Key safety switches - E102/E202/E302/E402...S



Overview

PERSONAL SAFETY

The command circuit that authorises the start-up of the process is closed only by the complete insertion of the safety key, and the circuit is opened when this is removed. This prevents intentional tampering with the machine by the operator until the safety protection device is opened.

OPERATING SAFETY

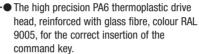
Designed to lock the safety device when closed, when the key is inserted in the switch the multiple block device is activated and the NC contact can be closed.

SAFETY IN USE

The device has been designed to permit limited key vibration to make it relatively insensitive to mechanical disturbances.

B

5 WAY KEY SWITCHES



 The head can be rotated through 90°. Four possibilities for the lateral connection of the key and one on the upper surface (5 way).





Contact element available for the E102-E202-E302 two contact series with slow action, 1NO + 1NC and 2NC. For the E400 series, it is also possible to add two 4-contact slow action contact elements, 3NC + 1NO (80) and 2NC + 2NC (81).





5 WAY COMMAND KEYS



Z5-1









Z5-2



Overview

The E802 series electromagnetic lock/release 5-way key safety switchs are used in the protection barriers of machines with inertia movement (machines whose stoppage time is greater than the access time to the action zone), which require controlled opening of the protection systems.

The switches are in accordance with the EN292, EN294, EN60204, EN1088 and EN945-1 safety standards.

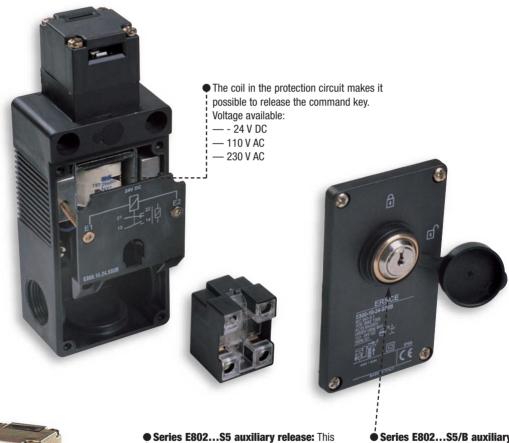
The range is available in metal and thermoplastic versions, both with five types of contact element, each of which is associated with three types of coil, depending on the operating voltage.

E802...S5 - E802...S5/B

SPRING LOCK DESIGN (E802...\$5 and E802...\$5/B)

The spring lock holding mechanism operates on the **rest current** principle. When the power supply voltage of the electromagnet is cut off, it is not possible to open the safety barrier directly. This means that once the key has been inserted it is locked in place by elastic force and can be removed only by supplying power to the magnet or rotating the auxiliary release device







- is used to release the holding mechanism irrespective of the condition of the electromagnet.
- Undo the safety screw
- Rotate the auxiliary release through 180° in the direction of the arrow or symbols using a screwdriver.

After activation, the safety screw has to be returned to its position and sealed (using safety paint, for example) to avoid possible risks.

 Series E802...S5/B auxiliary release: In this product, the release mechanism is a key lock for speed and simplicity of operation.





Dual insulation plastic



E102 - 5 way with **Z5** key

Code	Model	Description	Туре	Travel diagram	Weight
EN840010	E102 01 \$5I	1NO+1NC Slow action	01 (21 13)	Zb 21-22 13-14 6	0,100
EN840020	E102 04 \$5I	2NC Slow action	04 • 11 21	Zb 11-12	0,100





E202 - 5 way with Z5 key

Code	Model	Description	Туре		Travel diagram	Weight
EN840030	E202 01 \$5I	1NO+1NC Slow action	01	21 13 	21-22 13-14	0,105
EN840040	E202 04 \$5I	2NC Slow action	04	11 21 	0 3 5,6F mm	0,105



• Installation examples page **B15**

Dimensions page B17
Technical information page B4

• Operating features page **B5**

• Approval and certification page D8





Accessories



5 way - command keys - E102...E402

Code	Model	Description Weight	
ER840130	Z 5	Angle key with fixing perpendicular	
		to the drive direction, supplied as series	0,100



Code	Model	Description Weight		
FR840140	Z5-1	Straight key for straight line shift	0.100	

B



Code	Model	Description Weight
ER840150	Z5-2	Hinged key with screw for key
		angle regulation 0,150



Code	Model	Description Weight	
ER844510	Z5-3	Long straight key for straight line shift	0,200



Code	Model	Description Weight
ER844500	Z5-4	Long angle key with fixing
		perpendicular to the drive direction 0,200



[•] Installation examples page **B15**

[•] Dimensions page **B18**

Dual insulation plastic



5 way with electromagnetic release

Driver locked mechanically. Can be removed electrically by supplying power to the electromagnet or rotating the auxiliary release device.

