F MFI SERIES MICRO SWITCHES

DESCRIPTION

Giovenzana's standard micro switches with self cleaning contacts, supplied with operator, are high-precision, snap action switches and these are the main features for which they are notable:

- Fast and reliable switching largely indipendent of actuating speed;
- High electrical ratings but with small dimensions;
- High repeat accuracy of switching points and forces;
- Low operating force;
- **NC positive opening**
- Very long service life
- Equipped with self cleaning switching contacts in silver alloy
- Available with the pin plunger or various type of actuation lever.

- Easy adaptation to numerous applications such as joystick, air conditioner, food processor, juice maker, mixer, coffee machines, disabled footboards, ...

We've six lines of micro switches (one of them dedicated to Atex field):

MFI series (pag. 79-81)

Micro switches, normalized with self-cleaning contacts including actioning lever with 7 different versions.

- Faston terminal 6.3 x 0.8

MFI.S series (pag. 82-84)

Micro switches, normalized with self-cleaning contacts including actioning lever with 7 different versions.

- Solder micro switches

MFI.ST series (pag. 85-87)

Micro switches, normalized with self-cleaning contacts including actioning lever with 7 different versions.

- Screw terminal

MFI.STP series (pag. 88-90)

Micro switches, normalized with self-cleaning contacts including actioning lever with 7 different versions.

- Screw terminal and plate protection

MFI.T (pag. 91)

Micro switch with tower actuator and threaded flange.

Also available the MFI.Ex series.
Micro switches dedicated to use in hazardous areas and potentially explosive atmospheres.
Ask the dedicated Atex catalogue!

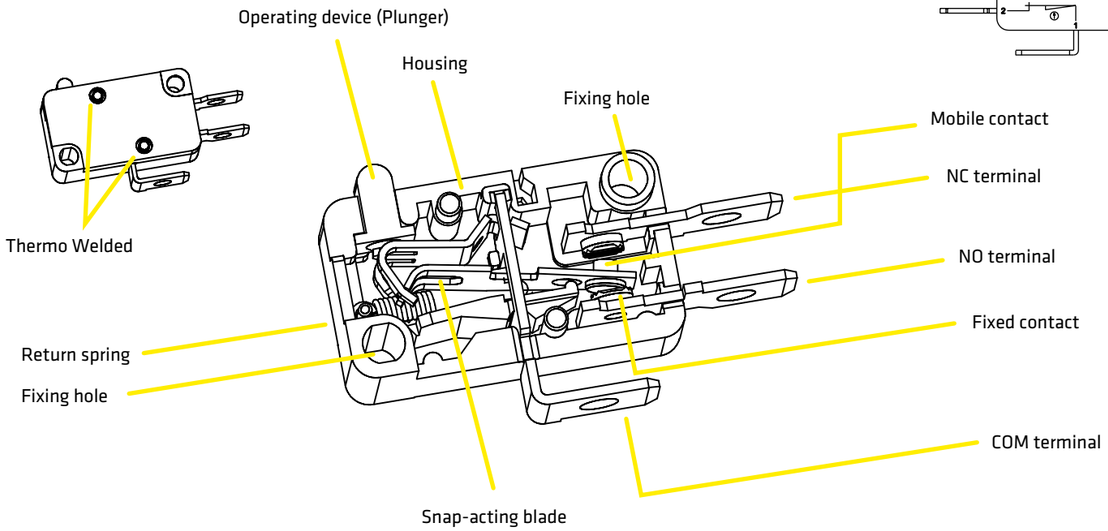
QUALITY MARKS

STANDARDS & APPROVALS

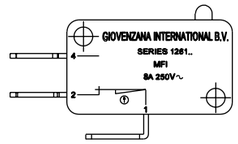
Standards	IEC/EN61058, UL1054
Approvals	cRUus, CE for all applicable directives

STRUCTURE DESCRIPTION

SINGLE-BREAK CHANGEOVER MFI Micro switch



MARKING



Micro switches are activated by a spring-operated (or snap-action) mechanism. Depressing the actuator triggers the switching operation, with a pre-defined force and travel. The switching speed itself is a largely indipendent of the speed of actuation.

ACTIONING LEVERS

It is possible to attach an actioning lever to a snap switch in order to meet the specific requirements of a given application. Doing so usually alters the travel and forces involved in the switching operation, depending on the lenght of the levers. By attaching an appropriate actioning lever, it is possible to increase travel and/or reduce actuating force required.

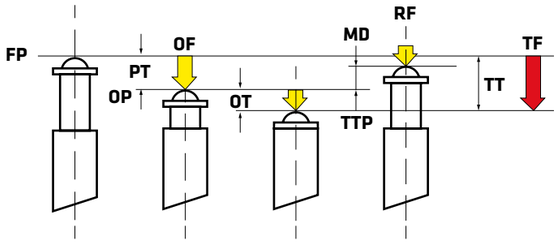
OPERATIONG DEVICE (PLUNGER)

