

# KL series

## Locking rocker switches

### Distinctive features

#### Unlocking actuator

Each KL rocker switch includes an unlocking actuator.

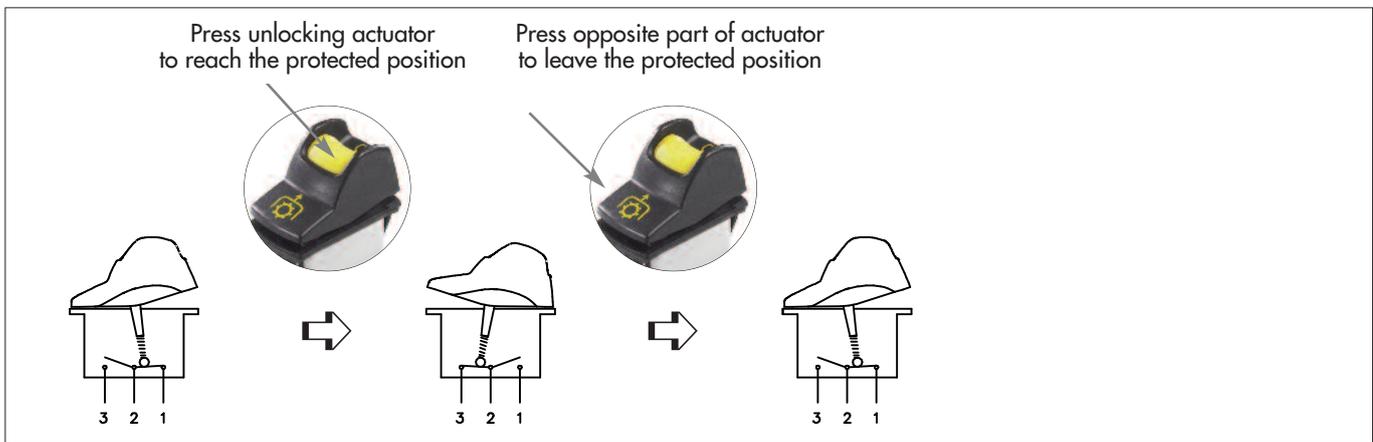
This actuator must be pressed to activate the protected function of the rocker. Moreover, two frames protect the unlocking actuator from untimely activation.

This intuitive and secured ergonomics is patented by APEM.

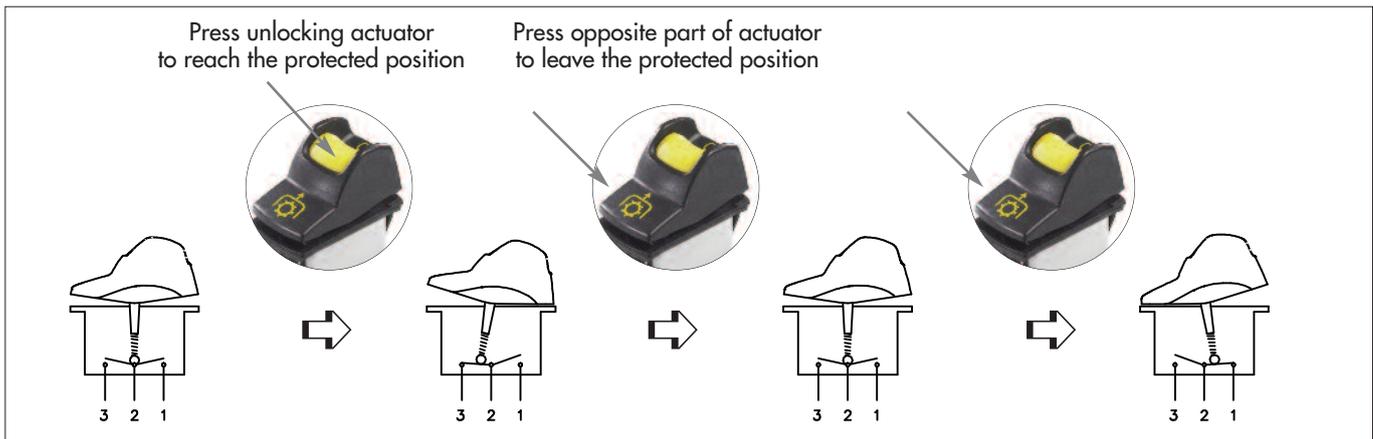
Unlocking actuator      Protection frames



