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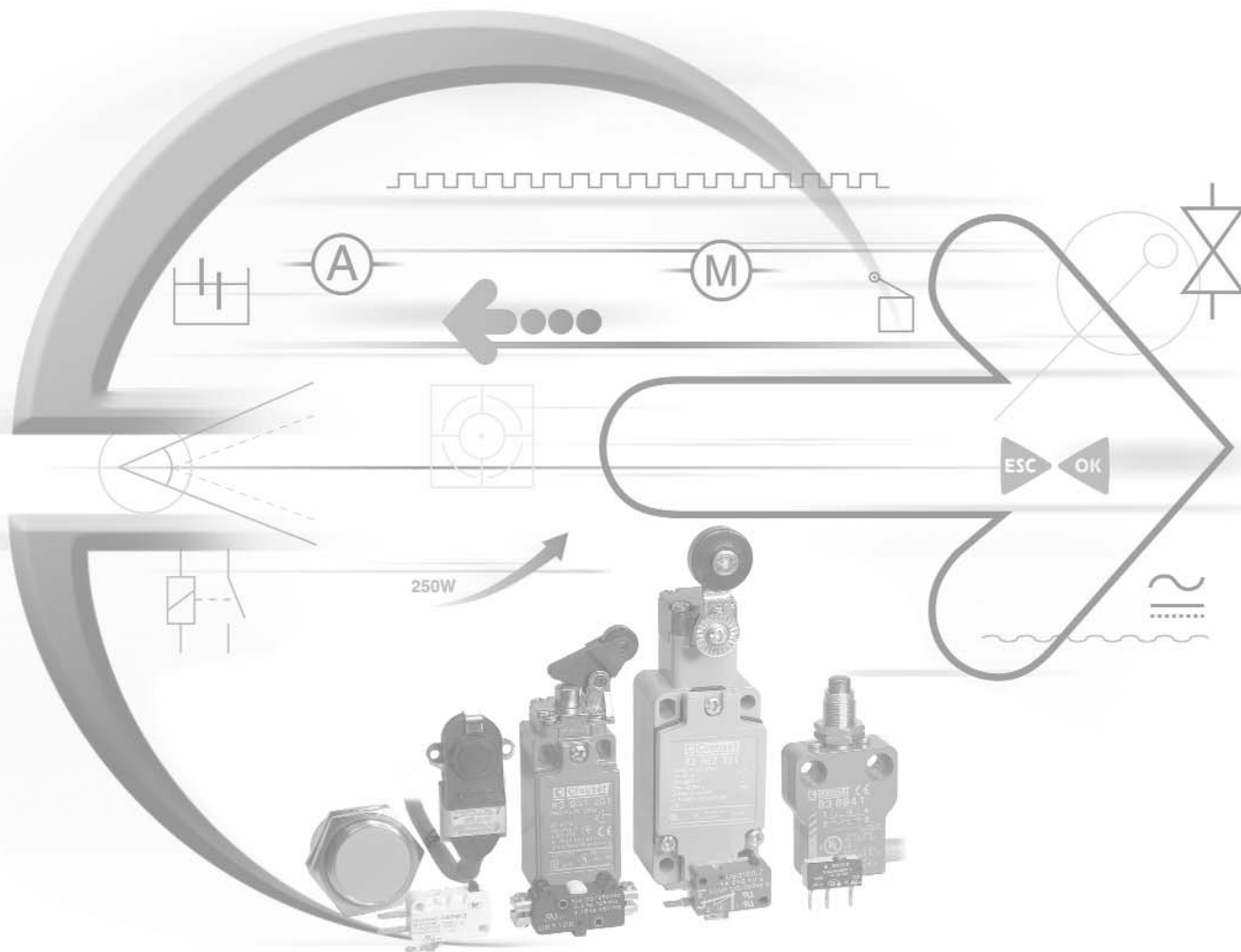


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Industrial Limit Switches



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Miniature Industrial Limit Switches Series 83 852 / 83 853 EN 50047



Conform to the following standards :

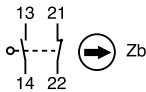
IEC 536-1, IEC 947-5-1, CSA C22.2 No. 14, EN 50047, EN 60947-5-1, EN 60204-1, NFC 20030 class I for 83 852 class II for 83 853 UL 508, VDE 0660/200.

Degree of protection : IP 66
Version : 1 pole

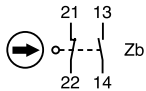
Function : Four-terminal double break contact element (form Zb) with positive opening NC contacts. The two moving contacts are electrically isolated from one another.

Principle :

Independent snap action contact
1 NO + 1 NC



Dependent action
1 NO + 1 NC



Break Before Make

Electrical characteristics

Assigned insulation voltage (Ui) : 500 V
Thermal rating (Ith) : 10 A
Use category : A300 - Q300
AC15 = 6A/250 V - 1.9 A / 380 V
DC 13 = 3A/24 V

Short circuit test (under IEC 947.5.1 § 8.3.4)

- Current peak 1000 A at 250 V ~ 0.5 < cos φ < 0.7
- Short circuit protection (SCPD) : fuse 10 A gF
- Electrical protection by internal earth terminal (83 852)

Connections :

Saddle washer and M 3.5 screw
Max. wire cross-section : 2 x 1.5 mm² or 1 x 2.5 mm²

Connection :

For 1/2" NPT

Approvals :

UL listed A300 - Q300 - CSA A300 - Q300

Types

Thermoplastic case with double insulation and metal actuator head	Independent snap action NC + NO	83 853 001	83 853 501	83 853 101	83 853 201
	Dependent action NC + NO	83 853 011	83 853 511	83 853 111	83 853 211
Metal bodies and actuator heads	Independent snap action NC + NO	83 852 001	83 852 501	83 852 101	83 852 201
	Dependent action NC + NO	83 852 011	83 852 511	83 852 111	83 852 211

Control mechanisms - adjustable actuator heads 4 positions 90°		•	•	•	•
Steel plunger		•			
Plunger with steel roller			•		
Lever with plastic roller	vertical			•	
	lateral				•

Rotary head, momentary action to right and left ⁽¹⁾

With lever and plastic roller	Ø 22 offset 40				
	Ø 19 offset 53				
	Ø 50 offset 47				
	offset 53.5				
With adjustable lever and plastic roller	Ø 22 offset 32.5 or 45				
	offset 46				
	Ø 50 adjustable offset 53.5 to 69.5				

With adjustable polyamide rod actuator

Flexible metal lever

⁽¹⁾ Action either right or left according to position of head

Sequence	Independent snap action				
	Dependent action				

Positive break operation



Mechanical characteristics

Minimum operating force	N (oz.)	10 (35.3)	10 (35.3)	9 (31.7)	9 (31.7)
Minimum total travel force	N (oz.)	12 (42.3)	12 (42.3)	10 (35.3)	10 (35.3)
Minimum positive opening force	N (oz.)	25 (88.2)	25 (88.2)	20 (70.5)	20 (70.5)
Minimum operating travel	mm (in.)	5 (.2)	5 (.2)	5 (.2)	5 (.2)
Minimum positive opening travel	mm (in.)	6 (.24)	6 (.24)	6.5 (.247)	6.5 (.247)
Differential travel	mm (in.)	1.5 (.06)	1.5 (.06)	1.5 (.06)	1.5 (.06)
Max. total travel	mm (in.)	6 (.24)	6 (.24)	6 (.24)	6 (.24)
Mechanical life (millions of operations) mini.		15	15	15	15
Temperature Use limits	°C (°F)	-25+80(-13+176)	-25+80(-13+176)	-25+80(-13+176)	-25+80(-13+176)
Temperature Stored	°C (°F)	-40+80(-40+176)	-40+80(-40+176)	-40+80(-40+176)	-40+80(-40+176)
Degree of protection		IP 66	IP 66	IP 66	IP 66
Weight	Series 83 853 g (oz.)	90 (3.2)	100 (3.5)	100 (3.5)	105 (3.7)
	Series 83 852 g (oz.)	170 (6)	180 (6.3)	180 (6.3)	180 (6.3)

Other information

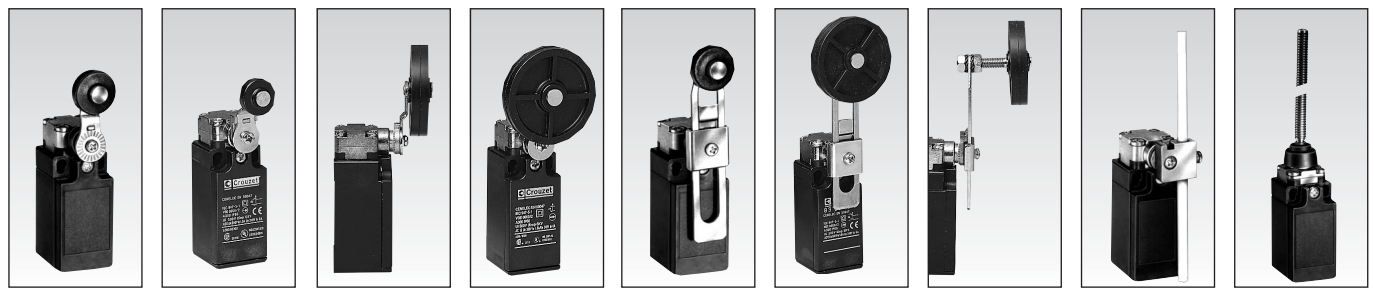
For other contact types and accessories or special modes of operation : please consult us.
For dimensions see page 3/38.

Replacement contact block

Part number	Configurations	Function
83157401	SPDT	<STD>
83157402	SPDT	Break before make
83157403	SPDT	Make before break
83157404	2 NO	DPST - Normally open
83157405	2 NC	DPST - Normally closed

Products and specifications subject to change without notice.

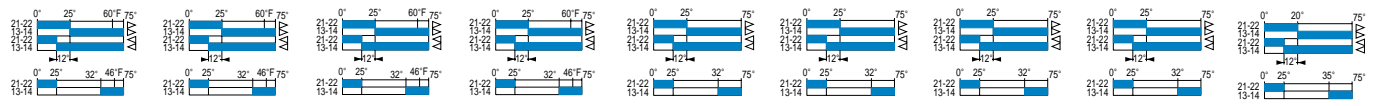
Order/Technical Support – Tel: (800) 677-5311 / FAX: (800) 677-3865 / www.crouzet-usa.com



1

83 853 301	83 853 302	83 853 305	83 853 306	83 853 303	83 853 307	83 853 308	83 853 304	83 853 601
83 853 311	83 853 312	83 853 315	83 853 316	83 853 313	83 853 317	83 853 318	83 853 314	83 853 611
83 852 301	83 852 302	83 852 305	83 852 306	83 852 303	83 852 307	83 852 308	83 852 304	83 852 601
83 852 311	83 852 312	83 852 315	83 852 316	83 852 313	83 852 317	83 852 318	83 852 314	83 852 611

•	•	•	•	•	•	•	•	•



28cmN (40inoz)	28cmN (40inoz)	28cmN (40inoz)	28cmN (40inoz)	28cmN (40inoz)	28cmN (40inoz)	28cmN (40inoz)	28cmN (40inoz)	3 (10)
37cmN (52inoz)	37cmN (52inoz)	37cmN (52inoz)	37cmN (52inoz)	37cmN (52inoz)	37cmN (52inoz)	37cmN (52inoz)	37cmN (52inoz)	4.5 (16)
75cmN (106inoz)	75cmN (106inoz)	75cmN (106inoz)	75cmN (106inoz)	75cmN (106inoz)	75cmN (106inoz)	75cmN (106inoz)	75cmN (106inoz)	
30°	30°	30°	30°	30°	30°	30°	30°	30°
60°	60°	60°	60°	60°	60°	60°	60°	
20°	20°	20°	20°	20°	20°	20°	20°	20°
75°	75°	75°	75°	75°	75°	75°	75°	75°
15	15	15	15	15	15	15	15	15
-25+80(-13+176)	-25+80(-13+176)	-25+80(-13+176)	-25+80(-13+176)	-25+80(-13+176)	-25+80(-13+176)	-25+80(-13+176)	-25+80(-13+176)	-25+80(-13+176)
-40+80(-40+176)	-40+80(-40+176)	-40+80(-40+176)	-40+80(-40+176)	-40+80(-40+176)	-40+80(-40+176)	-40+80(-40+176)	-40+80(-40+176)	-40+80(-40+176)
IP 66	IP 66	IP 66	IP 66	IP 66	IP 66	IP 66	IP 66	IP 66
130 (4.6)	130 (4.6)	130 (4.6)	130 (4.6)	130 (4.6)	153 (5.4)	153 (5.4)	153 (5.4)	130 (4.6)
205 (7.23)	205 (7.23)	205 (7.23)	205 (7.23)	205 (7.23)	225 (7.93)	225 (7.93)	225 (7.93)	200 (7.1)

To order, specify :

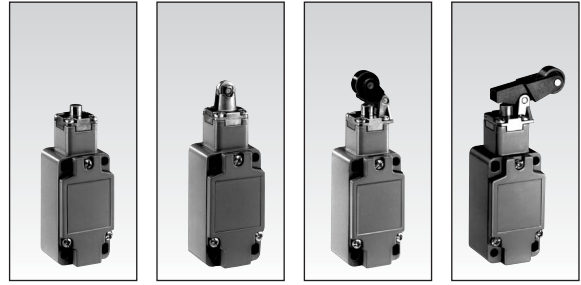
Standard products	1 Part number Example : Limit switch 83 853 001
Standard products, non stocked	

Products and specifications subject to change without notice.

