GIOVENZANA
INTERNATIONAL B.V.



FTN SERIES
thermoplastic limit switches

FTN SERIES





The thermoplastic limit switches of the **FTN series** comply with EN 50047 and are designed to provide a wide range of switch variants (slow action or snap action basic switches) and a variety of actuating heads and levers suitable for safety applications.

The thermoplastic bodies have two fixing holes with distance of 20 or 22 mm and one hole for cable entry on the bottom of the switch.
Various types of threaded cable entry are available to cover the main requirements of the international market.

The maximum product versatility is guaranteed by the adjustable actuator heads in 90° stepsand the possibility of adjusting the levers every 18° for 360°.
They can be used in applications other than protective doors, e.g. on moving machinery benches, crane arms, hoists, elevators, etc.

They are also suitable for use in the harshest environmental conditions with an **operating temperature range of -25°C to +80°C**.

All models in the series are **IP67-rated except code FTN146 which is IP65-rated**.

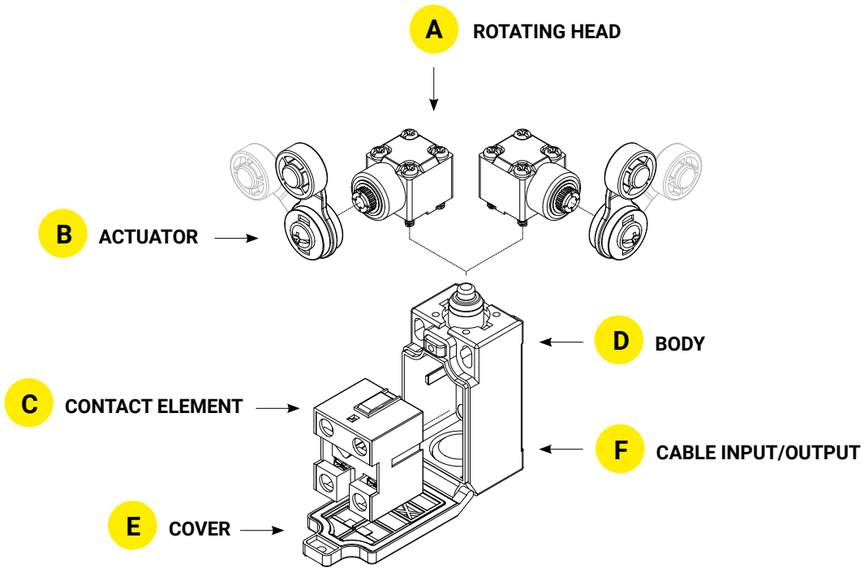
The actuators are made of metal or thermoplastic material, while the housing is made of thermoplastic glass-filled polybutylene terephthalate.

Giovenzana limit switches offer solutions for every need and are suitable for the most varied sectors of use.

SPECIFICATIONS

Standards		EN 60947-5-1, UL 508, EN 50047, EN 1088, EN 60204-1
Approvals		cULus, CCC, EAC, CE and UKCA marked for all applicable directives
Positive opening operation		NC contact conforming to IEC /EN 60947-5-1 ⊖
Minimum current		5 mA - 5 V DC
Thermal current	Ith	10 A
Rated insulation voltage	Ui	500 V
Rated impulse withstand voltage	Uimp	6 kV
Insulation resistance	min	100 MΩ (DC 500 V)
Contact resistance	max	25 mΩ (initial)
Switching speed	max	250 mm/s
Switching frequency	max	6000 operations per hour
Enclosure material		UL approved glass-filled polybutylene terephthalate
Enclosure protection		IP67 (all models except for code FTN146 which is IP65-rated)
Operating temperature		-25 ... +80°C (-13 ... +176°F)
Pollution degree		3
Protection against electric shock		Class II (double Insulation) ⧈ Double insulation makes ground terminal unnecessary.
Electrical life expectancy	min	150.000 cycles
Mechanical life expectancy	min	1×10^7 cycles
Vibration	IEC 68-2-6 excursion	10 - 55 Hz ± 1Hz 0.35 mm, 1 octave/min
Conduit entry		Various international conduit sizes (see product selection table pag. 19)
Fixing		2 × M4 screws

STRUCTURE DESCRIPTION

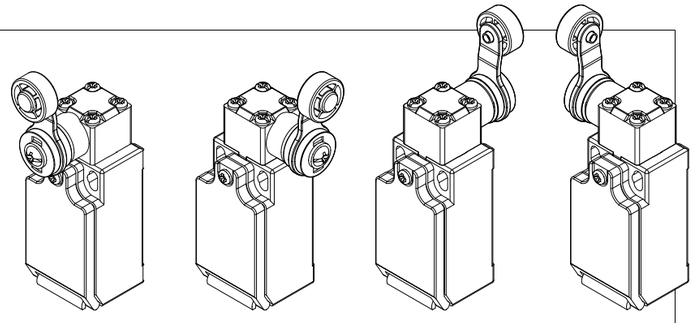


A - ROTATING HEAD

The heads are made of UL approved glass-filled polybutylene terephthalate.

All heads can be adjusted in steps of 90° over 360°, compared to the body.

The direction of the switch head can be varied in one of four directions by loosening the screws at the four corners of the head.

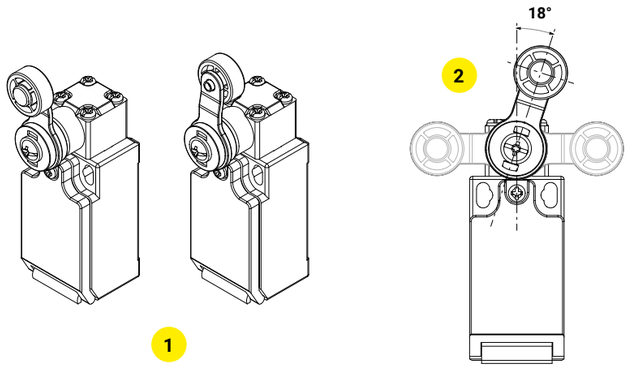


B - ACTUATOR

Available different types of actuators: plungers, levers, rollers and rods.

1. Tilting levers
Possibility to fix the lever on the observe or on the reverse, keeping the positive opening of the NC contact. In this way is possible to obtain two different lever work plans.

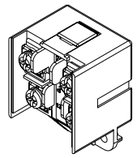
2. Adjustable levers
All levers are adjustable in steps of 18° over 360°, compared to the horizontal axis of the head. The positive movement transmission is always guaranteed thanks to the particular geometric coupling between the lever and the rotation shaft.



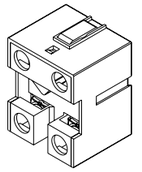
C - CONTACT ELEMENT

The built-in switch has a direct opening mechanism that forcibly separates the NC contact even in the event of accidental welding (overload, short circuit, etc.).

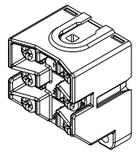
Different contact elements are available, both fast-acting and slow-acting, depending on the different application requirements.



X11: 1NO+1NC
Slow action (Zb)



Z11: 1NO+1NC
Snap action (Zb)



W12: 1NO+2NC
Slow action (Zb)

W02: 2NC
Slow action (Zb)

Z02: 2NC
Snap action (Zb)

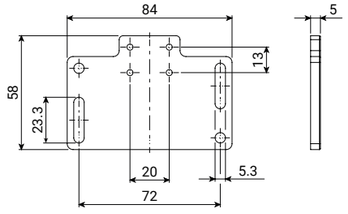
W03: 3NC
Slow action (Zb)

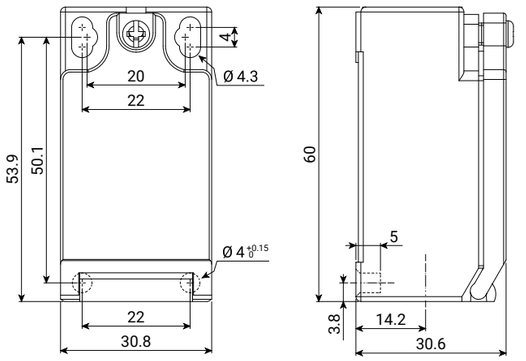
W20: 2NO
Slow action (Zb)
→ Not suitable for safety applications!

D - BODY

The body complies with EN 50047, with a distance of 20/22 mm between the fixing holes.

It is available a fixing plate with slots to adjust the operating point, developed for backward compatibility with old products. The plate is sold in kits (code: **KIT-FTN**) comprising:
- 1 plate;
- 2 self-tapping screws 4 × 28 mm;
- 2 washers Ø4 mm.





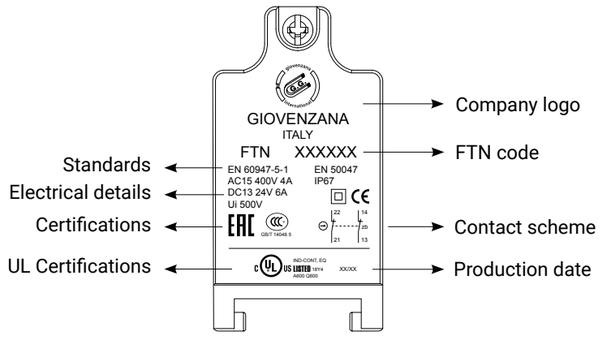
In order to provide more fixing stability,
it is possible to use the basic holes of the device with dowel insertion.

E - COVER

Material conforming to the RoHS Directive.

The lid is laser marked to ensure branding, coding and information on product specifications such as technical data, production date, stock or lot number, revision or control date.
Lasering ensures the complete traceability of our products and components and is essential for compliance with ISO quality standards.

Some of the advantages:
- clear and precise text legibility;
- guaranteed lifetime unlike ink which deteriorates over time.



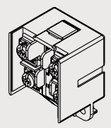
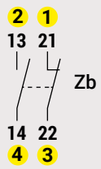
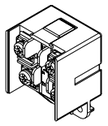
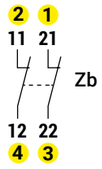
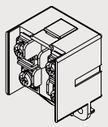
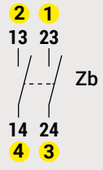
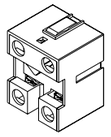
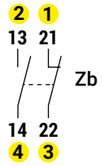
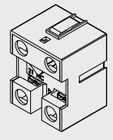
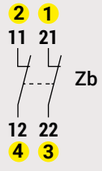
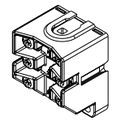
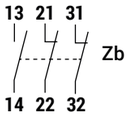
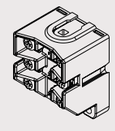
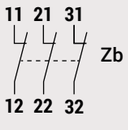
F - CABLE INPUT / OUTPUT

A threaded cable input/output is provided at the bottom of the switch.
6 standard and customised cable input/output models are available to cover the main international markets.

Standard: Blank: M16 × 1.5

On request: M: M20 × 1.5
N: 1/2" NPT
G1: Pg 11
G3: Pg 13.5
C: M12 connector

CONTACT ELEMENT - SPECIFICATIONS

CONTACT CODE	CONTACT TYPE	ELECTRICAL SCHEME	CONNECTOR PIN ARRANGEMENT
X11 	1NO+1NC Slow action Zb ⊖		
W02 	2NC Slow action Zb ⊖		
W20 	2NO Slow action Zb Not suitable for safety applications!		
Z11 	1NO+1NC Snap action Zb ⊖		
Z02 	2NC Snap action Zb ⊖		
W12 	1NO+2NC Slow action Zb ⊖		No connector
W03 	3NC Slow action Zb ⊖		No connector

NOTE: FTN135, FTN136, FTN142 and FTN198 have no positive opening regardless of the contact installed.

CONTACT ELEMENT - OPERATING PRINCIPLE

SLOW ACTION - Contact elements direct acting

Slow-acting contact blocks are characterised by identical switching and resetting points (no differential travel).

The contact movement speed (V1) is equal or proportional to the actuator speed (V).

This type of contact is suitable for fast movements.

The opening distance depends on the distance travelled by the operator.

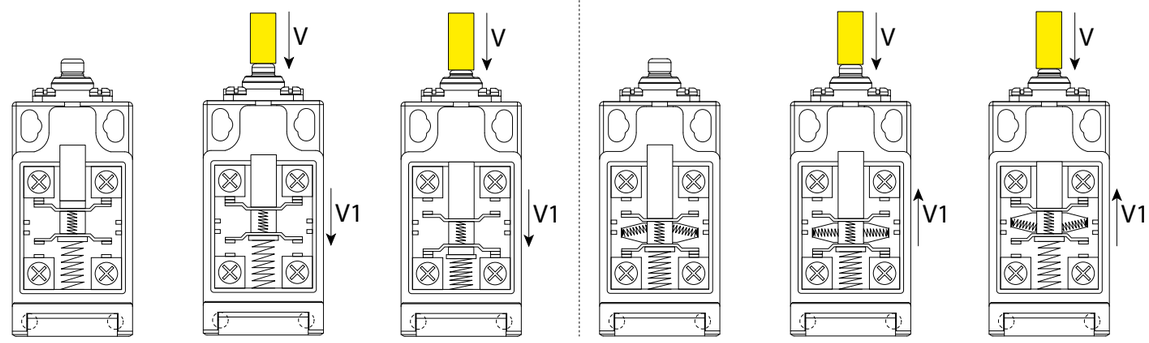
SNAP ACTION - Contact elements acting indipendently

Snap-action contact blocks are characterised by non-coincident switching and resetting points (differential travel).

The speed of the contact movement (V1) is not linked to the speed of the actuator (V).

This type of contact is also suitable for slow movements.

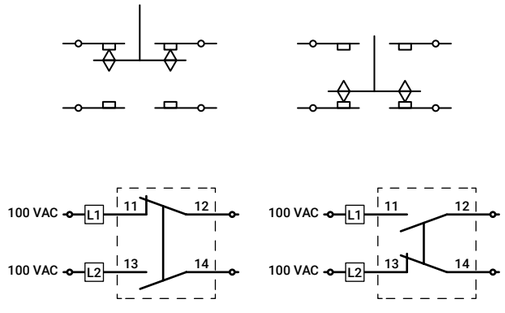
This feature ensures satisfactory electrical performance in applications involving low-speed actuators.



