UG1410A-R2

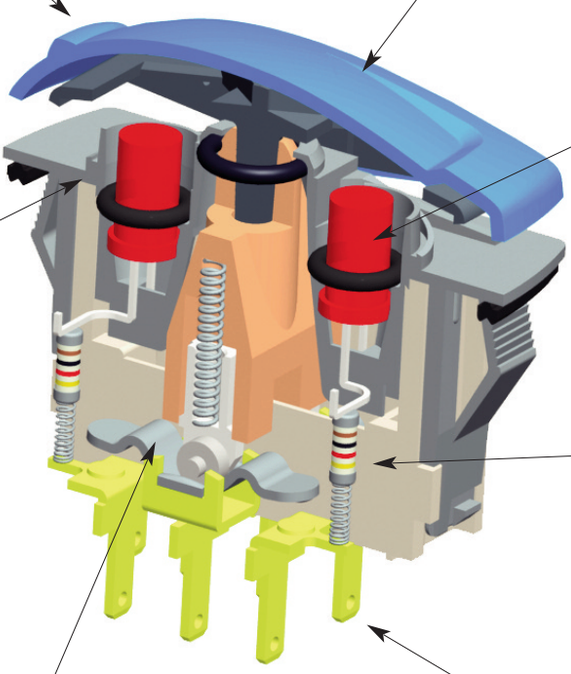
Attractive rugged rocker switch

Removable actuator
Easy to stock
Easy to customize

Up-to-date rocker design
Smooth curves
Wide choice of colours and symbols
Laser etched symbols on illuminated versions

High performance LEDs
Long life expectancy
An array of colours and voltages

Optional panel seal



High performance ultrasonic welding
Protection against dust and the effects of continuous immersion under pressure.

Integrated resistors
Easy electrical connection

Robust roller contact
Very long life expectancy
Many electrical functions available

Large variety of terminal options
Up to 10 terminals
Screw, solder lug and quick-connect

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

The company reserves the right to change specifications without notice.

KR series

Power rocker switches

Specifications

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

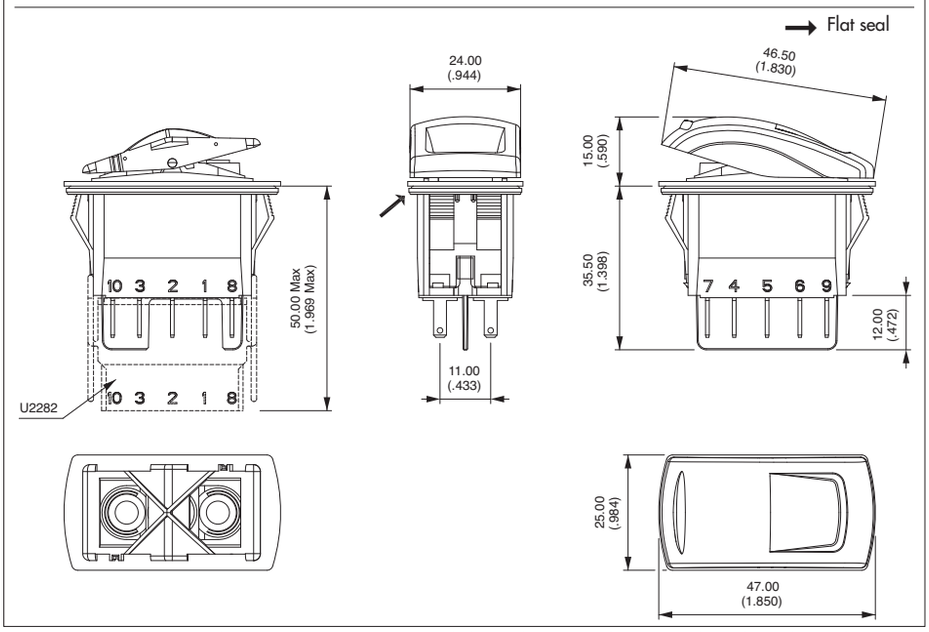
ELECTRICAL SPECIFICATIONS

- Currrent/voltage rating with resistive load :
  - Silver plated contacts :
  A : 5A 24VDC, 100.000 cycles - 10A 24VDC, 10.000 cycles (terminals 6.35 x 0.8 only)
  S : 20A 12VDC, 10.000 cycles (see Overview)
  - 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

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

DIMENSIONS



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

MATERIALS

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

SEALING

Sealing is optional.

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

Packaging unit : 40 pieces

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

Poles

3	Single pole
4	Double pole

Electrical functions

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

Function 1 only for 6-terminal versions.

