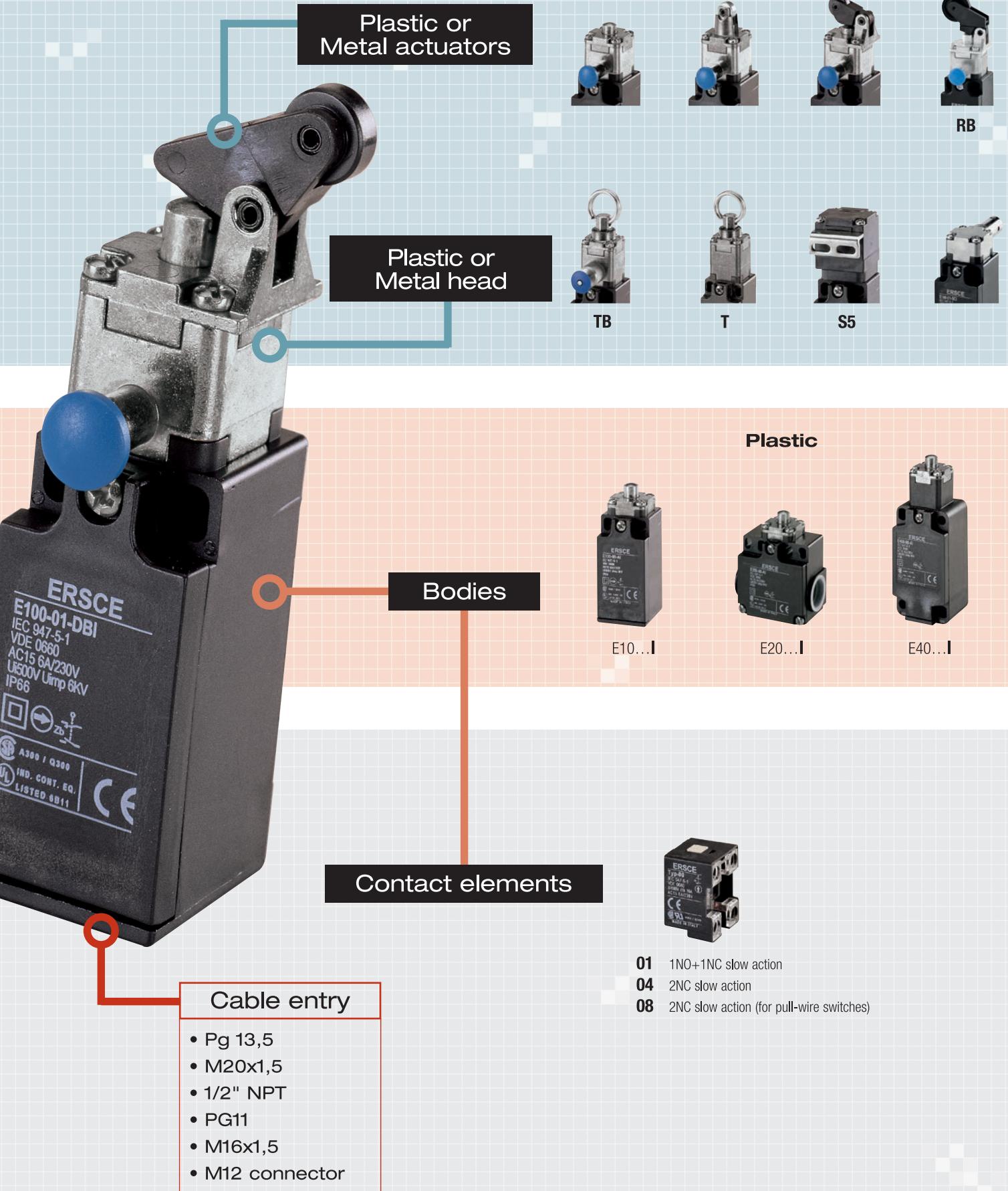




Safety
switches

Selection diagram



limit and safety switches



DB

EB



IB



IB•50



FB



FB•50



FBR•50

Metal



E10...M



E30...M



E40...M

Product code structure

E10 | 0 | 01 | FB | I | 50

Series

- E10** 1 cable entry
- E20** 2 cable entry
- E30** 3 cable entry
- E40** 4 cable entry