#### 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

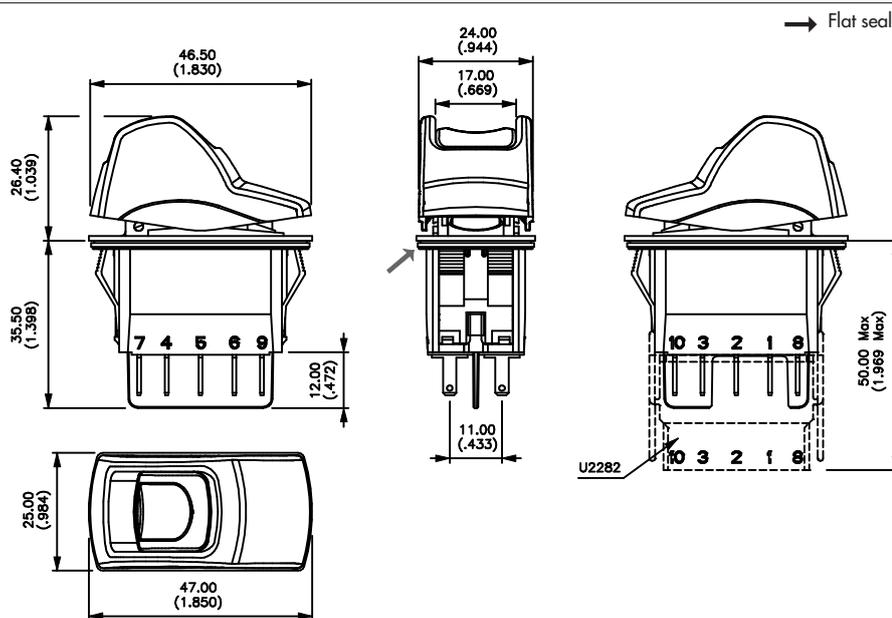
#### ENVIRONMENTAL SPECIFICATIONS

- 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.

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### Selection guide

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

#### CASE + LEADS

KL							Side B	
<b>SERIES</b>	<b>Electrical functions</b>			<b>Contacts</b>	<b>Sealing</b>	<b>LEDS</b>		<b>Wiring</b>
<b>Poles</b>	<b>1</b> ON - OFF <b>4</b> ON ON ON <b>4-1R</b> ON ON MOM <b>5</b> MOM - ON <b>6</b> ON - ON <b>7</b> MOM OFF MOM <b>8</b> ON OFF MOM <b>9</b> ON OFF ON	<b>Terminals</b>		<b>Terminals (continued)</b>				See diagrams page 18.
<b>3</b> Single pole <b>4</b> Double pole	<b>Screw</b> <b>0</b> 6 terminals with barrier <b>Solder lug/quick-connect</b> <b>2</b> 6 terminals with barrier <b>4</b> 6 terminals w/o barrier <b>A</b> 10 term. with barrier <b>B</b> 10 term. w/o barrier <b>C</b> 10 terminals for use with connector U2292 <b>Quick-connect 6,35x0,8</b> <b>3</b> 6 terminals with barrier		<b>Quick-connect 6,35x0,8</b> <b>5</b> 6 terminals w/o barrier <b>D</b> 10 term. with barrier <b>E</b> 10 term. w/o barrier <b>F</b> 10 term. for use with connector U2292 <b>Quick-connect 2,8x0,8</b> <b>G</b> 10 term. with barrier <b>H</b> 10 term. w/o barrier <b>J</b> 10 terminals for use with connector U2282					
		<b>Contacts</b>		<b>Sealing</b>		<b>LEDS</b>		
		<b>A</b> Silver <b>D</b> Gold plated		<b>X</b> No <b>K</b> Yes		<b>X</b> None <b>A</b> LED 6V red <b>B</b> LED 6V green <b>C</b> LED 6V yellow <b>M</b> LED 6V blue <b>R</b> LED 6V white <b>D</b> LED 12V red <b>E</b> LED 12V green <b>F</b> LED 12V yellow <b>N</b> LED 12V blue <b>S</b> LED 12V white <b>J</b> LED 24V red <b>K</b> LED 24V green <b>L</b> LED 24V yellow <b>P</b> LED 24V blue <b>T</b> LED 24V white		

