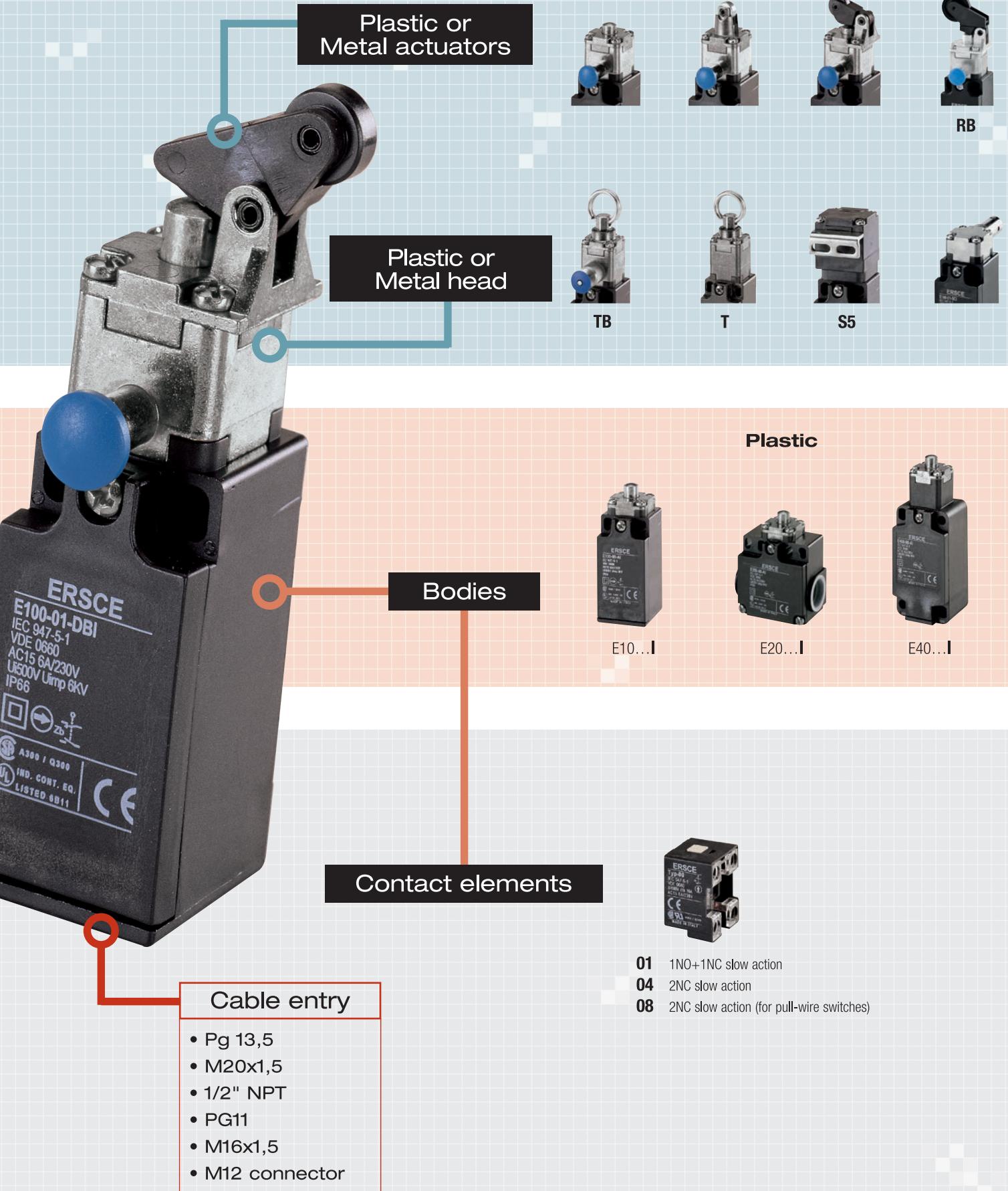




Safety  
switches

## 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 <sup>1</sup>	3600
Insulation resistance		500 V DC	MΩ	100
Dielectric strength		50/60 Hz for 1 <sup>1</sup>	V AC	2500 <sup>2</sup>
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

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

<sup>2</sup> 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



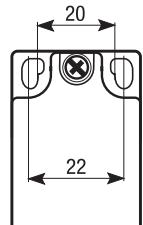
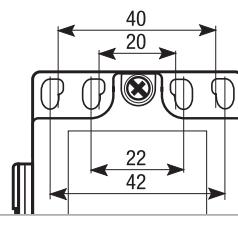
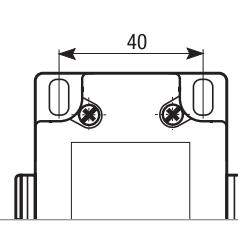
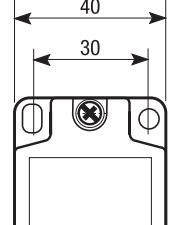
IEC EN 60947

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	Ex0..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



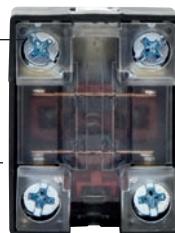
BREMAS

# Safety switches - Overview

## Contact elements

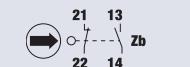
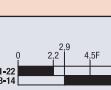
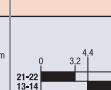
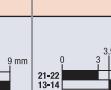
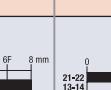
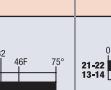
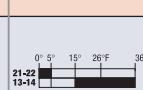
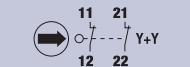
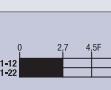
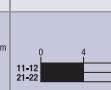
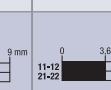
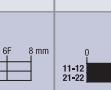
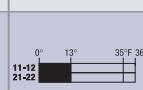
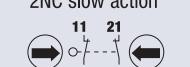
### Protective screen

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
<b>01</b> 1NO+1NC slow action	1NO+1NC slow action 	     						
<b>04</b> 2NC slow action	2NC slow action 	     						
<b>08</b> 2NC slow action	2NC slow action 							

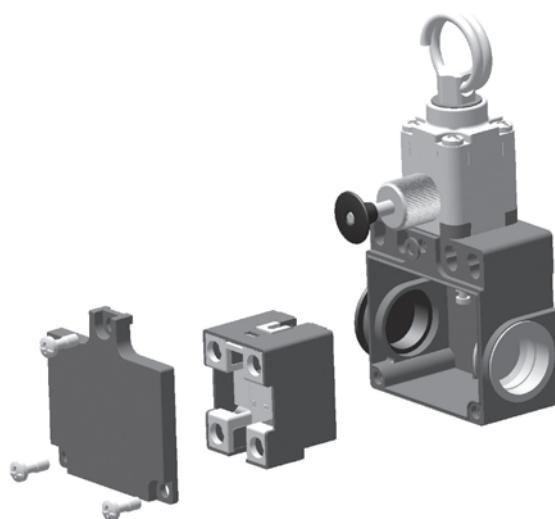
 Opened contact

 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.

