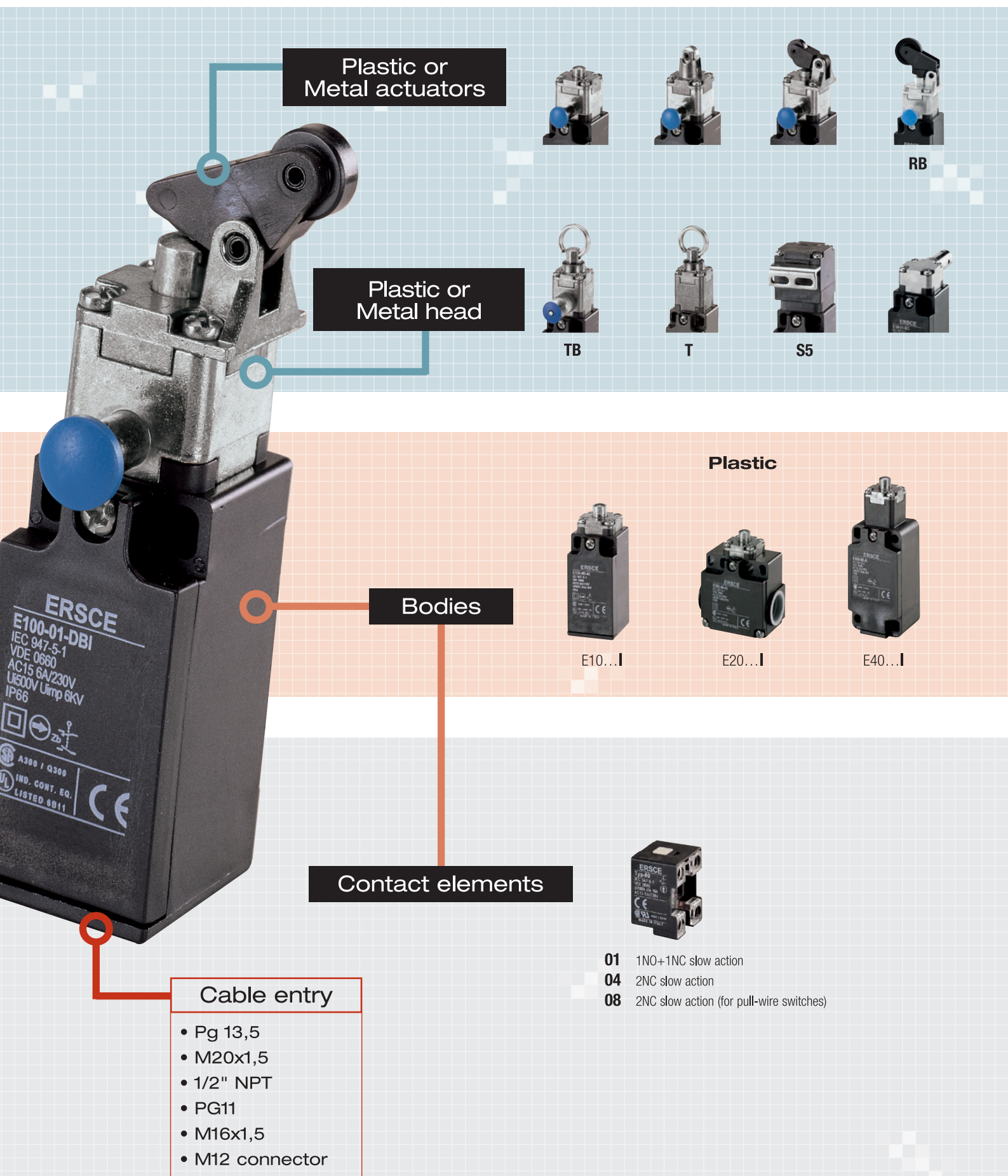




Safety
switches



limit and safety switches



DB



EB



IB



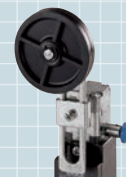
IB•50



FB



FB•50



FBR•50

Metal



E10...M

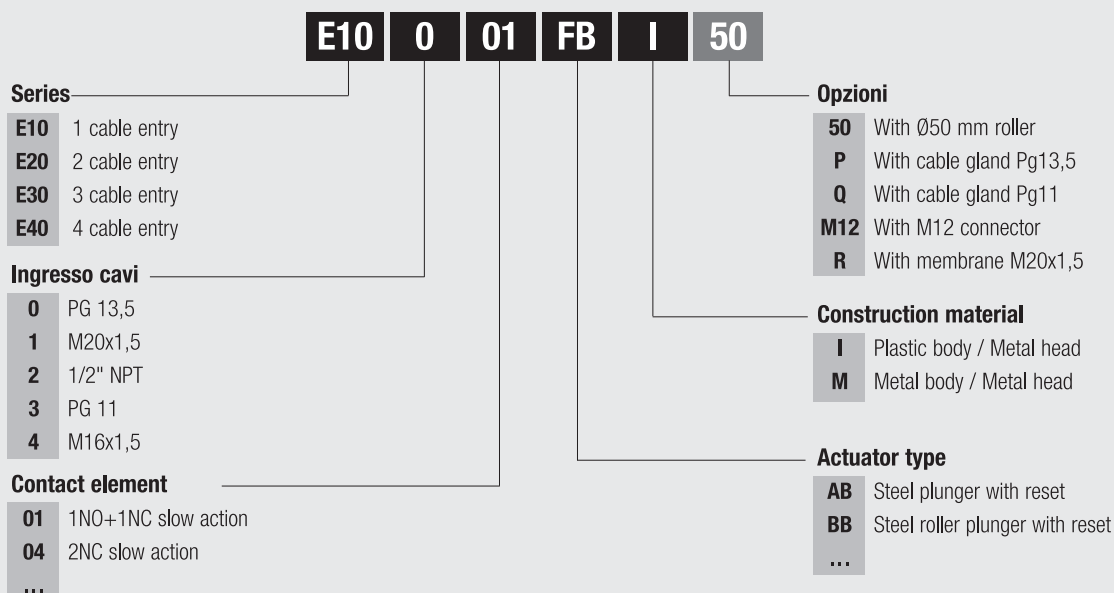


E30...M



E40...M

Product code structure



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

Technical data

				TYPE	E100 / E200 / E300 / E400
Maximum operating frequency				operat./hour ¹	3600
Insulation resistance			500 V DC	MΩ	100
Dielectric strenght			50/60 Hz for 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 A300	Ie 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% (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
				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 ²		2x1,5
		flexible cable	mm ²		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.

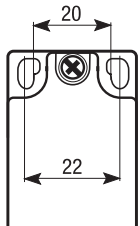
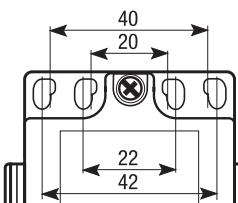
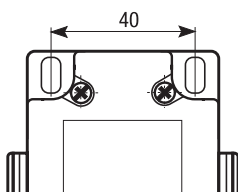
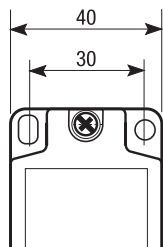
Certifications and Approvals

			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

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 	Ex00..
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



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

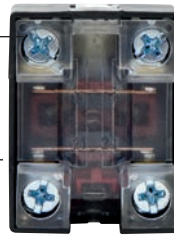
Contact elements

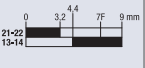
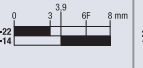
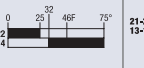
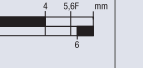
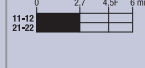
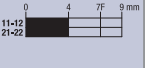
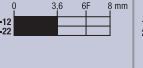
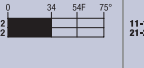
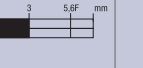
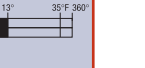
Protective screen

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
01 1NO+1NC slow action	1NO+1NC slow action 							
04 2NC slow action	2NC slow action 							
08 2NC slow action	2NC slow action 							