#### ACTUATOR

<b>Type</b>	<b>Rocker colour</b>	<b>Unlocking actuator colour</b>
<b>1</b> For non-illum. application <b>2</b> For illuminated application	<b>1</b> Blue <b>1/4</b> Dark blue <b>2</b> Black <b>3</b> Green <b>4</b> Grey <b>5</b> Yellow <b>6</b> Red <b>7</b> Ivory <b>9</b> Orange	<b>1</b> Blue <b>1/4</b> Dark blue <b>2</b> Black <b>3</b> Green <b>4</b> Grey <b>5</b> Yellow <b>6</b> Red <b>7</b> Ivory <b>9</b> Orange

#### ACTUATOR MARKING

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

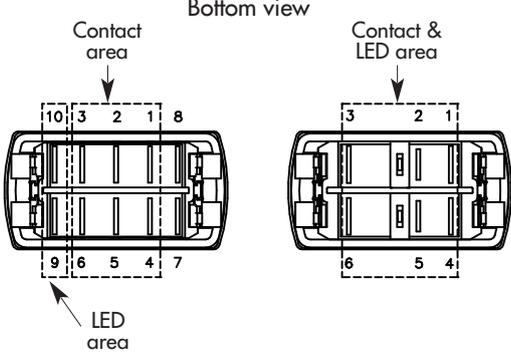
**CASE + LEDS**

**MODEL STRUCTURE**



	2-3	5-6	1-2	4-5
Single pole <b>KL31</b>	ON	-	OFF	
Double pole <b>KL41</b>	ON	ON	ON	
<b>KL44*</b>	ON	ON	MOM	
<b>KL44-1R*</b>	MOM	-	ON	
<b>KL35</b>	ON	-	ON	
<b>KL36</b>	MOM	OFF	MOM	
<b>KL37</b>	ON	OFF	MOM	
<b>KL38</b>	ON	OFF	ON	
<b>KL39</b>	ON	OFF	ON	

Bottom view



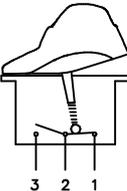
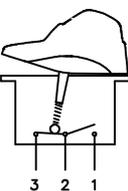
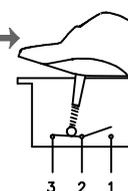
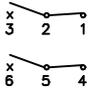
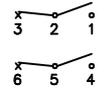
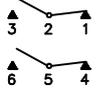
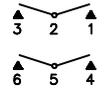
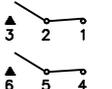
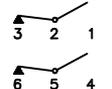
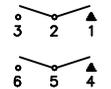
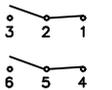
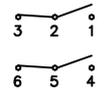
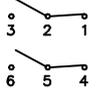
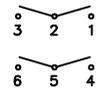
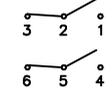
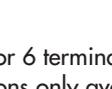
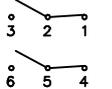
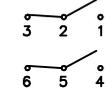
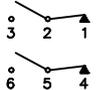
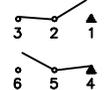
10 terminal version      6 terminal version

\* 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 6, 5, 4).