Order/Technical Support – Tel: (800) 677-5311 / FAX: (800) 677-3865 / www.crouzet-usa.com



Industrial Limit Switches Series 83 862 EN 50041

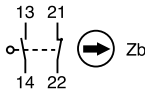


Conform to the following standards :
 EN 50041, IEC 947-5-1, VDE 0660/200
 UL 508, CSA C22.2 No.14
 IEC 536-1, EN 60204-1, NFC 20030
 class I

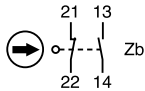
Degree of protection : IP 66

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

Principle :
 Independent snap action contact
 1 NO + 1 NC



Dependent action
 1 NO + 1 NC



Break before make

Electrical characteristics :

Assigned insulation voltage (Ui) : 500 V
 Thermal rating (Ith) : 10 A
 Use category : A300 - Q300
 AC15 = 6A/250 V - 1.9 A / 380 V
 DC 13 = 3A/24 V

Short circuit test (under IEC 947.5.1 § 8.3.4)
 - Current peak 1000 A
 at 250 V-0.5 < cos φ < 0.7
 - Short circuit protection (SCPD) : fuse 10 A gF
 - Electrical protection by internal earth terminal

Connections :

Saddle washer and M 3.5 screw
 Max. wire cross-section : 2 x 1.5 mm² or 2.5 mm²

Connection :

1/2" NPT

Approvals :

UL listed A300 - Q300 - CSA A300 - Q300

Types

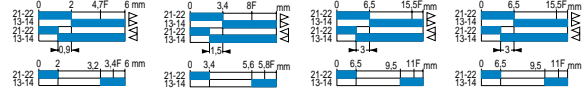
	83 862 011	83 862 511	83 862 111	83 862 211
Dependent action NC + NO				
Independent snap action NC + NO	83 862 001	83 862 501	83 862 101	83 862 201
Control mechanisms - adjustable actuator heads 4 positions 90°	•	•	•	•
Steel plunger	•			
Plunger with steel roller		•		
Lever with vertical plastic roller			•	
Lever with lateral plastic roller				•

Rotary head, momentary action to clockwise and/or anti-clockwise (1)

	83 862 011	83 862 511	83 862 111	83 862 211
Ø 22 offset 43.5				
With lever and plastic roller				
Ø 19 offset 56				
Ø 50 offset 50.5				
Ø 50 offset 57				
With adjustable lever and plastic roller				
Ø 22 offset 36 or 48				
Ø 50 offset 49				
adjustable offset 57 to 73				
With adjustable polyamide rod actuator				
Flexible metal lever				
Independent snap action				

Sequence

Dependent action



Positive break operation



Mechanical characteristics

Minimum operating force	N (oz.)	10 (35.5)	10 (35.5)	9 (31.7)	9 (31.7)
Minimum total travel force	N (oz.)	12 (42.3)	12 (42.3)	10 (35.3)	10 (35.3)
Minimum positive opening travel	N (oz.)	25 (88.2)	25 (88.2)	20 (70.5)	20 (70.5)
Minimum operating travel	mm (in.)	5 (.2)	5 (.2)	5 (.2)	5 (.2)
Minimum positive opening travel	mm (in.)	6 (.24)	6 (.24)	6.5 (.26)	6.5 (.26)
Differential travel	mm (in.)	1.5 (.06)	1.5 (.06)	1.5 (.06)	1.5 (.06)
Max. total travel	mm (in.)	6 (.24)	6 (.24)	6 (.24)	6 (.24)
Mechanical life (millions of operations) mini.		15	15	15	15
Temperature Use	°C (°F)	-25+80(-13+176)	-25+80(-13+176)	-25+80(-13+176)	-25+80(-13+176)
limits Stored	°C (°F)	-40+80(-40+176)	-40+80(-40+176)	-40+80(-40+176)	-40+80(-40+176)
Degree of protection		IP 66	IP 66	IP 66	IP 66
Weight	g (oz.)	305 (10.76)	315 (11.11)	320 (11.28)	325 (11.46)

(1) Action either right or left according to position of head

Accessories

Cover with status indicator (supplied loose)	24.30 V ~	79 250 290
	220 V ~	79 250 291

Replacement contact block

Part number	Configuration	Function
83157401	SPDT	<STD>
83157402	SPDT	Break before make
83157403	SPDT	Make before break
83157404	2 NO	DPST - Normally open
83157405	2 NC	DPST - Normally closed

Other information

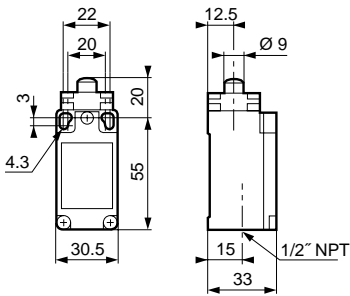
For other contact types and accessories or special modes of operation : please consult us.
 For dimensions see page 3/39.

Products and specifications subject to change without notice.

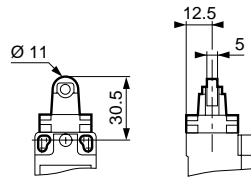
Order/Technical Support – Tel: (800) 677-5311 / FAX: (800) 677-3865 / www.crouzet-usa.com

Dimensions of 83 852 / 83 853 EN 50047

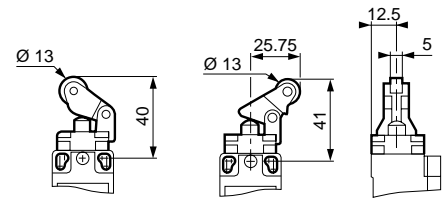
83 852 001/011
83 853 001/011



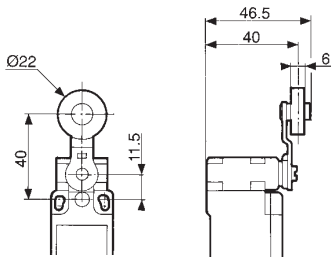
83 852 501/511
83 853 501/511



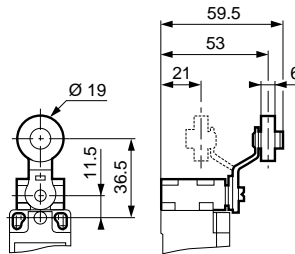
83 852 101 - 201/211
83 853 101 - 201/211



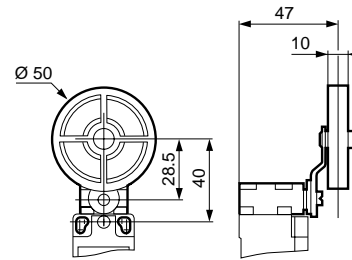
83 852 301/311
83 853 301/311



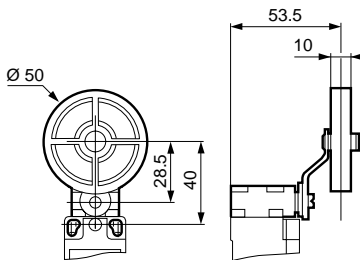
83 852 302/312
83 853 302/312



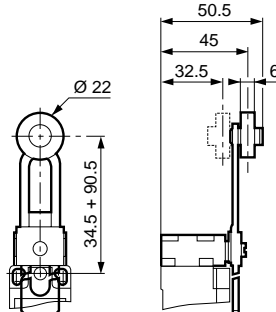
83 852 305/315
83 853 305/315



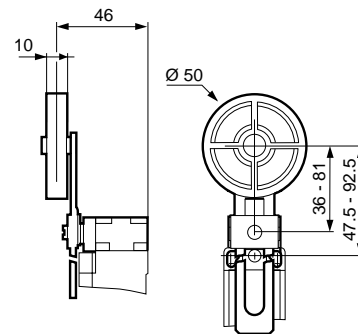
83 852 306/316
83 853 306/316



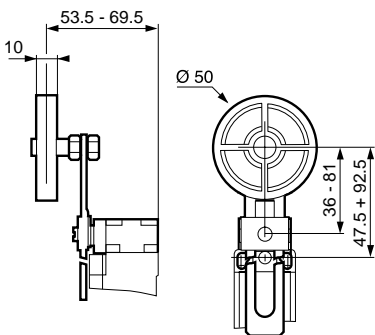
83 852 303/313
83 853 303/313



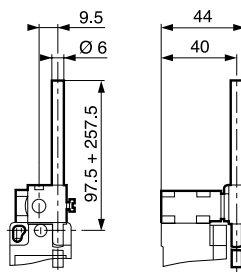
83 852 307/317
83 853 307/317



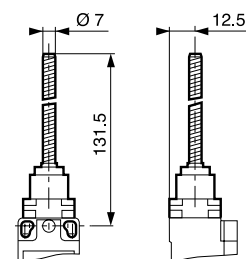
83 852 308/318
83 853 308/318



83 852 304/314
83 853 304/314



83 852 601/611
83 853 601/611



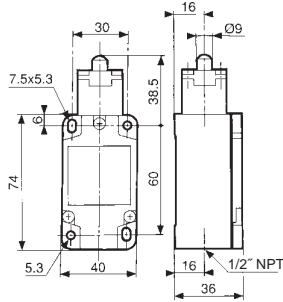
mm

Products and specifications subject to change without notice.

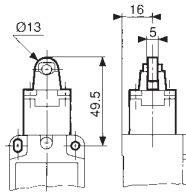
Order/Technical Support – Tel: (800) 677-5311 / FAX: (800) 677-3865 / www.crouzet-usa.com

Dimensions of 83 862 EN 50041

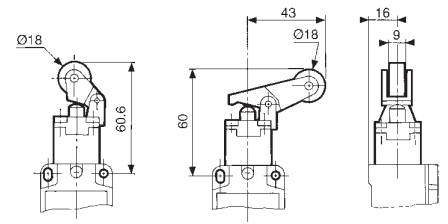
83 862 001/011



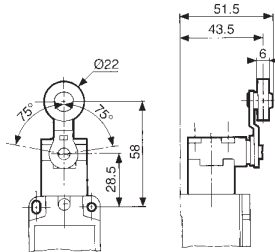
83 862 501/511



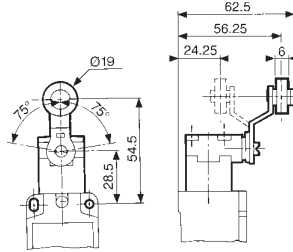
83 862 101/111 – 201/211



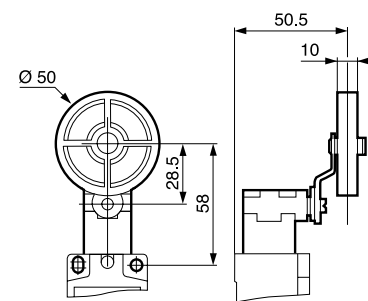
83 862 301/311



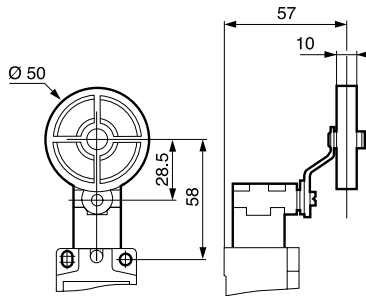
83 862 302/312



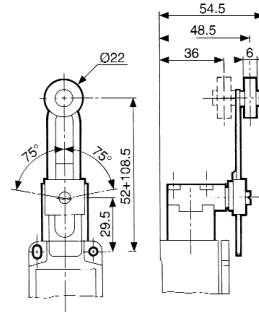
83 862 305/315



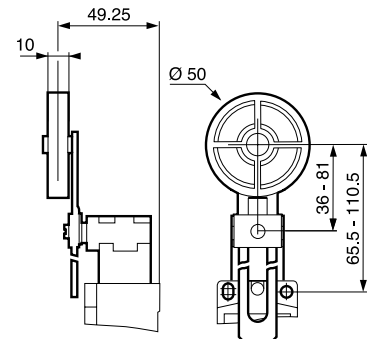
83 862 306/316



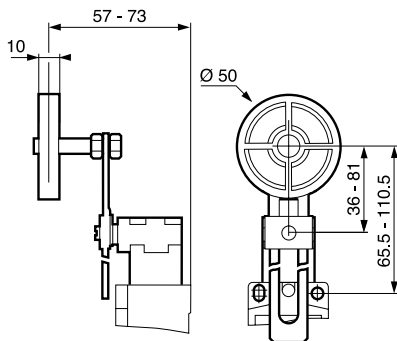
83 862 303/313



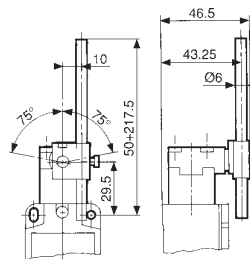
83 862 307/317



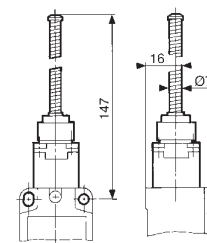
83 862 308/318



83 862 304/314



83 862 601/611



mm

Products and specifications subject to change without notice.

Order/Technical Support – Tel: (800) 677-5311 / FAX: (800) 677-3865 / www.crouzet-usa.com



Positive Opening Enclosed Limit Switches Series 83 870 IP 67

Conforms to the following standards:

IEC / EN 60947.5.1
 Dimensional conformity: NFC 63145
 Low voltage directive: 73/23/EEC and 93/68/EEC
 Protection from electric shock: NFC 20030 or IEC 60536 Class 1, degree of pollution 3.

Temperature specification: -25°/+70°C -13°/+158°F

Degree of protection:

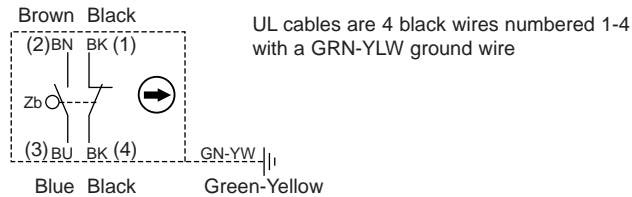
IEC 62529: IP 66/67
 NEMA 250: Type 1, 3, 4, 6, 13

Function:

Contact block is SPDT with double break contacts (form Zb). The NC contacts are positive opening. The NO and NC contacts are electrically isolated.

Contact type:

Snap action SPDT-DB



Electrical characteristics

Assigned impulse voltage (Uimp): 2500 V
 Assigned insulation voltage (Ui): 500 V
 Thermal rating (Ith): 10 A
 With standard contacts: Minimum voltage 10V
 Minimum current 100mA

Use categories:

Following IEC 947.5.1 AC15 = 250V / 6A
 DC13 = 24V / 8A
 Following UL 508 A300 - Q150

Electrical protection:

Under IEC 947.5.1
 Short-circuit protection (SCPD): 6AgC fuse
 Electrical protection by internal earth ground

Connections:

Non-UL: 5 conductor cable H05VF 0.75mm² ext. Ø8mm (Black)
 UL: 5 conductor cable (Grey)

Approvals:

UL 508, UL 50

Types

Standard
 Roller turned 90°

Standard products 2.0 meter cable* side exit**

Actuator Type

Metal plunger
 Metal roller plunger
 Metal plunger with threaded barrel
 Roller plunger - metal with threaded barrel
 Metal roller lever (operates in both directions)

Mechanical characteristics

Operating force minimum	oz. (N)
Total travel force minimum	oz. (N)
Positive opening force minimum	oz. (N)
Mechanical life	millions of cycles
Weight	oz. (grams)

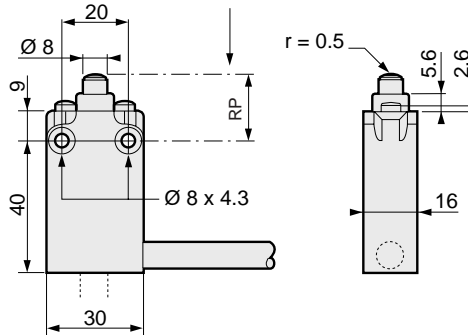
Contact Sequences

Positions given are nominal

Dimensions

mm

83 870 0



(*) For other lengths of cables:

modify the last digit of the part number. For example:

- 0 = M12 connector output
- 1 = 1.0 meter cable
- 2 = 2.0 meter cable (Standard)
- 3 = 3.0 meter cable

(**) For different cable outputs:

modify the next to the last digit of the part number.:

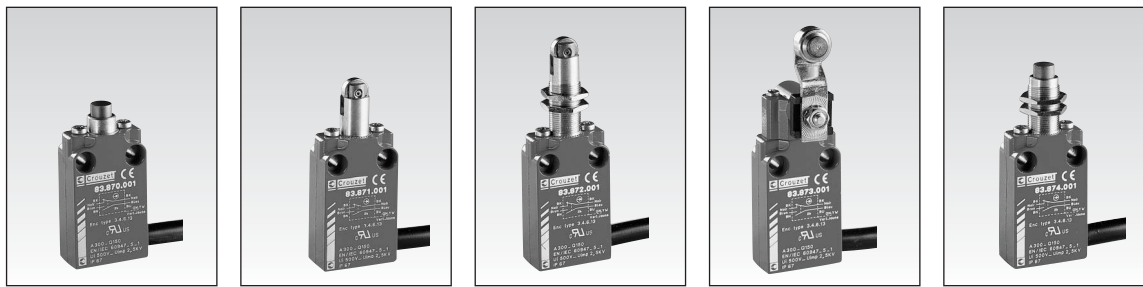
- 0 = Cable side exit (Standard)
- 1 = Cable bottom exit
- 2 = Connector side exit
- 3 = Connector bottom exit

Other information

For different actuator arms, low voltage / low current contacts / low temperature, special contacts, custom wiring harness, etc...., please consult us.

