

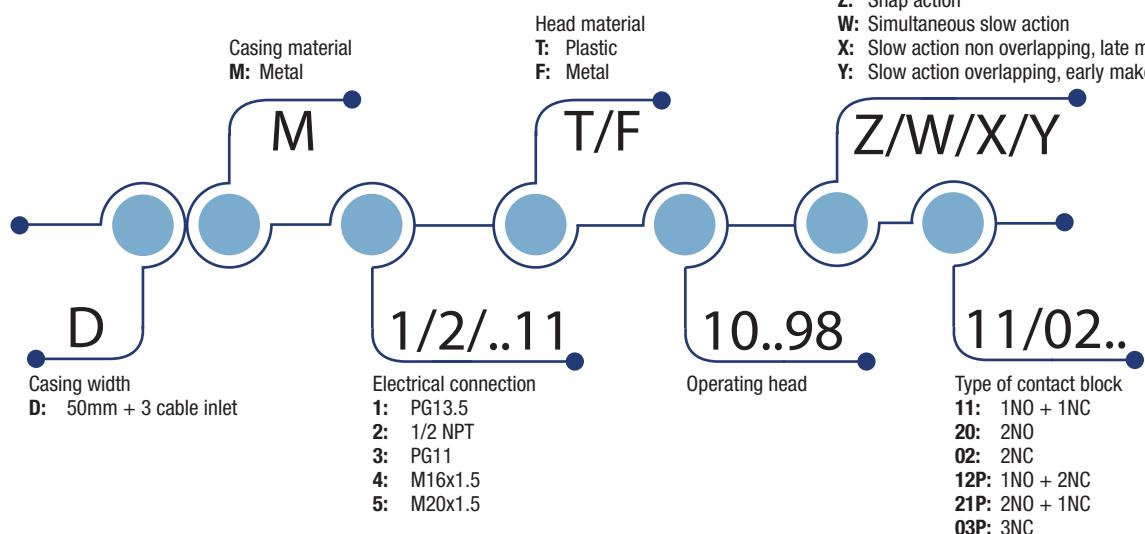
Limit Switches DM series

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 Ø3 screws

03 Casing:

- 50 mm. width

04 Mounting screws

- 2 or 4 x M4 screws on top part

05 Cover

- 4 screws Ø3 pozidriv 1

06 Contact Block

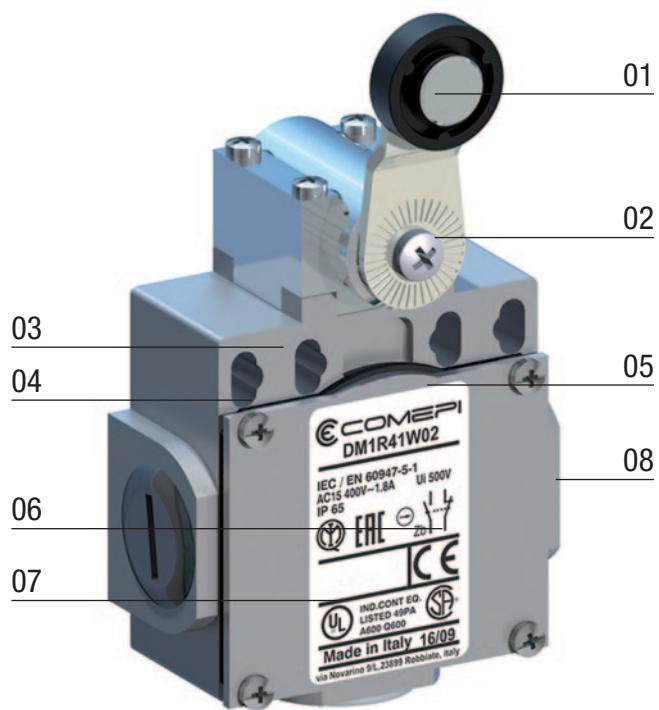
- Positive opening operation
- Snap action or slow action
- Electrically separated contacts