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

	2 positions		3 positions			
	 3 2 1	Press unlocking actuator to unlock.	 3 2 1	 3 2 1	 3 2 1	 3 2 1
Function 1 * KL31-KL41	 x 3 2 1 x 6 5 4		 x 3 2 1 x 6 5 4	 ▲ 3 2 1 ▲ 6 5 4	 ▲ 3 2 1 ▲ 6 5 4	 ▲ 3 2 1 ▲ 6 5 4
Function 5 KL35 - KL45	 ▲ 3 2 1 ▲ 6 5 4		 ▲ 3 2 1 ▲ 6 5 4	 o 3 2 1 o 6 5 4	 o 3 2 1 o 6 5 4	 o 3 2 1 o 6 5 4
Function 6 KL36-KL46	 o 3 2 1 o 6 5 4		 o 3 2 1 o 6 5 4	 o 3 2 1 o 6 5 4	 o 3 2 1 o 6 5 4	 o 3 2 1 o 6 5 4
Function 4 KL44	 o 3 2 1 o 6 5 4		 o 3 2 1 o 6 5 4	 o 3 2 1 o 6 5 4	 o 3 2 1 o 6 5 4	 o 3 2 1 o 6 5 4
Function 4-1R KL44-1R	 o 3 2 1 o 6 5 4		 o 3 2 1 o 6 5 4	 o 3 2 1 ▲ 6 5 4	 o 3 2 1 ▲ 6 5 4	 o 3 2 1 ▲ 6 5 4

\* **Function 1**  
 - Only available for 6 terminal versions.  
 - Illuminated versions only available with "A" wiring.

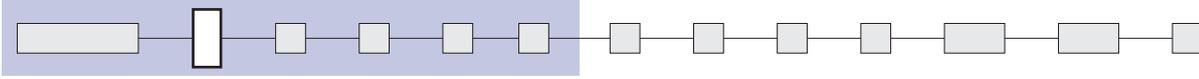
# KL series

## Locking rocker switches

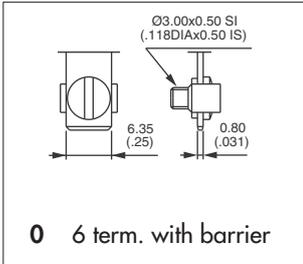
### Case

#### TERMINALS

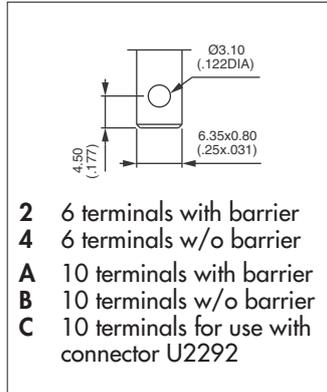
CASE + LEADS



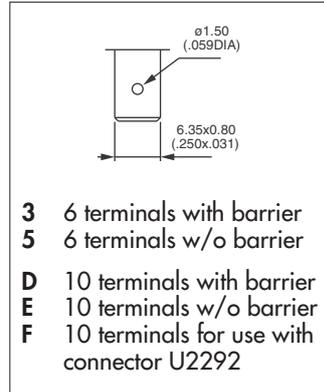
#### Screw



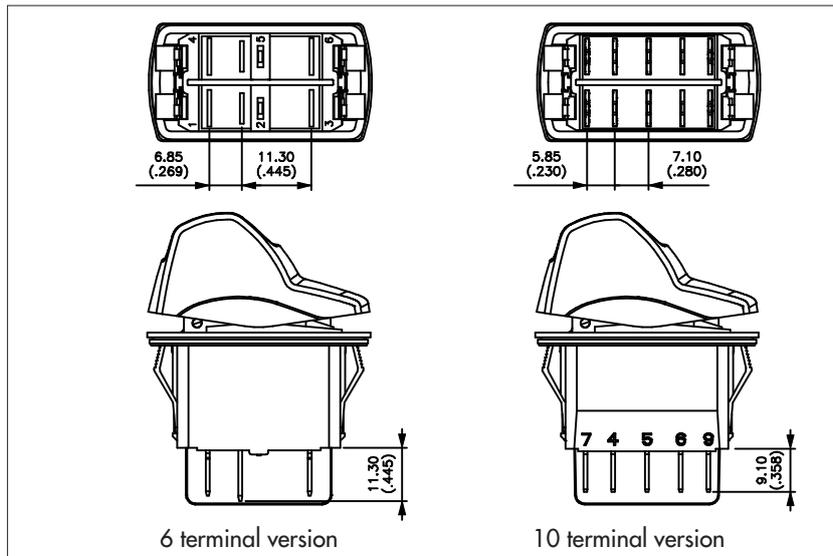
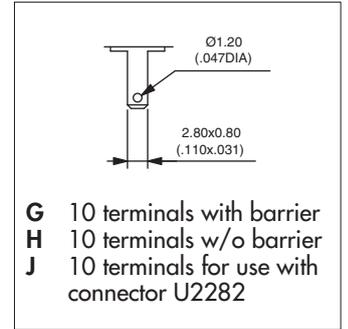
#### Solder lug / quick-connect



