degree of protection of sealed versions : frontal sealing to IP68 according 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
- Operating temperature : -40°C to +85°C

MATERIALS

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

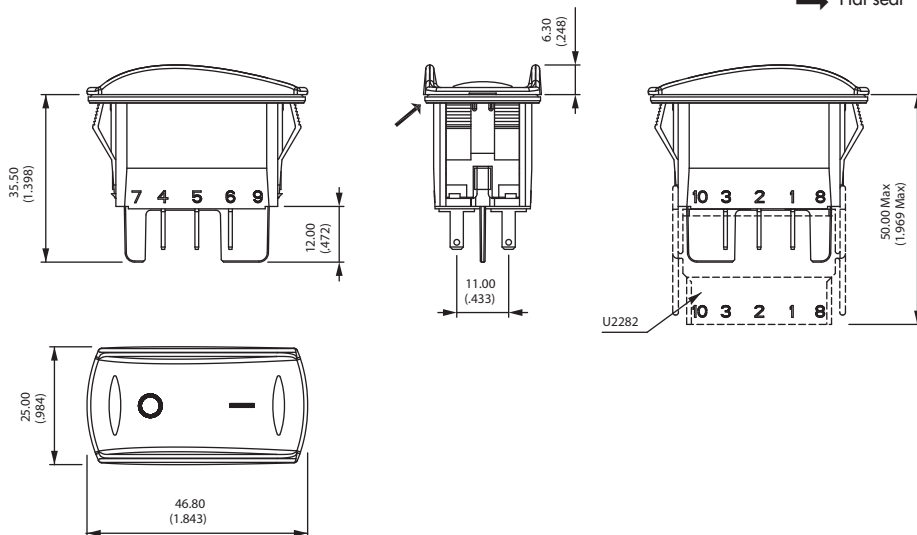
SEALING

Sealing is optional.

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

DIMENSIONS

→ Flat seal



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

Tolerance : The general tolerance for dimensions in this brochure is $\pm 0,3$ (.012). Overall dimension tolerance is $\pm 0,5$ (.020).

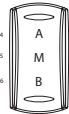
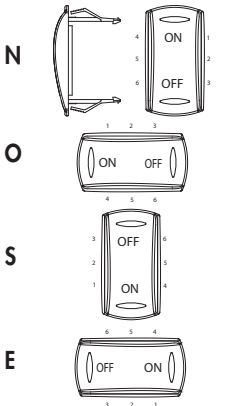


Packaging unit : 40 pieces

KI series

LED indicators

Selection guide

| KI | | Side A | Side M | Side B | | | Side A | Side M | Side B | | |
|---------------|----------------|---------------------|------------------|------------------|-----------------------------|--|---|--------|--------|--|--|
| SERIES | Colours | LEDS | | | Type of illumination | | Symbols | | | Sealing | |
| 1 Blue | 1/4 Dark blue | X None | A LED 6V red | B LED 6V green | X Standard | |  | | | X No K Yes | |
| 2 Black | 3 Green | C LED 6V yellow | M LED 6V blue | R LED 6V white | S Super bright | | | | | | |
| 4 Grey | 5 Yellow | D LED 12V red | E LED 12V green | F LED 12V yellow | | | Marking orientation  | | | Terminals with barrier C Solder lug / quick-connect F Quick-connect 6,35 J Quick-connect 2,8 | |
| 6 Red | 9 Orange | 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 | | | | | | | | | |
| | | DC voltage standard | | | | | | | | | |

On request : 48VDC voltage - AC voltage - new design

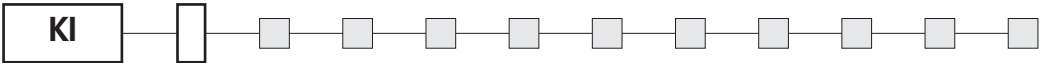
Symbols : see page 31.

Accessories : see page 34.



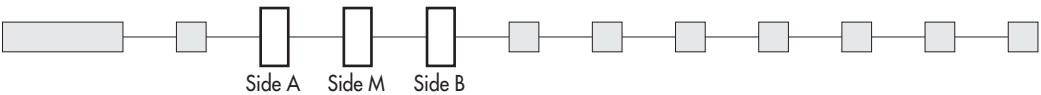
NOTICE : please note that not all combinations of above numbers are available. Refer to the following pages for further information.

BEZEL COLOUR



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

LEDS

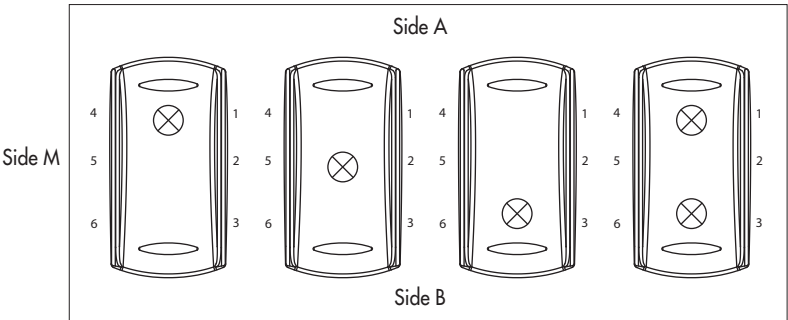


Complete each enlarged box with one of the codes listed below.

