

Position Switches

Series 8070/2



www.stahl.de



18904E00

- > 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



E4

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.

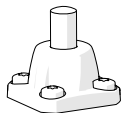

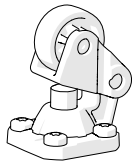
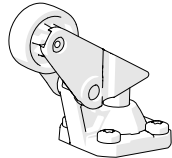
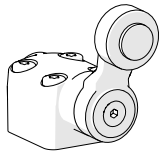
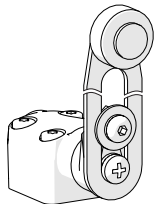
Zone	ATEX / IECEx					
	0	1	2	20	21	22
For use in		x	x		x	x

WebCode 8070C

Position Switches

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Selection Table

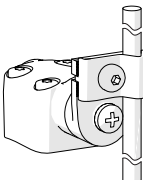
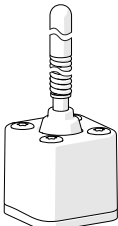
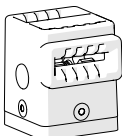
Version	Actuator		Normally open contacts	Order number	Art. no.	Weight kg
 18938E00	Plunger	Plunger with sealing collar	1 NO + 1 NC	8070/2-1-W-U60	258219	0.167
			1 NO + 1 NC snap-action contact with spring	8070/2-2-W-U60	258227	
			2 NC	8070/2-3-W-U60	258235	
			2 NO	8070/2-4-W-U60	268432	
			1 NO + 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	
			2 NO	8070/2-4-R-U60	268433	
			1 NO + 1 NC overlapping	8070/2-5-R-U60	268112	
 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	
			2 NO	8070/2-4-WH-U60	268434	
			1 NO + 1 NC overlapping	8070/2-5-WH-U60	268113	
 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	
			2 NC	8070/2-3-WPH-U60	268111	
			1 NO + 1 NC overlapping	8070/2-5-WPH-U60	268114	
 18933E00	Rotary 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	
			1 NO + 1 NC overlapping	8070/2-5-D-U60	268115	
 18935E00	Adjustable rotary 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	
			2 NO	8070/2-4-DS-U60	268435	
		No positive opening operation!	8070/2-5-DS-U60	268116		

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Selection Table

Version	Actuator	Normally open contacts	Order number	Art. no.	Weight kg
 <small>18934E00</small>	Rod made of moulded material No positive opening operation!	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	
		2 NO	8070/2-4-DD-U60	268436	
 <small>18937E00</small>	Spring made of stainless steel No positive opening operation, not suitable for safety circuits!	1 NO + 1 NC snap-action contact with spring	8070/2-2-TK-U60	258234	0.204
 <small>18932E00</small>	Separate actuator made of metal (please order separately)	1 NO + 1 NC	8070/2-1-AZ-U50	258226	0.194
		2 NC	8070/2-3-AZ-U50	258241	

Note Drive heads are sometimes included uninstalled

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

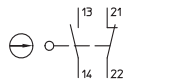
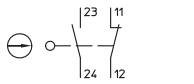
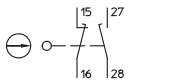
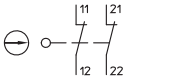
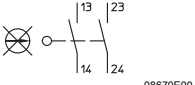
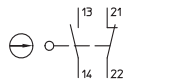
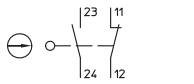
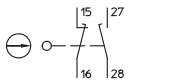
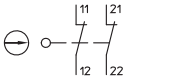
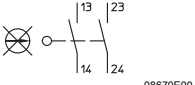
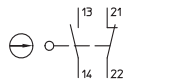
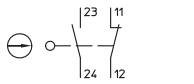
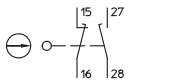
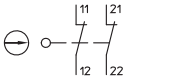
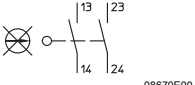
Rated operational voltage U_e		8070/2-1 8070/2-2 8070/2-5	8070/2-3 8070/2-4
	Alternating voltage for equal potential: Alternating voltage for unequal potential: Direct voltage:	max. 500 V max. 250 V 250 V	max. 400 V max. 250 V 250 V
Rated operational current I_e	max. 4 A: $-60\text{ °C} \leq T_a \leq +55\text{ °C}$; 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	8070/2-3 8070/2-4	8070/2-3 8070/2-4
	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. 125 V max. 4 A max. 400 W