#### Normalized quick-connect 6,35x0,8



#### Normalized quick-connect 2,8x0,8

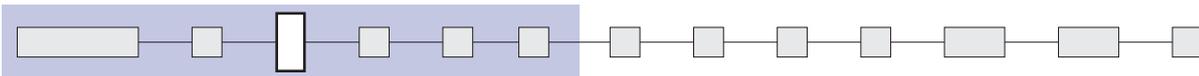


Terminals are marked on the case.

The drawings show the maximum possible number of terminals.

#### CONTACT MATERIALS

CASE + LEADS



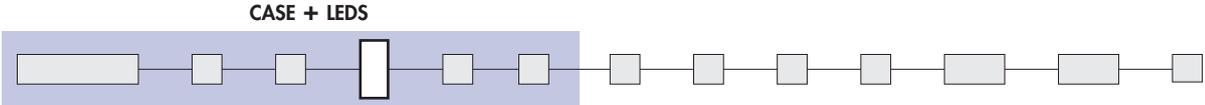
- A** Silver
- D** Silver, gold plated

# KL series

## Locking rocker switches

### Case - LEDs

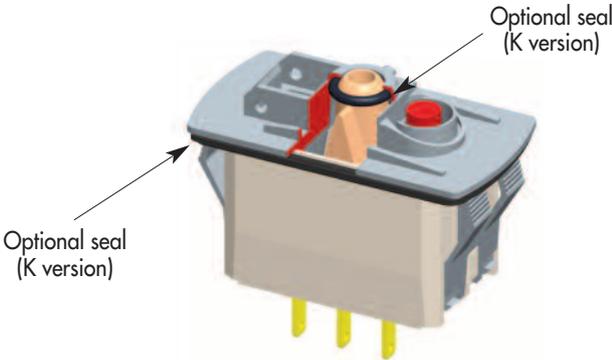
#### SEALING



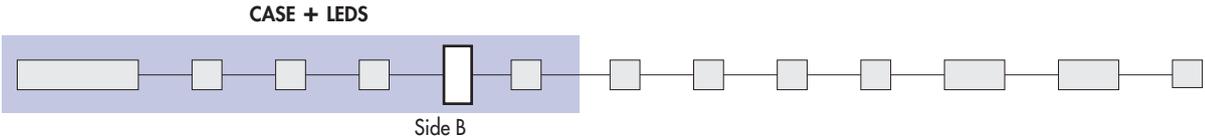
- X No sealing
- K IP68 (switch assembled on panel)

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

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



#### LEDS

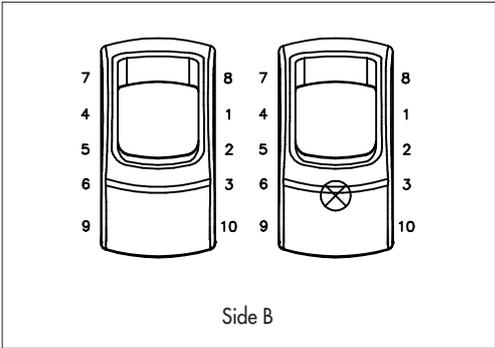


Complete enlarged box with one of the codes listed below.

- 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.