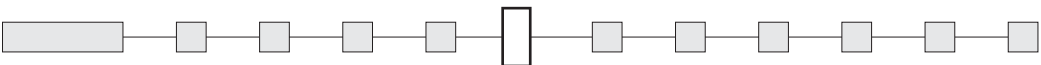
X Without LED

| | Red | Green | Yellow | Blue | White |
|-------|-----|-------|--------|------|-------|
| 6VDC | A | B | C | M | R |
| 12VDC | D | E | F | N | S |
| 24VDC | J | K | L | P | T |

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

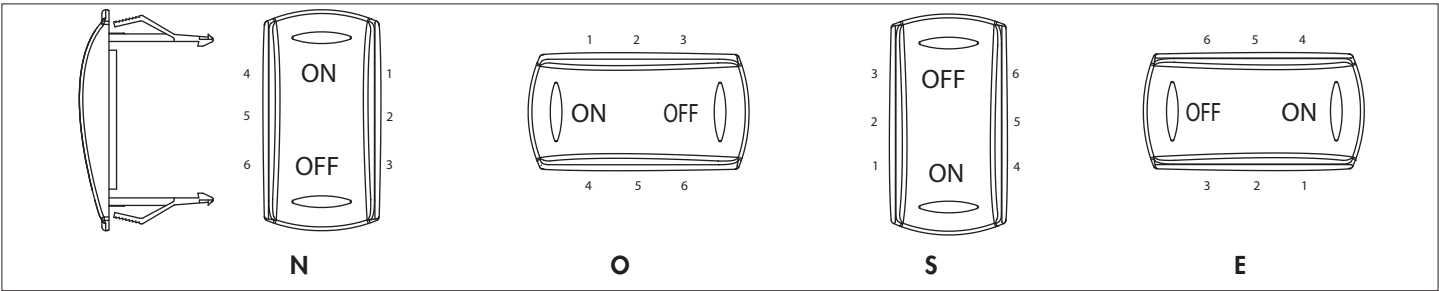
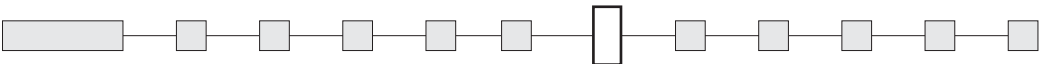


TYPE OF ILLUMINATION



X Standard
S Super bright

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

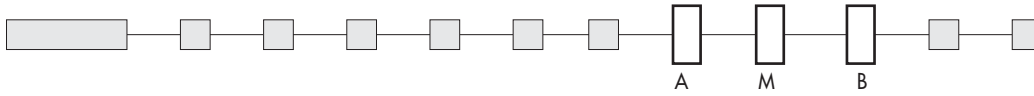


KI series

LED indicators

Marking - Terminals

SYMBOLS



Available symbols : see page 31.

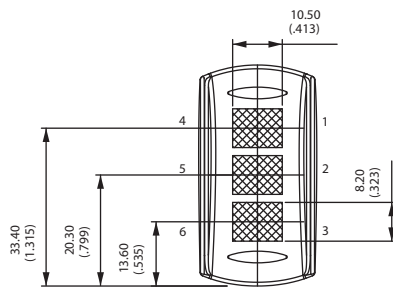
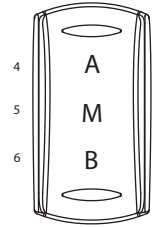
Marking colour

White (laser etching)

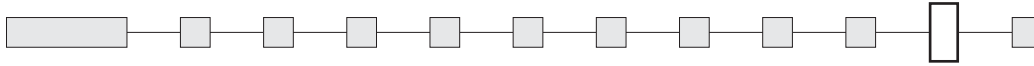
Laser etching resistance

- 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.



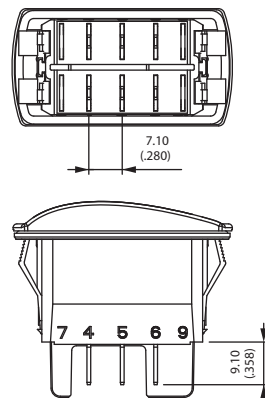
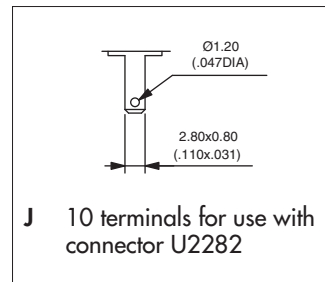
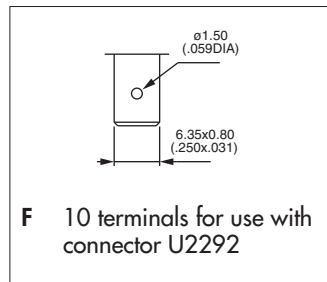
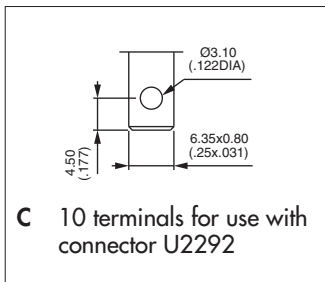
TERMINALS (WITH BARRIER)



Solder lug / quick-connect

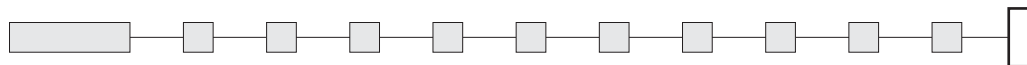
Normalized quick-connect 6,35x0,8

Normalized quick-connect 2,8x0,8



Terminals are marked on the case.

