Limit switches

E100 series

E200 series

E300 series

E400 series

Selection diagram

Plastic or Metal actuators

Plastic or Metal heads


A


A•S1


B


B•13


H


G


Q


L


LP


LS

Bodies

Plastic


E10…


E20…

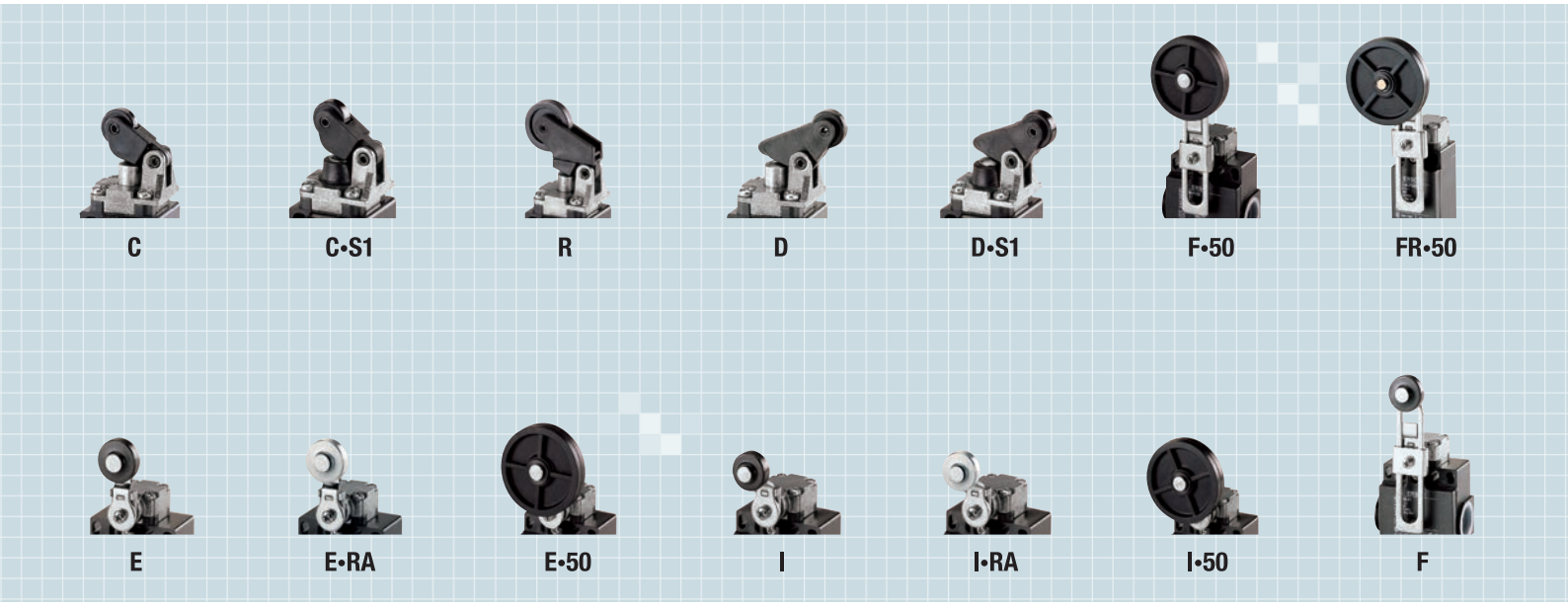

E40…

Contact elements

- **00** 1NO+1NC snap action
- **01** 1NO+1NC slow action
- **01A** 1NO+1NC slow action
- **02** 1NO+1NC slow action with overlapping
- **03** 2NO slow action
- **03S** 2NO slow action
- **04** 2NC slow action
- **04S** 2NC slow action
- **05** 2NC snap action
- **07** 2NC slow action for gates/lifts
- **80** 3NC+1NO slow action
- **81** 2NC+2NO slow action

Cable entry

- Pg 13,5
- M20x1,5
- 1/2" NPT
- PG11
- M16x1,5
- M12 connector



Metal


E10...


E30...


E40...

Product code structure

E10 | 0 | 00 | A | I | S1

Series

E10	1 cable entry
E20	2 cable entry
E30	3 cable entry
E40	1 cable entry

Cable entry

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

Contact elements

00	1NO+1NC snap action
01	1NO+1NC slow action
...	

