

Compact limit switch conforming to NFC 63 145

- Series 83 870 with cable output
- Series 83 870 with connector output
- Series 83 870 with low level cable or connector output
- Series 83 880 with cable output

General characteristics

Conformity to standards

IEC/EN 60947.5.1
Dimensional conformity : NFC 63145
Low voltage directive : 73/23/EEC and 93/68/EEC
Declaration of incorporation in accordance with Machinery directive
89/392/EEC/IEC/EN : 60204.1

Protection against electric shocks

NFC 20030 or IEC 60536 class 1, degree of pollution 3

Degree of protection IEC 60529

IP 66/67

Degree of protection according to NEMA 250

Type 1, 3, 4, 6, 13

Electrical characteristics

Connections

5-core cable (UL) , 0.75 mm² AWG19, ext. Ø 7.3 mm

Operating temperature (°C)

-25 → +70°C

Compact limit switch conforming to NFC 63 145

→ Series 83 870 with cable output

- IP 66/67
- Metal case
- cUL approval



Main specifications

Characteristics	Type of output	Metal plunger
Standard	Cable length 1 m	83 870 101
Standard	Cable length 2 m	83 870 102
Standard	Cable length 3 m	83 870 103
Standard	Cable length 6 m	83 870 106
Plunger with 90° roller	Cable length 1 m	-
Plunger with 90° roller	Cable length 2 m	-
Plunger with 90° roller	Cable length 3 m	-
Plunger with 90° roller	Cable length 6 m	-
Mechanical characteristics		
Sequence		
Snap action		
Minimum operating force (N)		10
Minimum operating force (Nm)		-
Minimum total travel force (N)		30
Minimum total travel force (Nm)		-
Min. positive opening travel (N)		28
Min. positive opening travel (Nm)		-
Mechanical life millions of operations		10
Vertical approach speed		1 mm/min → 0.5 m/s
Horizontal approach speed (30° cam)		-
Weight (g)		170

General characteristics

Assigned impulse voltage (Uimp) - V	2500
Assigned insulation voltage (Ui) V	500
Thermal current (Ith) A	10
Low-load switching - Minimum voltage (V)	10
Low-load switching - Minimum current (mA)	100
Assigned working characteristics (EN 60 947.5.1, UL 508)	A300 = AC15 240 V 3 A / 120 V 6 A Alternating current Q150 = DC13 125 V 0.55 A Direct current
Electrical life according to IEC 947-5-1 appendix C	250 V 3 A AC15 500.000 operations 24 V 8 W DC13 500.000 operations
Electrical protection	Integral protective earth conductor Short-circuit protection device : IEC/EN 60947-5-1 Fuse 6 AgG
Approvals	UL 508, UL 50

Product adaptations



- Contact type
- Rear output
- Protective scraper seal
- Length of cable/connector/stripping
- Special marking



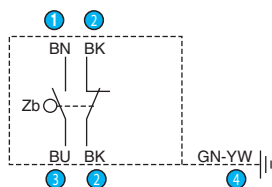
Metal roller plunger	Metal plunger with threaded barrel	Roller plunger - metal with threaded barrel	Metal roller lever (2 directions of attack)
83 871 101	83 874 101	83 872 101	83 873 101
83 871 102	83 874 102	83 872 102	83 873 102
83 871 103	83 874 103	83 872 103	83 873 103
83 871 106	83 874 106	83 872 106	83 873 106
83 875 101	-	83 876 101	-
83 875 102	-	83 876 102	-
83 875 103	-	83 876 103	-
83 875 106	-	83 876 106	-
10	10	10	-
-	-	-	0.15
30	30	30	-
-	-	-	0.35
30	28	28	-
-	-	-	0.15
10	10	28	10
1 mm/min → 0.5 m/s	1 mm/min → 0.5 m/s	1 mm/min → 0.5 m/s	-
1 mm/min → 0.3 m/s	-	1 mm/min → 0.3 m/s	1 mm/min → 1.5 m/s
180	200	200	210

Principles

Function

Four-terminal double break two-way contact element (form Zb) with positive opening NC contacts. The 2 moving contacts are electrically isolated from one another.

Snap-action contact

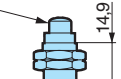


- 1 Brown
- 2 Black
- 3 Blue
- 4 Green-yellow

→ **Product**

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- Technical drawings of the 1000 Series 1/2. The left drawing shows a side view of the component with a height dimension of 14.9. The right drawing shows a top view with a diameter dimension of $\varnothing 11$. Both views include callouts 1 and 2 pointing to specific features.