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.*

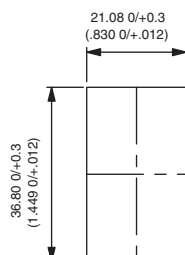
Optional seal
(K version)



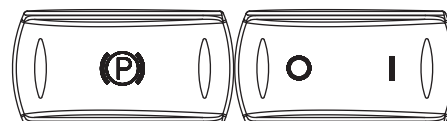
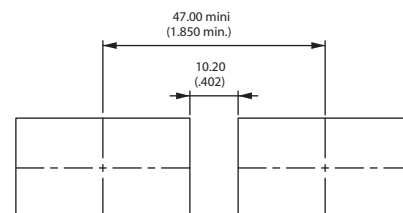
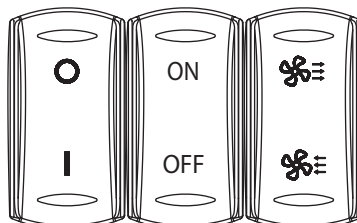
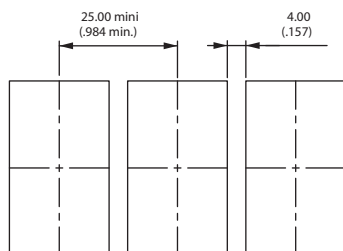
SWITCH PANEL CUT-OUT

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

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



MATRIX MOUNTING



KG series

Power rocker switches

Distinctive features and specifications



- ☐ Protected rocker
- ☐ Illuminated or non-illuminated
- ☐ VDE (EN 61058-1) approved
- ☐ Sealed to IP65

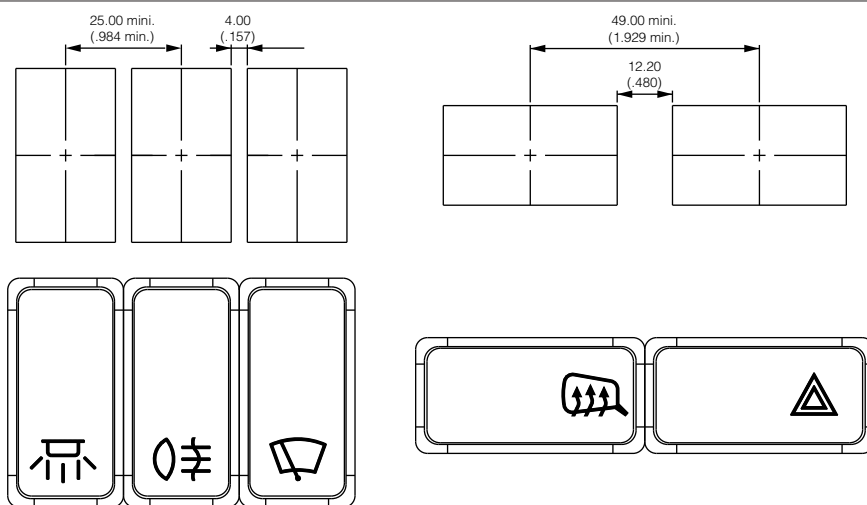
ELECTRICAL SPECIFICATIONS

- Current/voltage rating :
 - functions 1 (ON-OFF) and 6 (ON-ON) : 15A 12VDC, 10A 24VDC, 15A 250VAC max., 10mA 14VDC min.
 - functions 4 (ON ON ON) and 4-1R (ON ON MOM) : 8A 12VDC, 5A 24VDC, 8A 250VAC max.
 - other functions : 10A 12VDC, 8A 24VDC, 10A 250VAC max.
- VDE approved ratings : 12(4)A 250VAC, T85/55°C
- Initial contact resistance : 10 mΩ max. at 1A 2VDC
- Insulation resistance : 1.000 MΩ min. at 500VDC
- 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.

ENVIRONMENTAL SPECIFICATIONS

- Degree of protection : IP65
- 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
3 position models : -10°C to + 65°C

MATRIX MOUNTING



MATERIALS

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

AGENCY APPROVAL



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.

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

Tolerance : The general tolerance for dimensions in this brochure is $\pm 0,3$ (.012). Overall dimension tolerance is $\pm 0,5$ (.020).



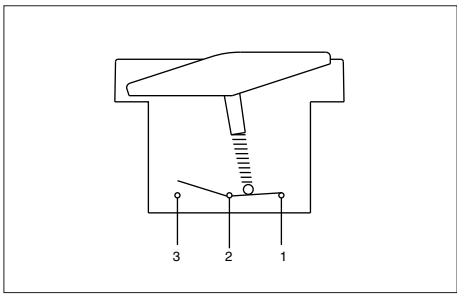
Packaging unit : 40 pieces

Dimensions, specifications and data shown in this brochure are subject to change without notice.

