

Selection table for safety switches NZ.VZ.VS with guard locking without guard lock monitoring

Guard locking

VSM	VSE	Mechanical guard locking, closed-circuit current principle
	VSH	Electrical guard locking, open-circuit current principle
		Manual release

Connection

M	SR6	Thread M20x1.5 for cable glands
	MR8	Plug connector 6-pin + PE
		Plug connector 7-pin + PE
	SR11	Plug connector 11-pin + PE

Switching element

Two contacts	2 NC ⊖ or 1 NC ⊖ + 1 NO
Four contacts	2 NC ⊖ + 2 NO, 3 NC ⊖ + 1 NO or 4 NC ⊖

VSM	Guard locking		M	Connection			Switching element		Page
	VSE	VSH		SR6	MR8	SR11	Two contacts	Four contacts	
●			●			●	●	54	
●				●		●		55	
●					●		●	55	
	●		●			●	●	56	
	●			●		●	●	57	
	●				●		●	57	
		●	●				●	58	
		●			●		●	59	

Safety switch NZ.VZ.VSE with guard locking without guard lock monitoring



- Housing according to EN 50041
- Plug connector optional
- LED optional



Approach direction

Horizontal
Can be adjusted in 90° steps.

Solenoid operating voltage and optional LED-function display

A function display is available for the following voltage ranges:

Solenoid	LED
► DC 24 V ±10%	AC/DC 12-60 V red
► AC 110 V ±15%	AC 110 V ±15% red ¹⁾
► AC 230 V ±15%	AC 230 V ±15% red ¹⁾

Guard locking type

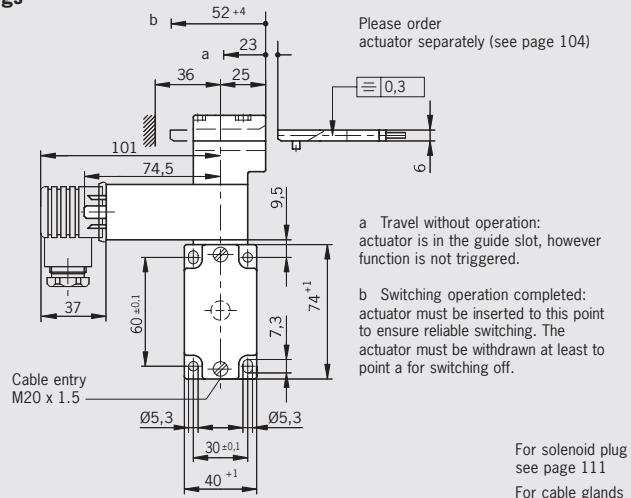
VSE Open-circuit current principle, guard locking by applying voltage to the solenoid. Release by spring force.

Switching elements (see also page 13/14)

- **511** Snap-action switching element
1 NC ⊖ + 1 NO
- **528H** Slow-action switching element
1 NC ⊖ + 1 NO
- **538H** Slow-action switching element
2 NC ⊖
- **2131H** Slow-action switching element
3 NC ⊖ + 1 NO
- **3131H** Slow-action switching element
2 NC ⊖ + 2 NO

Cable entry M20 x 1.5

Dimension drawings

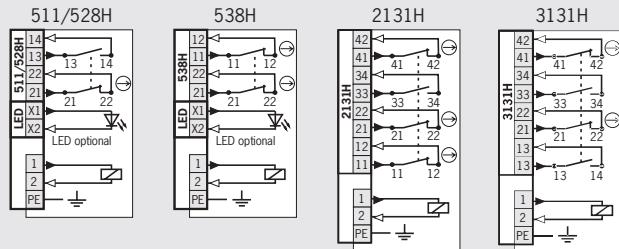


a Travel without operation:
actuator is in the guide slot, however
function is not triggered.

b Switching operation completed:
actuator must be inserted to this point
to ensure reliable switching. The
actuator must be withdrawn at least to
point a for switching off.