Ingresso cavi

- 0** PG 13,5
- 1** M20x1,5
- 2** 1/2" NPT
- 3** PG 11
- 4** M16x1,5

Contact element

- 01** 1NO+1NC slow action
- 04** 2NC slow action

...

Opzioni

- 50** With Ø50 mm roller
- P** With cable gland Pg13,5
- Q** With cable gland Pg11
- M12** With M12 connector
- R** With membrane M20x1,5

Construction material

- I** Plastic body / Metal head
- M** Metal body / Metal head

Actuator type

- AB** Steel plunger with reset
- BB** Steel roller plunger with reset

...

Note: Please verify the effective availability of a product before ordering.



Safety switches - Overview

Technical data

			TYPE	E100 / E200 / E300 / E400
Maximum operating frequency			operat./hour ¹	3600
Insulation resistance		500 V DC	MΩ	100
Dielectric strength		50/60 Hz for 1 ¹	V AC	2500 ²
Rated insulation voltage	Ui	IEC947-5-1	V AC	500
Rated thermal current	Ithe	IEC947-5-1	A	10
Rated operating current	Category AC15	le IEC947-5-1/EN60947-5-1	24V A	10
	A300		125V A	6
			230 V A	6
			400 V A	3
Contact resistance		IEC255-7 cat.3	initial value	mΩ 25
Short circuit protective devices		IEC269 (IEC947-5-1)		
		fuse type gL or gG	A	10
Rated conditionals short circuit current		IEC947-5-1	A	1000
Pollution degree		IEC947-5-1	A	3
Protection degree		EN 60529		IP66
Protection against electric shock			plastic class	II
			metal class	I
Vibration resistance		IEC68-2-6	mm	0,35 ± 15% (10 ÷ 55 Hz ± 1 Hz)
Shock resistance		IEC68-2-27	11ms g	30
Mechanical life			cycles	20,000,000
Electric life		at 250V AC 6A with resistance load cosφ=1	cycles	500.000
		at 250V AC 6A with inductive load cosφ=0,4	cycles	500.000
Distance between contacts		Snap action type	mm	2x1,25
		Low action type	mm	2x2
Terminals	Type			Screw with combined notch and retractable plate (notch Ph. Size 1)
	Screw			3,5
	Protection degree			IP20
	Material			Steel class 8,8 / Galvanized
	Max screw tightening torque			120 (12,24)
	Max connecting capacity	rigid cable mm²		2x1,5
		flexible cable mm²		2x1,5
Terminal numbering				In accordance with EN50013
Air ambient temperature		operational	°C	-35 ÷ +85 (without formation of ice)
Relative umidity		operational		95% max

¹ One operation cycle means two movements, one to close and one to open as required by EN 60947-5.

² Between terminals of the same polarity; between terminals with different polarity; between live mechanical parts and ground; between live mechanical parts and non-current-carrying metal parts.

Certifications and Approvals



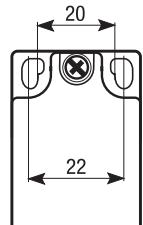
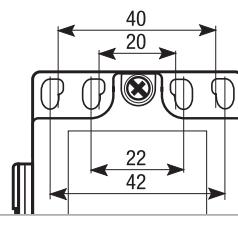
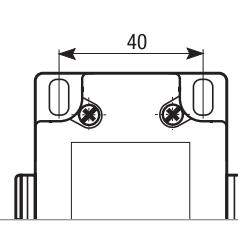
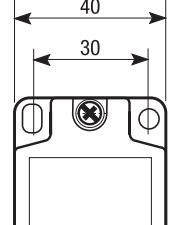
IEC EN 60947