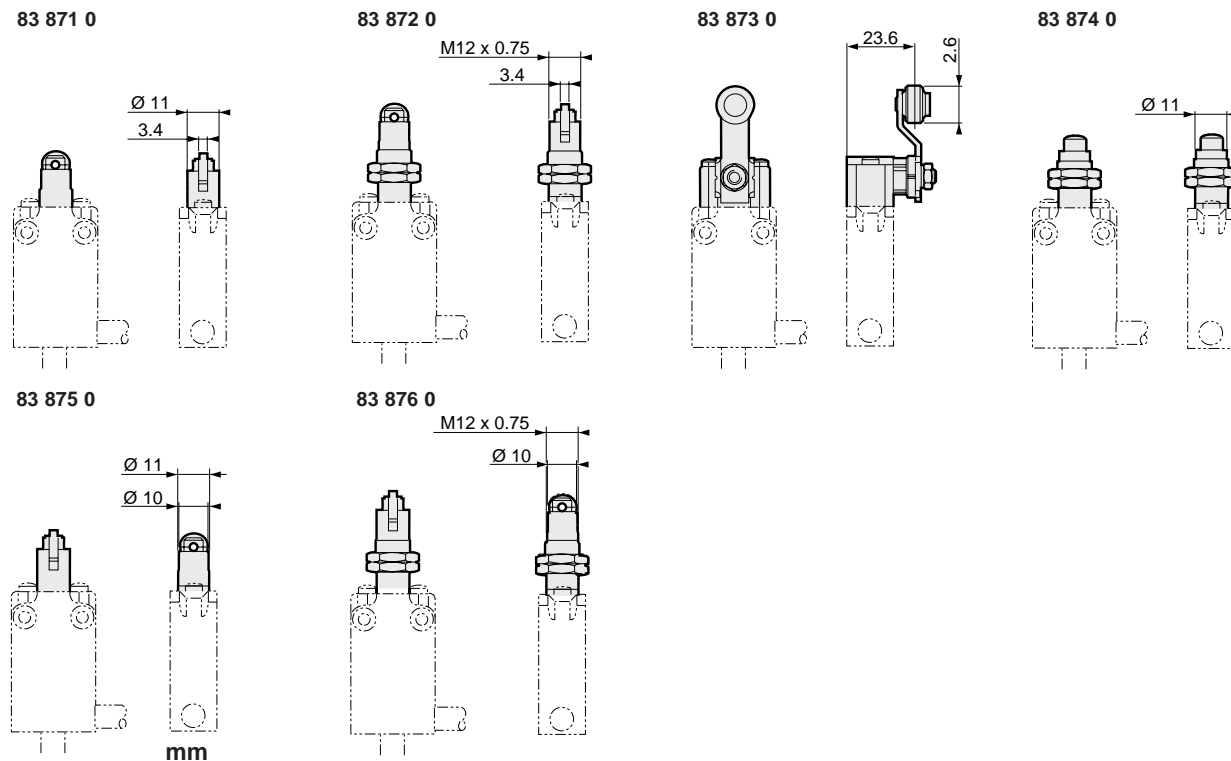
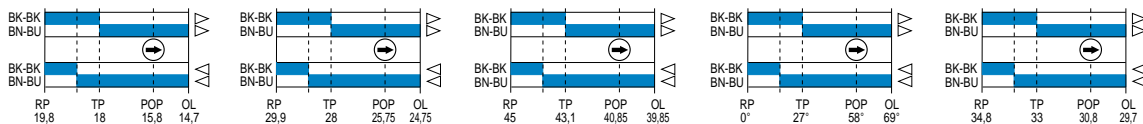
Products and specifications subject to change without notice.

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83 870 0	83 871 0	83 872 0	83 873 0	83 874 0
83 870 102	83 871 102	83 872 102	83 873 102	83 874 102
83 870 103	83 871 103	83 872 103	83 873 103	83 874 103

36 (10)	36 (10)	36 (10)	22 in.oz. (15cmN)	36 (10)
108 (30)	108 (30)	108 (30)	52 in.oz. (35cmN)	108 (30)
100 (28)	100 (28)	100 (28)	22 in.oz. (15cmN)	100 (28)
10	10	10	10	10
10.3 (290)	10.4 (295)	11.1 (315)	10.3 (290)	10.9 (310)



To order, please specify:	
Standard products	2 Part number Example : Limit switch 83 871 102; Cable length = 2m
Standard products, non stocked	1 Type Examples : Limit switch 83 871 103; cable length = 3 m - Limit switch 83 871 006; cable length = 6 m

Products and specifications subject to change without notice.

Order/Technical Support – Tel: (800) 677-5311 / FAX: (800) 677-3865 / www.crouzet-usa.com

Conforms to the following standards

IEC / EN 60947.5.1
 Dimensional conformity: NFC 63145
 Low voltage directive: 73/23/EEC and 93/68/EEC
 Electric shock protection: NFC 20030 or IEC 60536 class 1, degree of pollution 3.

Temperature specification: -25°/+70°C -13°/+158°F

Degree of protection

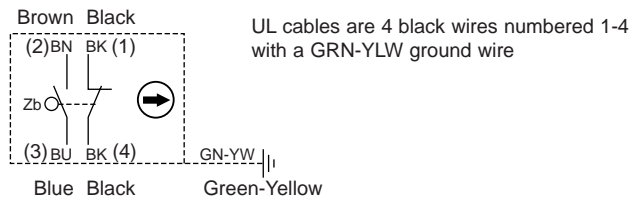
According to IEC 62529: IP 66 / 67
 According to NEMA : Type 1, 3, 4, 6, 13

Function

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

Principle

Snap-Action SPDT-DB



Electrical characteristics

Assigned impulse voltage (Uimp): 2500 V
 Assigned insulation voltage (Ui): 500 V
 Thermal rating (Ith): 10 A
 With standard contacts: Minimum voltage 10 V
 Minimum current 100 mA

Use category:
 according to IEC 947.5.1 AC15 = 250 V / 6 A
 DC 13 = 24 V / 8 A
 according to UL 508 A300 - Q150

Electrical protection

Integral earth wire
 Short-circuit protection device: IEC 947.5.1
 Fuse 6 AgC

Connections

5-core cable HO5VF, 75 mm², ext. Ø 8 mm (non-UL type cable)

Approvals

UL 508, UL 50

Types

Standard
 Plunger or roller at 90°

Standard Part Number (Cable length = 2.0 meters, exit: side)

Actuator Type

Metal plunger
 Metal roller plunger
 Metal plunger with threaded barrel
 Roller plunger - metal with threaded barrel
 Metal roller lever (operates in both directions)

Mechanical characteristics

Minimum positive opening force N (cmN)
 Minimum total travel force N (cmN)

Mechanical life millions of operations
 Weight g

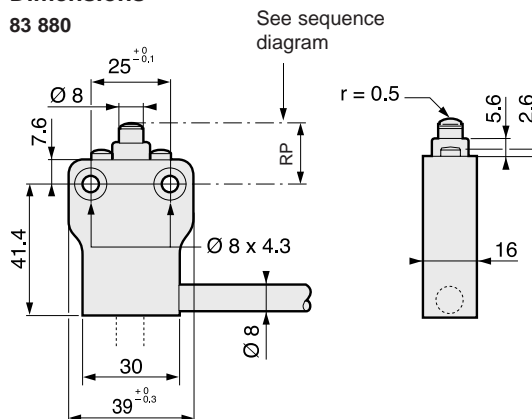
Sequences

Positions: nominal data

Dimensions

83 880

mm



(*) Other cable lengths:

modify the last digit of the part number. For example:

- 0 = M12 connector output
- 1 = 1.0 meter cable
- 2 = 2.0 meter cable (Standard)
- 3 = 3.0 meter cable
- 6 = 6.0 meter cable

(**) For different cable outputs:

modify the next to the last digit of the part number:

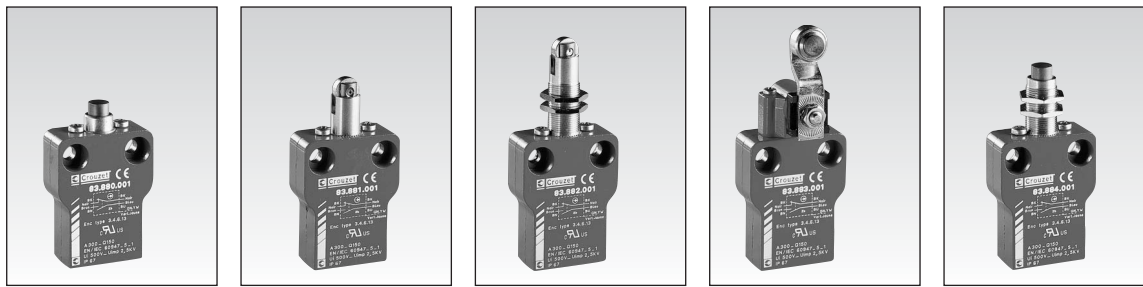
- 0 = Cable side exit (Standard)
- 1 = Cable bottom exit
- 2 = Connector side exit
- 3 = Connector bottom exit

Other information

For different actuator arms, low voltage / low current contacts / low temperature, special contacts, custom wiring harness, etc...., please consult us.

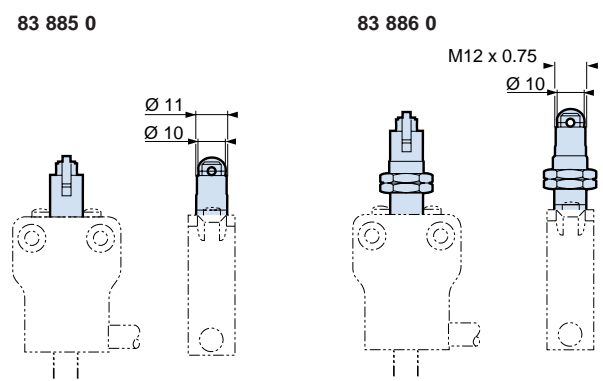
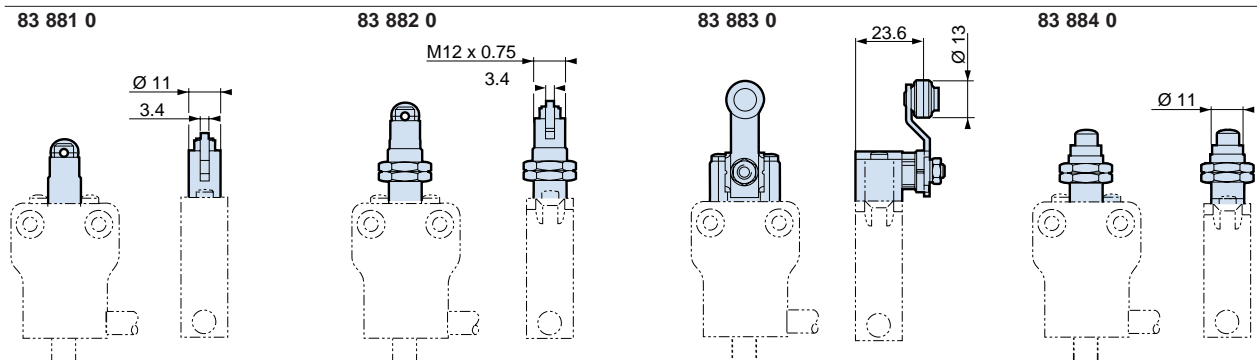
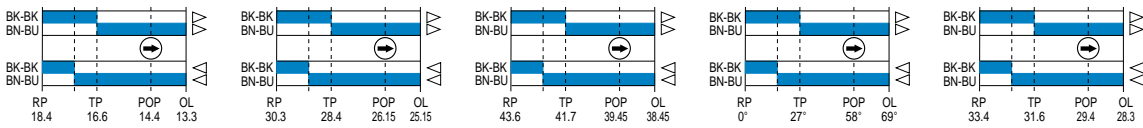
Products and specifications subject to change without notice.

Order/Technical Support – Tel: (800) 677-5311 / FAX: (800) 677-3865 / www.crouzet-usa.com



83 880 0	83 881 0	83 882 0	83 883 0	83 884 0	1
83 880 102	83 881 102	83 882 102	83 883 102	83 884 102	2
83 880 103	83 881 103	83 882 103	83 883 103	83 884 103	

36 (10)	36 (10)	36 (10)	22 in.oz. (15cmN)	36 (10)
108 (30)	108 (30)	108 (30)	52 in.oz. (35cmN)	108 (30)
100 (28)	100 (28)	100 (28)	22 in.oz. (15cmN)	100 (28)
10	10	10	10	10
10.3 (290)	10.4 (295)	11.1 (315)	10.3 (290)	10.9 (310)



mm

To order, specify:	
Standard products	2 Part number Example: Limit switch 83 881 102
Standard products, non stocked	1 Type Examples: Limit switch 83 881 003 ; cable length = 3 m - Limit switch 83 881 006 ; cable length = 6 m

Products and specifications subject to change without notice.

Order/Technical Support – Tel: (800) 677-5311 / FAX: (800) 677-3865 / www.crouzet-usa.com



Miniature Limit Switches Series 83 800

Degree of protection : IP 55 or IP 65 - Nema 4, 12, 13

Version : SPDT - double break

Function : Four terminal double break contact element (form Za). The contacts must be of the same polarity.

Layout :

A - For 83 803



B - Other types



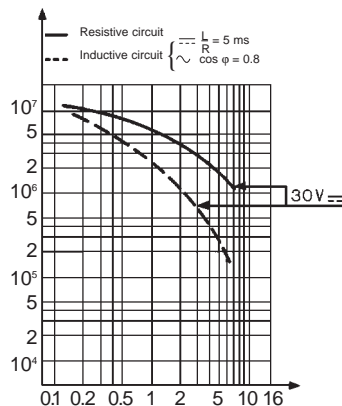
Electrical characteristics :

Assigned insulation voltage (Ui): 250 V

Current Rating

Assigned working currents (Ie): 5 A

Operating curve :



Connections :

- Plug in : Screw terminals - max. wire section 2.5 mm²
- Non Plug in : Solder tags (able to accept 2.8 x 0.5 mm clips).
Contact Crouzet for part # and availability

Connection :

- For N° 9 sealing gland, 15.2 dia., 1.411 pitch
- 25356113 - metal
- 25356109 - plastic

Approvals: UL cUL

Type

Plug in version

Features

- Top mounted plunger
- Top mounted plunger with threaded barrel
- Top mounted roller plunger with threaded barrel
- Side rotary head - momentary
- Top mounted roller plunger
- Flexible metal spring
- Fiberglass Rod

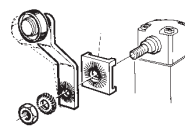
Mechanical Characteristics

Operating force	N (oz)
Total travel force - min.	N (oz)
Operating Travel - min	mm (in)
Movement differential	mm (in)
Total travel - max	mm (in)
Mechanical life	operation
Operating temp.	C° (F°)
Degree of protection	
Weight	grams (oz)

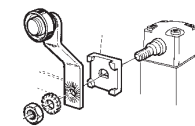
Accessories for 83 803 - Sold separately

* Lever settings or positions dictated by direction in which block is fitted

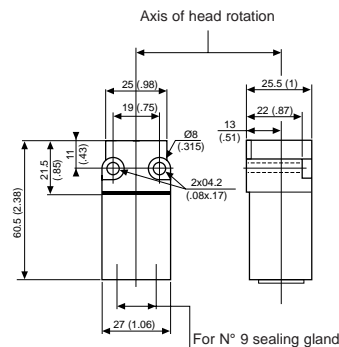
Adjustable in 6° steps



Adjustable in 90° steps



Dimensions



mm(in)

Other information

For other accessories and special contacts, or special modes of operation, please contact factory.
Low temperature version available.

Products and specifications subject to change without notice.