CONTACT ELEMENT - CLASSIFICATION (ACCORDING EN 60947-5-1)

Za contact type

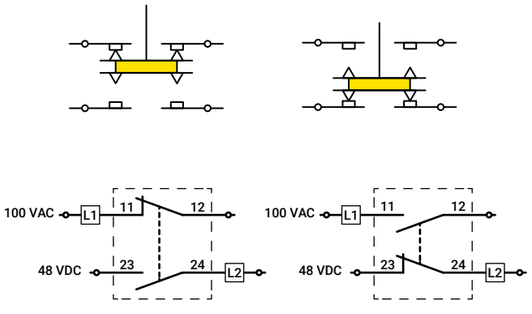
A single blade opens and closes the contacts.
With this type of contact it is NOT possible to supply the circuit with different voltages and polarities.



L1: load 1
L2: load 2

Zb contact type

In this case there are two blades that open and close the contact.
The two blades are electrically isolated from each other. Therefore, with this type of contact it is possible to supply the circuit with different voltages and polarities.



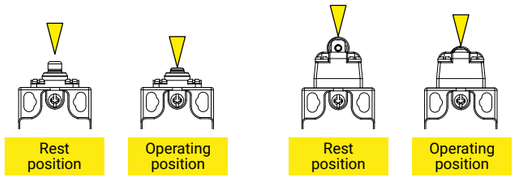
L1: load 1
L2: load 2

FTN series of thermoplastic limit switches is equipped with Zb contacts.

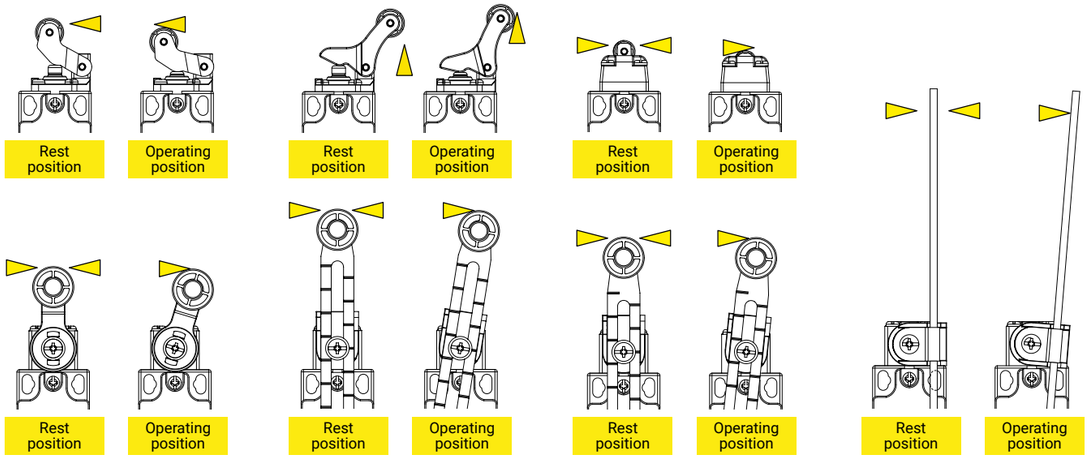
DETECTION MOVEMENTS

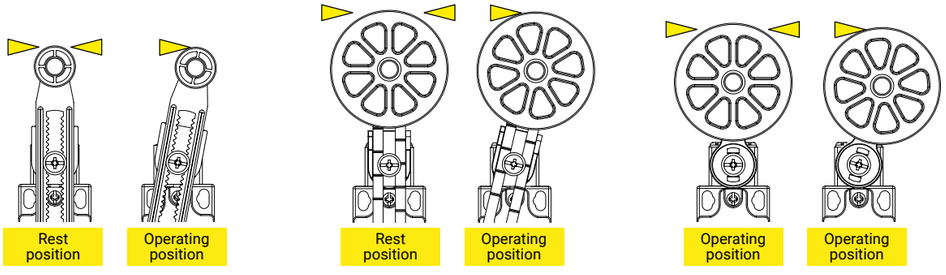
Limit switches are used in all automated installations and also in a wide variety of other applications.
They transmit data to the logic processing system regarding: presence/absence, passage, positioning and end of travel.
They have different detection movements: linear, rotary and multidirectional.

1. Linear detection movement - Plunger

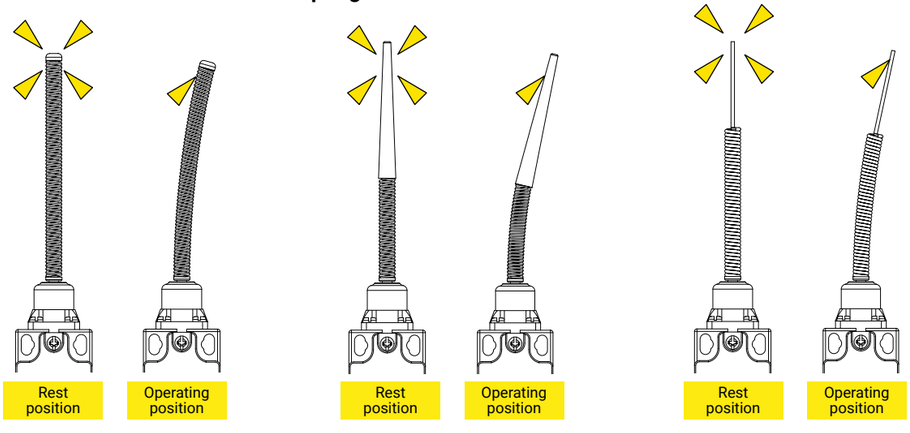


2. Rotary detection movement - Lever





3. Multidirectional detection movement - Spring



SAFETY INTEGRITY LEVEL ACCORDING TO IEC 61508

IEC 61508: Functional safety of electrical/electronic/programmable electronic safety systems

IEC 61508 is the international technical-legislative reference for Functional Safety. The seven parts that make up the **SIL standard** are the guideline that must be applied to the safety function that an object must perform.

The standard provides a set of mandatory requirements and best practices aimed at determining the reliability of a safety system. In this sense, it is possible to say that reliability is the measure of risk reduction. The IEC states that any safety-related control system must function properly or fail predictably and safely.
Therefore, there are at least three requirements that a safety system must meet in order to comply with the SIL standard:

- **Systematic Capability**, i.e. the degree of reliability in terms of product design, both hardware and software (where applicable).
- **Architecture Constraints**, i.e. constraints on the architecture of the object that affect its level of security
- **PFDavg or PFH**, i.e. the probability of dangerous random failures, whether on demand or on an hourly basis.

The safety system meets each requirement with a different SIL level (with SIL 1 to 4).

Safety Integrity Level (SIL) is the quantification of the reliability (or degree of reliability) achieved by any object that performs a safety-related function. The greater its reliability, the greater its ability to perform safety-critical functions or machine or plant availability.
The determination of a SIL is based on quantitative and qualitative factors such as the development process and safety lifecycle management.

The FTN series thermoplastic limit switches are SIL 3.

SIL 3


FTN131

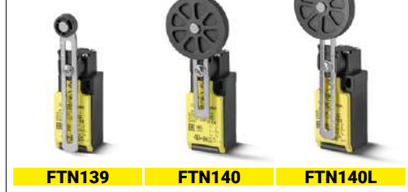
FTN132

FTN133


FTN134

FTN137

FTN138


FTN139

FTN140

FTN140L


FTN140R

FTN140RL

FTN141


FTN143

FTN144

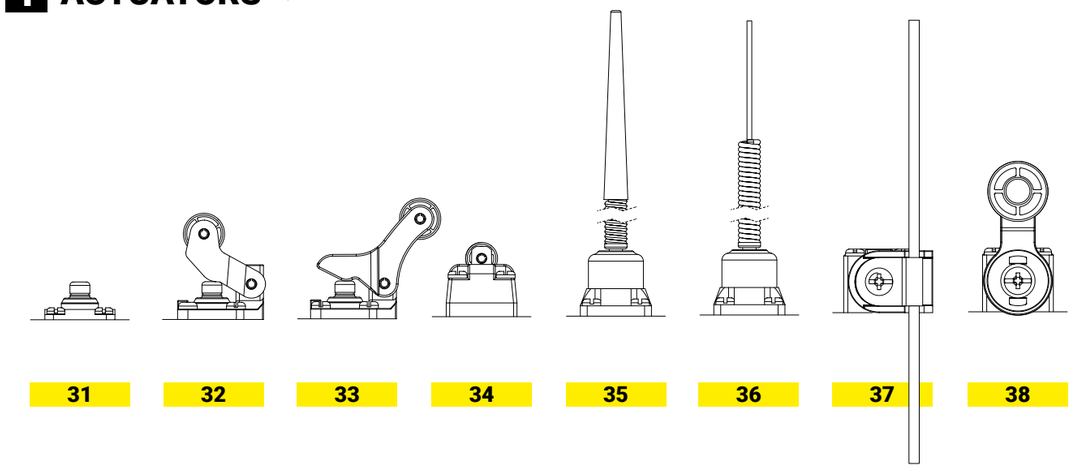
FTN144S


FTN146

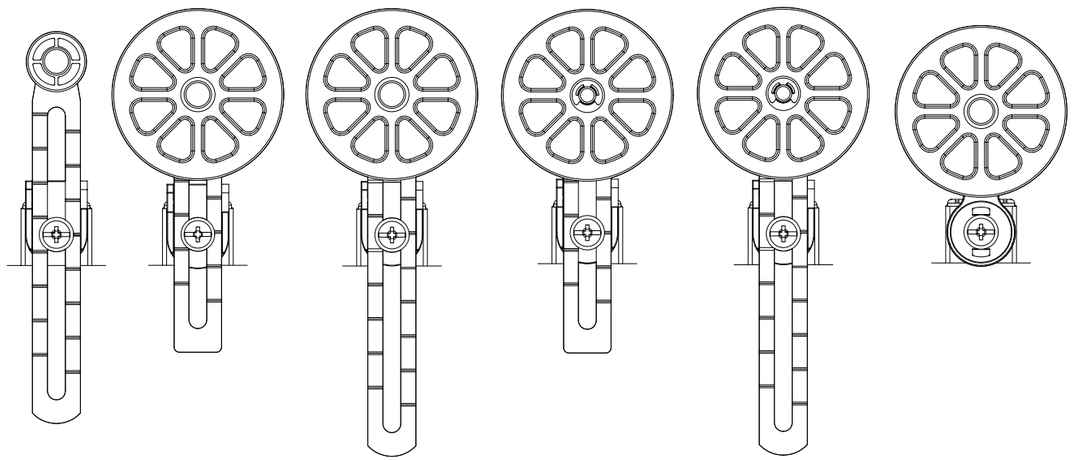
FTN198

FTN - PRODUCT SELECTION OVERVIEW

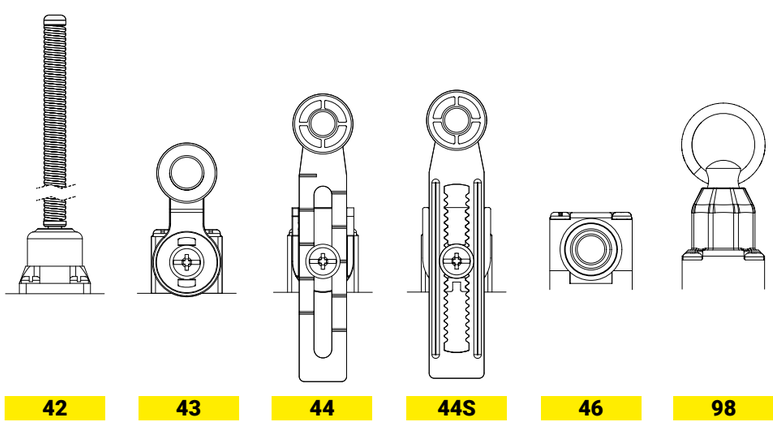
1 ACTUATORS



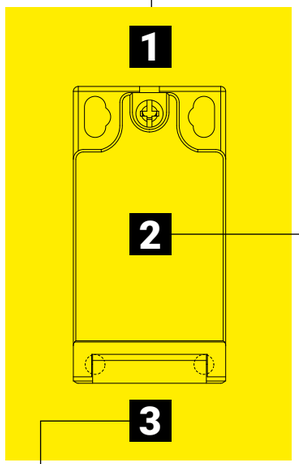
31 32 33 34 35 36 37 38



39 40 40L 40R 40RL 41



42 43 44 44S 46 98



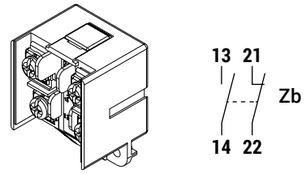
3 CONDUIT ENTRY

Threaded conduit entry

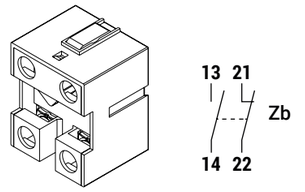
Standard:
M16 × 1.5

On request:
M20 × 1.5
1/2" NPT
PG11
PG13.5
With connector

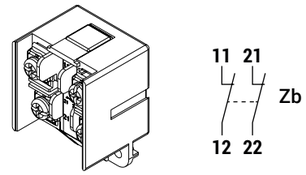
2 CONTACT BLOCKS



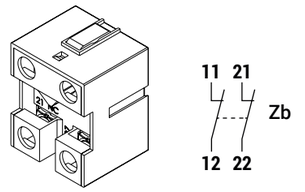
X11
1NO+1NC - slow action (Zb)



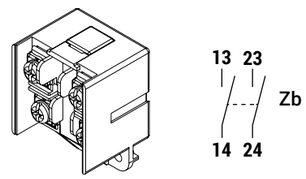
Z11
1NO+1NC - snap action (Zb)



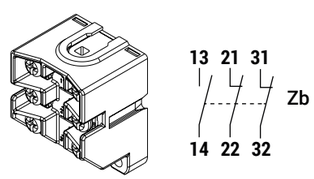
W02
2NC - slow action (Zb)



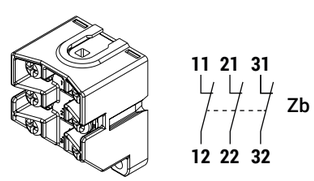
Z02
2NC - snap action (Zb)



W20
2NO - slow action (Zb)
Not suitable for safety applications!



