

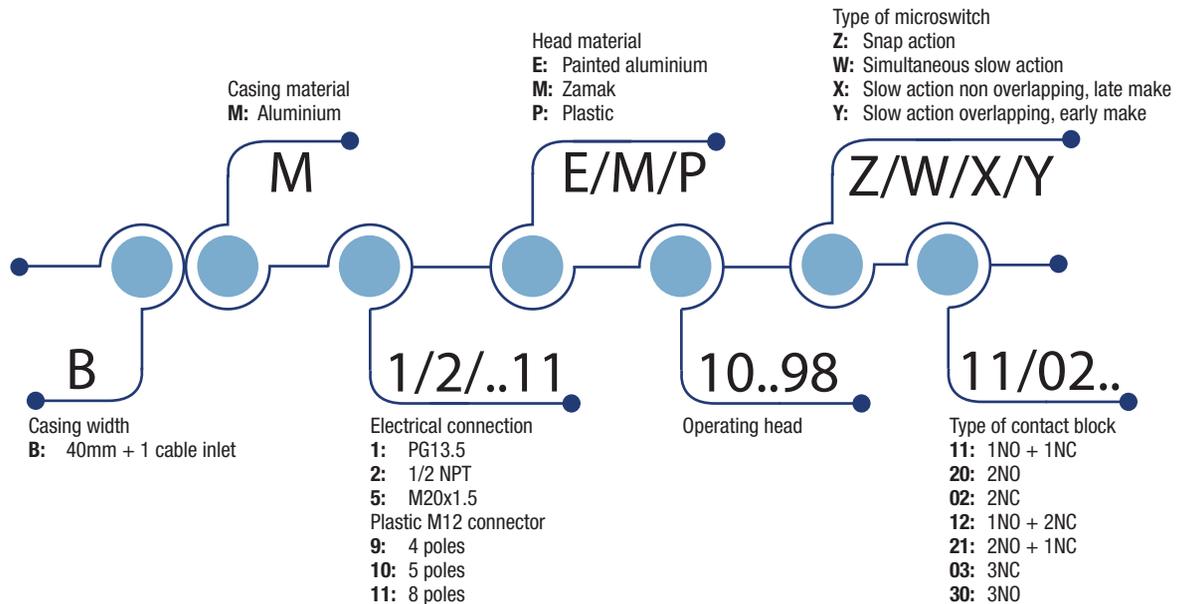
# Limit Switches **BM series**

## Summary

**APPROVALS:** UL 508 / CSA C22-2 N. 14 / IEC 60947-5-1



CB-SCHEME certification according to IEC 60947-5-1



## HOW IS IT MADE?

### 01 A variety of actuators

- Plain plunger
- Roller plunger
- Roller lever, adjustable or not, etc.

### 02 Wide range of heads

- Assembled using 4 x Ø4 screws

### 03 Casing:

- 40 mm. with dimensions acc. to EN 50041

### 04 Mounting screws

- 2 or 4 x M5 screws on top part

### 05 Cover

- 2 screws 3 pozidriv 1

### 06 Contact Block

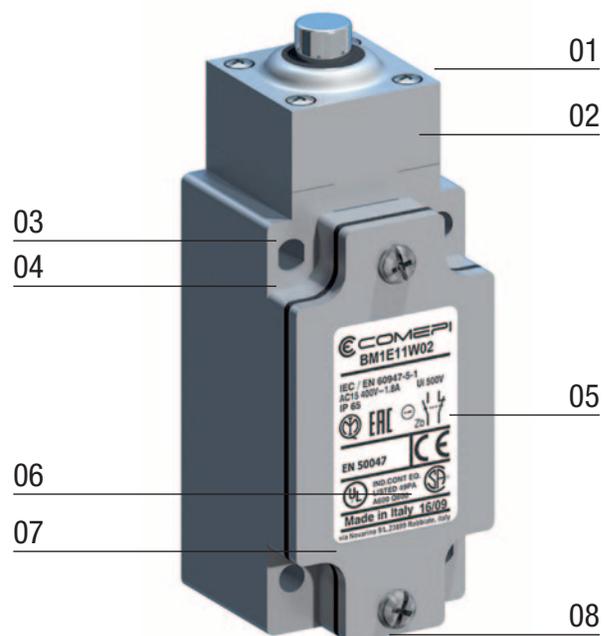
- Positive opening operation
- Snap action or slow action
- Electrically separated contacts

### 07 Connecting terminals

- Block of 2 contacts: M3.5 (+, -) pozidriv 2 screw
- Block of 3 contacts: M3 (+, -) screw
- Screw head with captive cable clamp
- Markings conform with IEC 60947-1, IEC 60947-5-1 standards

### 08 Electrical connection

- 1 x threaded cable inlet suitable for cable gland or M12 connector



# Limit Switches **BM series**

## Description

### APPLICATIONS

Easy to use, electromechanical limit switches offer specific qualities:

- Visible operation.
- Able to switch strong currents (10 A conventional thermal current).
- Electrically separated contacts.
- Precise operating points (consistency).
- Immune to electromagnetic disturbances.