KG series

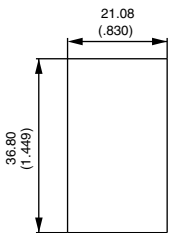
Power rocker switches

Case

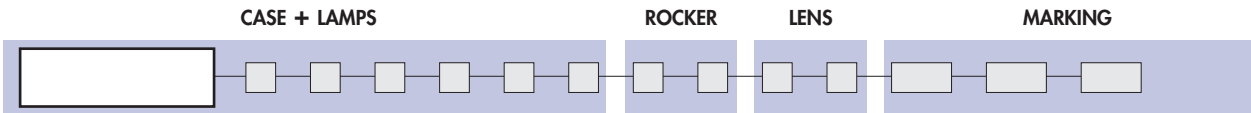


PANEL CUT-OUT

Panel thickness :
0,8 mm to 4,6 mm
Recommended thickness :
between 2 mm and 3,5 mm

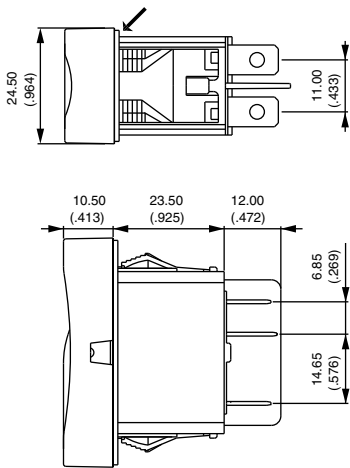


MODEL STRUCTURE

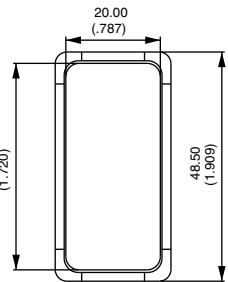


| Single pole | Double pole |
|-------------|-------------|
| KG31 | KG41 |
| | KG44* |
| | KG44-1R* |
| KG35 | KG45 |
| KG36 | KG46 |
| KG37 | KG47 |
| KG38 | KG48 |
| KG39 | KG49 |

| 2-3 5-6 | 1-2 4-5 |
|------------|------------|
| ON | - OFF |
| ON | ON ON |
| ON | ON MOM |
| MOM | - ON |
| ON | - ON |
| MOM | OFF MOM |
| ON | OFF MOM |
| ON | OFF ON |

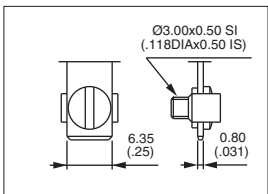
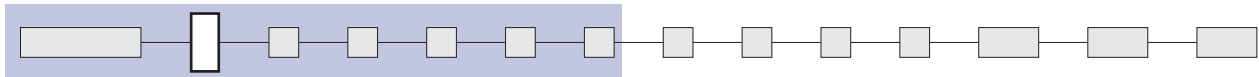


→ Flat seal

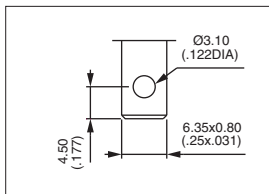


* Function 4 : single pole in double pole case

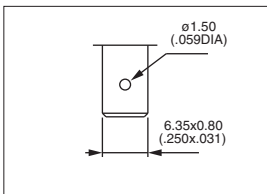
TERMINALS



Screw



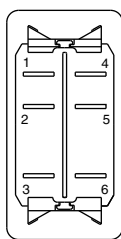
Solder lug / quick-connect



Quick-connect

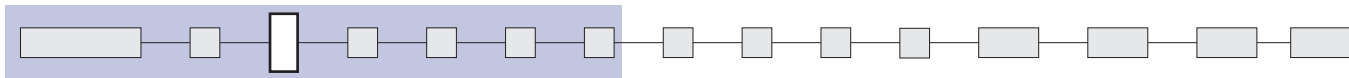
Terminals 1 to 6
are marked on the case.

Side A : terminals 1 and 4
Side B : terminals 3 and 6



Side B

CONTACT MATERIALS



A

Silver grain

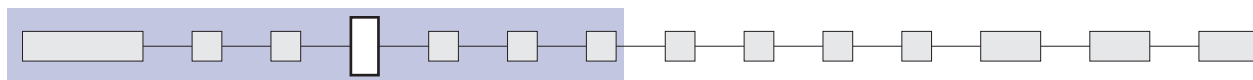
Functions ON-OFF and ON-ON : 15A 12VDC , 10A 24VDC, 15A 250VAC max. - 10mA 14 VDC min.
Other functions : 10A 12VDC, 8A 24VDC, 10A 250VAC max.

