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AUTOMATION • LIMIT & MICRO SWITCHES

GIOVENZANA INTERNATIONAL B.V.

GIOVENZANA
INTERNATIONAL B.V.



LIMIT SWITCHES
MICRO SWITCHES

GIOVENZANA
INTERNATIONAL B.V.

Automation - Lift - Handling System - Atex

QUALITY AS A LIFE STYLE

www.giovenzana.com

GIOVENZANA INTERNATIONAL B.V.: AUTOMATION TECHNOLOGIES

AUTOMATION

The solutions offered by **Giovenzana** are the results of the market analysis of industrial electrical accessories requirements in conformity with all relevant international standards. The range includes:

- Phoenix cam switches from 12A to 200A;
- Regolus switch disconnectors from 16A to 160A;
- Pegasus, Orion and NEMA auxiliary controls;
- Thermoplastic limit switches, with manual reset, safety limit switches, M12 & pre-wired thermoplastic limit switches;
- Foot switches and micro switches.

QUALITY

Giovenzana, leader in the elevator and lifting equipment field, has gained a prominent position in the automation sector with the launch of industrial control devices into the market. For many years, all commercial and industrial operations have been integrated within the **UNI EN ISO 9001:2015** quality system.

CSQ certificate N 9105. GIOV.

Quality system is the end users guarantee that all production stages are closely followed under strict control and adhere to the requirements set by the company both in terms of customer expectations and compliance to the relevant international standards as proved by the various certificates **Giovenzana** holds for its products.

By the **UNI EN ISO 14001:2015**, **Giovenzana** keeps up with new technologies in order to reduce raw materials consumption, energy and natural resources and to minimize waste and emissions. This reduces the environmental impact.

The certification CSQ N 9191. GIBV.

COMPLIANCE

All **Giovenzana** products are manufactured according to the most relevant Cee directives. **Giovenzana** certifies this compliance with a declaration of conformity.

CERTIFICATIONS

In order to reach its high quality level **Giovenzana**'s products are tested by multiple third parties. In order to obtain the UL mark, **Giovenzana** submits their products to Underwriter Laboratories Inc., one of the most eminent independent certification companies in the World.

CEE DIRECTIVES

From January 1st, 1997 it is compulsory to CE mark all electromechanical products; this has been outlined by an important regulation: 2006/95/CE Low Voltage Directives.

CE MARK

European directives, applied to all national regulations, set the minimum requirements in term of safety of all electrical material sold within the EU.

Compliance to these requirements is certified by the manufacturer by the CE mark placed on the products.

STANDARDS

Giovenzana's products comply with both the European EN and the American UL standards.

These regulations, such as CEI EN 60204-1 (CEI 44-5) with regards to the safety requirements of the electrical circuits on board industrial machinery, define the characteristics, performance and use of the products.

EN EUROPEAN STANDARDS

The EN European standards are originated from IEC International standards and are the result of the collaboration between CENELEC (European Committee for Electrotechnical Standardization) member countries.

These standards cover and eliminate existing national standards that may be contradictory and non-compliant.

LIMIT SWITCHES AND MICRO SWITCHES - Rev. 02_2018

GIOVENZANA INTERNATIONAL B.V. reserves the right to modify, as specifications change,all technical and functional characteristics of the products shown in the catalogue without prior notice as this information is intended for general knowledge and is not legally binding.
The most up-to-date version of the catalogue can be downloaded from the download section of the site www.giovenzana.com.

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A **FTN SERIES** **THERMOPLASTIC LIMIT SWITCHES** pg. 7 / 26



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FTN137 | FTN138 | FTN139 | FTN140 | FTN140L | FTN140R



FTN140RL | FTN141 | FTN142 | FTN143 | FTN144 | FTN198

B **FTN1R SERIES** **LIMIT SWITCHES WITH MANUAL RESET** pg. 27 / 41



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FTN1R39 | FTN1R40 | FTN1R40R | FTN1R41 | FTN1R43 | FTN1R44

PRODUCTS INDEX - LIMIT SWITCHES & MICRO SWITCHES

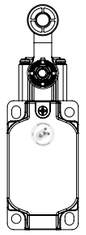
C | **FTNG SERIES** | **40 MM THERMOPLASTIC LIMIT SWITCHES** | **pg. 43 / 53**



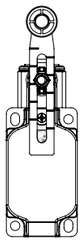
FTNG131



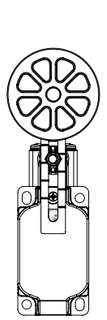
FTNG134



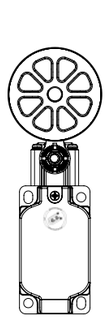
FTNG138



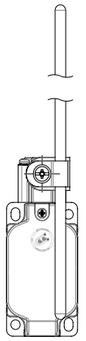
FTNG139



FTNG140



FTNG141



FTNG172

D | **STNK SERIES** | **SAFETY LIMIT SWITCHES WITH KEY** | **pg. 55 / 62**



STNK01



STNK02



STNK03

E | **FCT SERIES** | **M12 CONNECTION & PRE-WIRED THERMOPLASTIC LIMIT SWITCHES - IP67** | **pg. 63 / 73**



01



02



03



04



05



06



07



08



09



10



11

AVAILABLE VERSIONS



FCT2L...
with side cable input



FCT2V...
with vertical cable input



FCTML...
with side connector input



FCTMV...
with vertical connector input

F | **MFI SERIES** | **MICRO SWITCHES** | **pg. 75 / 91**



MFI



MFI.S



MFI.ST



MFI.STP



MFI.T

GIOVENZANA
INTERNATIONAL B.V.



THERMOPLASTIC LIMIT SWITCHES
FTN SERIES



DESCRIPTION

The **FTN series** thermoplastic limit switches, conform to EN 50047, have been developed to provide a range of options including a various choice of snap acting and slow acting and a wide range of actuator heads.
The **FTN series** offers the option of rotating the head in 90° increments before installation to allow ease of mounting.

Giovenzana limit switches can be used in various applications in automation, lift and handling system fields.
Operation of these limit switches is achieved by the sliding action of the guard or the moving object deflecting the plunger or lever.
For safety applications it's important that upon actuation, the guard or other moving objects should not pass completely over the switch and allow the plunger or lever to return to its original position.

TECHNICAL DATA - HOUSING

Made of glass- reinforced polymer, self-extinguishing, shock-proof thermoplastic resin and with double insulation	⧈
FTN Series one threaded conduit entry	Standard: M16
Protection degree	IP67 according to EN60529 with cable gland having equal or higher protection degree

GENERAL DATA

Positive opening operation	NC contact ⊖
Utilization category	AC15 B600, Snap Action AC15 B600
Minimum admissible current	5V, 5mA, DC
Insulation resistance	100MΩ min (DC 500V)
Contact resistance	25mΩ max (Initial)
Enclosure material	UL approved glass-filled polybutylene terephthalate
Operating temperature	Min -25°C (-18°F) / Max 80°C (+176°F)
Mechanical life expectancy	$1x10^7$ cycles min
Electrically life expectancy	150.000 cycles min
Vibration resistance	IEC 68-2-6, 10-55Hz ± 1Hz, Excursion: 0.35mm, 1 octave/min
Conduit entry	Various
Fixing	2xM4

ELECTRICAL DATA

Rated thermal current (Ith)	10A
Rated insulation voltage (Ui)	600V AC
Rated impulse withstand voltage (Uimp)	2500V AC
Pollution degree	3
Protection against electric shock	Class II (Double insulation)

STANDARDS & APPROVALS

Standards	EN60947-5-1, UL508, EN50047
Approvals	cULus, EAC and CCC for all applicable directives

QUALITY MARKS

c UL us CCC EAC CE

MAIN FEATURES

- Conforms to EN (TUV) standards corresponding to the CE marking.
- ⊖ Positive opening operation of NC (Normally Closed) contacts conforming to IEC/EN 60947-5-1.
- Double insulation makes ground terminal unnecessary.
- Wide standard operating temperature range: -25°C to 80°C.
- Full range of actuator heads and levers suitable for safety applications.
- Sealing up to IP67.
- Wide switch variations (snap action and slow action basic switches).

ACCORDING TO STANDARDS

EN81.20
EN81.50

Safety contacts according to EN60947-5-1.
Protection degree higher than IP4x.
Mechanical endurance higher than $1x10^6$ cycles.

INSTALLATION FOR SAFETY APPLICATIONS

Use only switches marked with the simbol ⊖.
Always connect the safety circuit to the **NC contact** (normally closed contacts: 11-12 / 21-22 / 31-32) as required by **EN ISO 14119 paragraph 5.4** and as stated in the standard **EN81.20 paragraph 5.11.2.2.1**.

TAKE CARE!

If not expressly indicated in this chapter, for the correct installation and utilization of all articles see the instructions given on pages 92-93.

DATA TYPE APPROVED BY UL

Utilization categories:

FTN SERIES	**Q300**	**A600**	1 NC/1 NO Slow Action
			2 NC Slow Action
		B600	1 NC/1 NO Snap Action
		A300	2 NC/1 NO Slow Action (3 poles)
			3 NC Slow Action (3 poles)

Data of the housing type 1.
For all contact blocks use 60 or 75°C copper (Cu) conductor and wire size No. 14 - 18 AWG.
Terminal tightening torque of 7.1 lb in (0.8 Nm).
In conformity with standard: UL508, CSA 22.2 No. 14 - 10.

c UL us

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

PROTECTION CLASS

IP67

Designed to be used even in the most severe environmental situations, these devices pass the immersion test IP67 in conformity with EN 60529.

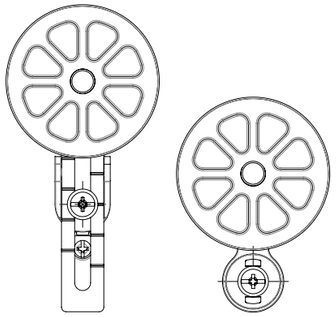
DOUBLE INSULATION

⧈ Materials of group II, according to IEC 536, are made with double insulation. This consists of doubling the insulation capability by means of an additional divider in order to eliminate any electrical shock risk and avoid the need for any additional protections.

POSITIVE OPENING

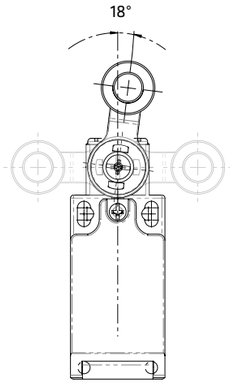
⊖ A limit switch complies to the specification when all the normally closed contact elements of the switch can be changed, with certainty, to the open position (no flexible link between the moving contacts and the operator of the switch, to which an actuating force is applied). Positive opening doesn't apply to NO contacts. Control switches with positive opening operation can be equipped with either slow-break or snap action contacts. In order to use different contacts on the same switch, it is necessary to electrically separate them; otherwise only one contact can be used. Every positive opening control switch must be marked on the external housing with the symbol on the left.

RUBBER ROLLERS



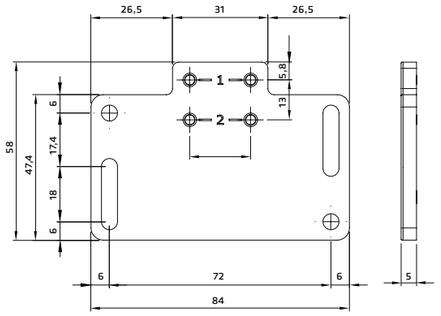
Different actuators with rubber rollers are available.
The customer can choose the most suitable product depending on his needs. For example the lift speed in order to reduce the noise inside the cabin.

ADJUSTABLE LEVERS



In switches with revolving lever it is possible to adjust the lever with 18° steps for the whole 360° range. The positive movement transmission is always guaranteed thanks to the particular geometrical coupling between the lever and the revolving shaft.

ADAPTIVE PLATE

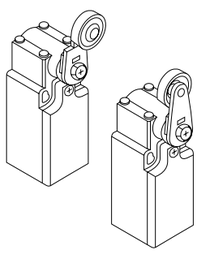


Fixing plate equipped with large slots for adjusting the operating point developed for backwards compatibility with old products.
Each plate has a double pair of fixing holes.

The plate is sold in kit with **KIT-FTN** code.

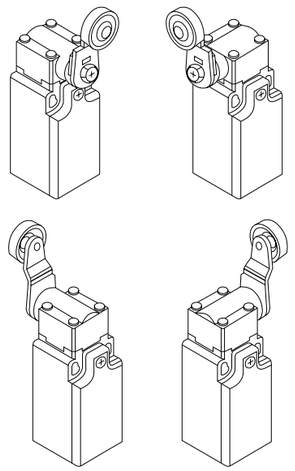
The **KIT-FTN** is inclusive of:
- 1 plate (code 12907009);
- 2 self-tapping screws 4x28 mm;
- 2 washers ø4 mm.

OVERTURNING LEVERS



It's possible to fasten the lever on switches on straight or reverse side, maintaining the positive coupling. In this way it is possible to obtain two different work plans of the lever.

ROTATING HEADS



In all switches, it is possible to rotate the head in 90° steps.

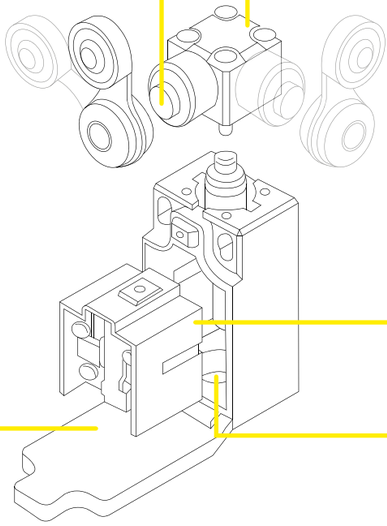
STRUCTURE DESCRIPTION

Metal Lever Setting

Grooves which engage the lever every 18° are cut in the operation indicator disk to prevent the lever from slipping against the rotary shaft.

Head

With roller lever models, the direction of the switch head can be varied to anyof the four directions by loosening the roller lever switch screws at the four corners of the head.



Contact block

Snap action:
1NC/1NO
Slow action:
1NC/1NO, 2NC, 2NC/1NO, 3NC

Cover

The cover, with a hinge on its lower part, can be opened by removing the screw of the cover, which ensures ease of maintenance and wiring.

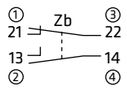
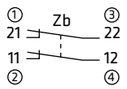
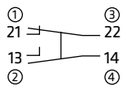
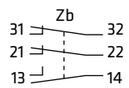
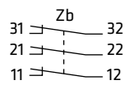
Conduit Entry

Standard: M16.
On request: M20, 1/2NPT, PG11, PG13.5.

PRODUCT SELECTION

FTN	1	31	X11	M
Series	**Function**	**Head and actuators**	**Contact Types**	**Thread dimension of lead exit**
	1 - Without Reset Function	**31** - Short plastic end plunger with protective boot **32** - PA Roller lever plunger with protective boot horizontal action **33** - PA Roller lever plunger with protective boot vertical action **34** - PA Roller lever plunger **35** - Spring lever with tip in PA **36** - CAT'S Whisker **37** - Rod lever type **38** - Ø18 PA Roller lever **39** - Variable length roller lever Ø18 **40** - Variable length rubber roller lever Ø50 **40L** - Variable length and long rubber roller lever Ø50 **40R** - Variable lenght and rubber roller lever Ø50 **40RL** - Variable lenght and long rubber roller lever Ø50 **41** - Ø50 Rubber roller lever **42** - Wobble stick **43** - Metal roller short lever Ø18 **44** - Variable lenght roller lever Ø18 **98** - Rope pull lever	**X11** - 1NC/1NO Slow Action **W02** - 2NC Slow Action **Z11** - 1NC/1NO Snap Action **W12** - 2NC/1NO Slow Action **W03** - 3NC Slow Action Slow Action & Snap Action: Type "Zb"	Standard: **BLANK** - M16 On request: **M** - M20 **N** - 1/2NPT **G1** - PG11 **G3** - PG13.5 **C** - Connector

CONTACT BLOCK FORM

Contact Types	X11	W02	Z11	W12	W03
Contact Form	1NC/1NO Slow Action	2NC Slow Action	1NC/1NO Snap Action	2NC/1NO Slow Action	3NC Slow Action
Electrical Schemes					
Connector pin Arrangement				No Connector type	

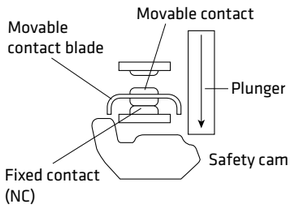
M12 Connector pin arrangement - on request

POSITIVE OPEN MECHANISM

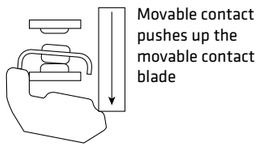
1NC/NO Contact (Snap action)

Conforms to EN60947-5-1 Positive Opening
If metal deposition between mating contacts occurs on the NC contact side, they can be pulled apart by the shearing force and tensile force generated when the safety cam or plunger engages the movable contact blade. When the safety cam or plunger is moved in the direction of the black arrow the Limit Switch releases.

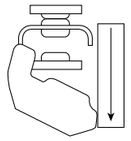
1. When metal deposition occurs.



2. When contacts are being pulled apart.

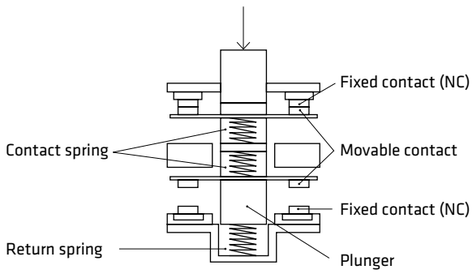


3. When contacts are completely pulled apart.



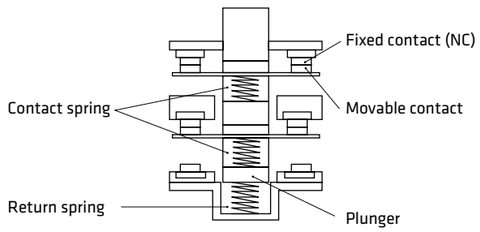
1NC/NO Contact (Slow action)

Only the NC contacts have a positive opening function.
When metal deposition occurs, the contacts are separated from each other by pushing in the plunger.

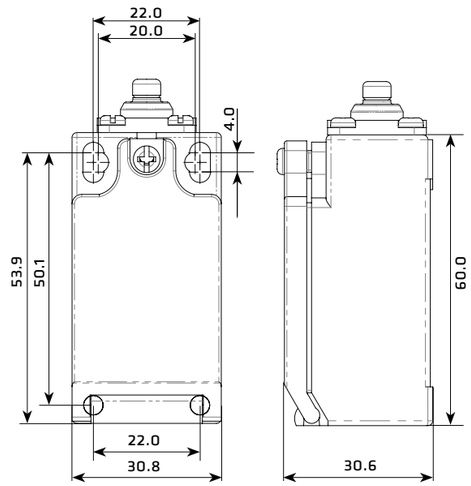


2NC Contact (Slow action)

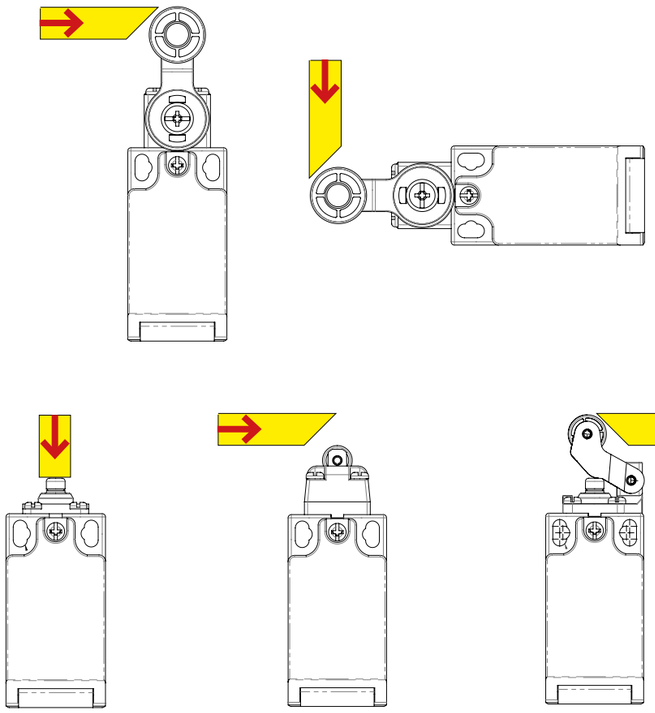
Both NC contacts incorporate a positive opening function.
When metal deposition occurs, the contacts are separated from each other by pushing in the plunger.



DIMENSIONS



OPERATING EXAMPLES



SELECTION DIAGRAM FTN SERIES



X11 - 1NC/1NO Slow Action
W02 - 2NC Slow Action
Z11 - 1NC/1NO Snap Action
W12 - 2NC/1NO Slow Action
W03 - 3NC Slow Action

CONTACT BLOCKS

ACTUATORS

FTN SERIES

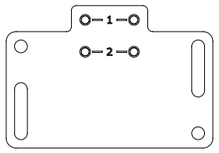
ADAPTIVE PLATE

CONDUIT ENTRY



Accessory
sell separately

KIT-FTN is inclusive of:
- 1 plate (code 12907009);
- 2 self-tapping screws 4x28 mm;
- 2 washers ø4 mm.



Threaded conduit entry

Standard:
BLANK - M16

On request:
M - M20
N - 1/2NPT
G1 - PG11
G3 - PG13.5
C - Connector

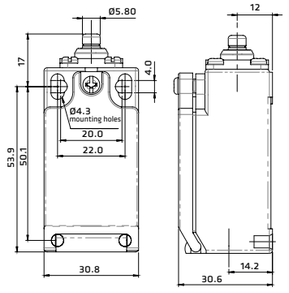
Wiring

Customized wirings are available on request, with connectors and cables in accordance with customers' specifications.

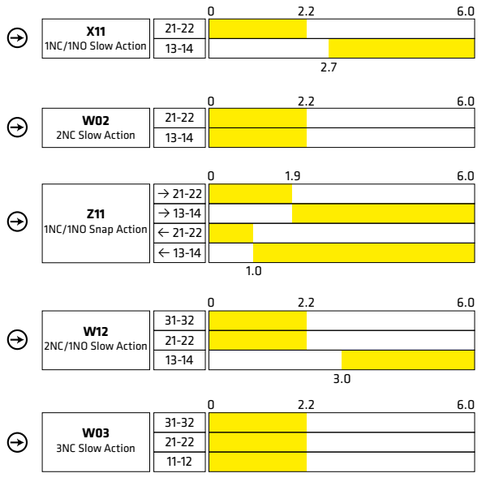
FTN131: Short plastic end plunger with protective boot

FTN	1	31	X11	M
Series	**Function**	**Head and actuators**	**Contact Types**	**Thread dimension of lead exit**
	1 - Without Reset Function	**31** - Short plastic end plunger with protective boot	**X11** - 1NC/1NO Slow Action **W02** - 2NC Slow Action **Z11** - 1NC/1NO Snap Action **W12** - 2NC/1NO Slow Action **W03** - 3NC Slow Action **Slow Action & Snap Action: Type "Zb"**	Standard: **BLANK** - M16 On request: **M** - M20 **N** - 1/2NPT **G1** - PG11 **G3** - PG13.5 **C** - Connector





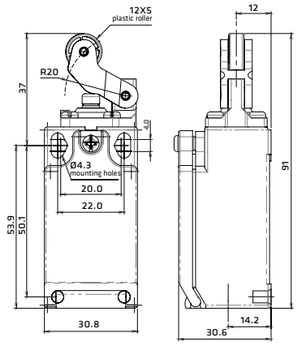
OPERATION DIAGRAMS



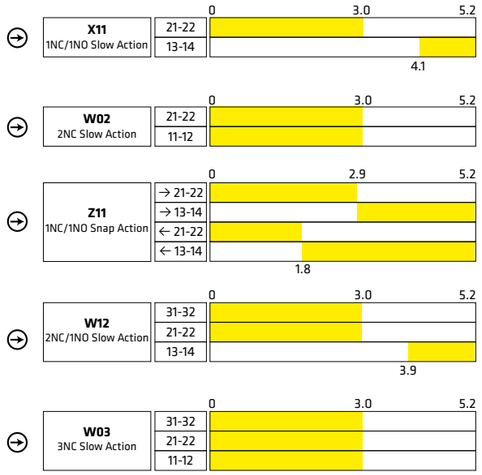
FTN132: PA Roller lever plunger with protective boot horizontal action

FTN	1	32	X11	M
Series	**Function**	**Head and actuators**	**Contact Types**	**Thread dimension of lead exit**
	1 - Without Reset Function	**32** - PA Roller lever plunger with protective boot horizontal action	**X11** - 1NC/1NO Slow Action **W02** - 2NC Slow Action **Z11** - 1NC/1NO Snap Action **W12** - 2NC/1NO Slow Action **W03** - 3NC Slow Action **Slow Action & Snap Action: Type "Zb"**	Standard: **BLANK** - M16 On request: **M** - M20 **N** - 1/2NPT **G1** - PG11 **G3** - PG13.5 **C** - Connector





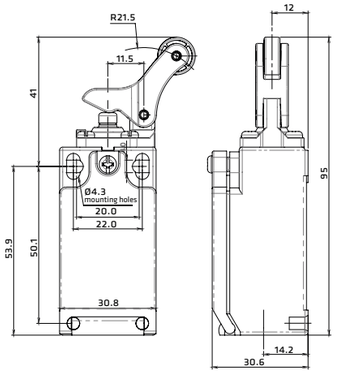
OPERATION DIAGRAMS



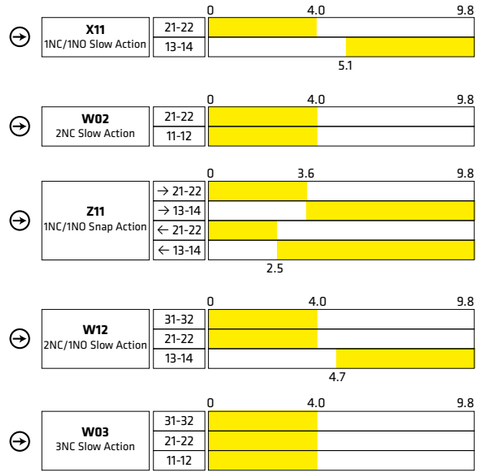
FTN133: PA Roller lever plunger with protective boot vertical action

FTN	1	33	X11	M
Series	Function	Head and actuators	Contact Types	Thread dimension of lead exit
	1 - Without Reset Function	**33** - PA Roller lever plunger with protective boot vertical action	**X11** - 1NC/1NO Slow Action **W02** - 2NC Slow Action **Z11** - 1NC/1NO Snap Action **W12** - 2NC/1NO Slow Action **W03** - 3NC Slow Action **Slow Action & Snap Action: Type "Zb"**	Standard: **BLANK** - M16 On request: **M** - M20 **N** - 1/2NPT **G1** - PG11 **G3** - PG13.5 **C** - Connector





