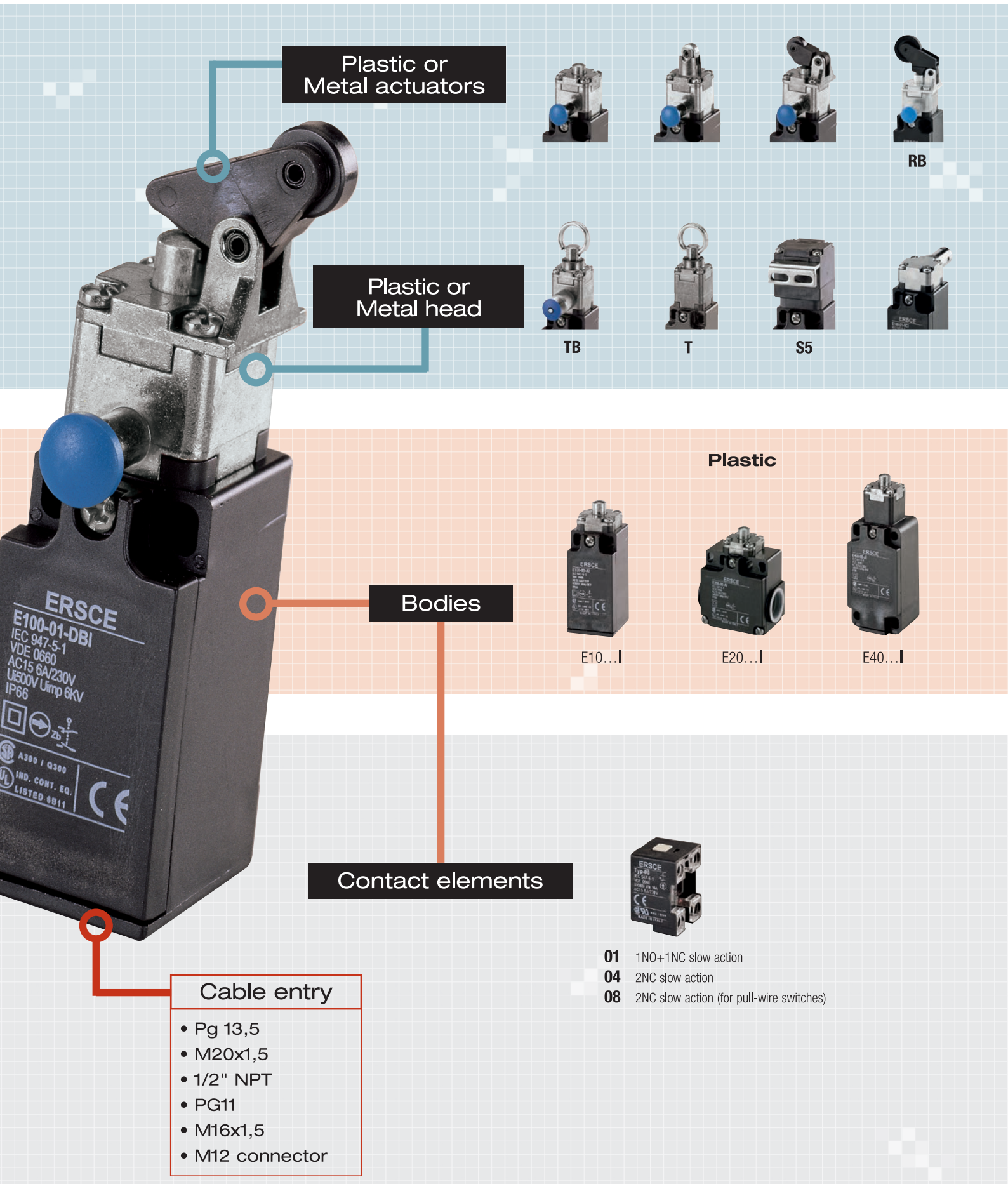




Safety switches

# Selection diagram





DB



EB



IB



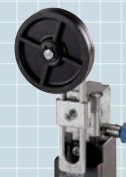
IB•50



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.



## Technical data

|  |                                | TYPE  | E100 / E200 / E300 / E400  |    |
|--|--------------------------------|---|--|----|
| Maximum operating frequency              |                                | operat./hour <sup>1</sup>                           | 3600   |    |
| Insulation resistance                    |                                | 500 V DC MΩ   | 100  |    |
| Dielectric strenght                      |                                | 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 A300             | le IEC947-5-1/EN60947-5-1                           | 24V A  | 10 |
|  |                                |   | 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%<br>(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 mm <sup>2</sup> | 2x1,5  |    |
|  | flexible cable mm <sup>2</sup> | 2x1,5   |  |    |
| Terminal numbering                       |                                |   | In accordance with EN50013   |    |
| Air ambient temperature                  |                                | operational °C                                      | -35 ÷ +85<br>(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.