KG series

Power rocker switches

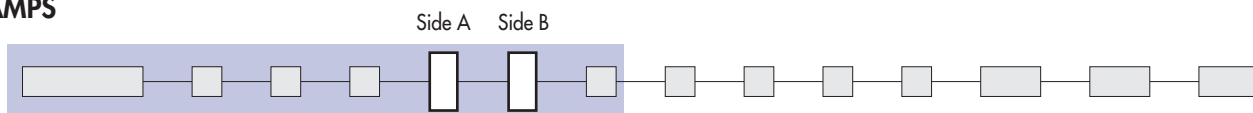
Lamps

BEZEL



2 Black, sealed to IP65

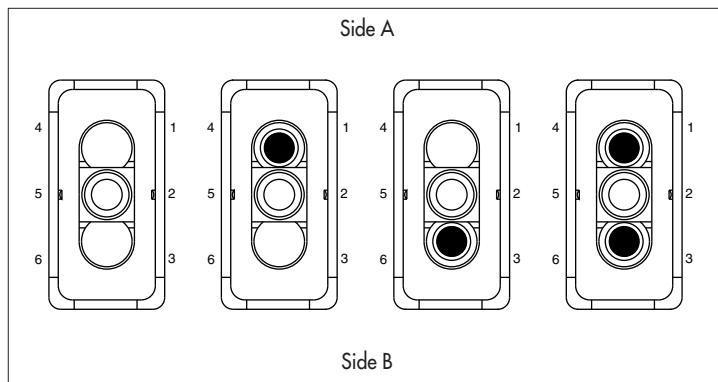
LAMPS



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

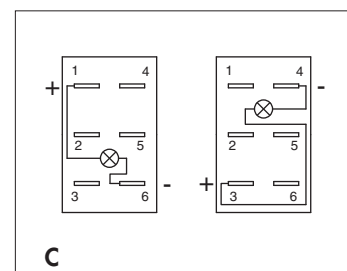
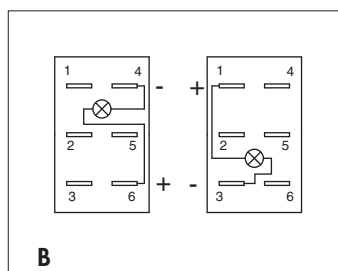
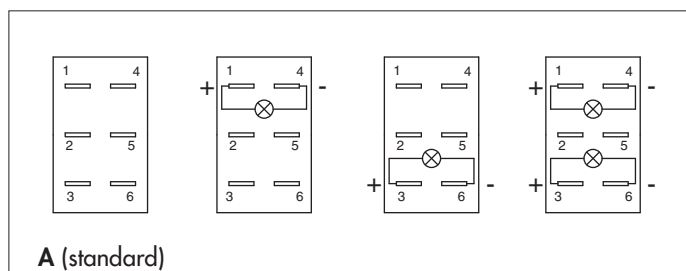
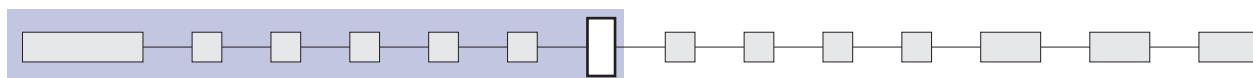
| | |
|---|----------------|
| X | Without lamp |
| A | 6V LED red |
| B | 6V LED green |
| C | 6V LED yellow |
| D | 12V LED red |
| E | 12V LED green |
| F | 12V LED yellow |
| G | 18V LED red |
| H | 18V LED green |
| I | 18V LED yellow |

| | |
|---|------------------|
| J | 24V LED red |
| K | 24V LED green |
| L | 24V LED yellow |
| M | Neon 125V |
| N | Neon 250V |
| O | Filament 6V |
| P | Filament 12V |
| R | Filament 24V |
| S | Fluorescent 220V |
| T | Fluorescent 110V |

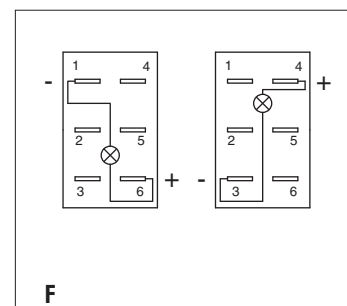
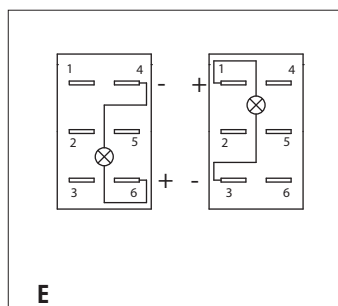
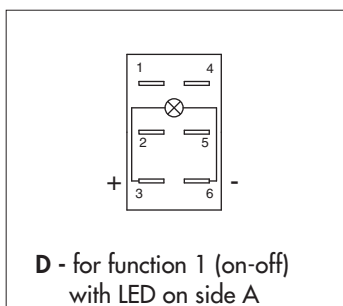


LAMP WIRING

The lamp wiring diagram is shown on the case.

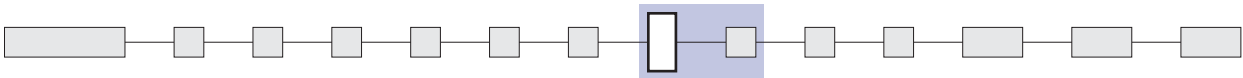


Note : If not available, terminals are added to connect the LED.



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

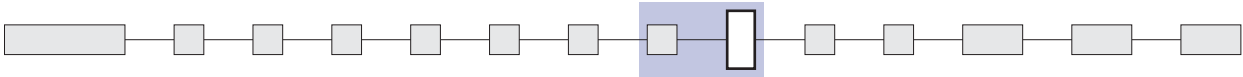
ROCKER COLOUR



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

| | |
|---|--------|
| 5 | Yellow |
| 6 | Red |
| 7 | Ivory |
| 9 | Orange |

ROCKER SHAPE



Full rocker



Opening on side A



Opening on side B

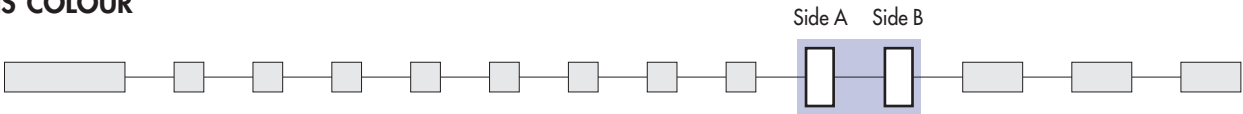


Opening on sides A and B

Other rocker shapes on customer specifications : on request.