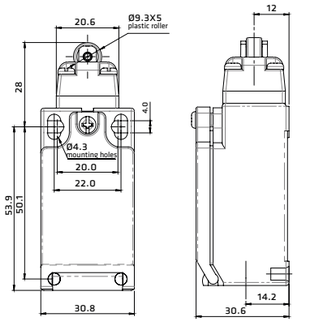
OPERATION DIAGRAMS



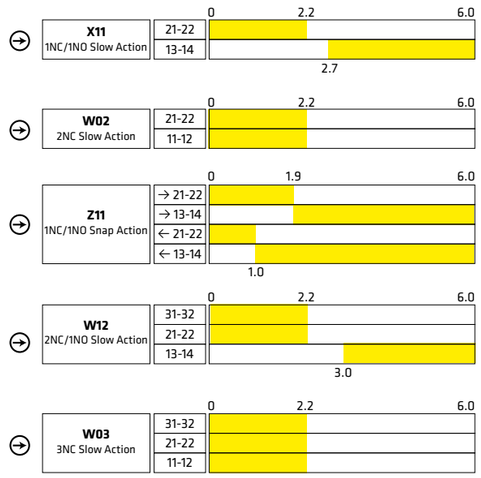
FTN134: PA Roller lever plunger

FTN	1	34	X11	M
Series	Function	Head and actuators	Contact Types	Thread dimension of lead exit
	1 - Without Reset Function	**34** - PA Roller lever plunger	**X11** - 1NC/1NO Slow Action **W02** - 2NC Slow Action **Z11** - 1NC/1NO Snap Action **W12** - 2NC/1NO Slow Action **W03** - 3NC Slow Action **Slow Action & Snap Action: Type "Zb"**	Standard: **BLANK** - M16 On request: **M** - M20 **N** - 1/2NPT **G1** - PG11 **G3** - PG13.5 **C** - Connector





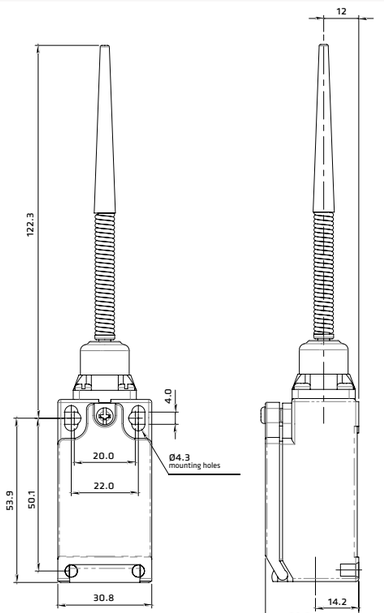
OPERATION DIAGRAMS



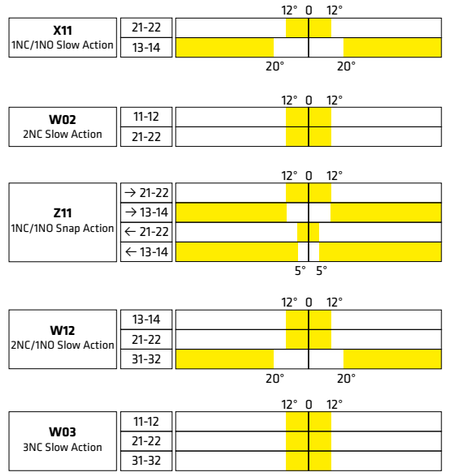
FTN135: Spring lever with tip in PA

FTN	1	35	X11	M
Series	Function	Head and actuators	Contact Types	Thread dimension of lead exit
	1 - Without Reset Function	**35** - Spring lever with tip in PA	**X11** - 1NC/1NO Slow Action **W02** - 2NC Slow Action **Z11** - 1NC/1NO Snap Action **W12** - 2NC/1NO Slow Action **W03** - 3NC Slow Action **Slow Action & Snap Action: Type "Zb"**	Standard: **BLANK** - M16 On request: **M** - M20 **N** - 1/2NPT **G1** - PG11 **G3** - PG13.5 **C** - Connector





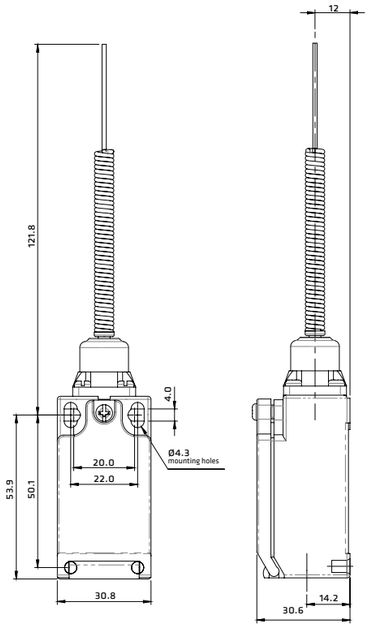
OPERATION DIAGRAMS



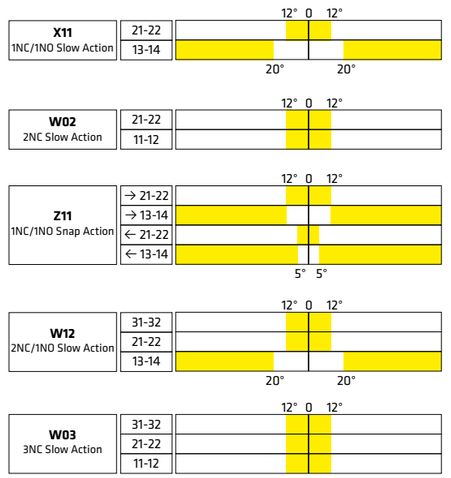
FTN136: CAT'S Whisker

FTN	1	36	X11	M
Series	Function	Head and actuators	Contact Types	Thread dimension of lead exit
	1 - Without Reset Function	**36** - CAT'S Whisker	**X11** - 1NC/1NO Slow Action **W02** - 2NC Slow Action **Z11** - 1NC/1NO Snap Action **W12** - 2NC/1NO Slow Action **W03** - 3NC Slow Action **Slow Action & Snap Action: Type "Zb"**	Standard: **BLANK** - M16 On request: **M** - M20 **N** - 1/2NPT **G1** - PG11 **G3** - PG13.5 **C** - Connector





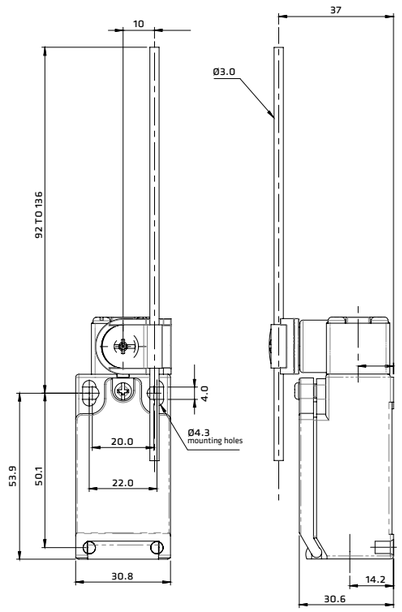
OPERATION DIAGRAMS



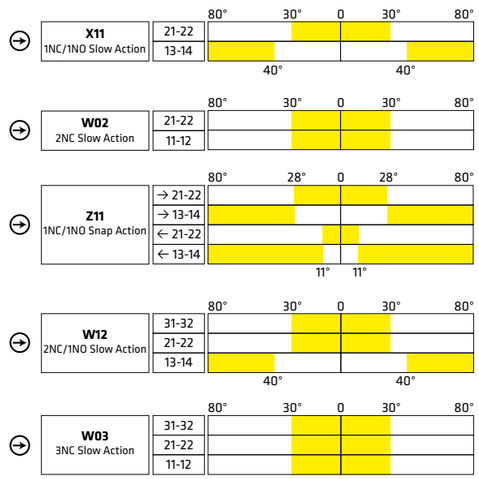
FTN137: Rod lever type

FTN	1	37	X11	M
Series	Function	Head and actuators	Contact Types	Thread dimension of lead exit
	1 - Without Reset Function	**37** - Rod lever type	**X11** - 1NC/1NO Slow Action **W02** - 2NC Slow Action **Z11** - 1NC/1NO Snap Action **W12** - 2NC/1NO Slow Action **W03** - 3NC Slow Action **Slow Action & Snap Action: Type "Zb"**	Standard: **BLANK** - M16 On request: **M** - M20 **N** - 1/2NPT **G1** - PG11 **G3** - PG13.5 **C** - Connector





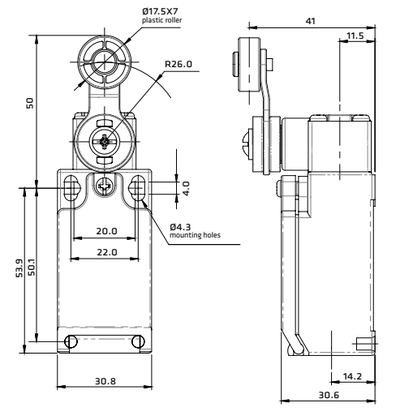
OPERATION DIAGRAMS



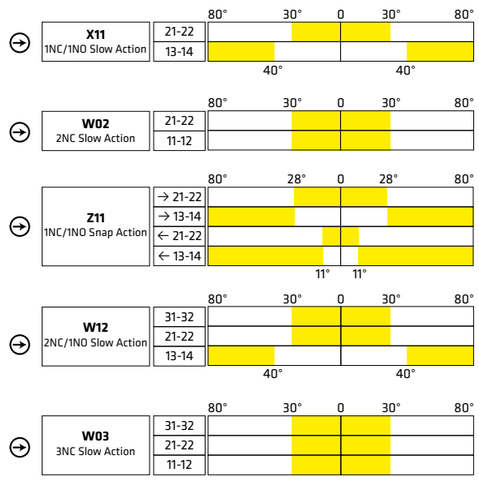
FTN138: Ø18 PA Roller lever

FTN	1	38	X11	M
Series	Function	Head and actuators	Contact Types	Thread dimension of lead exit
	1 - Without Reset Function	**38** - Ø18 PA Roller lever	**X11** - 1NC/1NO Slow Action **W02** - 2NC Slow Action **Z11** - 1NC/1NO Snap Action **W12** - 2NC/1NO Slow Action **W03** - 3NC Slow Action **Slow Action & Snap Action: Type "Zb"**	Standard: **BLANK** - M16 On request: **M** - M20 **N** - 1/2NPT **G1** - PG11 **G3** - PG13.5 **C** - Connector





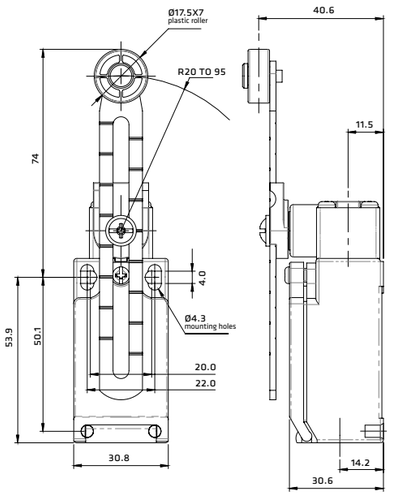
OPERATION DIAGRAMS



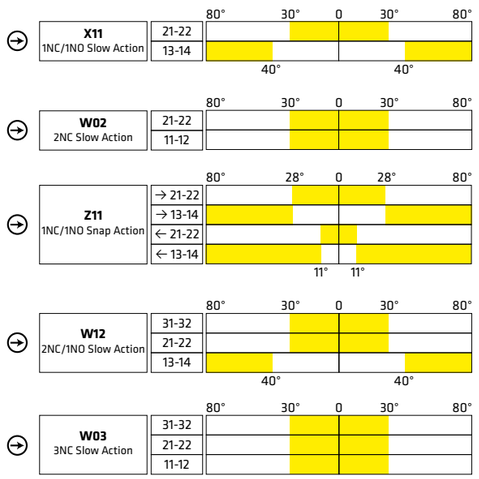
FTN139: Variable lenght roller lever Ø18

FTN	1	39	X11	M
Series	Function	Head and actuators	Contact Types	Thread dimension of lead exit
	1 - Without Reset Function	**39** - Variable lenght roller lever Ø18	**X11** - 1NC/1NO Slow Action **W02** - 2NC Slow Action **Z11** - 1NC/1NO Snap Action **W12** - 2NC/1NO Slow Action **W03** - 3NC Slow Action **Slow Action & Snap Action: Type "Zb"**	Standard: **BLANK** - M16 On request: **M** - M20 **N** - 1/2NPT **G1** - PG11 **G3** - PG13.5 **C** - Connector





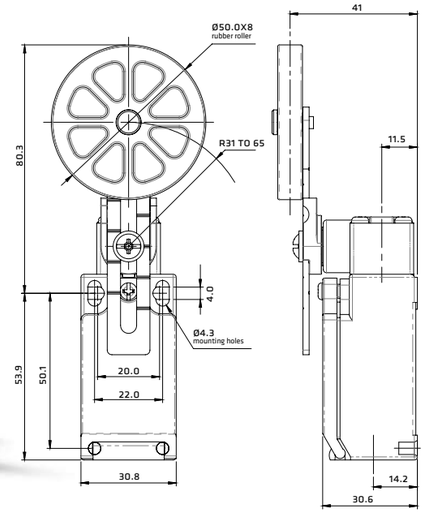
OPERATION DIAGRAMS



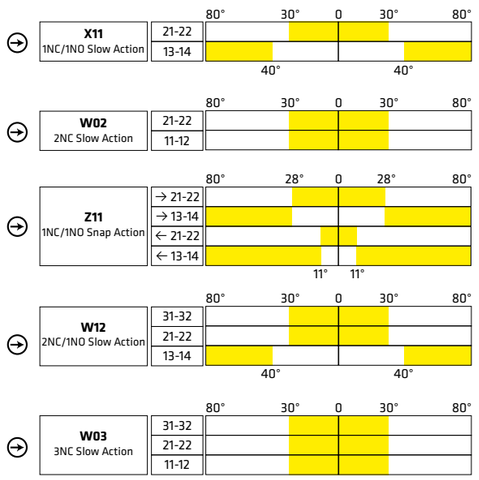
FTN140: Variable lenght rubber roller lever Ø50

FTN	1	40	X11	M
Series	Function	Head and actuators	Contact Types	Thread dimension of lead exit
	1 - Without Reset Function	**40** - Variable lenght rubber roller lever Ø50	**X11** - 1NC/1NO Slow Action **W02** - 2NC Slow Action **Z11** - 1NC/1NO Snap Action **W12** - 2NC/1NO Slow Action **W03** - 3NC Slow Action **Slow Action & Snap Action: Type "Zb"**	Standard: **BLANK** - M16 On request: **M** - M20 **N** - 1/2NPT **G1** - PG11 **G3** - PG13.5 **C** - Connector



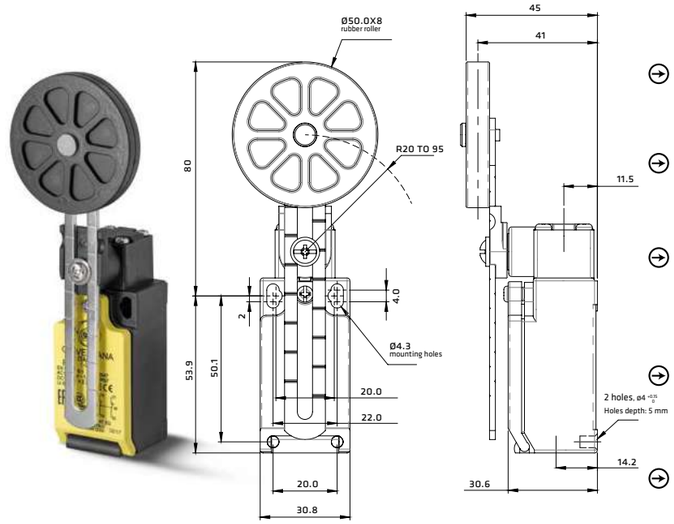


OPERATION DIAGRAMS

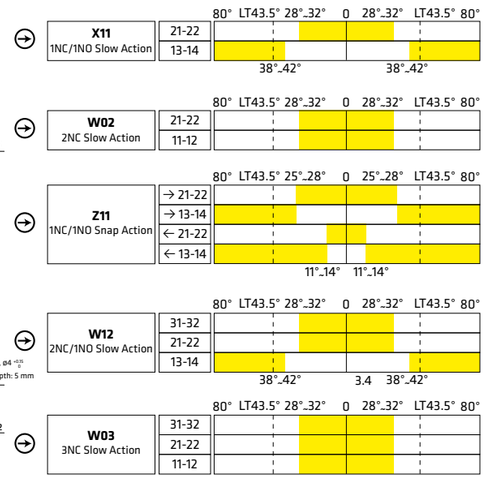


FTN140L: Variable lenght rubber roller lever Ø50 (Long Arm)

FTN	1	40L	X11	M
Series	**Function**	**Head and actuators**	**Contact Types**	**Thread dimension of lead exit**
	1 - Without Reset Function	**40L** - Variable lenght rubber roller lever Ø50 (Long Arm)	**X11** - 1NC/1NO Slow Action **W02** - 2NC Slow Action **Z11** - 1NC/1NO Snap Action **W12** - 2NC/1NO Slow Action **W03** - 3NC Slow Action **Slow Action & Snap Action: Type "Zb"**	Standard: **BLANK** - M16 On request: **M** - M20 **N** - 1/2NPT **G1** - PG11 **G3** - PG13.5 **C** - Connector

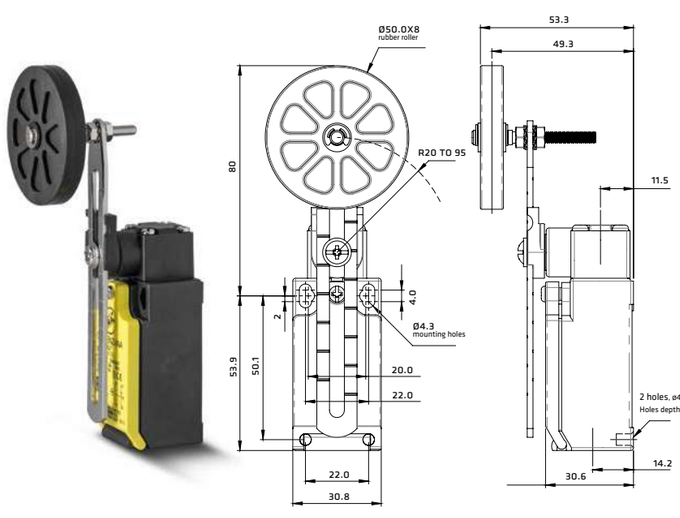


OPERATION DIAGRAMS

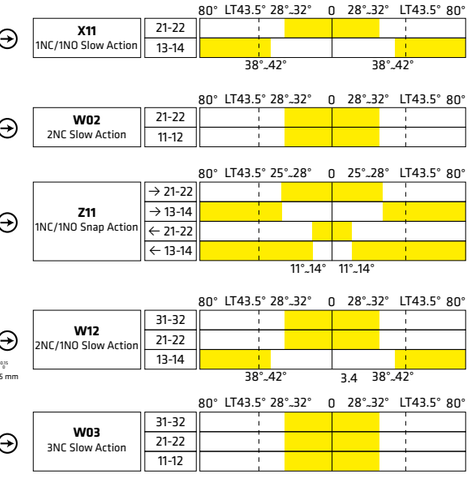


FTN140RL: Variable lenght and rubber roller lever Ø50 (Long Arm)

FTN	1	40RL	X11	M
Series	**Function**	**Head and actuators**	**Contact Types**	**Thread dimension of lead exit**
	1 - Without Reset Function	**40RL** - Variable lenght and rubber roller lever Ø50 (Long Arm)	**X11** - 1NC/1NO Slow Action **W02** - 2NC Slow Action **Z11** - 1NC/1NO Snap Action **W12** - 2NC/1NO Slow Action **W03** - 3NC Slow Action **Slow Action & Snap Action: Type "Zb"**	Standard: **BLANK** - M16 On request: **M** - M20 **N** - 1/2NPT **G1** - PG11 **G3** - PG13.5 **C** - Connector

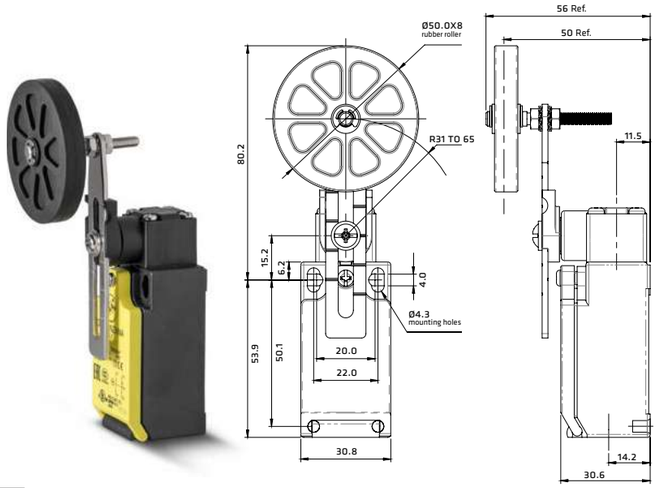


OPERATION DIAGRAMS

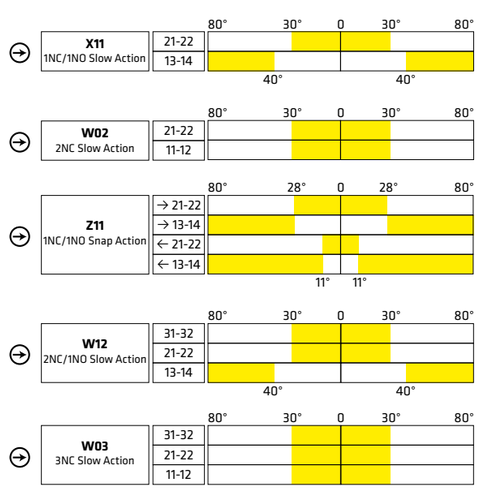


FTN140R: Variable lenght and rubber roller lever Ø50

FTN	1	40R	X11	M
Series	**Function**	**Head and actuators**	**Contact Types**	**Thread dimension of lead exit**
	1 - Without Reset Function	**40R** - Variable lenght and rubber roller lever Ø50	**X11** - 1NC/1NO Slow Action **W02** - 2NC Slow Action **Z11** - 1NC/1NO Snap Action **W12** - 2NC/1NO Slow Action **W03** - 3NC Slow Action **Slow Action & Snap Action: Type "Zb"**	Standard: **BLANK** - M16 On request: **M** - M20 **N** - 1/2NPT **G1** - PG11 **G3** - PG13.5 **C** - Connector

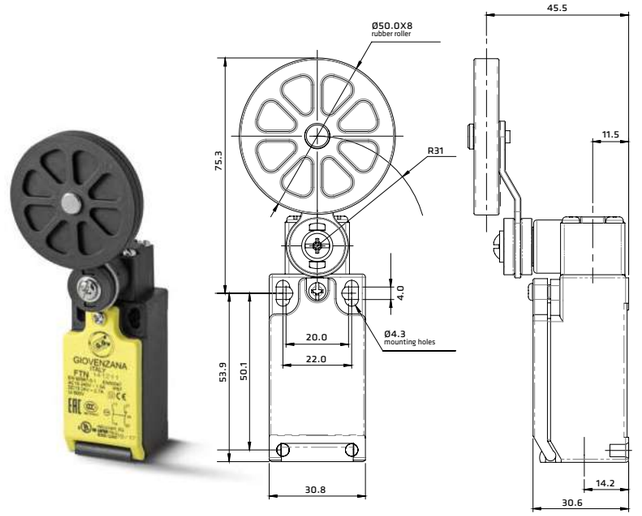


OPERATION DIAGRAMS

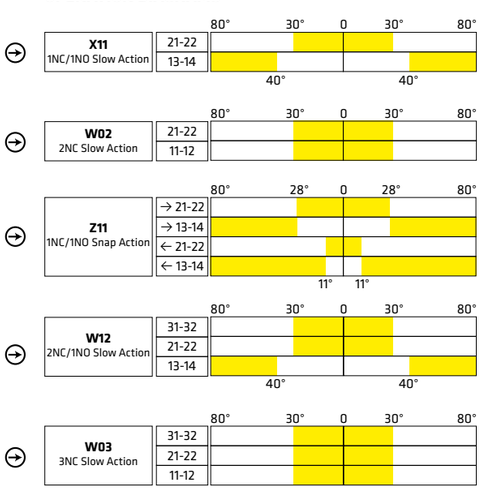


FTN141: Ø50 Rubber roller lever

FTN	1	41	X11	M
Series	**Function**	**Head and actuators**	**Contact Types**	**Thread dimension of lead exit**
	1 - Without Reset Function	**41** - Ø50 Rubber roller lever	**X11** - 1NC/1NO Slow Action **W02** - 2NC Slow Action **Z11** - 1NC/1NO Snap Action **W12** - 2NC/1NO Slow Action **W03** - 3NC Slow Action **Slow Action & Snap Action: Type "Zb"**	Standard: **BLANK** - M16 On request: **M** - M20 **N** - 1/2NPT **G1** - PG11 **G3** - PG13.5 **C** - Connector

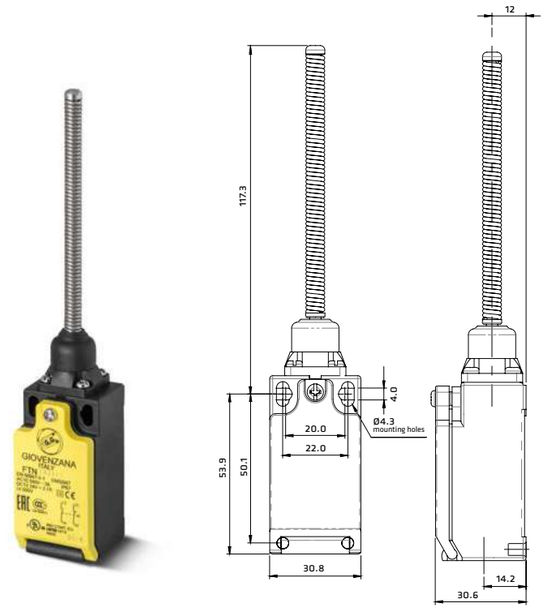


OPERATION DIAGRAMS

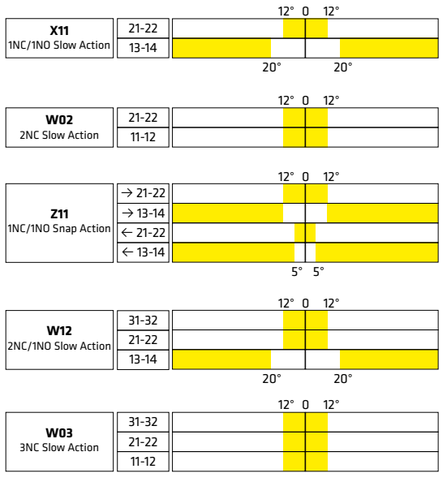


FTN142: Wobble stick

FTN	1	42	X11	M
Series	Function	Head and actuators	Contact Types	Thread dimension of lead exit
	1 - Without Reset Function	**42** - Wobble stick	**X11** - 1NC/1NO Slow Action **W02** - 2NC Slow Action **Z11** - 1NC/1NO Snap Action **W12** - 2NC/1NO Slow Action **W03** - 3NC Slow Action **Slow Action & Snap Action: Type "Zb"**	Standard: **BLANK** - M16 On request: **M** - M20 **N** - 1/2NPT **G1** - PG11 **G3** - PG13.5 **C** - Connector