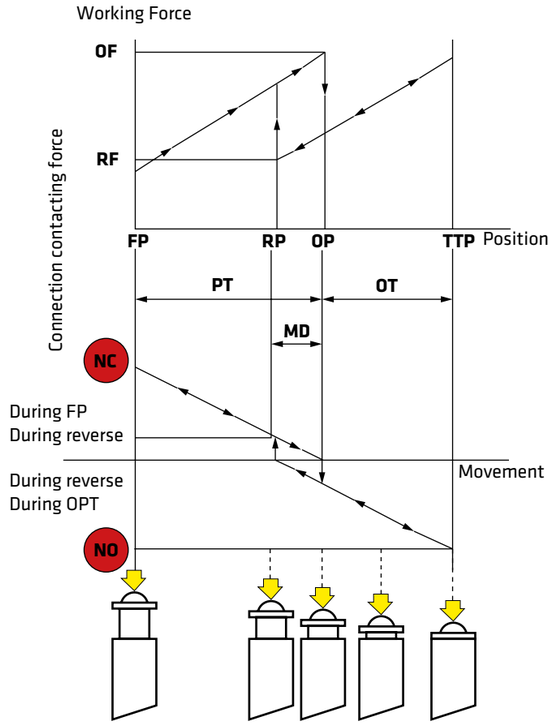
Applying force to the actioning lever of a snap switch releases the snap action mechanism, which in turn triggers the switching operation.

POSITIVE OPENING

An additional internal mechanism, made of non -resilient parts, forces the opening of NC contacts in case of accidental welding (overload, short circuit, ...) or snap action mechanism failure. Models fitted with this function are particularly suitable for safety related applications according to ISO13849-1 or EN60204-1.
To ensure proper functioning of positive opening operation, the operating device must be depressed up to the positive opening position.

SNAP ACTION SWITCH TECHNOLOGY





OPERATING CHARACTERISTICS

OF - OPERATING FORCE
The force applied to the actuator required to operate the switch contacts.

RF - RELEASING FORCE
The value to which the force on the actuator must be reduced to allow the contacts to return to the normal position.

TF - TOTAL FORCE
The force applied to the actuator required to reach the stopper from the free position.

FP - FREE POSITION
The initial position of the actuator when there is no external force applied.

OP - OPERATING POSITION
The position of the actuator at which the contacts snap to the operated contact position.

RP - RELEASING POSITION
The position of the actuator at which the contacts snap from the operated contact position to their normal position.

TTP - TOTAL TRAVEL POSITION
The position of the actuator when it reaches the stopper.

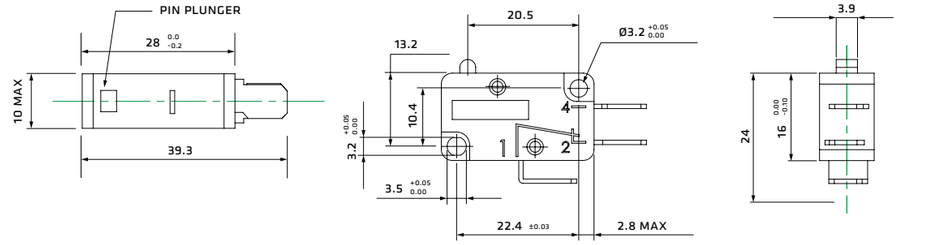
PT - PRETRAVEL
The distance or angle through which the actuator moves from the free position to the operating position.

OT - OVERTRAVEL
The distance or angle of the actuator movement beyond the operating position.

MD - MOVEMENT DIFFERENTIAL
The distance or angle from the operating position to the realising position.

TT - TOTAL TRAVEL
The sum of the pretravel and total overtravel expressed by distance or angle.

MFI SERIES - FASTON TERMINAL 6.3 x 0.8 MICRO SWITCHES



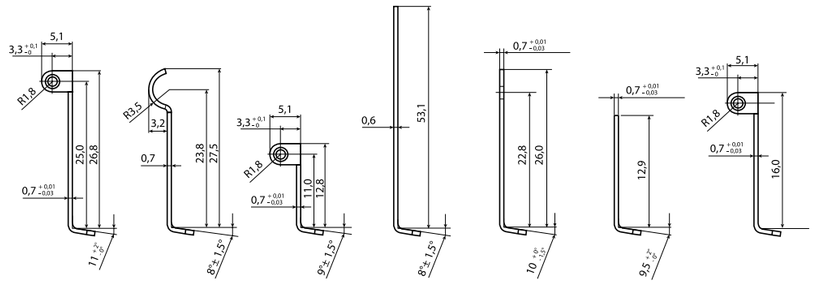
GENERAL DATA

Operating temperature	Min -25°C (-18°F) / Max 85°C (+185°F)
Mechanical life expectancy	1x10^6 cycles min
Electrically life expectancy	5x10^5 cycles min
Termination type	6.3 x 0.8 faston terminal

ELECTRICAL DATA

Rated Thermal current (Ith)	8A
Rated insulation voltage (Ui)	250V
Rated impulse withstand voltage (Uimp)	1500V
Rated operating current (Ie)	8A - 250V resistive load, 3A - 250V inductive load
Pollution degree	2
Protection against electric shock	Class II

LEVER TYPES



1NC-1NO
SNAP ACTION

6.3 X 0.8

		PIN PLUNGER	LONG ROLLER LEVER	SIMULATED ROLLER LEVER	ROLLER LEVER	LONG LEVER	LEVER	SHORT LEVER	ROLLER LEVER L=16 mm
		MFI	MFI.1	MFI.2	MFI.3	MFI.4	MFI.5	MFI.6	MFI.7
Operating force - OF	max N	5,1	3,2	3,2	5,1	1,3	3,2	5,1	4,5
Resetting force - RF	min N	1,9	1,0	1,0	1,9	0,15	1,2	1,9	1,9
Max Pre travel - PT	max mm	1,4	3,3	3,3	1,4	7,6	3,3	1,6	1,8
Min Over travel - OT	min mm	0,8	0,8	0,8	0,6	2,2	0,8	0,6	0,8
Tripping position - OP	mm	14,4 ± 0,5	20,3 ± 1,2	18,4 ± 1,2	20,3 ± 0,8	15,1 ± 2,6	15,1 ± 1,2	15,1 ± 0,6	21,1 ± 0,6

