

Position Switches

Series 8060/2



www.stahl.de



18566T00

- > Ex e plastic enclosure
- > Operating temperature range -60 to +60 °C
- > Dimensions and characteristic values according to EN 50047
- > 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 50 047 and IEC 60947-5-1 product standards, they can also be used as a position switch with a safety function. Position switches of the 8060/2 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 forms of contacts as well as with a variety of different actuating elements.

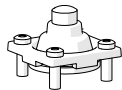

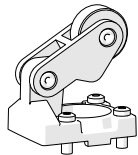
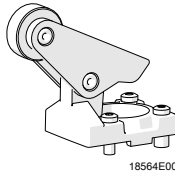
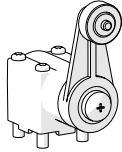
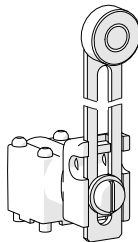
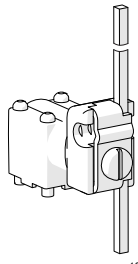
Zone	ATEX / IECEx					
	0	1	2	20	21	22
For use in		x	x		x	x

WebCode 8060B

Position Switches

Series 8060/2

Selection Table

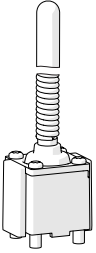

Version	Actuator		Normally open contacts	Order number	Weight kg
 18563E00	Plunger	Plunger with sealing collar	1 NC + 1 NO	8060/2-1-W-60	0.096
			1 NC + 1 NO snap-action contact with spring	8060/2-2-W-60	
			2 NC	8060/2-3-W-60	
			1 NC + 1 NO slow-action contact, overlapping	8060/2-5-W-60	
 18614E00	Roller	Roller made of moulded material	1 NC + 1 NO	8060/2-1-R-60	0.100
			1 NC + 1 NO snap-action contact with spring	8060/2-2-R-60	
			2 NC	8060/2-3-R-60	
			1 NC + 1 NO slow-action contact, overlapping	8060/2-5-R-60	
 18565E00	Roller lever	Roller made of moulded material	1 NC + 1 NO	8060/2-1-WH-60	0.101
			1 NC + 1 NO snap-action contact with spring	8060/2-2-WH-60	
			2 NC	8060/2-3-WH-60	
			1 NC + 1 NO slow-action contact, overlapping	8060/2-5-WH-60	
 18564E00	Parallel roller lever	Roller made of moulded material	1 NC + 1 NO	8060/2-1-WPH-60	0.102
			1 NC + 1 NO snap-action contact with spring	8060/2-2-WPH-60	
			2 NC	8060/2-3-WPH-60	
			1 NC + 1 NO slow-action contact, overlapping	8060/2-5-WPH-60	
 18562E00	Rocking lever	Roller made of moulded material	1 NC + 1 NO	8060/2-1-D-60	0.115
			1 NC + 1 NO snap-action contact with spring	8060/2-2-D-60	
			2 NC	8060/2-3-D-60	
			1 NC + 1 NO slow-action contact, overlapping	8060/2-5-D-60	
 18561E00	Adjustable rocking lever	Roller made of moulded material	1 NC + 1 NO	8060/2-1-DS-60	0.130
		Roller rod made of stainless steel	1 NC + 1 NO snap-action contact with spring	8060/2-2-DS-60	
		No positive opening operation, not suitable for safety circuits!	2 NC	8060/2-3-DS-60	
			1 NC + 1 NO slow-action contact, overlapping	8060/2-5-DS-60	
 18560E00	Rod lever	Rod made of moulded material	1 NC + 1 NO	8060/2-1-DD-60	0.133
		No positive opening operation, not suitable for safety circuits!	1 NC + 1 NO snap-action contact with spring	8060/2-2-DD-60	
			2 NC	8060/2-3-DD-60	
			1 NC + 1 NO slow-action contact, overlapping	8060/2-5-DD-60	