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 60947-5-1, IEC 60947-5-1 standards

08 Electrical connection

- 3 x threaded cable inlets suitable for cable gland



Limit Switches DM 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:

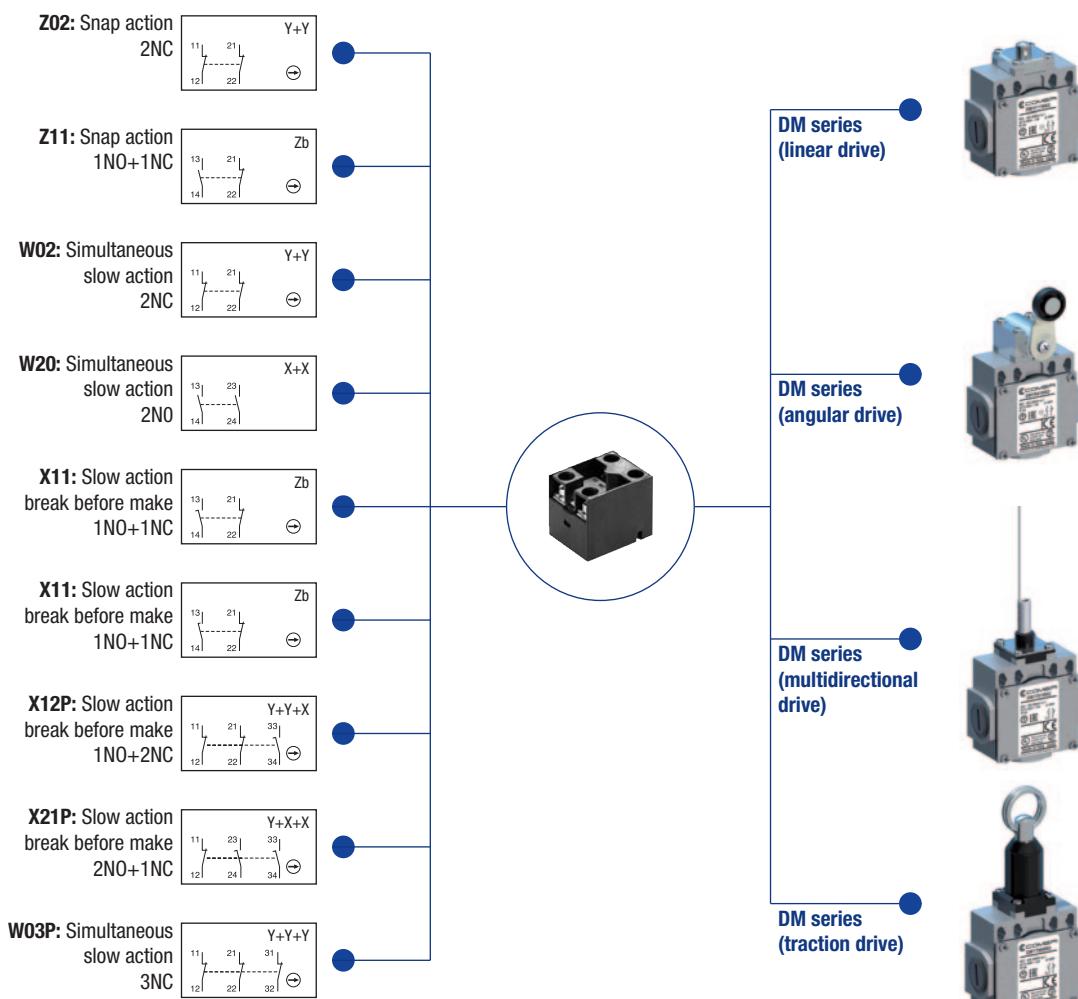
- Presence/absence.
- Positioning and travel limit.
- Objects passing/counting.