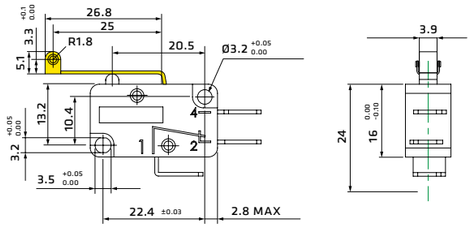
MFI SERIES - FASTON TERMINAL 6.3 x 0.8 MICRO SWITCHES

MFI.1: Long roller lever

1NC-1NO
SNAP ACTION

6.3 X 0.8

TYPE	OF max	RF min	PT max	OT min	OP ± 1 mm
MFI.1	3.2 N	1.0 N	3.3 mm	0.8 mm	20.3 ± 1.2 mm

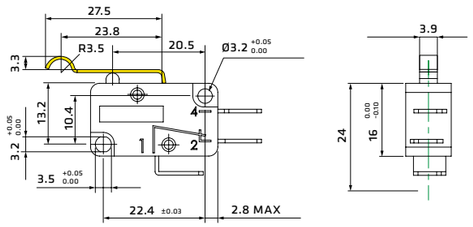


MFI.2: Simulated roller lever

1NC-1NO
SNAP ACTION

6.3 X 0.8

TYPE	OF max	RF min	PT max	OT min	OP ± 1 mm
MFI.2	3.2 N	1.0 N	3.3 mm	0.8 mm	18.4 ± 1.2 mm

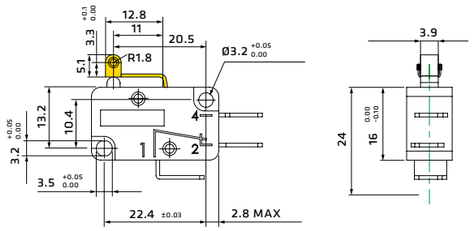


MFI.3: Roller lever

1NC-1NO
SNAP ACTION

6.3 X 0.8

TYPE	OF max	RF min	PT max	OT min	OP ± 1 mm
MFI.3	5.1 N	1.9 N	1.4 mm	0.6 mm	20.3 ± 0.8 mm

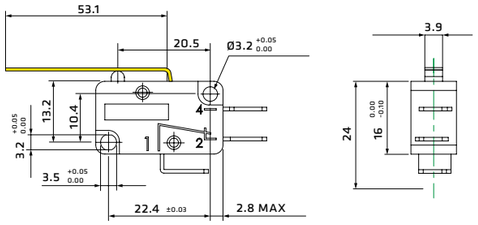


MFI.4: Long lever

1NC-1NO
SNAP ACTION

6.3 X 0.8

TYPE	OF max	RF min	PT max	OT min	OP ± 1 mm
MFI.4	1.3 N	0.15 N	7.6 mm	2.2 mm	15.1 ± 2.6 mm

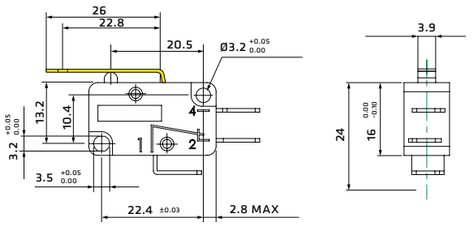


MFI.5: Lever

1NC-1NO
SNAP ACTION

6.3 X 0.8

TYPE	OF max	RF min	PT max	OT min	OP ± 1 mm
MFI.5	3.2 N	1.2 N	3.3 mm	0.8 mm	15.1 ± 1.2 mm

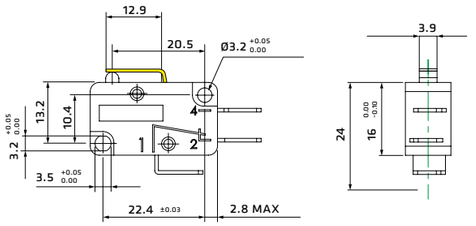


MFI.6: Short Lever

1NC-1NO
SNAP ACTION

6.3 X 0.8

TYPE	OF max	RF min	PT max	OT min	OP ± 1 mm
MFI.6	5.1 N	1.9 N	1.6 mm	0.6 mm	15.1 ± 0.6 mm

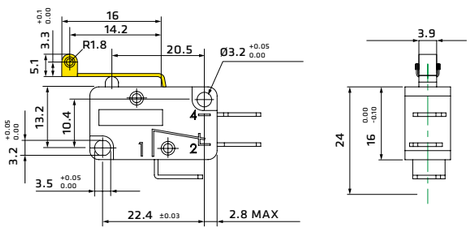


MFI.7: Roller lever L=16mm

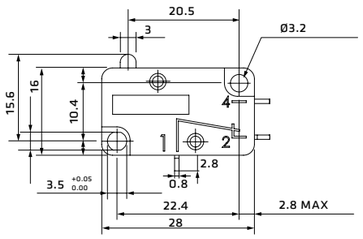
1NC-1NO
SNAP ACTION

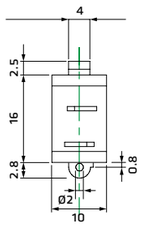
6.3 X 0.8

TYPE	OF max	RF min	PT max	OT min	OP ± 1 mm
MFI.7	4.5 N	1.9 N	1.8 mm	0.8 mm	21.1 ± 0.6 mm



