

### FTNG SERIES



The 40 mm **FTNG series** of thermoplastic limit switches conforms to EN 50041 and is 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 also suitable for safety applications.

The thermoplastic bodies have four fixing holes at a distance of 30 × 60 mm and a hole for the cable input/output at the bottom of the switch.

The maximum product versatility is guaranteed by the easy orientation of the actuator heads in 90° steps and the possibility of adjusting the levers every 18° for 360°.

They are particularly suitable **for heavy applications**, thanks to the solidity of the steel parts, head and lid fixed by threaded inserts and metric screws. The fixing is prepared for 4 M5 screws.

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**.

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

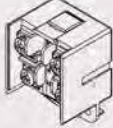

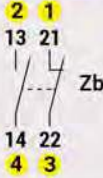

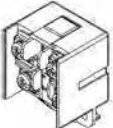

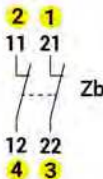

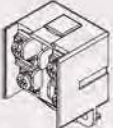
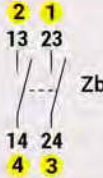

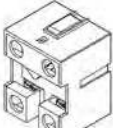

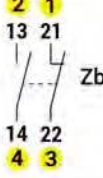



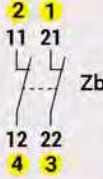



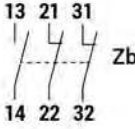


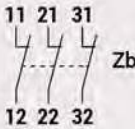
Giovenzana limit switches offer solutions for every need and are suitable for the most varied sectors of use.



### SPECIFICATIONS

Standards		EN 60947-5-1, UL 508, EN 50041, EN 1088, EN 60204-1
Approvals		cULus, EAC, CCC, CE and UKCA marked for all applicable directives
Positive opening operation		NC contacts conforming to IEC /EN 60947-5-1 ☺
Minimum current		5 mA - 5 V DC
Thermal current	I <sub>th</sub>	10 A
Rated insulation voltage	U <sub>i</sub>	500 V
Rated impulse withstand voltage	U <sub>imp</sub>	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
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 <sup>7</sup> 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. 75)
Fixing		4 × M5 screws

## CONTACT ELEMENT - SPECIFICATIONS

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



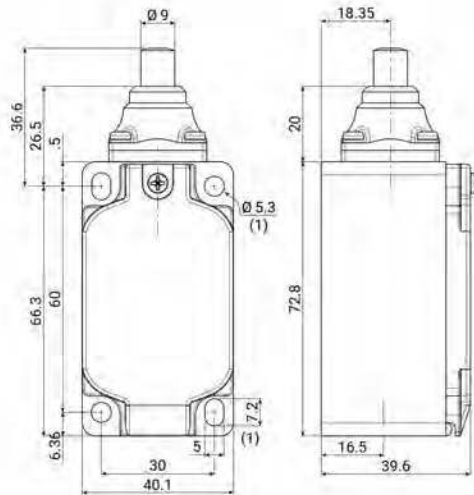


## FTNG131

Limit switch with metal end plunger  
IP67

FTNG series		1 function		31 actuator		XXX contact type		XX conduit entry	
FTNG	40 mm thermoplastic limit switches for heavy applications	1	without reset function	31	metal end plunger	X11: 1NO+1NC W02: 2NC W20: 2NO	slow action (Zb)	blank N G3 C	M20 x 1.5 (standard) 1/2" NPT PG13.5 male connector "A" M12 x 1
						Z11: 1NO+1NC Z02: 2NC W12: 1NO+2NC W03: 3NC	snap action (Zb) slow action (Zb)		

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)		POT (travel)	POF (force)	
X11: 1NO+1NC W02: 2NC W20: 2NO	A600-Q600	AC15: 400V - 4A	2.6 mm	3.8 mm	11.6 N	6.0 mm	28 N	7.0 mm
Z11: 1NO+1NC Z02: 2NC	B600-Q600	DC13: 24V - 6A	2.5 mm	1.2 mm	10.4 N	4.9 mm	22 N	
W12: 1NO+2NC W03: 3NC	A300-Q300		2.5 mm	1.2 mm	8.6 N	4.9 mm	22 N	
			2.8 mm	3.5 mm	9.4 N	5.0 mm	10 N	
			2.8 mm	-	9.4 N	5.0 mm	10 N	
			2.8 mm	-	9.4 N	5.0 mm	10 N	

