

Position Switches

Series 8070/2



- > Ex e plastic enclosure
- > Operating temperature range -60 to +60 °C
- > Dimensions and characteristic values according to EN 50041
- > Degree of protection IP66 / IP67
- > Extensive assortment of actuators, which can be offset by 4 x 90°.
- > Safety position switch of Category 1 with different actuators
- > Replaceable contact elements with:
 - Snap-action contact
 - Slow-action contact
 - Overlapping slow-action contact
 - Positive-opening contacts
 - Flameproof enclosure



18904E00

E4

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Position the position switches, control and monitor the moving parts on machines and systems. Because they meet the requirements of the EN 50 041 and IEC 60947-5-1 product standards, they can also be used as a position switch with a safety function. Position switches of the 8070/2 series are permitted to be used in hazardous areas of zones 1, 2, 21 and 22.

In conjunction with a safety door guard and the corresponding circuitry, the PL position switches reach "e" in accordance with EN ISO 13849-1, or up to SIL 3 in accordance with EN 62061. They are identified with the ⊖ character for positive opening operation.

There are snap- and slow-action versions with different types of contacts as well as with a variety of different actuating elements.

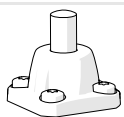

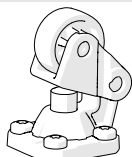

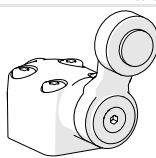
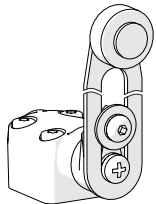
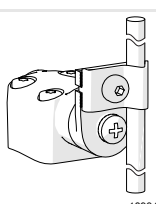
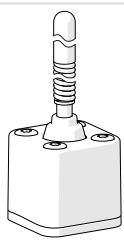
Zone	ATEX / IECEx					
	0	1	2	20	21	22
For use in		x	x		x	x

WebCode 8070C

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Selection Table

Version	Actuator	Normally open contacts	Order number	Art. no.	Weight kg
 18938E00	Plunger Plunger with sealing collar	1 NO + 1 NC	8070/2-1-W-U60	258219	0.167
		1 NO + 1 NC snap-action contact with spring	8070/2-2-W-U60	258227	
		2 NC	8070/2-3-W-U60	258235	
		1 NO + 1 NC overlapping	8070/2-5-W-U60	258243	
 18936E00	Roller Roller made of moulded material	1 NO + 1 NC	8070/2-1-R-U60	258220	0.168
		1 NO + 1 NC snap-action contact with spring	8070/2-2-R-U60	258228	
		2 NC	8070/2-3-R-U60	258236	
 18939E00	Roller lever Roller made of moulded material	1 NO + 1 NC	8070/2-1-WH-U60	258221	0.168
		1 NO + 1 NC snap-action contact with spring	8070/2-2-WH-U60	258229	
		2 NC	8070/2-3-WH-U60	258237	
 18940E00	Parallel roller lever Roller made of moulded material	1 NO + 1 NC	8070/2-1-WPH-U60	258222	0.170
		1 NO + 1 NC snap-action contact with spring	8070/2-2-WPH-U60	258230	
 18933E00	Rocking lever Roller made of moulded material	1 NO + 1 NC	8070/2-1-D-U60	258223	0.234
		1 NO + 1 NC snap-action contact with spring	8070/2-2-D-U60	258231	
		2 NC	8070/2-3-D-U60	258238	
		2 NO	8070/2-4-D-U60	258242	
 18935E00	Adjustable rocking lever Roller made of moulded material Roller rod made of stainless steel	1 NO + 1 NC	8070/2-1-DS-U60	258224	0.256
		1 NO + 1 NC snap-action contact with spring	8070/2-2-DS-U60	258232	
		2 NC	8070/2-3-DS-U60	258239	
 18934E00	Rod lever Rod made of moulded material	1 NO + 1 NC	8070/2-1-DD-U60	258225	0.242
		1 NO + 1 NC snap-action contact with spring	8070/2-2-DD-U60	258233	
		2 NC	8070/2-3-DD-U60	258240	
		1 NO + 1 NC overlapping	8070/2-5-DD-U60	258244	
 18937E00	Spring rod Spring made of stainless steel Only for use with snap-action contact!	1 NO + 1 NC snap-action contact with spring	8070/2-2-TK-U60	258234	0.204
		No positive opening operation, not suitable for safety circuits!			