DESCRIPTION

Limit switches, which are made of zinc alloy (Zamak), 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 or by writing to the following email address: tecnico@comepi.it



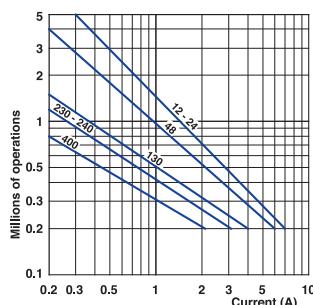
Limit Switches **DM** series

Technical Data

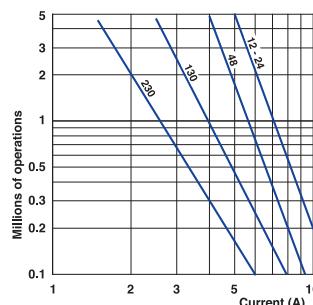
DM Series					
Standards	IEC 60947-5-1 EN 60947-5-1				
Certifications - Approvals	UL - CSA - IMQ - EAC - CCC - UKCA				
Air temperature near the device					
– during operation	°C	– 25 ... + 70			
– for storage	°C	– 30 ... + 80			
Mounting positions	All positions are authorised				
Protection against electrical shocks (acc. to IEC 61140)	Class I				
Degree of protection (according to IEC 60529 and EN 60529)	IP 66				
Electrical Data					
Rated insulation voltage U_i	500 V (degree of pollution 3) (400 V for contacts type Z02, X12P, X21P, W03P) A 300, Q 300				
- according to IEC 60947-1 and EN 60947-1					
- according to UL 508 and CSA C22-2 n° 14					
Rated impulse withstand voltage U_{imp} (according to IEC 60947-1 and EN 60947-1)	kV	6			
Conventional free air thermal current I_{th} (according to IEC 60947-5-1) $\theta < 40^\circ \text{C}$	A	10			
Short-circuit protection		10			
$U_e < 500 \text{ V a.c. - gG (gl) type fuses}$	A				
Rated operational current I_e					
$I_e / \text{AC-15}$ (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		
$I_e / \text{DC-13}$ (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	0.34 ... 2.5 (0.34... 1.5 for 3 poles contacts type)			
Terminal marking	According to IEC 60947-5-1				
Recommended tightening torque	Metal				
Cover	0,8Nm, max 0,9				
Head	0,8Nm, max 0,9				
Microswitch	0,8Nm, max 0,9				
Mechanical durability		15 millions of operations F11; F12; T21; T2101; T30...34; T38 10 millions of operations F41...46; F51...56; F61...75 >5 millions of operations T14; T35; T36; T39; T91...93; T98			
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 E52 E5200 E55 E5500 E73 E74 T92 T93: 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
Voltage	48 V	6.8 W
Voltage	110 V	3.6 W
		12 W
		9 W
		6 W

Limit Switches DM series

Technical Data

Technical data approved by IMQ

Standards	Devices conform with international IEC 60947-5-1 and European EN 60947-5-1 standards
Degree of protection	IP 66*
Rated insulation voltage U_i	500 V (degree of pollution 3) (400V for type Z02, X12P, X21P, W03P)
Rated impulse withstand voltage U_{imp}	6 kV
Conventional free air thermal current I_{th}	10 A
Short-circuit protection - gG (gl) type fuses	10 A
Rated operational current	
I_e / AC-15	24 V - 50/60 Hz 400 V - 50/60 Hz
	10 A 4 A
I_e / DC-13	24 V - d.c. 125 V - d.c. 250 V - d.c.
	6 A 0.55 A 0.4 A

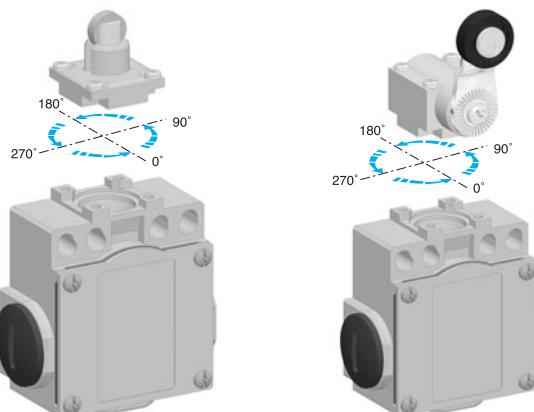
* except for F52, F5200, F55, F5500, F73, F74, T92, T93: the degree of protection is IP65

IMPLEMENTATION

Operating head orientation

The head can be rotated each 90°.

