

Microswitches M series



Technical data

Housing

Made of polymer glass-reinforced self-extinguishing and shock-resistant thermoplastic resin.

Protection degree: IP40 (with protection, art. VF C02),
IP20 (with protection, art. VF C01, VF C03)

General data

Ambient temperature: from -25°C to +85°C
Max operating frequency: 3600 operations cycles¹/hour

Mechanical endurance: 10 million operations cycles¹

(1) One operation cycle means two movements, one to close and one to open contacts, as foreseen by IEC 947-5-1 standard.

Electrical data

Thermal current (I_{th}): 16 A
Rated insulation voltage (U_i): 250 VAC 600 VDC
Protection against short circuits: fuse 16 A 250 V type gG
Pollution degree: 3
Dielectric strength: 2000 VAC/min between terminals and other metallic parts towards ground.

Cross section of the conductors (flexible lead wire)

MV, MM series: min. 1 x 0,34 mm² (1 x AWG 22)
max. 1 x 2,5 mm² (1 x AWG 14)

Conforms to the standards:

IEC 947-5-1, IEC 337-1, EN 60947-5-1, CEI EN 60947-5-1, CEI 17-45, CEI 23-11, IEC 529, EN 60529, CEI 70-1, CENELEC EN 50013

Approvals:

IEC 947-5-1

Complying with the requirements requested by:

Low Voltage Directive 73/23/EEC and subsequent modifications and completions, Machinery Directive 98/37/EEC, Electromagnetic Compatibility 89/336/EEC and subsequent modifications and completions.

Utilization categories

Alternate current: AC15 (50±60 Hz)

U_e (V) 250 400 500

I_e (A) 6 4 1

Direct current: DC13

U_e (V) 24 125 250

I_e (A) 6 1,1 0,4

Markings and quality marks:



Approval IMQ: EL285

Data type approved by IMQ

Rated insulation voltage: (U_i) 250 VAC

Thermal current in pure air (I_{th}): 16 A

Protection against short circuits: fuse 16 A 250 V type gG

MV, MF, MS, MM terminals

Pollution degree 3

Utilization category AC15

Operation voltage (U_e) 250 VAC (50 Hz)

Operation current (I_e) 5 A

Forms of the contact element C

Compliance with the standards: EN60947-1, EN 60947 A11 and EN 60947-5-1 and fundamental requirements of the Directive Low Voltage 73/23 EEC and 93/68 EEC.

Please contact our technical service for the list of our type approved products

How to order

Attention! The feasibility of a code number does not mean the effective availability of a product. Please contact our sales office

MS 40-1

Kind of terminals		Suffix	
MS	solder terminals		no suffix (standard)
MV	screw terminals	1	metal ø 9,5x4 roller (only for actuators 40, 42, 45, 47, 53, 54, 55, 57, 58, 59)
MF	faston terminals	2	polymer ø 9,5x7,8 roller (only for actuators 40, 42, 53, 54, 55)
MM	mantle terminals		

Actuators	
01	with pin
02	with pin
03	with small push button
..

IMPORTANT: The switches are supplied only in **10 pieces** packs.
Only orders for quantities multiple of the packs are accepted.

On request

- MF terminals with faston oriented to the opposite side.
- Special versions on request.

Protections (terminals covers) (dimensional drawings chapter 18)

 **10 pcs. packs**



Article
VF C01

Protection made of self-extinguishing shock-proof material for MS series microswitches.



Article
VF C02

Protection with cable gland PG 9, (multipolar cables ø min. 5 mm, ø max. 7 mm) made of shock-proof glass-reinforced material for MS, MV, MM microswitches.





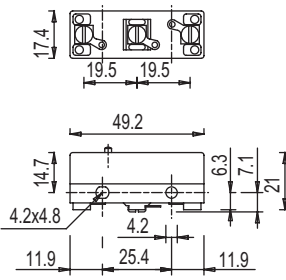
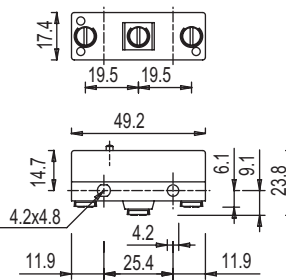
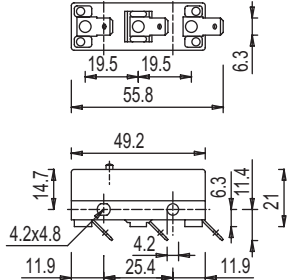
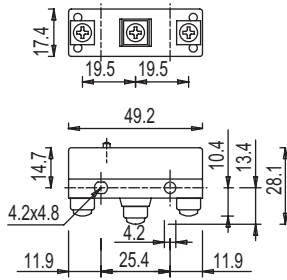


Article
VF C03

Protection with snap in assembly, made of self-extinguishing shock-proof material. For MS, MV, MM microswitches. It allows the installation of many switches side by side.