W12
1NO+2NC - slow action (Zb)



W03
3NC - slow action (Zb)

CONTACT TYPES			CATEGORIES	RATINGS
X11 **W02** **W20**	1NO+1NC 2NC 2NO	slow action (Zb)	A600 Q600	**AC15:** 400 V - 4 A
Z11 **Z02**	1NO+1NC 2NC	snap action (Zb)	B600 Q600	**DC13:** 24V - 6 A
W12 **W03**	1NO+2NC 3NC	slow action (Zb)	A300 Q300	

FTN - CODE SELECTION OVERVIEW

F	T	N	1		3	1			X	1	1		

SERIES

FTN
thermoplastic limit switches

FUNCTION

1
without reset

ACTUATOR

31
Plastic end plunger
32
PA roller lever plunger, horizontal action
33
PA roller lever plunger, vertical action
34
PA roller plunger
35
spring lever with tip in PA
36
CAT'S whisker
37
adjustable metal rod lever
38
Ø18 PA roller lever
39
Ø18 long PA roller lever with variable length
40
Ø50 rubber roller lever with variable length
40L
Ø50 long rubber roller lever with variable length
40R
Ø50 rubber roller lever with variable length and overhang
40RL
Ø50 long rubber roller lever with variable length and overhang
41
Ø50 rubber roller lever
42
wobble stick
43
Ø18 metal roller lever
44
Ø18 PA roller lever with variable length
44S
Ø18 PA roller lever with variable sawtooth lenght (step: 2.2 mm)
46
safety-door hinge switch
98
rope pull lever

CONTACT TYPE

X11
1NO+1NC
slow action Zb
W02
2NC
slow action Zb
W20
2NO
slow action Zb
Z11
1NO+1NC
snap action Zb
Z02
2NC
snap action Zb
W12
1NO+2NC
slow action Zb
W03
3NC
slow action Zb

CONDUIT ENTRY

standard
blank M16 × 1.5

on request
M M20 × 1.5
N 1/2" NPT
G1 PG11
G3 PG13.5
C male connector "A" M12 × 1

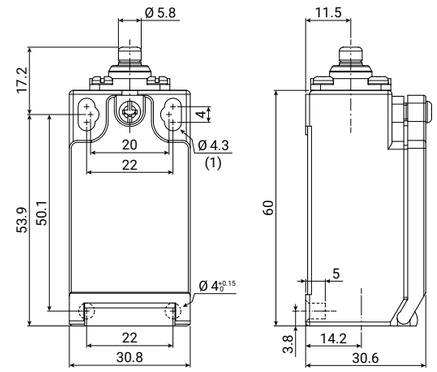
FTN131

Limit switch with plastic end plunger
IP67

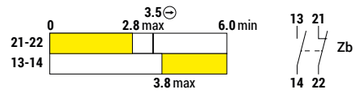
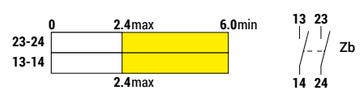
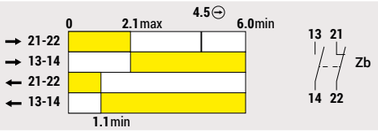
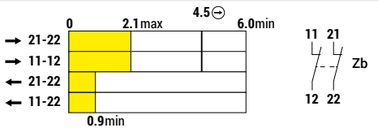


FTN		1		31		XXX		XX	
series		**function**		**actuator**		**contact type**		**conduit entry**	
FTN	thermoplastic limit switch	1	without reset function	31	plastic end plunger	**X11:** 1NO+1NC **W02:** 2NC **W20:** 2NO	slow action (Zb)	**blank**	M16 × 1.5 (standard)
								M	M20 × 1.5
								N	1/2" NPT
						Z11: 1NO+1NC **Z02:** 2NC	snap action (Zb)	**G1**	PG11
								G3	PG13.5
						W12: 1NO+2NC **W03:** 3NC	slow action (Zb)	**C**	male connector "A" M12 × 1

technical drawing - sizes in mm



(1) mounting holes

contact type		operation diagrams
X11 **1NO+1NC** slow action (Zb)		
W02 **2NC** slow action (Zb)		
W20 **2NO** slow action (Zb)		
Z11 **1NO+1NC** snap action (Zb)		
Z02 **2NC** snap action (Zb)		
W12 **1NO+2NC** slow action (Zb)		
W03 **3NC** slow action (Zb)		

contact type		categories	ratings	operational travel		operating force	positive opening		total travel
				PT1	PT2 (slow action) RP (snap action)	OF	POT (travel)	POF (force)	TT
X11: 1NO+1NC	slow action (Zb)	A600-Q600	AC15: 400V - 4A	2.8 mm	3.8 mm	7.3 N	3.5 mm	22 N	
W02: 2NC				2.8 mm	-	7.3 N	3.5 mm	22 N	
W20: 2NO				2.4 mm	-	8.2 N	-	-	
Z11: 1NO+1NC	snap action (Zb)	B600-Q600	DC13: 24V - 6A	2.1 mm	1.1 mm	7.2 N	4.5 mm	16.3 N	6.0 mm
Z02: 2NC				2.1 mm	0.9 mm	7.2 N	4.5 mm	16.3 N	
W12: 1NO+2NC	slow action (Zb)	A300-Q300		2.6 mm	3.2 mm	7.3 N	3.8 mm	23 N	
W03: 3NC				2.6 mm	-	7.3 N	3.8 mm	23 N	

GIOVENZANA
INTERNATIONAL B.V.

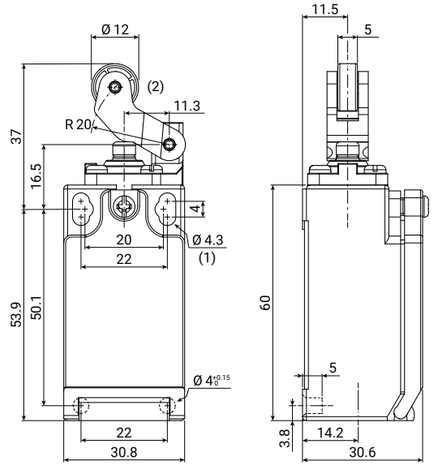
FTN132

Limit switch with PA roller lever plunger, horizontal action
IP67

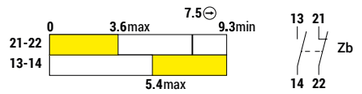
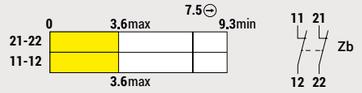
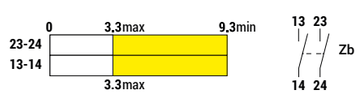
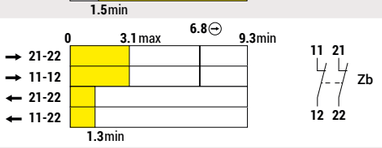
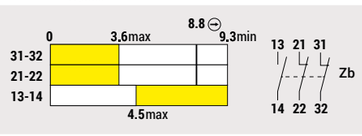


FTN		1		32		XXX		XX	
series		**function**		**actuator**		**contact type**		**conduit entry**	
FTN	thermoplastic limit switch	1	without reset function	32	PA roller lever plunger, horizontal action	**X11**: 1NO+1NC **W02**: 2NC **W20**: 2NO	slow action (Zb)	**blank** **M** **N**	M16 × 1.5 (standard) M20 × 1.5 1/2" NPT
						Z11: 1NO+1NC **Z02**: 2NC	snap action (Zb)	**G1** **G3**	PG11 PG13.5
						W12: 1NO+2NC **W03**: 3NC	slow action (Zb)	**C**	male connector "A" M12 × 1

technical drawing - sizes in mm



(1) mounting holes
(2) PA roller

contact type		operation diagrams
X11 **1NO+1NC** slow action (Zb)		
W02 **2NC** slow action (Zb)		
W20 **2NO** slow action (Zb)		
Z11 **1NO+1NC** snap action (Zb)		
Z02 **2NC** snap action (Zb)		
W12 **1NO+2NC** slow action (Zb)		
W03 **3NC** slow action (Zb)		

contact type		categories	ratings	operational travel		operating force	positive opening		total travel
				PT1	PT2 (slow action) RP (snap action)	OF	POT (travel)	POF (force)	TT
X11: 1NO+1NC	slow action (Zb)	A600-Q600	AC15: 400V - 4A	3.6 mm	5.4 mm	5.3 N	7.5 mm	13.5 N	
W02: 2NC				3.6 mm	-	5.3 N	7.5 mm	13.5 N	
W20: 2NO				3.3 mm	-	5.7 N	-	-	
Z11: 1NO+1NC	snap action (Zb)	B600-Q600	DC13: 24V - 6A	3.1 mm	1.5 mm	5.0 N	6.8 mm	10.4 N	9.3 mm
Z02: 2NC				3.1 mm	1.3 mm	5.0 N	6.8 mm	10.4 N	
W12: 1NO+2NC	slow action (Zb)	A300-Q300		3.6 mm	4.5 mm	5.3 N	8.8 mm	15 N	
W03: 3NC				3.6 mm	-	5.3 N	8.8 mm	15 N	

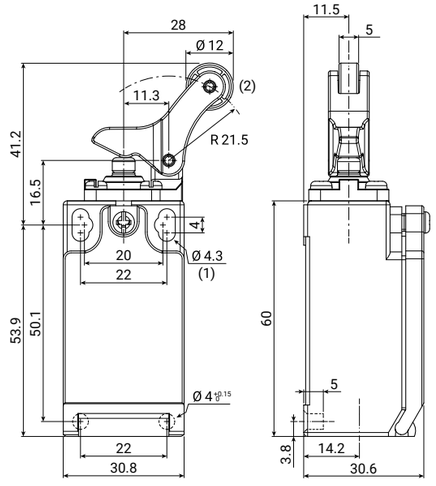
FTN133

Limit switch with PA roller lever plunger, vertical action
IP67

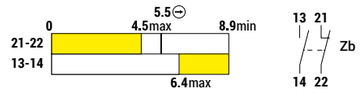
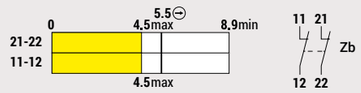
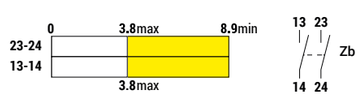
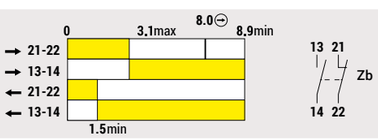
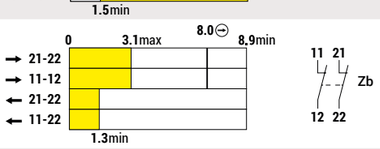
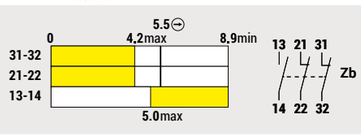
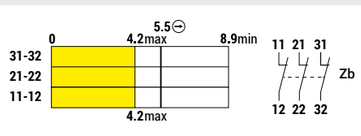


FTN		1		33		XXX		XX	
series		**function**		**actuator**		**contact type**		**conduit entry**	
FTN	thermoplastic limit switch	1	without reset function	33	PA roller lever plunger, vertical action	**X11**: 1NO+1NC **W02**: 2NC **W20**: 2NO	slow action (Zb)	**blank** **M** **N**	M16 × 1.5 (standard) M20 × 1.5 1/2" NPT
						Z11: 1NO+1NC **Z02**: 2NC	snap action (Zb)	**G1** **G3**	PG11 PG13.5
						W12: 1NO+2NC **W03**: 3NC	slow action (Zb)	**C**	male connector "A" M12 × 1

technical drawing - sizes in mm



(1) mounting holes
(2) PA roller

contact type		operation diagrams
X11 **1NO+1NC** slow action (Zb)		
W02 **2NC** slow action (Zb)		
W20 **2NO** slow action (Zb)		
Z11 **1NO+1NC** snap action (Zb)		
Z02 **2NC** snap action (Zb)		
W12 **1NO+2NC** slow action (Zb)		
W03 **3NC** slow action (Zb)		

contact type		categories	ratings	operational travel		operating force	positive opening		total travel
				PT1	PT2 (slow action) RP (snap action)	OF	POT (travel)	POF (force)	TT
X11: 1NO+1NC	slow action (Zb)	A600-Q600	AC15: 400V - 4A	4.5 mm	6.4 mm	7.0 N	5.5 mm	15 N	
W02: 2NC				4.5 mm	-	7.0 N	5.5 mm	15 N	
W20: 2NO				3.8 mm	-	7.0 N	-	-	
Z11: 1NO+1NC	snap action (Zb)	B600-Q600	DC13: 24V - 6A	3.7 mm	1.8 mm	4.2 N	8.0 mm	8.3 N	8.9 mm
Z02: 2NC				3.7 mm	1.6 mm	4.2 N	8.0 mm	8.3 N	
W12: 1NO+2NC	slow action (Zb)	A300-Q300		4.2 mm	5.0 mm	7.0 N	5.5 mm	17 N	
W03: 3NC				4.2 mm	-	7.0 N	5.5 mm	17 N	

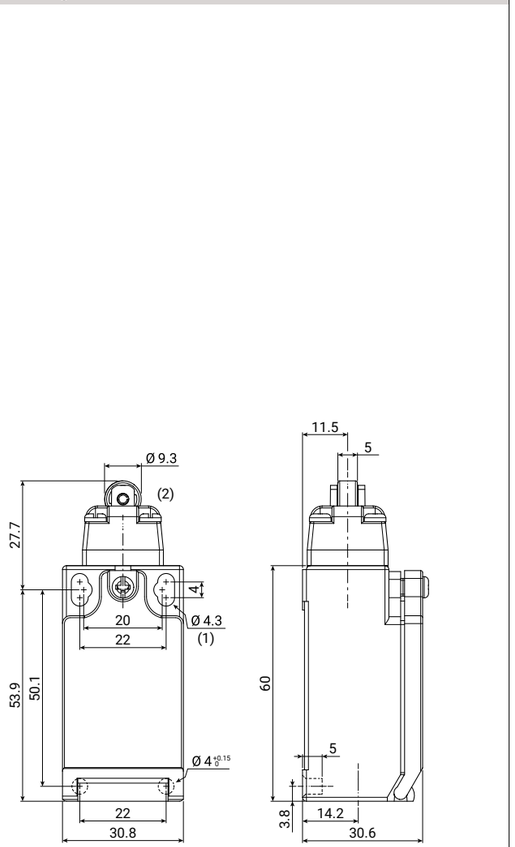
FTN134

Limit switch with PA roller plunger
IP67

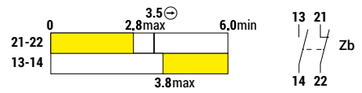
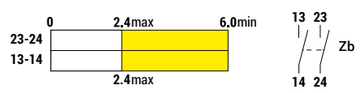
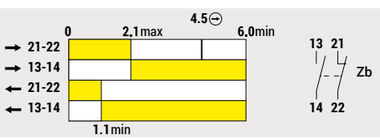
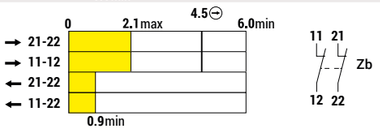
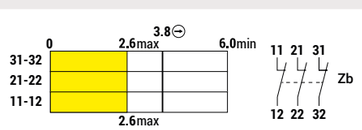