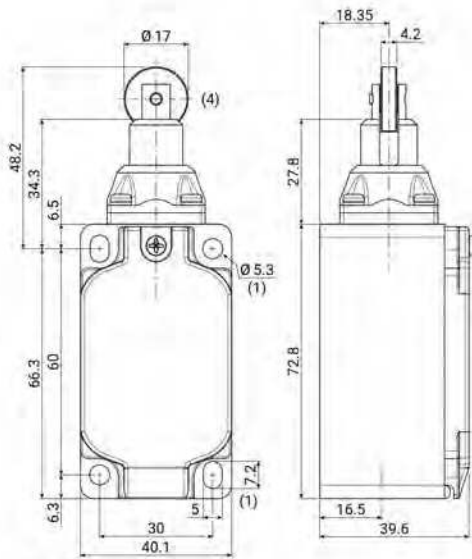


## FTNG134

Limit switch with steel roller plunger  
IP67

FTNG series		1 function		34 actuator		XXX contact type		XX conduit entry	
FTNG	40 mm thermoplastic limit switches for heavy applications	1	without reset function	34	steel roller plunger	X11: 1NO+1NC W02: 2NC W20: 2NO	slow action (Zb)	blank N G3 C	M20 × 1.5 (standard) 1/2" NPT 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

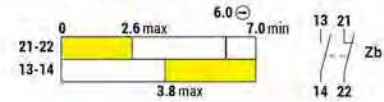


(1) mounting holes  
(4) steel roller

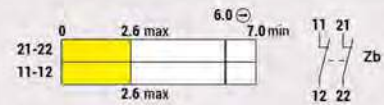
contact type

operation diagrams

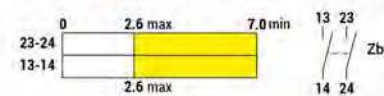
X11  
1NO+1NC  
slow action  
(Zb)



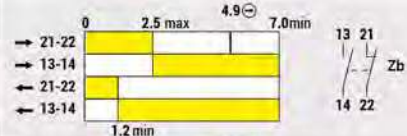
W02  
2NC  
slow action  
(Zb)



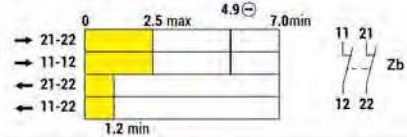
W20  
2NO  
slow action  
(Zb)



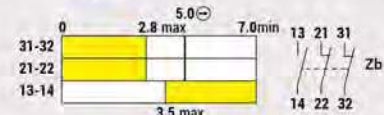
Z11  
1NO+1NC  
snap action  
(Zb)



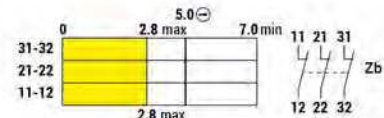
Z02  
2NC  
snap action  
(Zb)



W12  
1NO+2NC  
slow action  
(Zb)



W03  
3NC  
slow action  
(Zb)



contact type	categories	ratings	operational travel		operating force OF	positive opening		total travel TT
			PT1	PT2 (slow action) RP (snap action)		POT (travel)	POF (force)	
X11: 1NO+1NC W02: 2NC W20: 2NO	A600-Q600	AC15: 400V - 4A	2.6 mm	3.8 mm	11.6 N	6.0 mm	28 N	7.0 mm
Z11: 1NO+1NC Z02: 2NC			2.6 mm	-	11.6 N	6.0 mm	28 N	
W12: 1NO+2NC W03: 3NC			2.6 mm	-	11.4 N	-	-	
	B600-Q600	DC13: 24V - 6A	2.5 mm	1.2 mm	10.4 N	4.9 mm	22 N	
			2.5 mm	1.2 mm	8.6 N	4.9 mm	22 N	
	A300-Q300		2.8 mm	3.5 mm	9.4 N	5.0 mm	10 N	
			2.8 mm	-	9.4 N	5.0 mm	10 N	