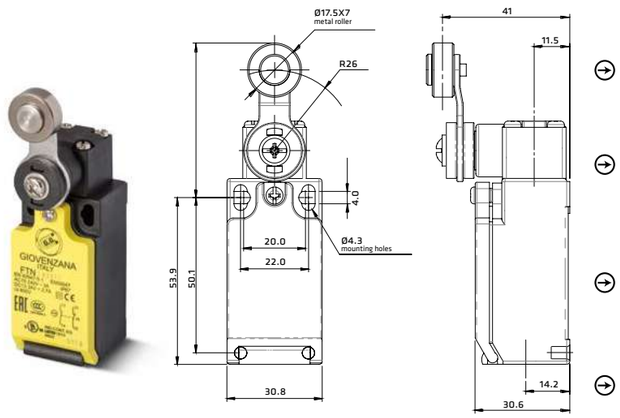


OPERATION DIAGRAMS

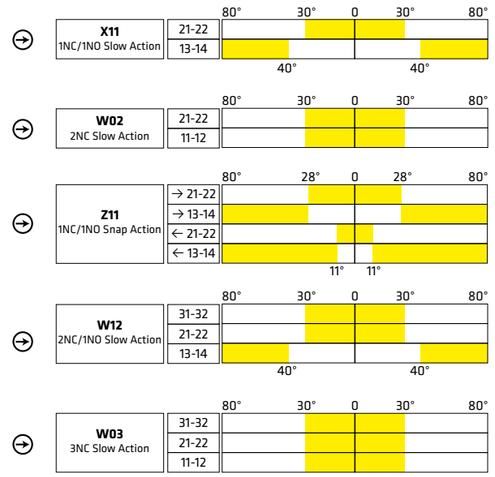


FTN143: Metal roller short lever Ø18

FTN	1	43	X11	M
Series	Function	Head and actuators	Contact Types	Thread dimension of lead exit
	1 - Without Reset Function	**43** - Metal roller short lever Ø18	**X11** - 1NC/1NO Slow Action **W02** - 2NC Slow Action **Z11** - 1NC/1NO Snap Action **W12** - 2NC/1NO Slow Action **W03** - 3NC Slow Action **Slow Action & Snap Action: Type "Zb"**	Standard: **BLANK** - M16 On request: **M** - M20 **N** - 1/2NPT **G1** - PG11 **G3** - PG13.5 **C** - Connector

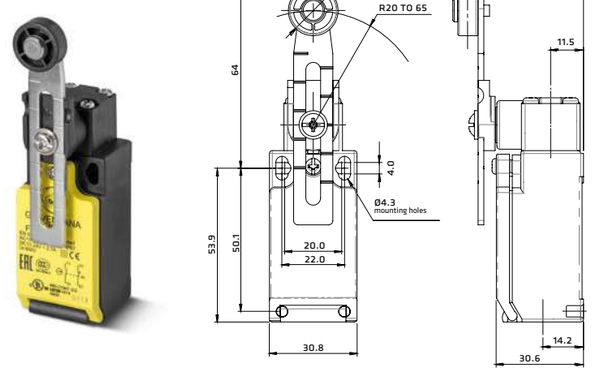


OPERATION DIAGRAMS

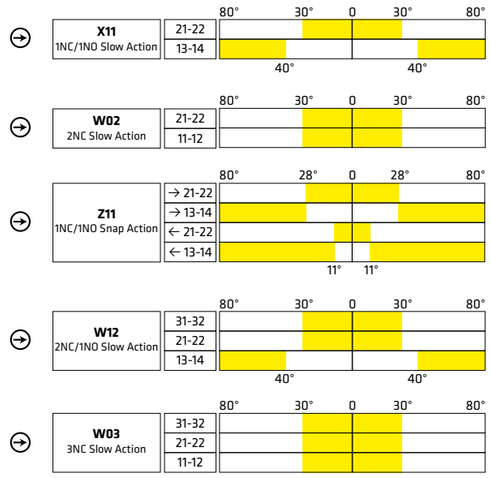


FTN144: Variable lenght roller lever Ø18

FTN	1	44	X11	M
Series	Function	Head and actuators	Contact Types	Thread dimension of lead exit
	1 - Without Reset Function	**44** - Variable lenght roller lever Ø18	**X11** -1NC/1NO Slow Action **W02** - 2NC Slow Action **Z11** - 1NC/1NO Snap Action **W12** - 2NC/1NO Slow Action **W03** - 3NC Slow Action **Slow Action & Snap Action: Type "Zb"**	Standard: **BLANK** - M16 On request: **M** - M20 **N** - 1/2NPT **G1** - PG11 **G3** - PG13.5 **C** - Connector

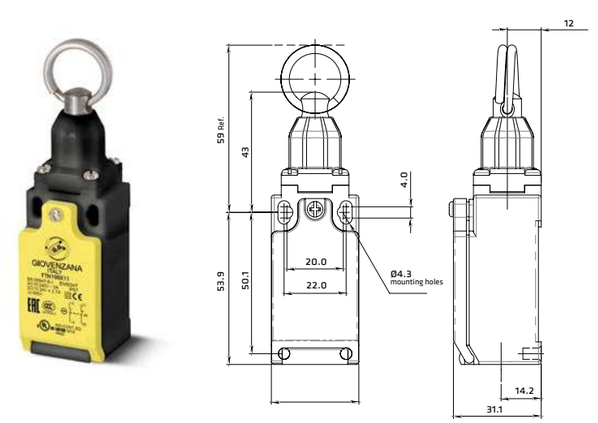


OPERATION DIAGRAMS



FTN198: Rope pull lever

FTN	1	98	X11	M
Series	Function	Head and actuators	Contact Types	Thread dimension of lead exit
	1 - Without Reset Function	**98** - Rope pull lever	**X11** -1NC/1NO Slow Action **W02** - 2NC Slow Action **Z11** - 1NC/1NO Snap Action **W12** - 2NC/1NO Slow Action **W03** - 3NC Slow Action **Slow Action & Snap Action: Type "Zb"**	Standard: **BLANK** - M16 On request: **M** - M20 **N** - 1/2NPT **G1** - PG11 **G3** - PG13.5 **C** - Connector



OPERATION DIAGRAMS... Coming Soon!

- **X11** 1NC/1NO Slow Action
- **W02** 2NC Slow Action
- **Z11** 1NC/1NO Snap Action
- **W12** 2NC/1NO Slow Action
- **W03** 3NC Slow Action

*Available more informations about this type of limit switch in the next page.

FTN198: Rope limit switch... Coming soon!

DESCRIPTION

The FTN198 switch has been specifically studied to control the lift shaft lights. The norm EN81.20 paragraph 5.2.1.5 states the necessity to have a light switching point next to the working area access and in the machines room.
To comply with this standard usually at every floor there are installed lighting points which control a step relay with its considerable costs due to the number of the control points and their wiring.
The FTN198 switch itself allows to control the shaft lights through its own wiring, without any need of different lighting points, relays or wiring.

INSTALLATION

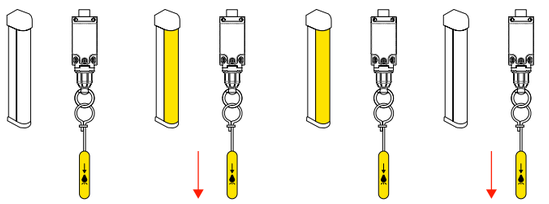
The FTN198 switch is fixed to the superior part of the lift shaft and it's connected to a rope which goes down in the shaft next to the cabin. The rope has to been guided through rings in order to avoid the excessive oscillation caused by the cabin windage. At regular intervals along the rope, usually at every floor, an indicator is fixed to make the rope and its function clearly visible. The last indicator at the end of the rope has a weight inside to keep the rope tight. This way the operator on the cabin roof or in any position along the shaft has the possibility to operate the switch by pulling the pratical indicator or the rope itself.

OPERATION

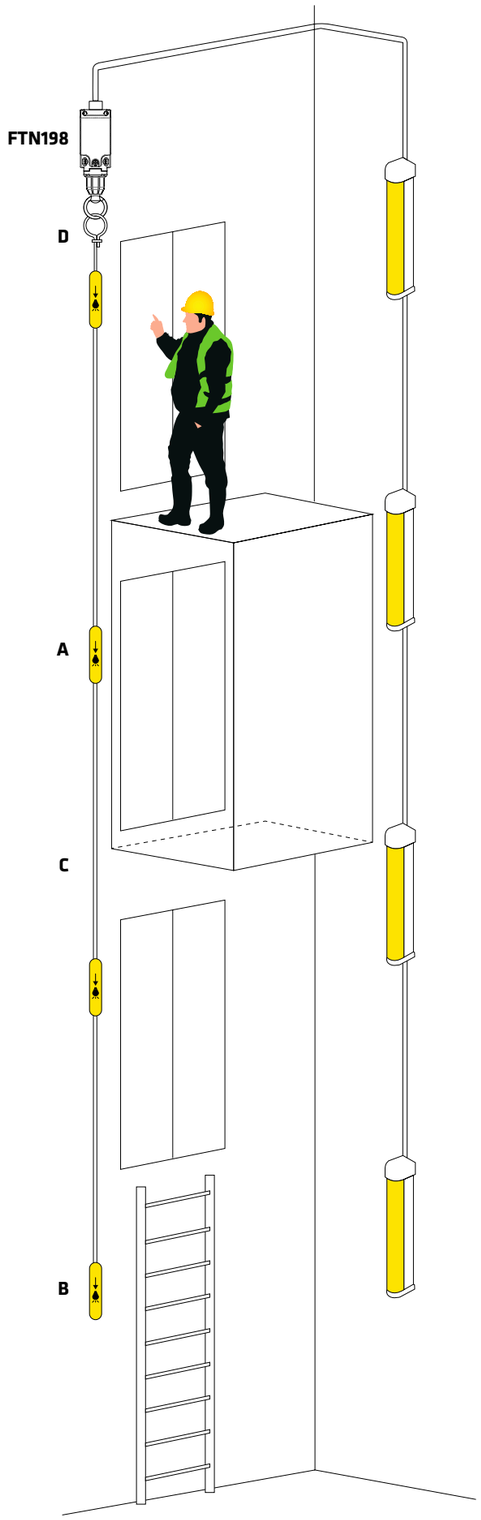
The FTN198 switch has a stable position function, which means that the first operation closes the contacts; the following one opens them and so on.
To switch the shaft light on it is sufficient to pull the rope; to switch it off just repeat the operation.

LIMIT SWITCH + ACCESSORIES

FTN198	Rope limit switch
	ROPE FUNCTION INDICATORS **Screw tightening torque closure:** **0.8 ... 1.0 Nm**
A	End clamp for rope fixing
B	Intermediate rope function indicators
	YELLOW/TRANSPARENT ROPE ROLL **ø3mm with a brass-plated steel core and a PVC coating**
C	100 m rope
D	**ROPE EXTREMITY CLAMP**



1. Light off
2. Pull down and light on
3. Light on
4. Pull down and light off



OPERATING FORCE FTN SERIES

	TYPE	CONTACT BLOCK		OPERATING TRAVEL		OPERATING FORCE	POSITIVE OPENING		TOTAL TRAVEL
				PT	PT2nd	OF	Travel	Force	
	FTN131	X11	1 NC/1 NO Slow Action	2.2 mm	3.0 mm	7.26 N	3.2 mm	19.0 N	6.0 mm
		W02	2 NC Slow Action	2.2 mm	-	7.42 N			
		Z11	1 NC/1 NO Snap Action	1.9 mm	-	6.71 N			
		W12	2 NC/1 NO Slow Action	2.2 mm	3.0 mm	7.26 N			
		W03	3 NC Slow Action	2.2 mm	-	7.42 N			
	FTN132	X11	1 NC/1 NO Slow Action	3.0 mm	4.5 mm	5.21 N	5.7 mm	19.0 N	5.2 mm
		W02	2 NC Slow Action	3.0 mm	-	5.26 N			
		Z11	1 NC/1 NO Snap Action	2.9 mm	-	4.74 N			
		W12	2 NC/1 NO Slow Action	3.0 mm	4.5 mm	5.21 N			
		W03	3 NC Slow Action	3.0 mm	-	5.26 N			
	FTN133	X11	1 NC/1 NO Slow Action	4.0 mm	6.0 mm	6.37 N	4.6 mm	19.0 N	9.8 mm
		W02	2 NC Slow Action	4.0 mm	-	6.98 N			
		Z11	1 NC/1 NO Snap Action	3.6 mm	-	5.76 N			
		W12	2 NC/1 NO Slow Action	4.0 mm	6.0 mm	6.37 N			
		W03	3 NC Slow Action	4.0 mm	-	6.98 N			
	FTN134	X11	1 NC/1 NO Slow Action	2.2 mm	3.0 mm	7.26 N	3.2 mm	19.0 N	6.0 mm
		W02	2 NC Slow Action	2.2 mm	-	7.42 N			
		Z11	1 NC/1 NO Snap Action	1.9 mm	-	6.71 N			
		W12	2 NC/1 NO Slow Action	2.2 mm	3.0 mm	7.26 N			
		W03	3 NC Slow Action	2.2 mm	-	7.42 N			
	FTN135	X11	1 NC/1 NO Slow Action	-	-	-	N/A	N/A	N/A
		W02	2 NC Slow Action	12°	-	6.5 N			
		Z11	1 NC/1 NO Snap Action	12°	-	5.3 N			
		W12	2 NC/1 NO Slow Action	-	-	-			
		W03	3 NC Slow Action	12°	-	6.5 N			
	FTN136	X11	1 NC/1 NO Slow Action	-	-	-	N/A	N/A	N/A
		W02	2 NC Slow Action	12°	-	6.5 N			
		Z11	1 NC/1 NO Snap Action	12°	-	5.3 N			
		W12	2 NC/1 NO Slow Action	-	-	-			
		W03	3 NC Slow Action	12°	-	6.5 N			
	FTN137	X11	1 NC/1 NO Slow Action	30°	41°	1.8 N	45°	19.0 N	80°
		W02	2 NC Slow Action	30°	-	1.8 N			
		Z11	1 NC/1 NO Snap Action	28°	-	1.9 N			
		W12	2 NC/1 NO Slow Action	30°	41°	1.8 N			
		W03	3 NC Slow Action	30°	-	1.8 N			
	FTN138	X11	1 NC/1 NO Slow Action	30°	41°	6.5 N	45°	19.0 N	80°
		W02	2 NC Slow Action	30°	-	6.5 N			
		Z11	1 NC/1 NO Snap Action	28°	-	5.3 N			
		W12	2 NC/1 NO Slow Action	30°	41°	6.5 N			
		W03	3 NC Slow Action	30°	-	6.5 N			
	FTN139	X11	1 NC/1 NO Slow Action	30°	41°	6.5 N	45°	19.0 N	80°
		W02	2 NC Slow Action	30°	-	6.5 N			
		Z11	1 NC/1 NO Snap Action	28°	-	5.3 N			
		W12	2 NC/1 NO Slow Action	30°	41°	6.5 N			
		W03	3 NC Slow Action	30°	-	6.5 N			

OPERATING FORCE FTN SERIES

	TYPE	CONTACT BLOCK		OPERATING TRAVEL		OPERATING FORCE	POSITIVE OPENING		TOTAL TRAVEL
				PT	PT2nd	OF	Travel	Force	
	FTN140	X11	1 NC/1 NO Slow Action	30°	41°	5.2 N	45°	19.0 N	80°
		W02	2 NC Slow Action	30°	-	5.2 N			
		Z11	1 NC/1 NO Snap Action	28°	-	4.5 N			
		W12	2 NC/1 NO Slow Action	30°	41°	5.2 N			
		W03	3 NC Slow Action	30°	-	5.2 N			
	FTN140L	X11	1 NC/1 NO Slow Action	30°	41°	5.2 N	45°	19.0 N	80°
		W02	2 NC Slow Action	30°	-	5.2 N			
		Z11	1 NC/1 NO Snap Action	35°	-	5.3 N			
		W12	2 NC/1 NO Slow Action	30°	41°	5.2 N			
		W03	3 NC Slow Action	30°	-	5.2 N			
	FTN140R	X11	1 NC/1 NO Slow Action	30°	41°	5.2 N	45°	19.0 N	80°
		W02	2 NC Slow Action	30°	-	5.2 N			
		Z11	1 NC/1 NO Snap Action	28°	-	4.5 N			
		W12	2 NC/1 NO Slow Action	30°	41°	5.2 N			
		W03	3 NC Slow Action	30°	-	5.2 N			
	FTN140RL	X11	1 NC/1 NO Slow Action	30°	41°	5.2 N	45°	19.0 N	80°
		W02	2 NC Slow Action	30°	-	5.2 N			
		Z11	1 NC/1 NO Snap Action	35°	-	5.3 N			
		W12	2 NC/1 NO Slow Action	30°	41°	5.2 N			
		W03	3 NC Slow Action	30°	-	5.2 N			
	FTN141	X11	1 NC/1 NO Slow Action	30°	41°	6.5 N	45°	19.0 N	80°
		W02	2 NC Slow Action	30°	-	6.5 N			
		Z11	1 NC/1 NO Snap Action	35°	-	5.3 N			
		W12	2 NC/1 NO Slow Action	30°	41°	6.5 N			
		W03	3 NC Slow Action	30°	-	6.5 N			
	FTN142	X11	1 NC/1 NO Slow Action	-	-	-	N/A	N/A	N/A
		W02	2 NC Slow Action	12°	-	5.2 N			
		Z11	1 NC/1 NO Snap Action	12°	-	4.5 N			
		W12	2 NC/1 NO Slow Action	-	-	-			
		W03	3 NC Slow Action	12°	-	5.2 N			
	FTN143	X11	1 NC/1 NO Slow Action	30°	41°	6.5 N	45°	19.0 N	80°
		W02	2 NC Slow Action	30°	-	6.5 N			
		Z11	1 NC/1 NO Snap Action	35°	-	5.3 N			
		W12	2 NC/1 NO Slow Action	30°	41°	6.5 N			
		W03	3 NC Slow Action	30°	-	6.5 N			
	FTN144	X11	1 NC/1 NO Slow Action	30°	41°	6.5 N	45°	19.0 N	80°
		W02	2 NC Slow Action	30°	-	6.5 N			
		Z11	1 NC/1 NO Snap Action	28°	-	5.3 N			
		W12	2 NC/1 NO Slow Action	30°	41°	6.5 N			
		W03	3 NC Slow Action	30°	-	6.5 N			
	FTN198	X11	1 NC/1 NO Slow Action	-	-	-			
		W02	2 NC Slow Action	-	-	-			
		Z11	1 NC/1 NO Snap Action	Coming soon!					
		W12	2 NC/1 NO Slow Action	-	-	-			
		W03	3 NC Slow Action	-	-	-			

GIOVENZANA
INTERNATIONAL B.V.



LIMIT SWITCHES WITH MANUAL RESET
FTN1R SERIES



DESCRIPTION

The **FTN1R series** limit switches with manual reset, conform to EN 50047, have been developed to provide a range of options including a various choice of snap acting and slow acting and a wide range of actuator heads.
The **FTN1R series** offers the option of rotating the head in 90° increments before installation to allow ease of mounting.

Giovenzana limit switches can be used in various applications in automation, lift and handling system fields.
Operation of these limit switches is achieved by the sliding action of the guard or the moving object deflecting the plunger or lever.
For safety applications it's important that upon actuation, the guard or other moving objects should not pass completely over the switch and allow the plunger or lever to return to its original position.

TECHNICAL DATA - HOUSING

Made of glass- reinforced polymer, self-extinguishing, shock-proof thermoplastic resin and with double insulation	▣
FTN1R Series one threaded conduit entry	Standard: M16
Protection degree	IP67 according to EN60529 with cable gland having equal or higher protection degree

GENERAL DATA

Positive opening operation	NC contact ⊖
Utilization category	AC15 A600
Minimum admissible current	5V, 5mA, DC
Insulation resistance	100MΩ min (DC 500V)
Contact resistance	25mΩ max (Initial)
Enclosure material	UL approved glass-filled polybutylene terephthalate
Operating temperature	Min -25°C (-18°F) / Max 80°C (+176°F)
Mechanical life expectancy	$1x10^6$ cycles min
Electrically life expectancy	150.000 cycles min
Vibration resistance	IEC 68-2-6, 10-55Hz ± 1Hz, Excursion: 0.35mm, 1 octave/min
Conduit entry	Various
Fixing	2xM4

ELECTRICAL DATA

Rated thermal current (Ith)	10A
Rated insulation voltage (Ui)	600V AC
Rated impulse withstand voltage (Uimp)	2500V AC
Pollution degree	3
Protection against electric shock	Class II (Double insulation)

STANDARDS & APPROVALS

Standards	EN60947-5-1, UL508, EN50047, EN1088
Approvals	cULus, EAC and CCC for all applicable directives

QUALITY MARKS

c UL us CCC EAC CE

MAIN FEATURES

- Each model features a positive opening mechanism (NC contacts only) and equipped with a lockable head.
- Conforms to EN (TUV) standards corresponding to the CE marking.
- ⊖ Positive opening operation of NC (Normally Closed) contacts conforming to IEC/EN 60947-5-1.
- Double insulation makes ground terminal unnecessary.
- Wide standard operating temperature range: -25°C to 80°C.
- Full range of actuator heads and levers suitable for safety applications.
- Sealing up to IP67.
- Wide switch variations (Snap action and slow action basic switches).

ACCORDING TO STANDARDS

EN81.20
EN81.50

Safety contacts according to EN60947-5-1.
Protection degree higher than IP4x.
Mechanical endurance higher than $1x10^6$ cycles.

INSTALLATION FOR SAFETY APPLICATIONS

Use only switches marked with the simbol ⊖ .
Always connect the safety circuit to the **NC contact** (normally closed contacts: 11-12 / 21-22 / 31-32) as required by **EN ISO 14119 paragraph 5.4** and as stated in the standard **EN81.20 paragraph 5.11.2.2.1**.

TAKE CARE!

If not expressly indicated in this chapter, for the correct installation and utilization of all articles see the instructions given on pages 92-93.

DATA TYPE APPROVED BY UL

Utilization categories:

FTN1R SERIES	**Q300**	**A600**	1 NC/1 NO Slow Action
			2 NC Slow Action
		B600	1 NC/1 NO Snap Action
		A300	2 NC/1 NO Slow Action (3 poles)
			3 NC Slow Action (3 poles)

Data of the housing type 1.
For all contact blocks use 60 or 75°C copper (Cu) conductor and wire size No. 14 - 18 AWG.
Terminal tightening torque of 7.1 lb in (0.8 Nm).
In conformity with standard: UL508, CSA 22.2 No. 14 - 10.

c UL us

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

PROTECTION CLASS

IP67

Designed to be used even in the most severe environmental situations, these devices pass the immersion test IP67 in conformity with EN 60529.

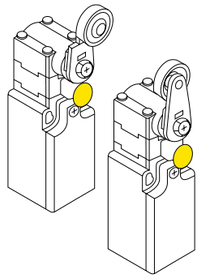
DOUBLE INSULATION

▣ Materials of group II, according to IEC 536, are made with double insulation. This consists of doubling the insulation capability by means of an additional divider in order to eliminate any electrical shock risk and avoid the need for any additional protections.

POSITIVE OPENING

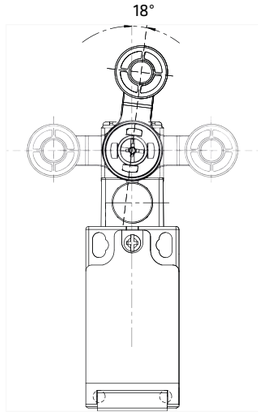
⊖ A limit switch complies to the specification when all the normally closed contact elements of the switch can be changed, with certainty, to the open position (no flexible link between the moving contacts and the operator of the switch, to which an actuating force is applied). Positive opening doesn't apply to NO contacts. Control switches with positive opening operation can be equipped with either slow-break or snap action contacts. In order to use different contacts on the same switch, it is necessary to electrically separate them; otherwise only one contact can be used. Every positive opening control switch must be marked on the external housing with the symbol on the left.

OVERTURNING LEVERS



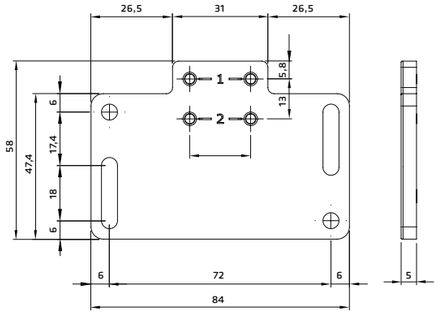
It's possible to fasten the lever on switches on straight or reverse side, maintaining the positive coupling. In this way it is possible to obtain two different work plans of the lever.

ADJUSTABLE LEVERS



In switches with revolving lever it is possible to adjust the lever with 18° steps for the whole 360° range. The positive movement transmission is always guaranteed thanks to the particular geometrical coupling between the lever and the revolving shaft.

ADAPTIVE PLATE



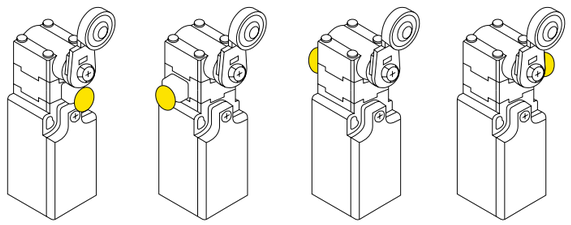
Fixing plate equipped with large slots for adjusting the operating point developed for backwards compatibility with old products.
Each plate has a double pair of fixing holes.

The plate is sold in kit with **KIT-FTN** code.

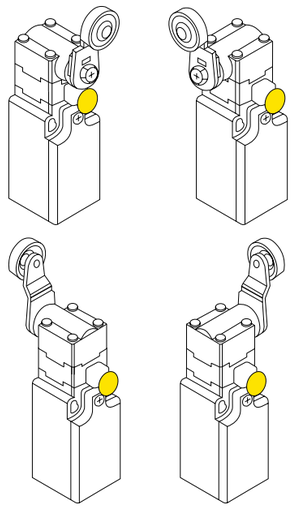
The **KIT-FTN** is inclusive of:
- 1 plate (code 12907009);
- 2 self-tapping screws 4x28 mm;
- 2 washers ø4 mm.

ROTATING RESET DEVICE

The device can be rotated independently from the above actuator, making the product highly flexible in the positioning.
The reset is obtained by pulling back the blue button, as prescribed by standards, to avoid that unwanted objects could reset it accidentally.



ROTATING HEADS



In all switches, it is possible to rotate the head in 90° steps.

STRUCTURE DESCRIPTION

Metal Lever Setting

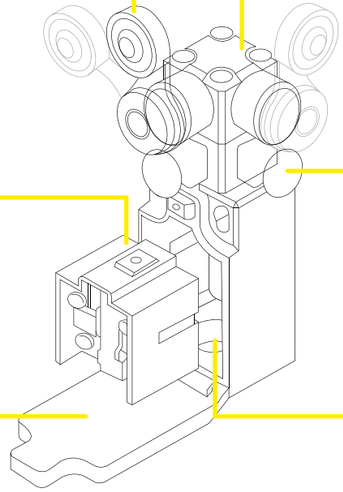
Grooves which engage the lever every 18° are cut in the operation indicator disk to prevent the lever from slipping against the rotary shaft.

Contact block

Has a positive opening mechanism separating the contacts when the contacts are welded.

Cover

The cover, with a hinge on its lower part, can be opened by removing the screw of the cover, which ensures ease of maintenance and wiring.



Head

With roller lever models, the direction of the switch head can be adjusted to any of the four directions by loosening the roller lever switch screws at the four corners of the head.

Reset Head

The direction of the reset head can be adjusted to any of the four directions.

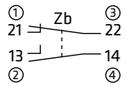
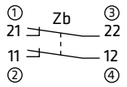
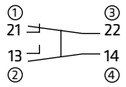
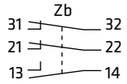
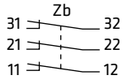
Conduit Entry

Standard: M16.
On request: M20, 1/2NPT, PG11, PG13.5.