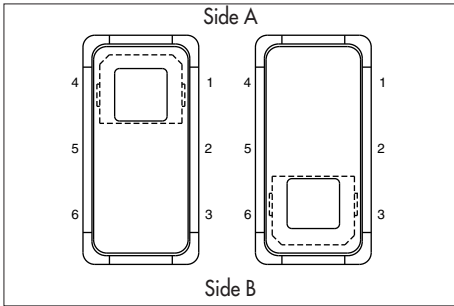
To order rocker only (without case), begin the order number with code KGR, then follow the order format from "rocker colour" until the end of the options.

LENS COLOUR



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 |



* Blue or green lens recommended with fluorescent lamp.

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 colour" until the end of the options.

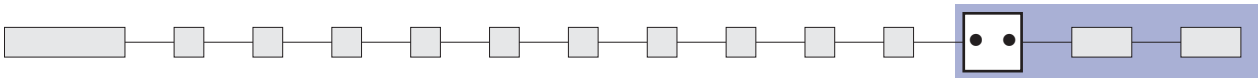
KG series

Power rocker switches

Marking

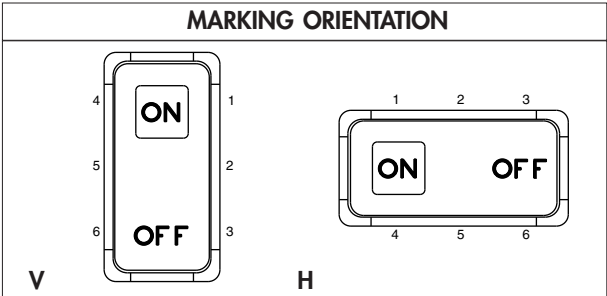
MARKING

If no marking required, leave all boxes blank.



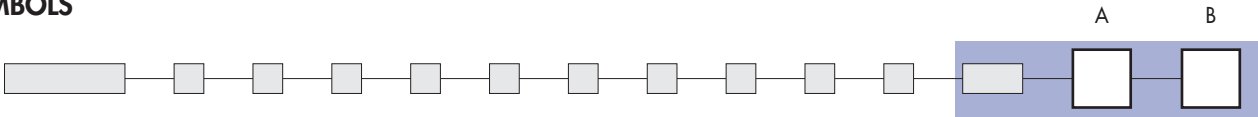
Select one option from each of the tables below.

| MARKING METHOD | |
|----------------|--------------|
| C | Hot stamping |



Other orientations :
on request

SYMBOLS



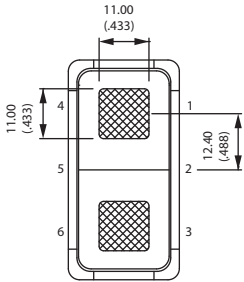
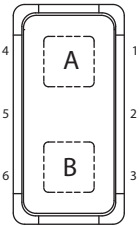
Available symbols : see page 31.

Marking colour

White marking for black rockers - Black marking for colour rockers
Other : on request.

Marking area

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



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 |
|------|--------|------------------------|
| 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 (0089) |
| 36 | ☀ | Combine, direction of movement (1678) |
| 37 | ☀ | Use no forks (2406) |
| 38 | ☀ | Transmission (1166) |
| 39 | ☀ | Working spot light (1145) |
| 40 | ☀ | Engine (0634) |
| 41 | ☀ | Horn (0244) |
| 42 | ☀ | Lock (1656) |
| 43 | ☀ | Taxi sign light (2551) |
| 44 | ☀ | Working light (1024) |
| 45 | ☀ | Working light symmetric (1024) |
| 46 | ☀ | - |
| 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 |
|------|---|---------------------------|
| 48 |  | All wheel drive |
| 49 |  | Differential lock (1662) |
| 50 |  | - |
| 51 |  | - |
| 52 |  | - |
| 53 | N | - |
| 54 |  | Rear window wiper (0097) |
| 55 |  | Rear window washer (0099) |
| 56 |  | Lower load (2223) |
| 57 |  | Cab lock (1560) |
| 58 |  | Extraction |
| 59 |  | Pumping in |
| 60 |  | Rear PTO (1572) |
| 61 |  | Front PTO |
| 62 |  | Rockshaft down |
| 63 |  | Rockshaft up |

| CODE | SYMBOL | DESCRIPTION |
|------|---|--------------------------|
| 64 |  | Indicator |
| 65 |  | Brake release |
| 66 |  | Baggage room left door |
| 67 |  | Baggage room right door |
| 68 |  | Power blinds |
| 69 |  | Engine idle control |
| 70 | CRUISE RES/SET | Cruise res/set |
| 71 |  | Driver windows up/down |
| 72 |  | Middle door opening |
| 73 |  | Front door opening |
| 74 |  | Lighting in baggage room |
| 75 | CRUISE ON/OFF | Cruise on/off |
| 76 | TV | TV |
| 77 |  | Pump |
| 78 | WC | Toilet |
| 79 |  | Toilet decontamination |

| CODE | SYMBOL | DESCRIPTION |
|------|---|--------------------------|
| 80 |  | Front windshield heating |
| 81 | AUS | Aus |
| 82 |  | Radiator fan |
| 83 |  | Remove retarder |
| 84 |  | Restricted speed |
| 85 |  | Preheater |
| 86 |  | ABS detection |
| 87 |  | ECAS detection |
| 88 |  | Engine stop |
| 89 | CRUISE RES/CAN | Cruise res/cancel |
| 90 |  | ECAS reset |
| 91 |  | Driver windows heating |
| 92 | CRUISE SET+/SET- | Cruise set |
| 93 |  | Air bag up/down |
| 94 |  | Read lighting |
| 95 |  | Lighting main switch |