Recommended tightening torque 0,5 Nm (max 0,8 Nm).



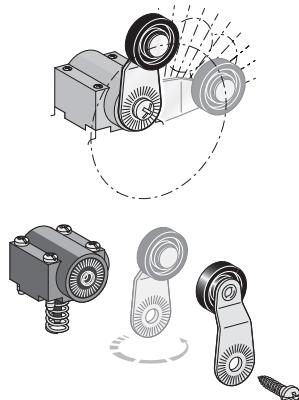
Technical data approved by UL

Standards	Devices conform with UL 508
Contact blocks type Z11, X11, Y11, W02 and Z02	
Utilization categories	A300, Q300
Contact blocks type X12P, X21P and W03P	A300, Q300
Utilization categories	
	Use 60/75°C copper (Cu) conductor only. Wire ranges 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

Lever adjustment

The lever of the angular actuators can be adjusted every 10° and round turned in order to obtain the maximum flexibility on the working plan. Recommended tightening torque 0,5 Nm (max 0,8 Nm).



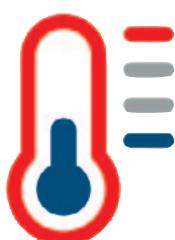
Special Versions



Plastic actuators

The operating heads used in plastic limit switches AP and DP series have the same dimensions of the ones used in the corresponding metal AM and DM series. It is therefore possible to supply "mixed" versions, that is:

- plastic operating head on metal casing
- metal operating head on plastic casing



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: DM1F11Z11 → DM1F1140Z11

Manual reset operating head

Limit switches equipped with special operating head with manual reset button.

For more information:



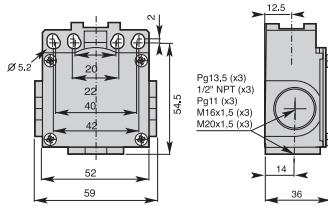
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Limit Switches DM_F/DM_T series

Metal casing IP66 - 50 mm. width

Electrical connection:

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- DM3:** three cable inlets for PG11 Cable Gland
- DM4:** three cable inlets for M16 x 1,5 Cable Gland
- DM5:** three cable inlets for M20 x 1,5 Cable Gland



Contact Blocks

F11 - Plain metal plunger



Min. actuating force
Weight

15N (30N ⊖)
270 g

F12 - Metal roller plunger



Min. actuating force
Weight

12N (30N ⊖)
280 g

T14 - Metal plunger
with dust protection cup



Min. actuating force
Weight

15N (30N ⊖)
255 g

Z11 (1NO + 1NC)

DM•F11Z11

DM•T14Z11

X11 (1NO + 1NC)

DM•F11X11

DM•T14X11

Y11 (1NO + 1NC)

DM•F11Y11

DM•T14Y11

W02 (2NC)

DM•F11W02

DM•T14W02

W20 (2NO)

DM•F11W20

DM•T14W20

Z02 (2NC)

DM•F11Z02

DM•T14Z02

X12P (1NO + 2NC)

DM•F11X12P

DM•T14X12P

X21P (2NO + 1NC)

DM•F11X21P

DM•T14X21P

W03P (3NC)

DM•F11W03P

DM•T14W03P

T21 - Plain plunger with
M18x1 fixing nuts



Min. actuating force
Weight

15N (30N ⊖)
265 g

T2101 - Plain plunger
with M12x1 fixing nuts



Min. actuating force
Weight

15N (30N ⊖)
265 g

T30 - Plastic roller lever
on plastic plunger



Min. actuating force
Weight

7N (24N ⊖)
260 g

Contact Blocks

Z11 (1NO + 1NC)

DM•T21Z11

DM•T30Z11

X11 (1NO + 1NC)