They are purpose-built detection devices thanks to these characteristics:

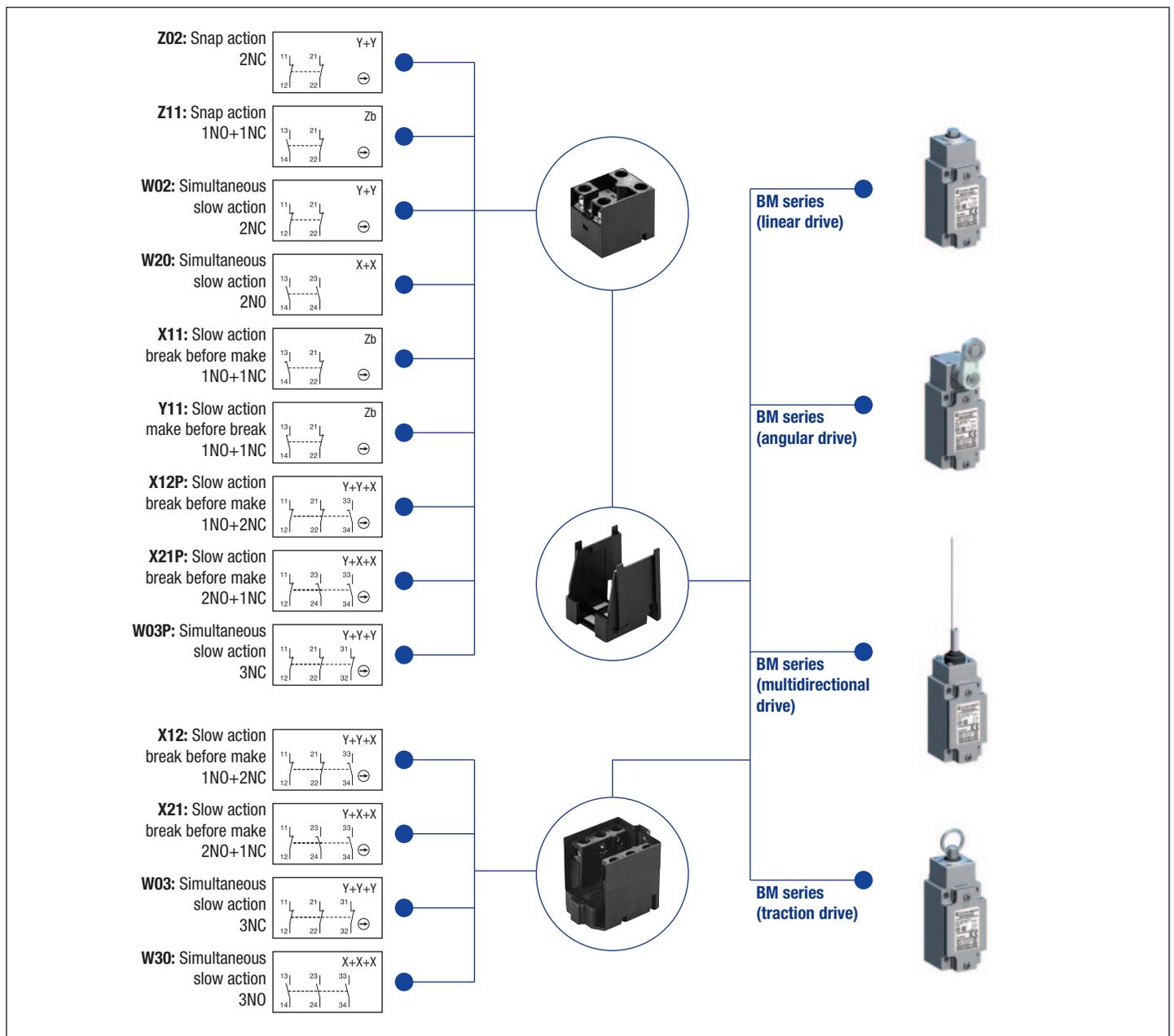
- Presence/absence.
- Positioning and travel limit.
- Objects passing/counting.

### DESCRIPTION

Limit switches, which are made aluminium, are mechanically more resistant and three times lighter than the ones in zinc alloy and they offer a degree of protection of IP66.

They comply with the requirements of European Directives (Low Voltage and RoHS) and are conform to European and International Standards.

The CE declaration of these products are available in the download section of website [www.comepi.it](http://www.comepi.it) or by writing to the following email address: [tecnico@comepi.it](mailto:tecnico@comepi.it)  
DDC02 - Limit Switches.