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 |
|------|---|------------------------------|
| 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 |  | - |

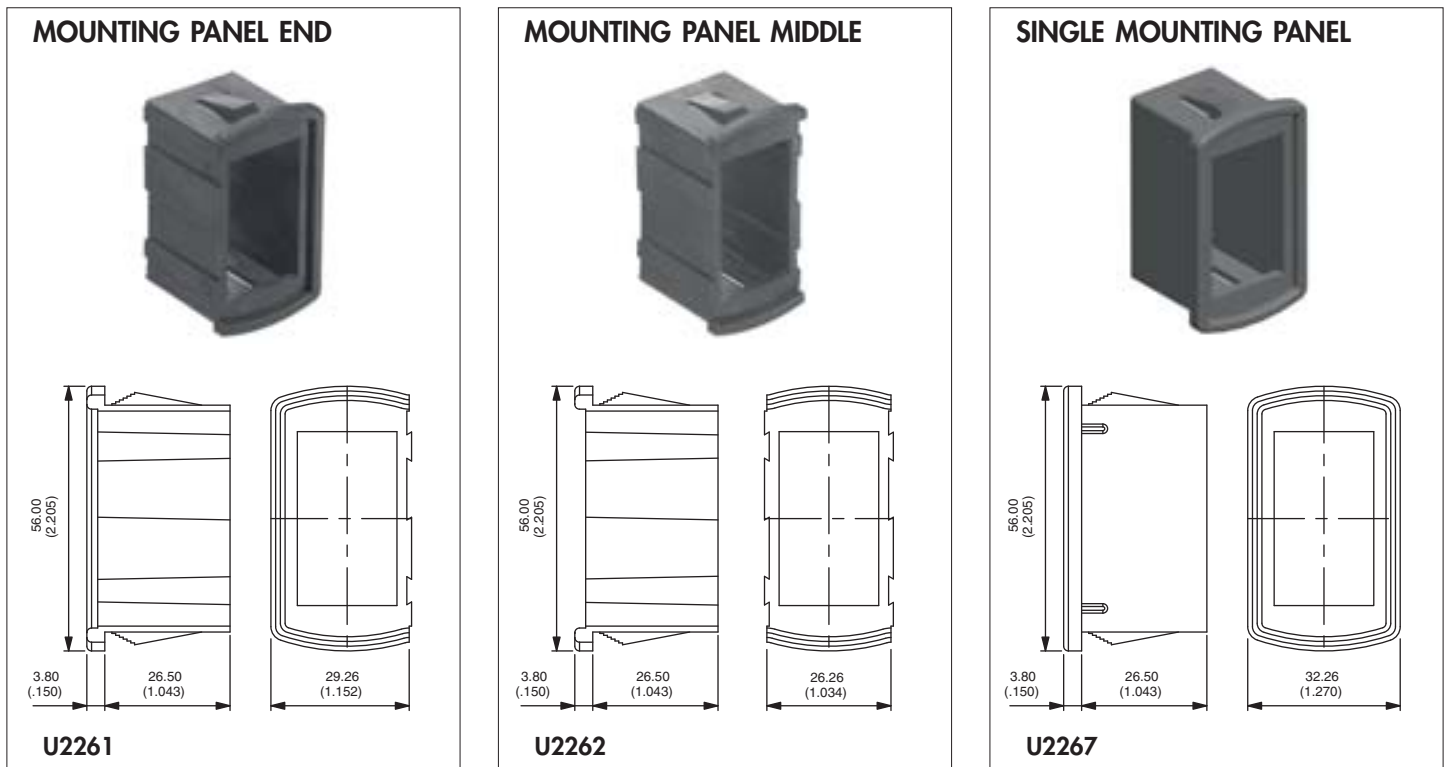
| CODE | SYMBOL | DESCRIPTION |
|------|---|---|
| AD |  | - |
| AE |  | - |
| AF |  | - |
| AG |  | Battery charging condition (0247) |
| AH |  | Turn signals (0084) |
| AJ |  | High beam (0082) |
| AK |  | Differential lock, bogie (2600) |
| AL |  | Brushing with a rotating brush (0070) |
| AM |  | 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 |  | - |

