

Built-in enabling switch ZSG, ZSE and ZXE

- ▶ 2-/3-stage function
- ▶ Dual-channel version
- ▶ Optionally with 22.5 mm, 30.5 mm or 34.4 mm installation dimension
- ▶ Suitable, e. g. for installation in the hand-held pendant stations HBE/HBL or housing G2 or G3



2-stage function ²⁾

Enabling function is active in the second stage (pressed position). When the button is released, the enabling is removed (see function sequence).

3-stage function

Enabling function is only active in the second stage (middle position, actuating point). If the button is released or pushed further (panic function), the enabling is removed (dependent on the wiring, see function sequence).

Hand-held pendant stations HBE/HBL

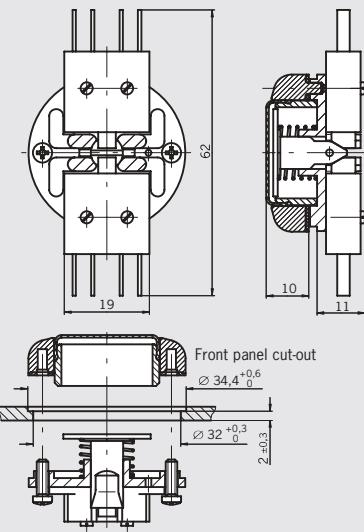
See catalog for hand-held pendant stations.

Switching elements (see also page 8)

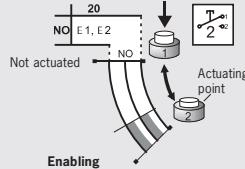
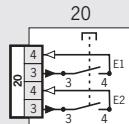
- ▶ **20** 2 NO
- ▶ **111** 1 NO + 1 NC ⊖ + 1NC
- ▶ **121** 1 NO + 2 NC ⊖ + 1 NC
- ▶ **210** 2 NO + 1 NC ⊖
- ▶ **220** 2 NO + 2 NC ⊖
- ▶ **2202** 2 NO/NC ¹⁾

ZSG, 2-stage function ²⁾ Tab connection

Dimension drawings



Wiring diagrams/function sequence



Contact
 open
 closed
 closed, enabling

Ordering table

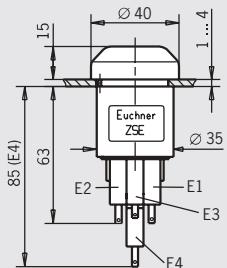
Design	Connection	Version	Switching element
			20: 2 NO
Built-in 2-stage ²⁾ ZSG	Tab connection	Suitable, e. g. for hand-held pendant stations HBE	070 793 ZSG1-2

1) Only closed in middle position, a normally open contact and a normally closed contact are combined internally.

2) As per VDI 2854, a device comparable to an EMERGENCY STOP device must be fitted!

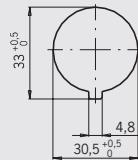
ZSE, 3-stage function
Tab connection

Dimension drawings

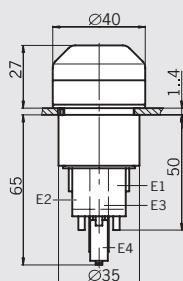


Front panel cut-out

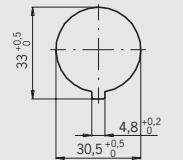
Front panel cut-out
C1692/C1943



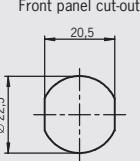
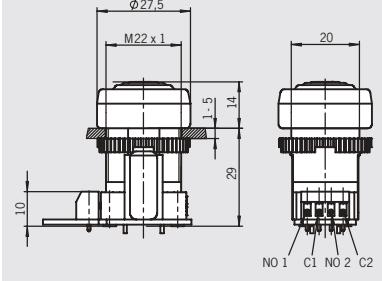
ZSE, 3-stage function
Tab connection, with spacer