MFI.S SERIES - SOLDER MICRO SWITCHES





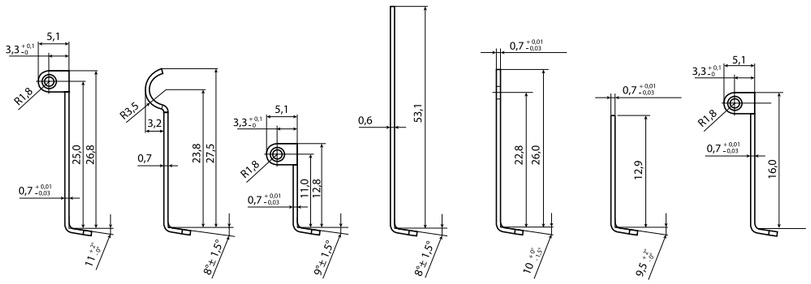
GENERAL DATA

Operating temperature	Min -25°C (-18°F) / Max 85°C (+185°F)
Mechanical life expectancy	1x10⁶ cycles min
Electrically life expectancy	5x10⁵ cycles min
Termination type	Solder

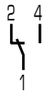
ELECTRICAL DATA

Rated Thermal current (Ith)	8A
Rated insulation voltage (Ui)	250V
Rated impulse withstand voltage (Uimp)	1500V
Rated operating current (Ie)	8A - 250V resistive load, 3A - 250V inductive load
Pollution degree	2
Protection against electric shock	Class II

LEVER TYPES



1NC-1NO
SNAP ACTION



Solder

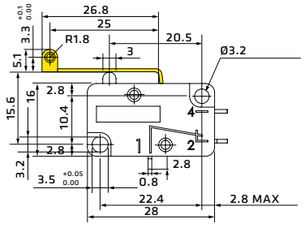
		PIN PLUNGER	LONG ROLLER LEVER	SIMULATED ROLLER LEVER	ROLLER LEVER	LONG LEVER	LEVER	SHORT LEVER	ROLLER LEVER L=16 mm
		MFI.5	MFI.1S	MFI.2S	MFI.3S	MFI.4S	MFI.5S	MFI.6S	MFI.7S
Operating force - OF	max N	5,1	3,2	3,2	5,1	1,3	3,2	5,1	4,5
Resetting force - RF	min N	1,9	1,0	1,0	1,9	0,15	1,2	1,9	1,9
Max Pre travel - PT	max mm	1,4	3,3	3,3	1,4	7,6	3,3	1,6	1,8
Min Over travel - OT	min mm	0,8	0,8	0,8	0,6	2,2	0,8	0,6	0,8
Tripping position - OP	mm	14,4 ± 0,5	20,3 ± 1,2	18,4 ± 1,2	20,3 ± 0,8	15,1 ± 2,6	15,1 ± 1,2	15,1 ± 0,6	21,1 ± 0,6

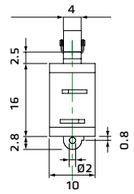
MFI.1S: Long roller lever

1NC-1NO
SNAP ACTION

Solder

TYPE	OF max	RF min	PT max	OT min	OP ± 1 mm
MFI.1S	3.2 N	1.0 N	3.3 mm	0.8 mm	20.3 ± 1.2 mm



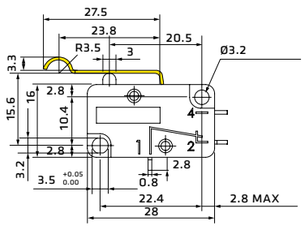


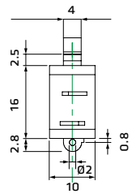
MFI.2S: Simulated roller lever

1NC-1NO
SNAP ACTION

Solder

TYPE	OF max	RF min	PT max	OT min	OP ± 1 mm
MFI.2S	3.2 N	1.0 N	3.3 mm	0.8 mm	18.4 ± 1.2 mm



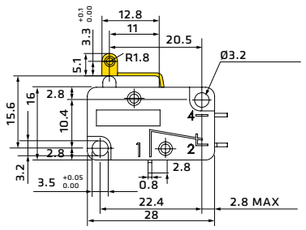


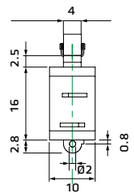
MFI.3S: Roller lever

1NC-1NO
SNAP ACTION

Solder

TYPE	OF max	RF min	PT max	OT min	OP ± 1 mm
MFI.3S	5.1 N	1.9 N	1.4 mm	0.6 mm	20.3 ± 0.8 mm



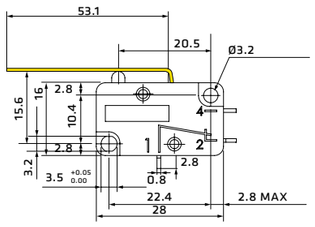


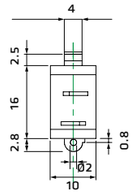
MFI.4S: Long lever

1NC-1NO
SNAP ACTION

Solder

TYPE	OF max	RF min	PT max	OT min	OP ± 1 mm
MFI.4S	1.3 N	0.15 N	7.6 mm	2.2 mm	15.1 ± 2.6 mm