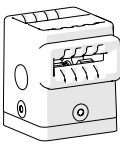
Note Drive heads are sometimes included uninstalled

Position Switches

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Selection Table

Version	Actuator	Normally open contacts	Order number	Art. no.	Weight kg
 18932E00	Safety switch, separate actuator	1 NO + 1 NC	8070/2-1-AZ-U50	258226	0.194
		2 NC	8070/2-3-AZ-U50	258241	

Explosion Protection

Global (IECEx)	
Gas and dust	IECEx BVS 17.0011X Ex db eb IIC T6 Gb Ex tb IIIC T80°C Db
Europe (ATEX)	
Gas and dust	BVS 17 ATEX E 021X ⊕ II 2 G Ex db eb IIC T6 Gb ⊕ II 2 D Ex tb IIIC T80°C Db
Certifications and certificates	
Certificates	IECEx, ATEX, India (PESO), Canada (CSA), Russia (TR), USA (CSA)

Technical Data

Electrical data					
Rated operational voltage U_e			8070/2-1 8070/2-2 8070/2-5	8070/2-3 8070/2-4	
	Alternating voltage for equal potential: Alternating voltage for unequal potential: Direct voltage:		max. 500 V max. 250 V 250 V		max. 400 V max. 250 V 250 V
Rated operational current I_e	max. 4 A: $-60\text{ °C} \leq T_a \leq +55\text{ °C}$; max. 2 A: $-60\text{ °C} \leq T_a \leq +60\text{ °C}$				
Switching capacity	AC-12		AC-15		DC-12
	8070/2-1 8070/2-2 8070/2-5	8070/2-3 8070/2-4	8070/2-1 8070/2-2 8070/2-5	8070/2-3 8070/2-4	8070/2-..
	max. 250 V max. 500 V **) max. 4 A max. 5000 VA	max. 250 V max. 400 V **) max. 4 A max. 4000 VA	max. 250 V max. 500 V **) max. 4 A max. 1000 VA	max. 250 V max. 400 V **) max. 4 A max. 1000 VA	max. 125 V max. 4 A max. 400 W
	**) only with the same potential				
Rated insulation voltage	500 V				
Rated impulse withstand voltage	6 kV				
Short circuit protection	6 A gL / gG				
Ambient conditions					
Operating temperature range	-60 to +55 °C (4 A) -60 to +60 °C (2 A) -50 to +55 °C (4 A) (8070/2-..-AZ-U50) -50 to +60 °C (2 A) (8070/2-..-AZ-U50)				
Mechanical data					
Maximum switching frequency	max. 1800 operating cycles/h				
Degree of protection	IP66 -60 °C, IP67 -20 °C (DIN EN 60529)				
Mechanical shock resistance	Snap-action contact:		2 g		
	Slow-action contact:		20 g		
Material					
Enclosure	Glass-fibre-reinforced, impact-proof thermoplast, self-extinguishing UL 94-V0				
Cover	Glass-fibre-reinforced, impact-proof thermoset, self-extinguishing UL 94-V0				
Seal	Silicone				

E4

Position Switches

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Technical Data

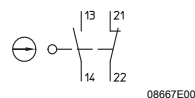
Mounting / Installation

Cable entries	8161/7-M20..LT: with seals containing silicone on the enclosure bottom: 1 x M20 x 1.5
Connection	with cable entry 8161: 4 x 1.5 mm ²
Terminals	0.75 to 1.5 mm ² solid, finely stranded with or without core end sleeve
Tightening torque	Screw terminals: 0.4 Nm max. Cover screws: 1.5 to 2 Nm Cable entries: See installation note (enclosed unattached)