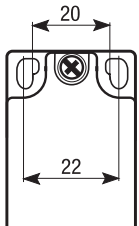

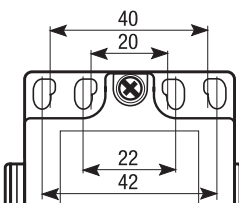

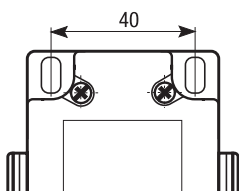

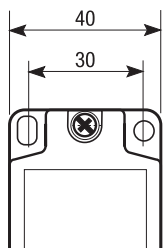
## Certifications and Approvals

|      |  |  | 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**


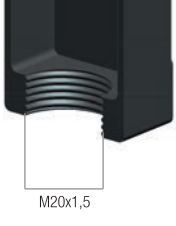


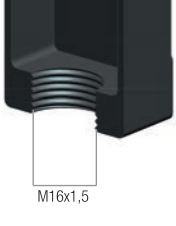

- Plastic or Metal body
- Plastic\* or Metal head and actuators
- IP66 protection degree
- Contact elements with positive opening of the NC contact in accordance to IEC EN 60947-5-1 and VDE 0660-200

| Series | Product  | Fixing holes  |
|--------|--|---|
| E100   |     |    |
| E200   |   |  |
| E300   |  |  |
| E400   |   |  |

\* On key actuated switches

## Cable inputs/outputs

| Series | Nr.   |
|--------|---|
| E100   | 1 on the bottom<br>                    |
| E200   | 2 on the sides<br>                    |
| E300   | 2 on the sides + 1 on the bottom<br> |
| E400   | 1 on the bottom<br>                  |

| Type   | Series            |
|--|-------------------|
| Pg 13,5<br>         | Ex00..            |
| M20x1,5<br>         | Ex01..            |
| 1/2 NPT<br>        | Ex02..            |
| Pg 11<br>         | Ex03..            |
| M16x1,5<br>       | Ex04..            |
| M12 connector<br> | Ex00.. <b>M12</b> |

## Actuation heads

## ■ Safety switches with reset

## Group AB-BB

**AB**  
Plunger**BB**  
Roller plunger**CB**  
Plastic roller lever,  
side actuation**RB**  
Reversible  
and adjustable lever  
with plastic roller**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 length  
lever with plastic  
roller**FB•50**  
Variable length  
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

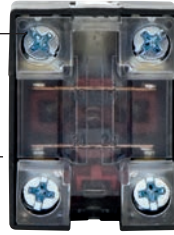
## Contact elements

### 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><br>1NO+1NC<br>slow action | 1NO+1NC slow action<br><br>21 13<br>22 14 |             |             |          |                    |          |         |          |
| <b>04</b><br>2NC<br>slow action     | 2NC slow action<br><br>11 21<br>12 22     |             |             |          |                    |          |         |          |
| <b>08</b><br>2NC<br>slow action     | 2NC slow action<br><br>11 21<br>12 22     |             |             |          |                    |          |         |          |

Opened contact

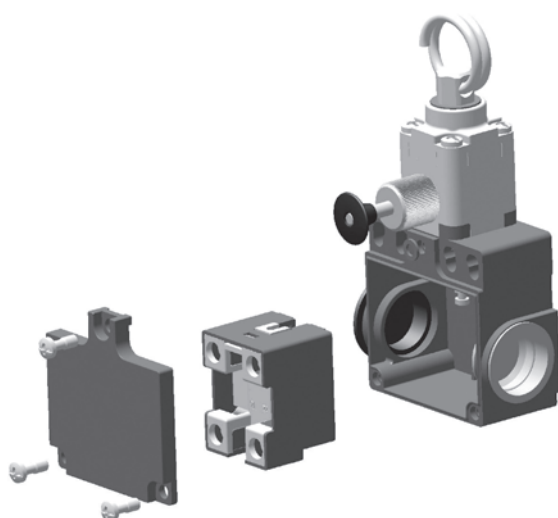
Closed contact

Pressure of the switch / Release of the switch



## General characteristics

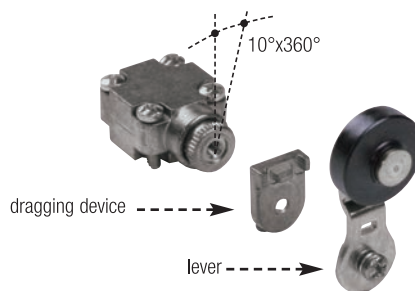
Safety switches are conceived for applications related to the protection of automated installations and are available in 4 different product families: with reset, pull-wire, 5 way key and for hinge actuation.



- 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  $10^\circ$  steps for  $360^\circ$  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.