DM•T21X11

DM•T30X11

Y11 (1NO + 1NC)

DM•T21Y11

DM•T30Y11

W02 (2NC)

DM•T21W02

DM•T30W02

W20 (2NO)

DM•T21W20

DM•T30W20

Z02 (2NC)

DM•T21Z02

DM•T30Z02

X12P (1NO + 2NC)

DM•T21X12P

DM•T30X12P

X21P (2NO + 1NC)

DM•T21X21P

DM•T30X21P

W03P (3NC)

DM•T21W03P

DM•T30W03P

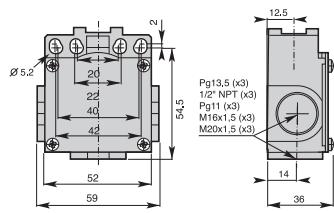
Operation diagrams: page 123 - All dimensions are in mm

Limit Switches DM_F/DM_T series

Metal casing IP66 - 50 mm. width

Electrical connection:

- DM1:** three cable inlets for PG 13,5 Cable Gland
- DM2:** three cable inlets for 1/2" NPT Cable Gland
- DM3:** three cable inlets for PG11 Cable Gland
- DM4:** three cable inlets for M16 x 1,5 Cable Gland
- DM5:** three cable inlets for M20 x 1,5 Cable Gland



Contact Blocks

Z11 (1NO + 1NC)	DM•T31Z11	Z11 (1NO + 1NC)	DM•T35Z11
X11 (1NO + 1NC)	DM•T31X11	X11 (1NO + 1NC)	DM•T35X11
Y11 (1NO + 1NC)	DM•T31Y11	Y11 (1NO + 1NC)	DM•T35Y11
W02 (2NC)	DM•T31W02	W02 (2NC)	DM•T35W02
W20 (2NO)	DM•T31W20	W20 (2NO)	DM•T35W20
Z02 (2NC)	DM•T31Z02	Z02 (2NC)	DM•T35Z02
X12P (1NO + 2NC)	DM•T31X12P	X12P (1NO + 2NC)	DM•T35X12P
X21P (2NO + 1NC)	DM•T31X21P	X21P (2NO + 1NC)	DM•T35X21P
W03P (3NC)	DM•T31W03P	W03P (3NC)	DM•T35W03P

T31 - Plastic roller lever on metal plunger



Min. actuating force
Weight

7N (24N ⊖)
260 g

T35 - Plastic roller lever on metal plunger with dust protection cup



Min. actuating force
Weight

7N (24N ⊖)
260 g

T38 - Adjustable plastic roller lever on metal plunger



Min. actuating force
Weight

7N (24N ⊖)
265 g

Contact Blocks

Z11 (1NO + 1NC)	DM•T39Z11	Z11 (1NO + 1NC)	DM•F41Z11
X11 (1NO + 1NC)	DM•T39X11	X11 (1NO + 1NC)	DM•F41X11
Y11 (1NO + 1NC)	DM•T39Y11	Y11 (1NO + 1NC)	DM•F41Y11
W02 (2NC)	DM•T39W02	W02 (2NC)	DM•F41W02
W20 (2NO)	DM•T39W20	W20 (2NO)	DM•F41W20
Z02 (2NC)	DM•T39Z02	Z02 (2NC)	DM•F41Z02
X12P (1NO + 2NC)	DM•T39X12P	X12P (1NO + 2NC)	DM•F41X12P
X21P (2NO + 1NC)	DM•T39X21P	X21P (2NO + 1NC)	DM•F41X21P
W03P (3NC)	DM•T39W03P	W03P (3NC)	DM•F41W03P

T39 - Adjustable plastic roller lever on metal plunger with dust protection cup



Min. actuating force
Weight

7N (24N ⊖)
265 g

F41 - Ø 18 nylon roller



Min. actuating torque
Weight

0,10Nm (0,32Nm ⊖)
320 g

F42 - Ø 50 rubber roller lever



Min. actuating torque
Weight

0,10Nm (0,32Nm ⊖)
345 g

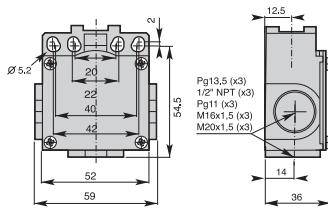
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Limit Switches DM_F/DM_T series