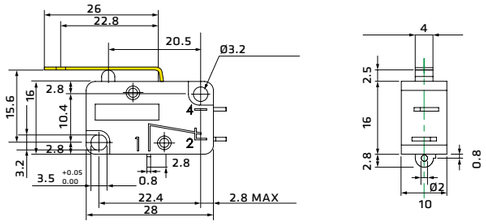


MFI.S SERIES - SOLDER MICRO SWITCHES

MFI.5S: Lever

1NC-1NO
SNAP ACTION

Solder

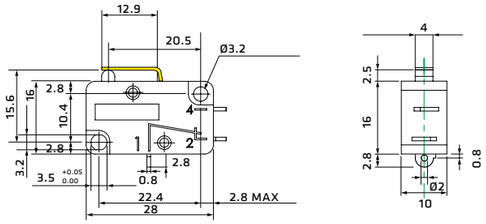


TYPE	OF max	RF min	PT max	OT min	OP ±1 mm
MFI.5S	3.2 N	1.2 N	3.3 mm	0.8 mm	15.1 ± 1.2 mm

MFI.6S: Short Lever

1NC-1NO
SNAP ACTION

Solder

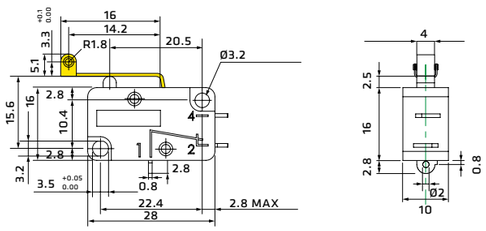


TYPE	OF max	RF min	PT max	OT min	OP ±1 mm
MFI.6S	5.1 N	1.9 N	1.6 mm	0.6 mm	15.1 ± 0.6 mm

MFI.7S: Roller lever L=16mm

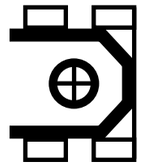
1NC-1NO
SNAP ACTION

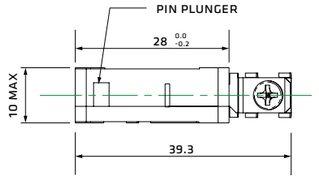
Solder

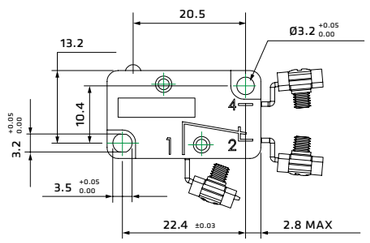


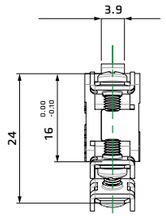
TYPE	OF max	RF min	PT max	OT min	OP ±1 mm
MFI.7S	4.5 N	1.9 N	1.8 mm	0.8 mm	21.1 ± 0.6 mm

MFI.ST SERIES - SCREW TERMINAL MICRO SWITCHES









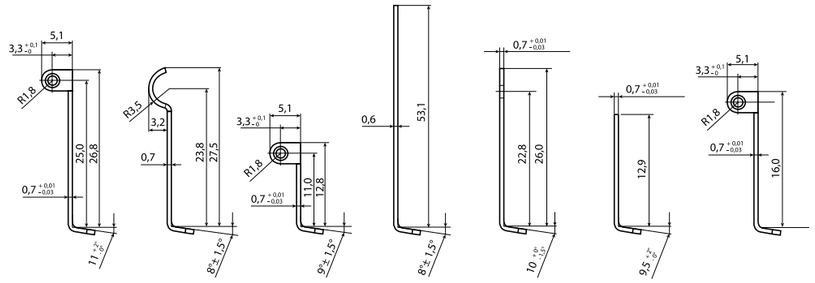
GENERAL DATA

Operating temperature	Min -25°C (-18°F) / Max 85°C (+185°F)
Mechanical life expectancy	1x10^6 cycles min
Electrically life expectancy	5x10^5 cycles min
Termination type	Screw terminal

ELECTRICAL DATA

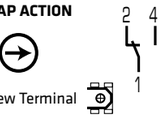
Rated Thermal current (Ith)	8A
Rated insulation voltage (Ui)	250V
Rated impulse withstand voltage (Uimp)	1500V
Rated operating current (Ie)	8A - 250V resistive load, 3A - 250V inductive load
Pollution degree	2
Protection against electric shock	Class II

LEVER TYPES



1NC-1NO
SNAP ACTION

Screw Terminal



		PIN PLUNGER	LONG ROLLER LEVER	SIMULATED ROLLER LEVER	ROLLER LEVER	LONG LEVER	LEVER	SHORT LEVER	ROLLER LEVER L=16 mm
		MFI.5T	MFI.1ST	MFI.2ST	MFI.3ST	MFI.4ST	MFI.5ST	MFI.6ST	MFI.7ST
Operating force - OF	max N	5,1	3,2	3,2	5,1	1,3	3,2	5,1	4,5
Resetting force - RF	min N	1,9	1,0	1,0	1,9	0,15	1,2	1,9	1,9
Max Pre travel - PT	max mm	1,4	3,3	3,3	1,4	7,6	3,3	1,6	1,8
Min Over travel - OT	min mm	0,8	0,8	0,8	0,6	2,2	0,8	0,6	0,8
Tripping position - OP	mm	14,4 ± 0,5	20,3 ± 1,2	18,4 ± 1,2	20,3 ± 0,8	15,1 ± 2,6	15,1 ± 1,2	15,1 ± 0,6	21,1 ± 0,6

