

Product Overview

Safety Engineering electro-mechanical



SENSORS
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More than safety.

Safety Engineering at a Glance

Enabling Switches



Enabling switches
ZSE/ZXE



Enabling switches
ZSA/ZSB











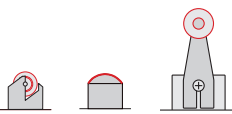


Enabling switches
ZSM

Approvals			
Features/specific advantages	<ul style="list-style-type: none"> • three-stage built-in version • single or dual-channel 	<ul style="list-style-type: none"> • three-stage • single or dual-channel • kit available 	<ul style="list-style-type: none"> • three-stage • dual or three-channel • modular design, vibration signal • kit available
AS-Interface <i>Safety at Work</i>	–	●	–
Switching elements			
Total switching contacts	see product catalog	see product catalog	see product catalog
Conventional thermal current	4 A	4 A	–
Switching current, min. (at 24V)	1 mA (ZSE)/5 mA (ZXE)	1 mA	–
Mechanical life, max.	1 x 10 ⁵ (ZSE)/1 x 10 ⁵ (ZXE)	1 x 10 ⁵	1 x 10 ⁶
Environment			
Housing material	Plastic	Plastic	Plastic
Housing dimensions, min. (HxWxD)	see product catalog	see product catalog	see product catalog
Ambient temperature	-5 to +60 °C	-5 to +50 °C	-5 to +60 °C
Degree of protection, max. acc. to IEC 60529	IP 65 (integrated)	IP 65/IP 67	IP 54
LED display	–	●	●
Approach/actuating directions	–	–	–
Approach speed, max.	–	–	–
Guard locking			
Solenoid operating voltage	–	–	–
Power consumption	–	–	–
Locking force, max.	–	–	–
Connection			
Cable entry	–	∅ 4 – 8 mm	∅ 5 – 10 mm
Connection cable (pre-assembled)	–	●	●
Plug connector	–	●	●
Accessories			
Holder	–	●	●
Connection box/etc.	–	●	●
Kit	–	●	●

1) ZSE and ZXE

Safety Engineering at a Glance

		Safety Switches with Safety Function			
		 Single limit switches NB01	 Single limit switches N1A	 Safety hinges ESH-ARO/ESH-PRO	 Safety switches NZ.VZ
Approvals					
Features/specific advantages		<ul style="list-style-type: none"> • according to EN 50041 • according to DIN 43693 	<ul style="list-style-type: none"> • robust version • two positively driven contacts 	<ul style="list-style-type: none"> • basic housing according to EN 50041 	
ASInterface Safety at Work 		●	–	●	
Switching elements	Total switching contacts	1– 4	2	4	
	Conventional thermal current	4 A – 6 A	3 A	4 A	
	Switching current, min. (at 24V)	1 mA (NZ, NB01)/ 5 mA (N1A)	1 mA	1 mA	
	Mechanical life, max.	10x10 ⁶ (NB01)/ 30x10 ⁶ (NZ, N1A ²⁾)	1 x 10 ⁶	2 x 10 ⁶	
Environment	Housing material	die-cast alloy, anodized	die-cast zinc	die-cast alloy, anodized	
	Housing dimensions, min. (HxWxD)		123 x 40 x 42 mm	115 x 40 x 42 mm	
	Ambient temperature	-25 to +80 °C*	-25 to +70 °C	-25 to +80 °C	
	Degree of protection, max. acc. to IEC 60529	IP67	IP67	IP67	
	LED display	●	Window	●	
	Approach/actuating directions	depending on actuator 	–		
	Approach speed, max.	50 m/min. – 300 m/min.	–	20 m/min.	
Guard locking	Solenoid operating voltage	–	–	–	
	Power consumption	–	–	–	
	Locking force, max.	–	–	–	
Connection	Cable entry	M20 x 1.5 ¹⁾	–	M20 x 1.5 ¹⁾	
	Connection cable (pre-assembled)	○	–	○	
	Plug connector	●	M12	●	
Accessories	Actuator straight/straight rubber-cushioned		–	●/–	
	Hinged actuator	Roller lever arm, chisel, roller and dome plungers, long roller plunger	–	●	
	Min. door radius (hinged actuator)		–	165 mm	
	Min. door radius (standard actuator)		–	1000 mm	
	Bolts for safety guards		–	●	

● available



















● not available in all versions (see catalog)

○ available on request

– not available

Metal Housing

Safety Switches with Separate Actuator

Without guard locking		With guard locking	With guard locking and guard lock monitoring		
					
Safety switches NX	Safety switches SGA	Safety switches NZ.VZ.VS	Safety switches TZ	Safety switches TX	Safety switches STA
					
