

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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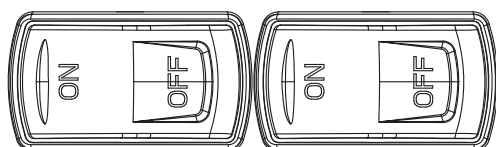
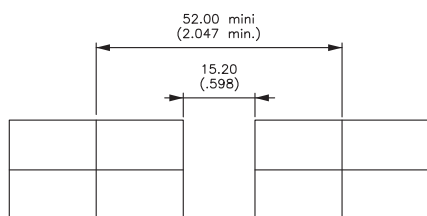
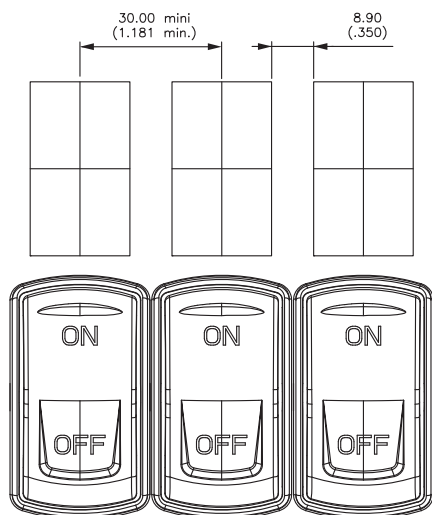
MATERIALS

- 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

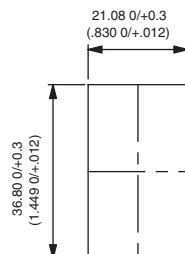
APEM products may be recycled at end-of-life for the re-claiming of valuable metal components.



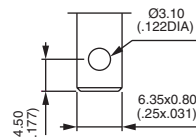
MATRIX MOUNTING



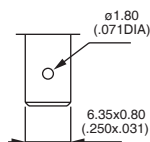
PANEL CUT-OUT



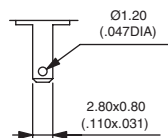
TERMINALS



Solder lug / quick-connect



Normalized quick-connect 6.35x0.8



Normalized quick-connect 2.8x0.8





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			



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BUILD YOUR PART NUMBER

CASE + LEDS

SERIES	PROTECTION GUARDS	POLES	ELECTRICAL FUNCTIONS	CONTACTS	SEALING	LEDS	WIRING
KH	1 On 4 sides 2 On 2 sides	3 Single pole 4 Double pole	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	Z IP69K Standard	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 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 etc.	See following pages.

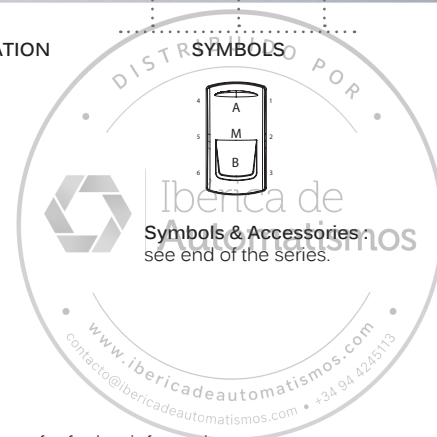
TERMINALS

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

ACTUATOR

TYPE	COLOR	MARKING ORIENTATION	SYMBOLS
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	N North O West S South E East	Area A Area M Area B Symbols & Accessories: see end of the series.

Drawings on following pages.



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

KH series

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PROTECTION GUARD ON 4 SIDES - KH1



