

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.



KH series

Power rocker switches with protection guard



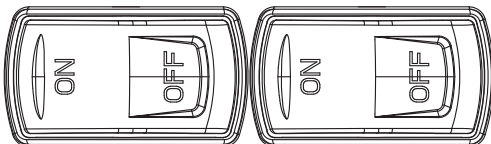
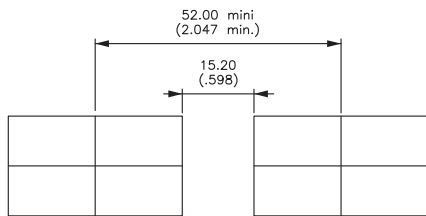
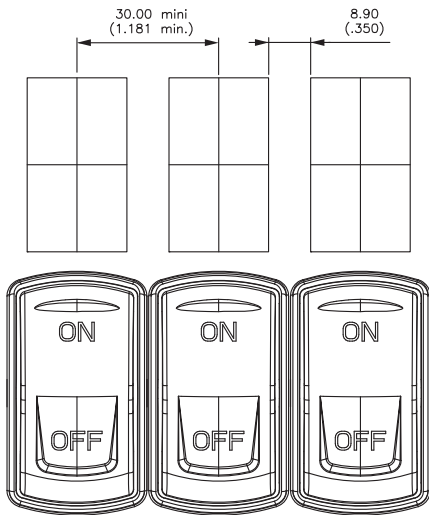
MATERIALS

- 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

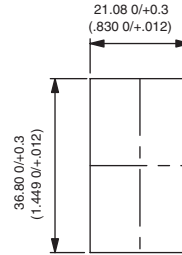
APEM products may be recycled at end-of-life for the re-claiming of valuable metal components.



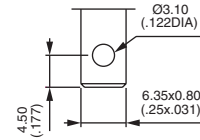
MATRIX MOUNTING



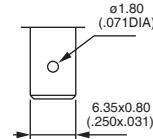
PANEL CUT-OUT



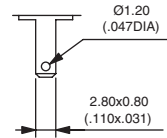
TERMINALS



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	 	 	

Power rocker switches with protection guard

PROTECTION GUARD ON 4 SIDES - KH1



Single pole	Double pole	2-3 5-6		1-2 4-5
		KH144*	KH144-1R*	ON
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

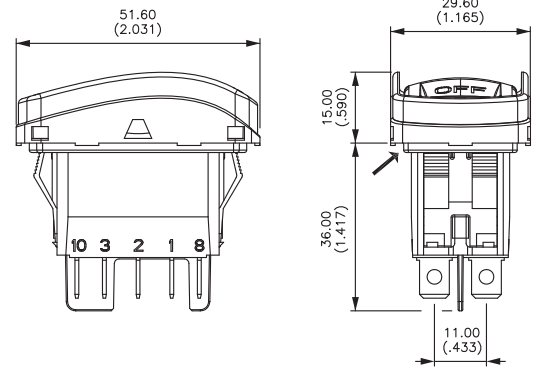
PROTECTION GUARD ON 2 SIDES - KH2



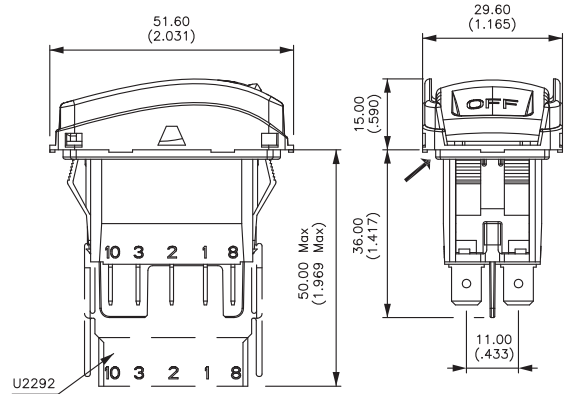
Single pole	Double pole	2-3 5-6		1-2 4-5
		KH244*	KH244-1R*	ON
KH235	KH245	MOM	-	ON
KH236	KH246	ON	-	ON
KH237	KH247	MOM	OFF	MOM
KH238	KH248	ON	OFF	MOM
KH239	KH249	ON	OFF	ON

*Function 4 : single pole in double pole case

→ FLAT SEAL



→ FLAT SEAL

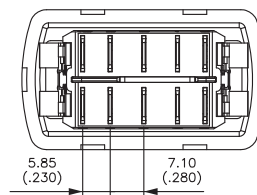
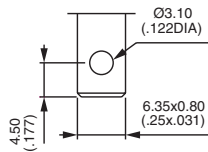


CASE + LEDS



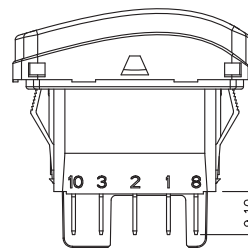
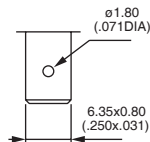
SOLDER LUG / QUICK-CONNECT

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



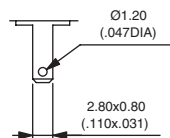
NORMALIZED QUICK-CONNECT 6.35X0.8

- 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.