E100	•	•	+
E200	•	•	+
E300	•	•	+
E400	•	•	+

- UL approval file E72861
- CSA approval file 026716-0-000
- Approved
- + Conforms to requirements

**E100-E200
E300-E400
series**

- Plastic or Metal body
- Plastic* or Metal head and actuators
- IP66 protection degree
- Contact elements with positive opening of the NC contact in accordance to IEC EN 60947-5-1 and VDE 0660-200

Series	Product	Fixing holes
E100		
E200		
E300		
E400		

* On key actuated switches

Safety switches - Overview

Cable inputs/outputs

Series	Nr.
E100	1 on the bottom 
E200	2 on the sides 
E300	2 on the sides + 1 on the bottom 
E400	1 on the bottom 

Type	Series
Pg 13,5	Ex0..
M20x1,5	Ex01..
1/2 NPT	Ex02..
Pg 11	Ex03..
M16x1,5	Ex04..
M12 connector	Ex00..M12

Actuation heads**Safety switches with reset****Group AB-BB****AB**
Plunger**BB**
Roller plunger**Group CB-RB****CB**
Plastic roller lever,
side actuation**RB**
Reversible
and adjustable lever
with plastic roller**DB**
Plastic roller lever,
vertical actuation**DB**
Plastic roller lever,
vertical actuation**Group EB-IB-FB-FRB****EB**
Straight lever
with plastic roller**IB**
Bent lever
with plastic roller**IB•50**
Bent lever
with Ø50mm
rubber roller**FB**
Variable lenght
lever with plastic
roller**FB•50**
Variable lenght
lever with Ø50mm
rubber roller**FRB•50**
Adjustable lever
with Ø50mm
rubber roller**Key actuation safety switches****Group S5****S5**
5 ways keys
actuation**Pull wire safety switches****Group T****TB**
Pull wire
with reset**T**
Pull wire
without reset**Hinges operating safety switches****Group SC****SC**
Metal pin



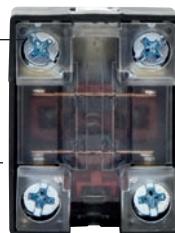
BREMAS

Safety switches - Overview

Contact elements

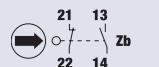
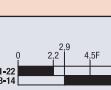
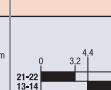
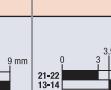
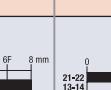
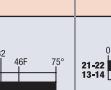
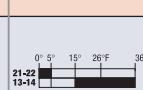
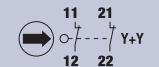
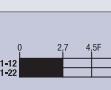
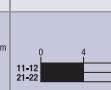
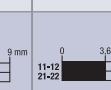
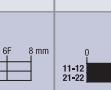
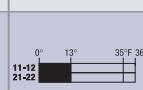
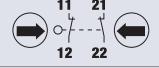
Protective screen

Protective natural polycarbonate screen to prevent the entry of materials and access to the test finger (IP20 – EN60529)



Mobile and fixed contacts

Ag/Ni mobile and fixed contacts galvanically separated
(acc. IEC 947-5-1, EN 60204, VDE 0660, VDE 0113)

Contact unit	Actuator	Group AB-BB	Group CB-RB	Group DB	Group EB-IB-FB-FRB	Group S5	Group T	Group SC
01 1NO+1NC slow action	1NO+1NC slow action 	     						
04 2NC slow action	2NC slow action 	     						
08 2NC slow action	2NC slow action 							