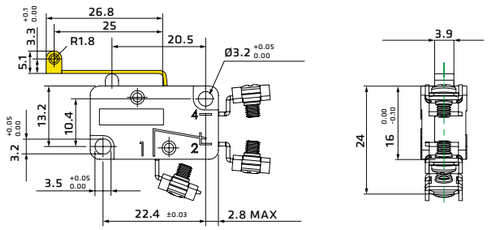
MFI.ST SERIES - SCREW TERMINAL MICRO SWITCHES

MFI.1ST: Long roller lever

1NC-1NO
SNAP ACTION

Screw Terminal

TYPE	OF max	RF min	PT max	OT min	OP ±1 mm
MFI.1ST	3.2 N	1.0 N	3.3 mm	0.8 mm	20.3 ± 1.2 mm

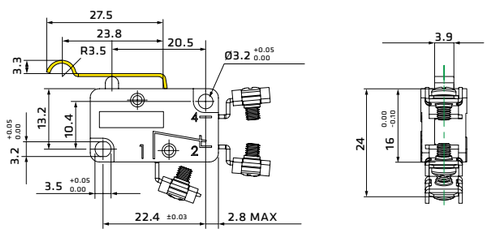


MFI.2ST: Simulated roller lever

1NC-1NO
SNAP ACTION

Screw Terminal

TYPE	OF max	RF min	PT max	OT min	OP ±1 mm
MFI.2ST	3.2 N	1.0 N	3.3 mm	0.8 mm	18.4 ± 1.2 mm

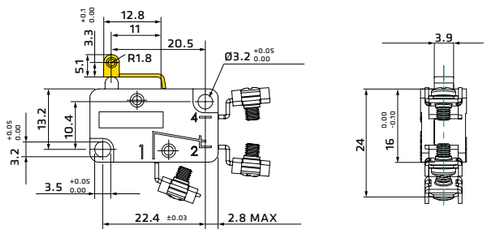


MFI.3ST: Roller lever

1NC-1NO
SNAP ACTION

Screw Terminal

TYPE	OF max	RF min	PT max	OT min	OP ±1 mm
MFI.3ST	5.1 N	1.9 N	1.4 mm	0.6 mm	20.3 ± 0.8 mm

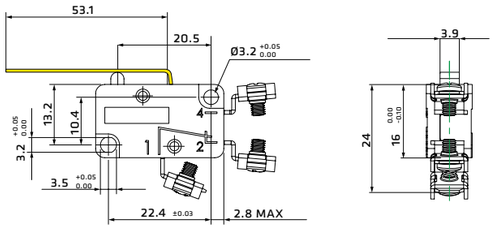


MFI.4ST: Long lever

1NC-1NO
SNAP ACTION

Screw Terminal

TYPE	OF max	RF min	PT max	OT min	OP ±1 mm
MFI.4ST	1.3 N	0.15 N	7.6 mm	2.2 mm	15.1 ± 2.6 mm

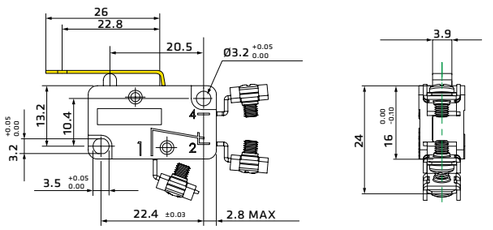


MFI.5ST: Lever

1NC-1NO
SNAP ACTION

Screw Terminal

TYPE	OF max	RF min	PT max	OT min	OP ±1 mm
MFI.5ST	3.2 N	1.2 N	3.3 mm	0.8 mm	15.1 ± 1.2 mm

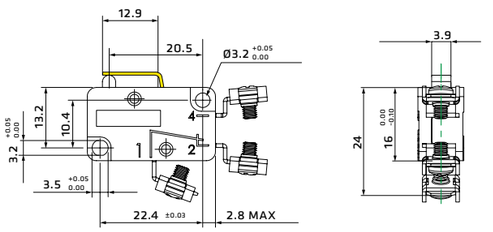


MFI.6ST: Short Lever

1NC-1NO
SNAP ACTION

Screw Terminal

TYPE	OF max	RF min	PT max	OT min	OP ±1 mm
MFI.6ST	5.1 N	1.9 N	1.6 mm	0.6 mm	15.1 ± 0.6 mm