PRODUCT SELECTION

FTN	1R	31	X11	M
Series	**Function**	**Head and actuators**	**Contact Types**	**Thread dimension of lead exit**
	1R - With Reset Function	**31** - Push plunger type **32** - Roller lever type **33** - One-way roller arm lever type **34** - Roller plunger type **37** - Rod lever type **38** - Roller arm type **39** - Adjustable roller arm type (Long Arm) **40** - Adjustable roller arm type (Big Arm) **40R** - Two ways adjustable roller arm type **41** - Big roller arm type **43** - Mental roller arm type **44** - Adjustable roller arm type (Standard Arm)	**X11** - 1NC/1NO Slow Action **W02** - 2NC Slow Action **Z11** - 1NC/1NO Snap Action **W12** - 2NC/1NO Slow Action **W03** - 3NC Slow Action Slow Action & Snap Action: Type "Zb"	Standard: **BLANK** - M16 On request: **M** - M20 **N** - 1/2NPT **G1** - PG11 **G3** - PG13.5 **C** - Connector

CONTACT BLOCK FORM

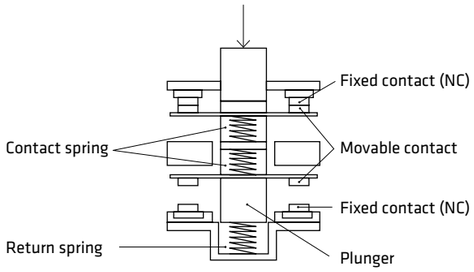
Contact Types	X11	W02	Z11	W12	W03
Contact Form	1NC/1NO Slow Action	2NC Slow Action	1NC/1NO Snap Action	2NC/1NO Slow Action	3NC Slow Action
Electrical Schemes					
Connector pin Arrangement				No Connector type	

M12 Connector pin arrangement - on request

POSITIVE OPEN MECHANISM

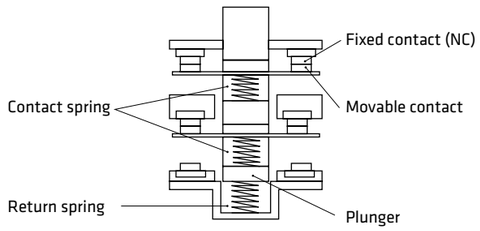
1NC/NO Contact (Slow action)

Only the NC contacts have a positive opening function.
When metal deposition occurs, the contacts are separated from each other by pushing in the plunger.



2NC Contact (Slow action)

Both NC contacts incorporate a positive opening function.
When metal deposition occurs, the contacts are separated from each other by pushing in the plunger.



SELECTION DIAGRAM


31


32


33


34


37


38


39


40


40R


41


43

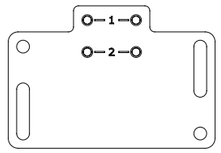

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ACTUATORS

X11 - 1NC/1NO Slow Action
W02 - 2NC Slow Action
Z11 - 1NC/1NO Snap Action
W12 - 2NC/1NO Slow Action
W03 - 3NC Slow Action

Accessory sell separately

KIT-FTN is inclusive of:
- 1 plate (code 12907009);
- 2 self-tapping screws 4x28 mm;
- 2 washers ø4 mm.



Threaded conduit entry

Standard:
BLANK - M16

On request:
M - M20
N - 1/2NPT
G1 - PG11
G3 - PG13.5
C - Connector

Wiring

Customized wirings are available on request, with connectors and cables in accordance with customers' specifications.

CONTACT BLOCKS

ADAPTIVE PLATE

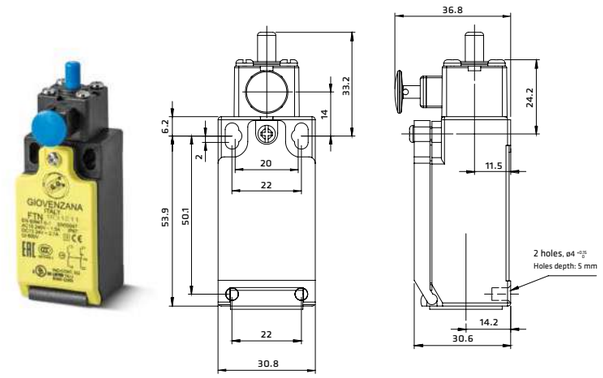
CONDUIT ENTRY

FTN1R SERIES

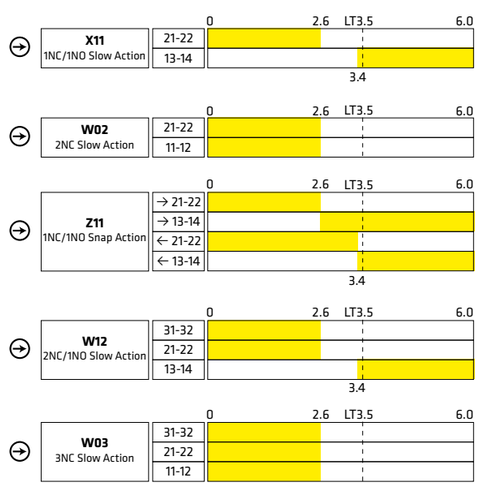


FTN1R31: Push plunger type

FTN	1R	31	X11	M
Series	Function	Head and actuators	Contact Types	Thread dimension of lead exit
	1R - With Reset Function	**31** - Push plunger type	**X11** - 1NC/1NO Slow Action **W02** - 2NC Slow Action **Z11** - 1NC/1NO Snap Action **W12** - 2NC/1NO Slow Action **W03** - 3NC Slow Action **Slow Action & Snap Action: Type "Zb"**	Standard: **BLANK** - M16 On request: **M** - M20 **N** - 1/2NPT **G1** - PG11 **G3** - PG13.5 **C** - Connector

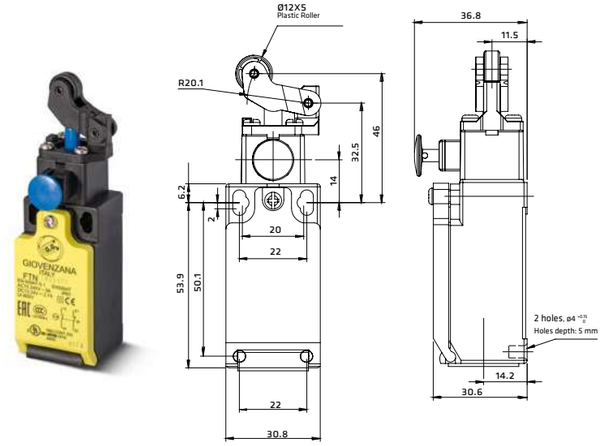


OPERATION DIAGRAMS

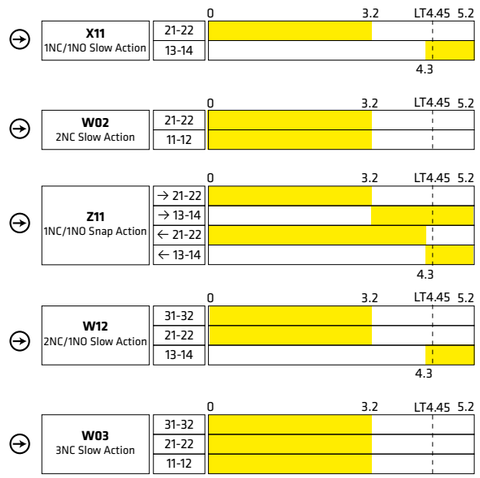


FTN1R32: Roller lever type

FTN	1R	32	X11	M
Series	Function	Head and actuators	Contact Types	Thread dimension of lead exit
	1R - With Reset Function	**32** - Roller lever type	**X11** - 1NC/1NO Slow Action **W02** - 2NC Slow Action **Z11** - 1NC/1NO Snap Action **W12** - 2NC/1NO Slow Action **W03** - 3NC Slow Action **Slow Action & Snap Action: Type "Zb"**	Standard: **BLANK** - M16 On request: **M** - M20 **N** - 1/2NPT **G1** - PG11 **G3** - PG13.5 **C** - Connector

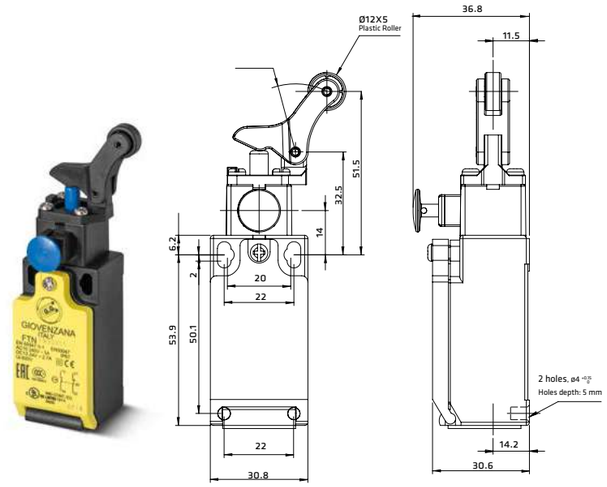


OPERATION DIAGRAMS

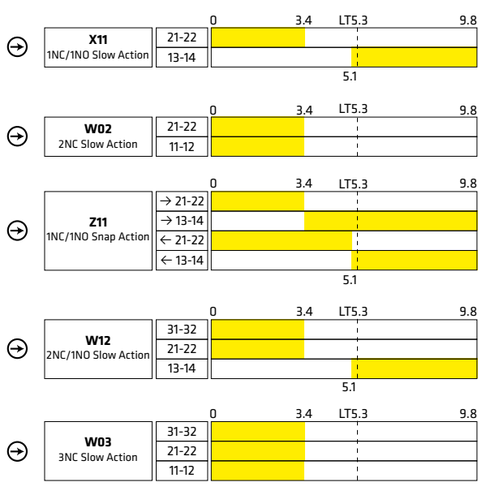


FTN1R33: One-way roller arm lever type

FTN	1R	33	X11	M
Series	Function	Head and actuators	Contact Types	Thread dimension of lead exit
	1R - With Reset Function	**33** - One-way roller arm lever type	**X11** - 1NC/1NO Slow Action **W02** - 2NC Slow Action **Z11** - 1NC/1NO Snap Action **W12** - 2NC/1NO Slow Action **W03** - 3NC Slow Action **Slow Action & Snap Action: Type "Zb"**	Standard: **BLANK** - M16 On request: **M** - M20 **N** - 1/2NPT **G1** - PG11 **G3** - PG13.5 **C** - Connector

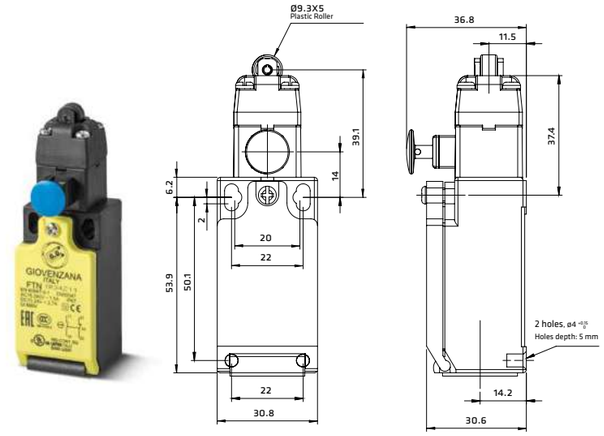


OPERATION DIAGRAMS

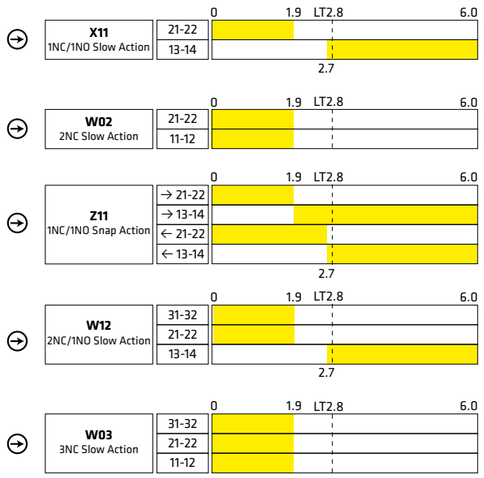


FTN1R34: Roller plunger type

FTN	1R	34	X11	M
Series	Function	Head and actuators	Contact Types	Thread dimension of lead exit
	1R - With Reset Function	**34** - Roller plunger type	**X11** - 1NC/1NO Slow Action **W02** - 2NC Slow Action **Z11** - 1NC/1NO Snap Action **W12** - 2NC/1NO Slow Action **W03** - 3NC Slow Action **Slow Action & Snap Action: Type "Zb"**	Standard: **BLANK** - M16 On request: **M** - M20 **N** - 1/2NPT **G1** - PG11 **G3** - PG13.5 **C** - Connector

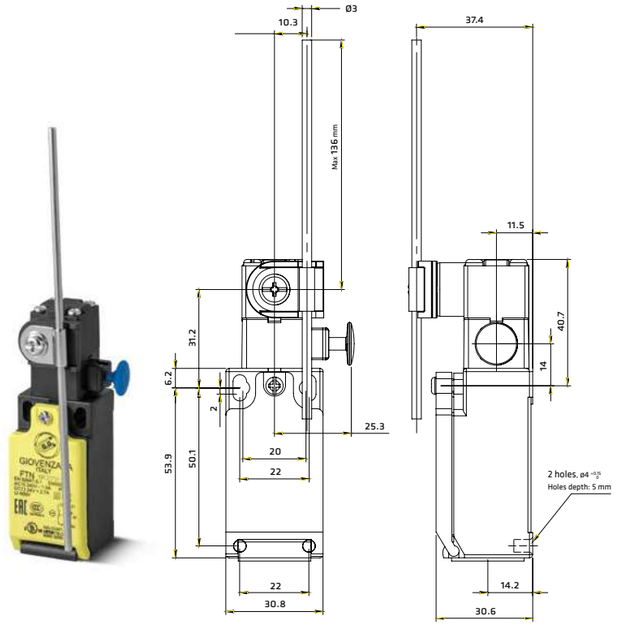


OPERATION DIAGRAMS

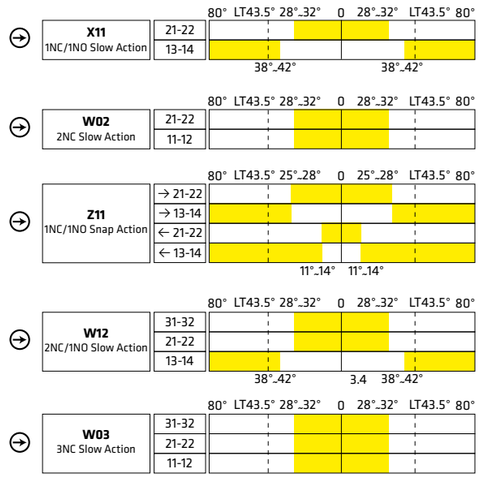


FTN1R37: Rod lever type

FTN	1R	37	X11	M
Series	Function	Head and actuators	Contact Types	Thread dimension of lead exit
	1R - With Reset Function	**37** - Rod lever type	**X11** - 1NC/1NO Slow Action **W02** - 2NC Slow Action **Z11** - 1NC/1NO Snap Action **W12** - 2NC/1NO Slow Action **W03** - 3NC Slow Action **Slow Action & Snap Action: Type "Zb"**	Standard: **BLANK** - M16 On request: **M** - M20 **N** - 1/2NPT **G1** - PG11 **G3** - PG13.5 **C** - Connector

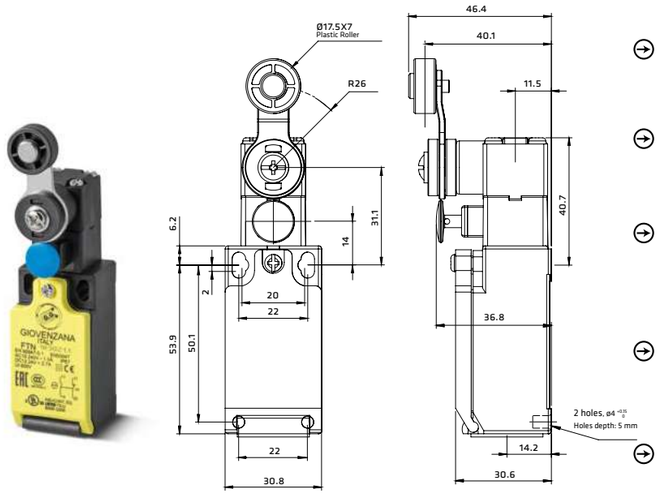


OPERATION DIAGRAMS

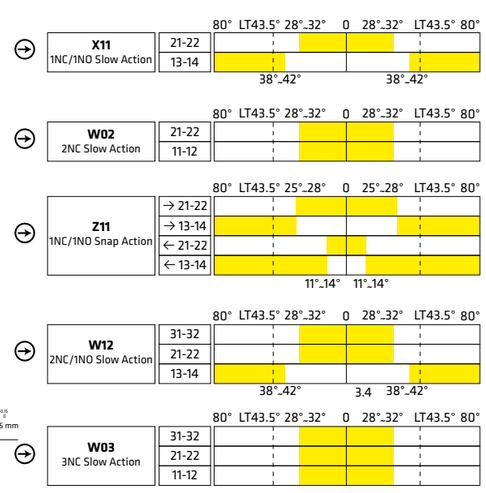


FTN1R38: Roller arm type

FTN	1R	38	X11	M
Series	Function	Head and actuators	Contact Types	Thread dimension of lead exit
	1R - With Reset Function	**38** - Roller arm type	**X11** - 1NC/1NO Slow Action **W02** - 2NC Slow Action **Z11** - 1NC/1NO Snap Action **W12** - 2NC/1NO Slow Action **W03** - 3NC Slow Action **Slow Action & Snap Action: Type "Zb"**	Standard: **BLANK** - M16 On request: **M** - M20 **N** - 1/2NPT **G1** - PG11 **G3** - PG13.5 **C** - Connector

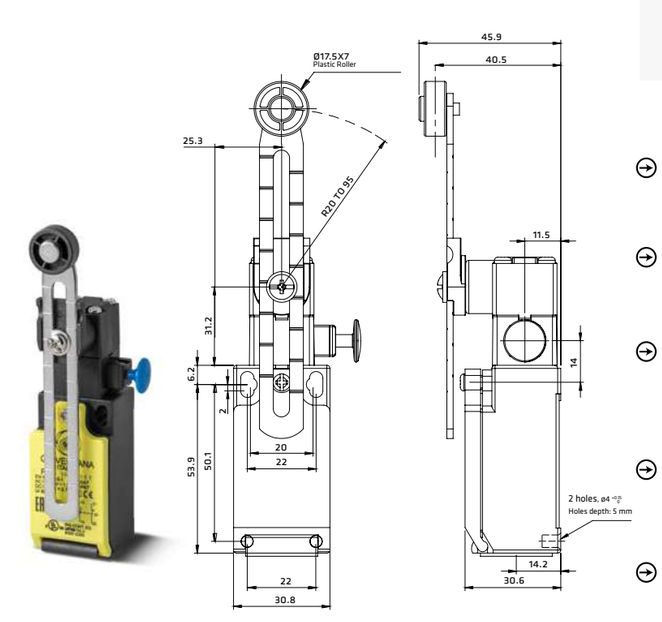


OPERATION DIAGRAMS

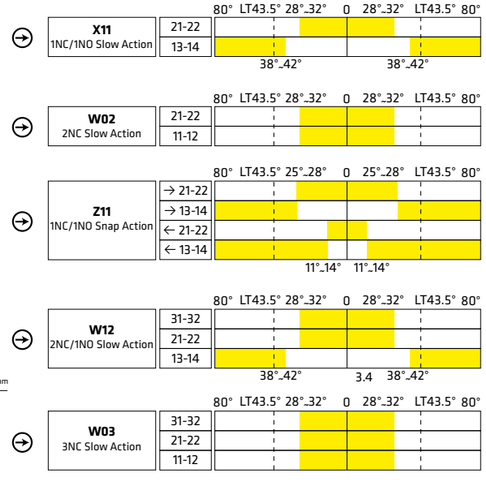


FTN1R39: Adjustable roller arm type (Long Arm)

FTN	1R	39	X11	M
Series	Function	Head and actuators	Contact Types	Thread dimension of lead exit
	1R - With Reset Function	**39** - Adjustable roller arm type (Long Arm)	**X11** - 1NC/1NO Slow Action **W02** - 2NC Slow Action **Z11** - 1NC/1NO Snap Action **W12** - 2NC/1NO Slow Action **W03** - 3NC Slow Action **Slow Action & Snap Action: Type "Zb"**	Standard: **BLANK** - M16 On request: **M** - M20 **N** - 1/2NPT **G1** - PG11 **G3** - PG13.5 **C** - Connector

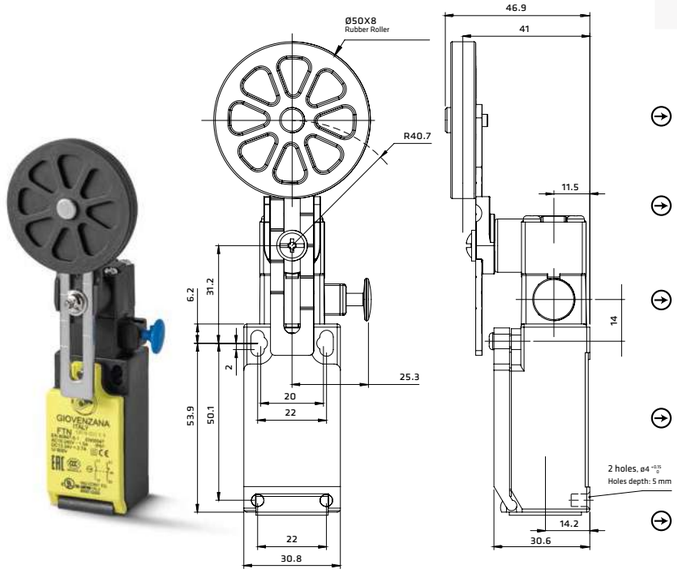


OPERATION DIAGRAMS

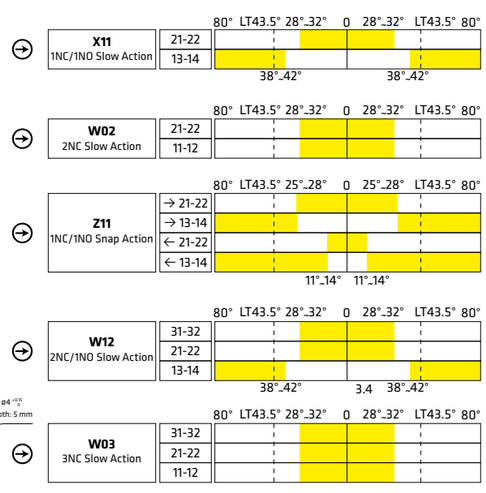


FTN1R40: Adjustable roller arm type (Big Arm)

FTN	1R	40	X11	M
Series	Function	Head and actuators	Contact Types	Thread dimension of lead exit
	1R - With Reset Function	**40** - Adjustable roller arm type (Big Arm)	**X11** - 1NC/1NO Slow Action **W02** - 2NC Slow Action **Z11** - 1NC/1NO Snap Action **W12** - 2NC/1NO Slow Action **W03** - 3NC Slow Action **Slow Action & Snap Action: Type "Zb"**	Standard: **BLANK** - M16 On request: **M** - M20 **N** - 1/2NPT **G1** - PG11 **G3** - PG13.5 **C** - Connector

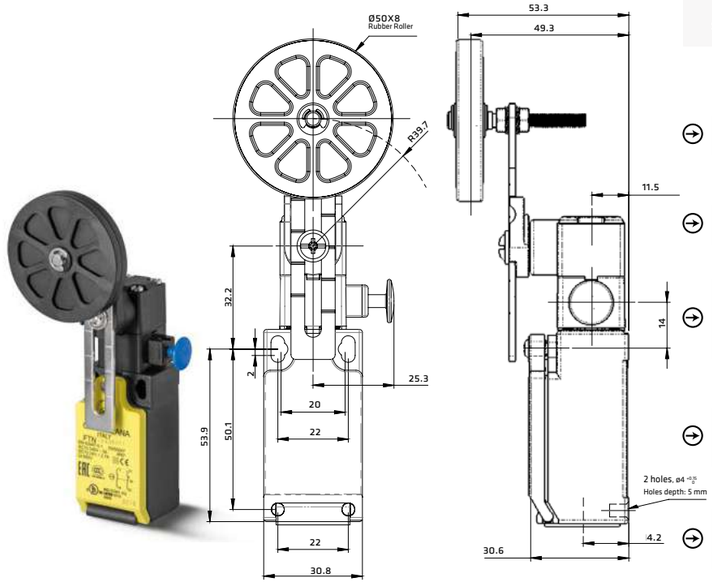


OPERATION DIAGRAMS

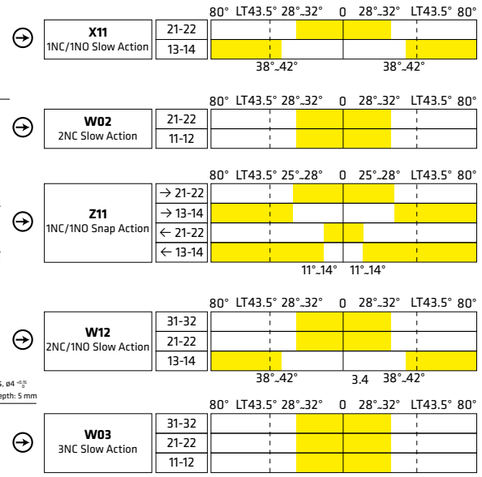


FTN1R40R: Two ways adjustable roller arm type

FTN	1R	40R	X11	M
Series	**Function**	**Head and actuators**	**Contact Types**	**Thread dimension of lead exit**
	1R - With Reset Function	**40R** - Two ways adjustable roller arm type	**X11** - 1NC/1NO Slow Action **W02** - 2NC Slow Action **Z11** - 1NC/1NO Snap Action **W12** - 2NC/1NO Slow Action **W03** - 3NC Slow Action **Slow Action & Snap Action: Type "Zb"**	Standard: **BLANK** - M16 On request: **M** - M20 **N** - 1/2NPT **G1** - PG11 **G3** - PG13.5 **C** - Connector

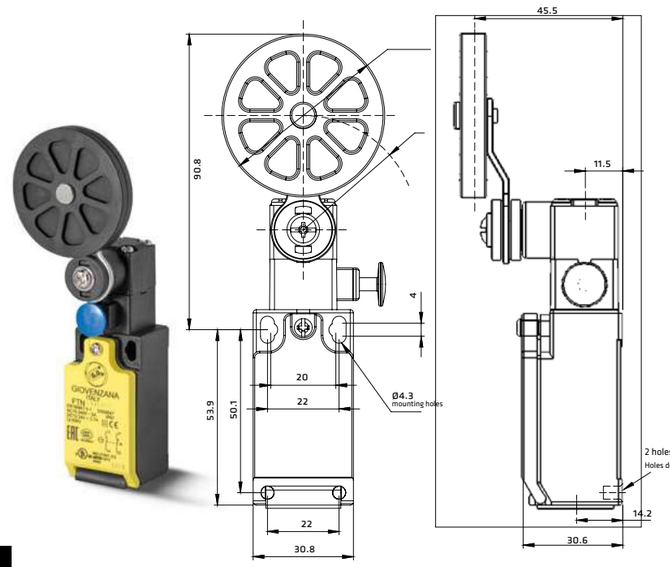


OPERATION DIAGRAMS

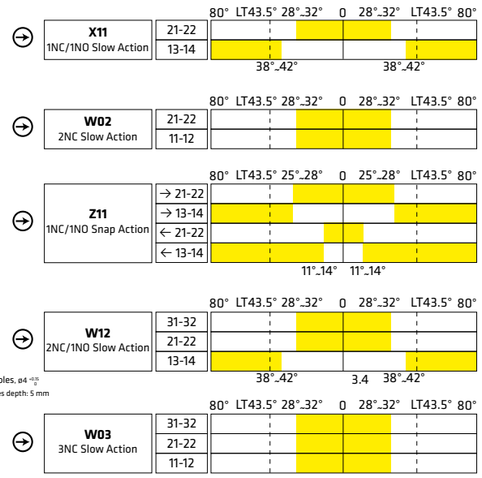


FTN1R41: Big roller arm type

FTN	1R	41	X11	M
Series	**Function**	**Head and actuators**	**Contact Types**	**Thread dimension of lead exit**
	1R - With Reset Function	**41** - Big roller arm type	**X11** - 1NC/1NO Slow Action **W02** - 2NC Slow Action **Z11** - 1NC/1NO Snap Action **W12** - 2NC/1NO Slow Action **W03** - 3NC Slow Action **Slow Action & Snap Action: Type "Zb"**	Standard: **BLANK** - M16 On request: **M** - M20 **N** - 1/2NPT **G1** - PG11 **G3** - PG13.5 **C** - Connector