FTN		1		34		XXX		XX	
series		**function**		**actuator**		**contact type**		**conduit entry**	
FTN	thermoplastic limit switch	**1**	without reset function	**34**	PA roller plunger	**X11**: 1NO+1NC **W02**: 2NC **W20**: 2NO	slow action (Zb)	**blank** **M** **N** **G1** **G3** **C**	M16 × 1.5 (standard) M20 × 1.5 1/2" NPT PG11 PG13.5 male connector "A" M12 × 1
						Z11: 1NO+1NC **Z02**: 2NC	snap action (Zb)		
						W12: 1NO+2NC **W03**: 3NC	slow action (Zb)		

technical drawing - sizes in mm



(1) mounting holes
(2) PA roller

contact type	operation diagrams
X11 **1NO+1NC** slow action (Zb)	
W02 **2NC** slow action (Zb)	
W20 **2NO** slow action (Zb)	
Z11 **1NO+1NC** snap action (Zb)	
Z02 **2NC** snap action (Zb)	
W12 **1NO+2NC** slow action (Zb)	
W03 **3NC** slow action (Zb)	

contact type		categories	ratings	operational travel		operating force	positive opening		total travel
				PT1	PT2 (slow action) RP (snap action)	OF	POT (travel)	POF (force)	TT
X11: 1NO+1NC **W02**: 2NC **W20**: 2NO	slow action (Zb)	A600-Q600	AC15: 400V - 4A	2.8 mm 2.8 mm 2.4 mm	3.8 mm - -	7.3 N 7.3 N 8.2 N	3.5 mm 3.5 mm -	22 N 22 N -	
Z11: 1NO+1NC **Z02**: 2NC	snap action (Zb)	B600-Q600	DC13: 24V - 6A	2.1 mm 2.1 mm	1.1 mm 0.9 mm	7.2 N 7.2 N	4.5 mm 4.5 mm	16.3 N 16.3 N	6.0 mm
W12: 1NO+2NC **W03**: 3NC	slow action (Zb)	A300-Q300		2.6 mm 2.6 mm	3.2 mm -	7.3 N 7.3 N	3.8 mm 3.8 mm	23 N 23 N	

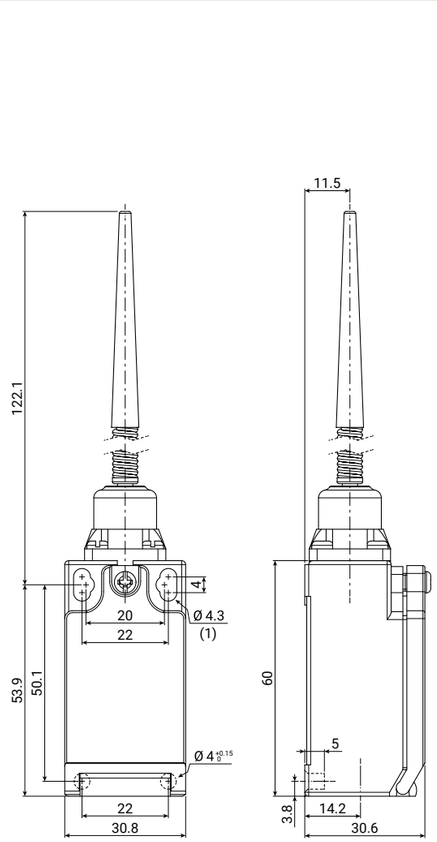
FTN135

Limit switch with spring lever with tip in PA
IP67

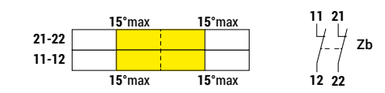
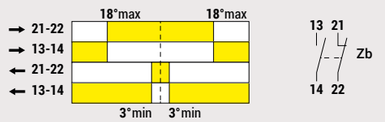
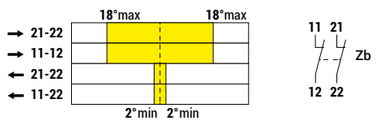
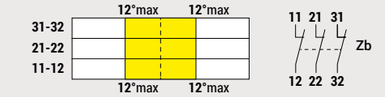


FTN		1		35		XXX		XX	
series		**function**		**actuator**		**contact type**		**conduit entry**	
FTN	thermoplastic limit switch	**1**	without reset function	**35**	spring lever with tip in PA	**W02**: 2NC	slow action (Zb)	**blank** **M** **N** **G1** **G3** **C**	M16 × 1.5 (standard) M20 × 1.5 1/2" NPT PG11 PG13.5 male connector "A" M12 × 1
						Z11: 1NO+1NC **Z02**: 2NC	snap action (Zb)		
						W03: 3NC	slow action (Zb)		

technical drawing - sizes in mm



(1) mounting holes

contact type	operation diagrams
W02 **2NC** slow action (Zb)	
Z11 **1NO+1NC** snap action (Zb)	
Z02 **2NC** snap action (Zb)	
W03 **3NC** slow action (Zb)	

contact type		categories	ratings	operational travel		operating force	positive opening		total travel
				PT1	PT2 (slow action) RP (snap action)	OF	POT (travel)	POF (force)	TT
W02: 2NC	slow action (Zb)	A600-Q600	AC15: 400V - 4A	15°	-	6.5 N	-	-	
Z11: 1NO+1NC **Z02**: 2NC	snap action (Zb)	B600-Q600		18° 18°	3° 2°	5.8 N 5.8 N	- -	- -	-
W03: 3NC	slow action (Zb)	A300-Q300	DC13: 24V - 6A	12°	-	6.5 N	-	-	

GIOVENZANA INTERNATIONAL B.V.

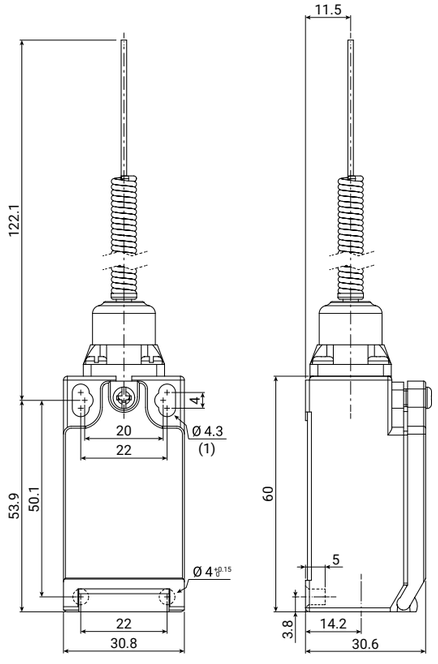
FTN136

Limit switch with CAT'S whisker
IP67

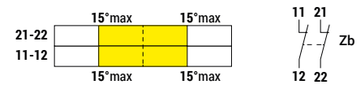
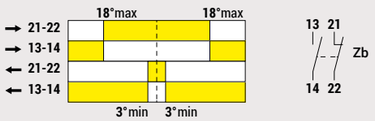
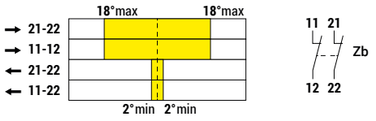
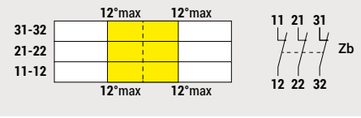


FTN		1		36		XXX		XX	
series		**function**		**actuator**		**contact type**		**conduit entry**	
FTN	thermoplastic limit switch	**1**	without reset function	**36**	CAT'S whisker	**W02**: 2NC	slow action (Zb)	**blank**	M16 × 1.5 (standard)
								M	M20 × 1.5
						Z11: 1NO+1NC **Z02**: 2NC	snap action (Zb)	**N**	1/2" NPT
								G1	PG11
								G3	PG13.5
						W03: 3NC	slow action (Zb)	**C**	male connector "A" M12 × 1

technical drawing - sizes in mm



(1) mounting holes

contact type	operation diagrams
W02 **2NC** slow action (Zb)	
Z11 **1NO+1NC** snap action (Zb)	
Z02 **2NC** snap action (Zb)	
W03 **3NC** slow action (Zb)	

contact type		categories	ratings	operational travel		operating force	positive opening		total travel
				PT1	PT2 (slow action) RP (snap action)	OF	POT (travel)	POF (force)	TT
W02: 2NC	slow action (Zb)	A600-Q600	AC15: 400V - 4A DC13: 24V - 6A	15°	-	6.5 N	-	-	
Z11: 1NO+1NC **Z02**: 2NC	snap action (Zb)	B600-Q600		18° 18°	3° 2°	5.8 N 5.8 N	- -	- -	-
W03: 3NC	slow action (Zb)	A300-Q300		12°	-	6.5 N	-	-	

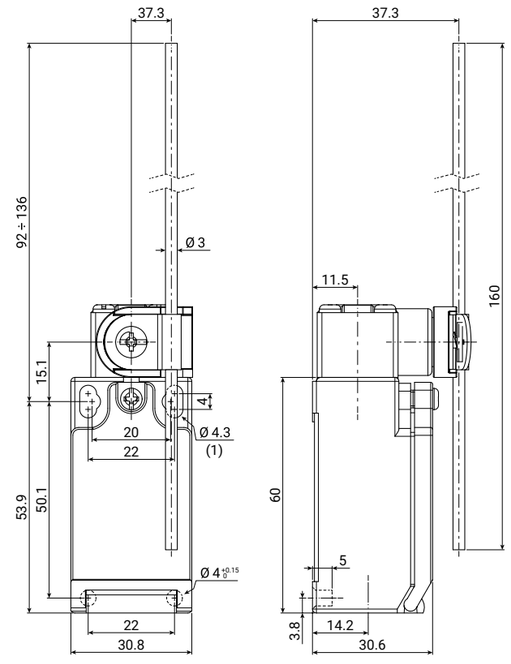
FTN137

Limit switch with adjustable metal rod lever
IP67

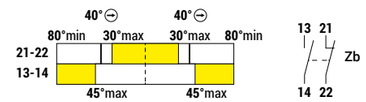
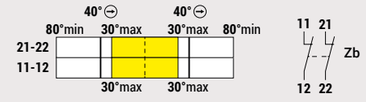
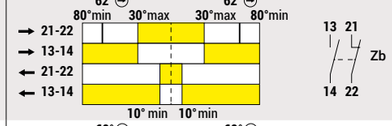
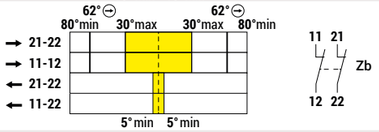
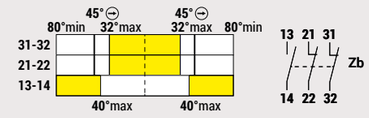
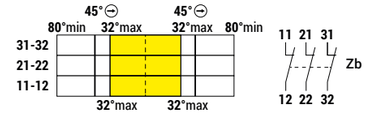


FTN		1		37		XXX		XX	
series		**function**		**actuator**		**contact type**		**conduit entry**	
FTN	thermoplastic limit switch	**1**	without reset function	**37**	adjustable metal rod lever	**X11**: 1NO+1NC **W02**: 2NC **W20**: 2NO	slow action (Zb)	**blank**	M16 × 1.5 (standard)
								M	M20 × 1.5
						Z11: 1NO+1NC **Z02**: 2NC	snap action (Zb)	**N**	1/2" NPT
								G1	PG11
								G3	PG13.5
						W12: 1NO+2NC **W03**: 3NC	slow action (Zb)	**C**	male code "A" M12 × 1 connector

technical drawing - sizes in mm



(1) mounting holes

contact type	operation diagrams
X11 **1NO+1NC** slow action (Zb)	
W02 **2NC** slow action (Zb)	
W20 **2NO** slow action (Zb)	
Z11 **1NO+1NC** snap action (Zb)	
Z02 **2NC** snap action (Zb)	
W12 **1NO+2NC** slow action (Zb)	
W03 **3NC** slow action (Zb)	

contact type		categories	ratings	operational travel		operating force	positive opening		total travel
				PT1	PT2 (slow action) RP (snap action)	OF	POT (travel)	POF (force)	TT
X11: 1NO+1NC **W02**: 2NC **W20**: 2NO	slow action (Zb)	A600-Q600	AC15: 400V - 4A DC13: 24V - 6A	30° 30° 32°	45° - -	1.8 N 1.8 N 1.8 N	40° 40° -	6 N 6 N -	
Z11: 1NO+1NC **Z02**: 2NC	snap action (Zb)	B600-Q600		30° 30°	10° 5°	2.1 N 2.1 N	62° 62°	5.5 N 5.5 N	80°
W12: 1NO+2NC **W03**: 3NC	slow action (Zb)	A300-Q300		32° 32°	40° -	1.8 N 1.8 N	45° 45°	5.4 N 5.4 N	

GIOVENZANA
INTERNATIONAL B.V.