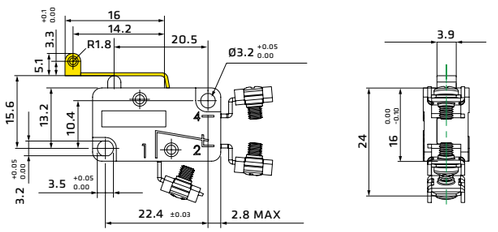


MFI.7ST: Roller lever L=16mm

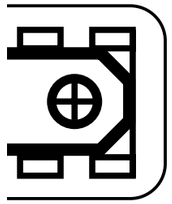
1NC-1NO
SNAP ACTION

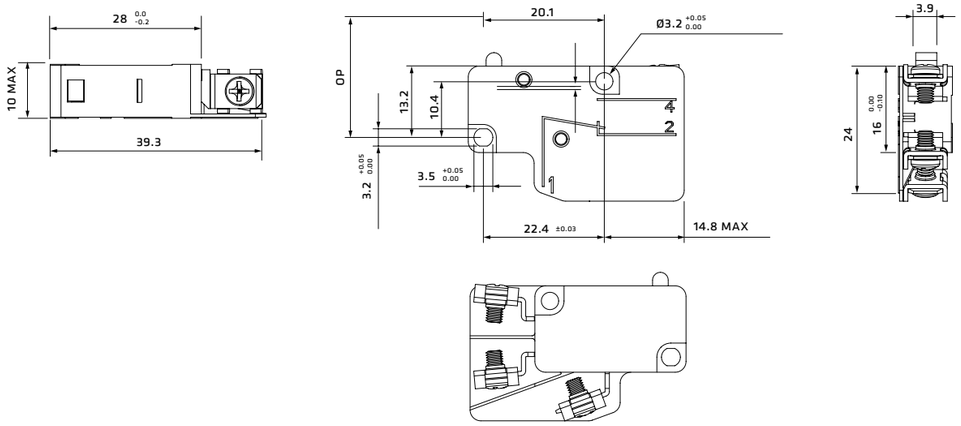
Screw Terminal

TYPE	OF max	RF min	PT max	OT min	OP ±1 mm
MFI.7ST	4.5 N	1.9 N	1.8 mm	0.8 mm	21.1 ± 0.6 mm



MFI.STP SERIES - SCREW TERMINAL + PLATE PROTECTION MICRO SWITCHES





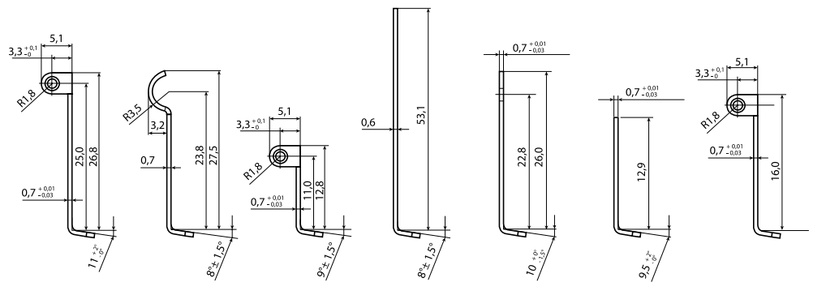
GENERAL DATA

Operating temperature	Min -25°C (-18°F) / Max 85°C (+185°F)
Mechanical life expectancy	1x10⁶ cycles min
Electrically life expectancy	5x10⁵ cycles min
Termination type	Screw terminal and plate protection

ELECTRICAL DATA

Rated Thermal current (Ith)	8A
Rated insulation voltage (Ui)	250V
Rated impulse withstand voltage (Uimp)	1500V
Rated operating current (Ie)	8A - 250V resistive load, 3A - 250V inductive load
Pollution degree	2
Protection against electric shock	Class II

LEVER TYPES



1NC-1NO
SNAP ACTION

Screw Terminals
Plate Protection

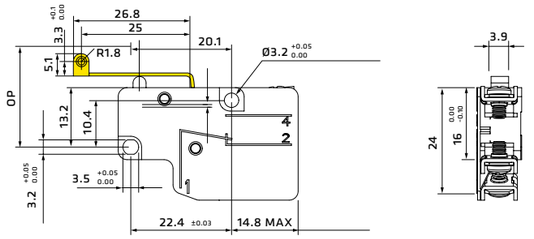
	PIN PLUNGER	LONG ROLLER LEVER	SIMULATED ROLLER LEVER	ROLLER LEVER	LONG LEVER	LEVER	SHORT LEVER	ROLLER LEVER L=16 mm
	MFI.5TP	MFI.1STP	MFI.2STP	MFI.3STP	MFI.4STP	MFI.5STP	MFI.6STP	MFI.7STP
Operating force - OF max N	5,1	3,2	3,2	5,1	1,3	3,2	5,1	4,5
Resetting force - RF min N	1,9	1,0	1,0	1,9	0,15	1,2	1,9	1,9
Max Pre travel - PT max mm	1,4	3,3	3,3	1,4	7,6	3,3	1,6	1,8
Min Over travel - OT min mm	0,8	0,8	0,8	0,6	2,2	0,8	0,6	0,8
Tripping position - OP mm	14,4 ± 0,5	20,3 ± 1,2	18,4 ± 1,2	20,3 ± 0,8	15,1 ± 2,6	15,1 ± 1,2	15,1 ± 0,6	21,1 ± 0,6

MFI.1STP: Long roller lever

1NC-1NO
SNAP ACTION

Screw Terminals
Plate Protection

TYPE	OF max	RF min	PT max	OT min	OP ± 1 mm
MFI.1STP	3.2 N	1.0 N	3.3 mm	0.8 mm	20.3 ± 1.2 mm

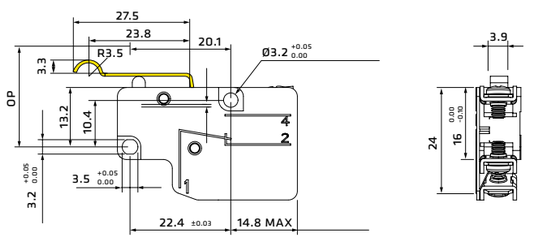


MFI.2STP: Simulated roller lever

1NC-1NO
SNAP ACTION

Screw Terminals
Plate Protection

TYPE	OF max	RF min	PT max	OT min	OP ± 1 mm
MFI.2STP	3.2 N	1.0 N	3.3 mm	0.8 mm	18.4 ± 1.2 mm