# Limit Switches **BM series**

## Technical Data

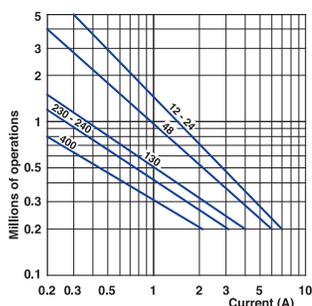
	<b>BM Series</b>	
<b>Standards</b>	IEC 60947-5-1 EN 60947-5-1	
<b>Certifications - Approvals</b>	UL - CSA - IMQ - EAC - CCC - UKCA	
<b>Air temperature</b> near the device		
– during operation	°C	– 25 ... + 70
– for storage	°C	– 30 ... + 80
<b>Mounting positions</b>	All positions are authorised	
<b>Protection against electrical shocks</b> (acc. to IEC 61140)	Class I	
<b>Degree of protection</b> (according to IEC 60529 and EN 60529)	IP 66*	

### Electrical Data

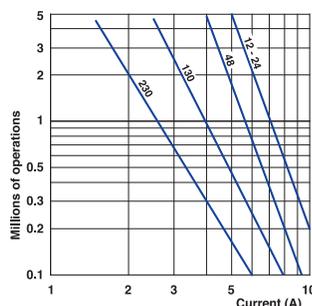
<b>Rated insulation voltage <math>U_i</math></b> - according to IEC 60947-1 and EN 60947-1 - according to UL 508 and CSA C22-2 n° 14	500 V (degree of pollution 3) (400 V for contacts type Z02) A 600, Q 600	
<b>Rated impulse withstand voltage <math>U_{imp}</math></b> (according to IEC 60947-1 and EN 60947-1)	kV	6
<b>Conventional free air thermal current <math>I_{th}</math></b> (according to IEC 60947-5-1) $\theta < 40$ °C	A	10
<b>Short-circuit protection</b> $U_e < 500$ V a.c. - gG (gl) type fuses	A	10
<b>Rated operational current</b> $I_e$ / AC-15 (according to IEC 60947-5-1)	24 V - 50/60 Hz A 120 V - 50/60 Hz A 400 V - 50/60 Hz A	10 6 4 (1.8A for contacts type X12, X21, W03, W30)
$I_e$ / DC-13 (according to IEC 60947-5-1)	24 V - d.c. A 125 V - d.c. A 250 V - d.c. A	6 (2.8A for contacts type X12, X21, W03, W30) 0.55 0.4 (0.27A for contacts type X12, X21, W03, W30)
<b>Switching frequency</b>	Cycles/h	3600
<b>Load factor</b>		0.5
<b>Resistance between contacts</b>	m $\Omega$	25
<b>Connecting terminals</b>	M3.5 (+, -) pozidriv 2 screw with cable clamp (M3 for 3 poles contacts type)	
<b>Terminal for protective conductor</b>	M3.5 (+, -) pozidriv 2 screw with cable clamp	
<b>Connecting capacity</b>	1 or 2 x mm <sup>2</sup>	0.34 ... 2.5 (0.34... 1.5 for 3 poles contacts type)
<b>Terminal marking</b>	According to IEC 60947-5-1	
<b>Recommended tightening torque</b>	<b>Metal</b>	
<b>Cover</b>	0,8Nm, max 0,9	
<b>Head</b>	0,8Nm, max 0,9	
<b>Microswitch</b>	0,8Nm, max 0,9	
<b>Mechanical durability</b>	30 millions of operations 25 millions of operations 10 millions of operations	P11; M13; E11...13; E21...23; E31...33 M41...75; E41...75 P91...93; M14; M19; E91...93; E99
<b>Electrical durability</b> (according to IEC 60947-5-1)	Utilization categories AC-15 and DC-13 (Load factor of 0.5 according to curves below)	

\* except for E54, E92, E93, P92, P93, M54: the degree of protection is IP65

### AC-15 - Snap action



### AC-15 - Slow action



DC-13	Snap action	Slow action
	Power breaking for a durability of 5 million operating cycles	
Voltage 24 V	9.5 W	12 W
Voltage 48 V	6.8 W	9 W
Voltage 110 V	3.6 W	6 W