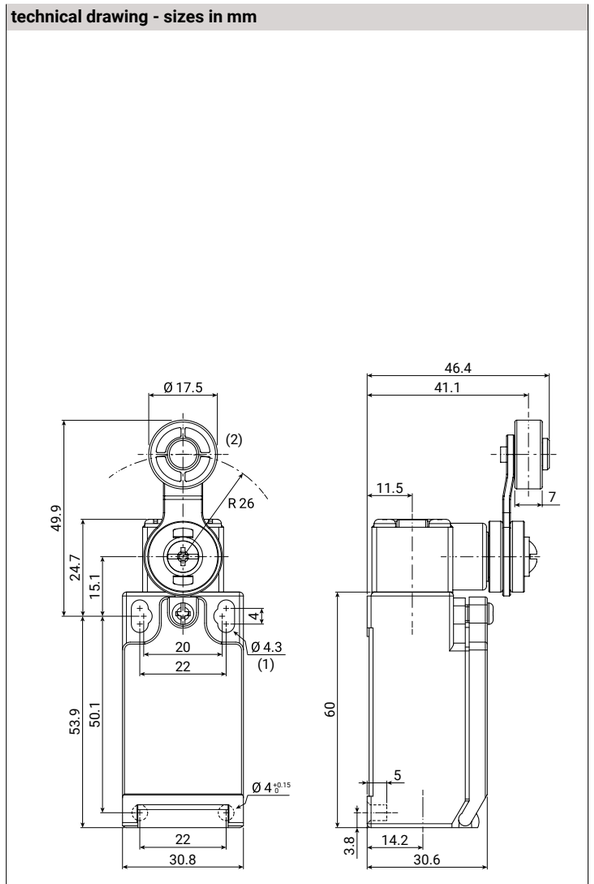
FTN138

Limit switch with Ø18 PA roller lever
IP67

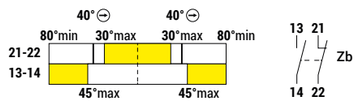
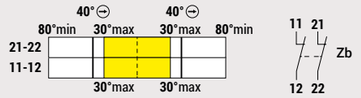
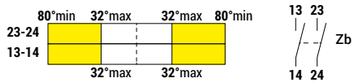
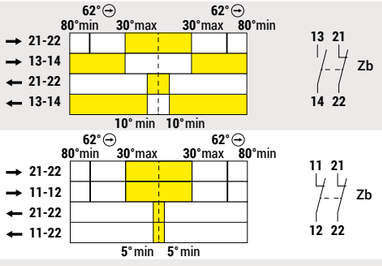
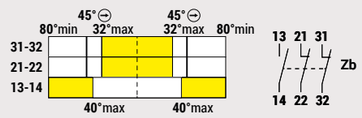
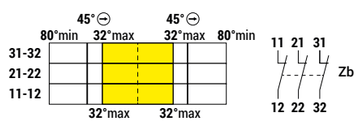


FTN		1		38		XXX		XX	
series		**function**		**actuator**		**contact type**		**conduit entry**	
FTN	thermoplastic limit switch	**1**	without reset function	**38**	Ø18 PA roller lever	**X11**: 1NO+1NC **W02**: 2NC **W20**: 2NO	slow action (Zb)	**blank** **M** **N**	M16 × 1.5 (standard) M20 × 1.5 1/2" NPT
						Z11: 1NO+1NC **Z02**: 2NC	snap action (Zb)	**G1** **G3**	PG11 PG13.5
						W12: 1NO+2NC **W03**: 3NC	slow action (Zb)	**C**	male connector "A" M12 × 1

technical drawing - sizes in mm



(1) mounting holes
(2) PA roller

contact type	operation diagrams
X11 **1NO+1NC** slow action (Zb)	
W02 **2NC** slow action (Zb)	
W20 **2NO** slow action (Zb)	
Z11 **1NO+1NC** snap action (Zb)	
Z02 **2NC** snap action (Zb)	
W12 **1NO+2NC** slow action (Zb)	
W03 **3NC** slow action (Zb)	

contact type		categories	ratings	operational travel		operating force	positive opening		total travel
				PT1	PT2 (slow action) RP (snap action)	OF	POT (travel)	POF (force)	TT
X11: 1NO+1NC **W02**: 2NC **W20**: 2NO	slow action (Zb)	A600-Q600	AC15: 400V - 4A	30° 30° 32°	45° - -	6.5 N 6.5 N 6.5 N	40° 40° -	6 N 6 N -	
Z11: 1NO+1NC **Z02**: 2NC	snap action (Zb)	B600-Q600	DC13: 24V - 6A	30° 30°	10° 5°	2.1 N 2.1 N	62° 62°	5.5 N 5.5 N	80°
W12: 1NO+2NC **W03**: 3NC	slow action (Zb)	A300-Q300		32° 32°	40° -	6.5 N 6.5 N	45° 45°	5.4 N 5.4 N	

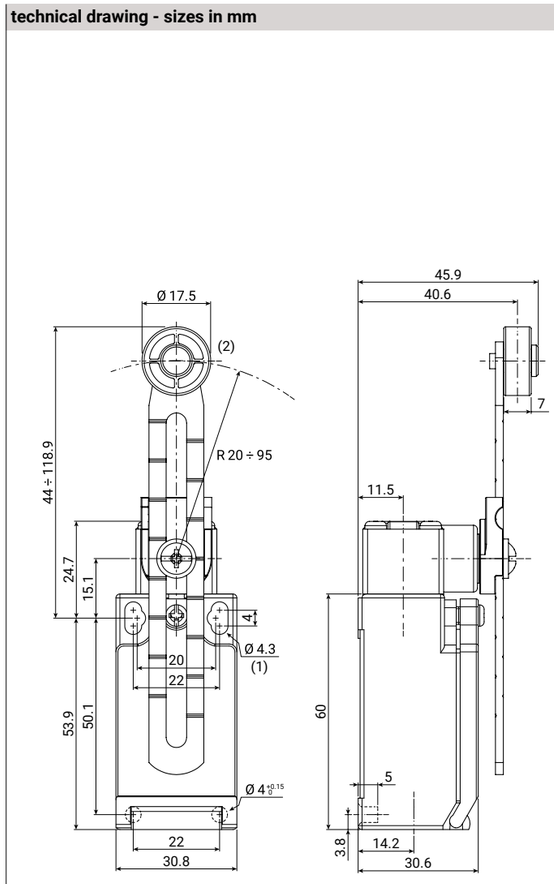
FTN139

Limit switch with Ø18 long PA roller lever with variable length
IP67

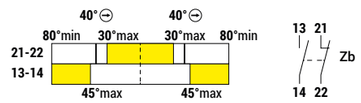
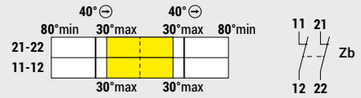
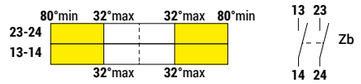
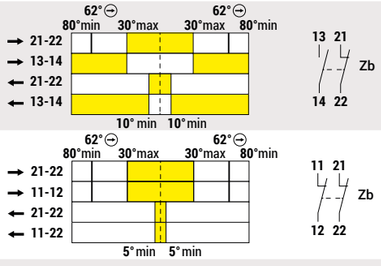
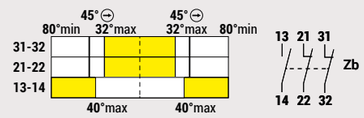


FTN		1		39		XXX		XX	
series		**function**		**actuator**		**contact type**		**conduit entry**	
FTN	thermoplastic limit switch	**1**	without reset function	**39**	Ø18 long PA roller lever with variable length	**X11**: 1NO+1NC **W02**: 2NC **W20**: 2NO	slow action (Zb)	**blank** **M** **N**	M16 × 1.5 (standard) M20 × 1.5 1/2" NPT
						Z11: 1NO+1NC **Z02**: 2NC	snap action (Zb)	**G1** **G3**	PG11 PG13.5
						W12: 1NO+2NC **W03**: 3NC	slow action (Zb)	**C**	male connector "A" M12 × 1

technical drawing - sizes in mm



(1) mounting holes
(2) PA roller

contact type	operation diagrams
X11 **1NO+1NC** slow action (Zb)	
W02 **2NC** slow action (Zb)	
W20 **2NO** slow action (Zb)	
Z11 **1NO+1NC** snap action (Zb)	
Z02 **2NC** snap action (Zb)	
W12 **1NO+2NC** slow action (Zb)	
W03 **3NC** slow action (Zb)	

contact type		categories	ratings	operational travel		operating force	positive opening		total travel
				PT1	PT2 (slow action) RP (snap action)	OF	POT (travel)	POF (force)	TT
X11: 1NO+1NC **W02**: 2NC **W20**: 2NO	slow action (Zb)	A600-Q600	AC15: 400V - 4A	30° 30° 32°	45° - -	6.5 N 6.5 N 6.5 N	40° 40° -	6 N 6 N -	
Z11: 1NO+1NC **Z02**: 2NC	snap action (Zb)	B600-Q600	DC13: 24V - 6A	30° 30°	10° 5°	2.1 N 2.1 N	62° 62°	5.5 N 5.5 N	80°
W12: 1NO+2NC **W03**: 3NC	slow action (Zb)	A300-Q300		32° 32°	40° -	6.5 N 6.5 N	45° 45°	5.4 N 5.4 N	

GIOVENZANA INTERNATIONAL B.V.

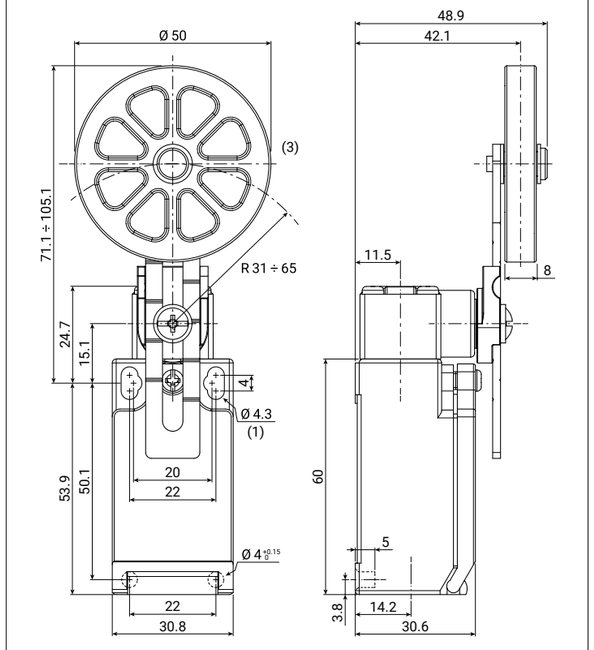
FTN140

Limit switch with Ø50 rubber roller lever with variable length
IP67

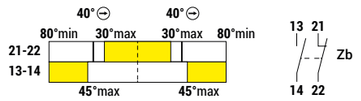
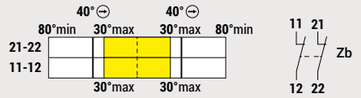
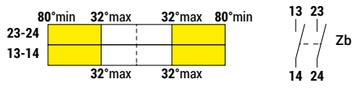
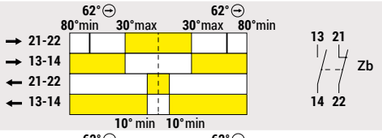
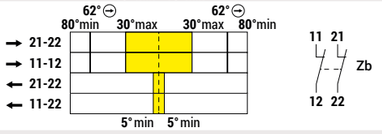
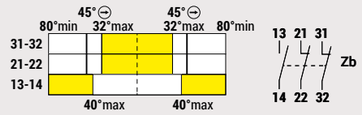
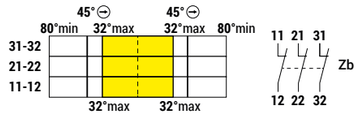


FTN		1		40		XXX		XX	
series		**function**		**actuator**		**contact type**		**conduit entry**	
FTN	thermoplastic limit switch	**1**	without reset function	**40**	Ø50 rubber roller lever with variable length	**X11**: 1NO+1NC **W02**: 2NC **W20**: 2NO	slow action (Zb)	**blank** **M** **N**	M16 × 1.5 (standard) M20 × 1.5 1/2" NPT
						Z11: 1NO+1NC **Z02**: 2NC	snap action (Zb)	**G1** **G3**	PG11 PG13.5
						W12: 1NO+2NC **W03**: 3NC	slow action (Zb)	**C**	male connector "A" M12 × 1

technical drawing - sizes in mm



(1) mounting holes
(3) rubber roller

contact type	operation diagrams
X11 **1NO+1NC** slow action (Zb)	
W02 **2NC** slow action (Zb)	
W20 **2NO** slow action (Zb)	
Z11 **1NO+1NC** snap action (Zb)	
Z02 **2NC** snap action (Zb)	
W12 **1NO+2NC** slow action (Zb)	
W03 **3NC** slow action (Zb)	

contact type		categories	ratings	operational travel		operating force	positive opening		total travel
				PT1	PT2 (slow action) RP (snap action)	OF	POT (travel)	POF (force)	TT
X11: 1NO+1NC	slow action (Zb)	A600-Q600	AC15: 400V - 4A	30°	45°	6.5 N	40°	6 N	
W02: 2NC				30°	-	6.5 N	40°	6 N	
W20: 2NO				32°	-	6.5 N	-	-	
Z11: 1NO+1NC	snap action (Zb)	B600-Q600	DC13: 24V - 6A	30°	10°	2.1 N	62°	5.5 N	80°
Z02: 2NC				30°	5°	2.1 N	62°	5.5 N	
W12: 1NO+2NC	slow action (Zb)	A300-Q300		32°	40°	6.5 N	45°	5.4 N	
W03: 3NC				32°	-	6.5 N	45°	5.4 N	

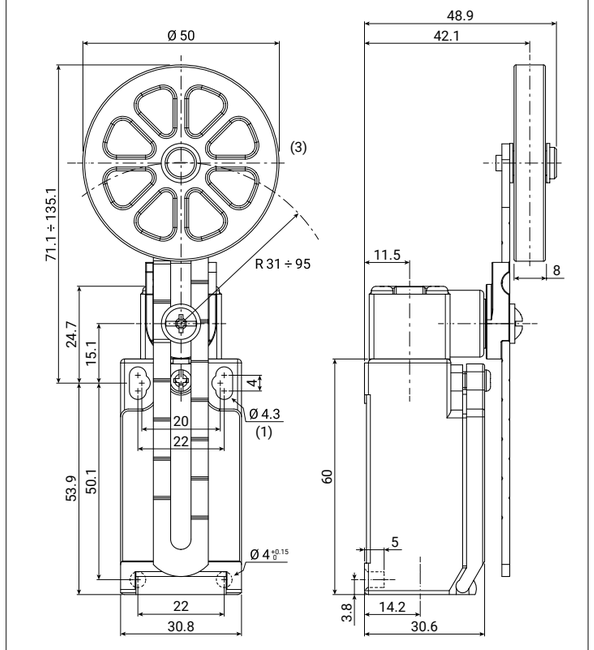
FTN140L

Limit switch with Ø50 long rubber roller lever with variable length
IP67

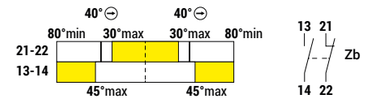
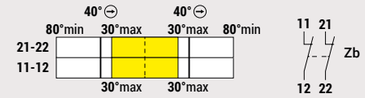
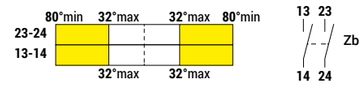
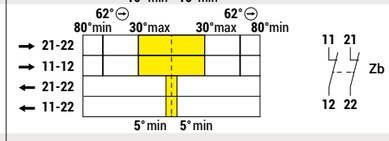
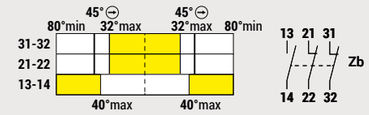