Metal casing IP66 - 50 mm. width

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- DM3:** three cable inlets for PG11 Cable Gland
- DM4:** three cable inlets for M16 x 1,5 Cable Gland
- DM5:** three cable inlets for M20 x 1,5 Cable Gland



Contact Blocks

Z11 (1NO + 1NC)	DM•F43Z11	DM•F44Z11	DM•F45Z11
X11 (1NO + 1NC)	DM•F43X11	DM•F44X11	DM•F45X11
Y11 (1NO + 1NC)	DM•F43Y11	DM•F44Y11	DM•F45Y11
W02 (2NC)	DM•F43W02	DM•F44W02	DM•F45W02
W20 (2NO)	DM•F43W20	DM•F44W20	DM•F45W20
Z02 (2NC)	DM•F43Z02	DM•F44Z02	DM•F45Z02
X12P (1NO + 2NC)	DM•F43X12P	DM•F44X12P	DM•F45X12P
X21P (2NO + 1NC)	DM•F43X21P	DM•F44X21P	DM•F45X21P
W03P (3NC)	DM•F43W03P	DM•F44W03P	DM•F45W03P

F43 - Ø 18 metal roller lever



Min. actuating torque 0,10Nm (0,32Nm ⊕)
Weight 325 g

F44 - Ø 19 steel ball bearing roller lever



Min. actuating torque 0,10Nm (0,32Nm ⊕)
Weight 325 g

F45 - Ø 18 nylon roller lever



Min. actuating torque 0,10Nm (0,32Nm ⊕)
Weight 335 g

F46 - Ø 18 metal roller lever



Min. actuating torque 0,10Nm (0,32Nm ⊕)
Weight 340 g

F47 - Ø 19 steel ball bearing roller lever



Min. actuating torque 0,10Nm (0,32Nm ⊕)
Weight 340 g

F51 - Adjustable lever with Ø 18 nylon roller



Min. actuating torque 0,10Nm (0,32Nm ⊕)
Weight 335 g

Contact Blocks

Z11 (1NO + 1NC)	DM•F46Z11	DM•F47Z11	DM•F51Z11
X11 (1NO + 1NC)	DM•F46X11	DM•F47X11	DM•F51X11
Y11 (1NO + 1NC)	DM•F46Y11	DM•F47Y11	DM•F51Y11
W02 (2NC)	DM•F46W02	DM•F47W02	DM•F51W02
W20 (2NO)	DM•F46W20	DM•F47W20	DM•F51W20
Z02 (2NC)	DM•F46Z02	DM•F47Z02	DM•F51Z02
X12P (1NO + 2NC)	DM•F46X12P	DM•F47X12P	DM•F51X12P
X21P (2NO + 1NC)	DM•F46X21P	DM•F47X21P	DM•F51X21P
W03P (3NC)	DM•F46W03P	DM•F47W03P	DM•F51W03P

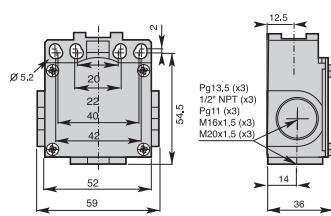
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Limit Switches DM_F/DM_T series

Metal casing IP66 - 50 mm. width

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- DM3:** three cable inlets for PG11 Cable Gland
- DM4:** three cable inlets for M16 x 1,5 Cable Gland
- DM5:** three cable inlets for M20 x 1,5 Cable Gland