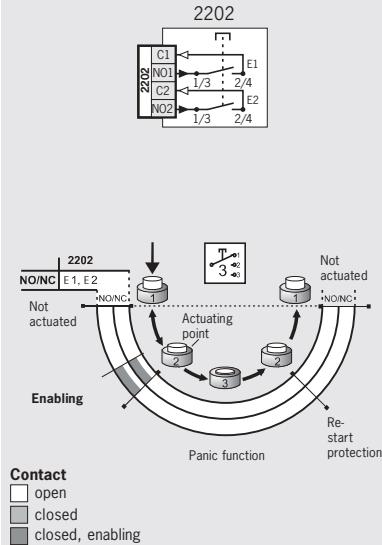
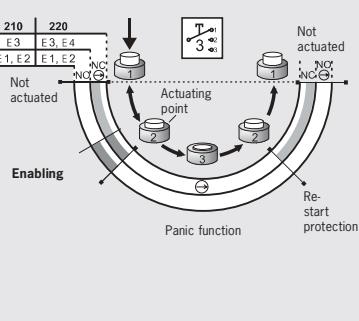
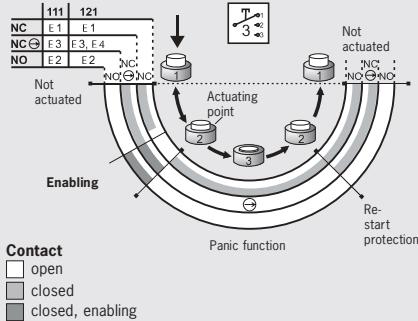
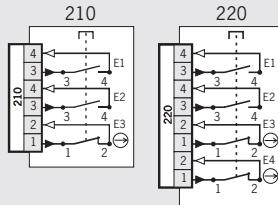
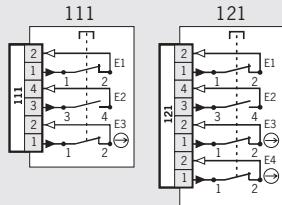
Front panel cut-out



ZXE, 3-stage function
Screw terminals



Wiring diagrams/function sequence



Ordering table

Design	Connection	Version	Switching element				
Built-in 3-stage ZSE	Tab connector		052 448 ZSE2-1	070 782 ZSE2-3	052 449 ZSE2-2	070 762 ZSE2-4	on request
		Suitable, e. g. for hand-held pendant stations HBE/HBL	on request	on request	070 752 ²⁾ ZSE2-2C1692	083 477 ²⁾ ZSE2-4C1943	on request
	Tab connector	With spacer for installation in housing G2 or G3	on request	on request	091 098 ZSE2-4C1801	091 336 ZXE-091336	on request
Built-in 3-stage ZXE	Screw terminals		-	-	-	-	

For technical data see page 41

1) Only closed in middle position, a normally open contact and a normally closed contact are combined internally.
2) No BG type examination

Built-in version

Parameter	Value	Unit
Housing material	Polyamide, black	
Protective cap material	CR (neoprene), black	
Degree of protection to IEC 60529	IP 65	
Ambient temperature	- 5 to +60	°C
Installation position	Any	
Weight	ZSE / ZSG: approx. 0.1 ZXE: approx. 0.03	kg

Hand-held version G1

Parameter	Value	Unit
Housing material	Polyamide, black	
Protective cap material	CR (neoprene), black	
Degree of protection to IEC 60529	IP 67 / IP 65 with additional function (button, LED)	
Ambient temperature	- 5 to +50	°C
Weight	Approx. 0.4 (no cable)	kg

Hand-held version G2

Parameters	Value	Unit
Housing material	Polyamide, yellow	
Protective cap material	CR (neoprene), black	
Degree of protection to IEC 60529	IP 65	
Ambient temperature	- 5 to +50	°C
Weight	Approx. 1.1 (with 5 m straight cable)	kg

Hand-held version HBE

Parameter	Value	Unit
Housing material	Polyamide, gray	
Protective cap material	CR (neoprene), black	
Degree of protection to IEC 60529	IP 65	
Ambient temperature	- 5 to +50	°C
Weight	Approx. 1.5 (with 5 m straight cable)	kg

Hand-held version G3

Parameter	Value	Unit
Housing material	Polyamide, yellow	
Protective cap material	CR (neoprene), black	
Degree of protection to IEC 60529	IP 65	
Ambient temperature	- 5 to +50	°C
Weight	Approx. 1.5 (with 5 m straight cable)	kg