FTN		1		40L		XXX		XX	
series		**function**		**actuator**		**contact type**		**conduit entry**	
FTN	thermoplastic limit switch	**1**	without reset function	**40L**	Ø50 long rubber roller lever with variable length	**X11**: 1NO+1NC **W02**: 2NC **W20**: 2NO	slow action (Zb)	**blank** **M** **N**	M16 × 1.5 (standard) M20 × 1.5 1/2" NPT
						Z11: 1NO+1NC **Z02**: 2NC	snap action (Zb)	**G1** **G3**	PG11 PG13.5
						W12: 1NO+2NC **W03**: 3NC	slow action (Zb)	**C**	male connector "A" M12 × 1

technical drawing - sizes in mm



(1) mounting holes
(3) rubber roller

contact type	operation diagrams
X11 **1NO+1NC** slow action (Zb)	
W02 **2NC** slow action (Zb)	
W20 **2NO** slow action (Zb)	
Z11 **1NO+1NC** snap action (Zb)	
Z02 **2NC** snap action (Zb)	
W12 **1NO+2NC** slow action (Zb)	
W03 **3NC** slow action (Zb)	

contact type		categories	ratings	operational travel		operating force	positive opening		total travel
				PT1	PT2 (slow action) RP (snap action)	OF	POT (travel)	POF (force)	TT
X11: 1NO+1NC	slow action (Zb)	A600-Q600	AC15: 400V - 4A	30°	45°	6.5 N	40°	6 N	
W02: 2NC				30°	-	6.5 N	40°	6 N	
W20: 2NO				32°	-	6.5 N	-	-	
Z11: 1NO+1NC	snap action (Zb)	B600-Q600	DC13: 24V - 6A	30°	10°	2.1 N	62°	5.5 N	80°
Z02: 2NC				30°	5°	2.1 N	62°	5.5 N	
W12: 1NO+2NC	slow action (Zb)	A300-Q300		32°	40°	6.5 N	45°	5.4 N	
W03: 3NC				32°	-	6.5 N	45°	5.4 N	

GIOVENZANA INTERNATIONAL B.V.

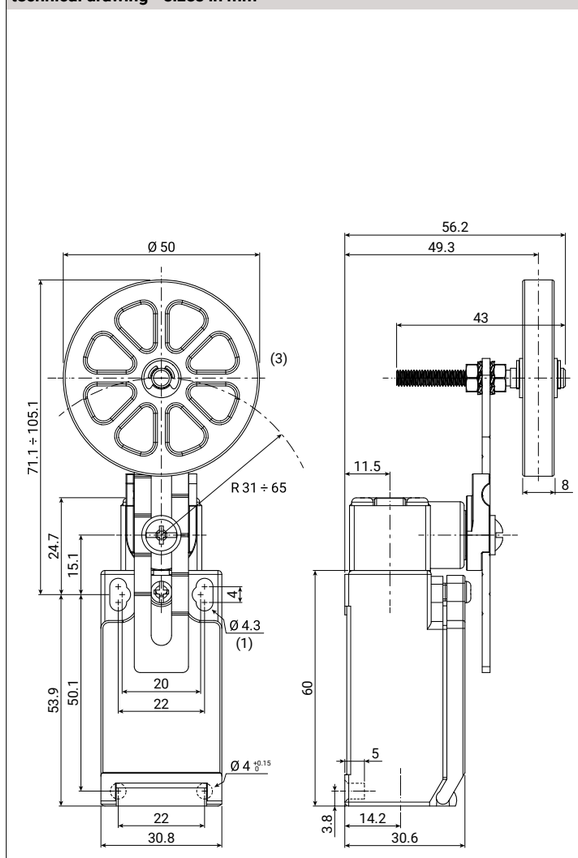
FTN140R

Limit switch with Ø50 rubber roller lever with variable length and overhang
IP67

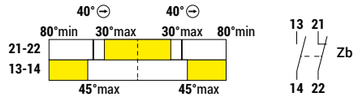
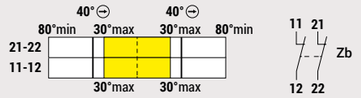
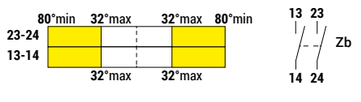
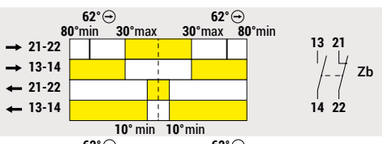
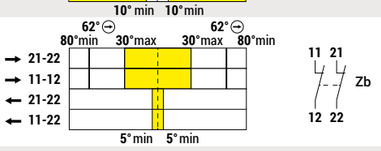
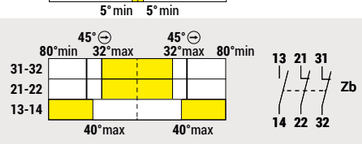
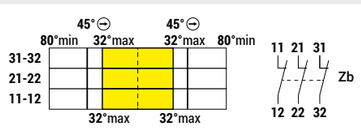


FTN		1		40R		XXX		XX	
series		**function**		**actuator**		**contact type**		**conduit entry**	
FTN	thermoplastic limit switch	**1**	without reset function	**40R**	Ø50 rubber roller lever with variable length and overhang	**X11**: 1NO+1NC **W02**: 2NC **W20**: 2NO	slow action (Zb)	**blank** **M** **N**	M16 × 1.5 (standard) M20 × 1.5 1/2" NPT
						Z11: 1NO+1NC **Z02**: 2NC	snap action (Zb)	**G1** **G3**	PG11 PG13.5
						W12: 1NO+2NC **W03**: 3NC	slow action (Zb)	**C**	male connector "A" M12 × 1

technical drawing - sizes in mm



(1) mounting holes
(3) rubber roller

contact type	operation diagrams
X11 **1NO+1NC** slow action (Zb)	
W02 **2NC** slow action (Zb)	
W20 **2NO** slow action (Zb)	
Z11 **1NO+1NC** snap action (Zb)	
Z02 **2NC** snap action (Zb)	
W12 **1NO+2NC** slow action (Zb)	
W03 **3NC** slow action (Zb)	

contact type		categories	ratings	operational travel		operating force	positive opening		total travel
				PT1	PT2 (slow action) RP (snap action)	OF	POT (travel)	POF (force)	TT
X11: 1NO+1NC	slow action (Zb)	A600-Q600	AC15: 400V - 4A	30°	45°	6.5 N	40°	6 N	
W02: 2NC				30°	-	6.5 N	40°	6 N	
W20: 2NO				32°	-	6.5 N	-	-	
Z11: 1NO+1NC	snap action (Zb)	B600-Q600	DC13: 24V - 6A	30°	10°	2.1 N	62°	5.5 N	80°
Z02: 2NC				30°	5°	2.1 N	62°	5.5 N	
W12: 1NO+2NC	slow action (Zb)	A300-Q300		32°	40°	6.5 N	45°	5.4 N	
W03: 3NC				32°	-	6.5 N	45°	5.4 N	

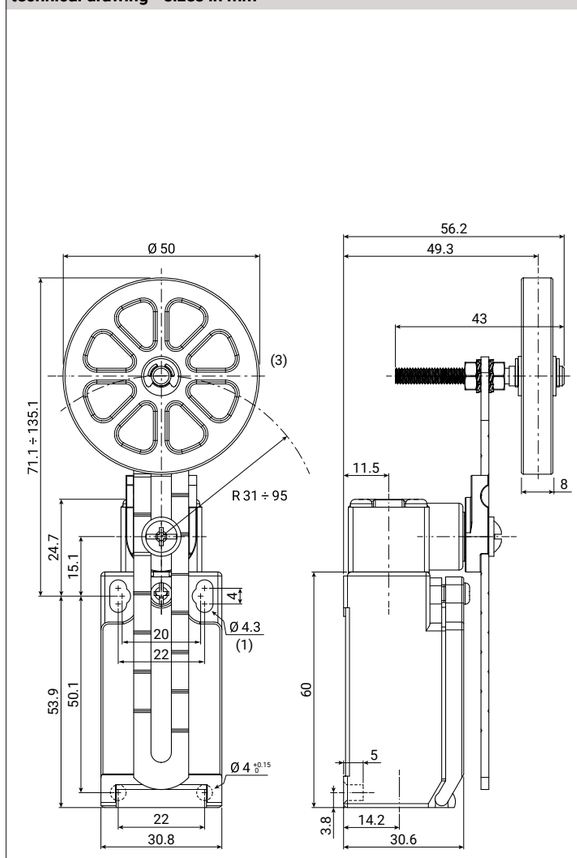
FTN140RL

Limit switch with Ø50 long rubber roller lever with variable length and overhang
IP67

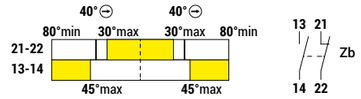
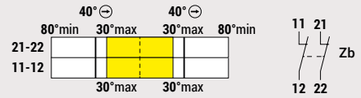
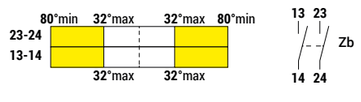
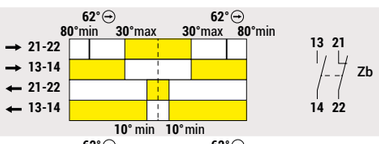
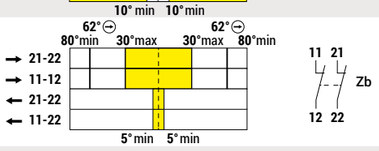
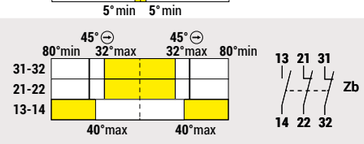
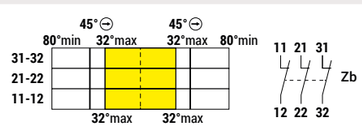


FTN		1		40RL		XXX		XX	
series		**function**		**actuator**		**contact type**		**conduit entry**	
FTN	thermoplastic limit switch	**1**	without reset function	**40RL**	Ø50 long rubber roller lever with variable length and overhang	**X11**: 1NO+1NC **W02**: 2NC **W20**: 2NO	slow action (Zb)	**blank** **M** **N**	M16 × 1.5 (standard) M20 × 1.5 1/2" NPT
						Z11: 1NO+1NC **Z02**: 2NC	snap action (Zb)	**G1** **G3**	PG11 PG13.5
						W12: 1NO+2NC **W03**: 3NC	slow action (Zb)	**C**	male connector "A" M12 × 1

technical drawing - sizes in mm



(1) mounting holes
(3) rubber roller

contact type	operation diagrams
X11 **1NO+1NC** slow action (Zb)	
W02 **2NC** slow action (Zb)	
W20 **2NO** slow action (Zb)	
Z11 **1NO+1NC** snap action (Zb)	
Z02 **2NC** snap action (Zb)	
W12 **1NO+2NC** slow action (Zb)	
W03 **3NC** slow action (Zb)	

contact type		categories	ratings	operational travel		operating force	positive opening		total travel
				PT1	PT2 (slow action) RP (snap action)	OF	POT (travel)	POF (force)	TT
X11: 1NO+1NC	slow action (Zb)	A600-Q600	AC15: 400V - 4A	30°	45°	6.5 N	40°	6 N	
W02: 2NC				30°	-	6.5 N	40°	6 N	
W20: 2NO				32°	-	6.5 N	-	-	
Z11: 1NO+1NC	snap action (Zb)	B600-Q600	DC13: 24V - 6A	30°	10°	2.1 N	62°	5.5 N	80°
Z02: 2NC				30°	5°	2.1 N	62°	5.5 N	
W12: 1NO+2NC	slow action (Zb)	A300-Q300		32°	40°	6.5 N	45°	5.4 N	
W03: 3NC				32°	-	6.5 N	45°	5.4 N	

GIOVENZANA INTERNATIONAL B.V.