**) only with the same potential

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Position Switches

Series 8070/2

Technical Data																				
Rated insulation voltage	500 V																			
Rated impulse withstand voltage	6 kV																			
Short circuit protection	6 A 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																			
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	<table border="0"> <tr> <td>Slow-action contact</td> <td>Snap-action contact</td> <td>Slow-action contact, overlapping</td> </tr> <tr> <td></td> <td></td> <td></td> </tr> <tr> <td>8070/2-1</td> <td>8070/2-2</td> <td>8070/2-5</td> </tr> <tr> <td></td> <td colspan="2" rowspan="2"> Caution: The positive opening operation ⊖ function depends on the actuator used </td> </tr> <tr> <td>8070/2-3</td> </tr> <tr> <td></td> <td colspan="2"></td> </tr> <tr> <td>8070/2-4</td> <td colspan="2"></td> </tr> </table>	Slow-action contact	Snap-action contact	Slow-action contact, overlapping				8070/2-1	8070/2-2	8070/2-5		Caution: The positive opening operation ⊖ function depends on the actuator used		8070/2-3				8070/2-4		
Slow-action contact	Snap-action contact	Slow-action contact, overlapping																		
																				
8070/2-1	8070/2-2	8070/2-5																		
	Caution: The positive opening operation ⊖ function depends on the actuator used																			
8070/2-3																				
																				
8070/2-4																				
Contact arrangement	2-pole, galvanically separated with double break																			
Contact opening	≥ 1.5 mm (isolating distance ≥ 3 mm)																			
Material																				
Contacts	Silver-nickel																			
Enclosure contact	Polyamide, glass fibre reinforced																			
Service life																				
Mechanical	max. 10 ⁶ operating cycles																			
electrical	max. 10 ⁶ operating cycles																			

Position Switches

Series 8070/2



Technical data

Operation, operating speed, switching travel or switching angle

Actuator type	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		In stroke direction 8070/2-1: 19050E00	19 N
			8070/2-2: 19051E00	
			8070/2-3: 19052E00	
			8070/2-4: 20281E00	
			8070/2-5: 19053E00	

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Position Switches

Series 8070/2

Technical data

Operation, operating speed, switching travel or switching angle

Actuator type	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: 19050E00</p> <p>8070/2-2: 19051E00</p> <p>8070/2-3: 19052E00</p> <p>8070/2-4: 20281E00</p> <p>8070/2-5: 20286E00</p>	19 N

18989E00

Position Switches

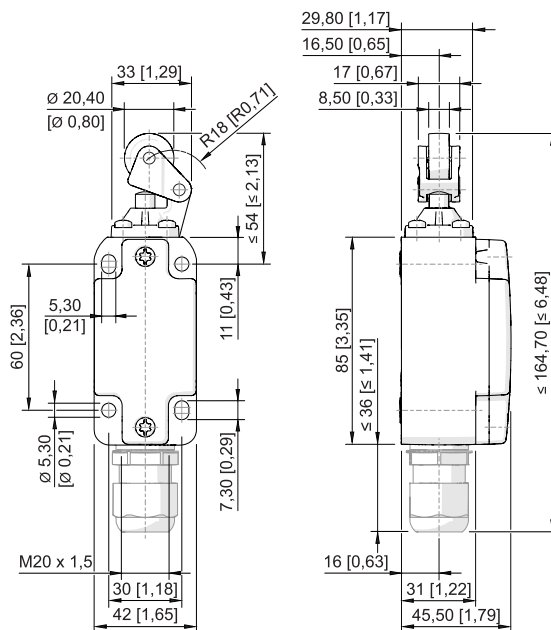
Series 8070/2



Technical data

Operation, operating speed, switching travel or switching angle

Actuator type	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: </p> <p>8070/2-2: </p> <p>8070/2-3: </p> <p>8070/2-4: </p> <p>8070/2-5: </p>	19 N



18993E00

E4

Position Switches

Series 8070/2

Technical data

Operation, operating speed, switching travel or switching angle

Actuator type	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>19058E00</p> <p>8070/2-2:</p> <p>19059E00</p> <p>8070/2-3:</p> <p>20284E00</p> <p>8070/2-5:</p> <p>20285E00</p>	14 N