For solenoid plug
see page 111
For cable glands
see page 115

Wiring diagrams



Ordering table

Series	Actuator	Connection	Guard locking	Solenoid voltage	Switching element	Function display			
						Without LED	12-60V red LED	110 V red LED	230 V red LED
NZ	VZ Separate actuator	1 Cable entry M20 x 1.5	VSE Electr. guard locking open-circuit current principle	04 24 V DC	511	090 343 1 NC ⊖ + 1 NO NZ1VZ-511E3VSE04M	On request	On request	On request
					528H	079 300 1 NC ⊖ + 1 NO NZ1VZ-528E3VSE04M	On request	On request	091 738 NZ1VZ-528E3VSE04L220-M
					538H	089 905 2 NC ⊖ NZ1VZ-538E3VSE04M	082 128 NZ1VZ-538E3VSE04L060-M	On request	On request
					2131H	082 134 3 NC ⊖ + 1 NO NZ1VZ-2131E3VSE04-M	-	-	-
					3131H	088 051 2 NC ⊖ + 2 NO NZ1VZ-3131E3VSE04-M	-	-	-
				07 ¹⁾ 110 V AC	528H	082 133 1 NC ⊖ + 1 NO NZ1VZ-528E3VSE07-M	090 337 NZ1VZ-528E3VSE07L060-M	089 484 NZ1VZ-528E3VSE07L110-M	090 336 NZ1VZ-528E3VSE07L220-M
					538H	088 048 2 NC ⊖ NZ1VZ-538E3VSE07-M	On request	090 348 NZ1VZ-538E3VSE07L110-M	On request
					2131H	088 036 3 NC ⊖ + 1 NO NZ1VZ-2131E3VSE07-M	-	-	-
					3131H	088 042 2 NC ⊖ + 2 NO NZ1VZ-3131E3VSE07-M	-	-	-
				09 ¹⁾ 230 V AC	528H	088 047 1 NC ⊖ + 1 NO NZ1VZ-528E3VSE09-M	090 346 NZ1VZ-528E3VSE09L060-M	On request	090 335 NZ1VZ-528E3VSE09L220-M
					538H	088 035 2 NC ⊖ NZ1VZ-538E3VSE09-M	On request	090 348 NZ1VZ-538E3VSE09L110-M	090 334 NZ1VZ-538E3VSE09L220-M
					2131H	088 037 3 NC ⊖ + 1 NO NZ1VZ-2131E3VSE09-M	-	-	-
					3131H	088 043 2 NC ⊖ + 2 NO NZ1VZ-3131E3VSE09-M	-	-	-

1) Use only solenoid plug with integrated rectifier (see page 111)

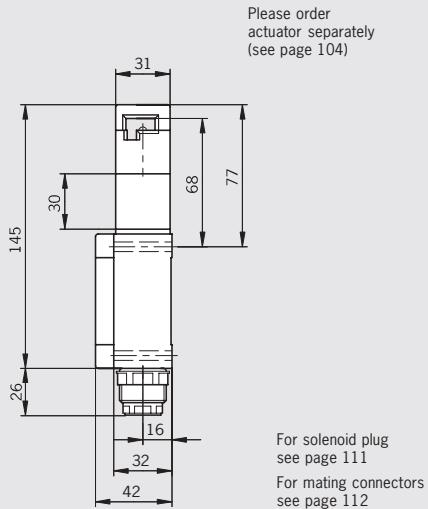
Safety Switches with Separate Actuator, Metal Housing

