

KH series

Power rocker switches with protection guard



DISTINCTIVE FEATURES

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



ENVIRONMENTAL SPECIFICATIONS

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



ELECTRICAL SPECIFICATIONS

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



GENERAL SPECIFICATIONS

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

The company reserves the right to change specifications without notice.



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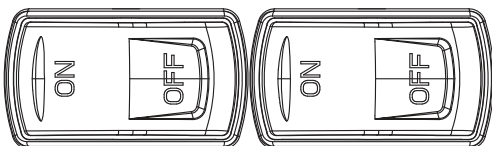
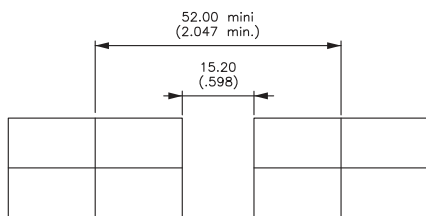
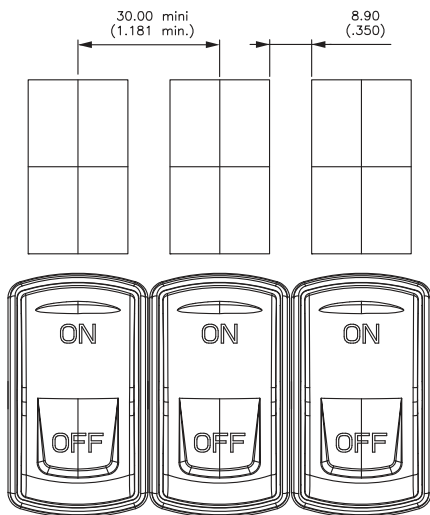
MATERIALS

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

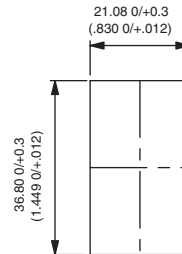
APEM products may be recycled at end-of-life for the re-claiming of valuable metal components.



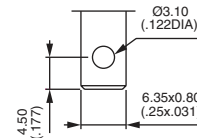
MATRIX MOUNTING



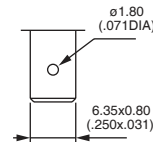
PANEL CUT-OUT



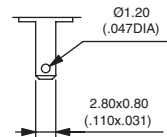
TERMINALS



Solder lug / quick-connect



Normalized quick-connect 6.35x0.8



Normalized quick-connect 2.8x0.8

Power rocker switches with protection guard



ELECTRICAL FUNCTIONS AND CONNECTIONS

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

o = with terminal
 ▲ = momentary

2 POSITIONS

Function 5 KH35 - KH45	 	
Function 6 KH36-K46	 	

3 POSITIONS

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

KH series

Power rocker switches with protection guard

BUILD YOUR PART NUMBER

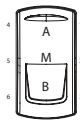
CASE + LEADS

SERIES	PROTECTION GUARDS	POLES	ELECTRICAL FUNCTIONS	CONTACTS	SEALING	LEADS	WIRING																																																												
<p>KH</p> <p>1 On 4 sides</p> <p>2 On 2 sides</p>	<p>3 Single pole</p> <p>4 Double pole</p>	<table border="0"> <tr><td>4</td><td>ON</td><td>ON</td><td>ON</td></tr> <tr><td>4-1R</td><td>ON</td><td>ON</td><td>MOM</td></tr> <tr><td>5</td><td>MOM</td><td>-</td><td>ON</td></tr> <tr><td>6</td><td>ON</td><td>-</td><td>ON</td></tr> <tr><td>7</td><td>MOM</td><td>OFF</td><td>MOM</td></tr> <tr><td>8</td><td>ON</td><td>OFF</td><td>MOM</td></tr> <tr><td>9</td><td>ON</td><td>OFF</td><td>ON</td></tr> </table>	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	<p>A Silver</p> <p>D Gold plated</p>	<p>Z IP69K Standard</p>	<table border="0"> <tr><td>X</td><td>None</td></tr> <tr><td>A</td><td>LED 6 V red</td></tr> <tr><td>B</td><td>LED 6 V green</td></tr> <tr><td>C</td><td>LED 6 V yellow</td></tr> <tr><td>M</td><td>LED 6 V blue</td></tr> <tr><td>R</td><td>LED 6 V white</td></tr> <tr><td>D</td><td>LED 12 V red</td></tr> <tr><td>E</td><td>LED 12 V green</td></tr> </table>	X	None	A	LED 6 V red	B	LED 6 V green	C	LED 6 V yellow	M	LED 6 V blue	R	LED 6 V white	D	LED 12 V red	E	LED 12 V green	<table border="0"> <tr><td>F</td><td>LED 12 V yellow</td></tr> <tr><td>N</td><td>LED 12 V blue</td></tr> <tr><td>S</td><td>LED 12 V white</td></tr> <tr><td>J</td><td>LED 24 V red</td></tr> <tr><td>K</td><td>LED 24 V green</td></tr> <tr><td>L</td><td>LED 24 V yellow</td></tr> <tr><td>P</td><td>LED 24 V blue</td></tr> <tr><td>T</td><td>LED 24 V white</td></tr> </table> <p>etc.</p>	F	LED 12 V yellow	N	LED 12 V blue	S	LED 12 V white	J	LED 24 V red	K	LED 24 V green	L	LED 24 V yellow	P	LED 24 V blue	T	LED 24 V white	<p>See following pages.</p>
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																																																																
X	None																																																																		
A	LED 6 V red																																																																		
B	LED 6 V green																																																																		
C	LED 6 V yellow																																																																		
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T	LED 24 V white																																																																		

