

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.

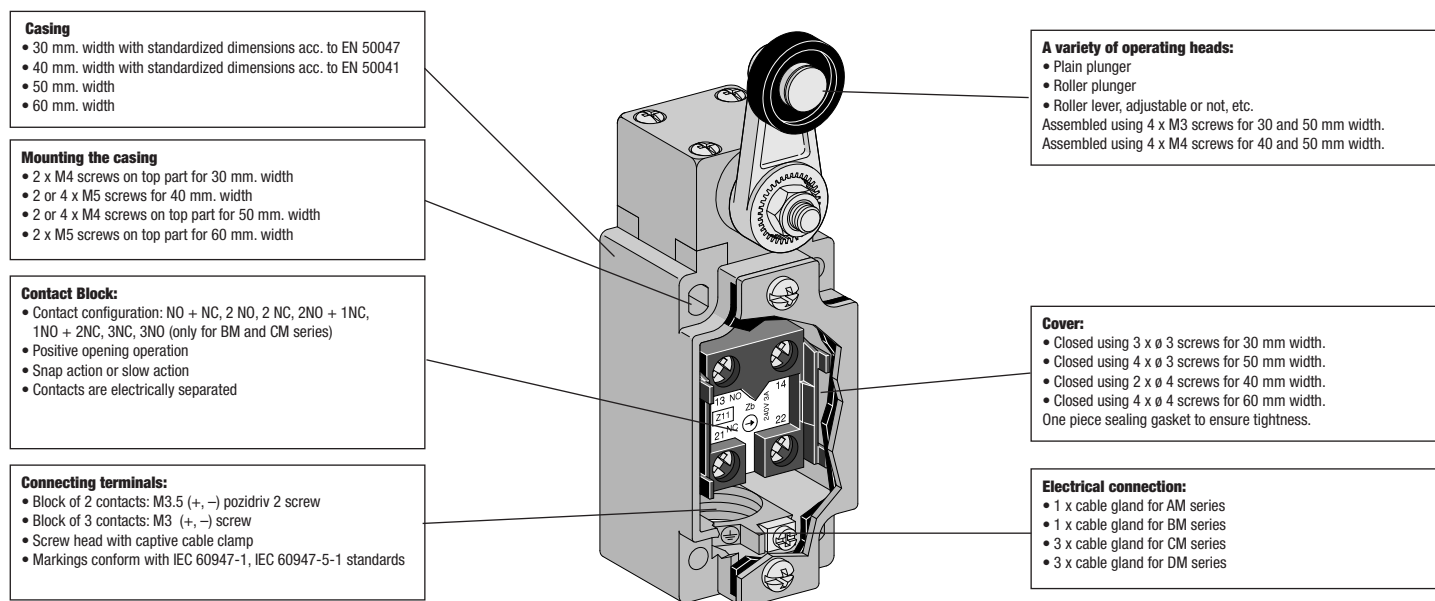
They are purpose-built detection devices thanks to these characteristics:

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

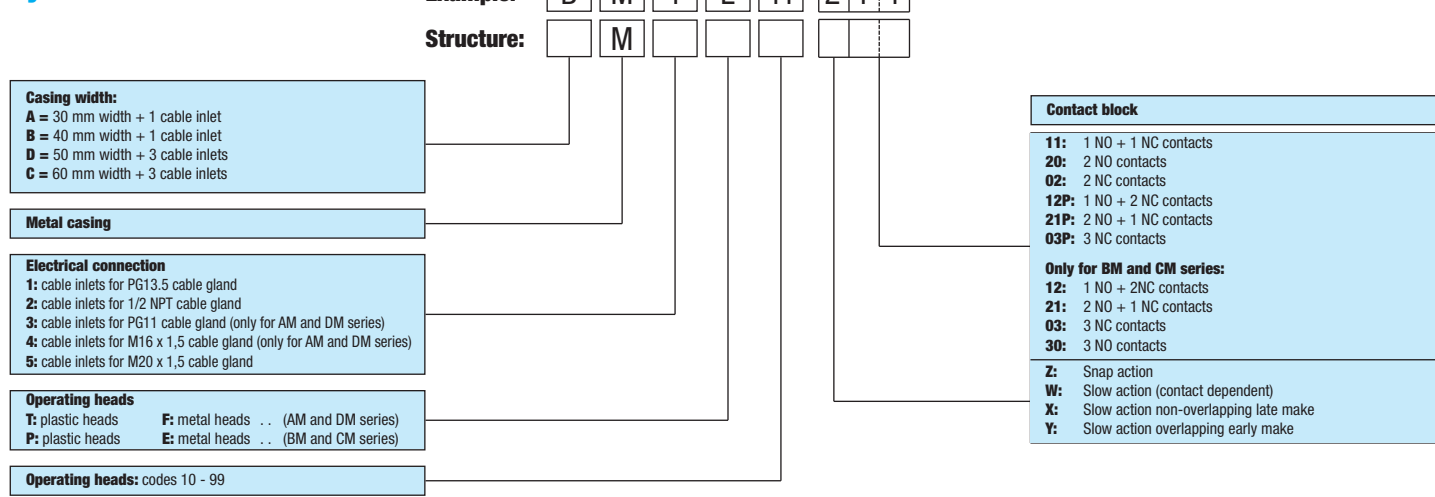
Description

The AM... and DM... series are made of zinc alloy (Zamak). The limit switches BM... and CM... series are realized in aluminium material, therefore they are mechanically more resistant and three times lighter than the ones in zinc alloy. All metal limit switches have a degree protection of IP 66.

The casing come in 4 dimension: – AM... 30 mm. width – BM... 40 mm. width
 – DM... 50 mm. width – CM... 60 mm. width



Symbols



General Technical Data

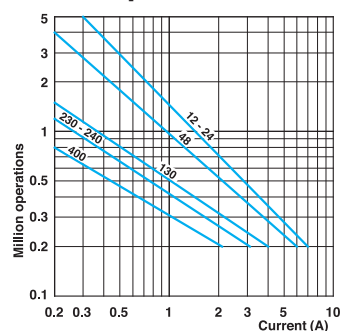
Standards		Metal Casing	
		Devices conform with international IEC 60947-5-1 and European EN 60947-5-1 standards	
Certifications - Approvals			
Air temperature near the device			
- during operation	°C	- 25 ... + 70	
- for storage	°C	- 30 ... + 80	
Climatic withstand		According to IEC 60068-2-3 and salty mist according to IEC 60068-2-11	
Mounting positions		All positions are authorised	
Shock withstand (according to IEC 60068-2-27 and EN 60068-2-27)		50g* (1/2 sinusoidal shock for 11 ms) no change in contact position	
Resistance to vibrations (acc. to IEC 60068-2-6 and EN 60068-2-6)		25g (10 ... 500 Hz) no change in position of contacts greater than 100 µs	
Protection against electrical shocks (acc. to IEC 60536)		Class I	
Degree of protection (according to IEC 60529 and EN 60529)		IP 66**	
Consistency (measured over 1 million operations)		0.05 mm (upon closing point)	
Minimum actuation speed		Slow action contacts 0.060 / Snap action contacts 0.001	