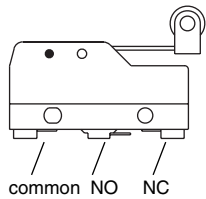
Microswitches M series

Terminals type (all measure are in mm)

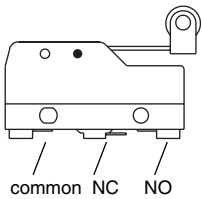
MS solder terminals	MV screw terminals	MF faston terminals	MM mantle terminals
			
			

Wire diagram

with direct action



with inverted action



Change-over contact switch having simple cutoff with three terminals

Driving torques



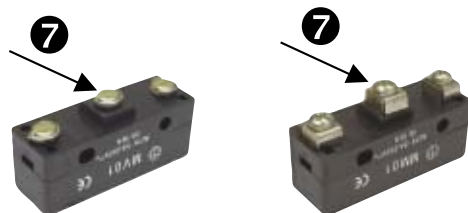
Tighten the nut **1** M10 x0,75 with a driving torque $2 \div 3$ Nm.



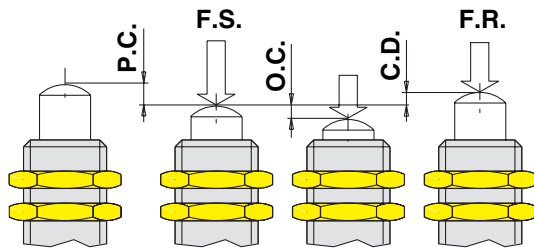
Tighten the nut **2** M12 x 1 with a driving torque $2 \div 3$ Nm.
Tighten the screws **3** with a driving torque $0,3 \div 0,4$ Nm.



Tighten the screws **4** M4 a driving torque $1 \div 1,5$ Nm.



Tighten the terminal screws **7** with a driving torque $0,6 \div 1$ Nm.



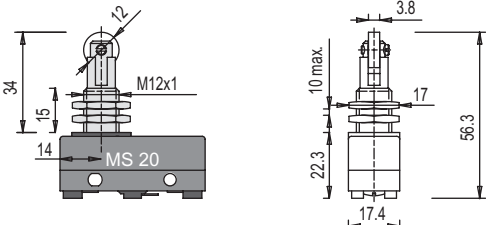
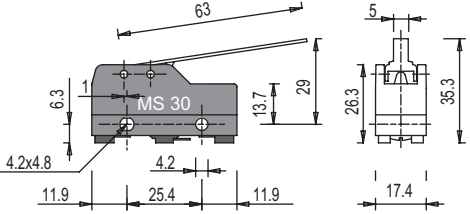
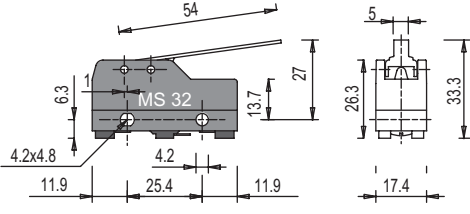
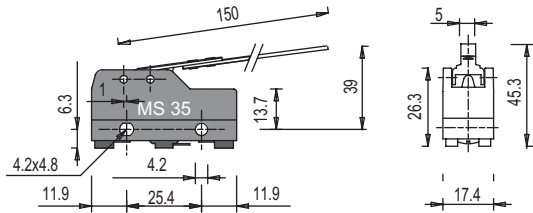
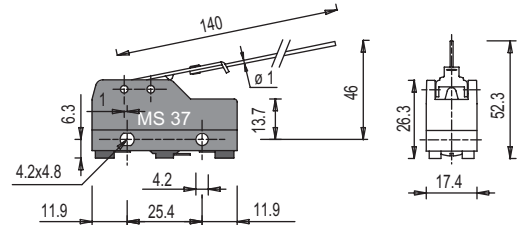
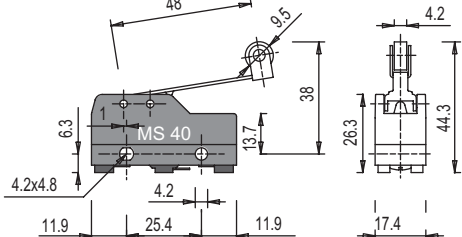
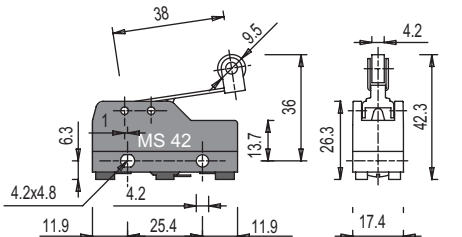
Forces and travels symbols