Position Switches

Series 8060/2



Selection Table

Version	Actuator	Normally open contacts	Order number	Weight kg
 18661E00	Spring rod Spring made of stainless steel Only for use with snap-action contact! No positive opening operation, not suitable for safety circuits!	1 NC + 1 NO snap-action contact with spring	8060/2-2-TK-60	0.122
 18691E00	Safety switch, separate actuator Separate actuator made of metal (please order separately)	1 NC + 1 NO 2 NC	8060/2-1-AZ-60 8060/2-3-AZ-60	0.127 0.127

Note The actuators are included, but not installed

Explosion Protection

Global (IECEX)

Gas and dust | IECEx BVS 16.0066
Ex db eb IIC T6 Gb
Ex tb IIIC T80°C Db

Europe (ATEX)

Gas and dust | BVS 16 ATEX E 100
⊕ 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			8060/2-1 8060/2-2 8060/2-5	8060/2-3 8060/2-4
	Alternating voltage for equal potential: Alternating voltage for unequal potential: Direct voltage:		max. 500 V max. 250 V 125 V	max. 400 V max. 250 V 125 V
Rated operational current I_e	max. 4A: $-60\text{ °C} \leq T_a \leq +55\text{ °C}$, max. 2A: $-60\text{ °C} \leq T_a \leq +60\text{ °C}$			
Switching capacity	AC-12	AC-15	DC-12	
	8060/2-1 8060/2-2 8060/2-5	8060/2-3 8060/2-4	8060/2-1 8060/2-2 8060/2-5	8060/2-3 8060/2-4 8060/2-.
	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
	**) only with the same potential			
Rated insulation voltage	500 V			
Rated impulse withstand voltage	6 kV			
Short circuit protection	6 A time lag			

E4

Position Switches

Series 8060/2

Technical Data

Ambient conditions

Operating temperature range	-60 to +55 °C (4 A) -60 to +60 °C (2 A)
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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

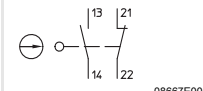
Mounting / Installation

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 a core end sleeve
Tightening torque	Screw terminals: 0.4 Nm max. Cover screws: 0.4 to 0.45 Nm Cable entries: See installation note (enclosed unattached)

Contact

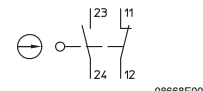
Version

Slow-action contact



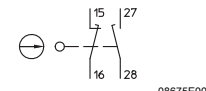
8060/2-1 08667E00

Snap-action contact

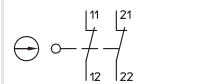


8060/2-2 08668E00

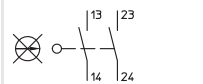
Slow-action contact, overlapping



8060/2-5 08675E00



8060/2-3 08669E00



8060/2-4 08670E00

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

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 8060/2



Technical data

Operation, operating speed, switching path or switching angle

Actuator type	Actuation	Schematic	Nominal switching path or switching angle	Minimum force/torque	
Type 8060/2	V = Max. operating speed	⊖ = Positive opening operation	■ = Closed contact □ = Open contact Zw = Positive opening distance		
Plunger 8060/2.-W-60	For lateral actuation: V = 0.5 m/s Operation in stroke direction: V = 1.0 m/s		In stroke direction 8060/2-1: 	14 N	
			8060/2-2: 		18611E00
			8060/2-3: 		18612E00
			8060/2-4: 		18613E00
			8060/2-5: 		07707E01
			8060/2-5: 		18615E00

E4

Position Switches

Series 8060/2

Technical data

Operation, operating speed, switching path or switching angle

Actuator type	Actuation	Schematic	Nominal switching path or switching angle	Minimum force/torque
Type 8060/2	V = Max. operating speed	⊖ = Positive opening operation	<ul style="list-style-type: none"> ■ = Closed contact □ = Open contact Zw = Positive opening distance 	
Roller 8060/2--R-60	<p>For lateral actuation: V = 1.0 m/s</p> <p>Operation in stroke direction: V = 1.0 m/s</p>		<p>In stroke direction</p> <p>8060/2-1:</p> <p>18611E00</p> <p>8060/2-2:</p> <p>18612E00</p> <p>8060/2-3:</p> <p>18613E00</p> <p>8060/2-4:</p> <p>07707E01</p> <p>8060/2-5:</p> <p>18615E00</p>	14 N