Switching elements

Parameter	Value	Unit
Switching principle	Slow-action contact element	
Life	1 x 10 ⁵ cycles	
Function sequence	2-stage	3-stage
Switching element	10	1110
With 1 contact element	1 NO	1 NO/1 NC ⊖
Switching elements	20	1210
With 2 contact elements	2 NO	1 NO/NC ⊖ + 1 NO
Switching elements	21	111
With 3 contact elements	2 NO + 1 NC	1 NO + 1 NC ⊖ + 1 NC
Switching elements	-	121
With 4 contact elements	-	1 NO + 2 NC ⊖ + 1 NC
Min. switching current at 24 V		2 NO + 2 NC ⊖
		1 mA (ZXE switching element 2202: 5 mA)

Tab connector connection, hand-held kit ZSA

Parameter	Value	Unit
Connection	Tab connector	
Version according to IEC 60760	2.8 x 0.8 mm	
Degree of protection to IEC 60529	IP 00	
Rated impulse withstand voltage U_{imp}	2.5	kV
Rated insulation voltage U_i	250	V AC/DC
Conventional thermal current I_{th}	3	A
Short circuit protection according to IEC 60269-1 (control circuit fuse)	4	A gG
Utilization category according to EN 60947-5-1	I_e 4 A U_e 230 V	
	I_e 3 A U_e 24 V	

Screw terminal connection, ZXЕ

Parameter	Value	Unit
Connection	Screw terminals	
Version	4-pin	
Tightening torque, max.	0.15	Nm
Conductor diameter	single conductor	0.3 - 1.4 mm, AWG 22 - 16
Conductor nominal diameter	single conductor	1.5
	flexible conductor	1 mm ² , AWG 16
Conductor insulation stripping		5
Degree of protection to IEC 60529	connections	IP 00
Rated impulse withstand voltage U_{imp}	1.5	kV
Rated insulation voltage U_i	30	V AC/DC
Conventional thermal current I_{th}	0.1	A
External fuse $U (+LA) / U (+LB)$	0.1 A gG	
Utilization category according to EN 60947-5-1	I_e 0.1 A U_e 24 V	
	DC-13	

Connection using flying lead

Parameter	Value	Unit
Connection	Cable 3 x 0.75 mm ²	
	Cable 6 x 0.34 mm ²	
	Cable 8 x 0.34 mm ²	
	Cable 8 x 0.5 mm ² + 8 x 0.14 mm ²	
Version		
individual screening	2 x 0.75	mm ²
without screen	1 x 0.75	mm ²
additional elements	-	mm ²
Rated impulse withstand voltage U_{imp}	2.5	kV
Rated insulation voltage U_i	250	V AC/DC
Short circuit protection according to IEC 60269-1 (control circuit fuse)	4	A gG
Utilization category enabling switches according to EN 60947-5-1	I_e 4 A U_e 230 V	I_e 2 A U_e 230 V
	I_e 3 A U_e 24 V	I_e 2 A U_e 24 V
Utilization category buttons and LEDs according to EN 60947-1-5	I_e 400 mA U_e 32 V	I_e 400 mA U_e 32 V
	I_e 100 mA U_e 50 V	I_e 100 mA U_e 50 V
DC-15		
DC-13		

Plug connector SS4 connection

Parameter	Value	Unit
Connection	Male connector	
Version	SS4 (3-pin + PE)	
Connection cable conductor cross-section	6 x 0.34	mm ²
Degree of protection to IEC 60529	IP 67 ¹⁾	
Rated impulse withstand voltage U_{imp}	0.8	kV
Short circuit protection according to IEC 60269-1 (control circuit fuse)	2	A gG
Utilization category according to EN 60947-5-1	I_e 2 A U_e 230 V	
	I_e 2 A U_e 24 V	
DC-15		
DC-13		

Plug connector SVM5 connection

Parameter	Value	Unit
Connection	Male connector	
Version	SVM5 (5-pin)	
Connection cable conductor cross-section	6 x 0.34	mm ²
Degree of protection to IEC 60529	IP 67 ¹⁾	
Rated impulse withstand voltage U_{imp}	0.8	kV
Short circuit protection according to IEC 60269-1 (control circuit fuse)	2	A gG
Utilization category according to EN 60947-5-1	I_e 2 A U_e 24 V	
	I_e 2 A U_e 24 V	
AC-15		
DC-13		