Code	Model	Description	Type		Contact release		Electrom.	
				Locked	position	0pen	voltage	Weight
EN842600 EN842610 EN842620	E802 10 24 S5I/B E802 10 110 S5I/I E802 10 230 S5I/I	1NO+1NC Slow action	10	21 13 0 Zb 22 14	21 13 	21 13 0-// ZI 22 14	24 V DC • 110 V AC 230 V AC	0,375 0,375 0,375

Condizione azionatore ed elettromagnete					
Bloccato	Sbloccato	Aperto			
E 22	E1 22				

Locked: electromagnet de-energised,

key in electromagnet excited, Released: key in electromagnet excited, Open:

key out

Accessories



5 way - command keys - E802

Code	Model	Description Weight
ER840150	Z5-2	Hinged key with screw
		for key angle regulation 0,150



Code	Model	Description Weight	
ER844510	Z5-3	Long straight key for straight line shift	0,200



Code	Model	Description Weight
ER844500	Z5-4	Long angle key with fixing
		perpendicular to the drive direction 0,200

- Installation examples page B16Dimensions page B17
- Technical information page **B4**
- Operating features page **B5**
- Approval and certification page D8



Key safety switches - E102/E202/E302/E402...S



5 way – Examples of installation

Installing the key driverAssembly of the driver on a rotating protective device (allow space for pivot points)

Type of key	Horizontal mounting	Vertical mounting		
Z5 Z5-1 Z5-3 Z5-4	8+0.2	10+12.5 R=2 150		
Z 52	14+16,5 14+16,5	14+16.5 R = 2.59		
NFC		Assembly Never use the safety switch as a mechanical travel stop. Recommended positioning for correct operation A (contact switching point) = 4 mm B (driver limit switch point) = 0 to 1 mm max The contacts remain closed from point A to point B (4 mm max travel)		



5 way – Examples of installation

Installing the key driverAssembly of the driver on a rotating protective device (allow space for pivot points)

Type of key	Horizontal mounting	Vertical mounting		
Z5-3 Z5-4	8+0.2	8+02		
Z5-2	8+0,2			
NFC		Assembly Never use the safety switch as a mechanical travel stop. Recommended positioning for correct operation A (contact switching point) = 4 mm B (driver limit switch point) = 0 to 1 mm max The contacts remain closed from point A to point B (4 mm max travel)		

Key safety switches - E102/E202/E302/E402/E802...S



5 way - Dimensions (mm)

Dual insulation plastic – Metal

Series	Side view	Front view	Top view	Series	Side view	Front view	Top view
E102 S5I (5 way)	30.25 30.25 80	30 62 62 64.3	7.5	E402 S5I S5M (5 way)	30.25	30 30 30 30 30 30 30 30 30 30 30 30 30 3	7.75
E202 S5I S5M (5 way)	30.25 30.25 32 33 33 33	30 9.43 9.43 9.43 9.43 9.50 9.50 9.50 9.50	7.55	E802 S5I S5M S5I/E S5M/E (5 way)	5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	02 03 03 03 03 03 03 03 03 03 03 03 03 03	
E302 S5M (5 way)	30.25 6.25 6.25 16.3 16.3 35.5	30 5.5.5 5.6.2	7.5	E802 S5I/B S5M/B (5 way)	15 To		



Command Key - Dimensions (mm)

Series	Side view	Front view	Top view	
Z5 (5 way)	36.2	36,2	7 1 22	
Z5-1 (5 way)		44.4 44.4 44.4 44.4 44.4 44.4 44.4 44.4 44.4		
Z5-2 (5 way)		30.4		
Z5-3 (5 way)	81.5	81,5		
Z5-4 (5 way)	44,5	44,5	SC 15 0	





Technical information

General features

Activation speed					mm/o	11500 (5500 for key
Activation speed					mm/s	and hinge switches)
Frequency of operation					operat./min	30 max
Insulation				500 V DC	MΩ	100
Insulation strength			50	/60 Hz per 1' *	V AC	2500
Rated insulation voltage		Ui	IEC947-5-1	700 Hz per 1	V AC	500
Rated thermal current		Ithe	IEC947-5-1		A A	10
Rated operating current		шь	IEC947-5-1/EN60947-5-1		Λ	10
nated operating earront	Category AC15	le	120347 0 1/21100347 0 1	24 V	A	10
	A300	10	_	125 V	A	10
	Nooo		_	230 V	A	6
			-	400 V	A	4
			_	500 V	A	3
	Category DC13	le		24 V	A	10
	Q300	10	-	48 V	A	4
	4000		-	120 V	A	1
			_	250 V	A	0,4
Contact resistance			IEC255-7 cat.3	initial value	mΩ	25
Protection against short circuit			IEC269 (IEC947-5-1)			
· ·			gl or gG type fuse		Α	10
Conditional short circuit current			IEC947-5-1		А	100
Pollution level			IEC947-5-1			3
Protection level		EN 60529		IP	66	
Protection against voltage peaks				plastic	class	II
			_	Metal	class	I
Resistance to vibrations		IEC68-2-6		mm	0,35 ± 15% (10 to 55Hz ± 1Hz)	
Resistance to shock		IEC68-2-27	11 ms	g	30	
Mechanical duration					min cycles	1.000.000
Electrical duration		at 250 V AC 6A with resistar	ıt			
			load cosß=1		min cycles	500.000
			at 250 V AC 6A with resistar	ıt		
			load cosß=0,4		min cycles	500.000
Distance between contact	ts		fast action models		mm	2x2
Terminals			type			Screw with combined notch and removable plate
						(notch Ph, size 1)
			screw		M	3,5
			protection level		IP	20 A
			material			Steel class 8.8 / galvanised iridescent yellow 6 to 8µ
			max screw tightening force		N cm (Kg cm)	120 (12,24)
			connecting sections	rigid cable	mm²	2x1,5
				flexible cable	mm²	2x1,5
			with prod terminal		mm²	1x1,5
			terminal numbering			in accordance with EN50013

Conditions of use

Ambient operating temperature	°C	-35 to +85 (without formation of ice)
Relative operating humidity		95% max

^{*} between terminals of the same polarity; between terminals of different polarity; between live mechanical parts and mass; between live mechanical parts and unpowered mechanical parts