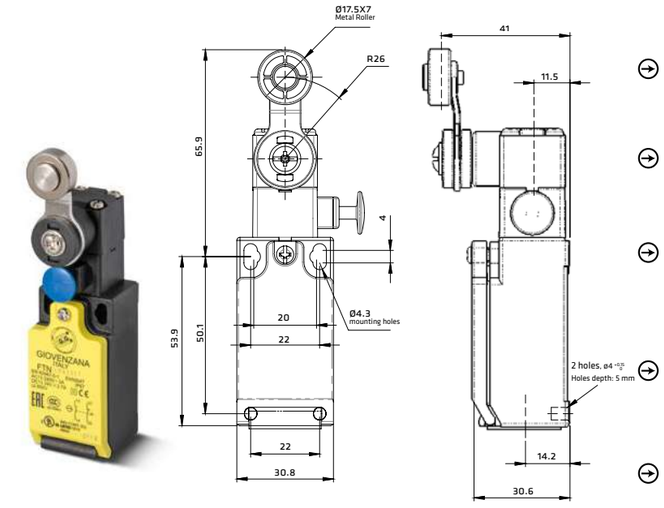


OPERATION DIAGRAMS

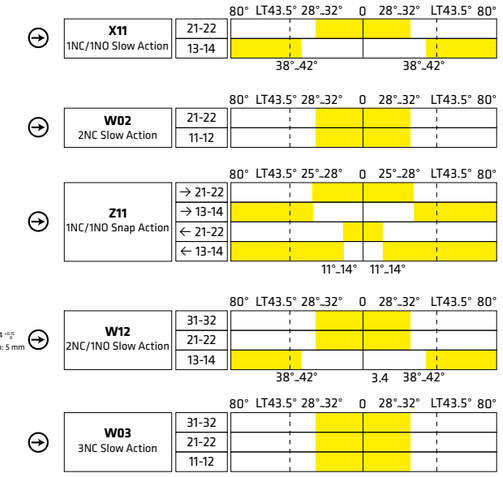


FTN1R43: Mental roller arm type

FTN	1R	43	X11	M
Series	**Function**	**Head and actuators**	**Contact Types**	**Thread dimension of lead exit**
	1R - With Reset Function	**43** - Mental roller arm type	**X11** - 1NC/1NO Slow Action **W02** - 2NC Slow Action **Z11** - 1NC/1NO Snap Action **W12** - 2NC/1NO Slow Action **W03** - 3NC Slow Action **Slow Action & Snap Action: Type "Zb"**	Standard: **BLANK** - M16 On request: **M** - M20 **N** - 1/2NPT **G1** - PG11 **G3** - PG13.5 **C** - Connector

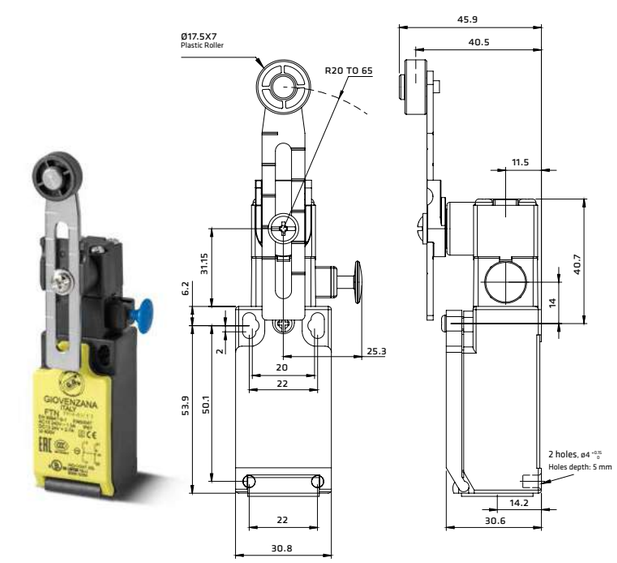


OPERATION DIAGRAMS

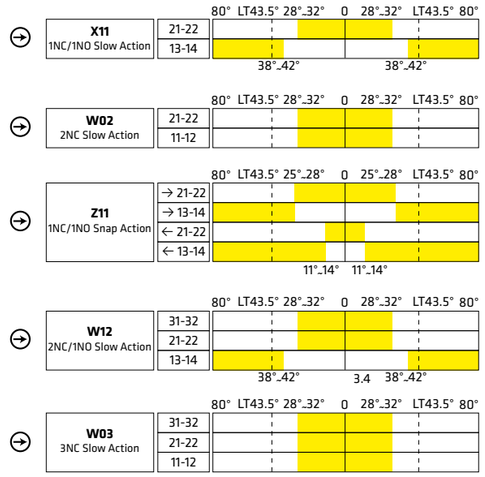


FTN1R44: Adjustable roller arm type (Standard Arm)

FTN	1R	44	X11	M
Series	**Function**	**Head and actuators**	**Contact Types**	**Thread dimension of lead exit**
	1R - With Reset Function	**44** - Adjustable roller arm type (Standard Arm)	**X11** - 1NC/1NO Slow Action **W02** - 2NC Slow Action **Z11** - 1NC/1NO Snap Action **W12** - 2NC/1NO Slow Action **W03** - 3NC Slow Action **Slow Action & Snap Action: Type "Zb"**	Standard: **BLANK** - M16 On request: **M** - M20 **N** - 1/2NPT **G1** - PG11 **G3** - PG13.5 **C** - Connector



OPERATION DIAGRAMS



OPERATING FORCE FTN1R SERIES

	TYPE	CONTACT BLOCK		OPERATING TRAVEL		OPERATING FORCE	POSITIVE OPENING		TOTAL TRAVEL
				PT	PT2nd	OF	Travel	Force	
	FTN1R31	X11	1 NC/1 NO Slow Action	2.2 mm	3.0 mm	7.26 N	3.2 mm	19.0 N	6.0 mm
		W02	2 NC Slow Action	2.2 mm	-	7.42 N			
		Z11	1 NC/1 NO Snap Action	1.9 mm	-	6.71 N			
		W12	2 NC/1 NO Slow Action	2.2 mm	3.0 mm	7.26 N			
		W03	3 NC Slow Action	2.2 mm	-	7.42 N			
	FTN1R32	X11	1 NC/1 NO Slow Action	3.0 mm	4.5 mm	5.21 N	5.7 mm	19.0 N	5.2 mm
		W02	2 NC Slow Action	3.0 mm	-	5.26 N			
		Z11	1 NC/1 NO Snap Action	2.9 mm	-	4.74 N			
		W12	2 NC/1 NO Slow Action	3.0 mm	4.5 mm	5.21 N			
		W03	3 NC Slow Action	3.0 mm	-	5.26 N			
	FTN1R33	X11	1 NC/1 NO Slow Action	4.0 mm	6.0 mm	6.37 N	4.6 mm	19.0 N	9.8 mm
		W02	2 NC Slow Action	4.0 mm	-	6.98 N			
		Z11	1 NC/1 NO Snap Action	3.6 mm	-	5.76 N			
		W12	2 NC/1 NO Slow Action	4.0 mm	6.0 mm	6.37 N			
		W03	3 NC Slow Action	4.0 mm	-	6.98 N			
	FTN1R34	X11	1 NC/1 NO Slow Action	2.2 mm	3.0 mm	7.26 N	3.2 mm	19.0 N	6.0 mm
		W02	2 NC Slow Action	2.2 mm	-	7.42 N			
		Z11	1 NC/1 NO Snap Action	1.9 mm	-	6.71 N			
		W12	2 NC/1 NO Slow Action	2.2 mm	3.0 mm	7.26 N			
		W03	3 NC Slow Action	2.2 mm	-	7.42 N			
	FTN1R37	X11	1 NC/1 NO Slow Action	30°	41°	1.8 N	45°	19.0 N	80°
		W02	2 NC Slow Action	30°	-	1.8 N			
		Z11	1 NC/1 NO Snap Action	28°	-	1.9 N			
		W12	2 NC/1 NO Slow Action	30°	41°	1.8 N			
		W03	3 NC Slow Action	30°	-	1.8 N			
	FTN1R38	X11	1 NC/1 NO Slow Action	30°	41°	6.5 N	45°	19.0 N	80°
		W02	2 NC Slow Action	30°	-	6.5 N			
		Z11	1 NC/1 NO Snap Action	28°	-	5.3 N			
		W12	2 NC/1 NO Slow Action	30°	41°	6.5 N			
		W03	3 NC Slow Action	30°	-	6.5 N			
	FTN1R39	X11	1 NC/1 NO Slow Action	30°	41°	1.8 N	45°	19.0 N	80°
		W02	2 NC Slow Action	30°	-	1.8 N			
		Z11	1 NC/1 NO Snap Action	28°	-	1.9 N			
		W12	2 NC/1 NO Slow Action	30°	41°	1.8 N			
		W03	3 NC Slow Action	30°	-	1.8 N			
	FTN1R40	X11	1 NC/1 NO Slow Action	30°	41°	5.2 N	45°	19.0 N	80°
		W02	2 NC Slow Action	30°	-	5.2 N			
		Z11	1 NC/1 NO Snap Action	28°	-	4.5 N			
		W12	2 NC/1 NO Slow Action	30°	41°	5.2 N			
		W03	3 NC Slow Action	30°	-	5.2 N			
	FTN1R40R	X11	1 NC/1 NO Slow Action	30°	41°	6.5 N	45°	19.0 N	80°
		W02	2 NC Slow Action	30°	-	6.5 N			
		Z11	1 NC/1 NO Snap Action	35°	-	5.3 N			
		W12	2 NC/1 NO Slow Action	30°	41°	6.5 N			
		W03	3 NC Slow Action	30°	-	6.5 N			

OPERATING FORCE FTN1R SERIES

	TYPE	CONTACT BLOCK		OPERATING TRAVEL		OPERATING FORCE	POSITIVE OPENING		TOTAL TRAVEL
				PT	PT2nd	OF	Travel	Force	
	FTN1R41	X11	1 NC/1 NO Slow Action	30°	41°	6.5 N	45°	19.0 N	80°
		W02	2 NC Slow Action	30°	-	6.5 N			
		Z11	1 NC/1 NO Snap Action	35°	-	5.3 N			
		W12	2 NC/1 NO Slow Action	30°	41°	6.5 N			
		W03	3 NC Slow Action	30°	-	6.5 N			
	FTN1R43	X11	1 NC/1 NO Slow Action	30°	41°	6.5 N	45°	19.0 N	80°
		W02	2 NC Slow Action	30°	-	6.5 N			
		Z11	1 NC/1 NO Snap Action	35°	-	5.3 N			
		W12	2 NC/1 NO Slow Action	30°	41°	6.5 N			
		W03	3 NC Slow Action	30°	-	6.5 N			
	FTN1R44	X11	1 NC/1 NO Slow Action	30°	41°	6.5 N	45°	19.0 N	80°
		W02	2 NC Slow Action	30°	-	6.5 N			
		Z11	1 NC/1 NO Snap Action	28°	-	5.3 N			
		W12	2 NC/1 NO Slow Action	30°	41°	6.5 N			
		W03	3 NC Slow Action	30°	-	6.5 N			

GIOVENZANA
INTERNATIONAL B.V.



40 MM THERMOPLASTIC LIMIT SWITCHES
FTNG SERIES

C FTNG SERIES 40 MM THERMOPLASTIC LIMIT SWITCHES



DESCRIPTION

The **FTNG series** 40 mm thermoplastic limit switches, conform to EN 50047, have been developed to provide a range of options including a various choice of snap acting and slow acting and a wide range of actuator heads.
The **FTNG series** offers the option of rotating the head in 90° increments before installation to allow ease of mounting.
The dimensions of this line comply with the indications of EN 50041.

Giovenzana limit switches can be used in various applications in automation, lift and handling system fields.
The **FTNG series** is particularly suitable for heavy applications, thanks to its solidity and reliability.
Operations of these limit switches is achieved by the sliding action of the guard or other moving objects should not pass completely over the switch and allow the plunger or lever to return to its original position.

TECHNICAL DATA - HOUSING

Made of glass- reinforced polymer, self-extinguishing, shock-proof thermoplastic resin and with double insulation	⧈
FTNG Series one threaded conduit entry	Standard: M20
Protection degree	IP67 according to EN60529 with cable gland having equal or higher protection degree

GENERAL DATA

Positive opening operation	NC contact ⊖
Utilization category	AC15, A600, B600, A300 (for contact block type)
Minimum admissible current	5V, 5mA, DC
Insulation resistance	100MΩ min (DC 500V)
Contact resistance	25mΩ max (Initial)
Max switching speed	250 mm/s
Max switching frequency	6000 operation per hour
Enclosure material	UL approved glass-filled polybutylene terephthalate
Roller Material	Metal, PA, rubber
Operating temperature	Min -25°C (-18°F) / Max 80°C (+176°F)
Mechanical life expectancy	$1x10^7$ cycles min
Electrically life expectancy	150.000 cycles min
Vibration resistance	IEC 68-2-6, 10-55Hz ± 1Hz, Excursion: 0.35mm, 1 octave/min
Conduit entry	Various
Fixing	2xM4

ELECTRICAL DATA

Rated thermal current (Ith)	10A
Rated insulation voltage (Ui)	600V AC
Rated impulse withstand voltage (Uimp)	2500V AC
Pollution degree	3
Protection against electric shock	Class II (Double insulation)

STANDARDS & APPROVALS

Standards	EN60947-5-1, EN50047, EN1088
Approvals	cULus, EAC and CCC for all applicable directives

QUALITY MARKS

c UL us · CCC · EAC · CE

MAIN FEATURES

- Conforms to EN (TUV) standards corresponding to the CE marking.
- ⊖ Positive opening operation of NC (Normally Closed) contacts conforming to IEC/EN 60947-5-1.
- Double insulation makes ground terminal unnecessary.
- Wide standard operating temperature range: -25°C to 80°C.
- Full range of actuator heads and levers suitable for safety applications.
- Sealing up to IP67.
- Wide switch variations (Snap action and slow action basic switches).

ACCORDING TO STANDARDS

EN81.20
EN81.50

Safety contacts according to EN60947-5-1.
Protection degree higher than IP4x.
Mechanical endurance higher than $1x10^6$ cycles.

INSTALLATION FOR SAFETY APPLICATIONS

Use only switches marked with the simbol ⊖.
Always connect the safety circuit to the **NC contact** (normally closed contacts: 11-12 / 21-22 / 31-32) as required by **EN ISO 14119 paragraph 5.4** and as stated in the standard **EN81.20 paragraph 5.11.2.2.1**.

TAKE CARE!

If not expressly indicated in this chapter, for the correct installation and utilization of all articles see the instructions given on pages 92-93.

DATA TYPE APPROVED BY UL

Utilization categories:

FTNG SERIES	**Q300**	**A600**	1 NC/1 NO Slow Action
			2 NC Slow Action
		B600	1 NC/1 NO Snap Action
		A300	2 NC/1 NO Slow Action (3 poles)
			3 NC Slow Action (3 poles)

Data of the housing type 1.
For all contact blocks use 60 or 75°C copper (Cu) conductor and wire size No. 14 - 18 AWG.
Terminal tightening torque of 7.1 lb in (0.8 Nm).
In conformity with standard: UL508, CSA 22.2 No. 14 - 10.

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

c UL us

PROTECTION CLASS

IP67

Designed to be used even in the most severe environmental situations, these devices pass the immersion test IP67 in conformity with EN 60529.

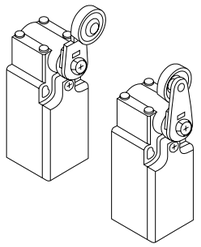
DOUBLE INSULATION

⧈ Materials of group II, according to IEC 536, are made with double insulation. This consists of doubling the insulation capability by means of an additional divider in order to eliminate any electrical shock risk and avoid the need for any additional protections.

POSITIVE OPENING

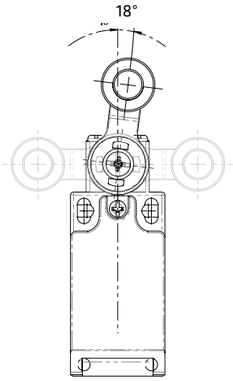
⊖ A limit switch complies to the specification when all the normally closed contact elements of the switch can be changed, with certainty, to the open position (no flexible link between the moving contacts and the operator of the switch, to which an actuating force is applied). Positive opening doesn't apply to NO contacts. Control switches with positive opening operation can be equipped with either slow-break or snap action contacts. In order to use different contacts on the same switch, it is necessary to electrically separate them; otherwise only one contact can be used. Every positive opening control switch must be marked on the external housing with the symbol on the left.

OVERTURNING LEVERS



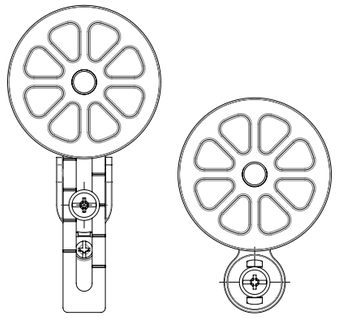
It's possible to fasten the lever on switches on straight or reverse side, maintaining the positive coupling. In this way it is possible to obtain two different work plans of the lever.

ADJUSTABLE LEVERS



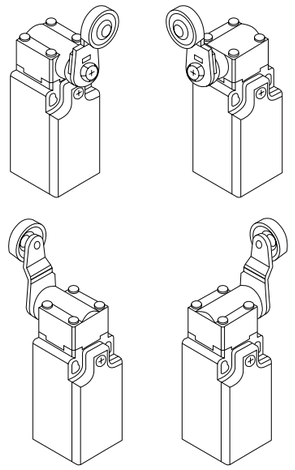
In switches with revolving lever it is possible to adjust the lever with 18° steps for the whole 360° range. The positive movement transmission is always guaranteed thanks to the particular geometrical coupling between the lever and the revolving shaft.

RUBBER ROLLERS



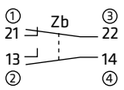
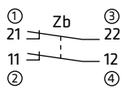
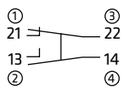
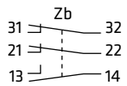
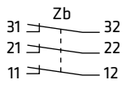
Different actuators with rubber rollers are available.
The customer can choose the most suitable product depending on his needs. For example the lift speed in order to reduce the noise inside the cabin.

ROTATING HEADS



In all switches, it is possible to rotate the head in 90° steps.

CONTACT BLOCK FORM

Contact Types	X11	W02	Z11	W12	W03
Contact Form	1NC/1NO Slow Action	2NC Slow Action	1NC/1NO Snap Action	2NC/1NO Slow Action	3NC Slow Action
Electrical Schemes					
Connector pin Arrangement				No Connector type	

M12 Connector pin arrangement - on request

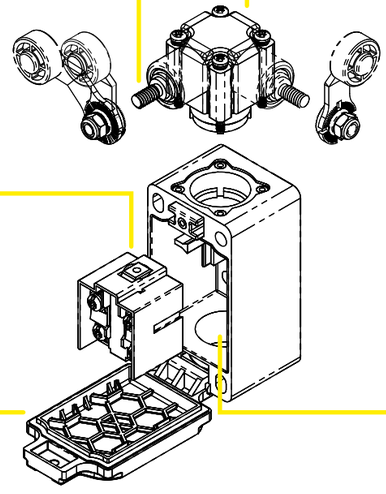
STRUCTURE DESCRIPTION

Head

With roller lever models, the direction of the switch head can be adjusted to any of the four directions by loosening the roller lever switch screws at the four corners of the head.

Metal Lever Setting

Grooves which engage the lever every 18° are cut in the operation indicator disk to prevent the lever from slipping against the rotary shaft.



Contact block

Snap Action: 1NC/NO
Slow Action: 1NC/NO, 2NC, 2NC/1NO, 3NC.

Cover

The cover, with a hinge on its lower part, can be opened by removing the screw of the cover, which ensures ease of maintenance and wiring.

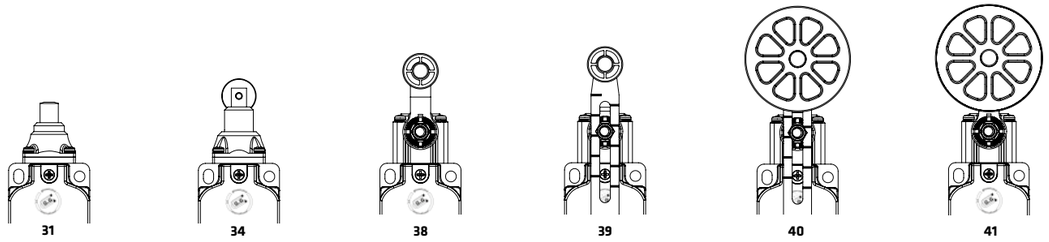
Conduit Entry

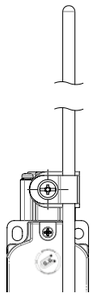
Standard: M20.
On request: 1/2NPT, PG13.5.

PRODUCT SELECTION

FTNG	1	31	X11	M
Series	Function	Head and actuators	Contact Types	Thread dimension of lead exit
	1 - Without Reset Function	**31** - Plain steel plunger **34** - Steel roller plunger **38** - ø22 Roller lever **39** - Adjustable ø22 roller lever **40** - Adjustable ø50 roller lever **41** - ø50 Rubber roller lever **72** - Adjustable PA rod lever	**X11** - 1NC/1NO Slow Action **W02** - 2NC Slow Action **Z11** - 1NC/1NO Snap Action **W12** - 2NC/1NO Slow Action **W03** - 3NC Slow Action Slow Action & Snap Action: Type "Zb"	Standard: **BLANK** - M20 On request: **N** - 1/2NPT **G3** - PG13.5 **C** - Connector

SELECTION DIAGRAM





ACTUATORS

X11 - 1NC/1NO Slow Action
W02 - 2NC Slow Action
Z11 - 1NC/1NO Snap Action
W12 - 2NC/1NO Slow Action
W03 - 3NC Slow Action

FTNG SERIES

CONTACT BLOCKS



CONDUIT ENTRY

Threaded conduit entry

Standard:
BLANK - M20

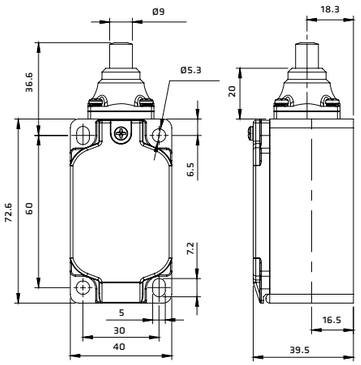
On request:
N - 1/2NPT
G3 - PG13.5
C - Connector

Wiring

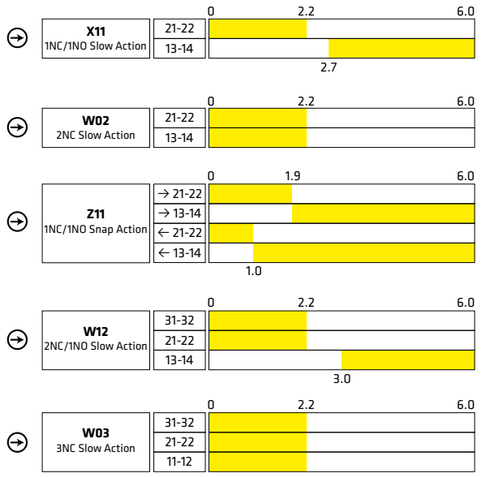
Customized wirings are available on request, with connectors and cables in accordance with customers' specifications.