EUCHNER

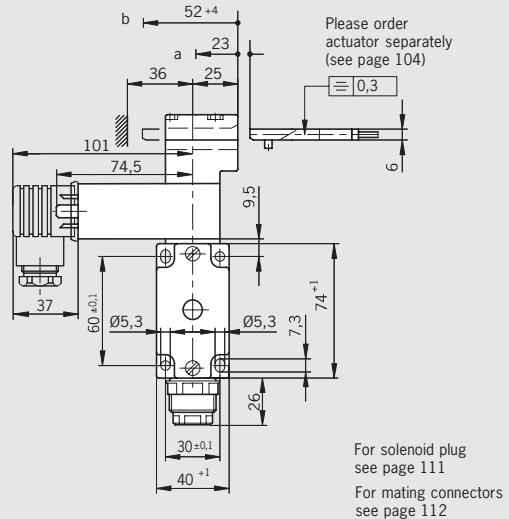


Plug connector SR6
6-pin + PE

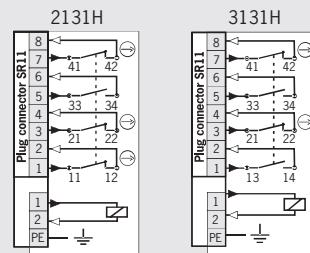
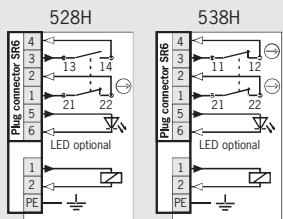
Dimension drawings



Plug connector SR11
11-pin + PE



Wiring diagrams



Ordering table

Series	Actuator	Connection	Guard locking	Solenoid voltage	Switching element	Function display		
						Without LED	12-60V red LED	110 V red LED
NZ	VZ Separate actuator	2 Plug connector SR6	VSE Electr. guard locking open-circuit current principle	04 24 V DC	528H 1 NC ⊖ + 1 NO	044 894 NZ2VZ-528E3VSE04	046 742 NZ2VZ-528E3VSE04L060	On request
			538H 2 NC ⊖		538H 2 NC ⊖	047 837 NZ2VZ-538E3VSE04	057 921 NZ2VZ-538E3VSE04L060	On request
	VZ Separate actuator	2 Plug connector SR11	VSE Electr. guard locking open-circuit current principle	07 ¹⁾ 110 V AC	528H 1 NC ⊖ + 1 NO	On request	On request	070 290 NZ2VZ-528E3VSE07L110
			2131H 3 NC ⊖ + 1 NO		2131H 3 NC ⊖ + 1 NO	074 473 NZ2VZ-2131E3VSE04	-	-
			3131H 2 NC ⊖ + 2 NO		3131H 2 NC ⊖ + 2 NO	074 474 NZ2VZ-3131E3VSE04	-	-

1) Use only solenoid plug with integrated rectifier (see page 111)

Safety switch NZ.VZ.VS... with guard locking



The technical data on switches, switching elements and guard locking apply to all connections. Further technical data are given for the connection selected.

Switch		Value	Unit
Parameter			
Housing material		Anodized die-cast alloy	
Mechanical life		2×10^6 operating cycles	
Ambient temperature		- 25 ... + 80	°C
Weight		Approx. 0.7	kg
Max. approach speed		20	m/min
Approach speed, min.		0.02 (for switching element ES511)	m/min
Actuating force		45	N
Extraction force		40	N
Retention force		35	N
Locking force, max.		2000	N
Locking force F_{Zh} in accordance with test principles GSET-19		1500	N

Switching element			Value	Unit
Parameter				
Switching principle	Snap-action switching element		Slow-action switching element	
Switching elements with 2 switching elements	511 1 NC + 1 NO	528H 1 NC + 1 NO	538H 2 NC	
Switching elements with 4 switching elements	-	2121H 4 NC	2131H 3 NC + 1 NO	3131H 2 NC + 2 NO
Min. switching current at 24 V DC	10		1	mA
Switching current max.	6		4	A
Contact closing time	< 4		-	ms
Contact bounce time	< 3		-	ms
Rated impulse withstand voltage U_{imp}			2.5	kV
Contact material			Silver alloy, gold flashed	