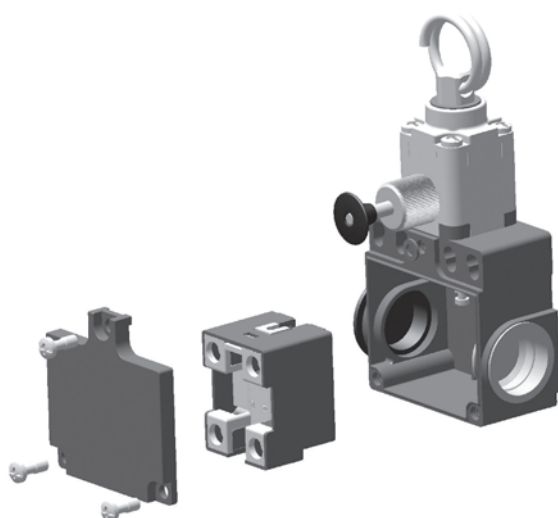
 Opened contact

 Closed contact

 Pressure of the switch / Release of the switch

General characteristics

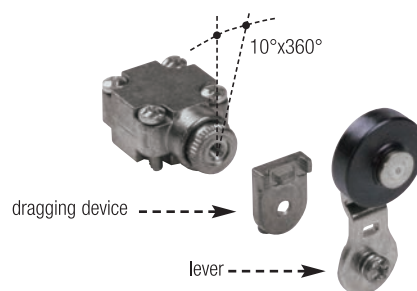
Safety switches are conceived for applications related to the protection of automated installations and are available in 4 different product families: with reset, pull-wire, 5 way key and for hinge actuation.



- 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

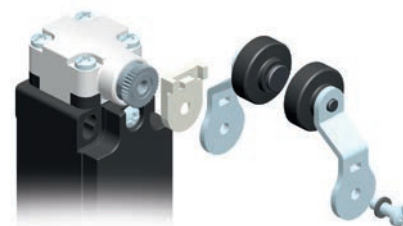
Adjustable levers

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.



Key actuation safety switches



5 way 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:

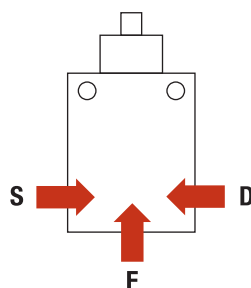
IEC EN 60947-5-1 • EN 60947-1 • UNI EN 1088
EN ISO 12100-1 • EN ISO 12100-2 • IEC 529
EN 60529 • VDE 0660-200 • VDE 0113 • UNI EN 13850

Cable entry

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

Thread

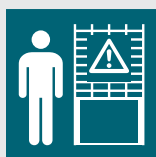
	Series part no.	
Pg 13,5	E100	E200
M20x1,5	E101	E201
1/2" NPT (on request)	E102	E202
Pg 11 (on request)	E103	
M16x1,5 (on request)	E104	
M12 connector (on request)	E100/M12	E200/M12



Fixing

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

Applications:

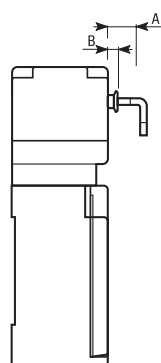


Machines with safety barriers

Instructions for correct installation

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

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

**Recommended position for correct operation:**

A (contact switching point) = 4 mm

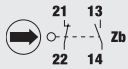
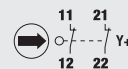
B (actuator limit switch point) = 0 ÷ 1 mm max

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

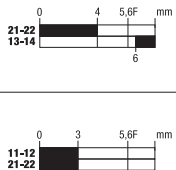
Never use the safety switch as a mechanical travel stop

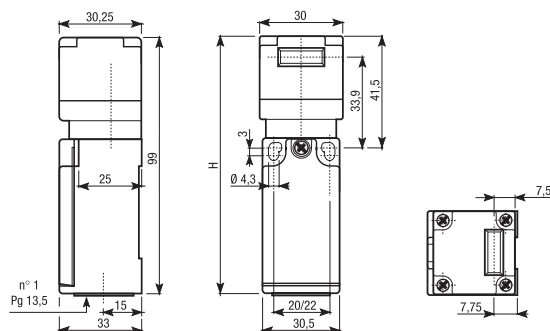


E100 5 way key

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

 standard article

Cable entry		Contact travel
PG 13,5	M20 x 1,5	
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	
1NO+1NC slow action 	01
2NC slow action 	04
Weight	kg
Pack	pcs

standard article

Cable entry		Contact travel
PG 13,5	M20 x 1,5	
Plastic head Plastic body	Plastic head Plastic body	
E20001S5I	E20101S5I	
E20004S5I	E20104S5I	
0,14	0,14	
1	1	