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Compact limit switch conforming to NFC 63 145

→ Series 83 870 with connector output

- IP 66/67
- Metal case
- cUL approval



Main specifications

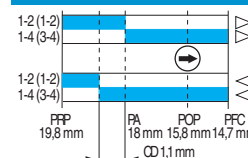
Characteristics	Type of output
4-pin	Connector
4-pin 90°	Connector
5-pin	Connector

Mechanical characteristics

Sequence
Snap action

Metal plunger

83 870 140



Minimum operating force (N)	10
Minimum total travel force (N)	30
Min. positive opening travel (N)	28
Mechanical life millions of operations	10
Vertical approach speed	1 mm/min → 0.5 m/s
Horizontal approach speed (30° cam)	-
Weight (g)	90

Comments

4-pin : 1-2 / 1-4
5-pin : (1-2) / (3-4)

General characteristics

Assigned impulse voltage (Uimp) - V	2500 (5-pin : 1500)
Assigned insulation voltage (Ui) V	250 (5-pin : 60)
Thermal current (Ith) A	4
Low-load switching - Minimum voltage (V)	10
Low-load switching - Minimum current (mA)	100
Assigned working characteristics (EN 60 947.5.1, UL 508)	C 300/Ie = 4 A max/Ue = 250 V max (5-pin : Ie = 4 A max - Ue = 48 V max) Q 150
Electrical life according to IEC 947-5-1 appendix C	250 V 2.5 A AC15 500.000 operations 24 V 8 W DC13 500.000 operations
Electrical protection	Integral protective earth conductor Short-circuit protection device : IEC/EN 60947.5.1 Fuse 2 A gC
Approvals	UL 508 (4 pins C300 - Q 150) , (5 pins 48 V AC/DC 4 A)

Product adaptations



- Contact type
- Rear output
- Protective scraper seal
- Cable length



Metal roller plunger	Metal plunger with threaded barrel	Roller plunger - metal with threaded barrel	Steel metal roller lever (2 directions of attack)
83 871 140 83 875 140	83 874 140 -	83 872 140 83 876 140	83 873 140 -
10	10	10	15
30	30	30	35
28	28	28	15
10	10	10	10
1 mm/min → 0.5 m/s	1 mm/min → 0.5 m/s	1 mm/min → 0.5 m/s	-
1 mm/min → 0.3 m/s	-	1 mm/min → 0.3 m/s	1 mm/min → 1.5 m/s
100	120	120	130

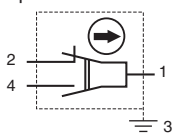
Principles

Function

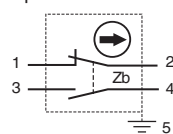
Four-terminal double break two-way contact element (form Zb) with positive opening NC contacts. The 2 moving contacts are electrically isolated from one another (5-pin version).

Snap-action contact

4-pin



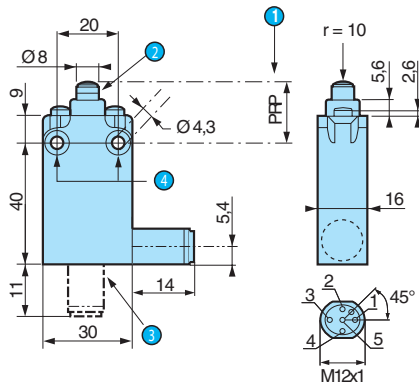
5-pin



Dimensions

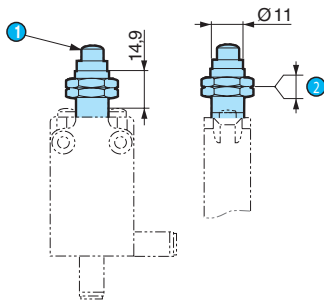
→ Product

83 870 1



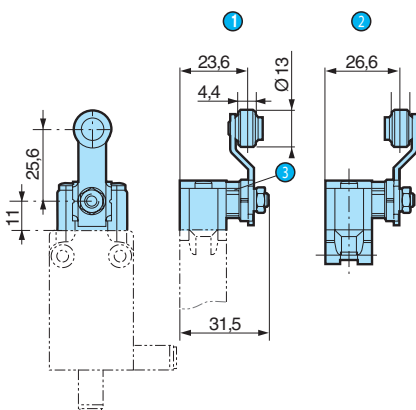
- ① See sequence diagram
- ② POP marking
- ③ Rear output on request
- ④ Ø 8 x 4.3 - 4 counterbores