FTNG131: Plain steel plunger

FTNG	1	31	X11	-
Series	**Function**	**Head and actuators**	**Contact Types**	**Thread dimension of lead exit**
	1 - Without Reset Function	**31** - Plain steel plunger	**X11** - 1NC/1NO Slow Action **W02** - 2NC Slow Action **Z11** - 1NC/1NO Snap Action **W12** - 2NC/1NO Slow Action **W03** - 3NC Slow Action **Slow Action & Snap Action: Type "Zb"**	Standard: **BLANK** - M20 On request: **N** - 1/2NPT **G3** - PG13.5 **C** - Connector

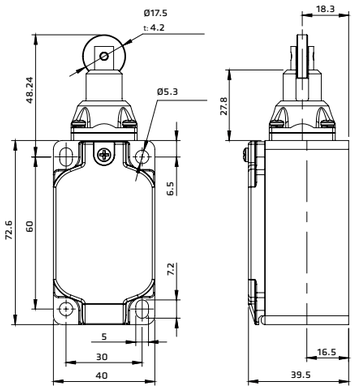


OPERATION DIAGRAMS

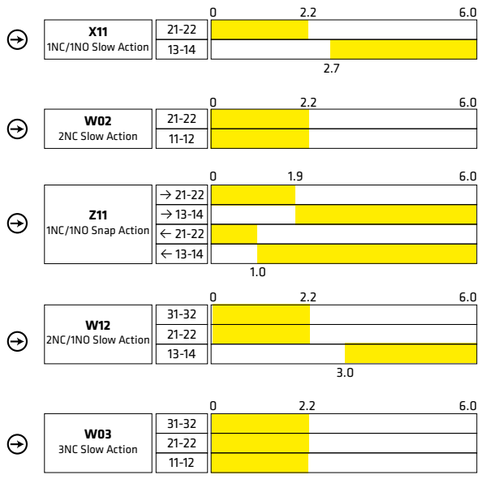


FTNG134: Steel roller plunger

FTNG	1	34	X11	-
Series	**Function**	**Head and actuators**	**Contact Types**	**Thread dimension of lead exit**
	1 - Without Reset Function	**34** - Steel roller plunger	**X11** - 1NC/1NO Slow Action **W02** - 2NC Slow Action **Z11** - 1NC/1NO Snap Action **W12** - 2NC/1NO Slow Action **W03** - 3NC Slow Action **Slow Action & Snap Action: Type "Zb"**	Standard: **BLANK** - M20 On request: **N** - 1/2NPT **G3** - PG13.5 **C** - Connector

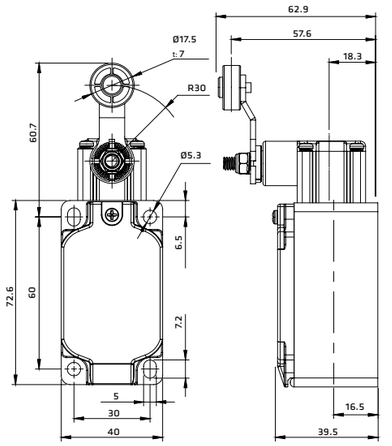


OPERATION DIAGRAMS

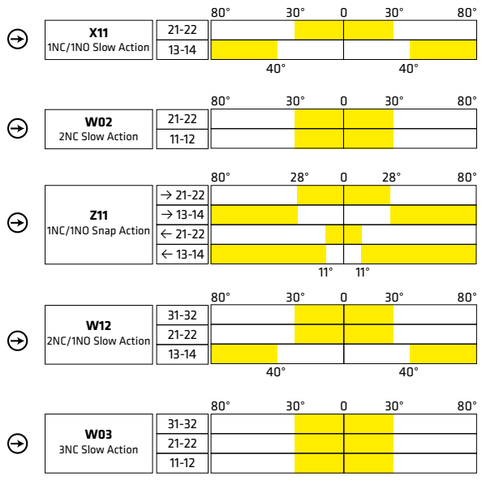


FTNG138: Ø22 Roller lever

FTNG	1	38	X11	-
Series	Function	Head and actuators	Contact Types	Thread dimension of lead exit
	1 - Without Reset Function	**38** - Ø22 Roller lever	**X11** - 1NC/1NO Slow Action **W02** - 2NC Slow Action **Z11** - 1NC/1NO Snap Action **W12** - 2NC/1NO Slow Action **W03** - 3NC Slow Action **Slow Action & Snap Action: Type "Zb"**	Standard: **BLANK** - M20 On request: **N** - 1/2NPT **G3** - PG13.5 **C** - Connector

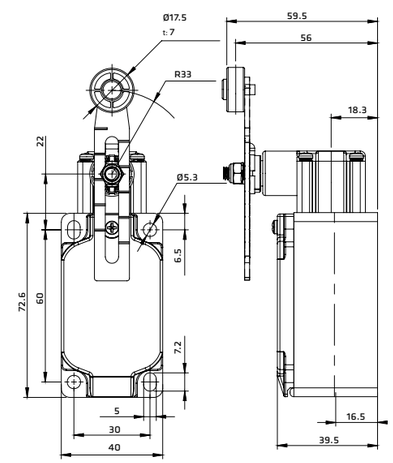


OPERATION DIAGRAMS

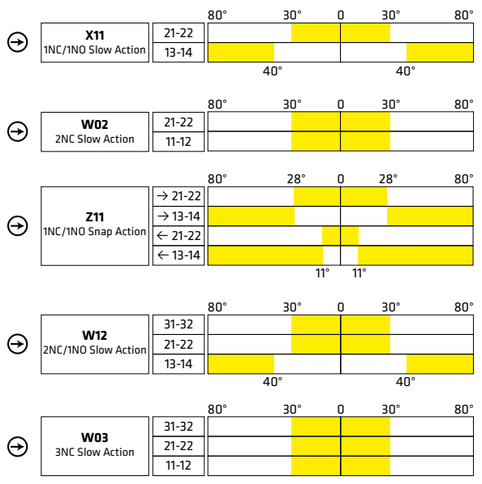


FTNG139: Adjustable Ø22 roller lever

FTNG	1	39	X11	-
Series	Function	Head and actuators	Contact Types	Thread dimension of lead exit
	1 - Without Reset Function	**39** - Adjustable Ø22 roller lever	**X11** - 1NC/1NO Slow Action **W02** - 2NC Slow Action **Z11** - 1NC/1NO Snap Action **W12** - 2NC/1NO Slow Action **W03** - 3NC Slow Action **Slow Action & Snap Action: Type "Zb"**	Standard: **BLANK** - M20 On request: **N** - 1/2NPT **G3** - PG13.5 **C** - Connector

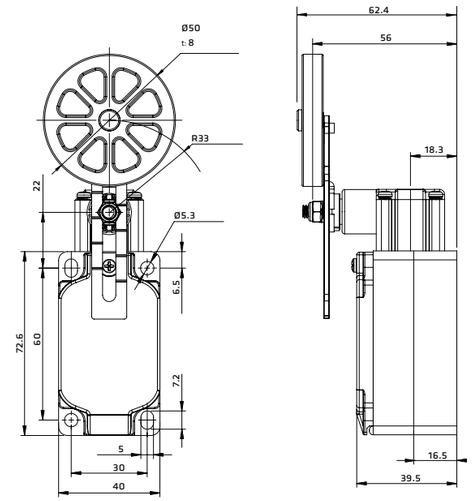


OPERATION DIAGRAMS

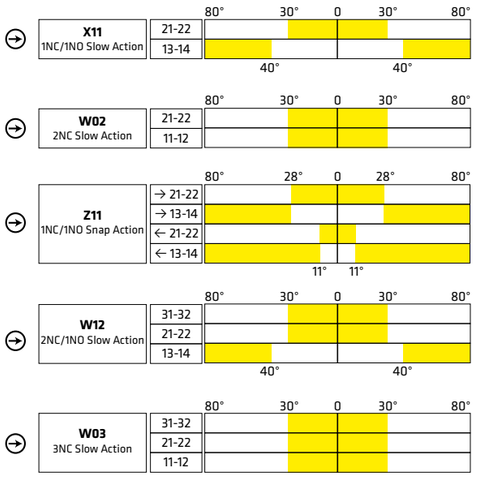


FTNG140: Adjustable Ø50 rubber roller lever

FTNG	1	40	X11	-
Series	Function	Head and actuators	Contact Types	Thread dimension of lead exit
	1 - Without Reset Function	**40** - Adjustable Ø50 rubber roller lever	**X11** - 1NC/1NO Slow Action **W02** - 2NC Slow Action **Z11** - 1NC/1NO Snap Action **W12** - 2NC/1NO Slow Action **W03** - 3NC Slow Action **Slow Action & Snap Action: Type "Zb"**	Standard: **BLANK** - M20 On request: **N** - 1/2NPT **G3** - PG13.5 **C** - Connector

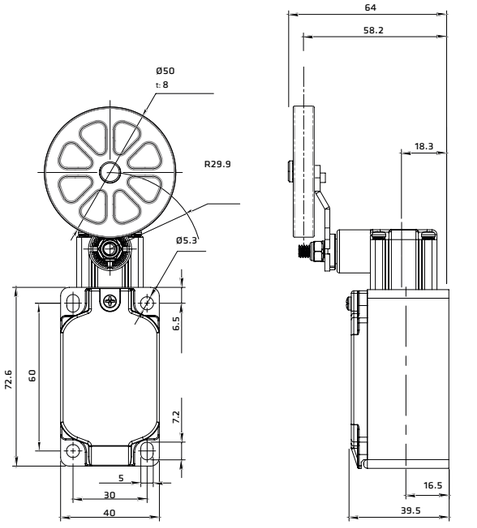


OPERATION DIAGRAMS

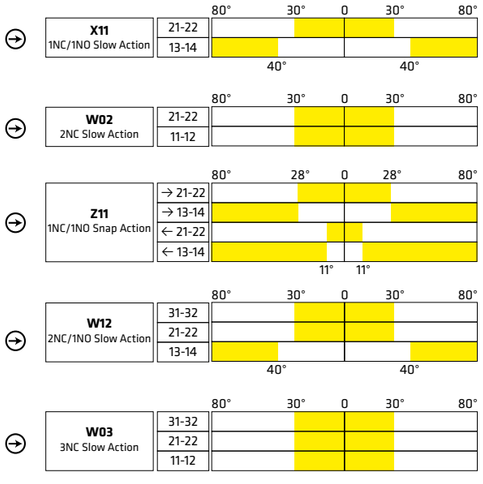


FTNG141: Ø50 Rubber roller lever

FTNG	1	41	X11	-
Series	Function	Head and actuators	Contact Types	Thread dimension of lead exit
	1 - Without Reset Function	**41** - Ø50 Rubber roller lever	**X11** - 1NC/1NO Slow Action **W02** - 2NC Slow Action **Z11** - 1NC/1NO Snap Action **W12** - 2NC/1NO Slow Action **W03** - 3NC Slow Action **Slow Action & Snap Action: Type "Zb"**	Standard: **BLANK** - M20 On request: **N** - 1/2NPT **G3** - PG13.5 **C** - Connector

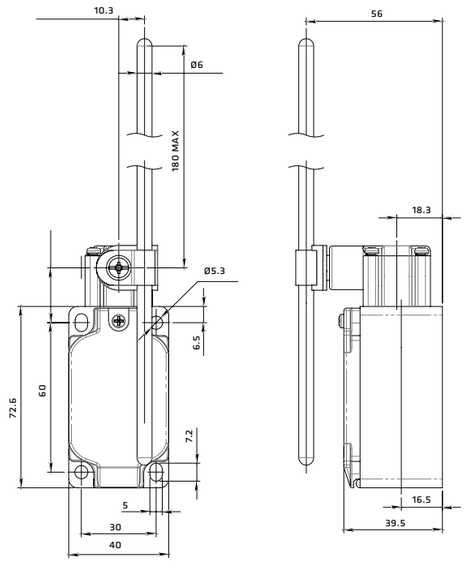


OPERATION DIAGRAMS

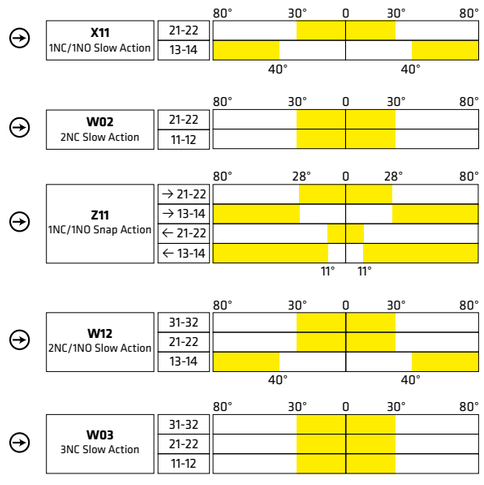


FTNG172: Adjustable PA rod lever

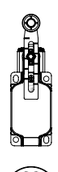
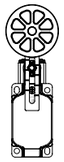
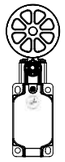
FTNG	1	72	X11	M
Series	**Function**	**Head and actuators**	**Contact Types**	**Thread dimension of lead exit**
	1 - Without Reset Function	**72** - Adjustable PA rod lever	**X11** - 1NC/1NO Slow Action **W02** - 2NC Slow Action **Z11** - 1NC/1NO Snap Action **W12** - 2NC/1NO Slow Action **W03** - 3NC Slow Action **Slow Action & Snap Action: Type "Zb"**	Standard: **BLANK** - M20 On request: **N** - 1/2NPT **G3** - PG13.5 **C** - Connector



OPERATION DIAGRAMS



OPERATING FORCE FTNG SERIES

	TYPE	CONTACT BLOCK		OPERATING TRAVEL		OPERATING FORCE	POSITIVE OPENING		TOTAL TRAVEL
				PT	PT2nd	OF	Travel	Force	
	FTNG131	X11	1 NC/1 NO Slow Action	2.2 mm	3.0 mm	7.26 N	3.2 mm	19.0 N	6.0 mm
		W02	2 NC Slow Action	2.2 mm	-	7.42 N			
		Z11	1 NC/1 NO Snap Action	1.9 mm	-	6.71 N			
		W12	2 NC/1 NO Slow Action	2.2 mm	3.0 mm	7.26N			
		W03	3 NC Slow Action	2.2 mm	-	7.42 N			
	FTNG134	X11	1 NC/1 NO Slow Action	2.2 mm	3.0 mm	7.26 N	3.2 mm	19.0 N	6.0 mm
		W02	2 NC Slow Action	2.2 mm	-	7.42 N			
		Z11	1 NC/1 NO Snap Action	1.9 mm	-	6.71 N			
		W12	2 NC/1 NO Slow Action	2.2 mm	3.0 mm	7.26N			
		W03	3 NC Slow Action	2.2 mm	-	7.42 N			
	FTNG138	X11	1 NC/1 NO Slow Action	30°	41°	6.5 N	45°	19.0 N	80°
		W02	2 NC Slow Action	30°	-	6.5 N			
		Z11	1 NC/1 NO Snap Action	28°	-	5.3 N			
		W12	2 NC/1 NO Slow Action	30°	41°	6.5 N			
		W03	3 NC Slow Action	30°	-	6.5 N			
	FTNG139	X11	1 NC/1 NO Slow Action	30°	41°	6.5 N	45°	19.0 N	80°
		W02	2 NC Slow Action	30°	-	6.5 N			
		Z11	1 NC/1 NO Snap Action	28°	-	5.3 N			
		W12	2 NC/1 NO Slow Action	30°	41°	6.5 N			
		W03	3 NC Slow Action	30°	-	6.5 N			
	FTNG140	X11	1 NC/1 NO Slow Action	30°	41°	5.2 N	45°	19.0 N	80°
		W02	2 NC Slow Action	30°	-	5.2 N			
		Z11	1 NC/1 NO Snap Action	28°	41°	4.5 N			
		W12	2 NC/1 NO Slow Action	30°	-	5.2 N			
		W03	3 NC Slow Action	30°	-	5.2 N			
	FTNG141	X11	1 NC/1 NO Slow Action	30°	41°	6.5 N	45°	19.0 N	80°
		W02	2 NC Slow Action	30°	-	6.5 N			
		Z11	1 NC/1 NO Snap Action	35°	-	5.3 N			
		W12	2 NC/1 NO Slow Action	30°	41°	6.5 N			
		W03	3 NC Slow Action	30°	-	6.5 N			
	FTNG172	X11	1 NC/1 NO Slow Action	30°	41°	1.8 N	45°	19.0 N	80°
		W02	2 NC Slow Action	30°	-	1.8 N			
		Z11	1 NC/1 NO Snap Action	28°	-	1.9 N			
		W12	2 NC/1 NO Slow Action	30°	41°	1.8 N			
		W03	3 NC Slow Action	30°	-	1.8 N			

GIOVENZANA
INTERNATIONAL B.V.



SAFETY LIMIT SWITCHES WITH KEY
STNK SERIES

D STNK SERIES SAFETY LIMIT SWITCHES WITH KEY



DESCRIPTION

The **STNK series** is a key operated safety interlock switch designed to fit at the leading edge of sliding, hinged or lift-off guards. With its dual entry slots and rotatable head, the versatile STNK series can offer up to eight different actuator entry options.
Operation of the switch is achieved through the insertion of a specially profiled stainless steel key that is permanently mounted to the guard door.
Available with one NC safety contact or two NC contacts, the STNK series is sealed to IP67 and has various conduit entries. A blanking plug is supplied for the unused key entry.

TECHNICAL DATA - HOUSING

Made of glass- reinforced polymer, self-extinguishing, shock-proof thermoplastic resin and with double insulation	▣
STNK Series one threaded conduit entry	Standard: M16
Protection degree	IP67 according to EN60529 with cable gland having equal or higher protection degree

GENERAL DATA

Positive opening operation	NC contact ⊖
Utilization category	AC15 A600
Insulation resistance	100MΩ min (DC 500V)
Contact resistance	25mΩ max (Initial)
Travel for positive opening	Various
Maximum actuation frequency	2 cycles/sec
Enclosure material	UL approved glass-filled polybutylene terephthalate
Actuator material	Stainless steel
Operating temperature	Min -25°C (-18°F) / Max 80°C (+176°F)
Mechanical life expectancy	$1x10^6$ cycles min
Electrically life expectancy	150.000 cycles min
Vibration resistance	IEC 68-2-6, 10-55Hz ± 1Hz, Excursion: 0.35mm, 1 octave/min
Conduit entry	Various
Fixing	2xM4

ELECTRICAL DATA

Rated thermal current (Ith)	10A
Rated insulation voltage (Ui)	600V AC
Rated impulse withstand voltage (Uimp)	2500V AC
Pollution degree	3
Protection against electric shock	Class II (Double insulation)

STANDARDS & APPROVALS

Standards	EN60947-5-1, UL508, EN50047, EN1088
Approvals	cULus, EAC and CCC for all applicable directives

QUALITY MARKS

c UL us CCC EAC CE

MAIN FEATURES

- Contacts: Slow action 1NC/1NO; 2NC - Snap action 1NC/1NO.
- ⊖ Positive opening mechanism.
- Double insulation structure.
- Eight possible actuator entry points, easy to install.
- Right angle, flat and adjustable keys.
- Robust stainless steel keys.
- IP67 enclosure rating.

DATA TYPE APPROVED BY UL

Utilization categories:

STNK SERIES	**Q300**	**A600**	1 NC/1 NO Slow Action
			2 NC Slow Action
		B600	1 NC/1 NO Snap Action
		A300	2 NC/1 NO Slow Action (3 poles)
			3 NC Slow Action (3 poles)

Data of the housing type 1.
For all contact blocks use 60 or 75°C copper (Cu) conductor and wire size No. 14 - 18 AWG.
Terminal tightening torque of 7.1 lb in (0.8 Nm).
In conformity with standard: UL508, CSA 22.2 No. 14 - 10.

c UL us

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

PROTECTION CLASS

IP67 These series switches are all IP67 rated.

DOUBLE INSULATION

▣ Materials of group II, according to IEC 536, are made with double insulation. This consists of doubling the insulation capability by means of an additional divider in order to eliminate any electrical shock risk and avoid the need for any additional protections.

POSITIVE OPENING

⊖ A limit switch complies to the specification when all the normally closed contact elements of the switch can be changed, with certainty, to the open position (no flexible link between the moving contacts and the operator of the switch, to which an actuating force is applied). Positive opening doesn't apply to NO contacts. Control switches with positive opening operation can be equipped with either slow-break or snap action contacts. In order to use different contacts on the same switch, it is necessary to electrically separate them; otherwise only one contact can be used. Every positive opening control switch must be marked on the external housing with the symbol on the left.

STRUCTURE DESCRIPTION

Head

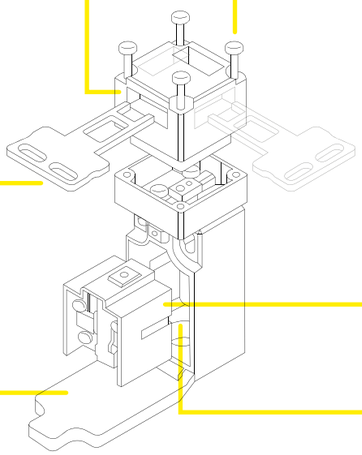
The head can be mounted in four directions. The operation key can be inserted in five directions including the downward direction.

Operation key

The dedicated key prevents operationals mistakes and forcibly separates the contacts.

Cover

The cover, with a hinge on its lower part, can be opened by removing the screw of the cover, which ensures ease of maintenance and wiring.



Protection Degree

The plunger has an O-ring. The switch casing ensures IP67 (except the keyhole, with ensures IP00). Use STNK series in places where the keyhole is free from oil and metal chips.

Contact block

Has a positive opening mechanism which forcibly separates the NC contacts even if they are welded. The built-in switch incorporates a pair each of NC contacts and NO contacts or two pairs of NC contacts.

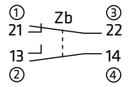
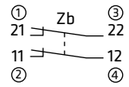
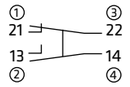
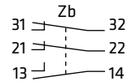
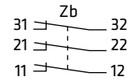
Conduit Entry

Standard: M16.
On request: M20, 1/2NPT, PG11, PG13.5.

PRODUCT SELECTION

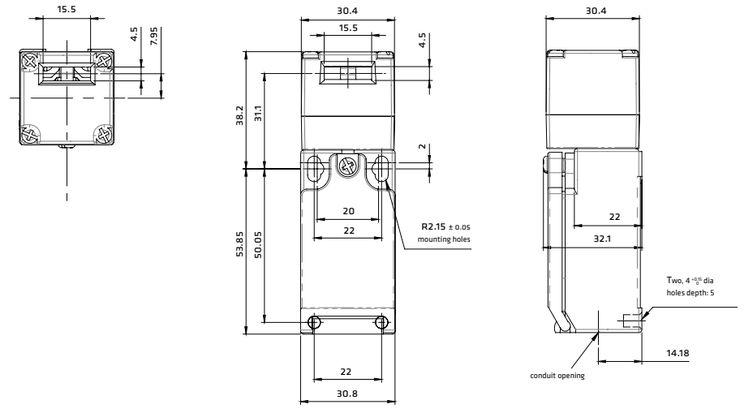
STNK	01	X11	M
Series	Operation Key Types	Contact Types	Thread dimension of lead exit
	01 - Right angle key **02** - Flat key **03** - Adjustable key	**X11** - 1NC/1NO Slow Action **W02** - 2NC Slow Action **Z11** - 1NC/1NO Snap Action **W12** - 2NC/1NO Slow Action **W03** - 3NC Slow Action Slow Action & Snap Action: Type "Zb"	Standard: **BLANK** - M16 On request: **M** - M20 **N** - 1/2NPT **G1** - PG11 **G3** - PG13.5 **C** - Connector

CONTACT BLOCK FORM

Contact Types	X11	W02	Z11	W12	W03
Contact Form	1NC/1NO Slow Action	2NC Slow Action	1NC/1NO Snap Action	2NC/1NO Slow Action	3NC Slow Action
Electrical Schemes					
Connector pin Arrangement				No Connector type	

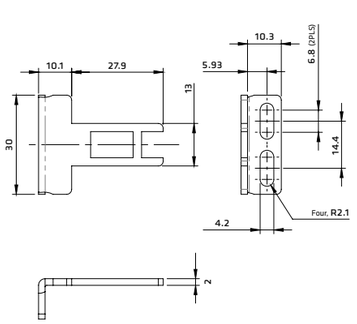
M12 Connector pin arrangement - on request

DIMENSIONS

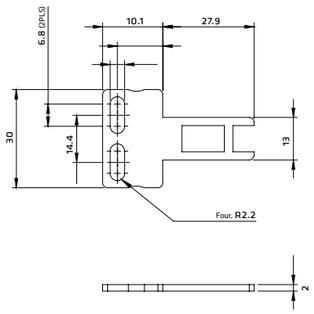


OPERATION KEYS

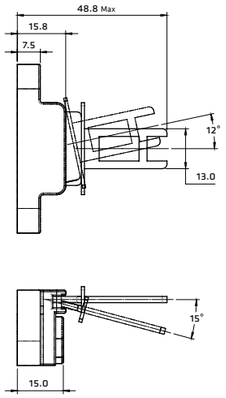
01: RIGHT ANGLE KEY

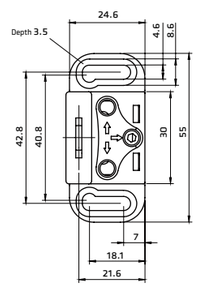


02: FLAT KEY



03: ADJUSTABLE

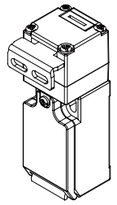


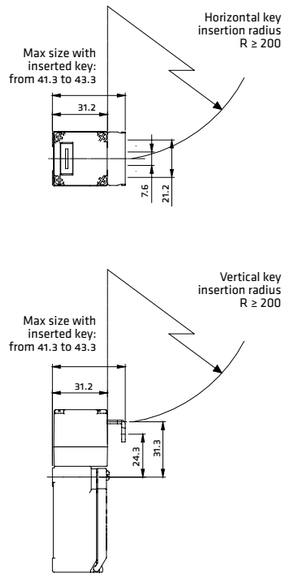


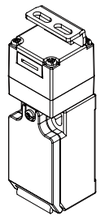
STNK01: SAFETY LIMIT SWITCH WITH RIGHT ANGLE KEY

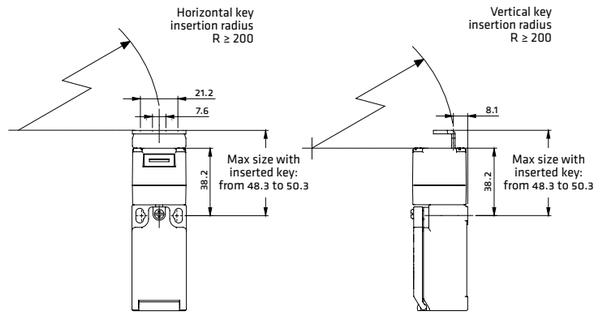
STNK	01	X11	M
Series	**Operation Key Types**	**Contact Types**	**Thread dimension of lead exit**
	01 - Right angle key	**X11** - 1NC/1NO Slow Action **W02** - 2NC Slow Action **Z11** - 1NC/1NO Snap Action **W12** - 2NC/1NO Slow Action **W03** - 3NC Slow Action **Slow Action & Snap Action: Type "Zb"**	Standard: **BLANK** - M16 On request: **M** - M20 **N** - 1/2NPT **G1** - PG11 **G3** - PG13.5 **C** - Connector







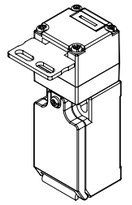


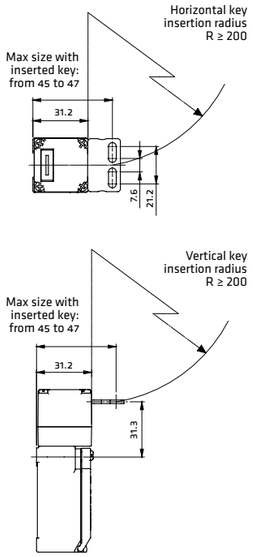


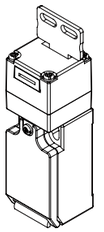
STNK02: SAFETY LIMIT SWITCH WITH FLAT KEY

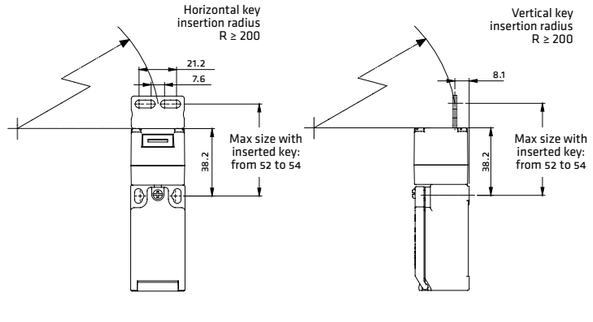
STNK	02	X11	M
Series	**Operation Key Types**	**Contact Types**	**Thread dimension of lead exit**
	02 - Flat key	**X11** - 1NC/1NO Slow Action **W02** - 2NC Slow Action **Z11** - 1NC/1NO Snap Action **W12** - 2NC/1NO Slow Action **W03** - 3NC Slow Action **Slow Action & Snap Action: Type "Zb"**	Standard: **BLANK** - M16 On request: **M** - M20 **N** - 1/2NPT **G1** - PG11 **G3** - PG13.5 **C** - Connector







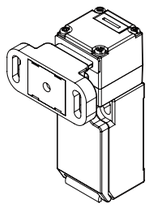


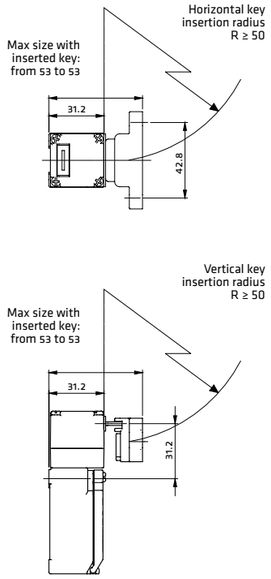


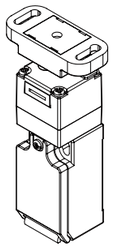
STNK03: SAFETY LIMIT SWITCH WITH ADJUSTABLE KEY

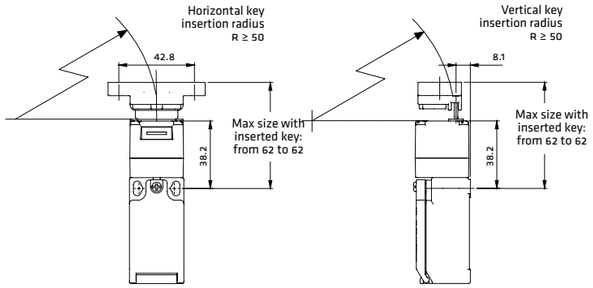
STNK	03	X11	M
Series	**Operation Key Types**	**Contact Types**	**Thread dimension of lead exit**
	03 - Adjustable key	**X11** - 1NC/1NO Slow Action **W02** - 2NC Slow Action **Z11** - 1NC/1NO Snap Action **W12** - 2NC/1NO Slow Action **W03** - 3NC Slow Action **Slow Action & Snap Action: Type "Zb"**	Standard: **BLANK** - M16 On request: **M** - M20 **N** - 1/2NPT **G1** - PG11 **G3** - PG13.5 **C** - Connector











GIOVENZANA
INTERNATIONAL B.V.



M12 CONNECTION & PRE-WIRED LIMIT SWITCHES
FCT SERIES

E FCT SERIES M12 CONNECTION & PRE-WIRED THERMOPLASTIC LIMIT SWITCHES



DESCRIPTION

Giovenzana offers two lines of pre-wired switches:

FCT series: prewired thermoplastic switches with IP67 protection rating with 2 mt cable. They are available in two different versions:
- with side cable entry;
- with vertical cable entry.