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

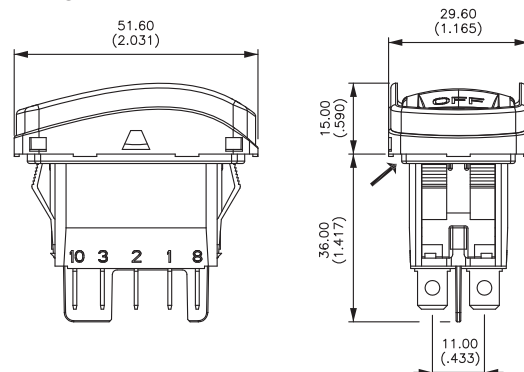
PROTECTION GUARD ON 2 SIDES - KH2



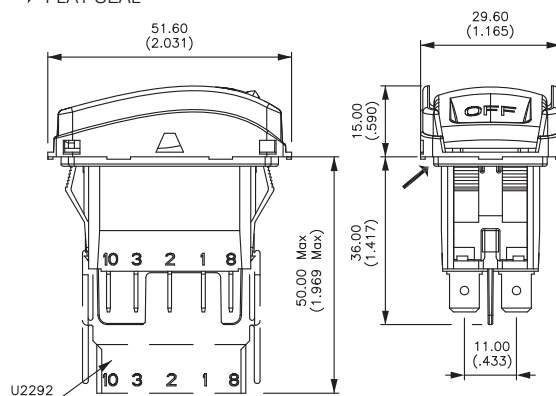
		2-3 5-6		1-2 4-5
Single pole	Double pole			
	KH244*	ON	ON	ON
	KH244-1R*	ON	ON	MOM
KH235	KH245	MOM	-	ON
KH236	KH246	ON	-	ON
KH237	KH247	MOM	OFF	MOM
KH238	KH248	ON	OFF	MOM
KH239	KH249	ON	OFF	ON

*Function 4 : single pole in double pole case

→ FLAT SEAL



→ FLAT SEAL



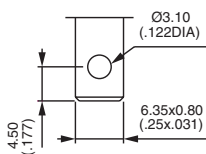
CASE + LEDS

TERMINALS



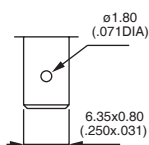
SOLDER LUG / QUICK-CONNECT

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



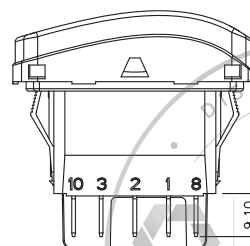
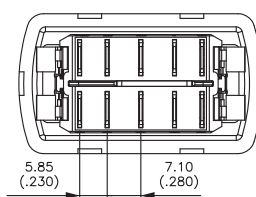
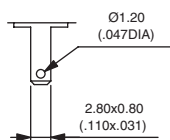
NORMALIZED QUICK-CONNECT 6.35X0.8

- 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

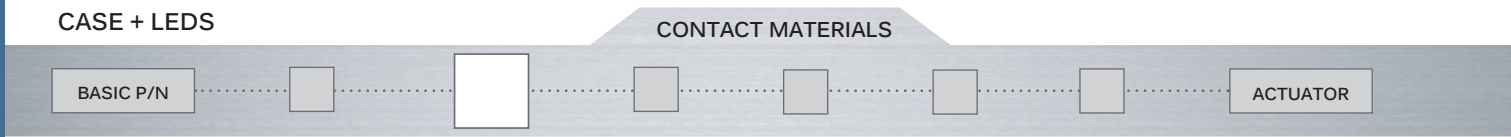


Terminals are marked on the case.
The drawings show the maximum possible number of terminals.

KH series

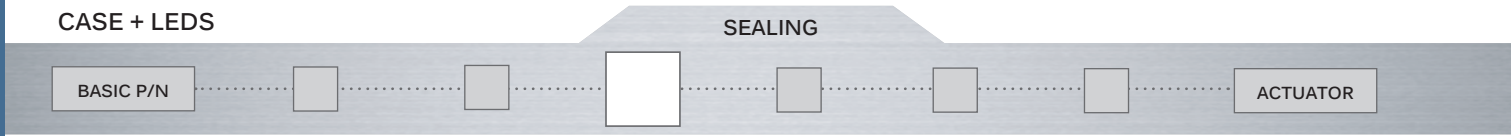
Power rocker switches with protection guard