83 874 1



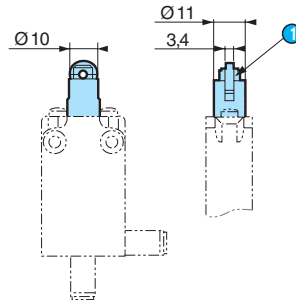
- ① POP marking
- ② Max.tightening thickness 8.5

83 873 1



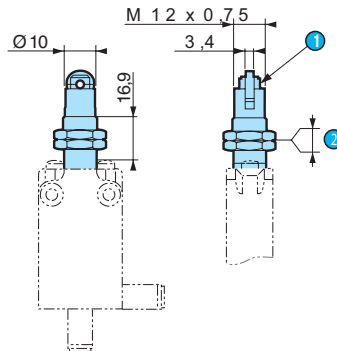
- ① Offset A
- ② Offset B (by request)
- ③ POP Marking

83 871 1



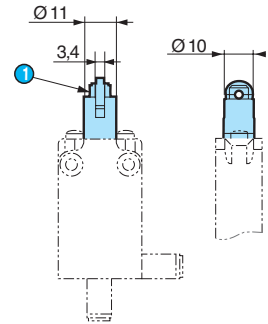
- ① POP Marking

83 872 1



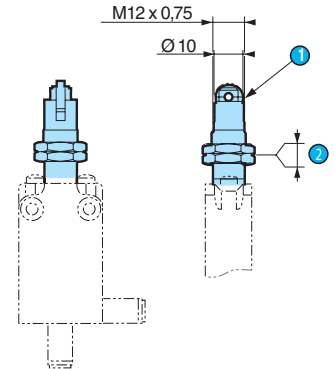
- ① POP marking
- ② Max.tightening thickness 10.5

83 875 1



- ① POP Marking

83 876 1



- ① POP marking
- ② Max.tightening thickness 10.5

Compact limit switch conforming to NFC 63 145

→ Series 83 870 with low level cable or connector output

- IP 66/67
- Metal case
- UL approval
- Reduced differential travel
- Reduced pre-travel (83 873 only)



Main specifications

Metal plunger

Characteristics	Type of output	
Standard	Cable 1 m long	83 870 301
Standard	Connector	83 870 320
Plunger with 90° roller	Cable 1 m long	-
Plunger with 90° roller	Connector	-
Mechanical characteristics		
Sequence		
Snap action		
Minimum operating force (N)		10
Minimum total travel force (N)		30
Min. positive opening travel (N)		28
Mechanical life millions of operations		10
Vertical approach speed		1 mm/min → 0.5 m/s
Horizontal approach speed (30° cam)		-
Weight (g)		170
Comments		
Cable : BK-BK/BN-BU		
Connector : (1-2) / (3-4)		

General characteristics

Assigned impulse voltage (Uimp) - V	2500
Assigned insulation voltage (Ui) V	250
Operating voltage	4 to 30 V
Operating current	1 to 100 mA
Resistance (Ω)	≤ 100 mΩ
Electrical protection	Integral earth wire Short-circuit protection device : IEC/EN 60947-5-1 Fuse 6 AgG
Approvals	UL 508, 30 V AC/DC : 0.14

Product adaptations



- Contact type
- Rear output
- Protective scraper seal
- Length of cable/connector/stripping



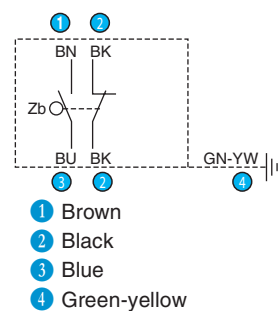
Metal roller plunger	Metal plunger with threaded barrel	Roller plunger - metal with threaded barrel	Steel metal roller lever (2 directions of attack)
83 871 301	83 874 301	83 872 301	83 873 301
83 871 320	83 874 320	83 872 320	83 873 320
83 875 301	-	83 876 301	-
83 875 320	-	83 876 320	-
10	10	10	15
30	30	30	35
28	28	28	15
10	10	10	10
1 mm/min → 0.5 m/s	1 mm/min → 0.5 m/s	1 mm/min → 0.5 m/s	-
1 mm/min → 0.3 m/s	-	1 mm/min → 0.3 m/s	1 mm/min → 1.5 m/s
180	200	200	210

Principles

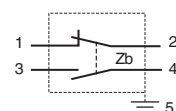
Function

Four-terminal double break two-way contact element (form Zb). The 2 moving contacts are electrically isolated from one another.