TERMINALS

Solder lug/quick-connect	Normalized quick-connect 6.35x0.8	Normalized quick-connect 2.8x0.8
<p>A 10 term. with barrier</p> <p>B 10 term. w/o barrier</p> <p>C 10 terminals for use with connector U2292 or U3152</p>	<p>D 10 term. with barrier</p> <p>E 10 term. w/o barrier</p> <p>F 10 term. for use with connector U2292 or U3152</p>	<p>G 10 term. with barrier</p> <p>H 10 term. w/o barrier</p> <p>J 10 terminals for use with connector U2282</p>

ACTUATOR

TYPE	COLOR	MARKING ORIENTATION	SYMBOLS																				
<p>1 For non-illuminated application</p> <p>2 For illuminated application</p>	<table border="0"> <tr><td>1</td><td>Blue</td></tr> <tr><td>1/4</td><td>Dark blue</td></tr> <tr><td>2</td><td>Black</td></tr> <tr><td>3</td><td>Green</td></tr> <tr><td>4</td><td>Grey</td></tr> </table>	1	Blue	1/4	Dark blue	2	Black	3	Green	4	Grey	<table border="0"> <tr><td>5</td><td>Yellow</td></tr> <tr><td>6</td><td>Red</td></tr> <tr><td>7</td><td>Ivory</td></tr> <tr><td>9</td><td>Orange</td></tr> <tr><td>A</td><td>Aluminum bright</td></tr> </table> <p>Drawings on following pages.</p>	5	Yellow	6	Red	7	Ivory	9	Orange	A	Aluminum bright	<p>Area A Area M Area B</p>  <p>Symbols & Accessories : see end of the series.</p>
1	Blue																						
1/4	Dark blue																						
2	Black																						
3	Green																						
4	Grey																						
5	Yellow																						
6	Red																						
7	Ivory																						
9	Orange																						
A	Aluminum bright																						

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

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PROTECTION GUARD ON 4 SIDES - KH1



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

*Function 4 : single pole in double pole case

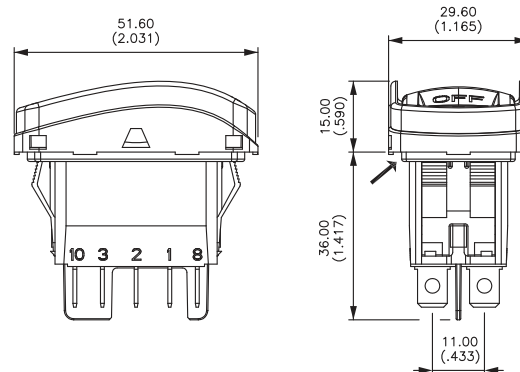
PROTECTION GUARD ON 2 SIDES - KH2



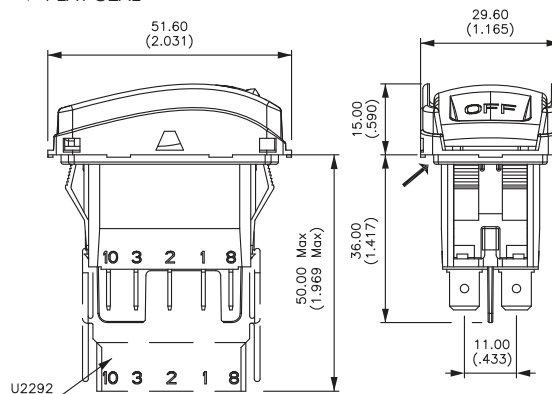
Single pole	Double pole	2-3 5-6		1-2 4-5	
	KH244*	ON	ON	ON	
	KH244-1R*	ON	ON	MOM	
	KH235	KH245	MOM	-	ON
	KH236	KH246	ON	-	ON
	KH237	KH247	MOM	OFF	MOM
	KH238	KH248	ON	OFF	MOM
	KH239	KH249	ON	OFF	ON