Guard locking (not for NZ.VZ.VSH)			Value	Unit
Parameter				
Solenoid operating voltage	DC 24 V +10/-15%	AC 110 V +10/-15% ¹⁾	AC 230 V +10/-15% ¹⁾	
Connection		Switch mounted connector (2-pin + PE) according to 43 650		
Conductor cross-section		For technical data on the solenoid plug see page 101		
Duty cycle	100		%	
Power consumption	< 10			W

Connection, cable entry M20 x 1.5		Value	Unit
Parameter			
Connection		Screw terminal	
Version		M20 x 1.5	
Conductor cross-section max.		Per wire 1.5 mm ²	
Degree of protection according to IEC 60529		IP 65	
Rated insulation voltage U_i		250	V AC/DC
Switching element	Snap-action switching element 511	Slow-action switching element 528H, 538H, 2121H, 2131H, 3131H	
Conventional thermal current I_{th}	6	4	A
Short circuit protection according to IEC 60269-1 (control circuit fuse)	6	4	A gG
Utilization category to IEC 60947-5-1	AC-12 AC-15 DC-13	I_e 10 A U_e 230 V I_e 6 A U_e 230 V I_e 6 A U_e 24 V	- I_e 4 A U_e 230 V I_e 4 A U_e 24 V

1) Use only solenoid plug with integrated rectifier

Connection, plug connector SR6

Parameter	Value	Unit
Connection	Plug connector according to DIN 43651	
Version	SR6 (6-pin + PE)	
Degree of protection according to IEC 60529	IP 65 ²⁾	
Rated insulation voltage U _i	250	V AC/DC
Switching element	Slow-action switching element 528H, 538H	
Conventional thermal current I _{th}	4	A
Short circuit protection according to IEC 60269-1 (control circuit fuse)	4	A gG
Utilization category to IEC 60947-5-1	I _e 4 A U _e 230 V	
	I _e 4 A U _e 24 V	

Connection, plug connector MR8

Parameter	Value	Unit
Connection	Plug connector	
Version	MR8 (7-pin + PE)	
Degree of protection according to IEC 60529	IP 65 ²⁾	
Rated insulation voltage U _i	250	V AC/DC
Switching element	Slow-action switching element 2131H	
Conventional thermal current I _{th}	4	A
Short circuit protection according to IEC 60269-1 (control circuit fuse)	4	A gG
Utilization category to IEC 60947-5-1	I _e 4 A U _e 230 V	
	I _e 4 A U _e 24 V	

Connection, plug connector SR11

Parameter	Value	Unit
Connection	Plug connector	
Version	SR11 (11-pin + PE)	
Degree of protection according to IEC 60529	IP 65 ²⁾	
Rated insulation voltage U _i	50	V AC/DC
Switching element	Slow-action switching element 2131H, 3131H	
Conventional thermal current I _{th}	4	A
Short circuit protection according to IEC 60269-1 (control circuit fuse)	4	A gG
Utilization category to IEC 60947-5-1	I _e 4 A U _e 50 V	
	I _e 4 A U _e 24 V	

2) Screwed tight with the related plug connector (see page 112)

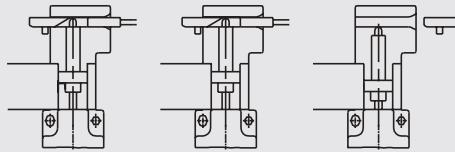
Switching functions NZ.VZ.VS

Actuator:
Switching
position:

Inserted
locked

Inserted
not
locked

Removed
not
locked



511 \ominus 21 --- 22
 13 \circ 14

528 \ominus 21 --- 22
 13 \circ 14

538 \ominus 21 --- 22
 11 --- 12

2121 \ominus 41 --- 42
 31 --- 32
 21 --- 22
 11 --- 12

2131 \ominus 41 --- 42
 33 --- 34
 21 --- 22
 11 --- 12

3131 \ominus 41 --- 42
 33 --- 34
 21 --- 22
 13 \circ 14