Order/Technical Support – Tel: (800) 677-5311 / FAX: (800) 677-3865 / www.crouzet-usa.com



83800151	83801051	83802051	83803051	83805051	83806051	83807051
•	•	•	•	•	•	•
10 (35.3)	10 (35.3)	10 (35.3)	7 NcM 10 in.oz.	10 (35.3)	1.2 (4.23)	.8 (2.8)
22 (77.6)	22 (77.6)	22 (77.6)	18 NcM 25 in.oz.	22 (77.6)	2.5 (8.8)	2 (7.05)
1.5 (.06)	1.5 (.06)	1.5 (.06)	15°	1.5 (.06)	8°	8°
0.4 (.016)	0.4 (.016)	0.4 (.016)	6°	0.6 (.24)	2°	2°
5 (.2)	5 (.2)	5 (.2)	60°	5 (.2)	10°	10°
10°	10°	10°	10°	10°	10°	10°
-10 to 70 (-14 to 158)	-20 to 70 (-4 to 158)	-20 to 70 (-4 to 158)	-20 to 70 (-4 to 158)	-10 to 70 (-14 to 158)	-10 to 70 (14 to 158)	-10 to 70 (14 to 158)
IP 55	IP 55	IP 55	IP 55	IP 65	IP65	IP65
50 (1.8)	57 (2)	57 (2)	60 (2.1)	50 (1.8)	50 (2.65)	60 (2.1)

Accessories for 83 803 - Sold separately

Galvanized, passivated steel roller arm. Thermoplastic roller.
Lever supplied with nut, washer and locating block (loose).*

79 210 997

Bent roller lever R: 1 1/8" (30mm)



79 210 998

Straight roller lever R: 11/8" (30mm)



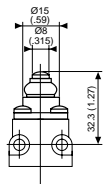
79 215 332

Adjustable
Straight roller lever
1 3/16" → 2 7/8"
(28 → 72mm)

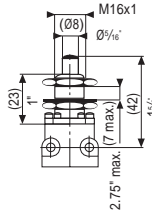


Dimensions

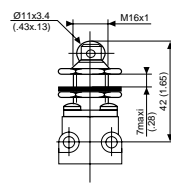
83 800



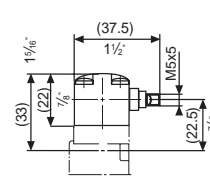
83 801



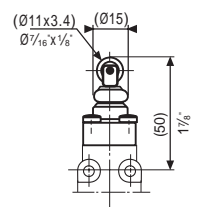
83 802



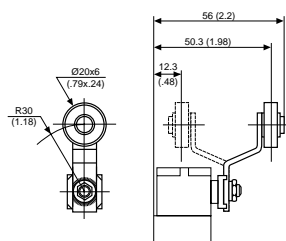
83 803



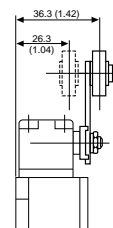
83 805



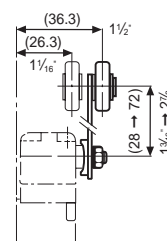
79 210 997



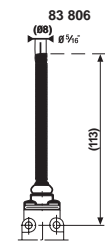
79 210 998



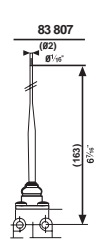
79 215 332



83 806



83 807



mm(in)

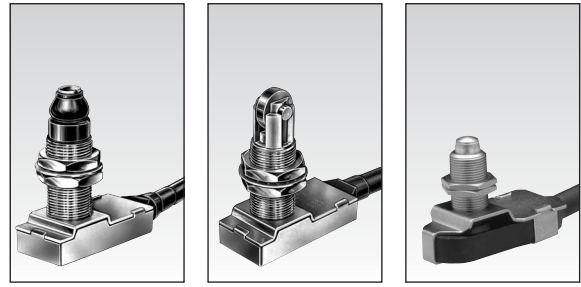
To order, specify:

Standard products	1 Part number Example: 83 800 151
Standard products, non stocked	1 Part number 2 Accessory Example: 83 803 0 - Actuator 79 210 997

Products and specifications subject to change without notice.

Order/Technical Support – Tel: (800) 677-5311 / FAX: (800) 677-3865 / www.crouzet-usa.com

Automotive Limit Switches Series 83 731 / 83 732 / 83 733



1

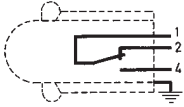
Conform to the following standards :
IEC 356.1 - EN 60204.1
NFC 20030 : Class I - 83 731 - 83 732
Class III - 83 733

Degree of protection :
IP 56 - IP 66 depending on type

Version : 1 pole

Function : 3-terminal single break two-way contact element (form C: inverter).

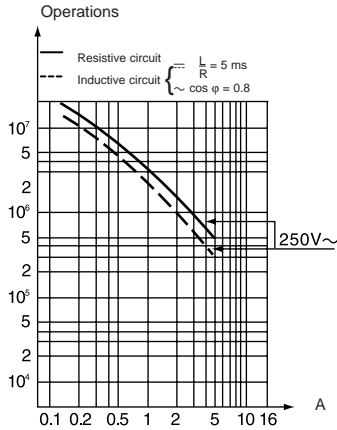
Principle :



Electrical characteristics :

Assigned operating current (Ie)
83 731 - 83 732 : 5 A 250 V
83 733 : 5 A 50 V
Thermal rating (Ith) : 12 A

Operating curve :



Connections :

PVC cable (A05 - VV - F) 0.50 m long
3 conductors cross-section 0.75 mm²
Sheathed, ext. Ø : 7.6 mm
Core connections : 1 : black (common)
2 : brown (NC)
4 : blue (NO)

Electrical protection :

Earthing terminal for version 83 731
and 83 732.

Approvals :

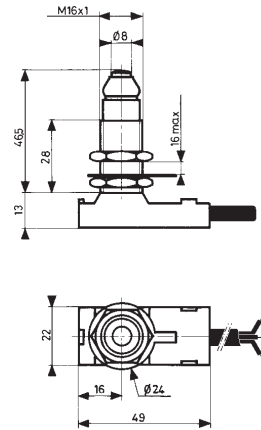
CSA A300.

Types

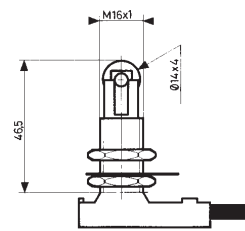
	83 731 3	83 732 3	83 733 3
Control mechanisms			
Top-mounted plunger	•		•
Top-mounted plunger with roller		•	
Mechanical characteristics			
Minimum operating force	N (oz.) 15 (53)	15 (53)	6 (21.2)
Minimum total travel force	N (oz.) 35 (123.4)	35 (123.4)	25 (88.2)
Minimum operating travel	mm (in.) 2 (.079)	2 (.079)	1.5 (.059)
Differential travel	mm (in.) 0.2 (.008)	0.2 (.008)	0.2 (.008)
Max. total travel	mm (in.) 6 (.236)	6 (.236)	4 (.157)
Mechanical life			
Operations	10 ⁶	10 ⁶	10 ⁶
Temperature limits			
°C (°F)	- 5 + 70	- 5 + 70	- 5 + 70
Degree of protection			
°C (°F)	IP 66	IP 66	IP 56
Weight			
g (oz.)	110 (3.9)	110 (3.9)	70 (2.5)

Dimensions mm

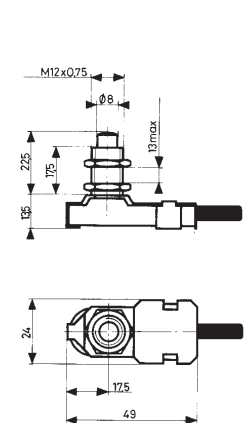
83 731 3



83 732 3



83 733 3



Other information

For other versions, functions and special contacts or special modes of operation : please consult us.

To order, specify :

1/2 meter cable	1 meter cable	2 meter cable
83731316	83731319	83731310
83732323	83732315	83732327
83733315	83733314	83733310

Standard products,
non stocked

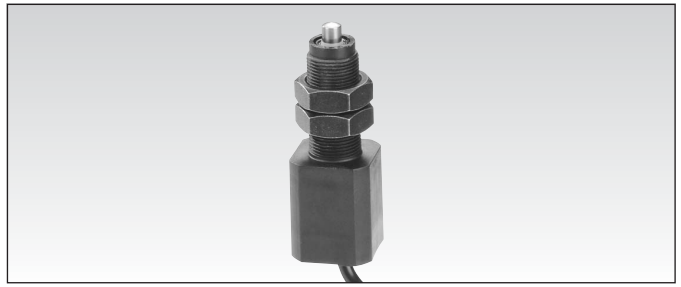
1 Type

Example : Limit switch - 83 731 319

Products and specifications subject to change without notice.

Order/Technical Support – Tel: (800) 677-5311 / FAX: (800) 677-3865 / www.crouzet-usa.com

Automotive Limit Switch Series 83 589



Conform to the following standards :

IEC 356.1 - NFC 20030 class I : plunger actuated via earthed metal part or an insulating device providing additional insulation.

Version :

1 pole

Degree of protection :

IP 66/67 Resistant to hydrocarbons and saline mist (400 hours).

Function :

Single break two-way contact element
(Form C : inverter).

Components :

Materials Casing : thermoplastic polyester
Plunger : stainless steel
Contact : Agcdo - AgNi (gold)
Nuts : galvanized steel
Sealing Silicon and teflon seals
PU resin.

Principle :



Electrical characteristics :

Standard : 8 A 250 V ~ : 30 000 operations
200 mA 24 V = relay load L/R = 3 ms 10⁷ operations
Two-level : 1 mA 4 V : 10⁷ operations
200 mA 24 V = relay load L/R =
3 ms 5 x 10⁶ operations
5 A 250 V ~ : 30,000 operations

The two-level type is designed to operate both on two-level (1 mA 4 V minimum) and medium current (5 A maximum) circuits.

However, a given product can only switch a single type of circuit throughout its life.

Connections :

3 x 0.75 mm² PVC cables. 0.50 m long
Conforms to NFR 13414/13415.

Core connections :

1 = black (common)
2 = gray (NC)
4 = blue (NO)

Mounting :

Max. tightening torque : 9 Nm.

Types

Standard	83 589 0
Two-level	83 589 8

Control mechanism

Top-mounted plunger	•	•
---------------------	---	---

Function

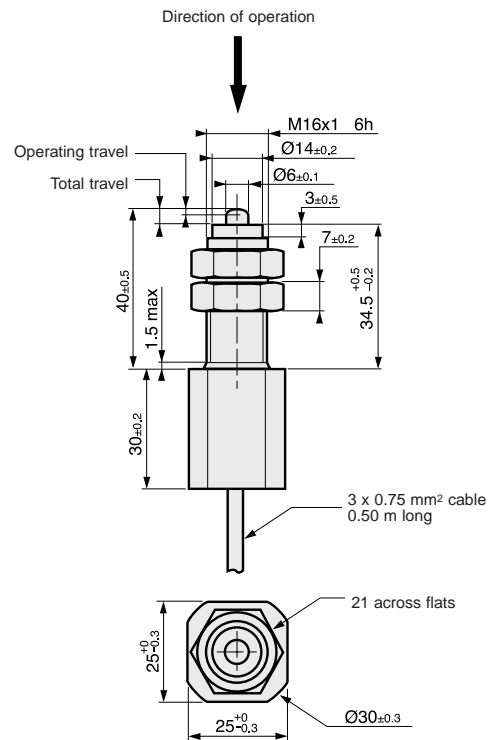
Form C (SPDT)	C	C
---------------	---	---

Mechanical characteristics

Minimum operating force	N (oz.)	10 (35.5)	10 (35.5)
Minimum total travel force	N (oz.)	15 (53)	15 (53)
Minimum operating travel	mm (in.)	2 (0.08)	2 (0.08)
Differential travel	mm (in.)	0.1 (.004)	0.1 (.004)
Max. total travel	mm (in.)	4.5 (.177)	4.5 (.177)
Mechanical life*	Operations	10 ⁷	10 ⁷
Temperature limits	°C (°F)	-40+85(-40+185)	-40+85(-40+185)
Degree of protection		IP 66 / 67	IP 66 / 67
Weight	g (oz.)	80	80

* For operating travel of 4 mm.

Dimensions



Other information

For other versions, functions and special contacts or special modes of operation : please consult us.

To order, specify :

83589 series			
1.) Model	2.) Contact Configuration	3.) Output	4.) Length
835890	A (SPNO)	W (Wires)	0.5 (1/2 meter)
835898	B (SPNC)	C (Cable)	1.0 (1 meter)
	C (SPDT)		2.0 (2 meter)

Products and specifications subject to change without notice.

Order/Technical Support – Tel: (800) 677-5311 / FAX: (800) 677-3865 / www.crouzet-usa.com

Sealed Limit Switches Telescopic-Actuator Series 83 581

Conforms to the following standards : NFC 20030 class II -
NFC 20010

Degree of protection : IP 67

Contact type : Three terminal single break contact element
(Form C: SPDT)

Layout :



Electrical characteristics :

Assigned working currents (Ie): standard 10 A - 250 V~
low current 0.1 A - 250 V~

Electrical endurance :

Standard : 10 A - 250 V : 40 000 operations
5 A - 250 V : 100 000 operations

Low current : Designed for use from 1 to 100 mA at 4 to 30 volts.
In these conditions, the electrical endurance exceeds
the mechanical life.

Connections :

Flexible leads 3x1 mm². Length 0.50 m

Cable 3x0,75 mm². Length 0.50 m

Core connections: 1: black

2: brown

4: blue

Versions

Features

Standard _____

Low current _____

Operating devices

Telescopic top-mounted plunger _____

Plunger with axial roller - standard _____

Plunger roller at 90° (G 90) - Consult Factory

Contact Type

Form C – SPDT

Mechanical characteristics

Minimum operating force _____ N (oz)

Minimum total travel force _____ N (oz)

Movement differential _____ mm (in)

Minimum operating travel _____ mm (in)

Total travel max. _____ mm (in)

Mechanical life _____ Operations

Temperature limits _____ °C (°F)

Degree of protection _____

Weight _____ g (oz)

Connections

Flexible leads _____ Lead position - right (D) _____

_____ Lead position - left (G) _____

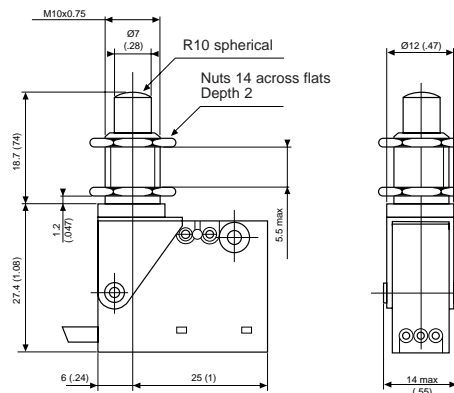
Cable _____ Output on left _____

* Rating restricted to 8A

Dimensions

mm(in)

83 581 0



Other information

For other accessories and special contacts, or special modes of operation, please consult factory.

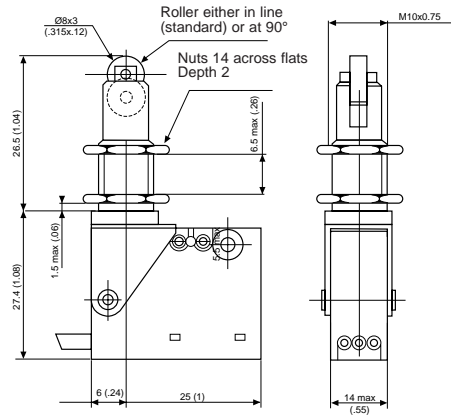
Products and specifications subject to change without notice.