- F.S. = operating force
- F.R. = releasing force
- P.C. = pretravel
- O.C. = over-travel
- C.D. = differential travel

Microswitches with direct action		10 pcs. packs
Dimensions	Article	Forces and travels
	MS 01	F.S. = 350 gr max. F.R. = 200 gr min. P.C. = 0,5 mm max. O.C. = 0,2 mm min. C.D. = 0,05 mm max.
	MV 01	
	MF 01	
	MM 01	
	MS 02	F.S. = 350 gr max. F.R. = 200 gr min. P.C. = 0,5 mm max. O.C. = 0,2 mm min. C.D. = 0,05 mm max.
	MV 02	
	MF 02	
	MM 02	
	MS 03	F.S. = 350 gr max. F.R. = 200 gr min. P.C. = 0,5 mm max. O.C. = 1,5 mm min. C.D. = 0,05 mm max.
	MV 03	
	MF 03	
	MM 03	
	MS 04	F.S. = 350 gr max. F.R. = 200 gr min. P.C. = 0,5 mm max. O.C. = 1,5 mm min. C.D. = 0,05 mm max.
	MV 04	
	MF 04	
	MM 04	
	MS 05	F.S. = 350 gr max. F.R. = 200 gr min. P.C. = 0,5 mm max. O.C. = 2 mm min. C.D. = 0,05 mm max.
	MV 05	
	MF 05	
	MM 05	
	MS 06	F.S. = 350 gr max. F.R. = 200 gr min. P.C. = 0,5 mm max. O.C. = 2 mm min. C.D. = 0,05 mm max.
	MV 06	
	MF 06	
	MM 06	

Items with code on the **grey** background are available in stock.

Dimensions	Article	Forces and travels
	MS 08 MV 08 MF 08 MM 08	F.S. = 350 gr. max. F.R. = 200 gr. min. P.C. = 0,5 mm max. O.C. = 5,5 mm min. C.D. = 0,05 mm max.
	MS 09 MV 09 MF 09 MM 09	F.S. = 350 gr. max. F.R. = 200 gr. min. P.C. = 0,5 mm max. O.C. = 5,5 mm min. C.D. = 0,05 mm max.
	MS 10 MV 10 MF 10 MM 10	F.S. = 350 gr. max. F.R. = 200 gr. min. P.C. = 0,5 mm max. O.C. = 5,5 mm min. C.D. = 0,05 mm max.
	MS 12 MV 12 MF 12 MM 12	F.S. = 550 gr. max. F.R. = 400 gr. min. P.C. = 1 mm max. O.C. = 5 mm min. C.D. = 0,05 mm max.
	MS 13 MV 13 MF 13 MM 13	F.S. = 800 gr. max. F.R. = 650 gr. min. P.C. = 1 mm max. O.C. = 5 mm min. C.D. = 0,05 mm max.
<p data-bbox="103 1552 419 1570">To be fixed only by threaded head in vertical position</p>	MS 15 MV 15 MF 15 MM 15	F.S. = 350 gr. max. F.R. = 200 gr. min. P.C. = 0,5 mm max. O.C. = 5,5 mm min. C.D. = 0,05 mm max.
<p data-bbox="103 1839 419 1856">To be fixed only by threaded head in vertical position</p>	MS 17 MV 17 MF 17 MM 17	F.S. = 350 gr. max. F.R. = 200 gr. min. P.C. = 0,5 mm max. O.C. = 5,5 mm min. C.D. = 0,05 mm max.