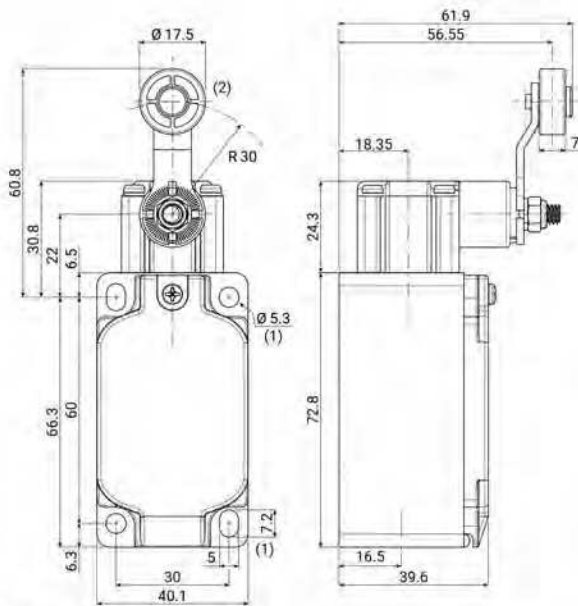


## FTNG138

Limit switch with Ø18 PA roller lever  
IP67

FTNG series		1 function		38 actuator		XXX contact type		XX conduit entry	
FTNG	40 mm thermoplastic limit switches for heavy applications	1	without reset function	38	Ø18 PA roller lever	X11: 1NO+1NC W02: 2NC W20: 2NO	slow action (Zb)	blank N G3 C	M20 × 1.5 (standard) 1/2" NPT 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

<b>X11</b> 1NO+1NC slow action (Zb)		
<b>W02</b> 2NC slow action (Zb)		
<b>W20</b> 2NO slow action (Zb)		
<b>Z11</b> 1NO+1NC snap action (Zb)		
<b>Z02</b> 2NC snap action (Zb)		
<b>W12</b> 1NO+2NC slow action (Zb)		
<b>W03</b> 3NC slow action (Zb)		

contact type	categories	ratings	operational travel		operating force	positive opening		total travel
			PT1	PT2 (slow action) RP (snap action)		POT (travel)	POF (force)	
X11: 1NO+1NC W02: 2NC W20: 2NO	A600-Q600	AC15: 400V - 4A	33°	45°	6.5 N	45°	8.5 N	80°
Z11: 1NO+1NC Z02: 2NC			33°	-	6.5 N	45°	8.5 N	
W12: 1NO+2NC W03: 3NC	B600-Q600	DC13: 24V - 6A	35°	15°	5.5 N	65°	13.2 N	
			35°	15°	5.5 N	65°	13.2 N	
	A300-Q300		35°	42°	6.5 N	50°	8 N	
			35°	-	6.5 N	50°	8 N	