18577E00

Position Switches

Series 8060/2



Technical data

Operation, operating speed, switching path or switching angle

Actuator type	Actuation	Schematic	Nominal switching path or switching angle	Minimum force/torque
Type 8060/2	V = Max. operating speed	⊕ = Positive opening operation	■ = Closed contact □ = Open contact Zw = Positive opening distance	
Roller lever 8060/2-.-WH-60	V = 1.0 m/s		Displacement of the roller in the stroke direction of the plunger at the start of the plunger movement 8060/2-1: 18621E00 8060/2-2: 18622E00 8060/2-3: 18623E00 8060/2-4: 18624E00 8060/2-5: 18625E00	12 N

E4

Position Switches

Series 8060/2

Technical data

Operation, operating speed, switching path or switching angle

Actuator type	Actuation	Schematic	Nominal switching path or switching angle	Minimum force/torque
Type 8060/2	V = Max. operating speed	⊖ = Positive opening operation	<ul style="list-style-type: none"> ■ = Closed contact □ = Open contact Zw = Positive opening distance 	
Parallel roller lever 8060/2-.-WPH-60	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>8060/2-1:</p> <p>18626E00</p> <p>8060/2-2:</p> <p>18627E00</p> <p>8060/2-3:</p> <p>18628E00</p> <p>8060/2-4:</p> <p>18629E00</p> <p>8060/2-5:</p> <p>18630E00</p>	12 N

18576E00

Position Switches

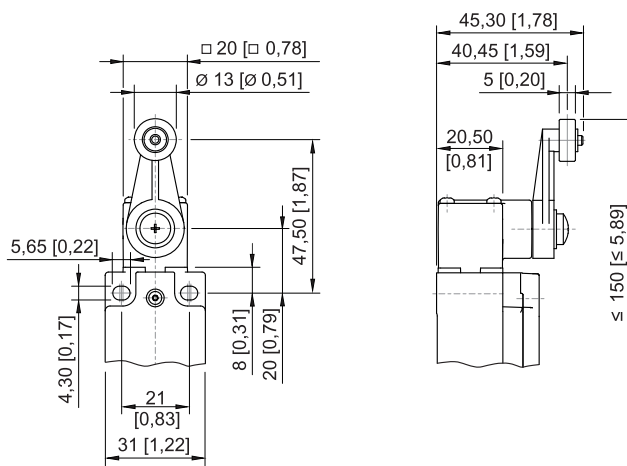
Series 8060/2



Technical data

Operation, operating speed, switching path or switching angle

Actuator type	Actuation	Schematic	Nominal switching path or switching angle	Minimum force/torque
Type 8060/2	V = Max. operating speed	⊕ = Positive opening operation	■ = Closed contact □ = Open contact Zw = Positive opening distance	
Rocking lever 8060/2.-D-60	V = 1.5 m/s		<p>8060/2-1:</p> <p>Zw = 44,8°</p> <p>18641E00</p> <p>8060/2-2:</p> <p>Zw = 50,5°</p> <p>18642E00</p> <p>8060/2-3:</p> <p>Zw = 51,6°</p> <p>18643E00</p> <p>8060/2-4:</p> <p>Zw = 33,4°</p> <p>18644E00</p> <p>8060/2-5:</p> <p>Zw = 56,5°</p> <p>18645E00</p>	0.3 Nm



18572E00

E4

Position Switches

Series 8060/2

Technical data

Operation, operating speed, switching path or switching angle

Actuator type	Actuation	Schematic	Nominal switching path or switching angle	Minimum force/torque
Type 8060/2	V = Max. operating speed	⊖ = Positive opening operation	■ = Closed contact □ = Open contact Zw = Positive opening distance	
Adjustable rocking lever 8060/2--DS-60	V = 1.5 m/s		8060/2-1: 	18641E00
			8060/2-2: 	18642E00
			8060/2-3: 	18643E00
			8060/2-4: 	18644E00
			8060/2-5: 	18645E00