18992E00

Position Switches

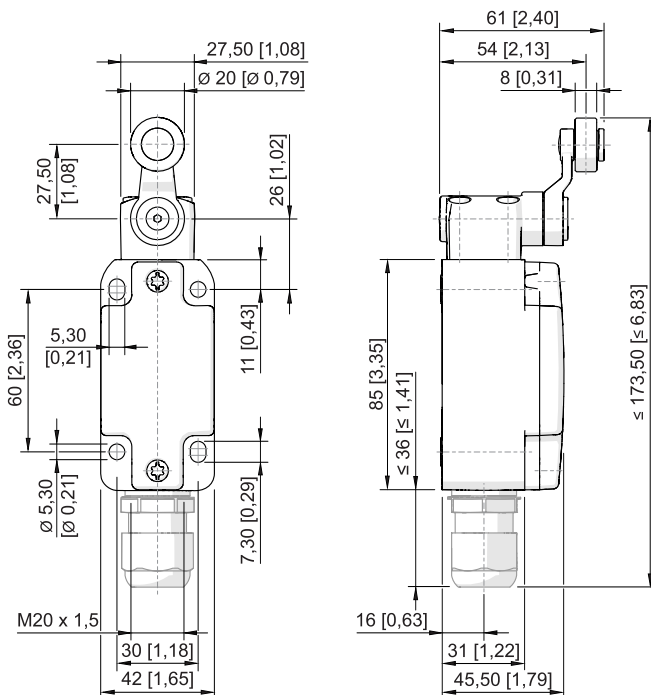
Series 8070/2



Technical data

Operation, operating speed, switching travel or switching angle

Actuator type	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: 19060E00</p> <p>8070/2-2: 19061E00</p> <p>8070/2-3: 19062E00</p> <p>8070/2-4: 19063E00</p> <p>8070/2-5: 19064E00</p>	7 N



18986E00

Position Switches

Series 8070/2

Technical data

Operation, operating speed, switching travel or switching angle

Actuator type	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 No positive opening operation		8070/2-1: 	20383E00
			8070/2-2: 	20384E00
			8070/2-3: 	20385E00
			8070/2-4: 	20280E00
			8070/2-5: 	20283E00

18988E00

Position Switches

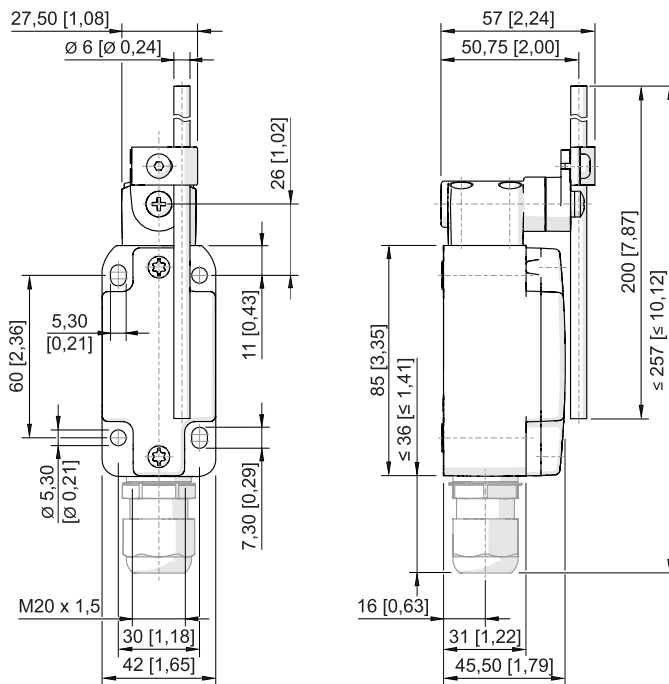
Series 8070/2



Technical data

Operation, operating speed, switching travel or switching angle

Actuator type	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	
Rod lever 8070/2.-DD-U60	V = 1.5 m/s No positive opening operation		<p>8070/2-1:</p> <p>20324E00</p> <p>8070/2-2:</p> <p>20325E00</p> <p>8070/2-3:</p> <p>20326E00</p> <p>8070/2-4:</p> <p>20280E00</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 type	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	No positive opening operation, not suitable for safety circuits		<p>8070/2-2:</p>	2 N