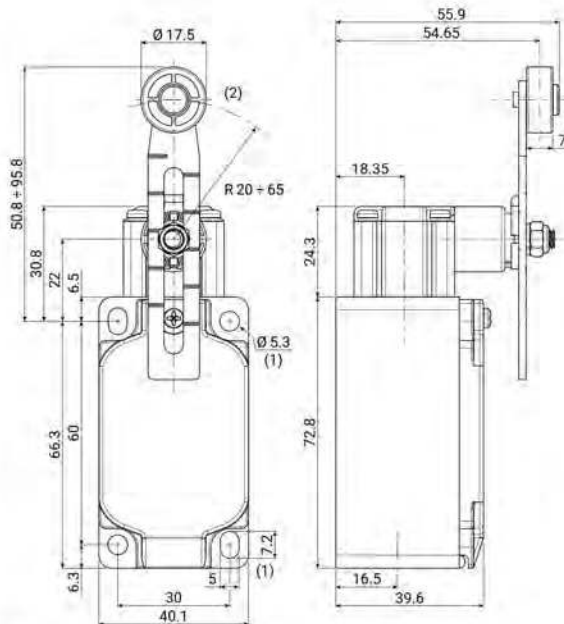


## FTNG139

Limit switch with Ø18 PA roller lever with variable length  
IP67

FTNG series	1 function	39 actuator	XXX contact type	XX conduit entry
FTNG	40 mm thermoplastic limit switches for heavy applications	1 without reset function	39 Ø18 PA roller lever with variable length	
			X11: 1NO+1NC W02: 2NC W20: 2NO	blank N 1/2" NPT G3 PG13.5 C male connector "A" M12 x 1
			Z11: 1NO+1NC Z02: 2NC	
			slow action (Zb)	
			snap action (Zb)	
			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)		POT (travel)	POF (force)	
X11: 1NO+1NC W02: 2NC W20: 2NO	A600-Q600	AC15: 400V - 4A	33°	45°	6.5 N	45°	8.5 N	80°
Z11: 1NO+1NC Z02: 2NC	B600-Q600	DC13: 24V - 6A	35°	15°	5.5 N	65°	13.2 N	
W12: 1NO+2NC W03: 3NC	A300-Q300		35°	42°	6.5 N	50°	8 N	
			35°	-	6.5 N	50°	8 N	
			33°	-	6.5 N	45°	8.5 N	
			33°	-	6.5 N	-	-	



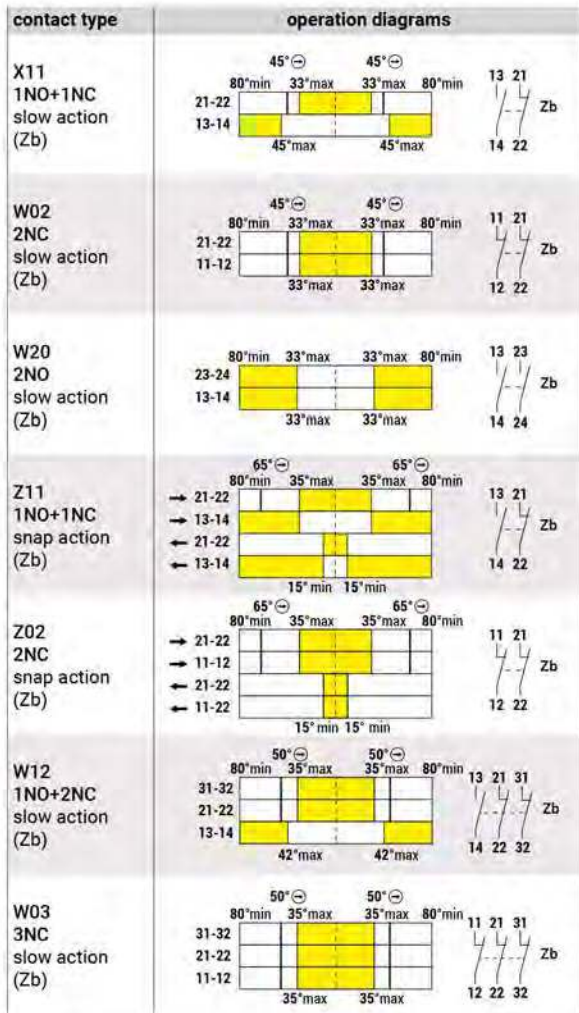
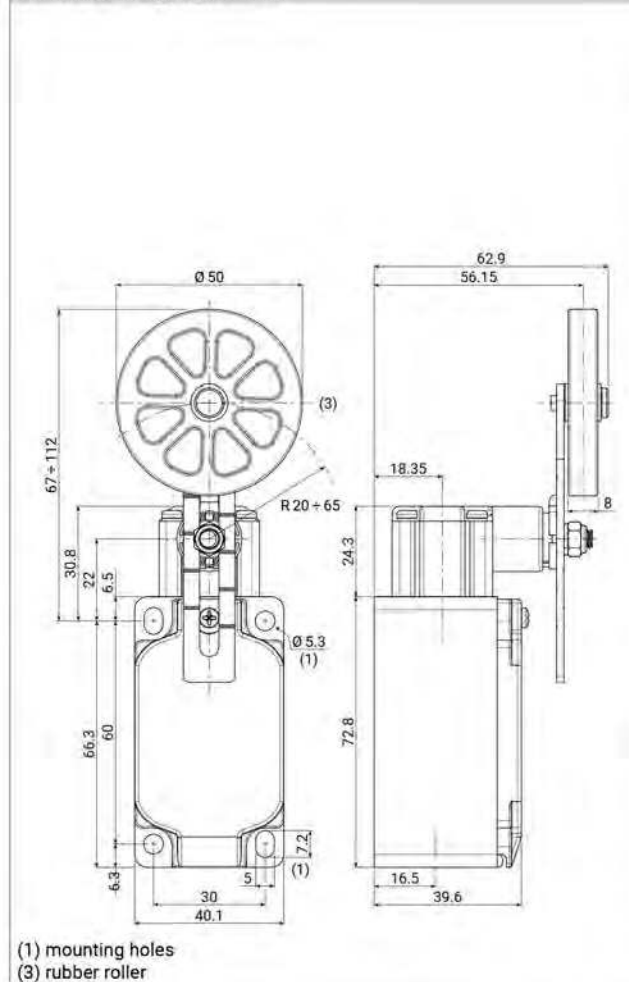