18579E00

Position Switches

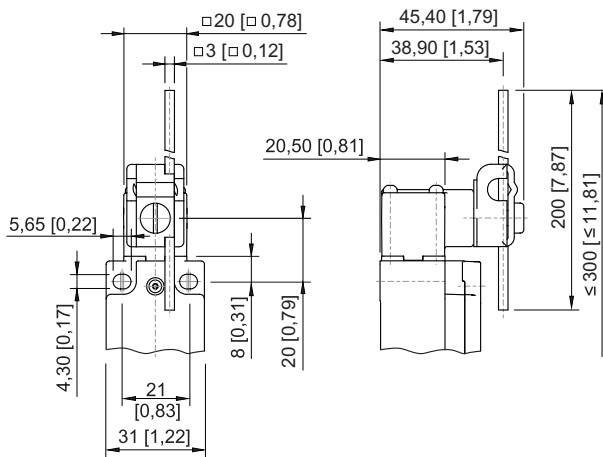
Series 8060/2



Technical data

Operation, operating speed, switching path or switching angle

Actuator type	Actuation	Schematic	Nominal switching path or switching angle	Minimum force/torque
Type 8060/2	V = Max. operating speed	⊖ = Positive opening operation	<ul style="list-style-type: none"> ■ = Closed contact □ = Open contact Zw = Positive opening distance 	
Rod lever 8060/2.-DD-60	V = 1.5 m/s Positive opening operation, not suitable for safety circuits		<p>8060/2-1:</p> <p>18641E00</p> <p>8060/2-2:</p> <p>18642E00</p> <p>8060/2-3:</p> <p>18643E00</p> <p>8060/2-4:</p> <p>18644E00</p> <p>8060/2-5:</p> <p>18645E00</p>	0.3 Nm



18513E00

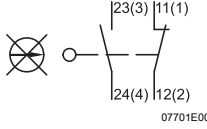
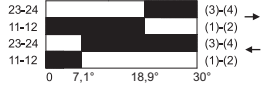
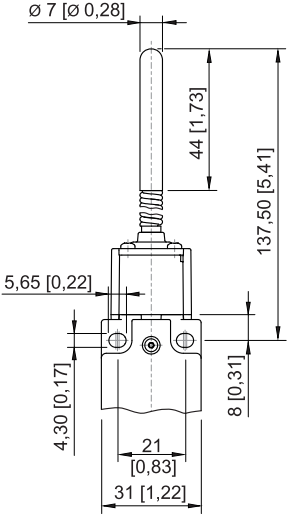
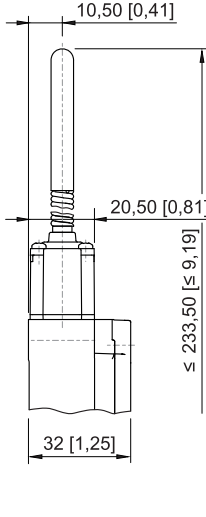
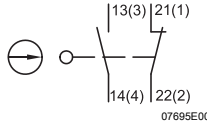
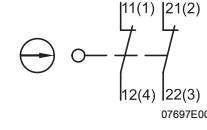
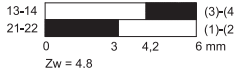
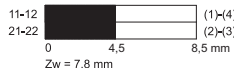
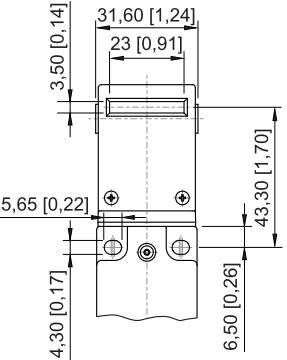
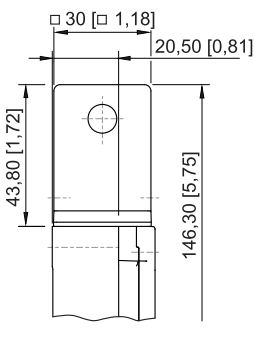
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Position Switches