Options

S1	With rubber gasket
50	With roller Ø50 mm
13	With roller Ø13 mm
C	For gates/lifts
50C	With roller Ø50 mm for gates/lifts
RA	With steel roller
P	With cable gland Pg13,5
Q	With cable gland Pg11
M12	With M12 connector
R	With membrane M20x1,5

Construction material

P	Plastic body / Plastic head
I	Plastic body / Metal head
M	Metal body / Metal head

Actuator type

A	Steel plunger
B	Steel roller plunger
...	

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	Ie	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		M	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.

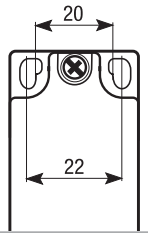
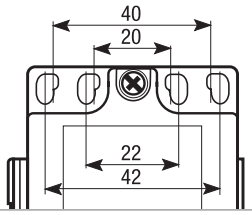
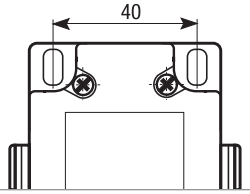
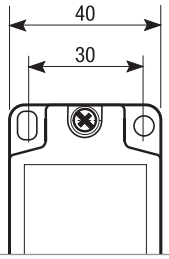
Certifications and Approvals

	c UL us LISTED	CSA	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
- Dimensions and travels in accordance to EN 50047 (E100 series) and EN 50041 (E400 series)

Series	Product	Fixing holes
E100		
E200		
E300		
E400		

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 

Series		Serie
Pg 13,5	 Pg13,5	Ex00..
M20x1,5	 M20x1,5	Ex01..
1/2 NPT	 1/2 NPT	Ex02..
Pg 11	 Pg11	Ex03..
M16x1,5	 M16x1,5	Ex04..
M12 connector	 M12 connector	Ex00..M12

Actuation heads

Rectilinear actuation

Group A-B

A
Plunger

A/S1
Plunger with rubber gasket

B/B•13
Roller plunger Ø11 or Ø13mm

Group D

D
Plastic roller lever, vertical actuation

D•S1
Plastic roller lever with rubber gasket, vertical actuation

Group C-R

C
Plastic roller lever with rubber gasket, side actuation

C•S1
Plastic roller lever, side actuation

R
Reversible and adjustable lever with plastic roller

Angular actuation

Group E-I-F-G-H-Q

E - E•RA
Straight lever with plastic or metal roller

I - I•RA
Bent lever with plastic or metal roller

E•50
Straight lever with Ø50mm rubber roller

I•50
Bent lever with Ø50mm rubber roller

F
Variable lenght lever with plastic roller

F•50
Variable lenght lever with Ø50mm rubber roller

FRB•50
Adjustable lever with Ø50mm rubber roller

G/H
Glass fiber Ø6mm, G, or aluminum, H, adjustable round rod

Q
Lever with ceramic roller

IS
Internally bend lever with plastic roller

Multidirectional actuation

Group L

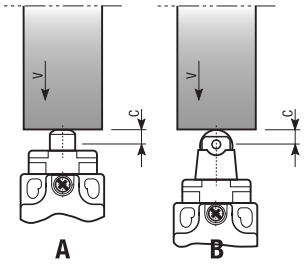
L
Flexible rod

LP
Flexible rod with plastic terminal

LS
Flexible rod (cat whisker) with metal terminal

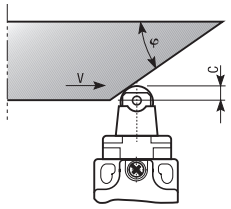
Operating features

Plunger, Roller plunger, vertical travel
Actuators: A-B



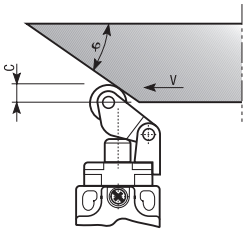
Drive cam operating parameters	
φ	V max (m/s)
Actuators A	0,5
Actuators B	0,5
Drive forces	
Minimum command force	9 N
Minimum forced opening force	28 N

Roller plunger, side travel
Actuators: B



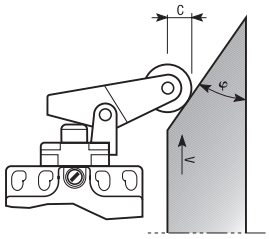
Drive cam operating parameters	
φ	V max (m/s)
30°	0,5
20°	1
Drive forces	
Minimum command force	9 N
Minimum forced opening force	28 N

Roller lever, side travel
Actuators: C-R



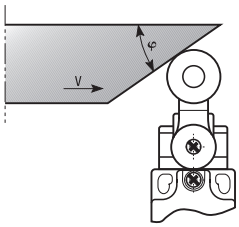
Drive cam operating parameters	
φ	V max (m/s)
30°	0,5
20°	1
Drive forces	
Minimum command force	9 N
Minimum forced opening force	26 N