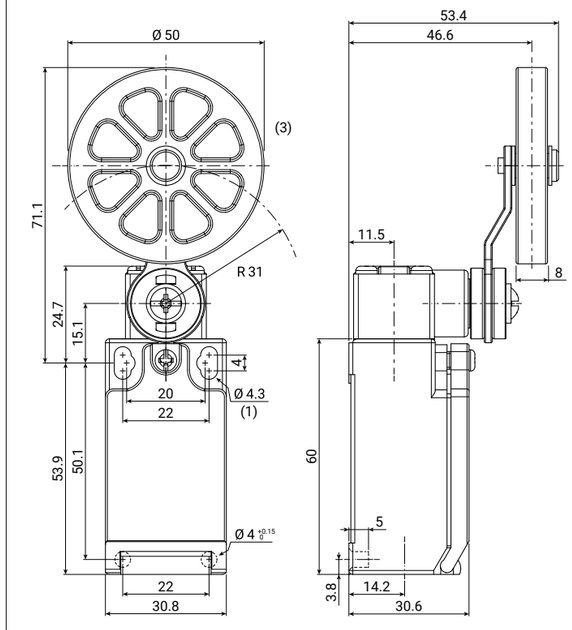
FTN141

Limit switch with Ø50 rubber roller lever
IP67

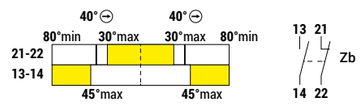
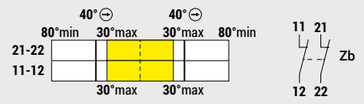
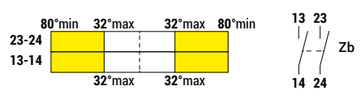
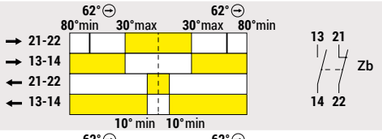
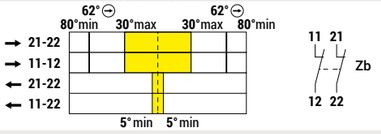
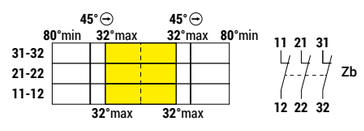


FTN		1		41		XXX		XX	
series		**function**		**actuator**		**contact type**		**conduit entry**	
FTN	thermoplastic limit switch	**1**	without reset function	**41**	Ø50 rubber roller lever	**X11**: 1NO+1NC **W02**: 2NC **W20**: 2NO	slow action (Zb)	**blank** **M** **N** **G1** **G3** **C**	M16 × 1.5 (standard) M20 × 1.5 1/2" NPT PG11 PG13.5 male connector "A" M12 × 1
						Z11: 1NO+1NC **Z02**: 2NC	snap action (Zb)		
						W12: 1NO+2NC **W03**: 3NC	slow action (Zb)		

technical drawing - sizes in mm



(1) mounting holes
(3) rubber roller

contact type	operation diagrams
X11 **1NO+1NC** slow action (Zb)	
W02 **2NC** slow action (Zb)	
W20 **2NO** slow action (Zb)	
Z11 **1NO+1NC** snap action (Zb)	
Z02 **2NC** snap action (Zb)	
W12 **1NO+2NC** slow action (Zb)	
W03 **3NC** slow action (Zb)	

contact type		categories	ratings	operational travel		operating force	positive opening		total travel
				PT1	PT2 (slow action) RP (snap action)	OF	POT (travel)	POF (force)	TT
X11: 1NO+1NC **W02**: 2NC **W20**: 2NO	slow action (Zb)	A600-Q600	AC15: 400V - 4A DC13: 24V - 6A	30° 30° 32°	45° - -	6.5 N 6.5 N 6.5 N	40° 40° -	6 N 6 N -	80°
Z11: 1NO+1NC **Z02**: 2NC	snap action (Zb)	B600-Q600		30° 30°	10° 5°	2.1 N 2.1 N	62° 62°	5.5 N 5.5 N	
W12: 1NO+2NC **W03**: 3NC	slow action (Zb)	A300-Q300		32° 32°	40° -	6.5 N 6.5 N	45° 45°	5.4 N 5.4 N	

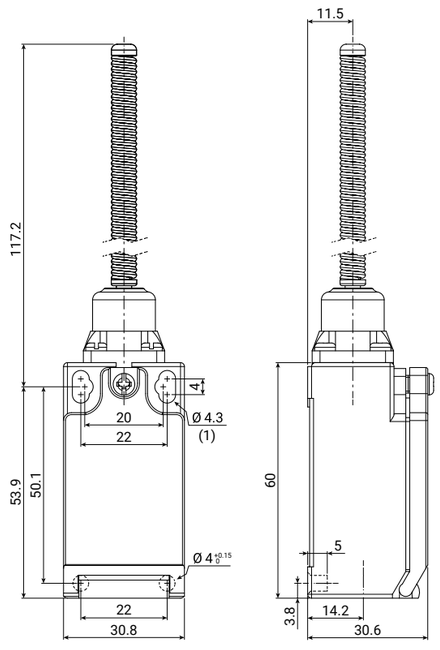
FTN142

Limit switch with wobble stick
IP67

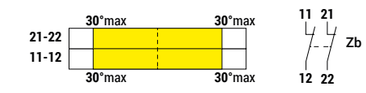
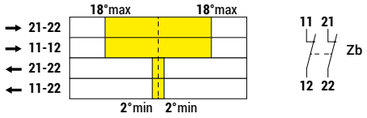
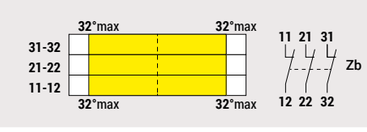


FTN		1		42		XXX		XX	
series		**function**		**actuator**		**contact type**		**conduit entry**	
FTN	thermoplastic limit switch	**1**	without reset function	**42**	wobble stick	**W02**: 2NC	slow action (Zb)	**blank** **M** **N** **G1** **G3** **C**	M16 × 1.5 (standard) M20 × 1.5 1/2" NPT PG11 PG13.5 male connector "A" M12 × 1
						Z11: 1NO+1NC **Z02**: 2NC	snap action (Zb)		
						W03: 3NC	slow action (Zb)		

technical drawing - sizes in mm



(1) mounting holes

contact type	operation diagrams
W02 **2NC** slow action (Zb)	
Z11 **1NO+1NC** snap action (Zb)	
Z02 **2NC** snap action (Zb)	
W03 **3NC** slow action (Zb)	

contact type		categories	ratings	operational travel		operating force	positive opening		total travel
				PT1	PT2 (slow action) RP (snap action)	OF	POT (travel)	POF (force)	TT
W02: 2NC	slow action (Zb)	A600-Q600	AC15: 400V - 4A DC13: 24V - 6A	30°	-	6.5 N	-	-	-
Z11: 1NO+1NC **Z02**: 2NC	snap action (Zb)	B600-Q600		18° 18°	3° 2°	5.8 N 5.8 N	-	-	-
W03: 3NC	slow action (Zb)	A300-Q300		32°	-	6.5 N	-	-	

GIOVENZANA INTERNATIONAL B.V.

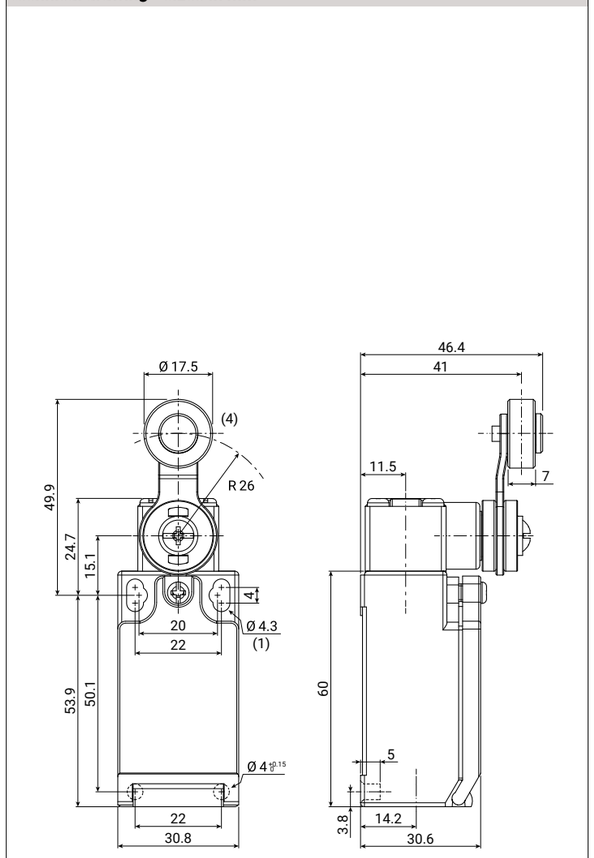
FTN143

Limit switch with Ø18 metal roller lever
IP67



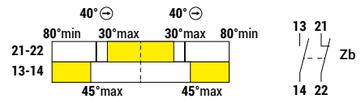
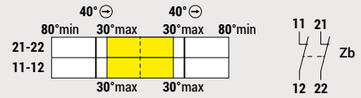
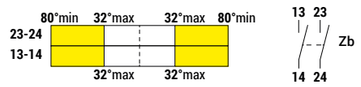
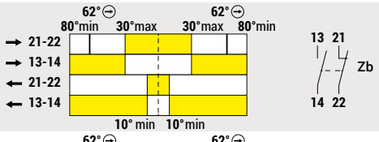
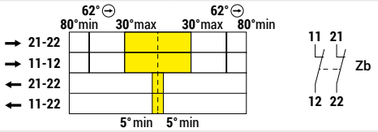
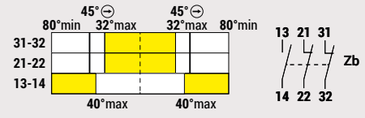
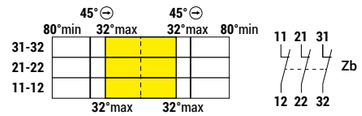
FTN		1		43		XXX		XX	
series		**function**		**actuator**		**contact type**		**conduit entry**	
FTN	thermoplastic limit switch	**1**	without reset function	**43**	Ø18 metal roller lever	**X11**: 1NO+1NC **W02**: 2NC **W20**: 2NO	slow action (Zb)	**blank** **M** **N**	M16 × 1.5 (standard) M20 × 1.5 1/2" NPT
						Z11: 1NO+1NC **Z02**: 2NC	snap action (Zb)	**G1** **G3**	PG11 PG13.5
						W12: 1NO+2NC **W03**: 3NC	slow action (Zb)	**C**	male connector "A" M12 × 1

technical drawing - sizes in mm



(1) mounting holes
(4) metal roller

contact type		categories	ratings	operational travel		operating force	positive opening		total travel
				PT1	PT2 (slow action) RP (snap action)	OF	POT (travel)	POF (force)	TT
X11: 1NO+1NC **W02**: 2NC **W20**: 2NO	slow action (Zb)	A600-Q600	AC15: 400V - 4A	30° 30° 32°	45° - -	6.5 N 6.5 N 6.5 N	40° 40° -	6 N 6 N -	
Z11: 1NO+1NC **Z02**: 2NC	snap action (Zb)	B600-Q600	DC13: 24V - 6A	30° 30°	10° 5°	2.1 N 2.1 N	62° 62°	5.5 N 5.5 N	80°
W12: 1NO+2NC **W03**: 3NC	slow action (Zb)	A300-Q300		32° 32°	40° -	6.5 N 6.5 N	45° 45°	5.4 N 5.4 N	

contact type	operation diagrams
X11 **1NO+1NC** slow action (Zb)	
W02 **2NC** slow action (Zb)	
W20 **2NO** slow action (Zb)	
Z11 **1NO+1NC** snap action (Zb)	
Z02 **2NC** snap action (Zb)	
W12 **1NO+2NC** slow action (Zb)	
W03 **3NC** slow action (Zb)	

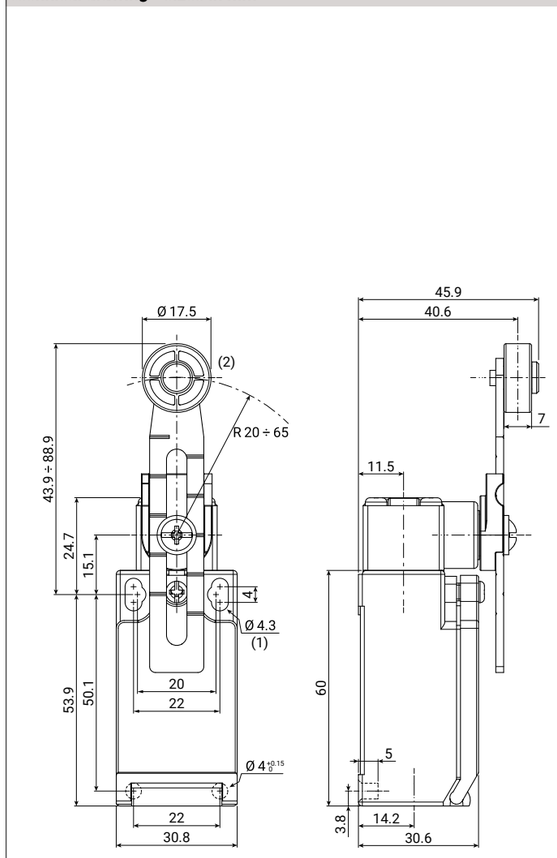
FTN144

Limit switch with Ø18 PA roller lever with variable length
IP67



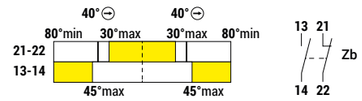
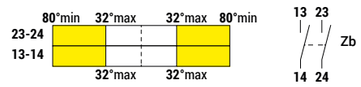
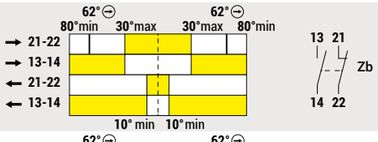
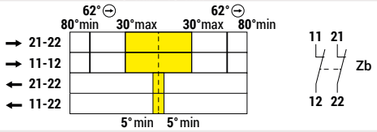
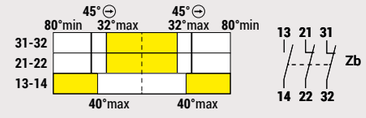
FTN		1		44		XXX		XX	
series		**function**		**actuator**		**contact type**		**conduit entry**	
FTN	thermoplastic limit switch	**1**	without reset function	**44**	Ø18 PA roller lever with variable length	**X11**: 1NO+1NC **W02**: 2NC **W20**: 2NO	slow action (Zb)	**blank** **M** **N**	M16 × 1.5 (standard) M20 × 1.5 1/2" NPT
						Z11: 1NO+1NC **Z02**: 2NC	snap action (Zb)	**G1** **G3**	PG11 PG13.5
						W12: 1NO+2NC **W03**: 3NC	slow action (Zb)	**C**	male connector "A" M12 × 1

technical drawing - sizes in mm



(1) mounting holes
(2) PA roller

contact type		categories	ratings	operational travel		operating force	positive opening		total travel
				PT1	PT2 (slow action) RP (snap action)	OF	POT (travel)	POF (force)	TT
X11: 1NO+1NC **W02**: 2NC **W20**: 2NO	slow action (Zb)	A600-Q600	AC15: 400V - 4A	30° 30° 32°	45° - -	6.5 N 6.5 N 6.5 N	40° 40° -	6 N 6 N -	
Z11: 1NO+1NC **Z02**: 2NC	snap action (Zb)	B600-Q600	DC13: 24V - 6A	30° 30°	10° 5°	2.1 N 2.1 N	62° 62°	5.5 N 5.5 N	80°
W12: 1NO+2NC **W03**: 3NC	slow action (Zb)	A300-Q300		32° 32°	40° -	6.5 N 6.5 N	45° 45°	5.4 N 5.4 N	

contact type	operation diagrams
X11 **1NO+1NC** slow action (Zb)	
W02 **2NC** slow action (Zb)	
W20 **2NO** slow action (Zb)	
Z11 **1NO+1NC** snap action (Zb)	
Z02 **2NC** snap action (Zb)	
W12 **1NO+2NC** slow action (Zb)	
W03 **3NC** slow action (Zb)	

GIOVENZANA
INTERNATIONAL B.V.