Contact

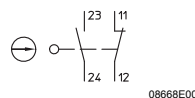
Version

Slow-action contact



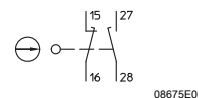
8070/2-1 08667E00

Snap-action contact

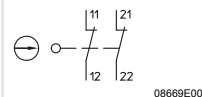


8070/2-2 08668E00

Slow-action contact, overlapping

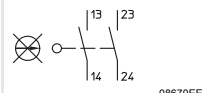


8070/2-5 08675E00



8070/2-3 08669E00

Caution:
The positive opening operation ⊖ function depends on the actuator used



8070/2-4 08670EE

Contact arrangement

Contact opening

Material

Contacts

Enclosure contact

Service life

Mechanical

electrical

2-pole, galvanically separated with double break
≥ 1.5 mm (isolating distance ≥ 3 mm)

Silver-nickel

Polyamide, glass fibre reinforced

max. 10⁶ operating cycles

max. 10⁶ operating cycles

Position Switches

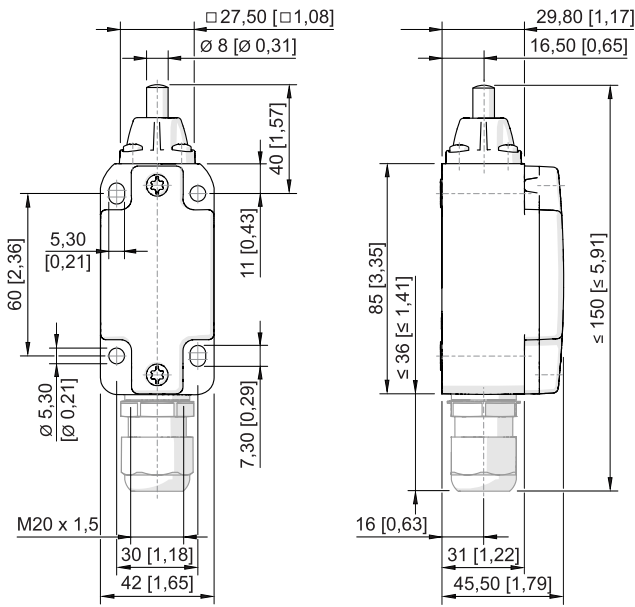
Series 8070/2



Technical data

Operation, operating speed, switching travel or switching angle

Actuator	Actuation	Schematic	Nominal switching travel or switching angle	Minimum force/torque
Type 8070/2	V = Max. operating speed	⊕ = Positive opening operation	■ = Closed contact □ = Open contact Zw = Positive opening distance	
Plunger 8070/2-.-W-U60	For lateral actuation: V = 0.5 m/s Actuation in stroke direction: V = 1.0 m/s		8070/2-1: 	19 N
			8070/2-2: 	
			8070/2-3: 	
			8070/2-5: 	



18991E00

E4

Position Switches

Series 8070/2

Technical data

Operation, operating speed, switching travel or switching angle

Actuator	Actuation	Schematic	Nominal switching travel or switching angle	Minimum force/torque
Type 8070/2	V = Max. operating speed	⊖ = Positive opening operation	<ul style="list-style-type: none"> ■ = Closed contact □ = Open contact Zw = Positive opening distance 	
Roller plunger 8070/2--R-U60	<p>For lateral actuation: V = 1.0 m/s</p> <p>Actuation in stroke direction: V = 1.0 m/s</p>		<p>In stroke direction</p> <p>8070/2-1:</p> <p>19050E00</p> <p>8070/2-2:</p> <p>19051E00</p> <p>8070/2-3:</p> <p>19052E00</p>	19 N

18989E00

Position Switches

Series 8070/2



Technical data

Operation, operating speed, switching travel or switching angle

Actuator	Actuation	Schematic	Nominal switching travel or switching angle	Minimum force/torque
Type 8070/2	V = Max. operating speed	⊕ = Positive opening operation	■ = Closed contact □ = Open contact Zw = Positive opening distance	
Roller lever 8070/2-.-WH-U60	V = 1.0 m/s		<p>Displacement of the roller in the stroke direction of the plunger at the start of the plunger movement</p> <p>8070/2-1: Zw = 5,0 mm</p> <p>8070/2-2: Zw = 5,7 mm</p> <p>8070/2-3: Zw = 5,2 mm</p> <p>8070/2-5: Zw = 6,28 mm</p>	19 N