# Limit Switches **BM series**

## Technical Data

### Technical data approved by IMQ

<b>Standards</b>	Devices conform with international IEC 60947-5-1 and European EN 60947-5-1 standards	
<b>Degree of protection</b>	IP 66*	
<b>Rated insulation voltage <math>U_i</math></b>	500 V (degree of pollution 3) (400V for type Z02)	
<b>Rated impulse withstand voltage <math>U_{imp}</math></b>	6 kV	
<b>Conventional free air thermal current <math>I_{th}</math></b>	10 A	
<b>Short-circuit protection - gG (gl) type fuses</b>	10 A	
<b>Rated operational current</b>		
$I_e$ / AC-15	24 V - 50/60 Hz	10 A
	400 V - 50/60 Hz	4 A (1.8A for contacts type X12, X21, W03, W30)
$I_e$ / DC-13	24 V - d.c.	6 A (2.8A for contacts type X12, X21, W03, W30)
	125 V - d.c.	0.55 A
	250 V - d.c.	0.4 A (0.27A for contacts type X12, X21, W03, W30)

\* except for E54, E92, E93, P92, P93, M54: the degree of protection is IP65

### Technical data approved by UL

<b>Standards</b>	Devices conform with UL 508
<b>Contact blocks type Z11, X11, Y11, W02 and Z02</b>	
<b>Utilization categories</b>	A600, Q600
<b>Contact blocks type X12, X21, W03 and W30</b>	
<b>Utilization categories</b>	A600, Q600

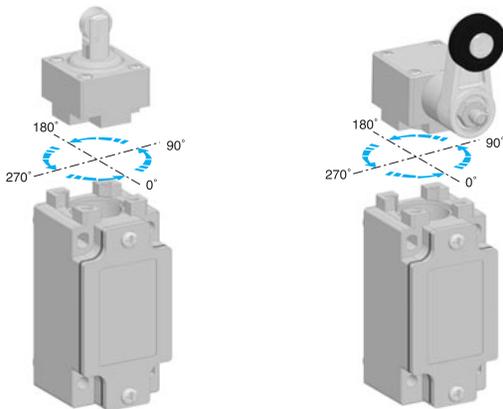
Use 60/75°C copper (Cu) conductor only. Wire rages 14-18 AWG stranded or solid. The terminal tightening torque of 7 lbs-in / 0.78 Nm. Suitable for conduit connection only with use of adapter sleeve optionally provided or recommended by the manufacturer.

For the complete list of approved products, contact our technical department

## IMPLEMENTATION

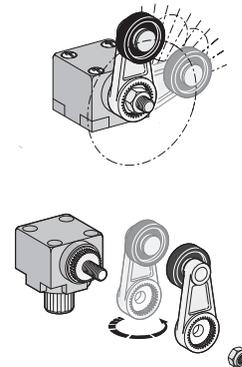
### Operating head orientation

The head can be rotated each 90°. Recommended tightening torque 0,5 Nm (max 0,8 Nm).

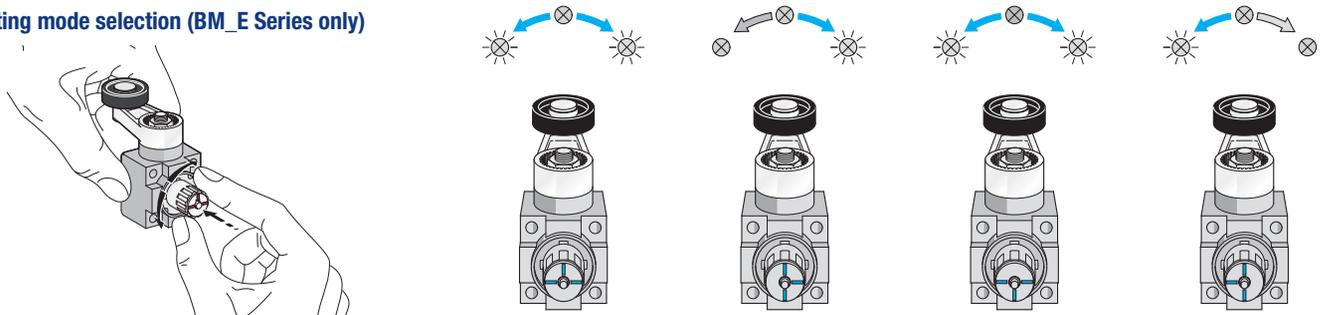


### Lever adjustment

The lever of the angular actuators can be adjusted every 9° and round turned in order to obtain the maximum flexibility on the working plan. Recommended tightening torque 0,5 Nm (max 0,8 Nm).



### Operating mode selection (BM\_E Series only)

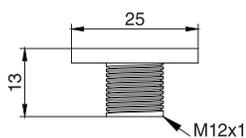


## Special Versions



### M12 CONNECTOR

Prewired versions with 5 or 8 poles M12 male connectors. Available with plastic threaded body. See page 117 for more details.



### Low Temperature

The limit switches for low temperature applications are useful for refrigerated cells or equipments where the air operational temperature is very low.

These devices, made in special materials, are able to extend the operational temperature range down to -40°C, maintaining mechanical performances intact. To order add the digits "40" following the operating head indication in part number.

For example: BM1E11Z11 ▶ BM1E1140Z11