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 or U3152

Normalized quick-connect 6,35x0,8

3 6 terminals with barrier

Terminals (continued)

5 6 terminals w/o barrier

D 10 term. with barrier

E 10 term. w/o barrier

F 10 term. for use with connector U2292 or U3152

Normalized quick-connect 2,8x0,8

G 10 term. with barrier

H 10 term. w/o barrier

J 10 terminals for use with connector U2282

Contacts

A	Silver
D	Gold plated
S	Silver 20A *

Sealing

X	No
K	IP68
Z	IP69K

LEDS

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
...	

Wiring

See following pages.

*** S contacts** for all functions except 4 and 4-1R - for normalized quick-connect terminals 6,35x0,8 only.

ACTUATOR

Type

1	For non-illuminated application
2	For illuminated application

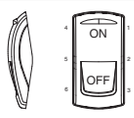
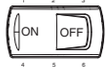
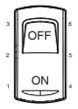
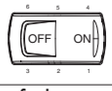
Colour

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

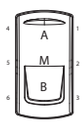
ACTUATOR MARKING

	Area A	Area M	Area B

Orientation

N	
O	
S	
E	

Symbols



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

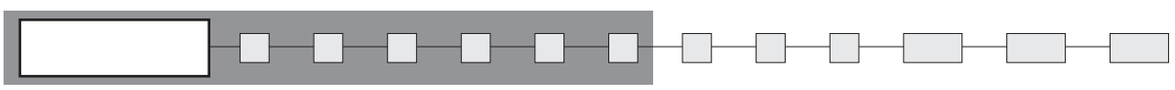
Power rocker switches

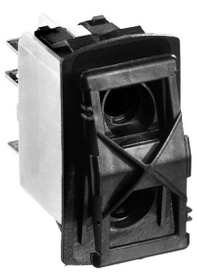
Case

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

CASE + LEDS

MODEL STRUCTURE

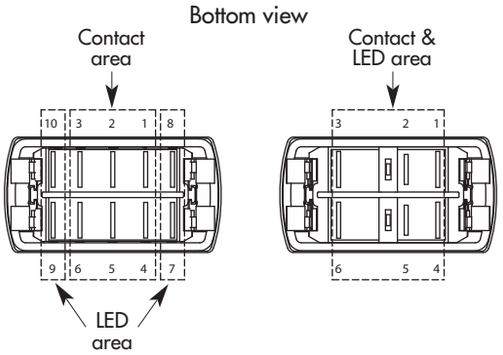




Single pole	Double pole	2-3 / 5-6		1-2 / 4-5
KR31	**KR41**	ON	-	OFF
	KR44*	ON	ON	ON
	KR44-1R*	ON	ON	MOM
KR35	**KR45**	MOM	-	ON
KR36	**KR46**	ON	-	ON
KR37	**KR47**	MOM	OFF	MOM
KR38	**KR48**	ON	OFF	MOM
KR39	**KR49**	ON	OFF	ON

* Function 4 : single pole in double pole case

Bottom view



10 terminal version

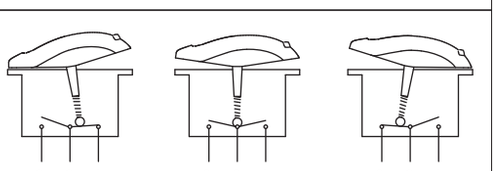
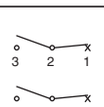
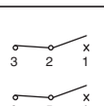
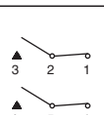
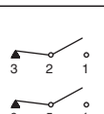
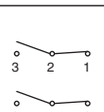
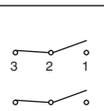
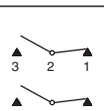
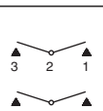
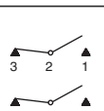
6 terminal version

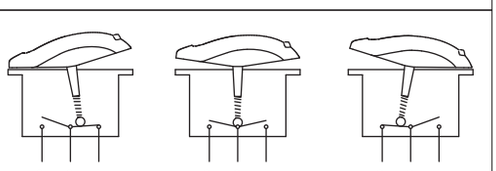
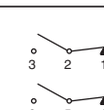
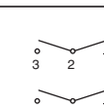
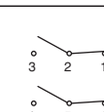
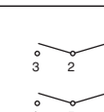
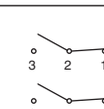
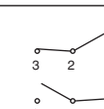
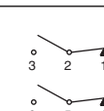
D

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

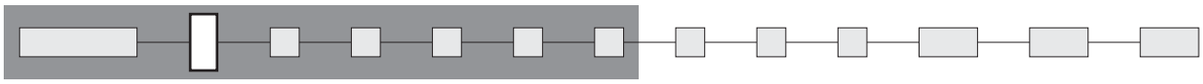
	Positions		
			
Function 1 * KR31-KR41			
Function 5 KR35-KR45			
Function 6 KR36-KR46			
Function 7 KR37-KR47			

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

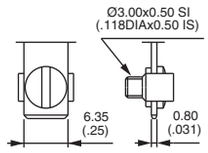
* Function 1 only available for 6 terminal versions.