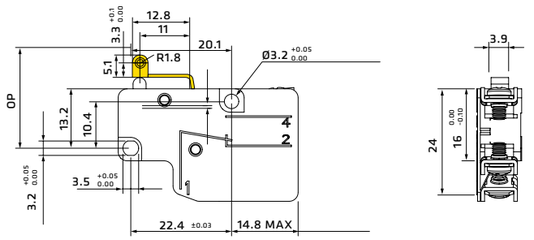


MFI.3STP: Roller lever

1NC-1NO
SNAP ACTION

Screw Terminals
Plate Protection

TYPE	OF max	RF min	PT max	OT min	OP ± 1 mm
MFI.3STP	5.1 N	1.9 N	1.4 mm	0.6 mm	20.3 ± 0.8 mm

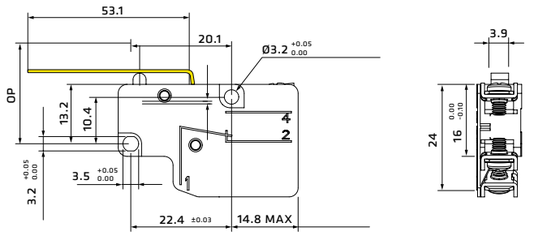


MFI.4STP: Long lever

1NC-1NO
SNAP ACTION

Screw Terminals
Plate Protection

TYPE	OF max	RF min	PT max	OT min	OP ± 1 mm
MFI.4STP	1.3 N	0.15 N	7.6 mm	2.2 mm	15.1 ± 2.6 mm

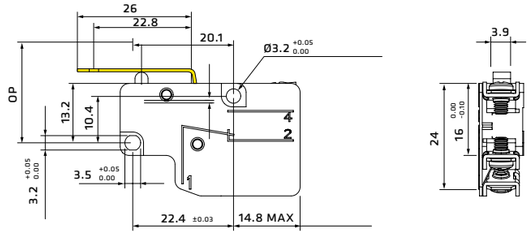


MFI.5STP: Lever

1NC-1NO
SNAP ACTION

Screw Terminals
Plate Protection

TYPE	OF max	RF min	PT max	OT min	OP ± 1 mm
MFI.5STP	3.2 N	1.2 N	3.3 mm	0.8 mm	15.1 ± 1.2 mm

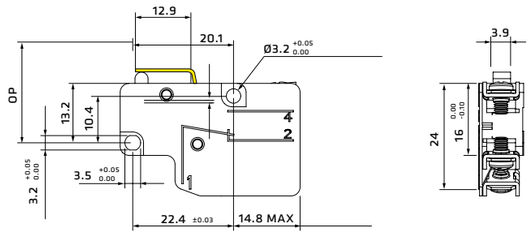


MFI.6STP: Short Lever

1NC-1NO
SNAP ACTION

Screw Terminals
Plate Protection

TYPE	OF max	RF min	PT max	OT min	OP ± 1 mm
MFI.6STP	5.1 N	1.9 N	1.6 mm	0.6 mm	15.1 ± 0.6 mm

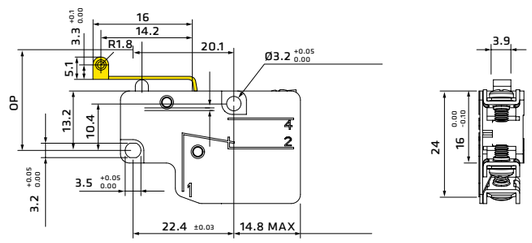


MFI.7STP: Roller lever L=16mm

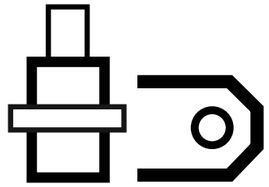
1NC-1NO
SNAP ACTION

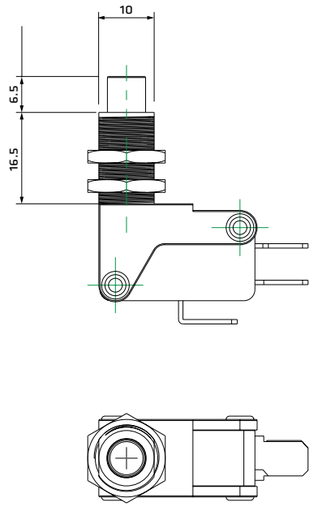
Screw Terminals
Plate Protection

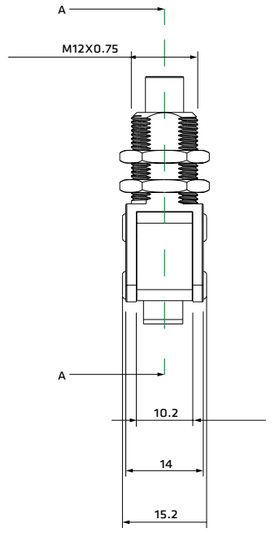
TYPE	OF max	RF min	PT max	OT min	OP ± 1 mm
MFI.7STP	4.5 N	1.9 N	1.8 mm	0.8 mm	21.1 ± 0.6 mm



MFI.T - MICRO SWITCH WITH TOWER ACTUATOR AND THREADED FLANGE







GENERAL DATA

Operating temperature	Min -25°C (-18°F) / Max 85°C (+185°F)
Mechanical life expectancy	$1x10^6$ cycles min
Electrically life expectancy	$5x10^5$ cycles min
Termination type	Tower actuator - Faston Terminals

ELECTRICAL DATA

Rated Thermal current (Ith)	8A
Rated insulation voltage (Ui)	250V
Rated impulse withstand voltage (Uimp)	1500V
Rated operating current (Ie)	8A - 250V resistive load, 3A - 250V inductive load
Pollution degree	2
Protection against electric shock	Class II