Order/Technical Support – Tel: (800) 677-5311 / FAX: (800) 677-3865 / www.crouzet-usa.com



83 581 0		83 581 1	
S	B	S	B
•	•	•	•
C	C	C	C
5 (17.6)	5 (17.6)	5 (17.6)	5 (17.6)
20 (70.5)	20 (70.5)	20 (70.5)	20 (70.5)
1 (.04)	1 (.04)	1 (.04)	1 (.04)
2.5 (.1)	2.5 (.1)	2.5 (.1)	2.5 (.1)
5.5 (.22)	5.5 (.22)	5 (.2)	5 (.2)
10 ⁵	10 ⁵	10 ⁵	10 ⁵
-20 to 85 (-4 to 185)	-20 to 85 (-4 to 185)	-20 to 85 (-4 to 185)	-20 to 85 (-4 to 185)
IP 67	IP 67	IP 67	IP 67
40 (1.4)	40 (1.4)	45 (1.6)	45 (1.6)
R	R	R	R
L	L	L	L
C*	C	C*	C

83 581 1



To order, please specify :

Example : 835810 S C C •

<p>1 Switch Type</p> <p>835810 835811</p>	<p>2 Current Level</p> <p>S - 10A B - <.1A</p>	<p>3 Contacts</p> <p>C</p>	<p>4 Outputs</p> <p>R - Right (flexible wires) L - Left (flexible wires) C - Cable left output only</p>	<p>5 Lead Length</p> <p>.5 - 1/2 meter 1 - 1 meter 2 - 2 meter</p>
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Products and specifications subject to change without notice.

Order/Technical Support – Tel: (800) 677-5311 / FAX: (800) 677-3865 / www.crouzet-usa.com



General Specifications :

Operation

To defeat the switch
83 523 - 83 528. Depress the plunger and turn it a quarter of a turn.
To reset the switch to rest position depress the plunger.

Components

Bracket
Zinc plated mild steel
Plunger
Stainless steel
Switch
83 523, 83 106 0, 83 528, 83 132, 83 133

Layout

83 523 - 83 528



Current Ratings

83 523 - 10 Amps
83 528 - 5 Amps
Other current ratings are available

For low current applications, gold contacts are available

Approvals: Please consult us.

Types

Features

Operating force min.	N (oz)
Movement differential	mm (in)
Total travel max.	mm (in)
Tripping point min.	mm (in)
Mechanical life	Operations
Weight	grams (oz)
Operating temperature	°C (°F)

Contact Configuration - SPDT

Connections

Screw
Solder (.110 " Quick connect also for 83 528)
1/14" Quick connects
3/16" Quick connects

Other information

 Standard products normally stocked  Catalog products, produced to order

Products and specifications subject to change without notice.

Order/Technical Support – Tel: (800) 677-5311 / FAX: (800) 677-3865 / www.crouzet-usa.com

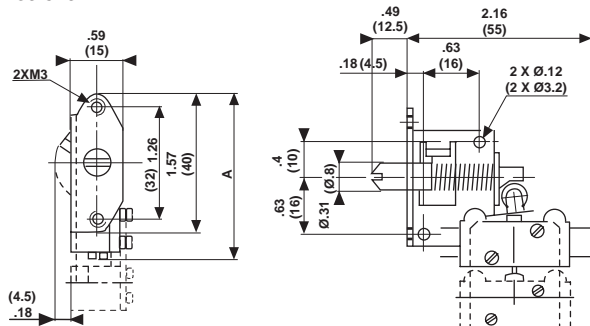


83 523 0		83 523 3		83 528 0		83 528 3	
1 Pole		2 Poles		1 Pole		2 Poles	
30 (105)		30 (105)		6 (21.1)		8 (28.1)	
1 (.04)		1 (.04)		.7 (.027)		.7 (.027)	
6 (.24)		6 (.24)		6 (.24)		6 (.24)	
4 (.16)		4 (.16)		2.5 (.10)		2.5 (.10)	
10 ⁷		10 ⁷		10 ⁷		10 ⁷	
40 (1.41)		55 (1.94)		20 (.70)		23 (.81)	

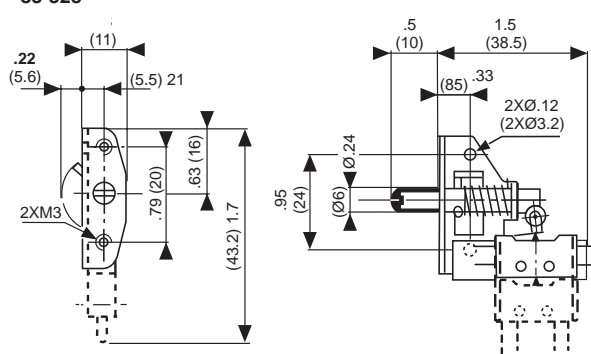
C	C	C	C
1	1	N/A	N/A
2	2	2	2
3	3	N/A	N/A
N/A	N/A	N/A	N/A

Dimensions

83 523



83 528



mm (in)

To order, please specify:

Example : 835280 C 2 • DL

1 Switch Type

85 523 0
83 523 3
83 528 0
83 528 3

2 Configuration

C*

3 Connections

1
2
3

Products and specifications subject to change without notice.

Order/Technical Support – Tel: (800) 677-5311 / FAX: (800) 677-3865 / www.crouzet-usa.com

Conform to the following standards :

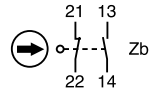
IEC 536-1, IEC 947-5-1, CSA C22.2 N°14
 EN 50047, EN 60204-1, EN 60947-5-1
 NFC 20030 class II for 83 854
 class I for 83 855
 UL 508, VDE 0660/200

Degree of protection : IP 66

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

Principle :

Dependent action contact (1 NC + 1 NO)
 Break before make



After actuation, the safety contact remains locked open in position "NC". It is unlocked by pressing the reset button.

Electrical characteristics :

Assigned insulation voltage (Ui) : 500 V
 Thermal rating (Ith) : 10 A
 Use category : A300 - Q300
 AC15 = 6A/250 V - 1.9 A / 380 V
 DC 13 = 3A/24 V

Short circuit test (under IEC 947.5.1 § 8.3.4)

- Current peak 1000 A at 250 V-0.5 < cos φ < 0.7
- Short circuit protection (SCPD) : fuse 10 A gF
- Electrical protection by internal earth terminal (83 850)

Connections :

Saddle washer and M 3.5 screw
 Max. wire cross-section : 2 x 1.5 mm² or 1 x 2.5 mm²

Connection :

For No. 13 sealing gland

Approvals :

Slow break NC + NO version
 UL / CSA : please consult us.

Part number

Thermoplastic case and metal head	Ø 22
Metal bodies and actuator heads	Ø 22
	Ø 50
Special option - configuration EN 50047	
Control mechanisms - adjustable actuator heads 4 positions 90°	
Steel plunger	
Plunger with steel roller	
Lever with plastic roller	vertical
	lateral
Rotary head, momentary action to right and left (1)	
With lever and plastic roller	Ø 19 offset 21 or 53
	Ø 22 offset 33.5 or 40
	Ø 50 offset 47
	offset 53.5
With adjustable lever and plastic roller	Ø 22 offset 32.5 or 45
	Ø 50 offset 46
	adjustable offset 53.5 to 69.5

Sequence

Dependent action

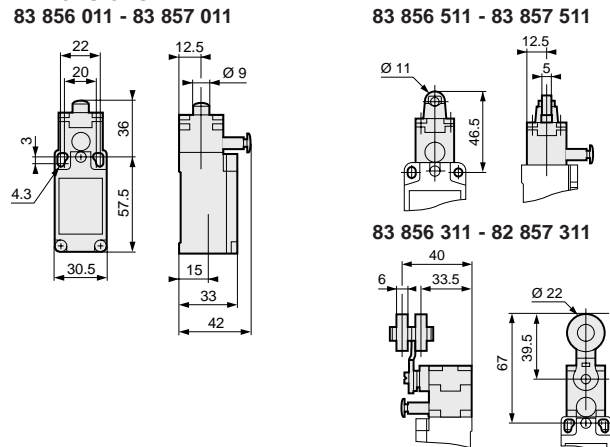
Positive break operation

Mechanical characteristics

Minimum operating force	N - (cmN)
Minimum total travel force	N - (cmN)
Minimum positive operating force	N - (cmN)
Minimum operating travel	mm - (°)
Minimum positive opening travel	mm - (°)
Differential travel	mm - (°)
Max. total travel	mm - (°)
Mechanical life	10 ⁶ operations min.
Temperature limits	Use ° C
	Stored ° C
Degree of protection	
Weight (plastic/metal)	g

(1) Action either right or left according to position of head

Dimensions



Other information

To order, specify :

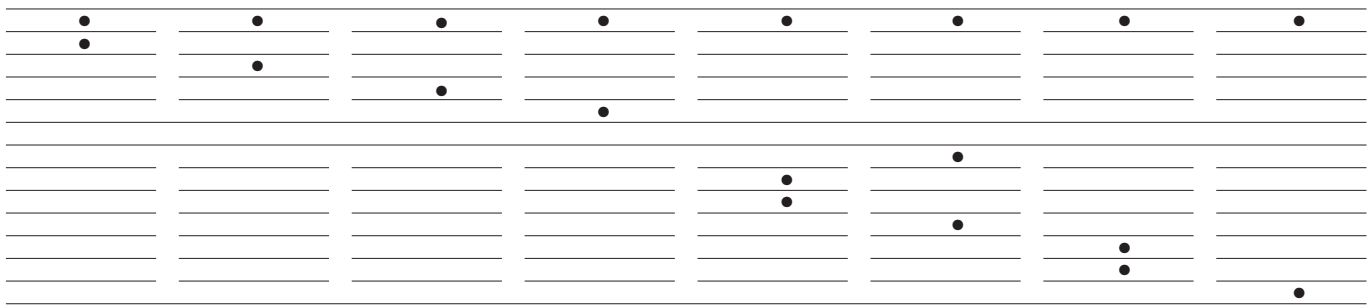
Standard products	1 Part number
Standard products, non stocked	Example : Limit switch with manual reset - 83 857 011

Products and specifications subject to change without notice.

Order/Technical Support – Tel: (800) 677-5311 / FAX: (800) 677-3865 / www.crouzet-usa.com

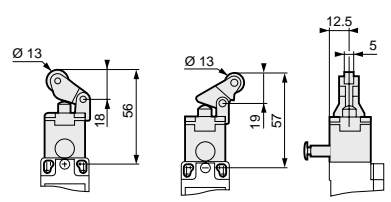


83 857 011	83 857 511	83 857 111	83 857 211	83 857 311 (Ø22)	83 857 312 (Ø19)	83 857 313 (Ø22)	83 857 318 (Ø50)
83 856 011	83 856 511	83 856 111	83 856 211	83 857 315 (Ø50)	83 857 316 (Ø50)	83 857 317 (Ø50)	83 857 318 (Ø50)
				83 856 311 (Ø22)	83 856 312 (Ø19)	83 856 313 (Ø22)	83 856 318 (Ø50)
				83 856 315 (Ø50)	83 856 316 (Ø50)	83 856 317 (Ø50)	83 856 318 (Ø50)

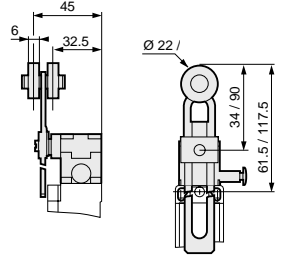


10	9	9	9	(28)	(28)	(28)	(28)
12	10	10	10	(37)	(37)	(37)	(37)
2.5	2.5	20	20	(75)	(75)	(30)	(30)
5	5	5	5	(30)	(30)	(30)	(30)
3.2	5.6	11	11	(46)	(46)	(20)	(20)
1.5	1.5	1.5	1.5	(20)	(20)	(20)	(20)
6	6	6	6	(75)	(75)	(75)	(75)
1	1	1	1	1	1	1	1
-20 +80	-20 +80	-20 +80	-20 +80	-20 +80	-20 +80	-20 +80	-20 +80
-40 +80	-40 +80	-40 +80	-40 +80	-40 +80	-40 +80	-40 +80	-40 +80
IP 66	IP 66	IP 66	IP 66	IP 66	IP 66	IP 66	IP 66
145/230	155/240	150/240	150/240	190/270	190/270	210/300	230/320

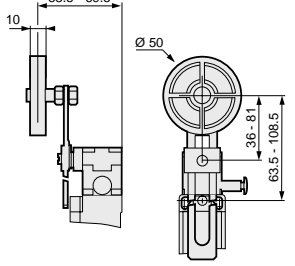
83 856 111 / 211 - 83 857 111 / 211



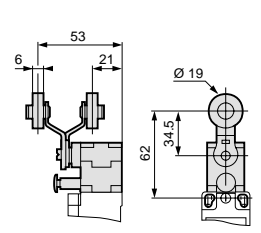
83 856 313 - 83 857 313



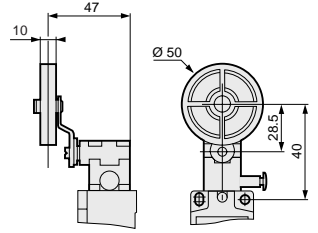
83 856 318 - 83 857 318



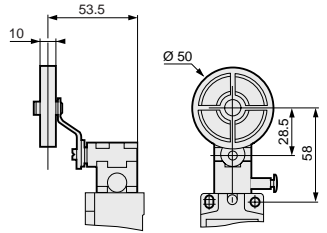
83 856 312 - 83 857 312



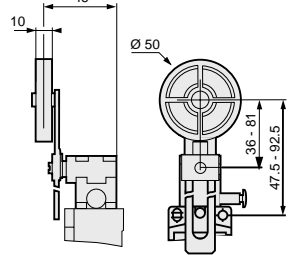
83 856 315 - 83 857 315



83 856 316 - 83 857 316



83 856 317 - 83 857 317



Products and specifications subject to change without notice.

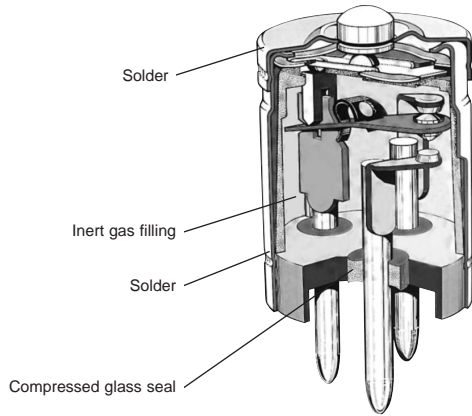
Order/Technical Support – Tel: (800) 677-5311 / FAX: (800) 677-3865 / www.crouzet-usa.com



Hermetically Sealed Limit Switches

Hermetically sealed microswitch

Part # 83 151 001
Without accessories
(basic cell -55° +150°C)



Characteristics

Min. current	5 V \equiv	mA	1
Nominal current			
Resistive	48 V \equiv (1)	A	3
Lamp	115 V - 400 Hz	A	1
Lamp	30 V \equiv (1)	A	2
Resistive	30 V \equiv (1)	A	3
Inductive L/R = 0.005 s	30 V \equiv (1)	A	1.5
Resistive	220 V \sim	A	1
Inductive - $\cos \phi$ 0.8	220 V \sim	A	0.4
Service life at nominal current ⁽³⁾ - operations		min	200,000
Dielectric strength between connections and ground		V	1200
Rigidity between connections		V	1000
Insulation resistance (at 500 Vdc)		M	100
Voltage drop at 1 A ⁽²⁾		V	0.02
Operating temperature		°C	-55 +150
Resistance to shock ⁽²⁾		g/ms	200/11
Resistance to vibration ⁽³⁾		g/Hz	80/20 \rightarrow 2000

(1) For a service life of 100,000 operations - Permissible current 4A inductive
7 A resistive for normally open or normally closed.