TERMINALS

CASE + LEDS

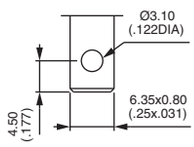


Screw



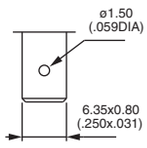
0 6 term. with barrier

Solder lug / quick-connect



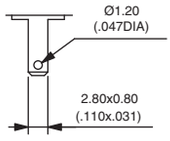
2 6 terminals with barrier
4 6 terminals w/o barrier
A 10 terminals with barrier
B 10 terminals w/o barrier
C 10 terminals for use with connector U2292 or U3152

Normalized quick-connect 6,35x0,8

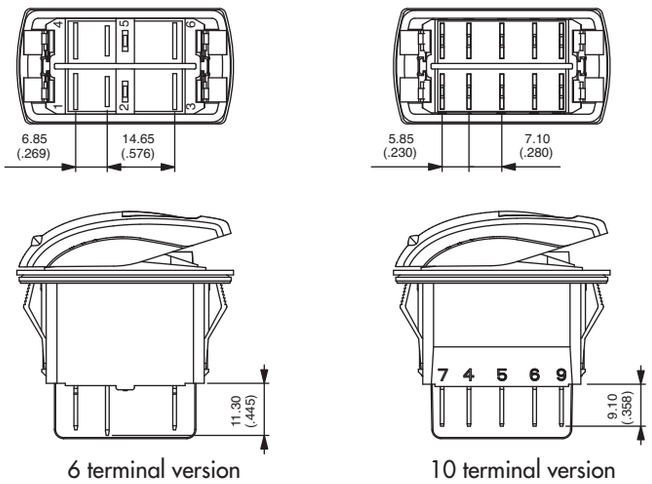


3 6 terminals with barrier
5 6 terminals w/o barrier
D 10 terminals with barrier
E 10 terminals w/o barrier
F 10 terminals for use with connector U2292 or U3152

Normalized quick-connect 2,8x0,8



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



6 terminal version — 10 terminal version

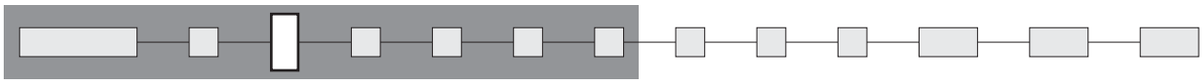
Terminals are marked on the case.

The drawings show the maximum possible number of terminals.

D

CONTACT MATERIALS

CASE + LEDS



A Silver
D Silver, gold plated

S Silver 20A NEW!
For all functions except 4 and 4-1R - for normalized quick-connect terminals 6,35x0,8 only.

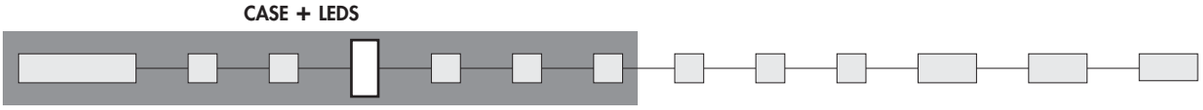
KR series

Power rocker switches

Case - LEDs

SEALING

CASE + LEDS

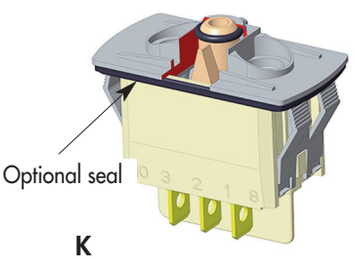


X No sealing

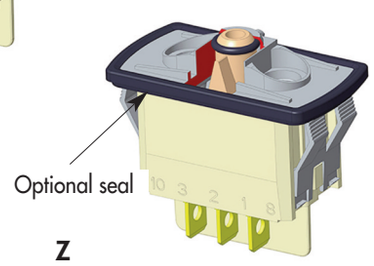
K IP68 (front panel components of switch only)