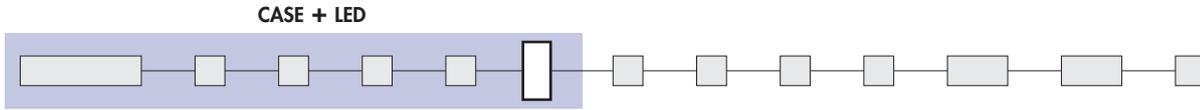
# KL series

## Locking rocker switches

### Case - LED

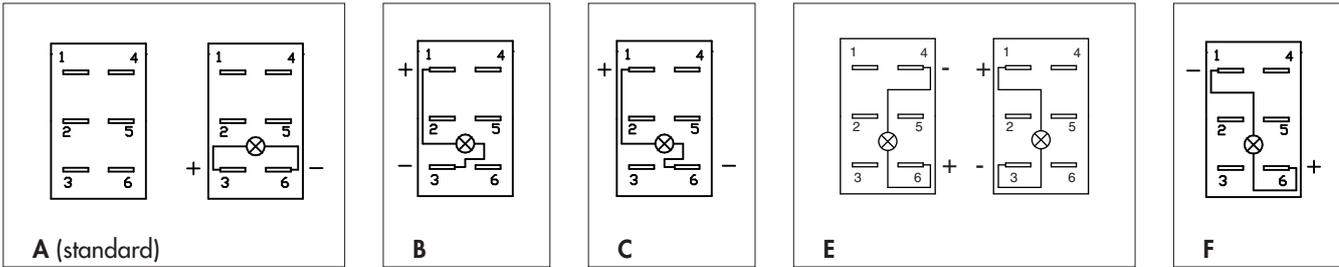
#### WIRING

The LED wiring diagram is shown on the case.



#### • For 6 terminal versions

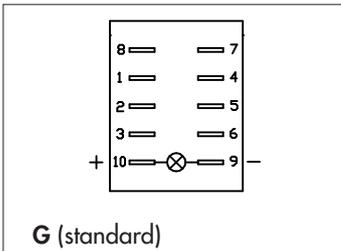
LED connected to the load



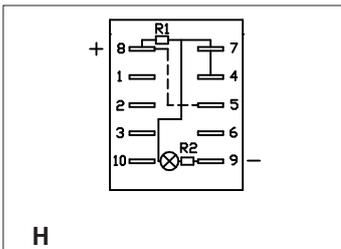
Note : If not available, terminals are added to connect the LED.

#### • For 10 terminal versions

Independent LED or integrated functions

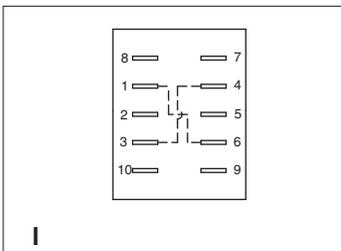


To have independent LED.



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.

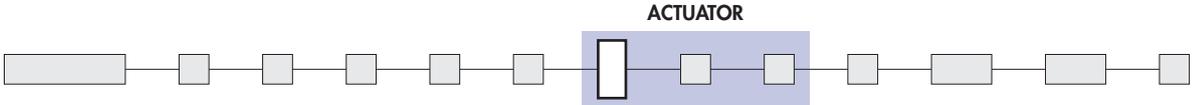
Please contact us for other wiring solutions.