Position Switches

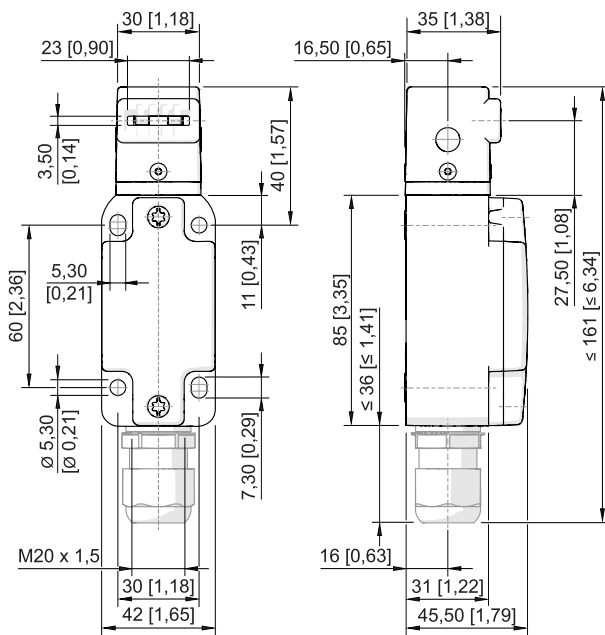
Series 8070/2



Technical data

Operation, operating speed, switching travel or switching angle

Actuator type	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



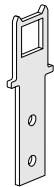
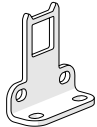
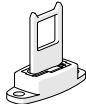
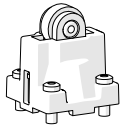
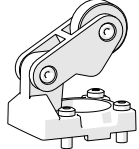
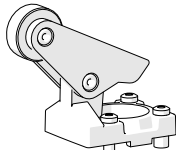
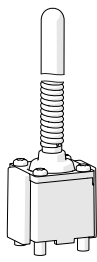
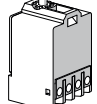
Note:
 Depiction of the switching travel when the actuator is engaged.
 The actuators must be ordered separately.

E4

Position Switches

Series 8070/2

Accessories and Spare Parts

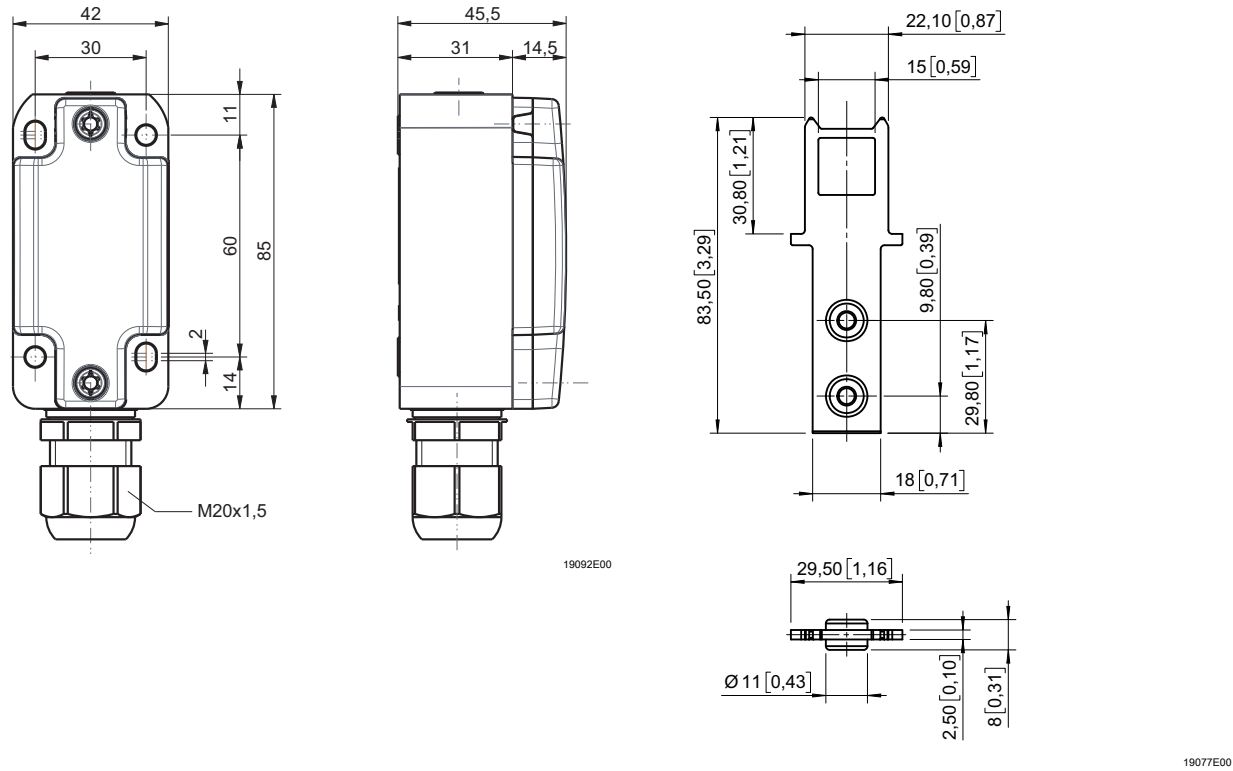
Designation	Figure	Description	Art. no.	Weight kg		
Actuator		Straight actuator	8070/2-0-AZ	258607	0.100	
		Bent actuator	8070/2-0-AZ	258608	0.100	
		Movable actuator	8070/2-0-AZ	258609	0.100	
		Roller plunger	8070/2-0-R	258602	0.100	
		Roller lever	8070/2-0-WH	258603	0.100	
		Parallel roller lever	8070/2-0-WPH	258604	0.100	
		Spring rod	8070/2-0-TK	258605	0.100	
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	
		1 NC + 1 NO	Slow-action contact, overlapping	8080/1-5	132534	
		2 NC	Slow-action contact	8080/1-3	132532	
		2 NO	Slow-action contact	8080/1-4	132533	