Electrical Data

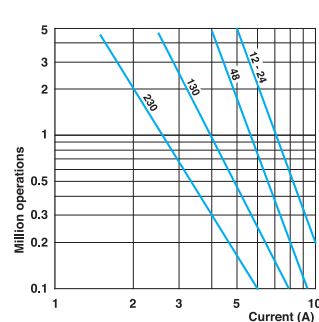
Rated insulation voltage U_i		500 V (degree of pollution 3) (400 V for contacts type Z02, X12P, X21P, W03P)																			
- according to IEC 60947-1 and EN 60947-1		A 600, Q 600 (A 300, Q 300 for AM... and DM... series and contacts type X12P, X21P, W03P)																			
Rated impulse withstand voltage U_{imp}		6 (4kV for contacts type X12P, X21P, W03P)																			
(according to IEC 60947-1 and EN 60947-1)																					
Conventional free air thermal current I_{th}		10																			
(according to IEC 60947-5-1) $\theta < 40$ °C																					
Short-circuit protection		10																			
$U_e < 500$ V a.c. - gG (gl) type fuses																					
Rated operational current																					
I_e / AC-15 (according to IEC 60947-5-1)	24 V - 50/60 Hz	A	10																		
	120 V - 50/60 Hz	A	6																		
	400 V - 50/60 Hz	A	4																		
I_e / DC-13 (according to IEC 60947-5-1)	24 V - d.c.	A	6																		
	125 V - d.c.	A	0.55																		
	250 V - d.c.	A	0.4																		
Switching frequency		Cycles/h 3600																			
Load factor		0.5																			
Resistance between contacts		mΩ 25																			
Connecting terminals		M3.5 (+, -) pozidriv 2 screw with cable clamp (M3 for 3 poles contacts type)																			
Terminal for protective conductor		M3.5 (+, -) pozidriv 2 screw with cable clamp																			
Connecting capacity		1 or 2 x mm ² 0.75 ... 2.5 (0.34... 1.5 for 3 poles contact type)																			
Terminal marking		According to IEC 60947-5-1																			
Mechanical durability		Millions of operations																			
		<table border="0"> <tr> <td>15</td> <td rowspan="3">} AM•F/T</td> <td rowspan="3">{</td> <td>11; 12; 30...34; 38</td> <td rowspan="3">} 30</td> <td rowspan="3">BM•E</td> <td rowspan="3">{</td> <td>11...13; 21...23; 31...33</td> </tr> <tr> <td>10</td> <td>41...46; 51...55; 61...75</td> <td>25</td> <td>CM•E</td> <td>41...44; 51...54; 61...75</td> </tr> <tr> <td>>5</td> <td>14; 35; 36; 39; 91...93; 98</td> <td>10</td> <td></td> <td>91...93; 99</td> </tr> </table>		15	} AM•F/T	{	11; 12; 30...34; 38	} 30	BM•E	{	11...13; 21...23; 31...33	10	41...46; 51...55; 61...75	25	CM•E	41...44; 51...54; 61...75	>5	14; 35; 36; 39; 91...93; 98	10		91...93; 99
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>5			14; 35; 36; 39; 91...93; 98		10			91...93; 99													
Electrical durability (according to IEC 60947-5-1)		Utilization categories AC-15 and DC-13 (Load factor of 0.5 according to curves below)																			

* except for AM/DM•F42, F52, F55: 25 g. - ** except for AM/DM•F52, F55, F73, F74, T92, T93 and BM/CM•E54, P92, P93, E92, E93, P92, P93: the degree of protection is IP65 IMQ listed values
For the complete list of approved products, contact our technical department

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

Electrical Connection

CM1: three cable inlets for PG 13,5 Cable Gland

CM2: three cable inlets for 1/2" NPT Cable Gland

CM5: three cable inlets for M20 x 1,5 Cable Gland



Operating Head Type

	P11 - Plain plunger	P92 - Multidirectional nylon actuator with stainless steel spring	P93 - Stainless steel spring multidirectional actuator
Conformity / \odot (N.C. contact with positive opening operation)			
Max actuation speed [m/s]	0,5	1,0	1,0
Min. force [N] or torque [Nm]: actuation / positive opening operation	30 / 45	0,18 / -	0,18 / -

Additional Technical Datas

Order Code	Operation Diagram	CM-P11Z11	CM-P92Z11	CM-P93Z11
Z11 Snap Action Contacts (1NO + 1NC)				
X11 Non overlapping Slow Action Contacts (1NO + 1NC)				
Y11 Overlapping Slow Action Contacts (1NO + 1NC)				
W02 Slow Action Contacts (2NC)				
W20 Slow Action Contacts (2NO)				
Z02 Snap Action Contacts (2NC)				
X12 Non overlapping Slow Action Contacts (1NO + 2NC)				
X21 Non overlapping Slow Action Contacts (2NO + 1NC)				
W03 Simultaneous Slow Action Contacts (3NC)				
W30 Simultaneous Slow Action Contacts (3NO)				
Weight (packing per unit)	[kg]	0,245	0,245	0,250

Dimensions (in mm)