Dimensions	Article	Forces and travels
<p>To be fixed only by threaded head in vertical position</p> 	<p>MS 20</p> <p>MV 20</p> <p>MF 20</p> <p>MM 20</p>	<p>F.S. = 350 gr. max. F.R. = 200 gr. min. P.C. = 0,5 mm max. O.C. = 5,5 mm min. C.D. = 0,05 mm max.</p>
	<p>MS 30</p> <p>MV 30</p> <p>MF 30</p> <p>MM 30</p>	<p>F.S. = 50 gr. max. F.R. = 30 gr. min. P.C. = 10 mm max. O.C. = 6 mm min. C.D. = 1,5 mm max.</p>
	<p>MS 32</p> <p>MV 32</p> <p>MF 32</p> <p>MM 32</p>	<p>F.S. = 60 gr. max. F.R. = 40 gr. min. P.C. = 8 mm max. O.C. = 5 mm min. C.D. = 1 mm max.</p>
	<p>MS 35</p> <p>MV 35</p> <p>MF 35</p> <p>MM 35</p>	<p>F.S. = 32 gr. max. F.R. = 26 gr. min. P.C. = 20 mm max. O.C. = 15 mm min. C.D. = 4 mm max.</p>
	<p>MS 37</p> <p>MV 37</p> <p>MF 37</p> <p>MM 37</p>	<p>F.S. = 10 gr. max. F.R. = 5 gr. min. P.C. = 20 mm max. O.C. = 10 mm min. C.D. = 4 mm max.</p>
	<p>MS 40</p> <p>MV 40</p> <p>MF 40</p> <p>MM 40</p>	<p>F.S. = 60 gr. max. F.R. = 40 gr. min. P.C. = 8 mm max. O.C. = 5 mm min. C.D. = 1 mm max.</p>
	<p>MS 42</p> <p>MV 42</p> <p>MF 42</p> <p>MM 42</p>	<p>F.S. = 80 gr. max. F.R. = 50 gr. min. P.C. = 6 mm max. O.C. = 3 mm min. C.D. = 0,8 mm max.</p>

Dimensions	Article	Forces and travels
	MS 45	F.S. = 110 gr. max. F.R. = 70 gr. min. P.C. = 3,5 mm max. O.C. = 2,5 mm min. C.D. = 0,6 mm max.
	MV 45	
	MF 45	
	MM 45	
	MS 47	F.S. = 110 gr. max. F.R. = 70 gr. min. P.C. = 3,5 mm max. O.C. = 2,5 mm min. C.D. = 0,6 mm max.
	MV 47	
	MF 47	
	MM 47	
	MS 49	Hand operation
	MV 49	
	MF 49	
	MM 49	

Microswitches with inverted action		10 pcs. packs
Dimensions	Article	Forces and travels
	MS 50	F.S. = 80 gr. max. F.R. = 60 gr. min. P.C. = 4 mm max. O.C. = 6 mm min. C.D. = 0,6 mm max.
	MV 50	
	MF 50	
	MM 50	
	MS 52	F.S. = 70 gr. max. F.R. = 50 gr. min. P.C. = 5 mm max. O.C. = 8 mm min. C.D. = 0,6 mm max.
	MV 52	
	MF 52	
	MM 52	
	MS 53	F.S. = 80 gr. max. F.R. = 60 gr. min. P.C. = 4 mm max. O.C. = 8 mm min. C.D. = 0,6 mm max.
	MV 53	
	MF 53	
	MM 53	
	MS 54	F.S. = 100 gr. max. F.R. = 60 gr. min. P.C. = 4 mm max. O.C. = 6 mm min. C.D. = 0,6 mm max.
	MV 54	
	MF 54	
	MM 54	

Dimensions	Article	Forces and travels
	MS 55	F.S. = 120 gr. max. F.R. = 70 gr. min. P.C. = 3 mm max. O.C. = 5 mm min. C.D. = 0,5 mm max.
	MV 55	
	MF 55	
	MM 55	
	MS 57	F.S. = 140 gr. max. F.R. = 80 gr. min. P.C. = 2 mm max. O.C. = 2,5 mm min. C.D. = 0,3 mm max.
	MV 57	
	MF 57	
	MM 57	
	MS 58	F.S. = 140 gr. max. F.R. = 80 gr. min. P.C. = 2 mm max. O.C. = 2,5 mm min. C.D. = 0,3 mm max.
	MV 58	
	MF 58	
	MM 58	
	MS 59	F.S. = 240 gr. max. F.R. = 150 gr. min. P.C. = 1,5 mm max. O.C. = 3 mm min. C.D. = 0,2 mm max.
	MV 59	
	MF 59	
	MM 59	
	MS 60	F.S. = 120 gr. max. F.R. = 70 gr. min. P.C. = 21 ÷ 43 mm O.C. = 5 mm min. C.D. = 0,5 mm max.
	MV 60	
	MF 60	
	MM 60	