Z IP69K - Installation notice available on request

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



K

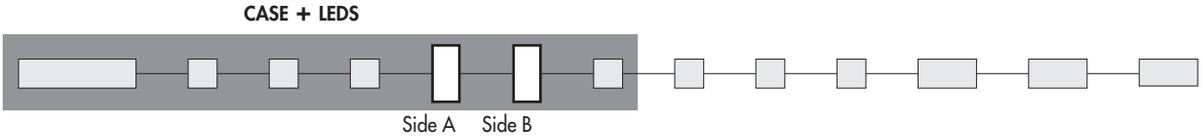


Z

D

LEDS

CASE + LEDS

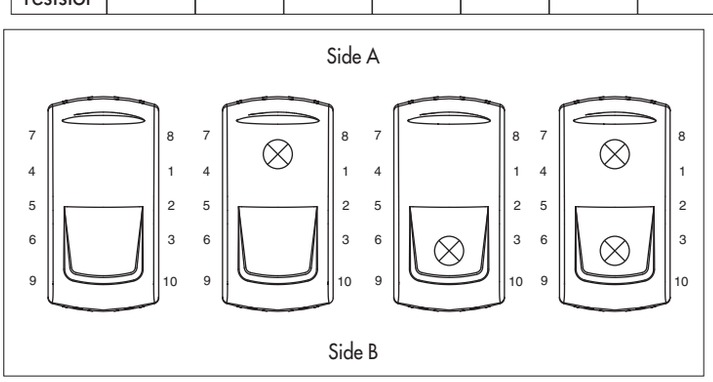


Complete each enlarged box with one of the codes listed below.

X Without LED

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

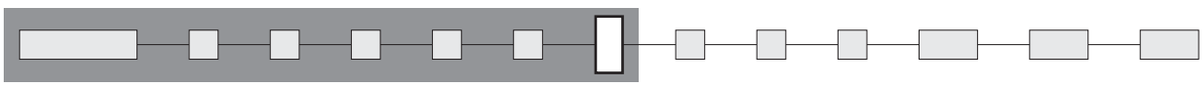
LED consumption : 20mA @ nominal voltage (25°C)
Other illumination solutions : on request.



WIRING

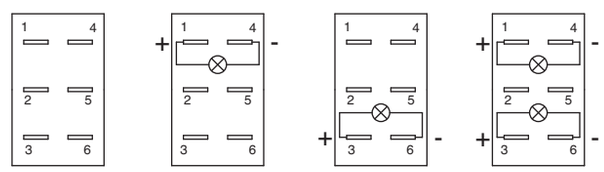
The LED wiring diagram is shown on the case.

CASE + LEDS

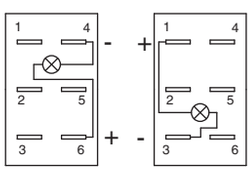


• For 6 terminal versions

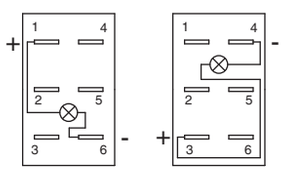
LED connected to the load



A (standard)

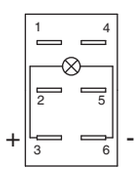


B

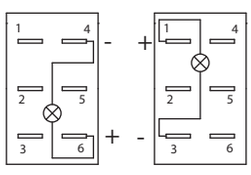


C

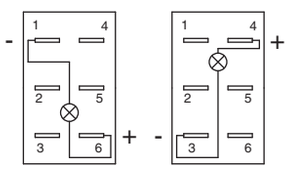
Note : If not available, terminals are added to connect the LED.



D - for function 1 (on-off) with LED on side A



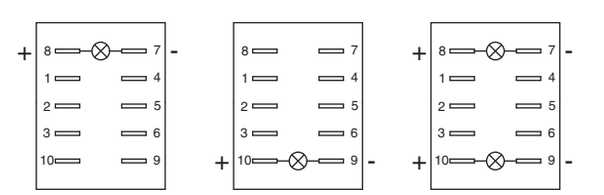
E



F

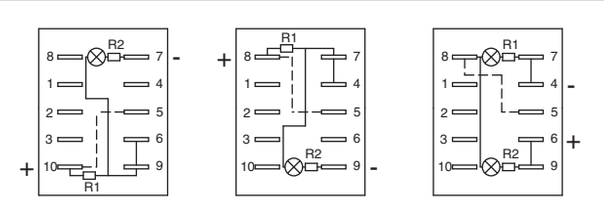
• For 10 terminal versions

Independent LED or integrated functions



G (standard)

To have independent LEDs.



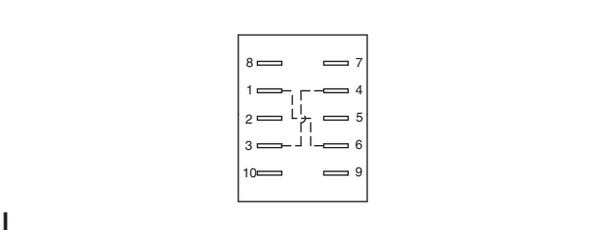
H

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).

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



I

Power supply betweeen 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.