Roller lever, vertical travel
Actuators: D-R

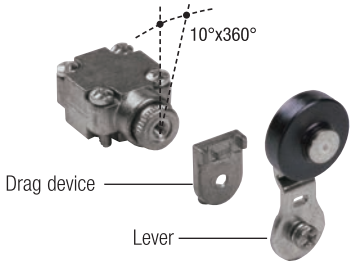


Drive cam operating parameters	
φ	V max (m/s)
30°	0,5
20°	1
Drive forces	
Minimum command force	8 N
Minimum forced opening force	26 N

Roller lever
Actuators: E-I-F-FR•50-Q-IS-FR-F•50



Drive cam operating parameters	
φ	V max (m/s)
30°	1,5
45°	1
60°	0,75
60°-90°	0,25
Drive forces (E100-E200-E300)	
Minimum command force	15 Ncm
Minimum forced opening force	35 Ncm
Drive forces (E400)	
Minimum command force	25 Ncm
Minimum forced opening force	45 Ncm



Tightening torque of screw

① Tighten the lever holding set screws with a torque of 1.2÷1.5 Nm

② Tighten the head with a torque of 0.7÷0.8 Nm (plastic) and 0.8÷1 Nm (metal)

③ Tighten the cover with a torque of 0.7÷0.8 Nm (plastic) and 0.8÷1 Nm (metal)

④ Tighten the fixing screws of the unit with a torque of 2÷2.5 Nm

Lever drive heads

The lever can be adjusted by shifting the lever and drag device.

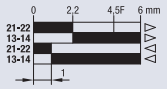
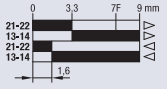
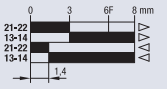
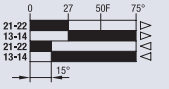
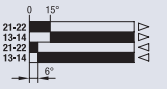
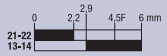
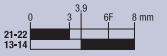
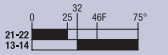
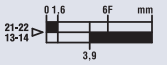
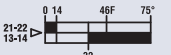
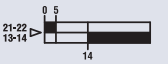
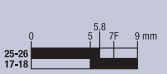
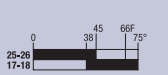
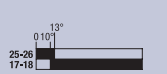
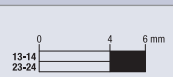
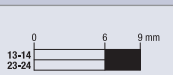
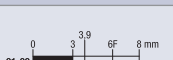
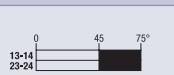
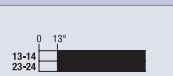
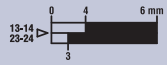
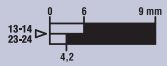
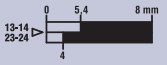
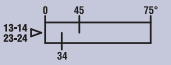
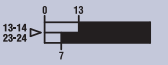
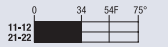
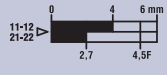
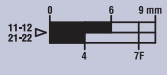
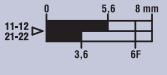
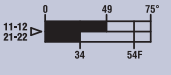
Contact elements

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 A-B	Group C-R	Group D	Group E-I-F-G-H-Q	Group L
00 1NO+1NC snap action	1NO+1NC snap action 13 21 / 14 22 Zb					
01 1NO+1NC slow action	1NO+1NC slow action 21 13 / 22 14 Zb					
01A 1NO+1NC slow action	1NO+1NC slow action 21 13 / 22 14 Zb					
02 1NO+1NC slow action overlapping	1NO+1NC slow action overlap. 25 17 / 26 18 Zb					
03 2NO slow action	2NO slow action 13 23 / 14 24 X+X					
03S 2NO slow action	2NO slow action 13 23 / 14 24 X+X					
04 2NC slow action	2NC slow action 11 21 / 12 22 Y+Y					
04S 2NC slow action	2NC slow action 11 21 / 12 22 Y+Y					
05 2NC snap action	2NC snap action 11 21 / 12 22 Y+Y					
07 2NC slow action	2NC slow action 11 21 / 12 22 Y+Y					
80 3NC+1NO slow action	3NC+1NO slow action 11 21 31 43 / 12 22 32 44 Zb					
81 2NC+2NO slow action	2NC+2NC slow action 11 21 31 41 / 12 22 32 42 Zb					

Opened contact

Closed contact

Positive opening travel

Pressure of the switch / Release of the switch