KH series

Power rocker switches with protection guard

CASE + LEDS

CONTACT MATERIALS

BASIC P/N

ACTUATOR

- A Silver
- D Silver, gold plated

CASE + LEDS

SEALING

BASIC P/N

ACTUATOR

- Z IP69K - standard

CASE + LEDS

LEDS

BASIC P/N

Side A

Side B

ACTUATOR

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

- X Without LED

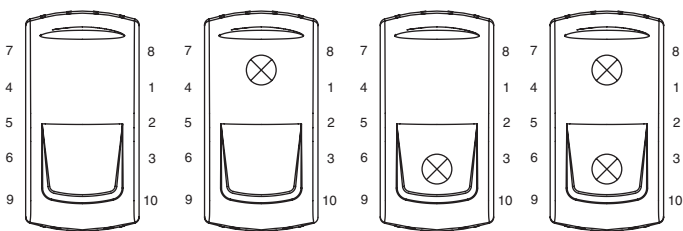
	Red	Green	Yellow	Blue	White	Amber	Red/green
6 VDC	A	B	C	M	R	4	1
12 VDC	D	E	F	N	S	5	2
24 VDC	J	K	L	P	T	6	3
No resistor	U	V	W	Y	Z	9	8

LED consumption : 20 mA @ nominal voltage (25 °C / 77 °F)
 Other illumination solutions : on request.

For non-stabilized on-board power supplies submitted to potential voltage surges due to the alternator, 15 V and 30 V LED configurations are also available on request.

LED Tolerance ±10 %

Side A



Side B

Power rocker switches with protection guard

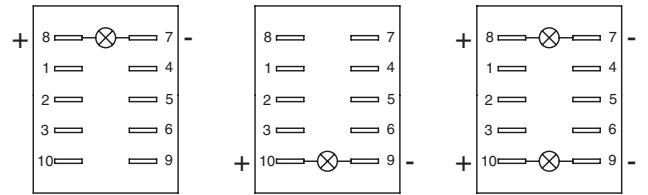
CASE + LEADS

WIRING

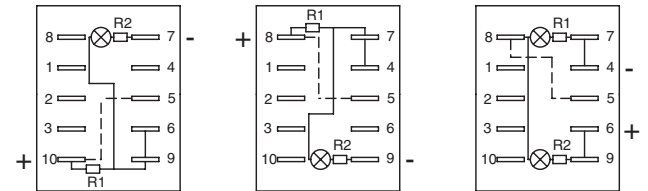


The LED wiring diagram is shown on the case.

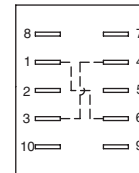
- G** Standard, to have independent LED.
- H** To obtain 2 symbol illumination levels (night illumination when OFF and higher illumination when ON).
 - H wiring with LED on side A available with functions 6, 8, 9 and 44.
 - H wiring with LED on side B available with functions 5, 6 and 9.
 - H wiring 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.



G



H

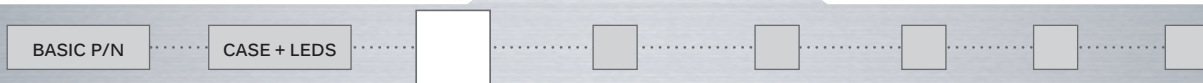


I

Please contact us for other wiring solutions.

ACTUATOR

ACTUATOR TYPE



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

Other rocker design : on request.



KH series

Power rocker switches with protection guard

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		

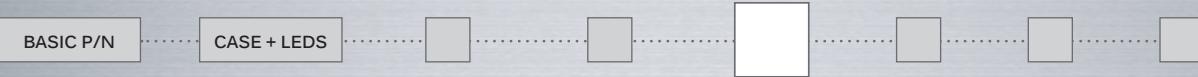


Note : colors 7 and 7/1 not available on illuminated versions.

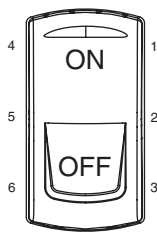
A **soft-touch varnish** can be added. Consult us.

ACTUATOR

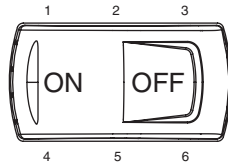
MARKING ORIENTATION



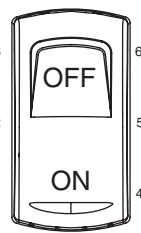
If no marking required, complete the box with code **N**. Other orientations : on request.



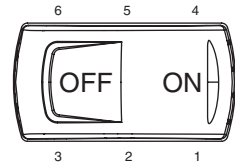
N



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