D

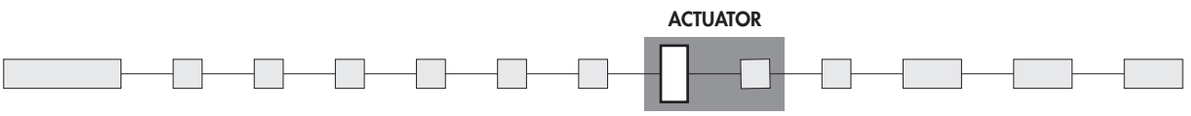
KR series

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.

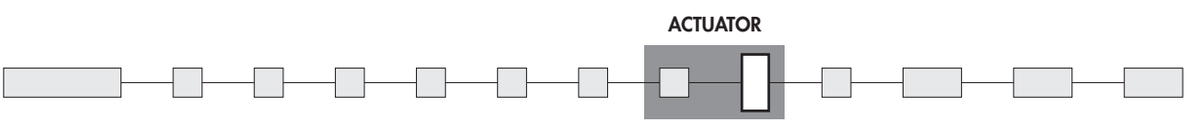
ACTUATOR TYPE



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

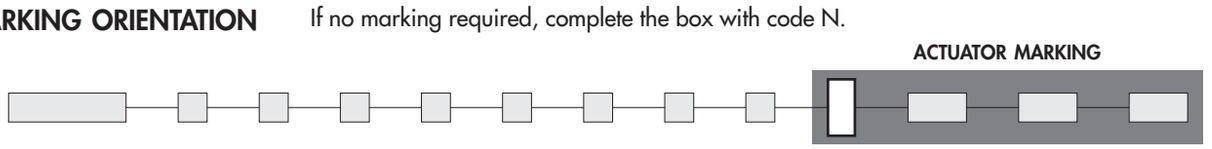
Code	Colour
7/1	White
9	Orange
A	Aluminium bright

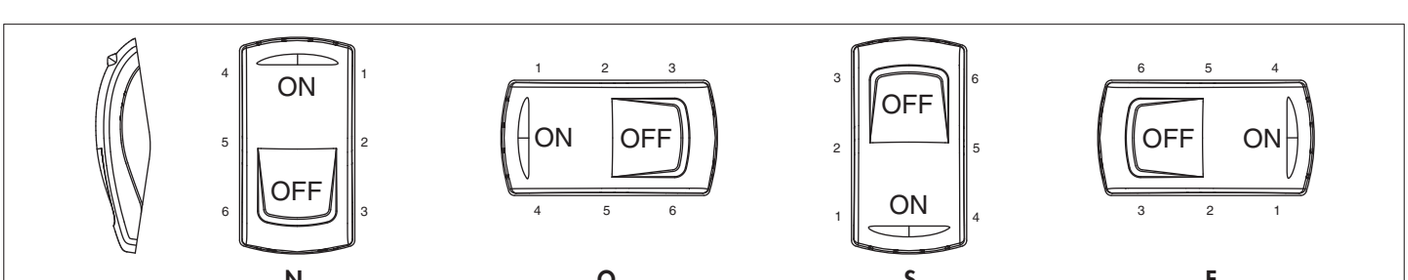
Note : colours 7 and 7/1 not available on illuminated versions.

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

MARKING ORIENTATION

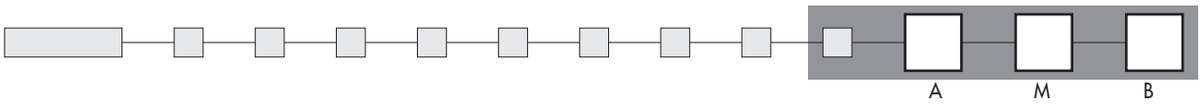
If no marking required, complete the box with code N.





Other orientations : on request

SYMBOLS



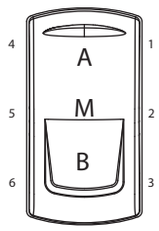
XX No symbol

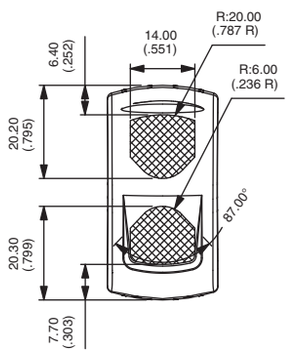
Available symbols : see end of section D.

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.