*Function 4 : single pole in double pole case

→ FLAT SEAL

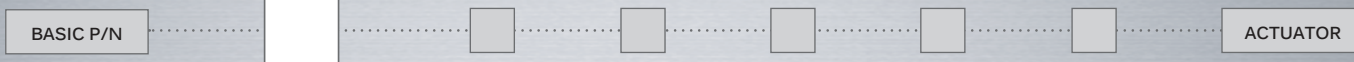


→ FLAT SEAL



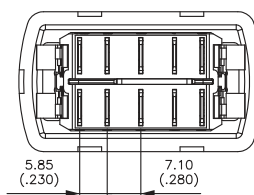
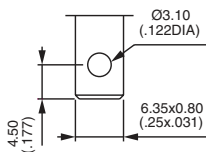
CASE + LEDS

TERMINALS



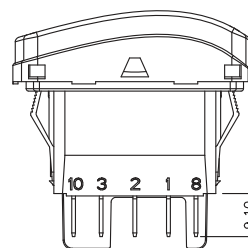
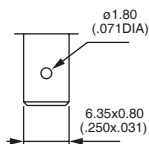
SOLDER LUG / QUICK-CONNECT

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



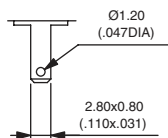
NORMALIZED QUICK-CONNECT 6.35X0.8

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



NORMALIZED QUICK-CONNECT 2.8X0.8

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



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

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CASE + LEADS

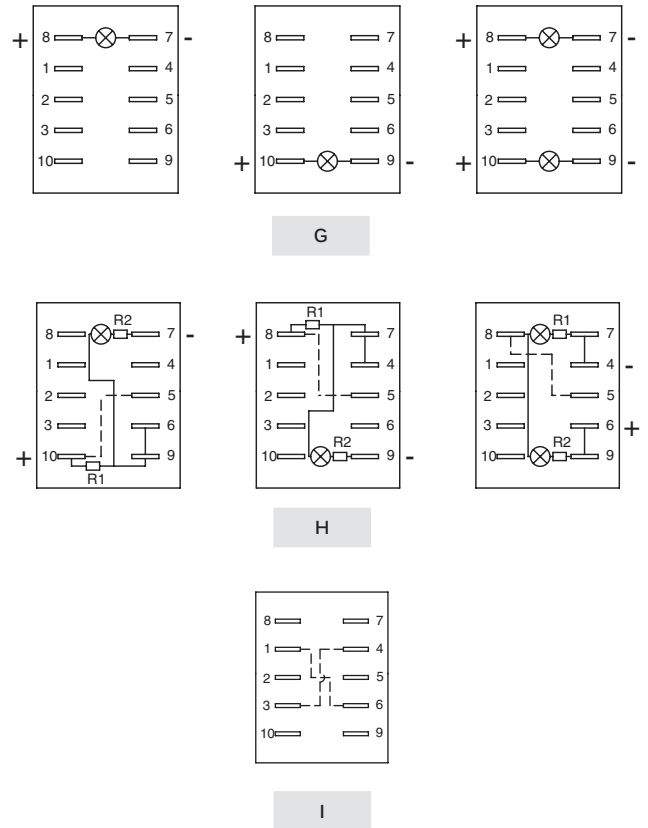
WIRING

BASIC P/N

ACTUATOR

The LED wiring diagram is shown on the case.

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



Please contact us for other wiring solutions.

ACTUATOR

ACTUATOR TYPE

BASIC P/N

CASE + LEADS

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

Other rocker design : on request.



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ACTUATOR

ACTUATOR COLOR



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

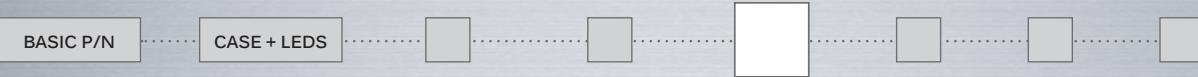


Note : colors 7 and 7/1 not available on illuminated versions.

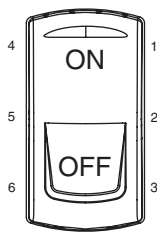
A **soft-touch varnish** can be added. Consult us.

ACTUATOR

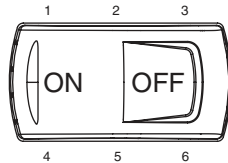
MARKING ORIENTATION



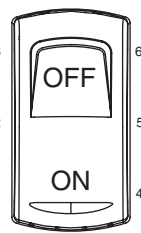
If no marking required, complete the box with code **N**. Other orientations : on request.



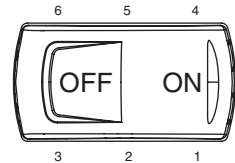
N



O



S



E

ACTUATOR

SYMBOLS



XX No symbol

If no marking required, end up the part number with Actuator marking orientation (see above)

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

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

Laser etching resistance

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

Marking area

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

MARKING AREA