<ul style="list-style-type: none"> basic housing according to EN 50041 	<ul style="list-style-type: none"> physically compatible with GP und SGP 	<ul style="list-style-type: none"> basic housing according to EN 50041 	<ul style="list-style-type: none"> two switching systems in one housing 	<ul style="list-style-type: none"> slim design auxiliary key, emergency or escape release 	<ul style="list-style-type: none"> physically compatible with TP and STP also as Twin and BiState version
●	–	–	●	●	●
4	4	4	8	4	4
4A	4A	4A	4A	4A	4A
1 mA	1 mA	1 mA	1 mA	1 mA	1 mA
2 x 10 ⁶	2 x 10 ⁶	2 x 10 ⁶	1 x 10 ⁶	1 x 10 ⁶	1 x 10 ⁶
die-cast alloy, anodized	die-cast alloy	die-cast alloy, anodized	die-cast alloy, anodized	die-cast alloy, cathodically dipped	die-cast alloy
115x40x42mm	123x40x42 mm	115x40x42mm	110x110x40mm	240x42x59mm	190x40x46.5 mm
-25 to +80 °C	-20 to +80 °C	-25 to +80 °C	-25 to +80 °C	-20 to +80 °C	-20 to +80 °C
IP67	IP67	IP67	IP67	IP67	IP67
●	–	●	●	●	●
					
20 m/min.	20 m/min.	20 m/min.	20 m/min.	20 m/min.	20 m/min.
–	–	24 / 115 / 230V	24 / 115 / 230V	24 / 115 / 230V	24 / 110 / 230V
–	–	10W	7W	8W	8W
–	–	2000N	2000N	1700N	3000N
M20x1.5 ¹⁾	3xM20x1.5	M20x1.5 ¹⁾	M20x1.5 ¹⁾	3xM20x1.5 ¹⁾	3xM20x1.5
○	–	○	○	○	○
●	●	●	●	●	●
●/-	-/●	●/-	●/-	-/●	-/●
●	●	●	●	●	●
165 mm	100 mm	165 mm	165 mm	100 mm	100 mm
1000 mm	300 mm	1000 mm	1000 mm	300 mm	300 mm
●	●	●	●	●	●

* (Low and high temperature upon request)

1) further versions upon request

2) snap-action contact element 1 x 10⁶



















Safety Engineering at a Glance

	Safety Switches with Safety Function					
	Without guard locking					
	 Safety switches NM	 Safety switches NM.VZ	 Safety switches NQ	 Safety switches NP	 Safety switches GP	
Approvals						
Features/specific advantages	<ul style="list-style-type: none"> • small design • various lever/plunger forms and hinged actuators 	<ul style="list-style-type: none"> • small design • small approach radii 	<ul style="list-style-type: none"> • compact housing 	<ul style="list-style-type: none"> • basic housing according to EN 50047 • ideal for profile assembly 	<ul style="list-style-type: none"> • identical fixing dimensions to safety switches TP 	
AS-Interface <i>Safety at Work</i> 	-	-	-	-	●	
Switching elements	Total switching contacts	3	3	3	3	4
	Conventional thermal current	4 A	4 A	2,5 A	4 A	4 A
	Switching current, min. (at 24V)	1 mA	1 mA	1 mA	30 mA	1 mA
	Mechanical life, max.	30x10 ⁶	1x10 ⁶	1x10 ⁶	1x10 ⁶	2x10 ⁶
Environment	Housing material	reinforced thermoplastic	reinforced thermoplastic	reinforced thermoplastic	reinforced thermoplastic	reinforced thermoplastic
	Housing dimensions, min. (HxWxD)	77,5x25x32 mm	82x25x32 mm	78x30x15 mm	98x35x36 mm	125x40x42 mm
	Ambient temperature	-20 to +80 °C	-20 to +80 °C	-25 to +70 °C	-25 to +80 °C	-20 to +80 °C
	Degree of protection, max. acc. to IEC 60529	IP 67	IP 67	IP 67	IP 67	IP 67
	LED display	-	-	-	-	-
	Approach/actuating directions					
Approach speed, max.	60 m/min.	20 m/min.	60 m/min.	20 m/min.	20 m/min.	
Zuhaltung	Solenoid operating voltage	-	-	-	-	-
	Power consumption	-	-	-	-	-
	Locking force, max.	-	-	-	-	-
Connection	Cable entry	3xM16x1.5	3xM16x1.5	-	M20x1.5	3xM20x1.5
	Connection cable (pre-assembled)	○	○	●	○	○
	Plug connector	●	●	-	●	●
Accessories	Actuator straight/straight rubber-cushioned		●/●	-/●	●/●	●/●
	Hinged actuator		-	●	●	●
	Min. door radius (hinged actuator)		-	50 mm	90 mm	90 mm
	Min. door radius (standard actuator)		150 mm	160 mm	1000 mm	1000 mm
	Bolts for safety guards		●	-	●	●

All data given refer to the respective minimal or maximal values for the entire series.