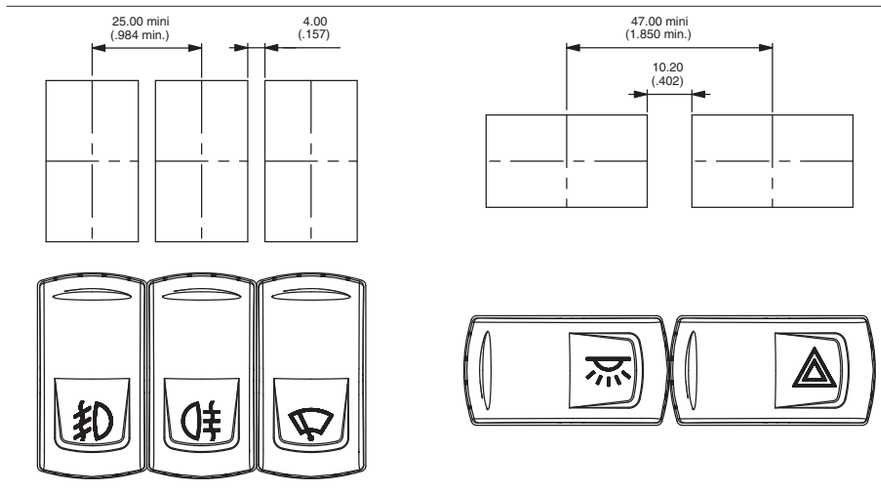
Laser etching resistance
- Water and petrol resistant acccording to EN61058-1
- Tear resistant (cross-cut test) according to NF ISO 2409 : class 0
- UV resistant according to ISO 4892-2

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

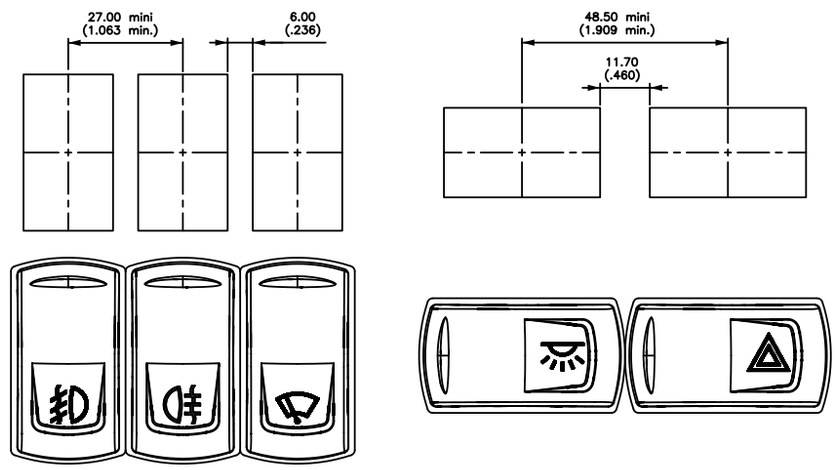




MATRIX MOUNTING



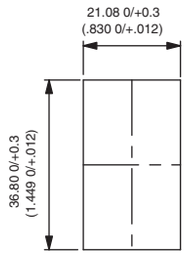
SPECIFIC MATRIX MOUNTING FOR Z VERSION



PANEL CUT-OUT

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

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



D

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).

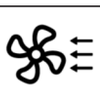
CODE	SYMBOL	DESCRIPTION
XX	None	-
01	ON	-
02	OFF	-
03	O	-
04	I	-
05	II	-
06	STOP	-
07	A	Stop
08	M	Motion
09		Up motion
10		Down motion
11		Hot
12		Cold
13		Hazard warning (0085)
14		Traveller lighting
15		Driver lighting (1421

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

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

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

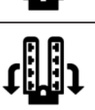
K range

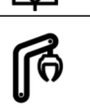
Power rocker switches and indicators

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.

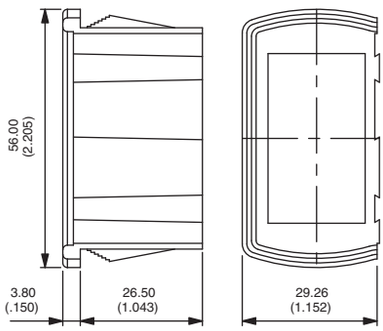
Legend scale :
KR series : 1:1
KL, KG and KI series : depending on space available on the product (see “Symbols” section at the end of each series).