Contact Blocks

Z11 (1NO + 1NC)	DM•F5100Z11
X11 (1NO + 1NC)	DM•F5100X11
Y11 (1NO + 1NC)	DM•F5100Y11
W02 (2NC)	DM•F5100W02
W20 (2NO)	DM•F5100W20
Z02 (2NC)	DM•F5100Z02
X12P (1NO + 2NC)	DM•F5100X12P
X21P (2NO + 1NC)	DM•F5100X21P
W03P (3NC)	DM•F5100W03P

F5100 - Adjustable toothed lever (step 2 mm) with Ø 18 nylon roller



Min. actuating torque 0,10Nm (0,32Nm ⊕)
Weight 335 g

F52 - Adjustable lever with Ø 50 rubber roller



Min. actuating torque 0,10Nm (0,32Nm ⊕)
Weight 335 g

F5200 - Adjustable toothed lever (step 2 mm) with Ø 50 rubber roller



Min. actuating torque 0,10Nm (0,32Nm ⊕)
Weight 335 g

Contact Blocks

Z11 (1NO + 1NC)	DM•F53Z11
X11 (1NO + 1NC)	DM•F53X11
Y11 (1NO + 1NC)	DM•F53Y11
W02 (2NC)	DM•F53W02
W20 (2NO)	DM•F53W20
Z02 (2NC)	DM•F53Z02
X12P (1NO + 2NC)	DM•F53X12P
X21P (2NO + 1NC)	DM•F53X21P
W03P (3NC)	DM•F53W03P

F53 - Adjustable lever with Ø 18 metal roller



Min. actuating torque 0,10Nm (0,32Nm ⊕)
Weight 340 g

F54 - Adjustable lever with Ø 19 steel ball bearing roller



Min. actuating torque 0,10Nm (0,32Nm ⊕)
Weight 340 g

F55 - Adjustable lever with adjustable Ø 50 rubber roller



Min. actuating torque 0,10Nm (0,32Nm ⊕)
Weight 355 g

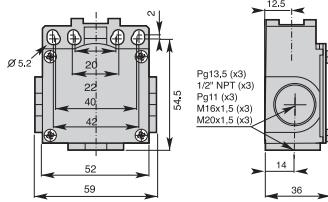
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- DM4:** three cable inlets for M16 x 1,5 Cable Gland
- DM5:** three cable inlets for M20 x 1,5 Cable Gland



Contact Blocks

Z11 (1NO + 1NC)	DM•F5500Z11	DM•F61Z11	DM•F62Z11
X11 (1NO + 1NC)	DM•F5500X11	DM•F61X11	DM•F62X11
Y11 (1NO + 1NC)	DM•F5500Y11	DM•F61Y11	DM•F62Y11
W02 (2NC)	DM•F5500W02	DM•F61W02	DM•F62W02
W20 (2NO)	DM•F5500W20	DM•F61W20	DM•F62W20
Z02 (2NC)	DM•F5500Z02	DM•F61Z02	DM•F62Z02
X12P (1NO + 2NC)	DM•F5500X12P	DM•F61X12P	DM•F62X12P
X21P (2NO + 1NC)	DM•F5500X21P	DM•F61X21P	DM•F62X21P
W03P (3NC)	DM•F5500W03P	DM•F61W03P	DM•F62W03P