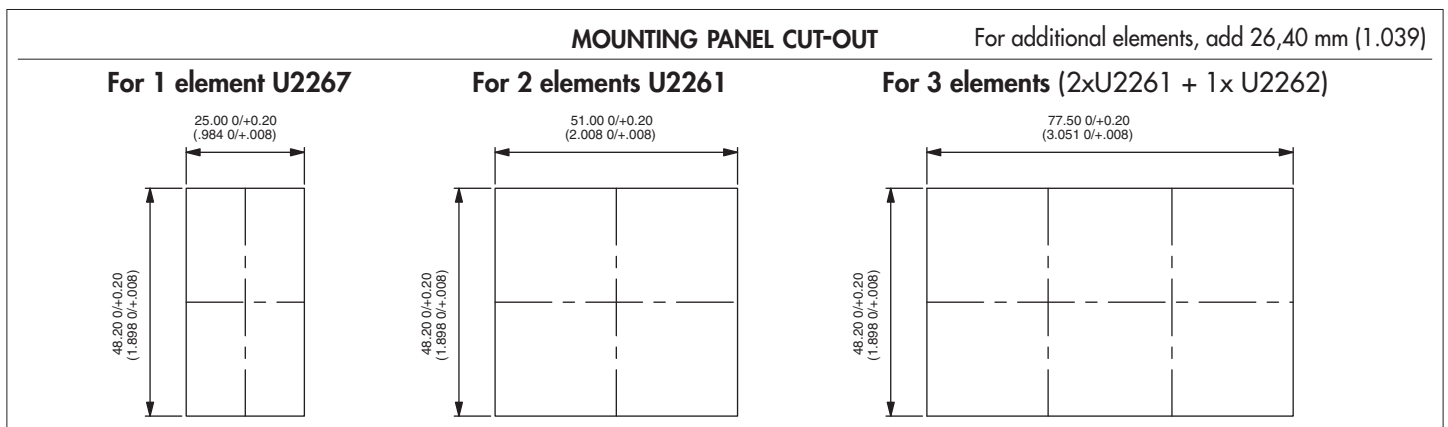
K range

Power rocker switches and indicators

Accessories for KR, KL and KI series



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



ACTUATOR REMOVING TOOL



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

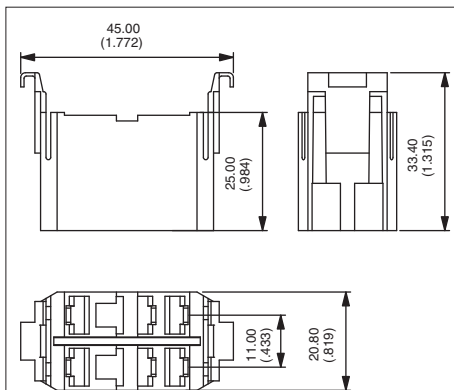
Standard colour : black. Other colours : on request.
Connectors cannot be combined with wiring types H and I.



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.



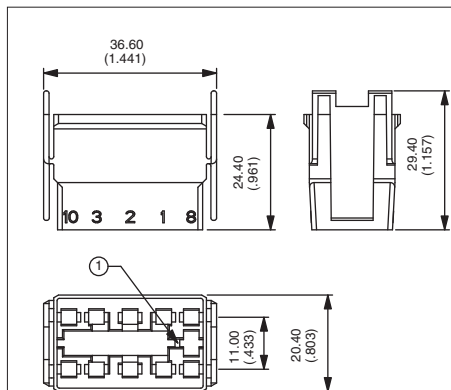
U2260



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).



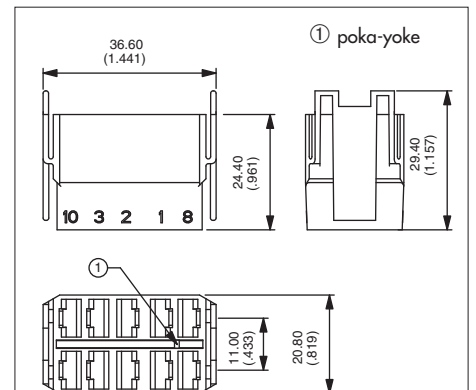
U2282



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).



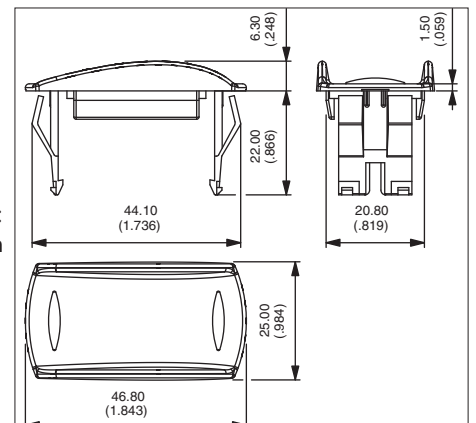
U2292

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.

APEM, a world of switching capabilities

The APEM group is one of the world's largest manufacturers of switches, switch panels and joysticks.

APEM designs, develops, manufactures and sells electro-mechanical components to multiple industrial markets including: instrumentation, medical, security, communications, industrial automation, avionics, military and transport.

Other APEM embedded products



■ " I " range of pushbuttons

This range consists of several series of IP67 sealed pushbuttons (IP, IB, IS, IF, IA) and a large variety of models: round or square, momentary or latching, illuminated or non-illuminated, plastic or metallic, with optional marking.



■ Specific switch panels

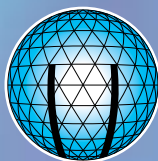
In addition to the switching function, specific switch panels incorporate several other functions such as illumination by LED, backlighting, EMC protection, sealing, connection, support, mounting...

Applications for these products include transport and utility vehicles, agricultural engines and boats.



■ Joysticks

APEM also manufactures joysticks for professional applications. Easy to operate, reliable and designed for extremely long service life, APEM joysticks are offered with a wide range of options allowing to satisfy a large variety of requirements. Several series are available, each one based on a different technology: switch joysticks, potentiometer joysticks and contactless joysticks.



A P E M

Addresses of sales subsidiaries and distributors network on
www.apem.com

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Components Supply Platform

Authorized Distribution Brand :



Website :

Welcome to visit www.ameya360.com

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Minhang District, Shanghai , China

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Email amall@ameya360.com

QQ 800077892

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➤ Customer Service :

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➤ Partnership :

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