Plastic Housing

Safety Switches with Separate Actuator

	With guard locking	With guard locking and guard lock monitoring				
						
Safety switches SGP	Safety switches TQ	Safety switches STM	Safety switches TP / STP	Safety switches CTP	Safety switches TK	
						
<ul style="list-style-type: none"> Actuating head made of metal, also as Twin version 	<ul style="list-style-type: none"> compact housing 	<ul style="list-style-type: none"> actuating head made of plastic or metal 	<ul style="list-style-type: none"> TP: auxiliary, key auxiliary, emergency or escape release ideal for profile assembly also as Twin and BiState version STP: actuating head made of metal 	<ul style="list-style-type: none"> integrated transponder even a single guard locking achieves PL e compatible mounting with TP / STP 	<ul style="list-style-type: none"> very high locking force no protection against unintentional closing 	
●	–	–	●	–	–	
4	5	3	4	see product catalog	2	
4A	2,5A	4A	4A		4A	
1 mA	1 mA	1 mA	1 mA		1 mA	
2x10 ⁶	1x10 ⁶	2x10 ⁶	1x10 ⁶	1x10 ⁶	1x10 ⁶	
reinforced thermoplastic	reinforced thermoplastic	reinforced thermoplastic	reinforced thermoplastic	reinforced thermoplastic	reinforced thermoplastic	
123x40x42mm	75x75x15mm	96x79x38mm	192x40x42mm	204x40x42 mm	192x40x42mm	
-20 to +80 °C	-25 to +50 °C	-20 to +55 °C	-20 to +55 °C	-20 to +55 °C	-20 to +55 °C	
IP67	IP65	IP67	IP67	IP67 / IP69	IP67	
–	–	●	●	●	●	
						
20 m/min.	60 m/min.	20 m/min.	20 m/min.	20 m/min.	20 m/min.	
–	24V	24V/230V	24/110/230V	24V	24/48/230 V	
–	2,7W	6 W	8W	6W	8W	
–	500N	plastic 1000N metal 2000N	TP 1300N STP 2500 N	2600N	5000N	
3xM20x1.5	–	M20x1.5	3xM20x1.5	2xM12/1xRC18	3xM20x1.5	
○	●	○	○	–	○	
●	–	●	●	–	●	
–/●	–/●	–/●	●/●	–/●	–	
●	●	●	●	●	–	
100mm	50mm	100mm	TP 90 mm STP 100 mm	200mm	–	
300mm	160mm	300mm	TP 1000 mm STP 300 mm	300mm	–	
●	–	–	●	●	–	














Safety Engineering at a Glance

Bolts



Can be combined with	NZ, TP, STP, GP, SGP, STA, SGA	NZ.VZ, TZ, GP, TP, SGP, STP, SGA, STA	NM...VZ, NP, NZ.VZ, TZ, TX, GP, SGP, SGA, TP, STP, STA
Material	Plastic	Aluminum	Metal
Door hinge position	left and right	left and right	left and right
Detent mechanism open/closed	●/-	●/●	●/●
Escape release	●	●	●

Safety Engineering at a Glance

	Emergency Stop		Rope Pull Switches	
				
	Emergency stop	Emergency stop	Rope pull switches RPS-M	Rope pull switches RPS
Approvals				
Features/specific advantages	<ul style="list-style-type: none"> Built-in devices 	<ul style="list-style-type: none"> With housing 	<ul style="list-style-type: none"> Fast-action clamping and tensioning device with visualization integrated emergency stop function 	<ul style="list-style-type: none"> Fast-action clamping and tensioning device with visualization integrated emergency stop function
AS-Interface <i>Safety at Work</i> 	-	●	-	-
Switching elements				
Total switching contacts	4	3	4	4
Conventional thermal current	1 A	1 A	10 A	10 A
Switching current, min. (at 24V)	10 mA	10 mA	10 mA	10 mA
Mechanical life, min.	250.000	250.000	100.000	100.000
Environment				
Housing material	reinforced thermoplastic/policarbonate	reinforced thermoplastic/policarbonate	die-cast alloy	reinforced thermoplastic/policarbonate
Housing dimensions, min. (HxWxD)	65.6x30x29 mm	91.5x76x76 mm	282x90x88 mm	256x42x88 mm
Ambient temperature	-25 to +60 °C	-25 to +55 °C	-30 to +80 °C	-25 to +70 °C
Degree of protection max. acc. to IEC 60529	IP 20/IP 65	IP 65	IP 67	IP 67
LED display	●	●	-	-
Approach/actuating directions				
Approach speed, max.	-	-	-	-
Connection				
Cable entry	-	2 x Ø 21.3 mm	3xM20x1.5 ¹⁾	3xM20x1.5 ¹⁾
Connection cable (pre-assembled)	●	-	-	-
Plug connector	-	●	●	●
Screw terminal	●	●	-	-

1) further versions upon request

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