F5500 - Adjustable toothed lever (step 2 mm) with Ø 50 rubber roller



Min. actuating torque 0,10Nm (0,32Nm ⊕)
Weight 355 g

F61 - Nylon actuator with stainless steel spring



Min. actuating torque 0,10Nm
Weight 305 g

F62 - Stainless steel spring actuator



Min. actuating torque 0,10Nm
Weight 305 g

F71 - Adjustable Ø 3 rod lever with stainless steel rod



Min. actuating torque 0,10Nm (0,32Nm ⊕)
Weight 380 g

F72 - Adjustable Ø 3 rod lever with fiberglass rod



Min. actuating torque 0,10Nm (0,32Nm ⊕)
Weight 380 g

F73 - Adjustable Ø 6 rod lever with nylon rod



Min. actuating torque 0,10Nm (0,32Nm ⊕)
Weight 390 g

Contact Blocks

Z11 (1NO + 1NC)	DM•F71Z11	DM•F72Z11	DM•F73Z11
X11 (1NO + 1NC)	DM•F71X11	DM•F72X11	DM•F73X11
Y11 (1NO + 1NC)	DM•F71Y11	DM•F72Y11	DM•F73Y11
W02 (2NC)	DM•F71W02	DM•F72W02	DM•F73W02
W20 (2NO)	DM•F71W20	DM•F72W20	DM•F73W20
Z02 (2NC)	DM•F71Z02	DM•F72Z02	DM•F73Z02
X12P (1NO + 2NC)	DM•F71X12P	DM•F72X12P	DM•F73X12P
X21P (2NO + 1NC)	DM•F71X21P	DM•F72X21P	DM•F73X21P
W03P (3NC)	DM•F71W03P	DM•F72W03P	DM•F73W03P

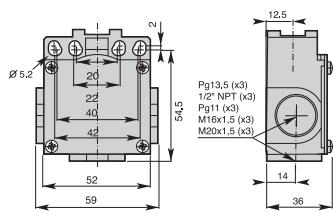
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- DM4:** three cable inlets for M16 x 1,5 Cable Gland
- DM5:** three cable inlets for M20 x 1,5 Cable Gland



Contact Blocks

Z11 (1NO + 1NC)	DM•F74Z11
X11 (1NO + 1NC)	DM•F74X11
Y11 (1NO + 1NC)	DM•F74Y11
W02 (2NC)	DM•F74W02
W20 (2NO)	DM•F74W20
Z02 (2NC)	DM•F74Z02
X12P (1NO + 2NC)	DM•F74X12P
X21P (2NO + 1NC)	DM•F74X21P
W03P (3NC)	DM•F74W03P

F74 - Adjustable Ø 6 rod lever with fiberglass rod



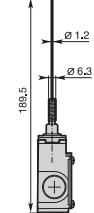
Min. actuating torque 0,10Nm (0,32Nm ⊖)
Weight 390 g

T75 - Adjustable 3x3 square steel rod lever



Min. actuating torque 0,10Nm (0,32Nm ⊖)
Weight 380 g

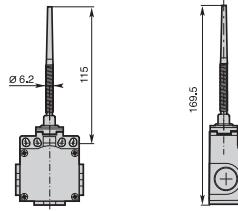
T91 - Stainless steel spring multidirectional actuator



Min. actuating torque 0,12Nm
Weight 265 g

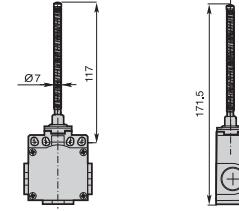
Contact Blocks	
Z11 (1NO + 1NC)	DM•T92Z11
X11 (1NO + 1NC)	DM•T92X11
Y11 (1NO + 1NC)	DM•T92Y11
W02 (2NC)	DM•T92W02
W20 (2NO)	DM•T92W20
Z02 (2NC)	DM•T92Z02
X12P (1NO + 2NC)	DM•T92X12P
X21P (2NO + 1NC)	DM•T92X21P
W03P (3NC)	DM•T92W03P

T92 - Multidirectional nylon actuator with stainless steel spring



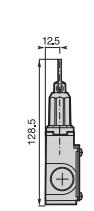
Min. actuating torque 0,12Nm
Weight 270 g

T93 - Stainless steel spring multidirectional actuator



Min. actuating torque 0,12Nm
Weight 275 g

T98 - Pull action with ring



Min. actuating force 30N
Weight 300 g

Z11 (1NO + 1NC)	DM•T93Z11
X11 (1NO + 1NC)	DM•T93X11
Y11 (1NO + 1NC)	DM•T93Y11
W02 (2NC)	DM•T93W02
W20 (2NO)	DM•T93W20
Z02 (2NC)	DM•T93Z02
X12P (1NO + 2NC)	DM•T93X12P
X21P (2NO + 1NC)	DM•T93X21P
W03P (3NC)	DM•T93W03P

Operation diagrams: page 123 - All dimensions are in mm