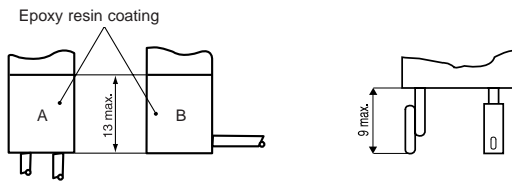
(2) On soldered connections - For wired connections add 0.1 V per metre.

(3) Value for microswitch without control button

Connections (consult factory)

Wired (0.38 mm² - 0.50 m long)

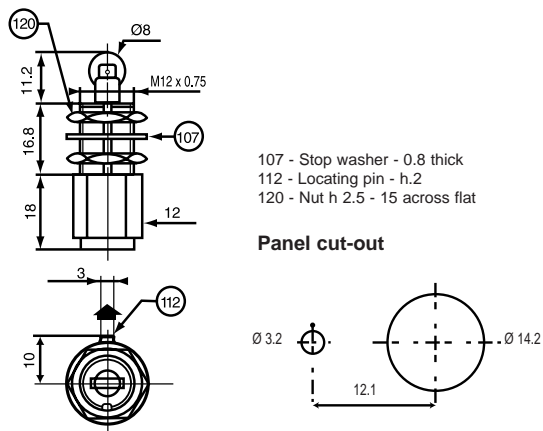
Soldered



A - Parallel to the axis (//)
B - Perpendicular to the axis (⊥)

Dimensions

Add the dimensions of the various connections for the total dimensions (\rightarrow indicates the direction of the wires)



Part numbers

Wire 0.38 mm ²	with parallel wires	83 770 025
0.50 m long	perpendicular	83 770 035
With single-pole roller plunger		•

Characteristics

Max operating force	N	12
Min. release force	N	1.5
Permitted overtravel force	N	50
Positive overtravel stop		•
Max. pre-travel	mm	0.3
Max. differential travel	mm	0.05
Min. overtravel	mm	3
Resistance to shocks	g/ms	100/11
Resistance to vibrations	g/Hz	50/800 \rightarrow 2000
Weight (without wires)	g	20
Service life (operations - min)		100,000

To order, specify :

Standard products,
non stocked

1

Part number

Example : Hermetically sealed limit switch - 83 770 025

Products and specifications subject to change without notice.

Order/Technical Support – Tel: (800) 677-5311 / FAX: (800) 677-3865 / www.crouzet-usa.com

Waterproof Limit Switches Series 83 141

Standard sensitive microswitch

83 141 002 - (55 °C +150 °C)
Without accessories



Connections

Solder tags

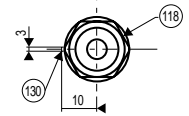
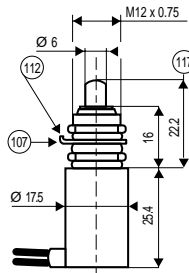
Characteristics

Nominal current	10 V \equiv	A	0.01
Resistive	30 V \equiv	A	4
	220 V \sim	A	1
Inductive L/R = 0.005 s	30 V \equiv	A	2
	220 V \sim	A	0.5
Service life at nominal current ⁽¹⁾ - operations			100,000
Operating temperature		°C	-55 +150
Max. operating force		N	2
Min. release force		N	0.4
Max. pre-travel		mm	0.5
Max. differential travel		mm	0.08
Min. overtravel		mm	0.1
Weight		g	1

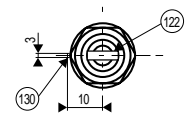
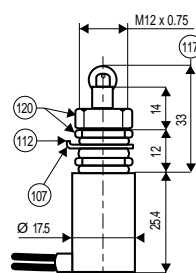
⁽¹⁾ Value for microswitch without control button

- 107 - Stop washer width 0.8
- 112 - Locating pin
- 117 - Free position
- 118 - Nuts h. 2.5 - 15 across flat
- 120 - Nuts h. 2.5 and 6 - 15 across flat
- 121 - Nuts h. 3 and 6 - 21 across flat
- 122 - Roller Ø 9.6 - width 3
- 130 - Pin h.2

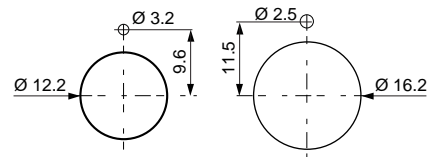
83 777 021



83 778 021



Panel cut-out



Dimensions – mm



Part numbers

	83 777 021	83 778 021
1 pole		
With plunger	•	
With plunger and roller		•
Output with perpendicular wires	•	•

Characteristics

Max. operating force	N	60	60
Min. release force	N	10	10
Max. total travel force	N	150	150
Max. pre-travel	mm	1.2	1.2
Max. differential travel	mm	0.2	0.2
Min. overtravel	mm	3.2	3.2
Weight (with wires)	g	30	37

General characteristics

Nominal current	10 V \equiv	A	0.01
Resistive	30 V \equiv	A	4
	220 V \sim	A	1
Inductive L/R = 0.005 s	30 V \equiv	A	2
	220 V \sim	A	0.5
Service life at nominal current (min. operations)			50,000
Dielectric strength between connections and ground	V		1500
Dielectric strength between connections	V		1000
Insulation resistance (at 500 Vdc)	M		100
Voltage drop at 1 A*	V		0.06
Operating temperature	°C		-55 +125
Resistance to shock	g/ms		50/11
Resistance to vibration	g/Hz		10/20 → 2000

* For flying leads, add 0.1 V/metre.

To order, specify :

Standard products, non stocked



Part number

Example : Waterproof limit switch - 83 777 021

Products and specifications subject to change without notice.

Order/Technical Support – Tel: (800) 677-5311 / FAX: (800) 677-3865 / www.crouzet-usa.com

Cable Pull Limit Switches Series 83 863 / 83 864

Conforms to the following standards:

EN 50041 - IEC 947.5.1 - VDE 0660/2
 UL 468 - UL 508 - CSA C22.2 No14
 NFC class 1 - EN 418 - Machine Directive 89/392/CEE

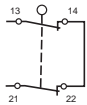
Degree of Protection : IP 66

Function : Four separate terminals with two separate NC switching elements with positive opening contacts. One set works in the cable break mode and the other works in the cable pull mode.

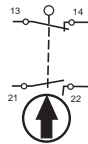
Both elements are electrically isolated from one another.

Layout :

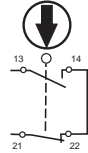
Cable attached with tension



Cable Pull Mode



Cable Break Mode



Electrical characteristics :

Assigned insulation voltage (Ui) : 500V
 Thermal rating (Ith) : 10 A
 Use category : A300 - Q300
 AC15 = 6A/250V - 1.9 A/380V
 DC13 = 3A/24V

Short circuit test (under IEC 947.5.1 sec. 8.3.4)

- Current peak 100 A at 250V $\sqrt{0.5 < \cos < 0.7}$
- Short circuit protection (SCPD) : fuse 10 A gF
- Electrical protection by internal earth ground

Connections :

Saddle washer and M3.5 screw
 Max. wire cross section : 2 x 1.5 mm² or 1 x 2.5 mm²

Connection :

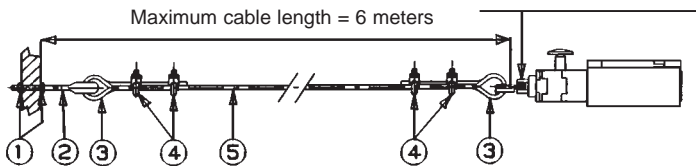
For No 13 or 1/2" NPT sealing gland

Approvals :

Pending

Typical Mounting:

The cable is to be tightened until the head is extended with the slot below the E-ring visible. This sets the switch.



1. Lock Nut
2. Eyelet Bolt
3. Cable through eyelet bolt.
4. Cable clamps
5. Cable - red PVC (red is international color for safety)



Part Numbers

Metric No 13	83863001
1/2" NPT	83864001

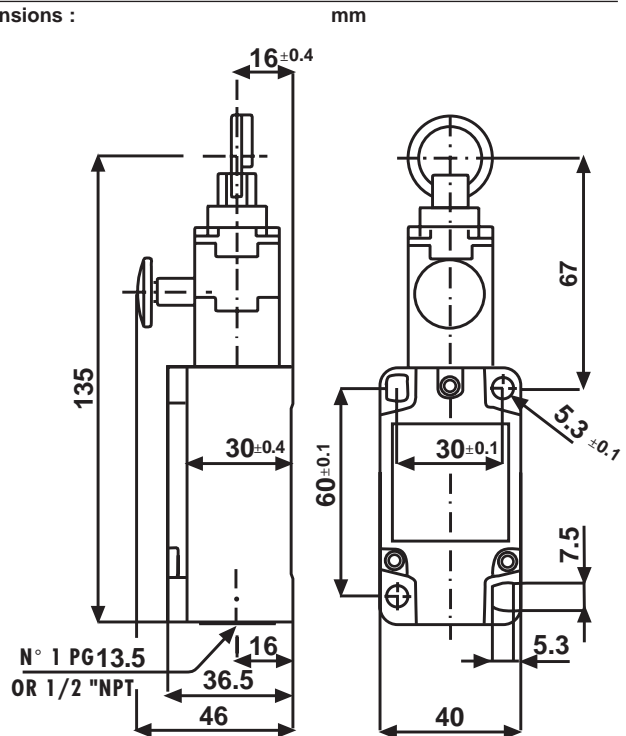
Mechanical Characteristics:

Minimum Operating Force	cmN	85
Minimum Operating Distance	mm	4
Movement Differential	mm	2
Maximum Total Travel	mm	8
Mechanical Life	operations	3x10 ⁷
Operating Temperature	C°	-25 to +70
Storage Temperature	C°	-40 to +70

Mounting Characteristics :

Maximum Length of Cable	meters	6
-------------------------	--------	---

Dimensions :

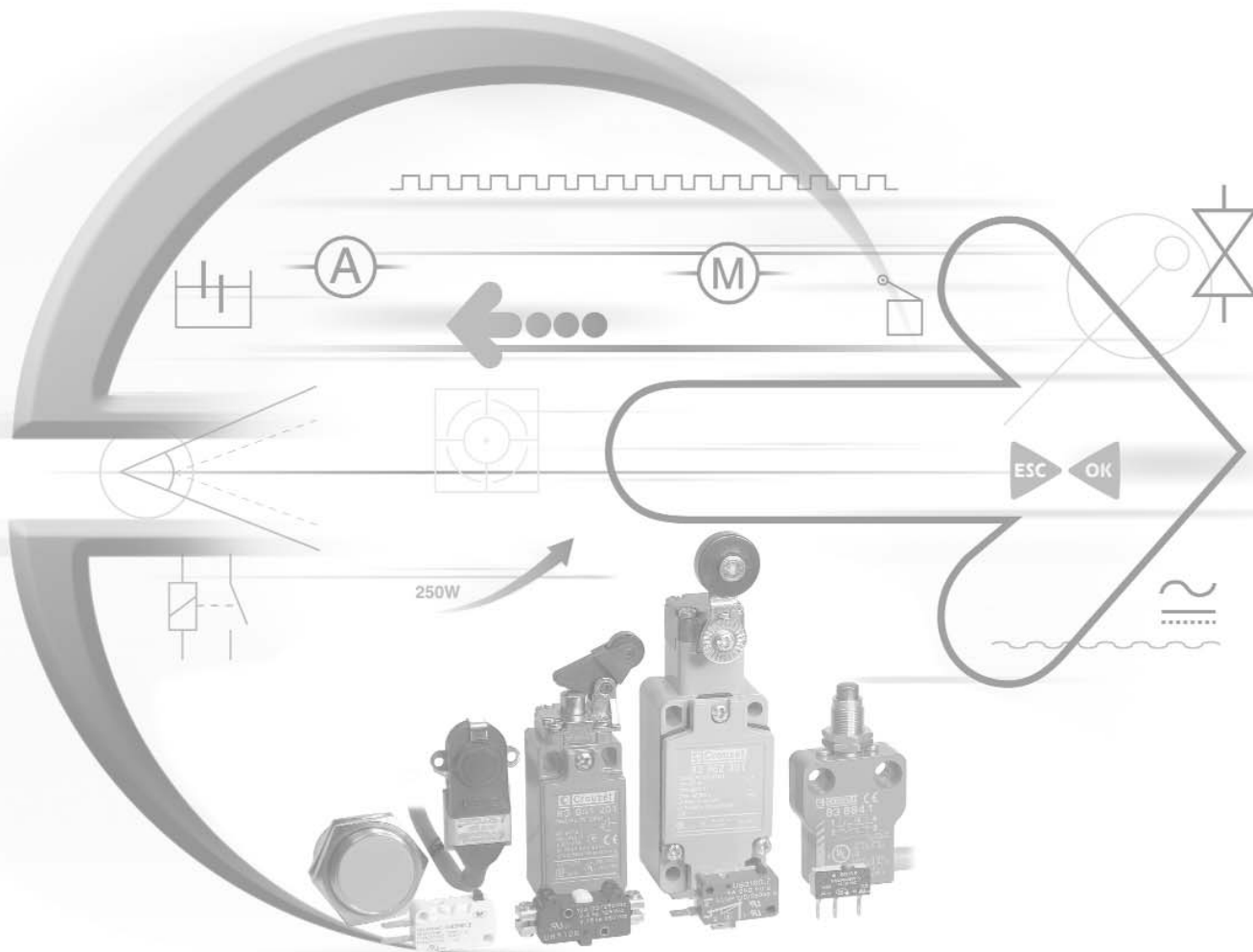


Standard products available in-stock in normal quantities

Catalog products produced to order

Products and specifications subject to change without notice.

Order/Technical Support – Tel: (800) 677-5311 / FAX: (800) 677-3865 / www.crouzet-usa.com



Safety (Security) Limit Switches



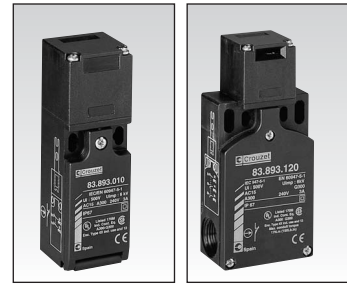
Products and specifications subject to change without notice.