# KL series

## Locking rocker switches

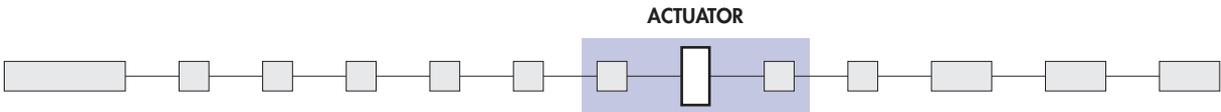
### Actuator - Marking

#### ACTUATOR TYPE



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

#### ROCKER COLOUR

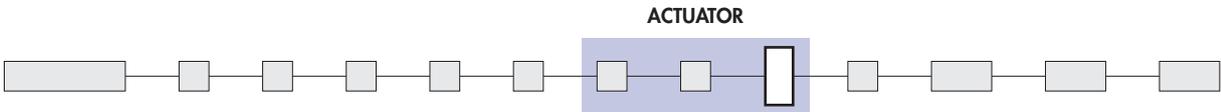


Code	Colour
1	Blue
1/4	Dark blue
2	Black

Code	Colour
3	Green
4	Grey
5	Yellow

Code	Colour
6	Red
7	Ivory
9	Orange

#### UNLOCKING ACTUATOR COLOUR



Code	Colour
1	Blue
1/4	Dark blue
2	Black

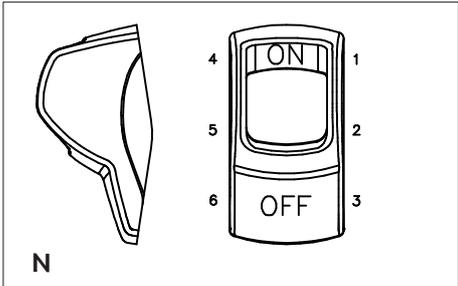
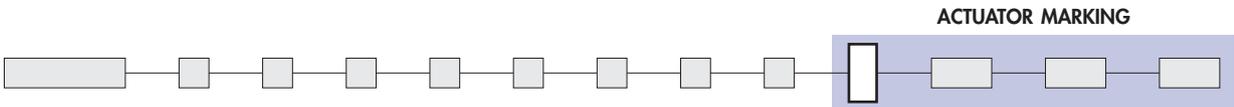
Code	Colour
3	Green
4	Grey
5	Yellow

Code	Colour
6	Red
7	Ivory
9	Orange

Note : colour 7 not available on illuminated versions

#### MARKING ORIENTATION

If no marking required, leave box blank.



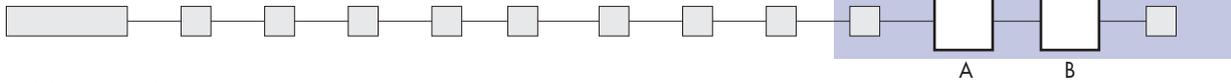
Other orientations : on request

# KL series

## Locking rocker switches

### Marking - Mounting

#### SYMBOLS



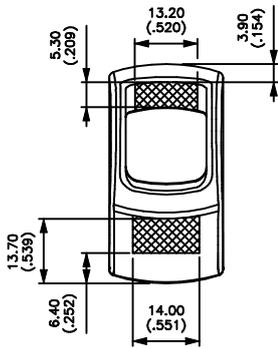
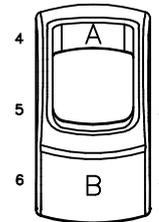
Available symbols : see page 31.

#### Laser etching resistance

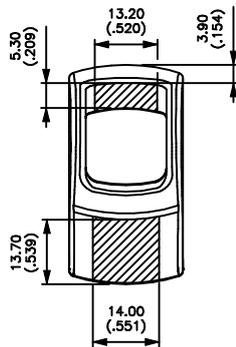
- Water and petrol resistant according to EN61058-1
- Tear resistant (cross-cut test) according to NF ISO 2409 : class 0
- UV resistant according to ISO 4892-2

Marking area - The symbol will be included in the hatched area.

#### ACTUATOR MARKING

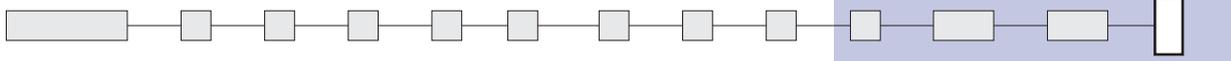


For illuminated versions



For non-illuminated versions

#### MARKING COLOUR



#### ACTUATOR MARKING

Illuminated models (laser etching)

Blank White

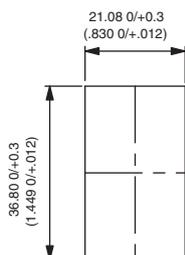
Non-illuminated models (pad printing)

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