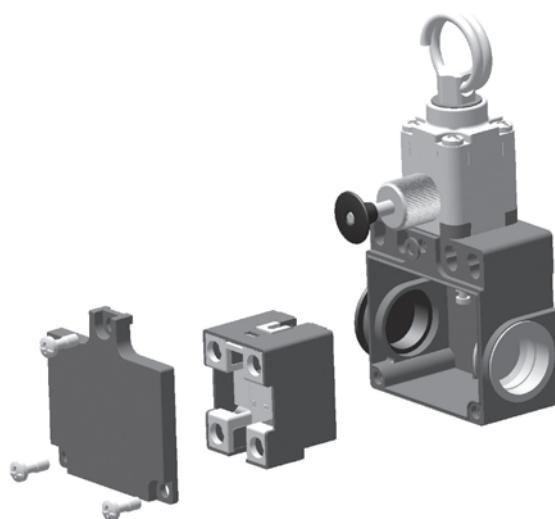
 Opened contact

 Closed contact

 Pressure of the switch / Release of the switch

General characteristics

Safety switches are conceived for applications related to the protection of automated installations and are available in 4 different product families: with reset,pull-wire,5 way key and for hinge actuation.



- thermoplastic or metal body
- IP66
- contact blocks with positive opening of the NC contact according to IEC EN 60947-5-1 e VD 0660-200

Adjustable levers

Possibility to adjust the lever in 10° steps for 360° by moving the lever and the dragging device.



OVERTURNING LEVERS

all the levers can be fastened on switches on straight or reverse side, to obtain two different work plans of the lever.





BREMAS

Key actuation safety switches



5 ways key actuation safety switches

The **5 way key** actuated safety switches are used on gates, sliding doors and other devices to protect the access to dangerous parts of machines. The key is applied to the moving protection barrier so it has to be removed from the switch on every opening thus operating a positive opening of the NC contact.

This kind of actuator is available on the **E100-E200** series with thermoplastic or metal body and thermoplastic head, with **IP66** protection degree.

Safety for the operator

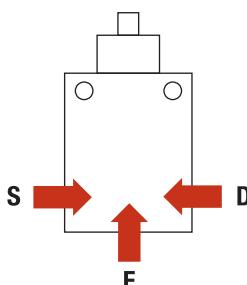
The command circuit authorizing the start-up of the process is closed only by the complete insertion of the safety key, and the circuit is opened when this is removed. This prevents intentional tampering with the machine by the operator until the safety protection device is opened.

Resistance to vibrations

The device has been designed to permit limited key vibrations in case of mechanical disturbances.

In conformity with standards:

IEC EN 60947-5-1 • EN 60947-1 • UNI EN 1088
EN ISO 12100-1 • EN ISO 12100-2 • IEC 529
EN 60529 • VDE 0660-200 • VDE 0113 • UNI EN 13850



Cable entry

	F	S	D
E100	•		
E200		•	•
E300	•	•	•
E400	•		

Thread	Series part no.
Pg 13,5	E100 E200
M20x1,5	E101 E201
1/2" NPT (on request)	E102 E202
Pg 11 (on request)	E103
M16x1,5 (on request)	E104
M12 connector (on request)	E100/M12 E200/M12

Applications:



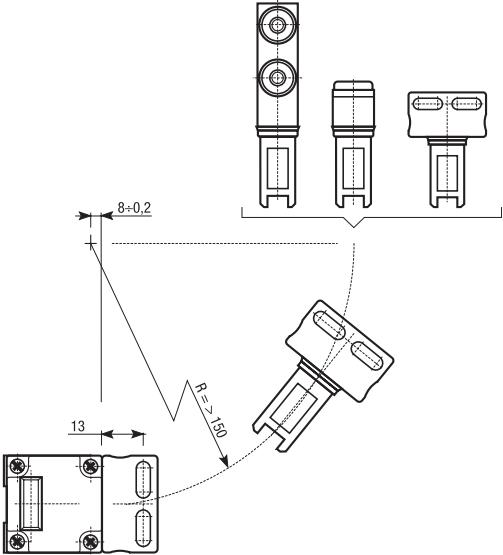
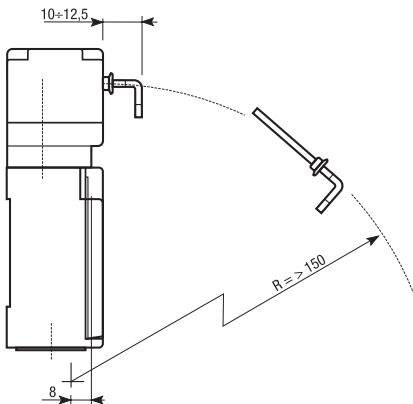
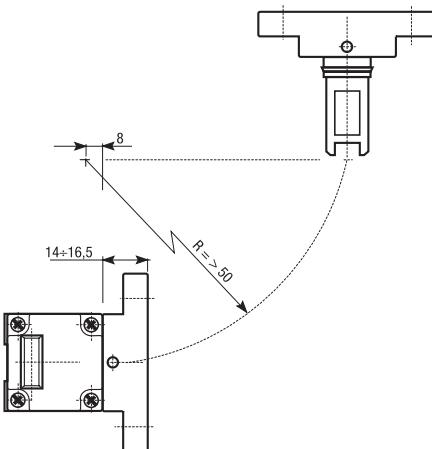
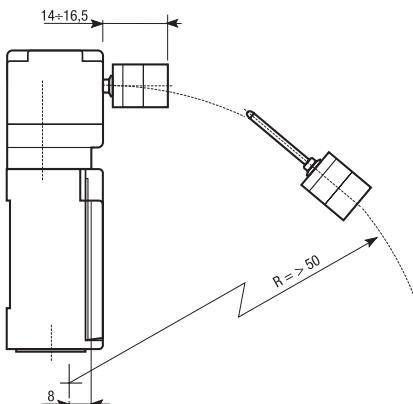
Machines with safety barriers

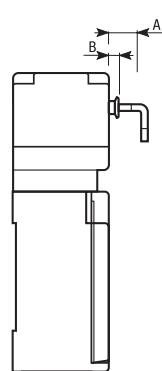
Fixing

E100	20/22 mm
E200	20/22 and 40/42 mm

Instructions for correct installation

Assembly of the driver on a rotating protective device (allow space for the pivot radius).

Key type	Horizontal mounting	Vertical mounting
Z5 Z5-1 Z5-3 Z5-4		
Z52		

**Recommended position for correct operation:**

A (contact switching point) = 4 mm

B (actuator limit switch point) = 0 ÷ 1 mm max

The contacts remain closed from point A to point B (4 mm max travel)

Never use the safety switch as a mechanical travel stop



key actuation safety switches

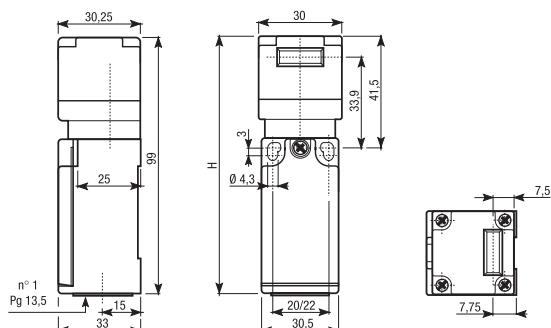


E100 5 way key

Contact element	
1NO+1NC slow action 	01
2NC slow action 	04
Weight kg	0,115
Pack pcs	1
H mm	99

standard article

Cable entry	M20 x 1,5	Contact travel
PG 13,5 Plastic head Plastic body	Plastic head Plastic body	
E10001S5I	E10101S5I	
E10004S5I	E10104S5I	
0,115	0,115	
1	1	
99	99	





E200 5 way key

Contact element		Cable entry	Contact travel
PG 13,5	M20 x 1,5	Plastic head Plastic body	Plastic head Plastic body
1NO+1NC slow action 	01	E20001S5I	E20101S5I
2NC slow action 	04	E20004S5I	E20104S5I
Weight kg		0,14	0,14
Pack pcs		1	1

standard article