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Position Switches

Series 8070/2

Technical data

Operation, operating speed, switching travel or switching angle

Actuator	Actuation	Schematic	Nominal switching travel or switching angle	Minimum force/torque
Type 8070/2	V = Max. operating speed	⊖ = Positive opening operation	<ul style="list-style-type: none"> ■ = Closed contact □ = Open contact Zw = Positive opening distance 	
Parallel roller lever 8070/2-.-WPH-U60	V = 1.0 m/s		<p>Displacement of the roller vertically in the stroke direction of the plunger at the start of the plunger movement</p> <p>8070/2-1:</p> <p style="text-align: right;">19058E00</p> <p>8070/2-2:</p> <p style="text-align: right;">19059E00</p>	14 N

18992E00

Position Switches

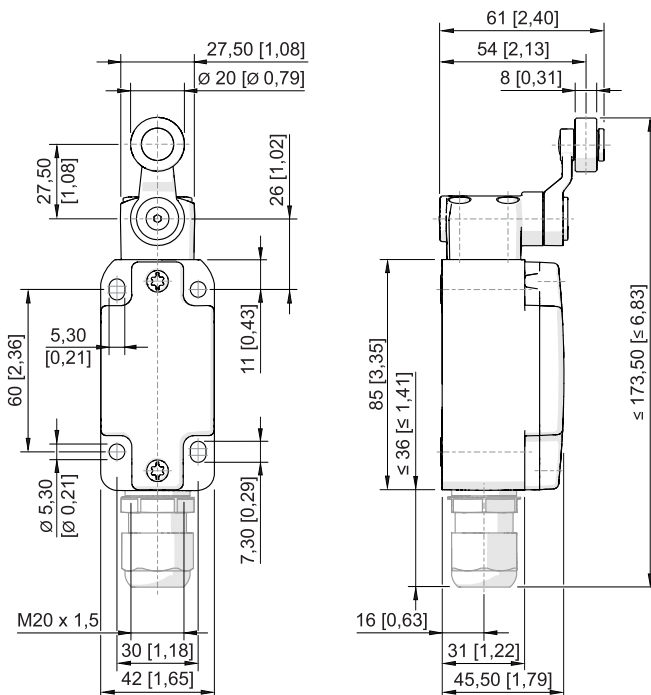
Series 8070/2



Technical data

Operation, operating speed, switching travel or switching angle

Actuator	Actuation	Schematic	Nominal switching travel or switching angle	Minimum force/torque
Type 8070/2	V = Max. operating speed	⊕ = Positive opening operation	■ = Closed contact □ = Open contact Zw = Positive opening distance	
Rotary lever 8070/2-.-D-U60	V = 1.5 m/s		<p>8070/2-1:</p> <p>8070/2-2:</p> <p>8070/2-3:</p> <p>8070/2-4:</p> <p>8070/2-5:</p>	7 N



18986E00

E4

Position Switches

Series 8070/2

Technical data

Operation, operating speed, switching travel or switching angle

Actuator	Actuation	Schematic	Nominal switching travel or switching angle	Minimum force/torque
Type 8070/2	V = Max. operating speed	⊖ = Positive opening operation	<ul style="list-style-type: none"> ■ = Closed contact □ = Open contact Zw = Positive opening distance 	
Adjustable rotary lever 8070/2--DS-U60	V = 1.5 m/s Positive opening operation, not suitable for safety circuits		<p>8070/2-1:</p> <p>8070/2-2:</p> <p>8070/2-3:</p>	3 N