¹⁾ Only screwed tight with the related plug connector from page 36ff

Plug connector CE5 connection

Parameter	Value	Unit
Connection	Male connector	
Version	CE5 (3-pin + N + PE)	
Connection cable conductor cross-section	3 x 0.75	mm ²
Degree of protection to IEC 60529	IP 65 ¹⁾	
Rated impulse withstand voltage U _{imp}	0.8	kV
Short circuit protection according to IEC 60269-1 (control circuit fuse)	2	A gG
Utilization category according to EN 60947-5-1	I _e 2 A U _e 230 V	
	I _e 2 A U _e 24 V	
AC-15		
DC-13		

Plug connector C16 connection

Parameter	Value	Unit
Connection	Male connector	
Version	C16 (6-pin + PE)	
Connection cable conductor cross-section	3 x 0.75	8 x 0.34
Degree of protection to IEC 60529	IP 67 ¹⁾	mm ²
Rated impulse withstand voltage U _{imp}	0.8	kV
Short circuit protection according to IEC 60269-1 (control circuit fuse)	2	A gG
Utilization category according to EN 60947-5-1	I _e 2 A U _e 24 V	
	I _e 2 A U _e 24 V	
AC-15		
DC-13		

Plug connector MR7 connection

Parameter	Value	Unit
Connection	Male connector	
Version	MR7 (7-pin)	
Connection cable conductor cross-section	No cable	
Degree of protection to IEC 60529	IP 65 ¹⁾	
Rated impulse withstand voltage U _{imp}	0.8	kV
Short circuit protection according to IEC 60269-1 (control circuit fuse)	2	A gG
Utilization category enabling switch according to EN 60947-1-5	I _e 2 A U _e 24 V	
	I _e 2 A U _e 24 V	
AC-15		
DC-13		
Utilization category buttons and LEDs according to EN 60947-1-5	24 V 400 mA	
	24 V 100 mA	
AC-15		
DC-13		

Plug connector MR8 connection

Parameter	Value	Unit
Connection	Male connector	
Version	MR8 (8-pin)	
Connection cable conductor cross-section	No cable	
Degree of protection to IEC 60529	IP 65 ¹⁾	
Rated impulse withstand voltage U _{imp}	0.8	kV
Short circuit protection according to IEC 60269-1 (control circuit fuse)	2	A gG
Utilization category enabling switch according to EN 60947-1-5	I _e 2 A U _e 24 V	
	I _e 2 A U _e 24 V	
AC-15		
DC-13		
Utilization category buttons and LEDs according to EN 60947-1-5	24 V 400 mA	
	24 V 100 mA	
AC-15		
DC-13		

Plug connector MR10 connection

Parameter	Value	Unit
Connection	Male connector	
Version	MR10 (10-pin)	
Connection cable conductor cross-section	No cable	
Degree of protection to IEC 60529	IP 65 ¹⁾	
Rated impulse withstand voltage U _{imp}	0.8	kV
Short circuit protection according to IEC 60269-1 (control circuit fuse)	2	A gG
Utilization category enabling switch according to EN 60947-1-5	I _e 2 A U _e 24 V	
	I _e 2 A U _e 24 V	
AC-15		
DC-13		

¹⁾ Only screwed tight with the related plug connector from page 36ff

Plug connector HAN10 connection

Parameter	Value	Unit
Connection	Male connector	
Version	HAN10 (10-pin + PE)	
Connection cable conductor cross-section	8 x 0.34	mm ²
Degree of protection to IEC 60529	IP 65 ¹⁾	
Rated impulse withstand voltage U _{imp}	0.8	kV
Short circuit protection according to IEC 60269-1 (control circuit fuse)	2	A gG
Utilization category according to EN 60947-1-5	I _e 2 A U _e 230 V DC-13	
	I _e 2 A U _e 24 V	

Plug connector RC12 connection

Parameter	Value	Unit
Connection	Male connector	
Version	RC12 (11-pin + PE)	
Connection cable conductor cross-section	8 x 0.5 + 8 x 0.14	6 x 0.34
Degree of protection to IEC 60529	IP 67 / IP 65 with additional elements ¹⁾	
Rated impulse withstand voltage U _{imp}	0.8	kV
Short circuit protection according to IEC 60269-1 (control circuit fuse)	2	A gG
Utilization category enabling switch according to EN 60947-1-5	I _e 2 A U _e 24 V DC-13	
Utilization category buttons and LEDs according to EN 60947-1-5	24 V 400 mA AC-15	-
	24 V 100 mA DC-13	-