Order/Technical Support – Tel: (800) 677-5311 / FAX: (800) 677-3865 / www.crouzet-usa.com



Miniature Plastic Key Lock Limit Switches Series 83 893 0 / 83 893 1 IP 67

- Key-operated safety interlock switches for monitoring the moving cover
- Plastic bodies and heads
- Heads have 4 possible positions
- Positive opening contacts



General characteristics

Environment

Conforming to standards	Products	IEC 947-5-1, EN 60 947-5-1, UL 508, CSA C22-2 no.14, JIS C4520 (See P. 2/2 and 2/3)
	Machine assemblies	IEC 204-1, EN 60 204-1, EN 1088, EN 292
Certifications		UL, CSA
Protective treatment		In normal operation: "TC"
Temperature	Use	-25°C, +70°C
	Stored	-40°C, +70°C
Vibration resistance		5 gn (10...500 Hz) according to IEC 68-2-6
Shock resistance		10 gn (duration 11 ms) according to IEC 28-2-27
Degree of protection		IP 67 according to IEC 529 and IEC 947-5-1
Cable entry		Cable gland 11

Electrical characteristics

Assigned working characteristics	AC 15 A 300 Ue = 240 V, Ie = 3A or Ue = 120 V, Ie = 6 A DC 13 Q 300 Ue = 250 V, Ie = 0.27 A or Ue = 125 V, Ie = 0.55 A
Assigned insulation voltage	Ui = 500 V according to IEC 947-5-1 Ui = 300 V according to UL 508, CSA C22-2 no. 14
Assigned impulse voltage	Uimp = 6 KV acc. to IEC 947-5-1
Thermal rating	Ith = 10 A according to IEC 947-5-1
Electric shock protection	Class 2 according to IEC 536
Resistance between terminals	3.0 m according to IEC 954-5-4
Short-circuit protection	Cartridge fuse 10 A gG (gl)
Connection	Screw clamp terminals Clamping capacity min. 1 x 0.5 mm ² , max. 1.5 mm ² with or without ferrule
Electrical life	According to IEC 947-5-1 appendix C

Part numbers






Type of contact

NC+NO	2-pole contact NC+NO break before make, slow action	83 893 001
NC+NC	2-pole contact NC+NC, slow action	83 893 010
NC+NO+NO	3-pole contact NC+NO+NO (2 NO bbm) + slow action	83 893 120
NC+NC+NO	3-pole contact NC+NC+NO (NO bbm) + slow action	83 893 130

Additional characteristics

Maximum actuation speed	0.5 m/s	0.5 m/s
Minimum actuation speed	0.01 m/s	0.01 m/s
Resistance to removal of key	10 N	10 N
Mechanical life	1 million operating cycles	1 million operating cycles
Maximum operating frequency	600 operating cycles per hour	600 operating cycles per hour
Minimum positive opening force	15 N	15 N
Pg 11 cable entry according to NFC 68 300	1	2
Thermal rating (Ith)	10 A	10 A
Assigned insulation voltage (Ui)	500 V	500 V
Weight	0.110 kg	0.160 kg

Accessories

Straight key		79 214 581
Key with wide fixing bar		79 214 582
Short key with wide fixing bar		79 214 585
Angled key		79 214 584
Flexible key		79 214 583

To order, specify:

Standard products

1

Part number

Example: Safety limit switch 83 893 001 - Straight key 79 214 581

2

Accessory

Standard products, non stocked

2

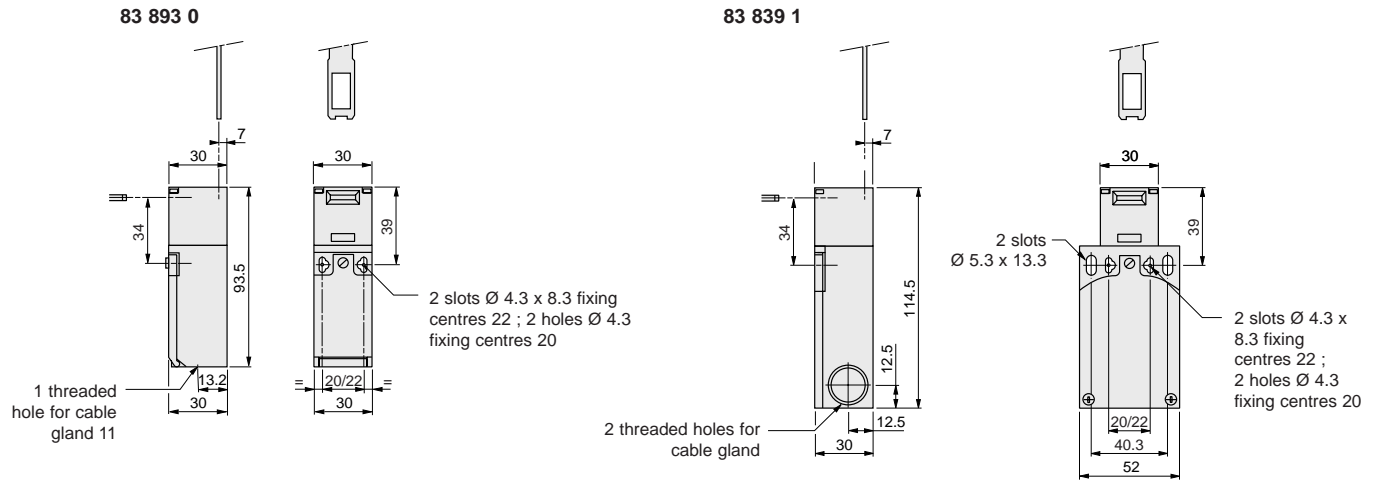
Accessory

Example: Straight key 79 214 581

Products and specifications subject to change without notice.

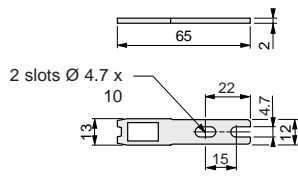
Order/Technical Support – Tel: (800) 677-5311 / FAX: (800) 677-3865 / www.crouzet-usa.com

Dimensions

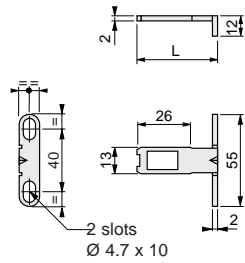


Accessories

79 214 581

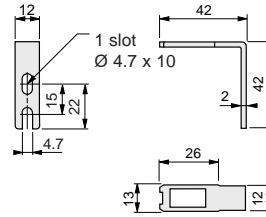


79 214 582 / 585

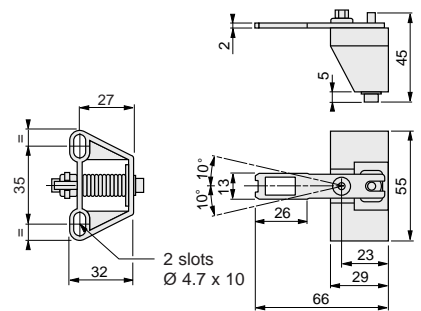


Types	Dimension L (mm)
79 214 582	40
79 214 585	29

79 214 584



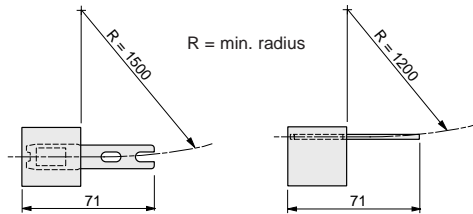
79 214 583



Operating radius

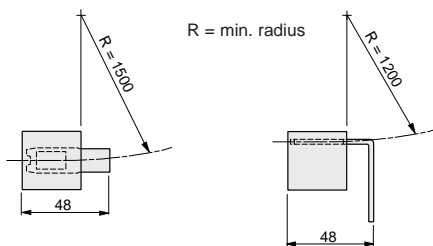
79 214 581

79 214 582 / 585

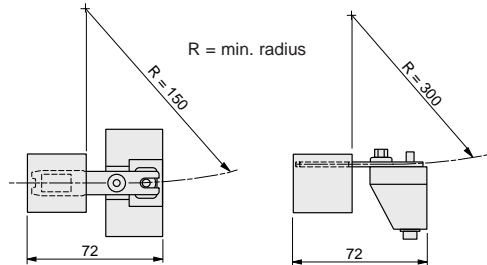


Types	Dimension d (mm)
79 214 582	46
79 214 585	35

79 214 584



79 214 583



Other information

Products and specifications subject to change without notice.

Order/Technical Support – Tel: (800) 677-5311 / FAX: (800) 677-3865 / www.crouzet-usa.com

Solenoid Operated Plastic Key Lock Limit Switches Series 83 893 2 IP 67

- Monitoring of the moving cover for machines with a stopping time which is greater than the time taken to access the danger zone
- Locked by removing the voltage, unlocked by applying voltage to the electromagnet
- Plastic bodies and heads
- Heads have 4 possible positions
- Positive opening contacts



General characteristics

Environment

Conforming to standards	Products	IEC 947-5-1, EN 60 947-5-1, UL 508, CSA C22-2 no. 14, JIS C4520
	Machine assemblies	IEC 204-1, EN 60 204-1, EN 1088, EN 292
Certifications		UL, CSA
Protective treatment		In normal operation: "TC"
Temperature	Use	-25°C, +70°C
	Stored	-40°C, +70°C
Vibration resistance		5 gn (10...500 Hz) according to IEC 68-2-6
Shock resistance		10 gn (duration 11 ms) according to IEC 28-2-27
Degree of protection		IP 67 according to IEC 529 and IEC 947-5-1
Cable entry		One entry per cable gland 11

Electrical characteristics

Assigned working characteristics	AC 15 B300 Ue = 240 V, Ie = 1.5 A or Ue = 120 V, Ie = 3 A DC 13 Q300 Ue = 250 V, Ie = 0.27 A or Ue = 125 V, Ie = 0.55 A
Assigned insulation voltage	Ui = 500 V according to IEC 947-5-1 Ui = 300 V according to UL 508, CSA C22-2 no. 14
Assigned impulse voltage	Uimp = 4 kV acc. to IEC 947-5-1
Thermal rating	Ithe = 6 A according to IEC 947-5-1
Electric shock protection	Class 2 according to IEC 536
Resistance between terminals	3 0 m according to IEC 954-5-4
Short-circuit protection	Cartridge fuse 10 A gG (gl)
Connection	Screw clamp terminals Clamping capacity min. 1 x 0.5 mm ² , max. 1.5 mm ² with or without ferrule
Electrical life	According to IEC 947-5-1 appendix C

Part numbers

Type of contact

NC+NO	2-pole contact NC+NO break before make, slow action	83 893 201	83 893 202	83 893 203
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Additional characteristics

Electromagnet supply voltage (50/60 Hz in ~)	24 V ~/~/~ 120 V ~/~/~ 230 V ~/~/~
Maximum actuation speed	0.5 m/s
Minimum actuation speed	0.01 m/s
Resistance to removal of key	500 N
Mechanical life	1 million operating cycles
Maximum operating frequency	600 operating cycles per hour
Minimum positive opening force	15 N
Pg 11 cable entry according to NFC 68 300	1
Weight	0.360 kg

Accessories

Straight key		79 214 581
Key with wide fixing bar		79 214 582
Short key with wide fixing bar		79 214 585
Angled key		79 214 584
Flexible key		79 214 583

To order, specify:

Standard products

1

Part number

2

Accessory

Example: Safety limit switch 83 893 201 - Angled key 79 214 584

Standard products, non stocked

1

Part number

2

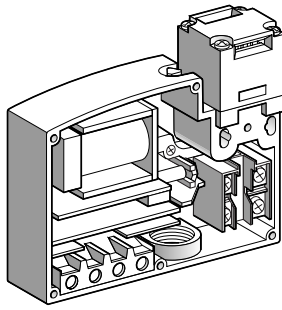
Accessory

Example: Safety limit switch 83 893 203 - Straight key 79 214 581

Products and specifications subject to change without notice.

Order/Technical Support – Tel: (800) 677-5311 / FAX: (800) 677-3865 / www.crouzet-usa.com

Locking / unlocking using an electromagnet



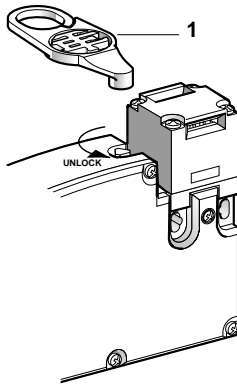
Type 83 893 2 safety switches are fitted with an electromagnet for locking/unlocking the guard.

With the guard locked, the force required to remove the key is 50 daN.

In addition to the 2-pole contact element actuated by the key, type 83 893 2 limit switches also have a positive break type "NC" contact element, actuated by the electromagnet.

The "NC" contact is integrated in the machine safety circuit.

Unlocking using a special tool



Type 83 893 2 safety switches are supplied with a tool (1) which can be used to unlock the moving guard, bypassing the electromagnet.

Unlocking using a tool is recommended in the following cases:

- machine maintenance (if the tool is in the "UNLOCK" position and then removed, this will prevent the machine from restarting accidentally, therefore ensuring the safety of maintenance personnel),
 - mains failure,
 - problem with unlocking (locking cannot be released: fail-safe condition).
- Unlocking by applying voltage to the electromagnet always takes priority over unlocking using a tool. The "NC" contact is integrated in the machine safety circuit.

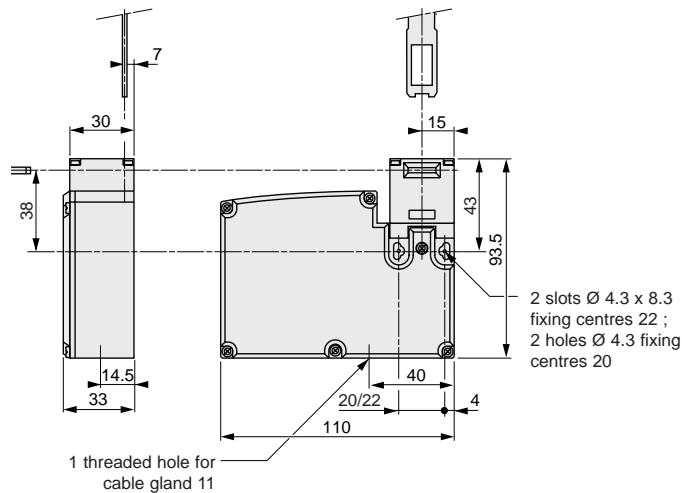
Power supply for the electromagnet on 83 893 2

The electromagnet for type 83 893 2 safety switches is supplied by an electronic circuit which increases its service life. As the 24 V version is protected by a bridge rectifier, an A.C. or D.C. supply can be used.

The 120 V and 230 V versions are A.C. only. It is also protected against voltage surges.

Dimensions

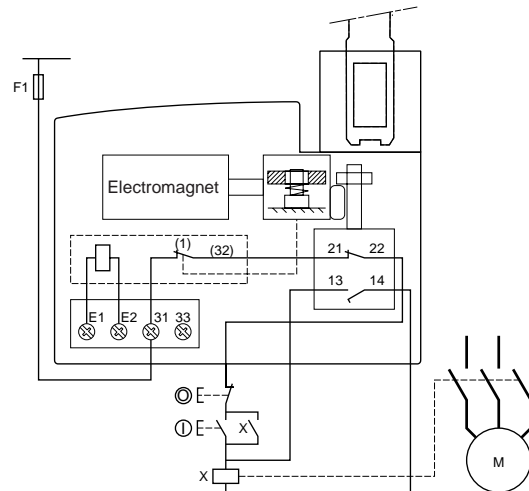
83 893 2



Category 1 connection according to EN 954-1

Examples of wiring diagrams with a fuse to provide protection against short-circuits in the cable or tampering.

Locking by removal of voltage 83 893 2



- (1) Auxiliary contact
E1-E2: Power supply for electromagnet
13-14: Safety contact for redundancy or signalling

Other information

For accessory dimensions, see page 2/5.

Products and specifications subject to change without notice.