CASE + LEDS



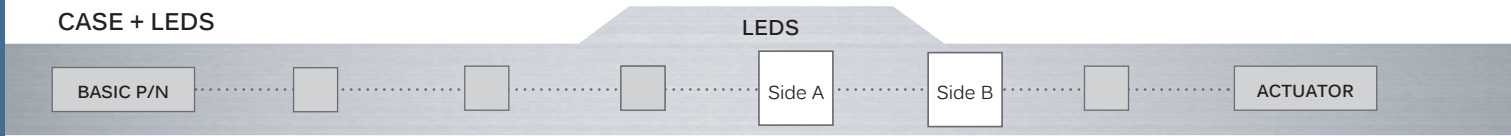
- A Silver
- D Silver, gold plated

CASE + LEDS



- Z IP69K - standard

CASE + LEDS



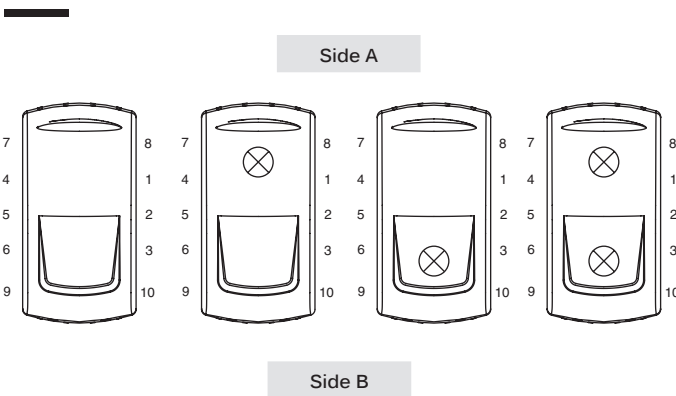
Complete each enlarged box with one of the codes listed below.

- 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 %



CASE + LEDS

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

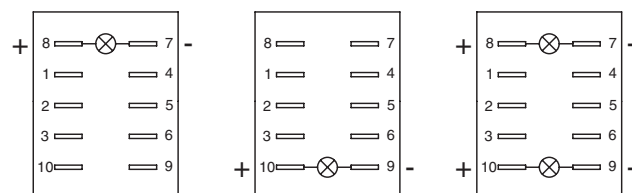
Available in Single Pole only, with H and J quick-connect terminals.

I To have a polarity inversion (typical application : fan motor).

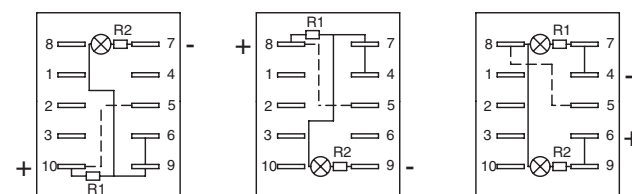
Dotted line = external wiring

Power supply between 2 and 5 - Load between 1 and 4 or 3 and 6.

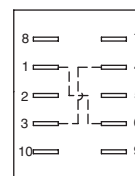
Available with H and J quick-connect terminals.



G



H



I

ACTUATOR

ACTUATOR TYPE



1 For non-illuminated application

2 For illuminated application

Other rocker design : on request.



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ACTUATOR

ACTUATOR COLOR

BASIC P/N	CASE + LEDS						

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

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

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

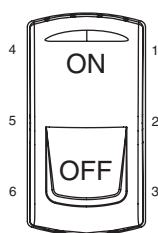


ACTUATOR

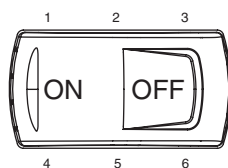
MARKING ORIENTATION

BASIC P/N	CASE + LEDS						

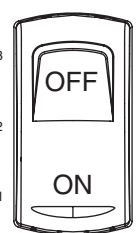
If no marking required, complete the box with code **N**. Other orientations : on request.



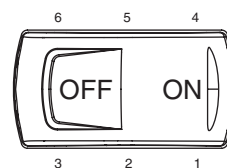
N



O



S



E

ACTUATOR

SYMBOLS

BASIC P/N	CASE + LEDS				Area A	Area M	Area B

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.

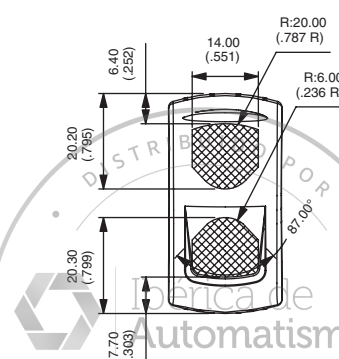
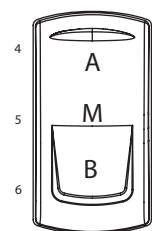
Laser etching resistance

- 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



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