18988E00

Position Switches

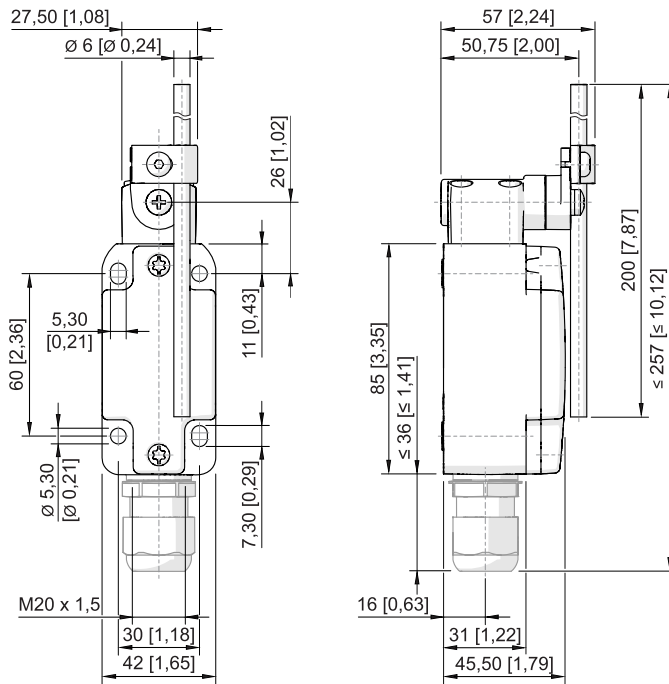
Series 8070/2



Technical data

Operation, operating speed, switching travel or switching angle

Actuator	Actuation	Schematic	Nominal switching travel or switching angle	Minimum force/torque
Type 8070/2	V = Max. operating speed	⊕ = Positive opening operation	<ul style="list-style-type: none"> ■ = Closed contact □ = Open contact Zw = Positive opening distance 	
Rod lever 8070/2-.-DD-U60	V = 1.5 m/s Positive opening operation, not suitable for safety circuits		<p>8070/2-1:</p> <p>19060E00</p> <p>8070/2-2:</p> <p>19061E00</p> <p>8070/2-3:</p> <p>19062E00</p>	1 to 4.5 N



18987E00

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Position Switches

Series 8070/2

Technical data

Operation, operating speed, switching travel or switching angle

Actuator	Actuation	Schematic	Nominal switching travel or switching angle	Minimum force/torque
Type 8070/2	V = Max. operating speed	⊖ = Positive opening operation	<ul style="list-style-type: none"> ■ = Closed contact □ = Open contact Zw = Positive opening distance 	
Spring rod 8070/2--TK-U60	Positive opening operation, not suitable for safety circuits		<p>Only for use with snap-action contact!</p> <p>8070/2-2:</p>	2 N

Position Switches

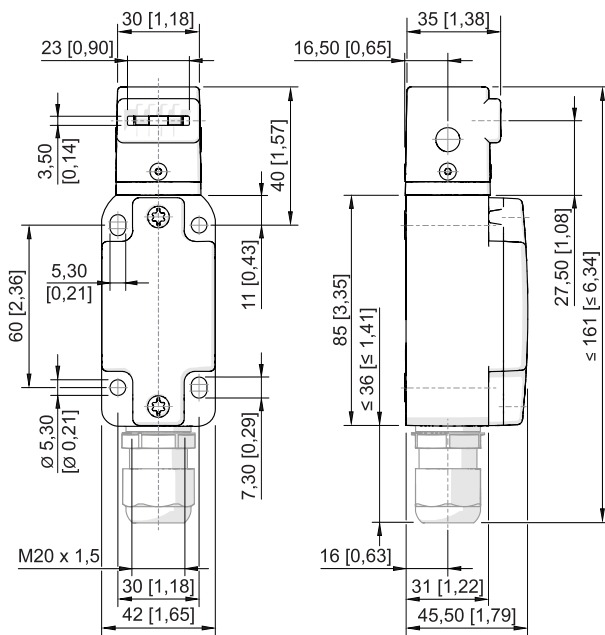
Series 8070/2



Technical data

Operation, operating speed, switching travel or switching angle

Actuator	Actuation	Schematic	Nominal switching travel or switching angle	Minimum force/torque
Type 8070/2	V = Max. operating speed	⊕ = Positive opening operation	<ul style="list-style-type: none"> ■ = Closed contact □ = Open contact Zw = Positive opening distance 	
Safety switch 8070/2.-AZ-U50			<p>8070/2-1:</p> <p>8070/2-3:</p>	27 N