Series 8060/2

Technical data

Operation, operating speed, switching path or switching angle

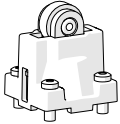
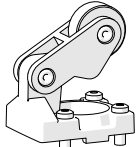
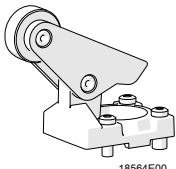
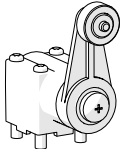
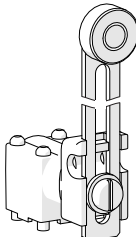
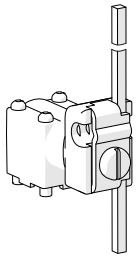
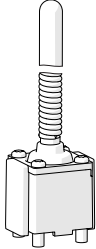
Actuator type	Actuation	Schematic	Nominal switching path or switching angle	Minimum force/torque
Type 8060/2	V = Max. operating speed	⊖ = Positive opening operation	<ul style="list-style-type: none"> ■ = Closed contact □ = Open contact Zw = Positive opening distance 	
Spring rod 8060/2--TK-60	Positive opening operation, not suitable for safety circuits	 <p>07701E00</p>	<p>Only for use with snap-action contact!</p> <p>8060/2-2:</p>  <p>18640E00</p>	—
		 		18578E00
Safety switches 8060/2--AZ-60		 <p>07695E00</p>  <p>07697E00</p>	<p>8060/2-1:</p>  <p>18639E00</p> <p>8060/2-3:</p>  <p>18628E00</p>	—
		 	<p>Note: Illustration of the shifting travel for an engaged actuator. Actuators must be ordered separately.</p>	18571E00

Position Switches

Series 8060/2



Accessories and Spare Parts


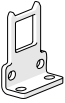
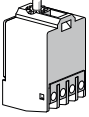
Designation	Figure	Description	Art. no.	Weight kg	
Actuator	 18614E00	Roller	8060/2-0-R	257054	0.020
	 18565E00	Roller lever	8060/2-0-WH	257055	0.020
	 18564E00	Parallel roller lever	8060/2-0-WPH	257056	0.022
	 18562E00	Rocking lever	8060/2-0-D	257057	0.035
	 18561E00	Adjustable rocking lever	8060/2-0-DS	257058	0.020
	 18560E00	Rod lever	8060/2-0-DD	257059	0.050
	 18661E00	Spring rod Only for use with snap-action contact!	8060/2-0-TK	257060	0.055

E4

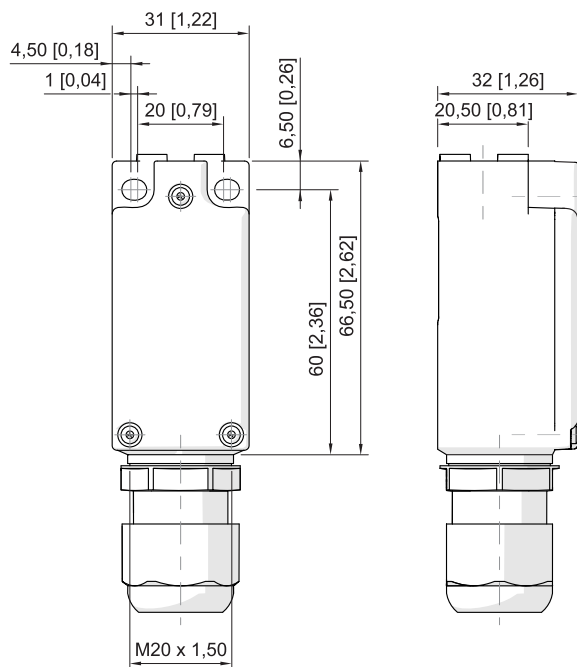
Position Switches

Series 8060/2

Accessories and Spare Parts

Designation	Figure	Description	Art. no.	Weight kg
Actuator	 18689E00	Straight actuator 8060/2-0-AZ	257052	0.040
	 18690E00	Bent actuator 8060/2-0-AZ	257053	0.040
Contact	 10809E00	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
		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