(The standard cable length is 2 mt but on request are available different sizes).

FCTM series: thermoplastic pre-wired switches with IP67 protection rating with M12 connector.

TECHNICAL DATA - HOUSING

Made of glass fibre reinforced technopolymer, self-extinguishing, shock-proof and with double insulation	▣
FCT Series	Version with integrated cable, standard lenght 2 mt. Other lenghts available on request.
FCTM Series	Version with integrated M12 connector.

GENERAL DATA

Utilization category	AC15 (Ue=240V, Ie=1.5A) - DC13 (Ue=240V, Ie=0,27A)
Insulation resistance	100MΩ min (DC 500V)
Conduit resistance	25mΩ max (Initial)
Operating temperature	Min -25°C (-18°F) / Max 70°C (+158°F)
Mechanical life expectancy	$1x10^7$ cycles min
Electrically life expectancy	150.000 cycles min
Vibration resistance	IEC 68-2-6, 10-55Hz ± 1Hz, Excursion: 0.35mm, 1 octave/min

ELECTRICAL DATA

Rated thermal current (Ith)	Pre-cabled switches: 10A - Switches with M12, 4 pin connector: 4A
Rated insulation voltage (Ui)	500V AC
Rated impulse withstand voltage (Uimp)	4KV
Pollution degree	3
Protection against electric shock	Class II (Double insulation)

STANDARDS & APPROVALS

Standards	IEC/EN60947-5-1
Approvals	cULus, EAC and CCC for all applicable directives

QUALITY MARKS

c UL us CCC EAC CE

PROTECTION CLASS

IP67 Designed to be used even in the most severe environmental situations, these devices pass the immersion test IP67 in conformity with EN 60529.

DATA TYPE APPROVED BY UL

Utilization categories:

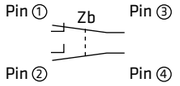
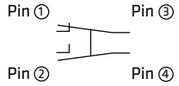
FCT SERIES	**A300**	**Q300**	1 NC/1 NO Slow Action
			1 NC/1 NO Snap Action

In conformity with standards: UL508, CSA 22.2 No. 14 - 13.

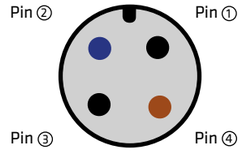
Please contact our technical service for the list of approved products.

c UL us

INTERNAL CABLE WIRING

Contact Types	**X11**	**Z11**
Contact Form	**1NC/1NO Slow Action**	**1NC/1NO Snap Action**
Electrical Schemes		

CONNECTOR PIN ASSIGNMENT



CONTACT No.	CABLE COLOR
Pin 1	Black
Pin 2	Blue
Pin 3	Black
Pin 4	Brown

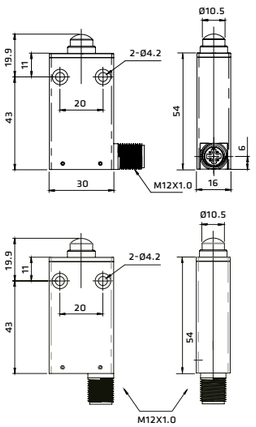
PRODUCT SELECTION

FCT	2	L	01	X11	D
Series	**Cable or connector**	**Cable or connector direction**	**Head and actuators**	**Contact Types**	**Distance between fixing holes**
	2 - 2 mt **X** - Other lenght on request **M** - M12 connector	**L** - Side **V** - Vertical	**01** - Steel end plunger **02** - Roller plunger **03** - 90° Roller plunger **04** - Metal revolving lever Ø 17.5 nylon roller **05** - Adjustable lenght straight metal revolving lever Ø 17.5 nylon roller **06** - Steel end plunger with threaded flange **07** - Roller plunger with threaded flange **08** - 90° Roller plunger with threaded flange **09** - Steel end plunger with rubber protection **10** - Rod lever type **11** - Spring lever with tip in PA	**X11** - 1NC/1NO Slow Action **Z11** - 1NC/1NO Snap Action	**D** - 20 mm

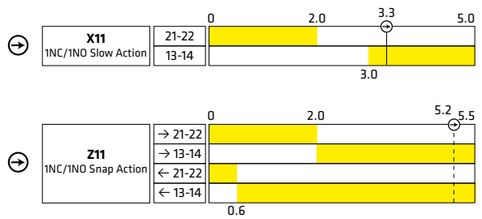
01: Steel end plunger

FCT	M	L	01	X11	D
Series	Cable or connector	Cable or connector direction	Head and actuators	Contact Types	Distance between fixing holes
	2 - 2 mt **X** - Other lenghts on request **M** - M12 connector	**L** - Side **V** - Vertical	**01** - Steel end plunger	**X11** - 1NC/1NO Slow Action **Z11** - 1NC/1NO Snap Action	**D** - 20 mm





OPERATION DIAGRAMS



AVAILABLE VERSIONS



FCT2L... Side cable input

FCT2V... Vertical cable input

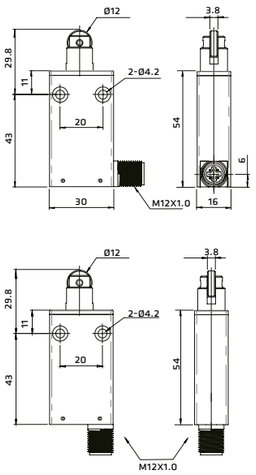
FCTML... Side connector input

FCTMV... Vertical connector input

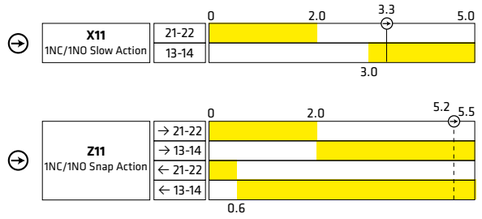
02: Roller plunger

FCT	M	L	02	X11	D
Series	Cable or connector	Cable or connector direction	Head and actuators	Contact Types	Distance between fixing holes
	2 - 2 mt **X** - Other lenghts on request **M** - M12 connector	**L** - Side **V** - Vertical	**02** - Roller plunger	**X11** - 1NC/1NO Slow Action **Z11** - 1NC/1NO Snap Action	**D** - 20 mm





OPERATION DIAGRAMS



AVAILABLE VERSIONS



FCT2L... Side cable input

FCT2V... Vertical cable input

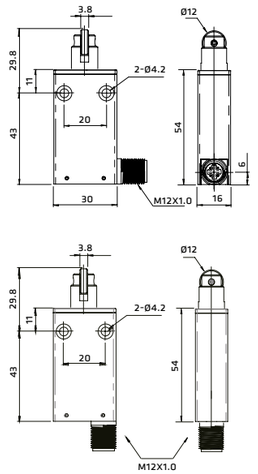
FCTML... Side connector input

FCTMV... Vertical connector input

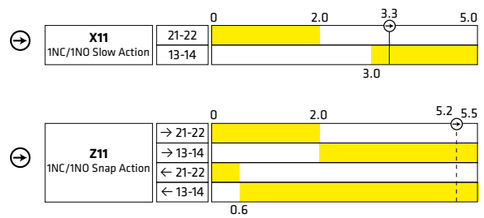
03: 90° Roller plunger

FCT	M	L	03	X11	D
Series	Cable or connector	Cable or connector direction	Head and actuators	Contact Types	Distance between fixing holes
	2 - 2 mt **X** - Other lenghts on request **M** - M12 connector	**L** - Side **V** - Vertical	**03** - 90° Roller plunger	**X11** - 1NC/1NO Slow Action **Z11** - 1NC/1NO Snap Action	**D** - 20 mm





OPERATION DIAGRAMS



AVAILABLE VERSIONS



FCT2L... Side cable input

FCT2V... Vertical cable input

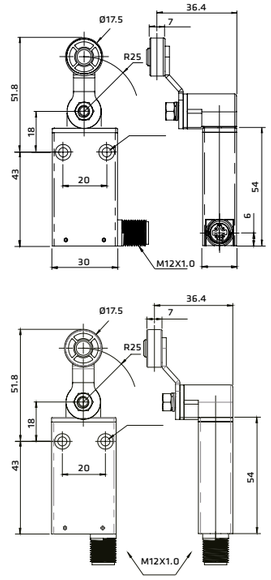
FCTML... Side connector input

FCTMV... Vertical connector input

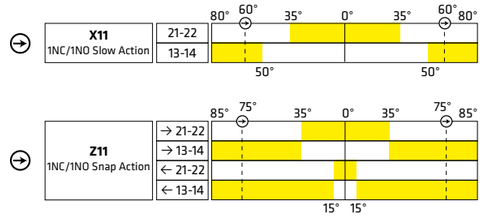
04: Metal revolving lever Ø17.5 nylon roller

FCT	M	L	04	X11	D
Series	Cable or connector	Cable or connector direction	Head and actuators	Contact Types	Distance between fixing holes
	2 - 2 mt **X** - Other lenghts on request **M** - M12 connector	**L** - Side **V** - Vertical	**04** - Metal revolving lever Ø 17.5 nylon roller	**X11** - 1NC/1NO Slow Action **Z11** - 1NC/1NO Snap Action	**D** - 20 mm





OPERATION DIAGRAMS



AVAILABLE VERSIONS



FCT2L... Side cable input

FCT2V... Vertical cable input

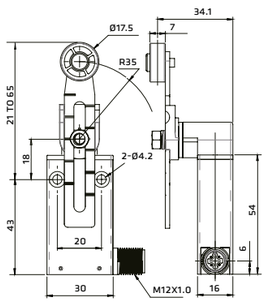
FCTML... Side connector input

FCTMV... Vertical connector input

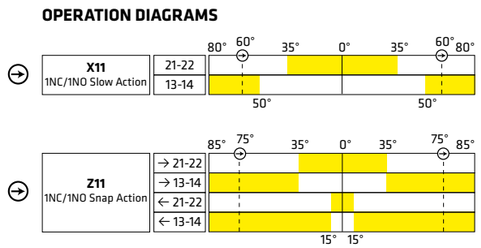
05: Adjustable lenght straight metal revolving lever Ø17.5 nylon roller

FCT	M	L	05	X11	D
Series	Cable or connector	Cable or connector direction	Head and actuators	Contact Types	Distance between fixing holes
	2 - 2 mt **X** - Other lenghts on request **M** - M12 connector	**L** - Side **V** - Vertical	**05** - Adjustable lenght straight metal revolving lever Ø 17.5 nylon roller	**X11** - 1NC/1NO Slow Action **Z11** - 1NC/1NO Snap Action	**D** - 20 mm





OPERATION DIAGRAMS



AVAILABLE VERSIONS



FCT2L... Side cable input

FCT2V... Vertical cable input

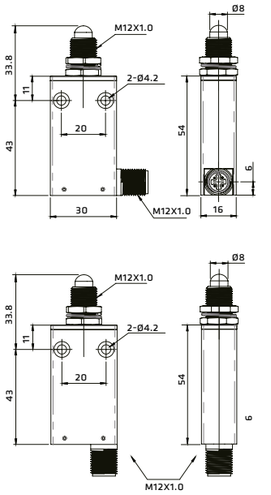
FCTML... Side connector input

FCTMV... Vertical connector input

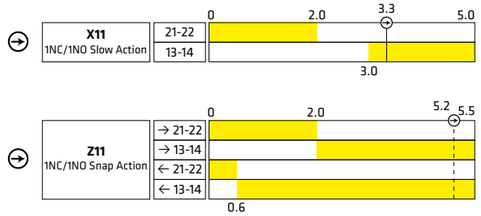
06: Steel end plunger with threaded flange

FCT	M	L	06	X11	D
Series	Cable or connector	Cable or connector direction	Head and actuators	Contact Types	Distance between fixing holes
	2 - 2 mt **X** - Other lenghts on request **M** - M12 connector	**L** - Side **V** - Vertical	**06** - Steel end plunger with threaded flange	**X11** - 1NC/1NO Slow Action **Z11** - 1NC/1NO Snap Action	**D** - 20 mm





OPERATION DIAGRAMS



AVAILABLE VERSIONS



FCT2L... Side cable input

FCT2V... Vertical cable input

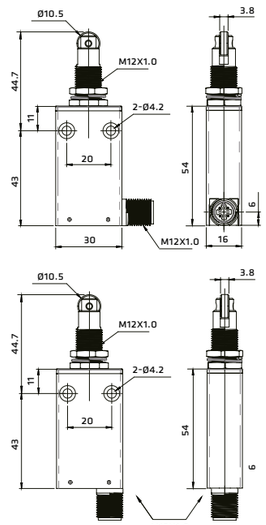
FCTML... Side connector input

FCTMV... Vertical connector input

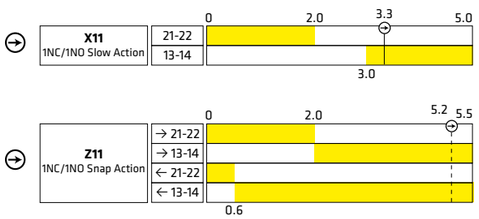
07: Roller plunger with threaded flange

FCT	M	L	07	X11	D
Series	Cable or connector	Cable or connector direction	Head and actuators	Contact Types	Distance between fixing holes
	2 - 2 mt **X** - Other lenghts on request **M** - M12 connector	**L** - Side **V** - Vertical	**07** - Roller plunger with threaded flange	**X11** - 1NC/1NO Slow Action **Z11** - 1NC/1NO Snap Action	**D** - 20 mm





OPERATION DIAGRAMS



AVAILABLE VERSIONS



FCT2L... Side cable input

FCT2V... Vertical cable input

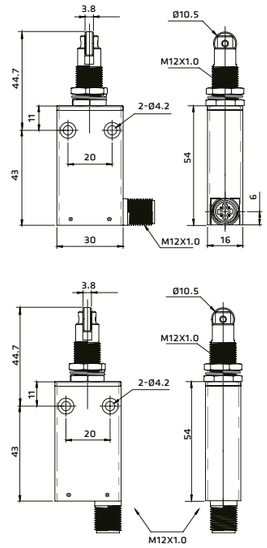
FCTML... Side connector input

FCTMV... Vertical connector input

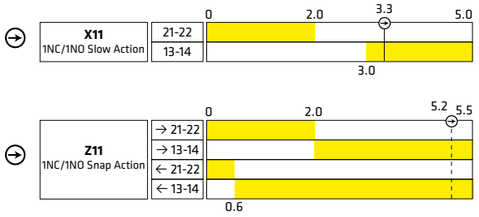
08: 90° Roller plunger with threaded flange

FCT	M	L	08	X11	D
Series	Cable or connector	Cable or connector direction	Head and actuators	Contact Types	Distance between fixing holes
	2 - 2 mt **X** - Other lenghts on request **M** - M12 connector	**L** - Side **V** - Vertical	**08** - 90° Roller plunger with threaded flange	**X11** - 1NC/1NO Slow Action **Z11** - 1NC/1NO Snap Action	**D** - 20 mm





OPERATION DIAGRAMS



AVAILABLE VERSIONS



FCT2L... Side cable input

FCT2V... Vertical cable input

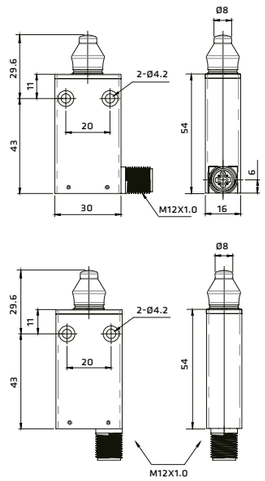
FCTML... Side connector input

FCTMV... Vertical connector input

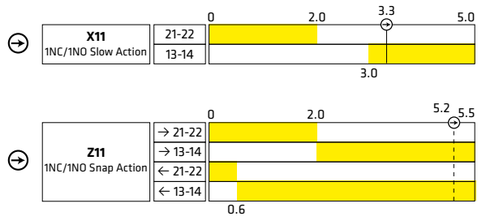
09: Steel end plunger with rubber protection

FCT	M	L	09	X11	D
Series	Cable or connector	Cable or connector direction	Head and actuators	Contact Types	Distance between fixing holes
	2 - 2 mt **X** - Other lenghts on request **M** - M12 connector	**L** - Side **V** - Vertical	**09** - Steel end plunger with rubber protection	**X11** - 1NC/1NO Slow Action **Z11** - 1NC/1NO Snap Action	**D** - 20 mm





OPERATION DIAGRAMS



AVAILABLE VERSIONS



FCT2L... Side cable input

FCT2V... Vertical cable input

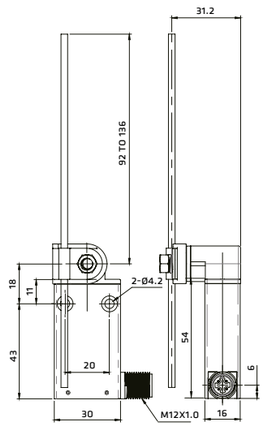
FCTML... Side connector input

FCTMV... Vertical connector input

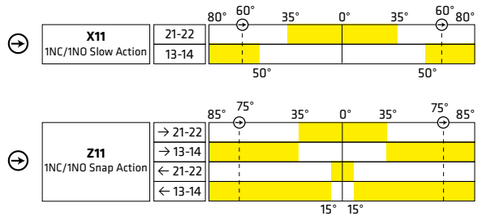
10: Rod lever type

FCT	M	L	10	X11	D
Series	Cable or connector	Cable or connector direction	Head and actuators	Contact Types	Distance between fixing holes
	2 - 2 mt **X** - Other lenghts on request **M** - M12 connector	**L** - Side **V** - Vertical	**10** - Rod lever type	**X11** - 1NC/1NO Slow Action **Z11** - 1NC/1NO Snap Action	**D** - 20 mm





OPERATION DIAGRAMS



AVAILABLE VERSIONS



FCT2L... Side cable input

FCT2V... Vertical cable input

FCTML... Side connector input

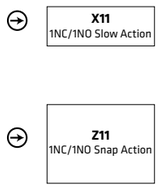
FCTMV... Vertical connector input

11: Spring lever with tip in PA

FCT	M	L	11	X11	D
Series	Cable or connector	Cable or connector direction	Head and actuators	Contact Types	Distance between fixing holes
	2 - 2 mt **X** - Other lenghts on request **M** - M12 connector	**L** - Side **V** - Vertical	**11** - Spring lever with tip in PA	**X11** - 1NC/1NO Slow Action **Z11** - 1NC/1NO Snap Action	**D** - 20 mm



OPERATION DIAGRAMS... Coming soon



AVAILABLE VERSIONS



FCT2L... Side cable input

FCT2V... Vertical cable input

FCTML... Side connector input

FCTMV... Vertical connector input

OPERATING FORCE FCT SERIES

	TYPE	CONTACT BLOCK			OF max	RF min	TT min	PT max	OT min	MD max	OP ± 1 mm
	01	X11	1 NC/1 NO Slow Action	NC	1200 g	400 g	5 mm	2 mm	3.8 mm	N/A	17.3 mm
				NO				3 mm	3 mm		16.3 mm
		Z11	1 NC/1 NO Snap Action	NC	1500 g	300 g	5 mm	2.5 mm	3 mm	2 mm	16.8 mm
				NO							
	02	X11	1 NC/1 NO Slow Action	NC	1200 g	400 g	5 mm	2 mm	3.8 mm	N/A	28.3 mm
				NO				3 mm	3 mm		27.3 mm
		Z11	1 NC/1 NO Snap Action	NC	1500 g	300 g	5 mm	2.5 mm	3 mm	2 mm	27.8 mm
				NO							
	03	X11	1 NC/1 NO Slow Action	NC	1200 g	400 g	5 mm	2 mm	3.8 mm	N/A	28.3 mm
				NO				3 mm	3 mm		27.3 mm
		Z11	1 NC/1 NO Snap Action	NC	1500 g	300 g	5 mm	2.5 mm	3 mm	2 mm	27.8 mm
				NO							
	04	X11	1 NC/1 NO Slow Action	NC	1000 g	150 g	80°	35°	45°	N/A	N/A
				NO				50°	35°		
		Z11	1 NC/1 NO Snap Action	NC	1000 g	100 g	80°	45°	25°	30°	N/A
				NO				40°	60°		
	05	X11	1 NC/1 NO Slow Action	NC	1000 g	150 g	80°	35°	45°	N/A	N/A
				NO				50°	35°		
		Z11	1 NC/1 NO Snap Action	NC	1000 g	100 g	80°	45°	25°	30°	N/A
				NO				40°	60°		
	06	X11	1 NC/1 NO Slow Action	NC	1200 g	400 g	5 mm	2 mm	3.8 mm	N/A	32.3 mm
				NO				3 mm	3 mm		31.3 mm
		Z11	1 NC/1 NO Snap Action	NC	1500 g	300 g	5 mm	2.5 mm	3 mm	2 mm	31.8 mm
				NO							
	07	X11	1 NC/1 NO Slow Action	NC	1200 g	400 g	5 mm	2 mm	3.8 mm	N/A	43.2 mm
				NO				3 mm	3 mm		42.2 mm
		Z11	1 NC/1 NO Snap Action	NC	1500 g	300 g	5 mm	2.5 mm	3 mm	2 mm	42.7 mm
				NO							
	08	X11	1 NC/1 NO Slow Action	NC	1200 g	400 g	5 mm	2 mm	3.8 mm	N/A	43.2 mm
				NO				3 mm	3 mm		42.2 mm
		Z11	1 NC/1 NO Snap Action	NC	1500 g	300 g	5 mm	2.5 mm	3 mm	2 mm	42.7 mm
				NO							
	09	X11	1 NC/1 NO Slow Action	NC	1200 g	400 g	5 mm	2 mm	3.8 mm	N/A	27.1 mm
				NO				3 mm	3 mm		26.1 mm
		Z11	1 NC/1 NO Snap Action	NC	1500 g	300 g	5 mm	2.5 mm	3 mm	2 mm	26.6 mm
				NO							

OPERATING FORCE FCT SERIES

	TYPE	CONTACT BLOCK			OF max	RF min	TT min	PT max	OT min	MD max	OP ± 1 mm
	10	X11	1 NC/1 NO Slow Action	NC	1000 g	150 g	80°	35°	45°	N/A	N/A
				NO				50°	35°		
		Z11	1 NC/1 NO Snap Action	NC	1000 g	100 g	80°	45°	25°	30°	N/A
				NO				40°	60°		
	11	X11	1 NC/1 NO Slow Action	NC	-	-	-	-	-	-	-
				NO				-	-		-
					Coming soon!						
		Z11	1 NC/1 NO Snap Action	NC	-	-	-	-	-	-	-
				NO							

GIOVENZANA
INTERNATIONAL B.V.



MICRO SWITCHES
MFI SERIES

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

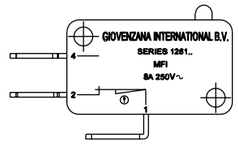
STANDARDS & APPROVALS

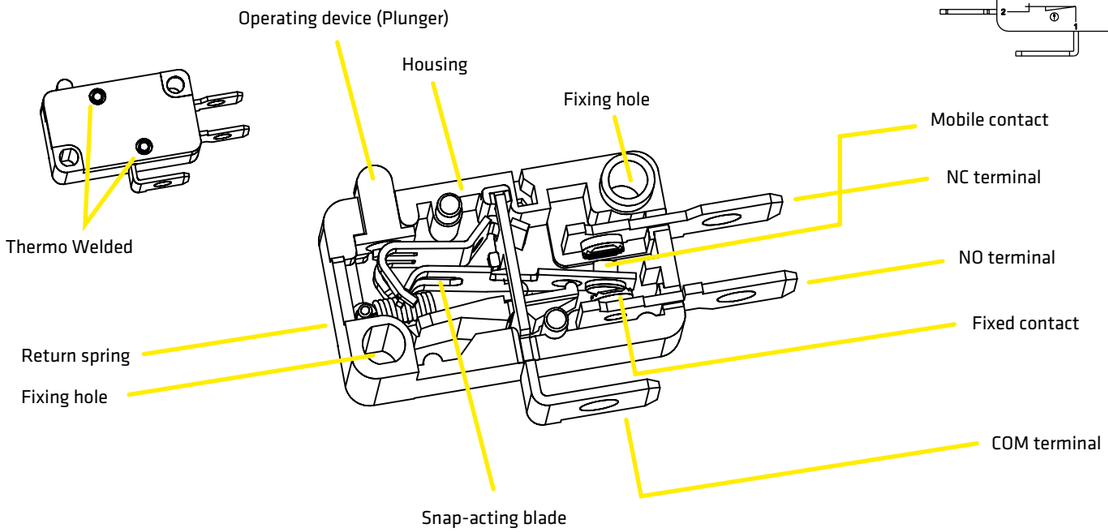
Standards	IEC/EN61058, UL1054
Approvals	cRUus, CE for all applicable directives

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.

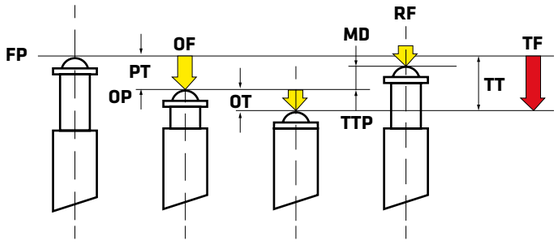
OPERATIONG DEVICE (PLUNGER)

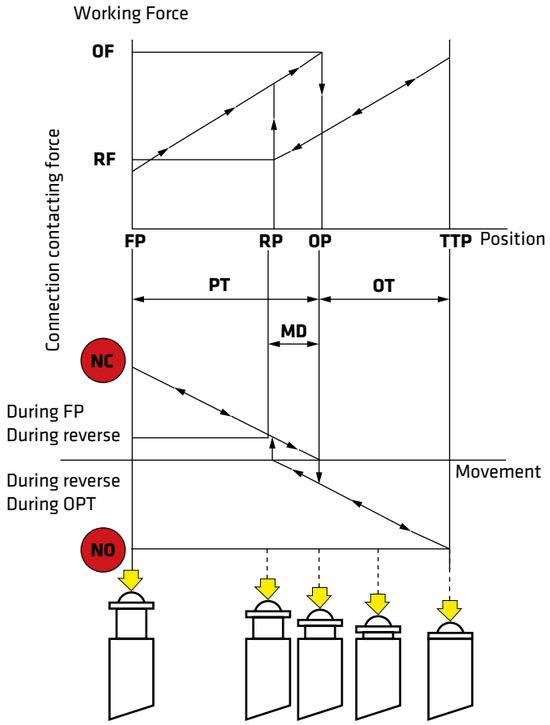
Applying force to the actioning lever of a snap switch releases the snap action mechanism, which in turn triggers the switching operation.

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.

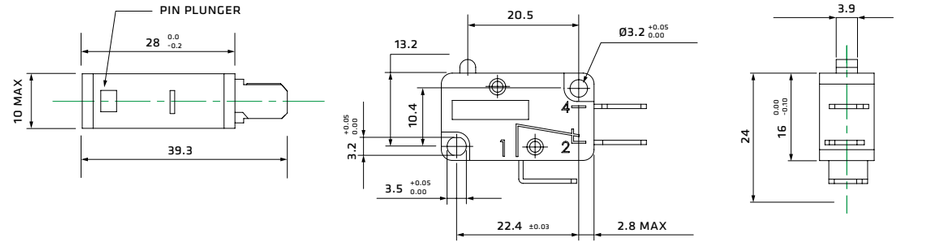
PT - PRETRAVEL
The distance or angle through which the actuator moves from the free position to the operating position.