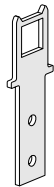
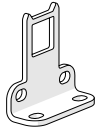
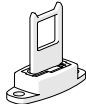
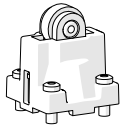
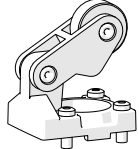
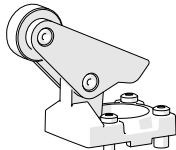
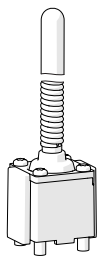
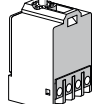
Note:
 Depiction of the switching travel when the actuator is engaged.
 The actuators must be ordered separately.

E4

Position Switches

Series 8070/2

Accessories and Spare Parts

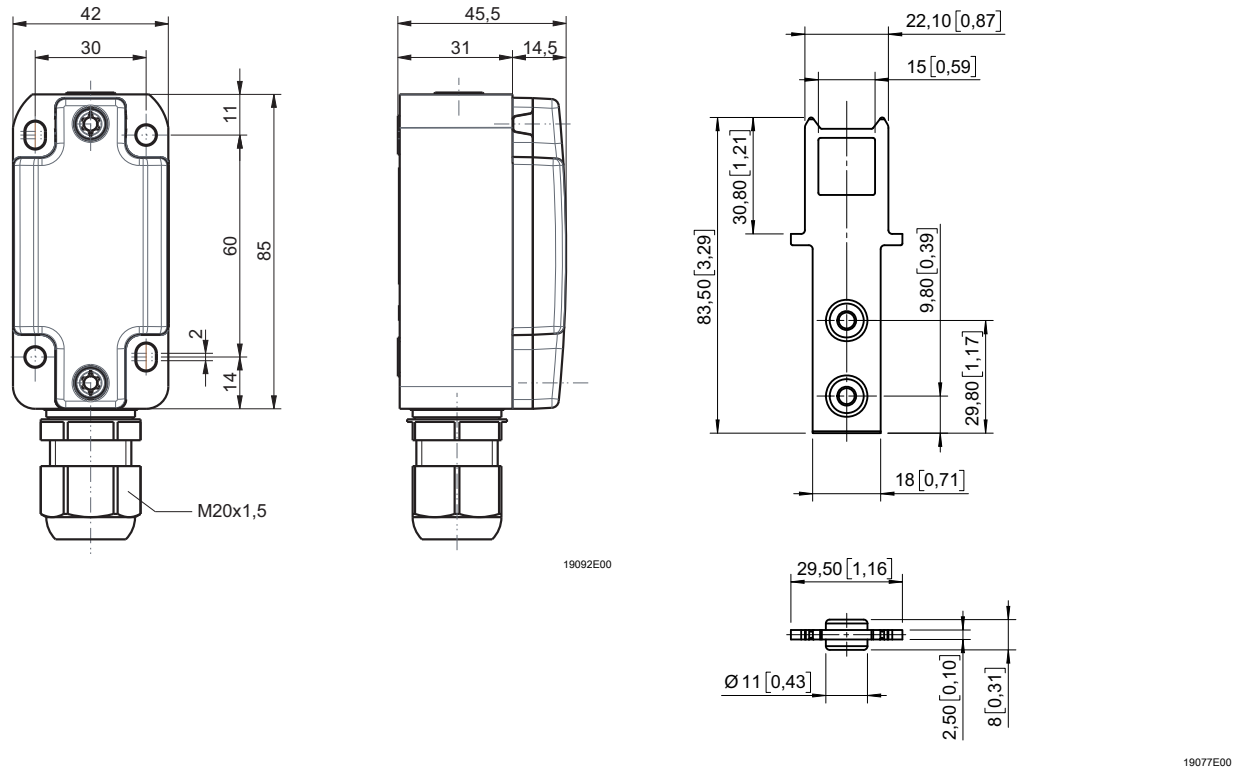
Designation	Figure	Description	Art. no.	Weight kg			
Actuator		Straight actuator	8070/2-0-AZ	258607	0.100		
	<small>18925E00</small>						
		Bent actuator	8070/2-0-AZ	258608	0.100		
	<small>18926E00</small>						
		Movable actuator	8070/2-0-AZ	258609	0.100		
	<small>18927E00</small>						
		Roller plunger	8070/2-0-R	258602	0.100		
<small>18614E00</small>							
	Roller lever	8070/2-0-WH	258603	0.100			
<small>18565E00</small>							
	Parallel roller lever	8070/2-0-WPH	258604	0.100			
<small>18564E00</small>							
	Spring rod Only for use with snap-action contact!	8070/2-0-TK	258605	0.100			
<small>18661E00</small>							
Contact		1 NC + 1 NO	Slow-action contact	8080/1-1	132529	0.025	
		1 NC + 1 NO	Snap-action contact with spring	8080/1-2	132531	0.025	
		<small>10809E00</small>					
		1 NC + 1 NO	Slow-action contact, make before break	8080/1-5	132534	0.025	
		2 NC	Slow-action contact	8080/1-3	132532	0.025	
2 NO	Slow-action contact	8080/1-4	132533	0.025			