Snap-action contact Cable



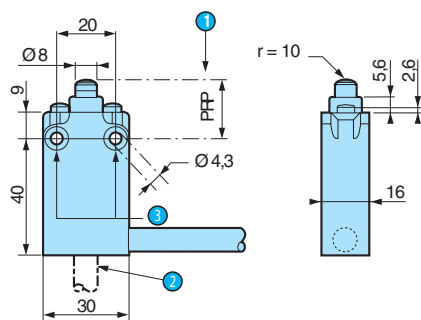
Connector



Dimensions

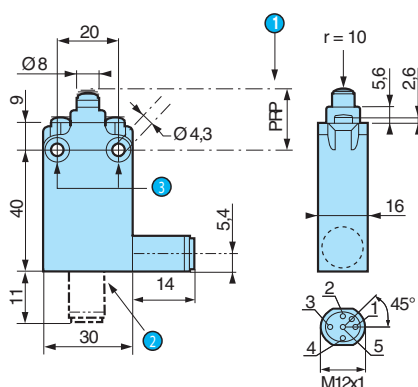
→ Product

83 870 3/Cable output



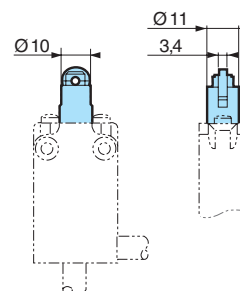
- ① See sequence diagram
- ② Rear output on request
- ③ Ø 8 x 4.3 - 4 counterbores

83 870 3/Connector output

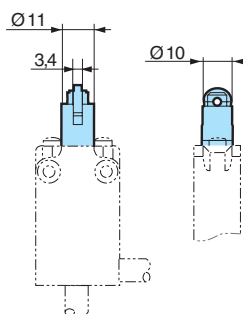


- ① See sequence diagram
- ② Rear output on request
- ③ Ø 8 x 4.3 - 4 counterbores

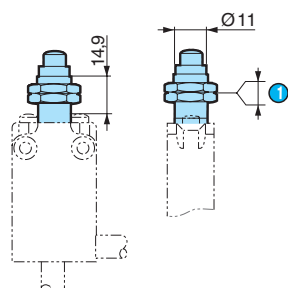
83 871 3



83 875 3

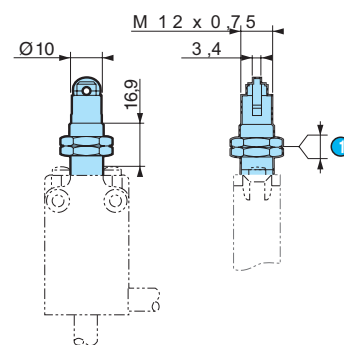


83 874 3



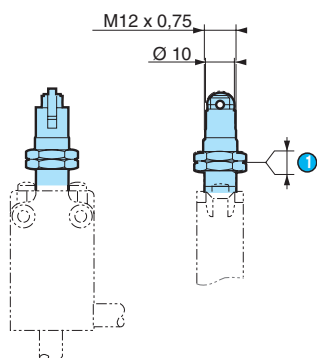
- ① Max.tightening thickness 10.5

83 872 3



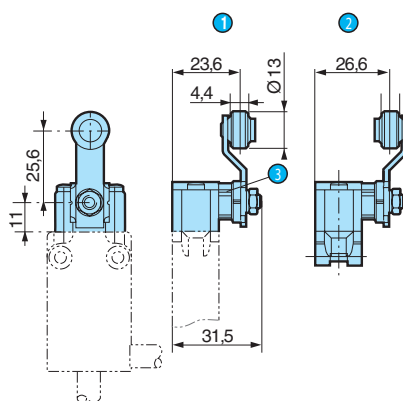
- ① Max.tightening thickness 10.5

83 876 3



- ① Max.tightening thickness 8.5

83 873 3



- ① Offset A
- ② Offset B