Position Switches

Series 8070/2



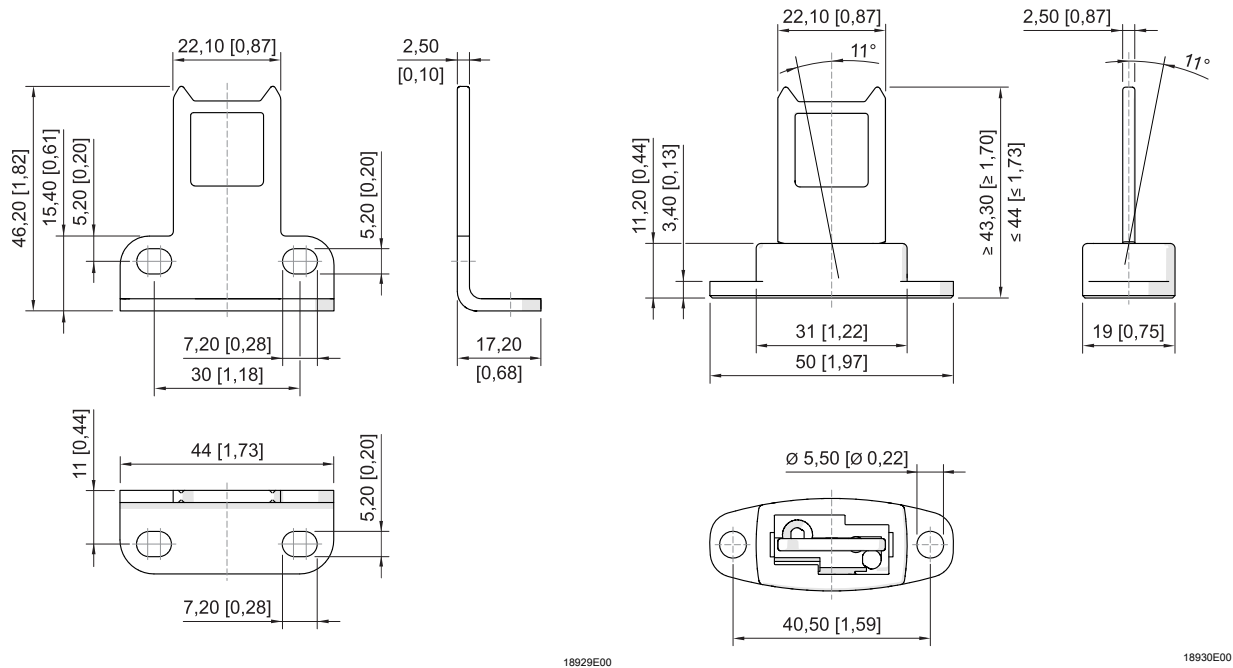
Dimensional drawings (all dimensions in mm [inches]) – Subject to modifications



E4

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.