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)

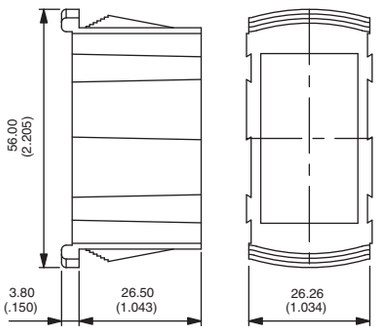
CODE	SYMBOL	DESCRIPTION
AV		-
AW		-
AY		-
AZ		-
B1	HIGH	-
B2	LOW	-
B3		-

MOUNTING PANEL END



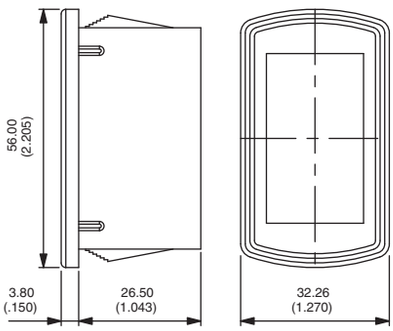
U2261

MOUNTING PANEL MIDDLE



U2262

SINGLE MOUNTING PANEL



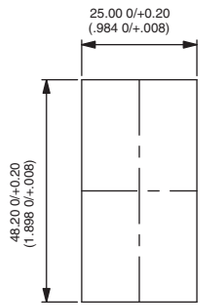
U2267

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

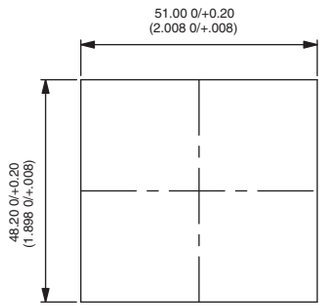
MOUNTING PANEL CUT-OUT

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

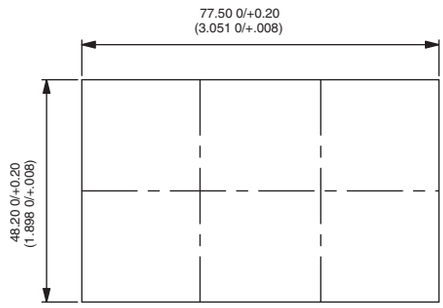
For 1 element U2267



For 2 elements U2261

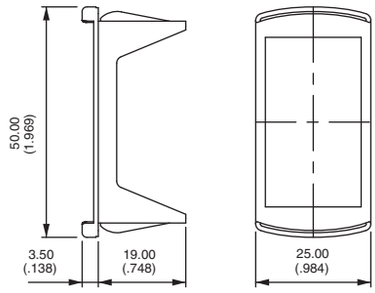


For 3 elements (2xU2261 + 1x U2262)



22 x 44 ADAPTER

Front panel dismounting

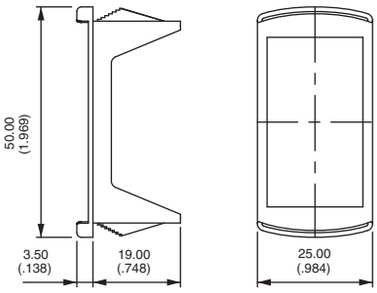


U3060

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

22 x 44 ADAPTER

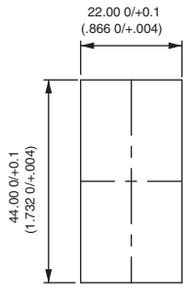
Rear panel dismounting



U3070

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

PANEL CUT-OUT



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

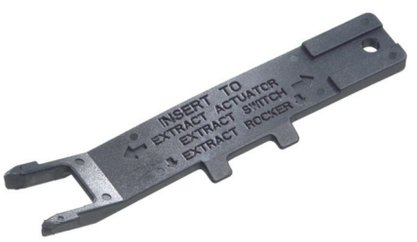
D

K range

Power rocker switches and indicators

Accessories for KR, KL and KI series

ACTUATOR REMOVING TOOL



U3052

2 tools are supplied

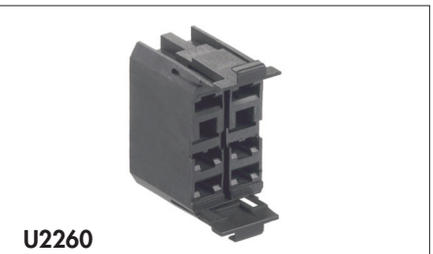
EXTRACT ACTUATOR (KR ONLY)
Allows the extraction of the rocker / rocker support assembly.
Place the 2 claws under the support and push as indicated by the arrow.

EXTRACT ROCKER (KR ONLY)
Allows to separate the rocker from its support.
Insert the tool between rocker and support as indicated by the arrrow. 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.

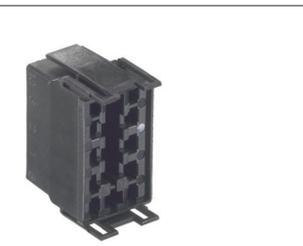
CONNECTORS

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 : TE42282-2).
Can be used for the KG series.