Plug connector BS12 connection

Parameter	Value	Unit
Connection	Female connector	
Version	BS12 (12-pin)	
Connection cable conductor cross-section	8 x 0.5 + 8 x 0.14	mm ²
Degree of protection to IEC 60529	IP 65 ¹⁾	
Rated impulse withstand voltage U _{imp}	0.8	kV
Short circuit protection according to IEC 60269-1 (control circuit fuse)	2	A gG
Utilization category enabling switch according to EN 60947-1-5	I _e 2 A U _e 24 V DC-13	
Utilization category buttons and LEDs according to EN 60947-1-5	24 V 400 mA AC-15	-
	24 V 100 mA DC-13	-

Plug connector RC17 connection

Parameter	Value	Unit
Connection	Male connector	
Version	RC17 (17-pin)	
Connection cable conductor cross-section	8 x 0.34	8 x 0.5 + 8 x 0.14
Degree of protection to IEC 60529	IP 67 or IP 65 with additional elements ¹⁾	mm ²
Rated impulse withstand voltage U _{imp}	0.8	kV
Short circuit protection according to IEC 60269-1 (control circuit fuse)	2	A gG
Utilization category enabling switch according to EN 60947-1-5	I _e 2 A U _e 24 V DC-13	
Utilization category buttons and LEDs according to EN 60947-1-5	24 V 400 mA AC-15	-
	24 V 100 mA DC-13	-

Plug connector RC17 Y-coded connection

Parameter	Value	Unit
Connection	Male connector	
Version	RC17 Y-coded (17-pin)	
Connection cable conductor cross-section	8 x 0.5 + 8 x 0.14	mm ²
Degree of protection to IEC 60529	IP 67 or IP 65 with additional elements ¹⁾	
Rated impulse withstand voltage U _{imp}	0.8	kV
Short circuit protection according to IEC 60269-1 (control circuit fuse)	2	A gG
Utilization category enabling switch according to EN 60947-1-5	I _e 2 A U _e 24 V DC-13	
Utilization category buttons and LEDs according to EN 60947-1-5	24 V 400 mA AC-15	-
	24 V 100 mA DC-13	-

¹⁾ Only screwed tight with the related plug connector from page 36ff

Plug connector VP19 connection

Parameter		Value	Unit
Connection		Male connector	
Version		VP19 (19-pin)	
Connection cable conductor cross-section		8 x 0.5 + 8 x 0.14	mm ²
Degree of protection to IEC 60529		IP 65 ¹⁾	
Rated impulse withstand voltage U _{imp}		0.8	kV
Short circuit protection according to IEC 60269-1 (control circuit fuse)		2	A gG
Utilization category enabling switch according to EN 60947-1-5	AC-15 DC-13	I _e 2 A U _e 24 V	
Utilization category buttons and LEDs according to EN 60947-1-5	AC-15 DC-13	I _e 2 A U _e 24 V 24 V 400 mA 24 V 100 mA	

Plug connector UT23 connection

Parameter		Value	Unit
Connection		Male connector	
Version		UT23 (23-pin)	
Connection cable conductor cross-section		6 x 0.34	mm ²
Degree of protection to IEC 60529		IP 67 ¹⁾	
Rated impulse withstand voltage U _{imp}		0.8	kV
Short circuit protection according to IEC 60269-1 (control circuit fuse)		2	A gG
Utilization category according to EN 60947-1-5	AC-15 DC-13	I _e 2 A U _e 24 V	

Plug connector TB24 connection

Parameter		Value	Unit
Connection		Male connector	
Version		TB24	
Connection cable conductor cross-section		8 x 0.5 + 8 x 0.14	mm ²
Degree of protection to IEC 60529		IP 65 ¹⁾	
Rated impulse withstand voltage U _{imp}		0.8	kV
Short circuit protection according to IEC 60269-1 (control circuit fuse)		2	A gG
Utilization category according to EN 60947-1-5	AC-15 DC-13	I _e 2 A U _e 24 V	

¹⁾ Only screwed tight with the related plug connector from page 36ff