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

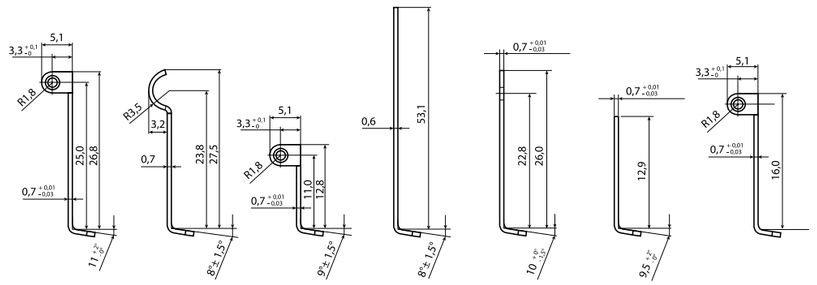
Operating temperature	Min -25°C (-18°F) / Max 85°C (+185°F)
Mechanical life expectancy	1x10^6 cycles min
Electrically life expectancy	5x10^5 cycles min
Termination type	6.3 x 0.8 faston terminal

ELECTRICAL DATA

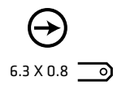
Rated Thermal current (Ith)	8A
Rated insulation voltage (Ui)	250V
Rated impulse withstand voltage (Uimp)	1500V
Rated operating current (Ie)	8A - 250V resistive load, 3A - 250V inductive load
Pollution degree	2
Protection against electric shock	Class II

LEVER TYPES





1NC-1NO
SNAP ACTION



		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

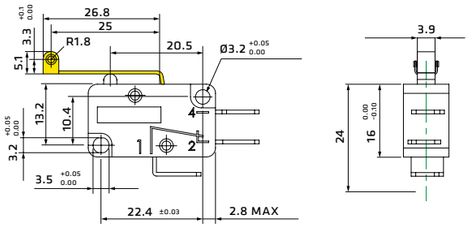
MFI.1: Long roller lever

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



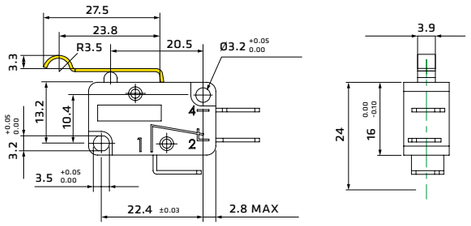
MFI.2: Simulated roller lever

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



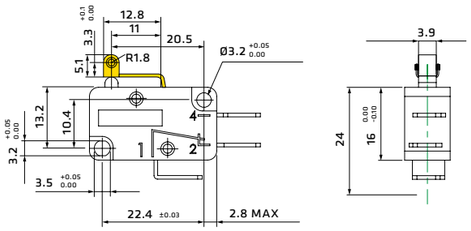
MFI.3: Roller lever

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



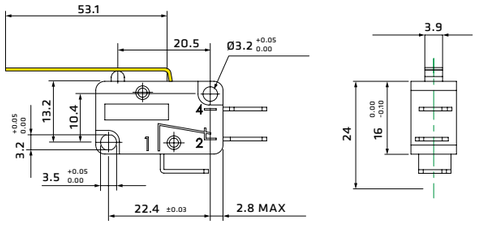
MFI.4: Long lever

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



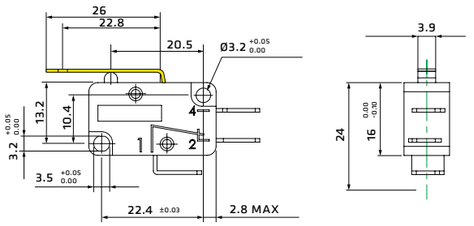
MFI.5: Lever

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



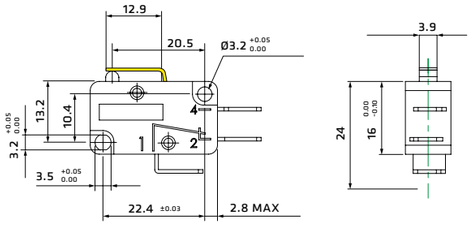
MFI.6: Short Lever

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



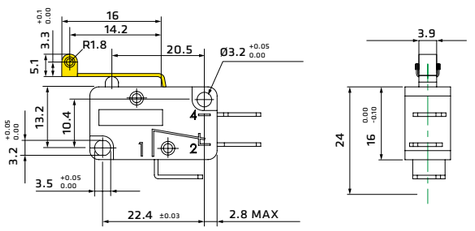
MFI.7: Roller lever L=16mm

1NC-1NO
SNAP ACTION

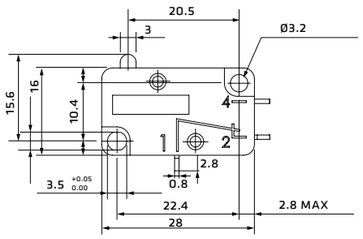
6.3 X 0.8

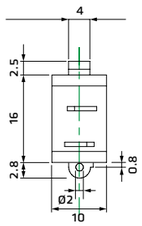


TYPE	OF max	RF min	PT max	OT min	OP ± 1 mm
MFI.7	4.5 N	1.9 N	1.8 mm	0.8 mm	21.1 ± 0.6 mm



MFI.S SERIES - SOLDER MICRO SWITCHES





GENERAL DATA

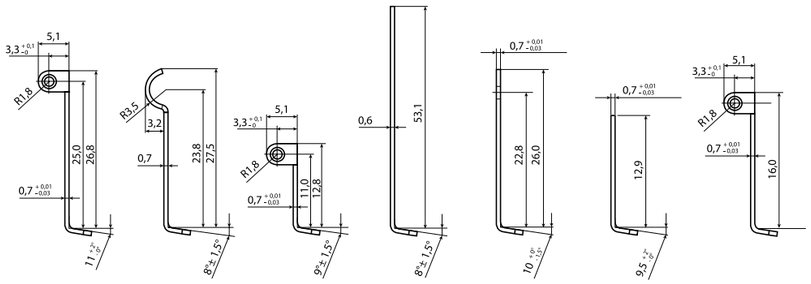
Operating temperature	Min -25°C (-18°F) / Max 85°C (+185°F)
Mechanical life expectancy	1x10⁶ cycles min
Electrically life expectancy	5x10⁵ cycles min
Termination type	Solder

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

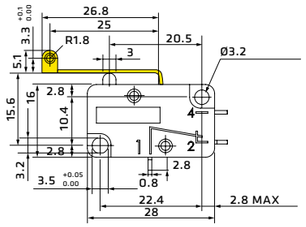
MFI.1S: Long roller lever

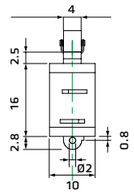
1NC-1NO
SNAP ACTION

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





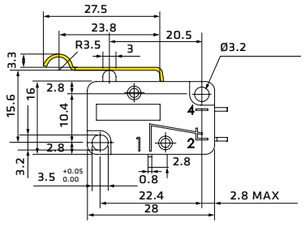
MFI.2S: Simulated roller lever

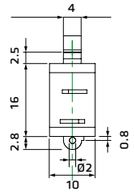
1NC-1NO
SNAP ACTION

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





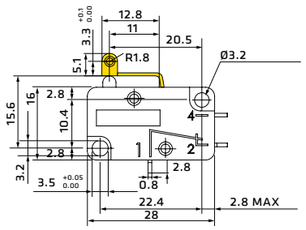
MFI.3S: Roller lever

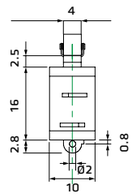
1NC-1NO
SNAP ACTION

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





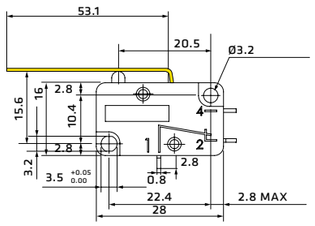
MFI.4S: Long lever

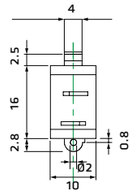
1NC-1NO
SNAP ACTION

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

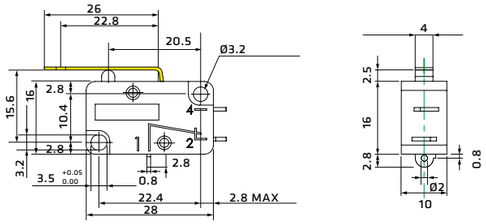
MFI.5S: Lever

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



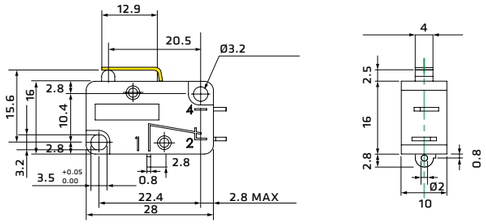
MFI.6S: Short Lever

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



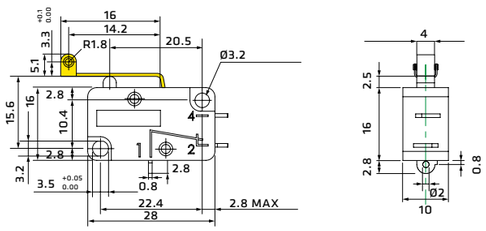
MFI.7S: Roller lever L=16mm

1NC-1NO
SNAP ACTION

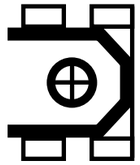
Solder

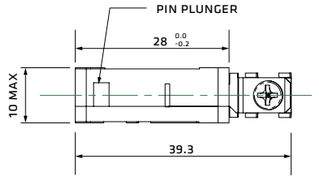


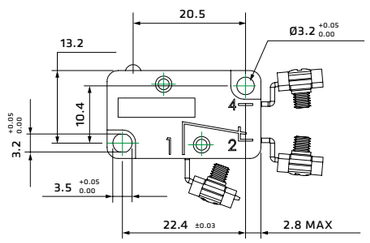
TYPE	OF max	RF min	PT max	OT min	OP ± 1 mm
MFI.7S	4.5 N	1.9 N	1.8 mm	0.8 mm	21.1 ± 0.6 mm

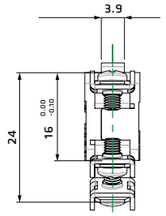


MFI.ST SERIES - SCREW TERMINAL MICRO SWITCHES









GENERAL DATA

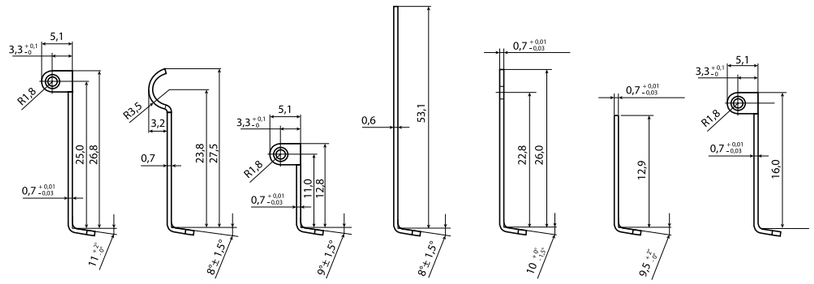
Operating temperature	Min -25°C (-18°F) / Max 85°C (+185°F)
Mechanical life expectancy	1x10^6 cycles min
Electrically life expectancy	5x10^5 cycles min
Termination type	Screw terminal

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

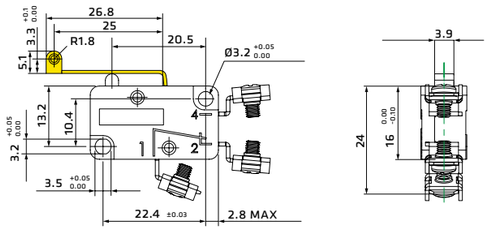
MFI.1ST: Long roller lever

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



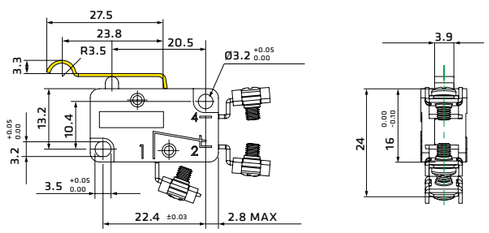
MFI.2ST: Simulated roller lever

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



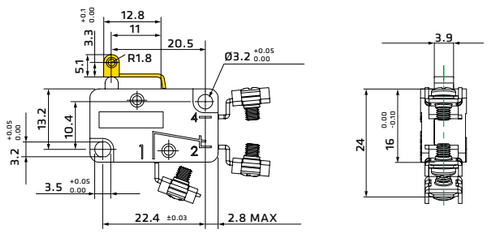
MFI.3ST: Roller lever

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



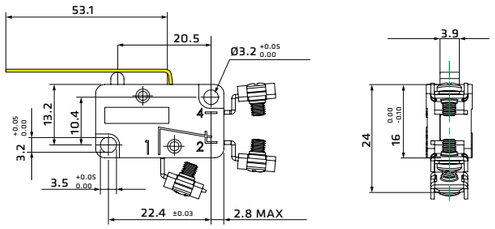
MFI.4ST: Long lever

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



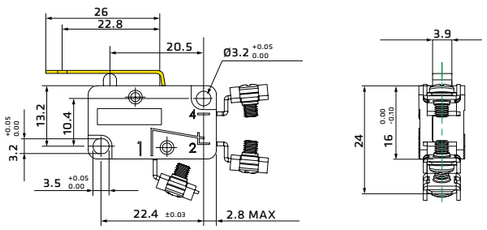
MFI.5ST: Lever

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



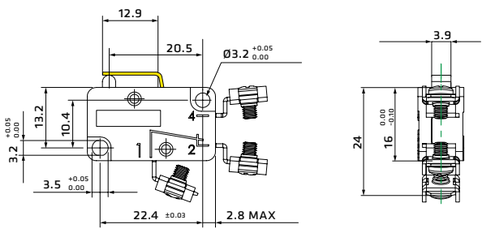
MFI.6ST: Short Lever

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



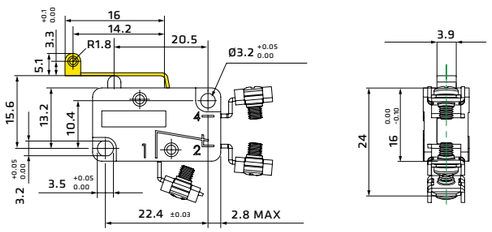
MFI.7ST: Roller lever L=16mm

1NC-1NO
SNAP ACTION

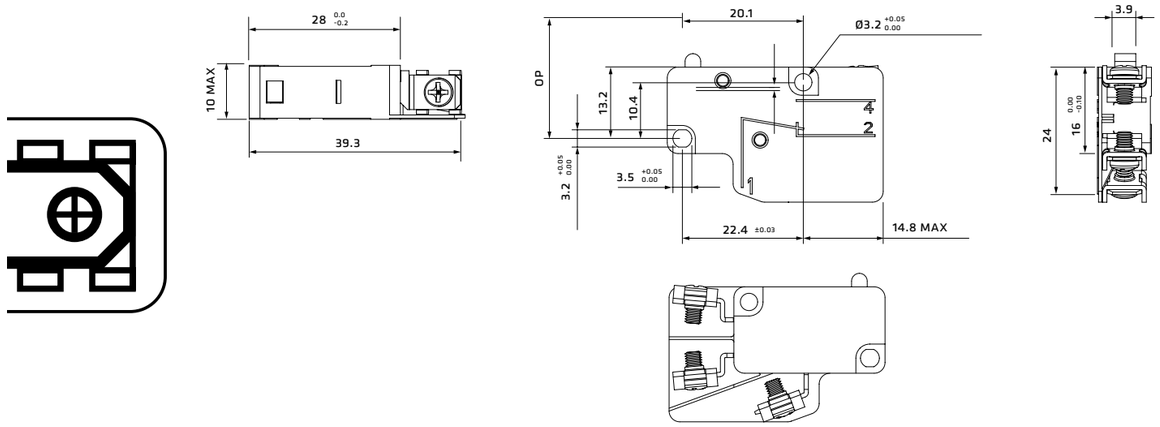
Screw Terminal



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

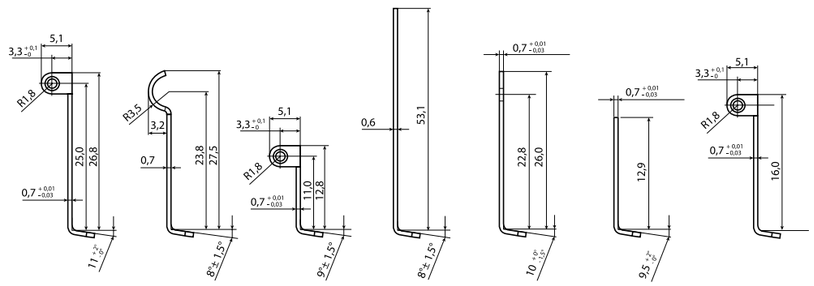
Operating temperature	Min -25°C (-18°F) / Max 85°C (+185°F)
Mechanical life expectancy	1x10^6 cycles min
Electrically life expectancy	5x10^5 cycles min
Termination type	Screw terminal and plate protection

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

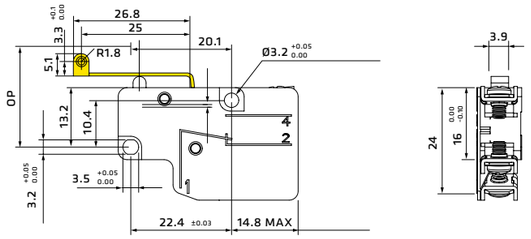
MFI.1STP: Long roller lever

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



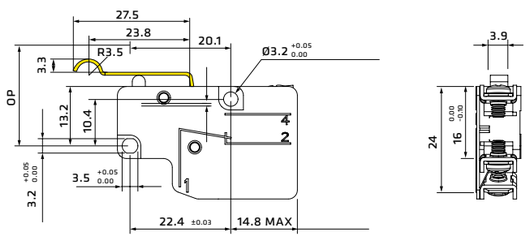
MFI.2STP: Simulated roller lever

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



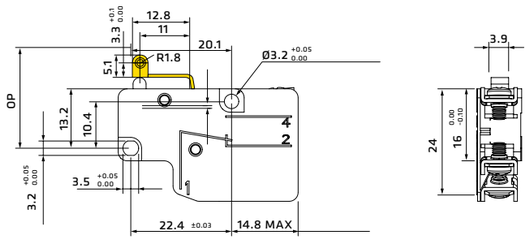
MFI.3STP: Roller lever

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



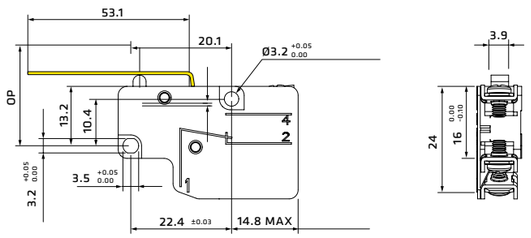
MFI.4STP: Long lever

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



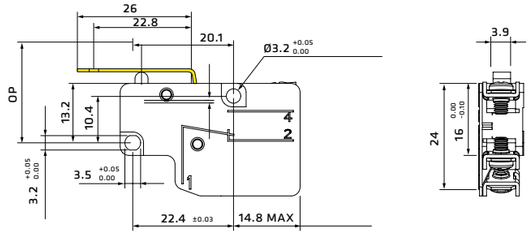
MFI.5STP: Lever

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



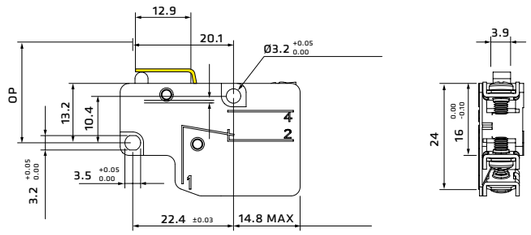
MFI.6STP: Short Lever

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



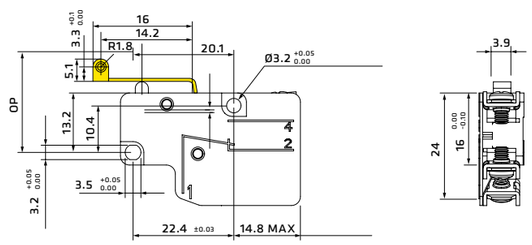
MFI.7STP: Roller lever L=16mm

1NC-1NO
SNAP ACTION

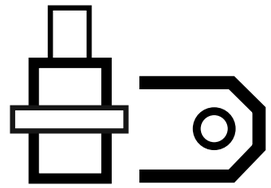
Screw Terminals
Plate Protection

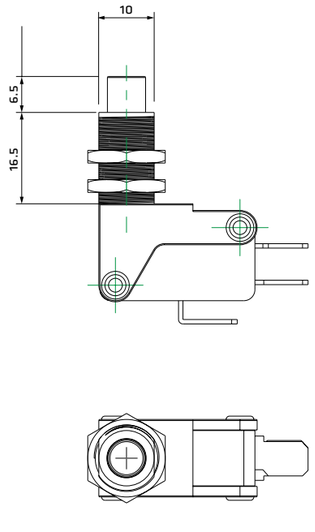


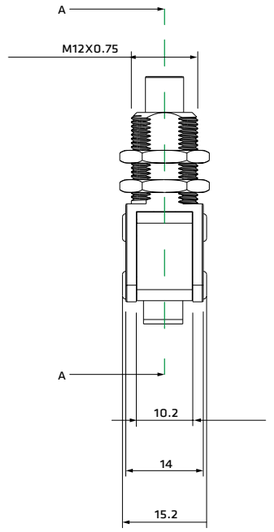
TYPE	OF max	RF min	PT max	OT min	OP ± 1 mm
MFI.7STP	4.5 N	1.9 N	1.8 mm	0.8 mm	21.1 ± 0.6 mm



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



INSTALLATION OF SINGLE SWITCHES WITH SAFETY FUNCTION

- Use only switches with the symbol ⊖ .
- Connect the safety circuit to the NC normally closed contacts (11-12, 21-22, 31-32).
- Actuate the switch at least up to the positive opening travel.
- The actuation system must be able to exert a force that is greater than positive opening force.
- The device must be affixed in compliance with EN ISO 14119.

Whenever the machine guard is opened and during the whole operating travel, the switch must be pressed directly or trough a rigid connection. Only in this way the positive opening of normally closed NC contacts (11-12, 21-22, 31-32) is guaranteed.

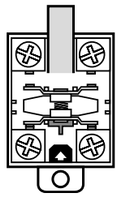
In safety applications with only one switch for each guard, the switches must never be activated by a release or through a non rigid connection.

According to EN ISO 14119 paragraph 5.2 letter h: “the position sensors must not be used as mechanical stop”.
- The actuator must not exceed the maximum travel.
- The guard must not use the switch head as a mechanical stop.
- The actuator must not strike directly against the switch head.

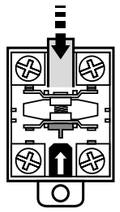
CONTACT ELEMENTS

CONTACT ELEMENTS ACTING INDIPENDENTLY (OR SNAP ACTION)

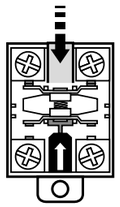
Is defined, under IEC947-5-1/EN6094-5-1, the contact element of a device for manual or automatic control circuits where the speed of motion of the contact is virtually independent of the speed of motion of the actuator. Commonly called “quick trigger” the electrical behavior of these elements means that the contact is in order even in the slow movements of the actuator. These contact elements have position doesn’t coincide with the release of drive (differential stroke).



Contact in stand-by



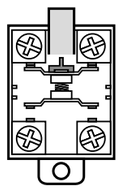
Contact activated



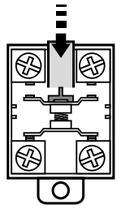
Apertura positiva

CONTACT ELEMENTS DIRECT ACTING (OR SLOW ACTION)

Is defined, under IEC947-5-1/EN6094-5-1, the contact element of a device for manual or automatic control circuits where speed of movement of the contact depends on the speed of motion of the actuator.



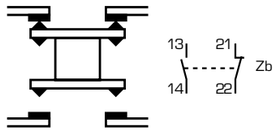
Contact in stand-by



Contact activated

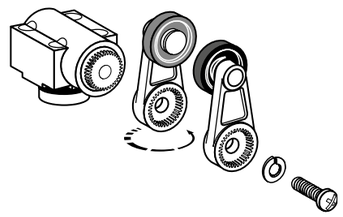
CONTACT BLOCKS CONFIGURATION (according to IEC/EN60947-5-1)

Contact blocks with 4 terminals must be marked with Zb symbols as shown in the picture.



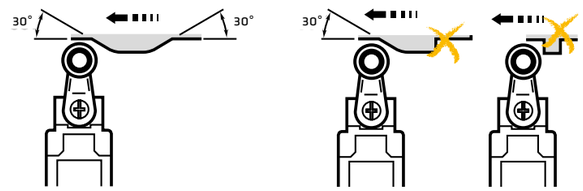
The two moving contacts are electrically insulated.

OPERATING LEVER
REVERSE MOUNTING



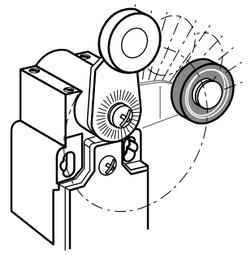
FTN - FTN1R - FTNG Series

PLUNGER OR ROLLER LEVER
RECCOMENDED APPLICATION

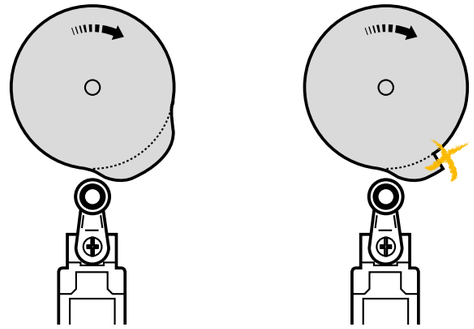


Right	Wrong

RESETTING POSITION
SETTING THROUGH 18° STEPS

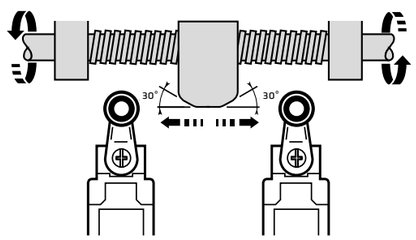


FTN - FTN1R - FTNG Series

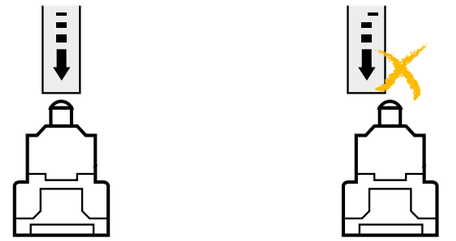


Right	Wrong

SNAP ACTIONS RECCOMENDED



In case of a relatively slow movement of the actuator, SNAP ACTION CONTACTS ARE RECCOMENDED.



Right	Wrong

NOTES

NOTES

LOGISTICS

Giovenzana International B.V. to support the market and his different necessity has created this organization that is always in process to cover territory in five different hubs.

SALES OFFICE

GIOVENZANA INTERNATIONAL B.V.
Budapest, Hungary - Office and Delivery

G.T.R. LLC
Moscow, Russian Federation - Office and Logistic Hub

GIOVENZANA CONTROLS INDIA Pvt. Ltd.
Mumbai, India - Office

GIOVENZANA DEUTSCHLAND
Hannover, Germany - Office

GIOVENZANA do Brasil
São Paulo, Brasil - Office and Logistic Hub

Branch

GIOVENZANA INTERNATIONAL B.V.
Dubai U.A.E. - Office and Logistic Hub for ME and FE included China, India, Oceania, Africa

Headquarter

GIOVENZANA INTERNATIONAL B.V.
Amsterdam, The Netherland - Industrial and Commercial

Manufacturers units

G.G.T. Srl
Milan, Italy - Historical Unit

G.G.Space Kft
Budapest, Hungary

Engineering

Electra Engineering Srl
Milan, Italy

Logistic warehouses

ITALY
HUNGARY
RUSSIAN FEDERATION
DUBAI U.A.E.
BRASIL