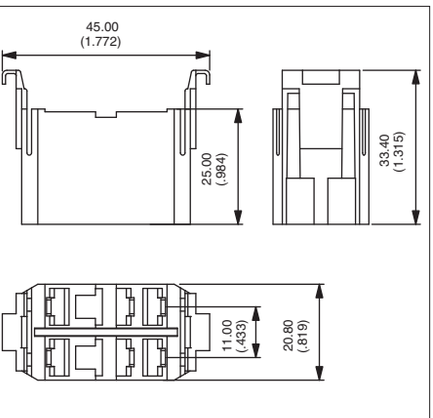


U2282

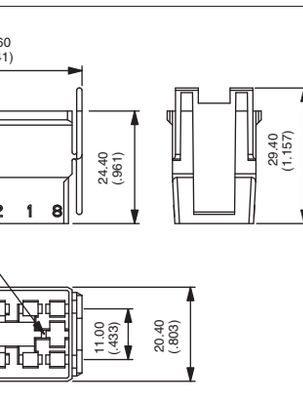
10 terminal version
For use with terminals type H or J.
2,8 (.110) tabs to be fitted by the user (example : AMP/Tyco 0-927779-3).

U2292

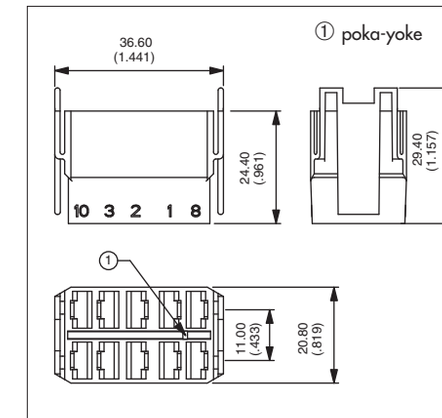
10 terminal version
For use with terminals type B, C, E or F.
6,35 (1/4) tabs to be fitted by the user (example : TE42282-2).



U2260



U2282



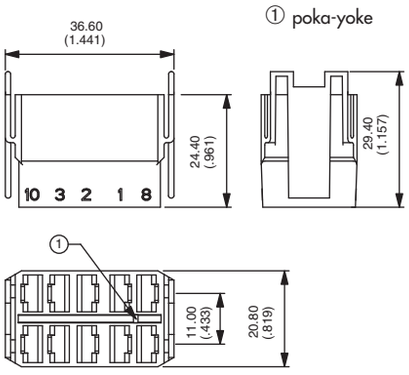
U2292

CONNECTORS (continued)

U3152

New!

10 terminal version
For use with terminals type B, C, E or F.
6,35 (1/4) tabs to be fitted by the user
(example : «Timer» terminals TE927833-2)



U3152

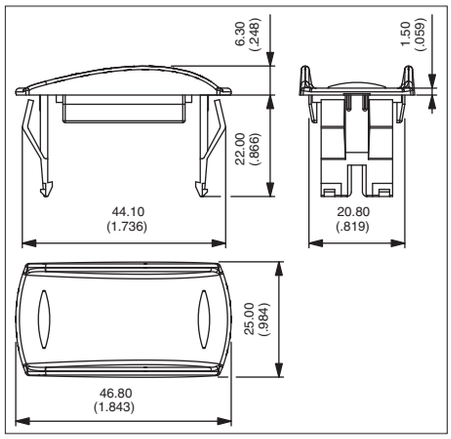
BLANKING CAPS

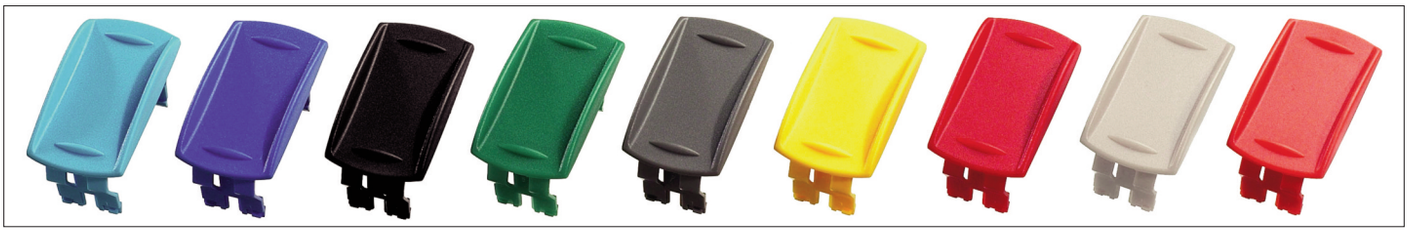
Usefull for future extensions.

Code	Colour
U2271	Blue
U2271/4	Dark blue
U2272	Black
U2273	Green

Code	Colour
U2274	Grey
U2275	Yellow
U2276	Red
U2277	Ivory
U2279	Orange

Recommended panel thickness :
1,50 mm to 6 mm





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