## FTNG140

Limit switch with Ø50 rubber roller lever with variable length  
IP67

FTNG series	1 function	40 actuator	XXX contact type	XX conduit entry
FTNG	40 mm thermoplastic limit switches for heavy applications	without reset function	Ø50 rubber roller lever with variable length	
			X11: 1NO+1NC W02: 2NC W20: 2NO Z11: 1NO+1NC Z02: 2NC W12: 1NO+2NC W03: 3NC	blank N G3 C M20 x 1.5 (standard) 1/2" NPT PG13.5 male connector "A" M12 x 1

technical drawing - sizes in mm



contact type	categories	ratings	operational travel		operating force	positive opening		total travel
			PT1	PT2 (slow action) RP (snap action)		POT (travel)	POF (force)	
X11: 1NO+1NC W02: 2NC W20: 2NO	A600-Q600	AC15: 400V - 4A	33°	45°	6.5 N	45°	8.5 N	80°
			33°	-	6.5 N	45°	8.5 N	
			33°	-	6.5 N	-	-	
Z11: 1NO+1NC Z02: 2NC	B600-Q600	DC13: 24V - 6A	35°	15°	5.5 N	65°	13.2 N	
			35°	15°	5.5 N	65°	13.2 N	
W12: 1NO+2NC W03: 3NC	A300-Q300		35°	42°	6.5 N	50°	8 N	
			35°	-	6.5 N	50°	8 N	

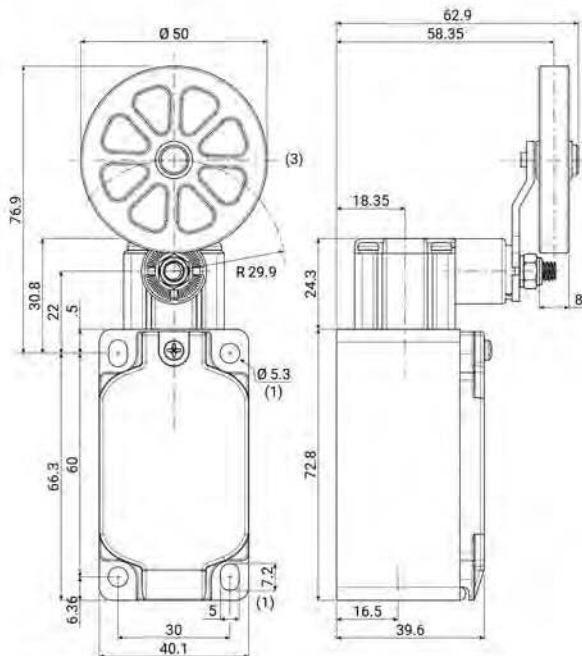


## FTNG141

Limit switch with Ø50 rubber roller lever  
IP67

FTNG series		1 function		41 actuator		XXX contact type		XX conduit entry	
FTNG	40 mm thermoplastic limit switches for heavy applications	1	without reset function	41	Ø50 rubber roller lever	X11: 1NO+1NC W02: 2NC W20: 2NO Z11: 1NO+1NC Z02: 2NC W12: 1NO+2NC W03: 3NC	slow action (Zb) snap action (Zb) slow action (Zb)	blank N G3 C	M20 x 1.5 (standard) 1/2" NPT PG13.5 male connector "A" M12 x 1