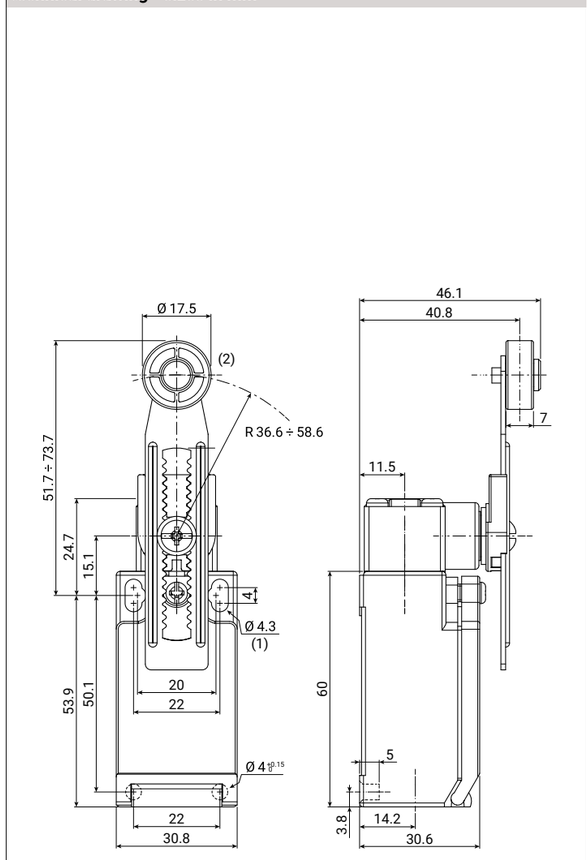
FTN144S

Limit switch with Ø18 PA roller lever with variable sawtooth length (step: 2.2 mm)
IP67

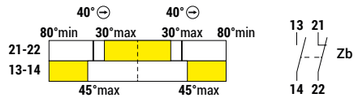
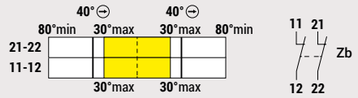
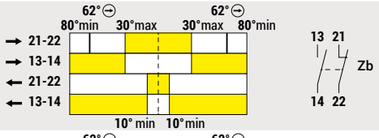
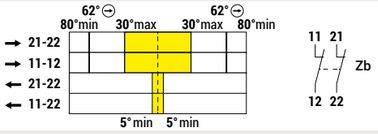
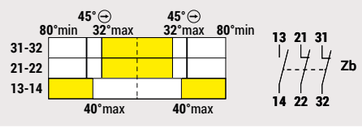
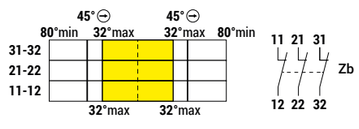


FTN		1		44S		XXX		XX	
series		**function**		**actuator**		**contact type**		**conduit entry**	
FTN	thermoplastic limit switch	**1**	without reset function	**44S**	Ø18 PA roller lever with variable sawtooth length (step: 2.2 mm)	**X11:** 1NO+1NC **W02:** 2NC **W20:** 2NO	slow action (Zb)	**blank** **M** **N** **G1** **G3** **C**	M16 × 1.5 (standard) M20 × 1.5 1/2" NPT PG11 PG13.5 male connector "A" M12 × 1
						Z11: 1NO+1NC **Z02:** 2NC	snap action (Zb)		
						W12: 1NO+2NC **W03:** 3NC	slow action (Zb)		

technical drawing - sizes in mm



(1) mounting holes
(2) PA roller

contact type	operation diagrams
X11 **1NO+1NC** slow action (Zb)	
W02 **2NC** slow action (Zb)	
W20 **2NO** slow action (Zb)	
Z11 **1NO+1NC** snap action (Zb)	
Z02 **2NC** snap action (Zb)	
W12 **1NO+2NC** slow action (Zb)	
W03 **3NC** slow action (Zb)	

contact type		categories	ratings	operational travel		operating force	positive opening		total travel
				PT1	PT2 (slow action) RP (snap action)	OF	POT (travel)	POF (force)	TT
X11: 1NO+1NC **W02:** 2NC **W20:** 2NO	slow action (Zb)	A600-Q600	AC15: 400V - 4A	30° 30° 32°	45° - -	6.5 N 6.5 N 6.5 N	40° 40° -	6 N 6 N -	80°
Z11: 1NO+1NC **Z02:** 2NC	snap action (Zb)	B600-Q600	DC13: 24V - 6A	30° 30°	10° 5°	2.1 N 2.1 N	62° 62°	5.5 N 5.5 N	
W12: 1NO+2NC **W03:** 3NC	slow action (Zb)	A300-Q300		32° 32°	40° -	6.5 N 6.5 N	45° 45°	5.4 N 5.4 N	

FTN146

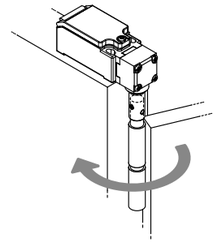
Safety-door hinge switch
IP65



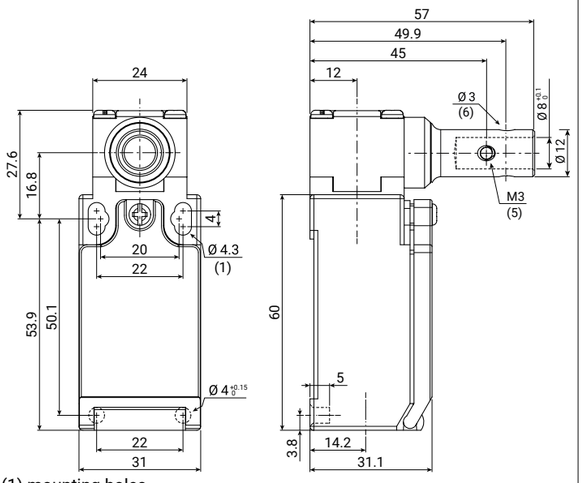
FTN		1		46		XXX		XX	
series		**function**		**actuator**		**contact type**		**conduit entry**	
FTN	thermoplastic limit switch	**1**	without reset function	**46**	safety-door hinge switch	**X11:** 1NO+1NC **W02:** 2NC **W20:** 2NO **W12:** 1NO+2NC **W03:** 3NC	slow action (Zb)	**blank** **M** **N** **G1** **G3** **C**	M16 × 1.5 (standard) M20 × 1.5 1/2" NPT PG11 PG13.5 male connector "A" M12 × 1

FTN146
Safety-door hinge switch - shaft type

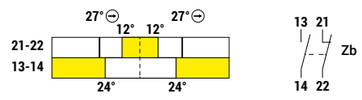
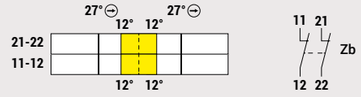
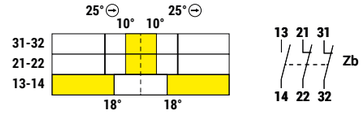
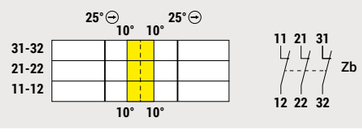
Where an attempt is made to open a protected door or flap during operation, the **FTN146** hinge switch immediately cuts off the power supply to the machine or system.



technical drawing - sizes in mm



(1) mounting holes
(5) 2 × M3 grub screws included
(6) spring pin not included

contact type	operation diagrams
X11 **1NO+1NC** slow action (Zb)	
W02 **2NC** slow action (Zb)	
W12 **1NO+2NC** slow action (Zb)	
W03 **3NC** slow action (Zb)	

contact type		categories	ratings	operational travel		operating force	positive opening		total travel
				PT1	PT2 (slow action) RP (snap action)	OF	POT (travel)	POF (force)	TT
X11: 1NO+1NC	slow action (Zb)	A600-Q600	AC15: 400V - 4A	10°	20°	0.06 N·m	25°	0.12 N·m	-
W02: 2NC				10°	-	0.06 N·m	25°	0.12 N·m	
W12: 1NO+2NC		A300-Q300	DC13: 24V - 6A	10°	20°	0.05 N·m	25°	0.12 N·m	
W03: 3NC				10°	-	0.05 N·m	25°	0.12 N·m	

GIOVENZANA
INTERNATIONAL B.V.

FTN198

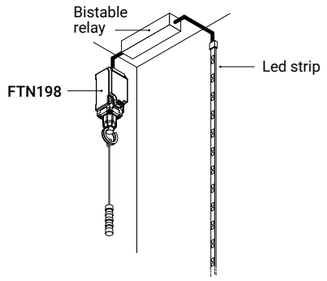
Limit switch with rope pull lever
IP67



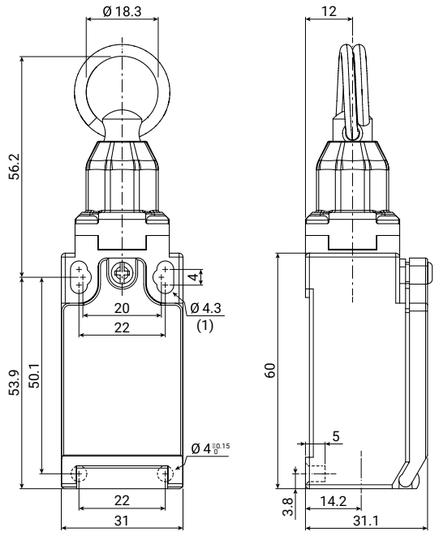
FTN		1		98		XXX		XX	
series		**function**		**actuator**		**contact type**		**conduit entry**	
FTN	thermoplastic limit switch	1	without reset function	98	rope pull lever	**X11**: 1NO+1NC **W02**: 2NC **W20**: 2NO	slow action (Zb)	**blank** **M** **N**	M16 × 1.5 (standard) M20 × 1.5 1/2" NPT
						Z11: 1NO+1NC **Z02**: 2NC	snap action (Zb)	**G1** **G3**	PG11 PG13.5
						W12: 1NO+2NC **W03**: 3NC	slow action (Zb)	**C**	male connector "A" M12 × 1

The **FTN198** hasn't a maintained operating mode.

This means that a bistable relay must be inserted into the system to maintain the position.

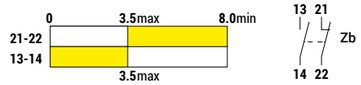
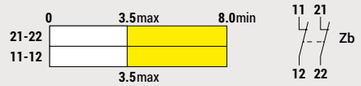
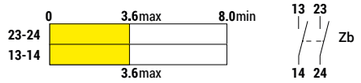
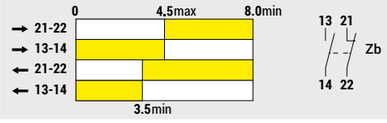
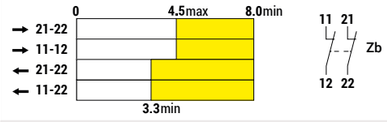
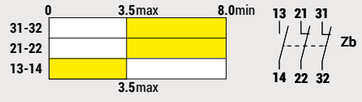
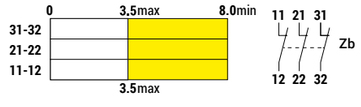


technical drawing - sizes in mm



(1) mounting holes

contact type		categories	ratings	operational travel PT1	operational travel PT2 (slow action) RP (snap action)	operating force OF	positive opening POT (travel)	positive opening POF (force)	total travel TT
X11: 1NO+1NC **W02**: 2NC **W20**: 2NO	slow action (Zb)	A600-Q600	AC15: 400V - 4A DC13: 24V - 6A	3.5 mm 3.5 mm 3.6 mm	- - 3.6 mm	20 N 20 N 20 N	- - -	- - -	8.0 mm
Z11: 1NO+1NC **Z02**: 2NC	snap action (Zb)	B600-Q600		4.5 mm 4.5 mm	3.5 mm 3.3 mm	20 N 20 N	- -	- -	
W12: 1NO+2NC **W03**: 3NC	slow action (Zb)	A300-Q300		3.5 mm 3.5 mm	- -	20 N 20 N	- -	- -	

contact type	operation diagrams
X11 **1NO+1NC** slow action (Zb)	
W02 **2NC** slow action (Zb)	
W20 **2NO** slow action (Zb)	
Z11 **1NO+1NC** snap action (Zb)	
Z02 **2NC** snap action (Zb)	
W12 **1NO+2NC** slow action (Zb)	
W03 **3NC** slow action (Zb)	

Description

The **FTN198** switch is specifically designed to control lights in the elevator shaft. The EN 81-20 standard in paragraph 5.2.1.5 states that a light switch must be provided in the pit, near to each access point and in the engine room.
The FTN198 switch allows the compartment lights to be switched through a single wiring harness, without the need to install lighting points with related wiring on each floor.

Installation

The **FTN198** switch is fixed at the top of the elevator shaft and its switching is controlled by a rope running the length of the shaft near the cabin. At regular intervals, function indicators are fixed at each floor, which make the rope and the light switching operation clearly visible. The last indicator at the end of the rope has a weight inside to keep the rope extended. The operator on the roof of the cabin compartment or at any position along the elevator shaft can operate the switch by pulling the handy indicator to turn the lights in the shaft on or off.

Accessories



Function indicator for rope
Tightening torque of the locking screws > 0.8 ... 1.0 Nm

A **FTN198-KNOB**
Function intermediate indicator for rope
B **FTN198-KNOBT**
Function terminal indicator for rope



Rope roll
Galvanized steel rope ø3mm covered with transparent PVC

C **FTN198-ROPE-050**
Galvanized steel rope covered in PVC Ø3mm - L = 50m
C **FTN198-ROPE-100**
Galvanized steel rope covered in PVC Ø3mm - L = 100m

Steel rope clamp



D **11001003**
End clamp for steel wire rope

Operation

The **FTN198** switch has no maintained position operation mode. This means that a bistable relay must be inserted into the system to maintain the position. To switch on the light in the lift shaft, simply pull the cable, and to switch it off simply repeat the operation.