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



Position switch 8060/2

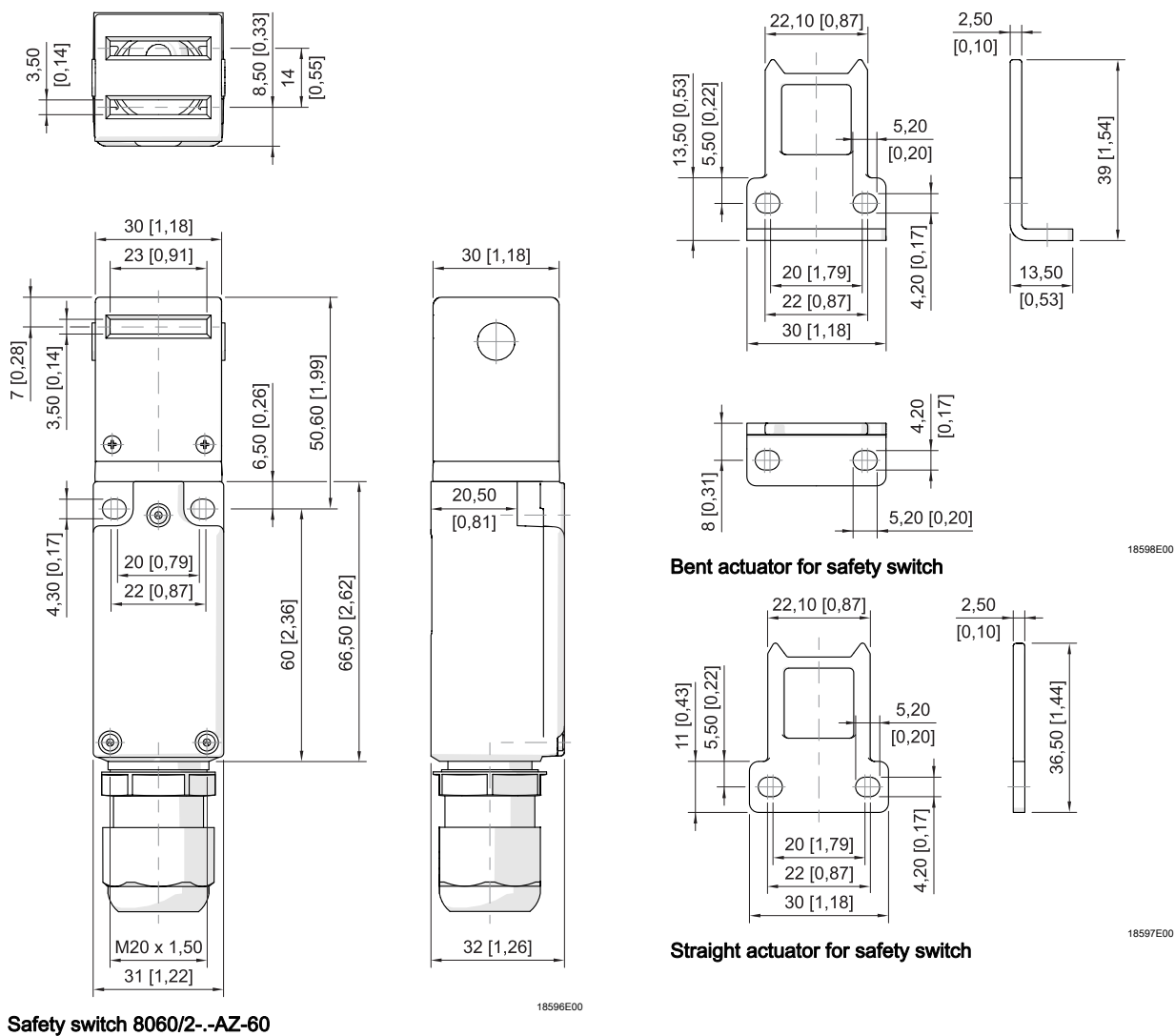
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Position Switches

Series 8060/2



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



E4

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