Position Switches

Series 8070/2

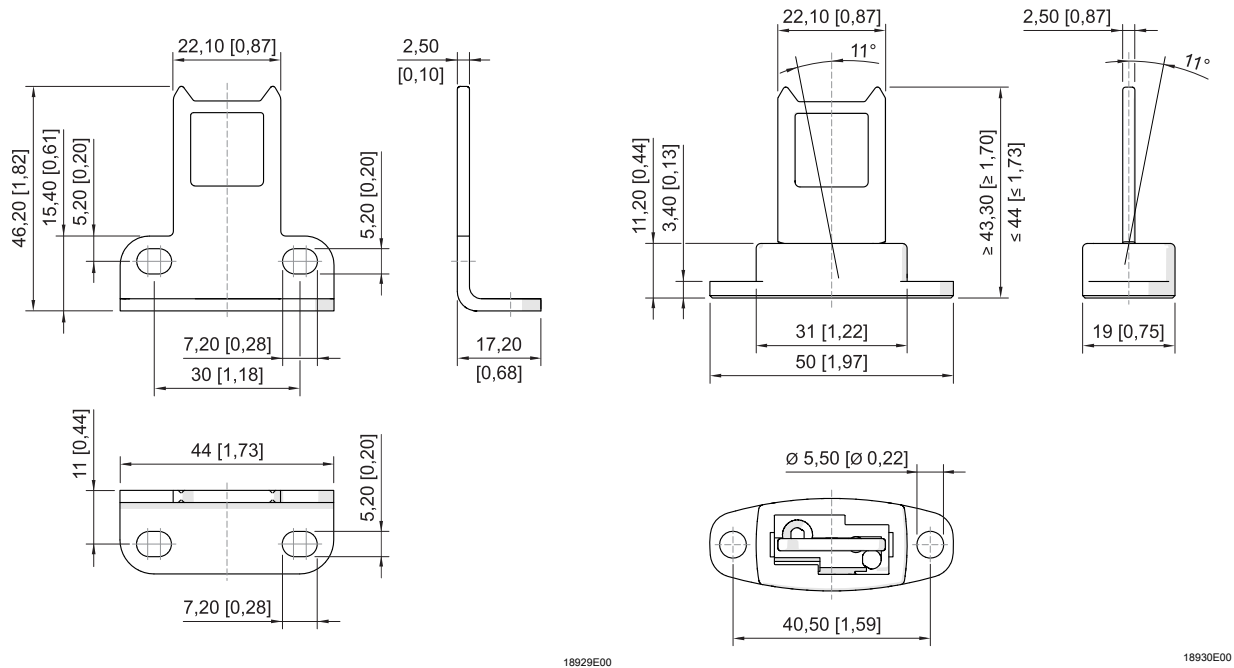


Dimensional drawings (all dimensions in mm [inches]) – Subject to modifications



Position switch 8070/2

Straight actuator for safety switch



Bent actuator for safety switch

Movable actuator for safety switch

We reserve the right to make alterations to the technical data, dimensions, weights, designs and products available without notice. The illustrations cannot be considered binding.

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