### technical drawing - sizes in mm



(1) mounting holes  
(3) rubber roller

### contact type

### operation diagrams

<b>X11</b> 1NO+1NC slow action (Zb)	
<b>W02</b> 2NC slow action (Zb)	
<b>W20</b> 2NO slow action (Zb)	
<b>Z11</b> 1NO+1NC snap action (Zb)	
<b>Z02</b> 2NC snap action (Zb)	
<b>W12</b> 1NO+2NC slow action (Zb)	
<b>W03</b> 3NC slow action (Zb)	

contact type	categories	ratings	operational travel		operating force	positive opening		total travel
			PT1	PT2 (slow action) RP (snap action)		POT (travel)	POF (force)	
X11: 1NO+1NC W02: 2NC W20: 2NO	A600-Q600	AC15: 400V - 4A	33°	45°	6.5 N	45°	8.5 N	80°
Z11: 1NO+1NC Z02: 2NC	B600-Q600	DC13: 24V - 6A	35°	15°	5.5 N	65°	13.2 N	
W12: 1NO+2NC W03: 3NC	A300-Q300		35°	42°	6.5 N	50°	8 N	
			35°	-	6.5 N	50°	8 N	
			33°	-	6.5 N	45°	8.5 N	
			33°	-	6.5 N	45°	8.5 N	



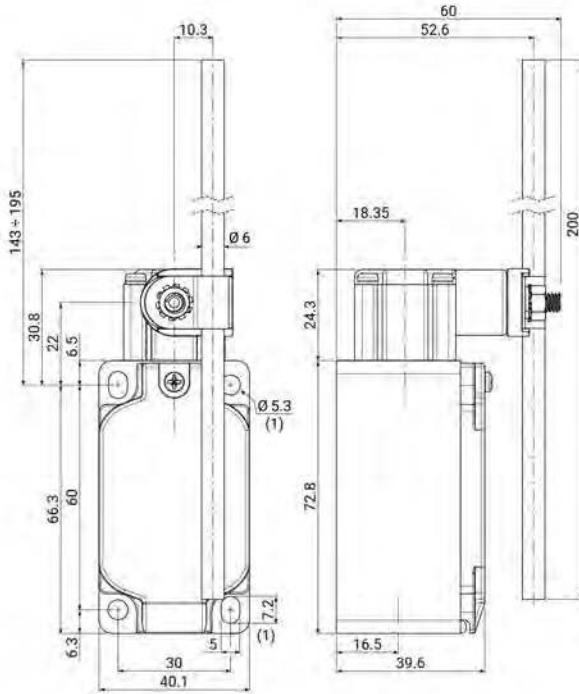


## FTNG172

Limit switch with adjustable PA rod lever  
IP67

FTNG series	1 function	72 actuator	XXX contact type	XX conduit entry
FTNG	40 mm thermoplastic limit switches for heavy applications	1 without reset function	72 adjustable PA rod lever	
			X11: 1NO+1NC W02: 2NC W20: 2NO	blank M20 × 1.5 (standard) N 1/2" NPT G3 PG13.5
			Z11: 1NO+1NC Z02: 2NC	C male connector "A" M12 × 1
			W12: 1NO+2NC W03: 3NC	

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 OF	positive opening		total travel TT
			PT1	PT2 (slow action) RP (snap action)		POT (travel)	POF (force)	
X11: 1NO+1NC	A600-Q600	AC15: 400V - 4A	33°	45°	6.5 N	45°	8.5 N	80°
W02: 2NC			33°	-	6.5 N	45°	8.5 N	
W20: 2NO			33°	-	6.5 N	-	-	
Z11: 1NO+1NC	B600-Q600	DC13: 24V - 6A	35°	15°	5.5 N	65°	13.2 N	80°
Z02: 2NC			35°	15°	5.5 N	65°	13.2 N	
W12: 1NO+2NC	A300-Q300		35°	42°	6.5 N	50°	8 N	
W03: 3NC			35°	-	6.5 N	50°	8 N	