Order/Technical Support – Tel: (800) 677-5311 / FAX: (800) 677-3865 / www.crouzet-usa.com

Industrial Metal Key Lock Limit Switches Series 83 894 0 IP 67

- Spade terminal safety interlock switch for monitoring the moving cover
- Metal bodies and heads
- Heads have 4 possible positions
- Positive opening contacts



General characteristics

Environment

Conforming to standards	Products	IEC 947-5-1, EN 60 947-5-1, UL 508, CSA C22-2 no.14, JIS C4520
	Machine assemblies	IEC 204-1, EN 60 204-1, EN 1088, EN 292
Certifications		UL, CSA
Protective treatment		In normal operation: "TC"
Temperature	Use	-25°C, +70°C
	Stored	-40°C, +70°C
Vibration resistance		5 gn (10...500 Hz) according to IEC 68-2-6
Shock resistance		10 gn (duration 11 ms) according to IEC 28-2-27
Degree of protection		IP 67 according to IEC 529 and IEC 947-5-1
Cable entry		One threaded entry for cable gland 13

Electrical characteristics

Assigned working characteristics	AC 15 A 300 Ue = 240 V, Ie = 3 A or Ue = 120 V, Ie = 6 A DC 13 Q 300 Ue = 250 V, Ie = 0.27 A or Ue = 125 V, Ie = 0.55 A
Assigned insulation voltage	Ui = 500 V according to IEC 947-5-1 Ui = 300 V according to UL 508, CSA C22-2 no.14
Assigned impulse voltage	Uimp = 6 KV according to IEC 947-5-1
Thermal rating	Ithe = 10 A according to IEC 947-5-1
Electric shock protection	Class 2 according to IEC 536
Resistance between terminals	3 0 m according to IEC 954-5-4
Short-circuit protection	Cartridge fuse 10 A gG (gl)
Connection	Screw clamp terminals Clamping capacity min. 1 x 0.5 mm², max. 1.5 mm² with or without ferrule
Electrical life	According to IEC 947-5-1 appendix C

Part numbers

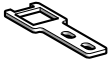

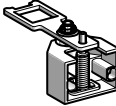
Type of contact

NC+NO+NO 3-pole contact	83 894 020
NC+NO+NO (2 NO bbm) slow action	

Additional characteristics

Maximum actuation speed	0.5 m/s
Minimum actuation speed	0.01 m/s
Resistance to removal of key	10 N
Mechanical life	> 1 million operating cycles
Maximum operating frequency	600 operating cycles per hour
Minimum positive opening force	20 N
Cable entry (DIN Pg 13.5 cable gland 13) according to NFC 68 300	1
Weight	0.360 kg

Accessories

Straight key		79 214 578
Key with wide fixing bar		79 214 579
Flexible key		79 214 580

To order, specify:

Standard products

1

Part number

2

Accessory

Example: Safety limit switch 83 894 020 - Wide key 79 214 579

Standard products, non stocked

2

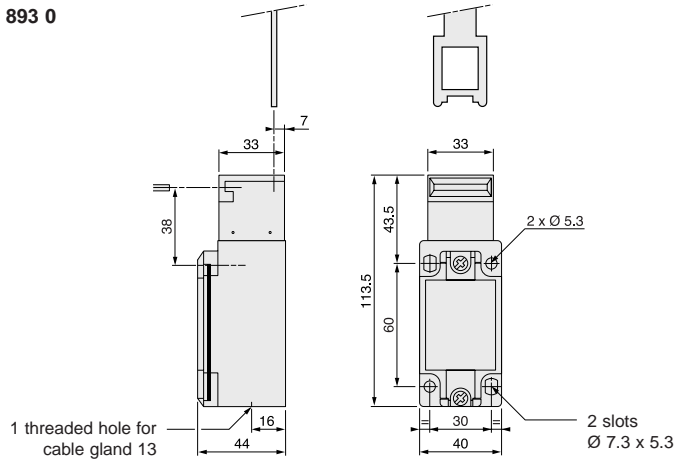
Accessory

Example: Flexible key 79 214 580

Products and specifications subject to change without notice.

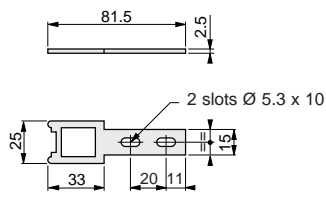
Order/Technical Support – Tel: (800) 677-5311 / FAX: (800) 677-3865 / www.crouzet-usa.com

Dimensions mm
83 893 0

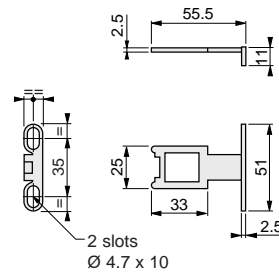


Accessories

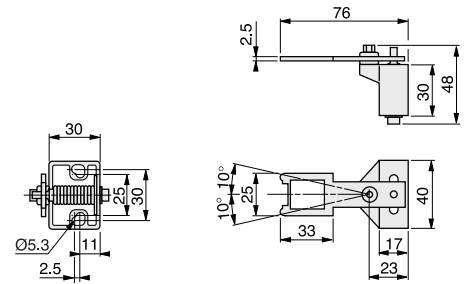
79 214 579



79 214 578



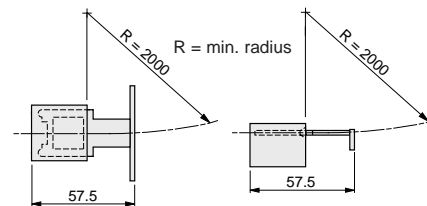
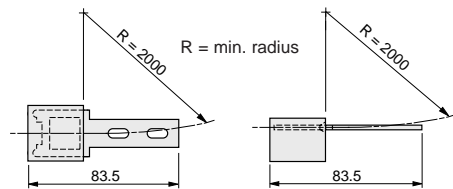
79 214 580



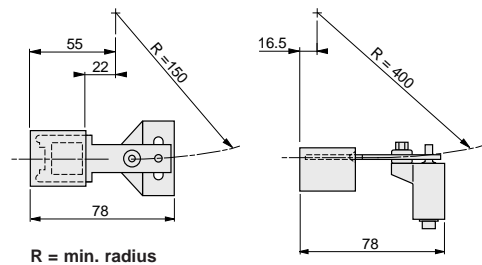
Operating radius

79 214 578

79 214 579



79 214 580



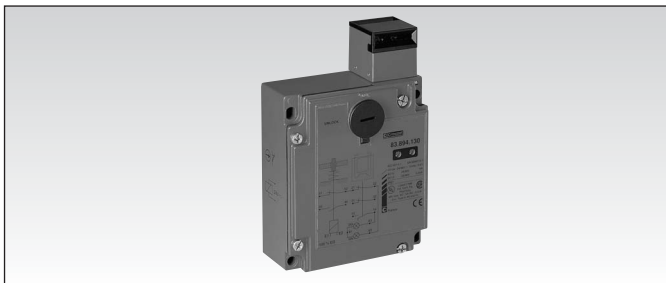
Other information

Products and specifications subject to change without notice.

Order/Technical Support – Tel: (800) 677-5311 / FAX: (800) 677-3865 / www.crouzet-usa.com

Solenoid Operated Metal Key Lock Limit Switches Series 83 894 1

- Monitoring of the moving cover for machines with a stopping time which is greater than the time taken to access the danger zone
- Locked by removing the voltage, unlocked by applying voltage to the electromagnet
- Metal bodies and heads
- Heads have 4 possible positions
- Positive opening contacts



General characteristics

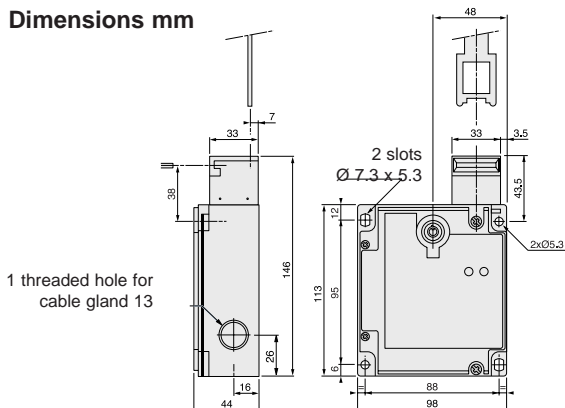
Environment

Conforming to standards	Products	IEC 947-5-1, EN 60 947-5-1, UL 508, CSA C22-2 no.14, JIS C4520 (See P. 3/14)
	Machine assemblies	IEC 204-1, EN 60 204-1, EN 1088, EN 292
Certifications		UL, CSA
Protective treatment		In normal operation: "TC"
Temperature	Use	-25°C, +70°C
	Stored	-40°C, +70°C
Vibration resistance		5 gn (10...500 Hz) according to IEC 68-2-6
Shock resistance		10 gn (duration 11 ms) according to IEC 28-2-27
Degree of protection		IP 67 according to IEC 529 and IEC 947-5-1
Cable entry		Threaded entry for cable gland 13

Electrical characteristics

Assigned working characteristics	AC 15 B300 Ue = 240 V, Ie = 1.5 A or Ue = 120 V, Ie = 3 A DC 13 Q300 Ue = 250 V, Ie = 0.27 A or Ue = 125 V, Ie = 0.55 A
Assigned insulation voltage	Ui = 500 V according to IEC 947-5-1 Ui = 300 V according to UL 508, CSA C22-2 no. 14
Assigned impulse voltage	Uimp = 4 KV according to IEC 947-5-1
Thermal rating	Ithe = 6 A according to IEC 947-5-1
Electric shock protection	Class 2 according to IEC 536
Resistance between terminals	3 0 m according to IEC 954-5-4
Short-circuit protection	Cartridge fuse 10 A gG (gl)
Connection	Screw clamp terminals Clamping capacity min. 1 x 0.5 mm ² , max. 1.5 mm ² with or without ferrule
Electrical life	According to IEC 947-5-1 appendix C

Dimensions mm



Part numbers

Type of contact

NC+NO+NO 3-pole contact NC+NO+NO (2 NO bbm) + slow action	83 894 120 83 894 121 83 894 122
NC+NC+NO 3-pole contact NC+NC+NO (NO bbm) slow action	83 894 130 83 894 131 83 894 132

Additional characteristics

Electromagnet supply voltage (50 / 60 Hz in ~)	24 V ~ / ---	120 V ~ / ---	230 V ~ / ---
Maximum actuation speed	0.5 m/s		
Minimum actuation speed	0.01 m/s		
Resistance to removal of key	2000 N		

Mechanical life	> 1 million operating cycles		
Maximum operating frequency	600 operating cycles per hour		
Minimum positive opening force	20 N		
Cable entries Pg 13 according to NFC 68 300	2		
Weight	1.140 kg		



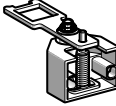
Electromagnet characteristics

Load factor	100%		
Voltage limits	-20% ; +10 %		
Service life	20,000 hours		
Consumption	Inrush	10 VA	
	Sealed	10 VA	

Indicator characteristics

Assigned insulation voltage according to IEC 947-5-1	50 V	250 V	250 V
Current consumption	7 mA	7 mA	7 mA
Assigned working voltage ~ or ---	24 V	110 / 240 V	110 / 240 V
Voltage limits ~ or --- (including ripple)	20...52 V	95...264 V	95...264 V
Service life	100,000 hrs	100,000 hrs	100,000 hrs
Protection against voltage surges	yes	yes	yes

Accessories

Straight key		79 214 578
Wide key		79 214 579
Flexible key		79 214 580

To order, specify:

Standard products

1 Part number **2** Accessory
Example: Safety limit switch 83 894 120 - Wide key 79 214 579

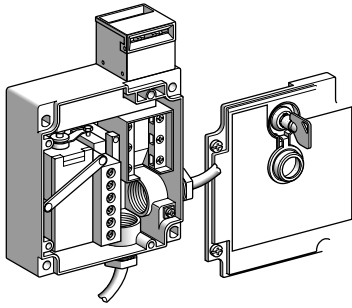
Standard products, non stocked

1 Part number **2** Accessory
Example: Safety limit switch 83 894 132 - Straight key 79 214 578

Products and specifications subject to change without notice.

Order/Technical Support – Tel: (800) 677-5311 / FAX: (800) 677-3865 / www.crouzet-usa.com

Locking / unlocking using an electromagnet

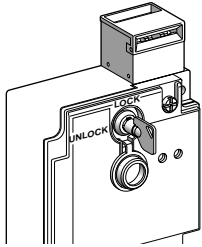


Type 83 894 1 safety switches are fitted with an electromagnet for locking/unlocking the guard.

With the guard locked, the force required to remove the key is **200 daN**.

In addition to the 3-pole contact element actuated by the key, 83 894 1 limit switches also have a positive break type **"NC + NO" contact** element, **actuated by the electromagnet**. The NC contact is integrated in the machine safety circuit, and the NO contact indicates the position of the electromagnet.

Locking using a key on 83 894 1



Type 83 894 1 safety switches are supplied with a key-operated lock which can be used to unlock the moving guard, bypassing the electromagnet.

Unlocking using a key-operated lock is recommended in the following cases :

- machine maintenance (if the key is turned to "UNLOCK" and then removed, this will prevent the machine from restarting accidentally, therefore ensuring the safety of maintenance personnel),
 - mains failure,
 - problem with unlocking (locking cannot be released: fail-safe condition).
- Unlocking by applying voltage to the electromagnet always takes priority over unlocking using a key-operated lock.

The locking mechanism for standard devices allows the key to be removed in the "LOCK" and "UNLOCK" positions.

Power supply for the electromagnet on 83 894 1

The electromagnet for type 83 894 1 safety switches runs on D.C. and is therefore particularly reliable.

As it is protected by a **bridge rectifier**, A.C or D.C supplies can be used (24 V, 48 V, 120 V or 230 V).

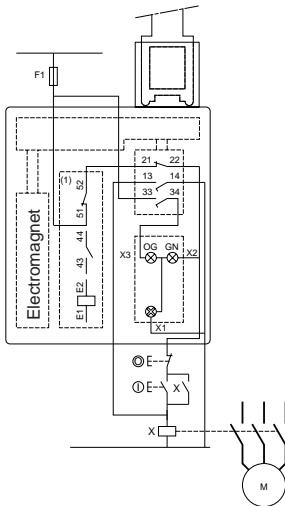
It is also protected against voltage surges.

Connections

Category 1 according to EN 954-1

Examples of wiring diagrams with a fuse to provide protection against short-circuits in the cable or tampering.

Locking by removal of voltage "NC+NO+NO" 83 894 12 •

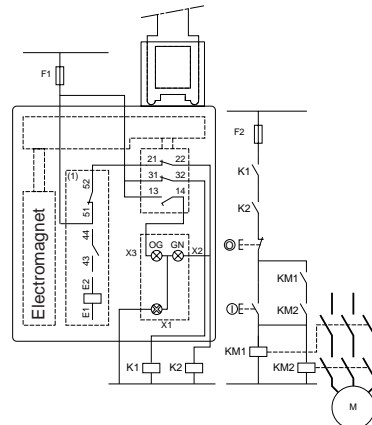


- (1) Auxiliary contact
 E1-E2: Power supply for electromagnet
 43-44: Electromagnet signal contact
 13-14: Safety contact available for redundancy

Category 3 according to EN 954-1

Examples of wiring diagrams with redundancy of the switch contacts, without monitoring.

Locking by removal of voltage "NC+NC+NO" 83 894 13 •



- 33-X1: LED (orange): key not inserted
 51-X1: LED (green): key inserted and locked
 21-52: Safety pre-wiring compulsory

Other information

For accessory dimensions, see page 2/9.

Products and specifications subject to change without notice.

Order/Technical Support – Tel: (800) 677-5311 / FAX: (800) 677-3865 / www.crouzet-usa.com

Hinged Limit Switches Series 83 893 IP 67

- Door hinge safety switches for monitoring the cover, or rotating housing on small machinery
- Plastic bodies and heads
- Stainless steel lever and fixing accessories
- Heads have 4 possible positions
- Positive opening contacts

General characteristics

Environment

Conforming to standards	Products	IEC 947-5-1, EN 60 947-5-1, UL 508, CSA C22-2 no. 14, JIS C4520 (See P. 2/2 and 2/3)
	Machine assemblies	IEC 204-1, EN 60 204-1, EN 1088, EN 292
Certifications		UL, CSA
Protective treatment		In normal operation: "TC" and "TH"
Temperature	Use	-25°C, +70°C
	Stored	-40°C, +70°C
Vibration resistance		25 gn (10...500 Hz) according to IEC 68-2-6
Shock resistance		11 gn (duration 11 ms) according to IEC 28-2-27
Degree of protection		IP 67 according to IEC 529 and IEC 947-5-1
Cable entry		One threaded entry for cable gland 11

Electrical characteristics

Assigned working characteristics	AC 15 A 300 Ue = 240 V, Ie = 3 A DC 13 Q 300 Ue = 250 V, Ie = 0.27 A
Assigned insulation voltage	Ui = 500 V according to IEC 947-5-1 Ui = 300 V according to UL 508, CSA C22-2 no. 14
Assigned impulse voltage	Uimp = 6 KV according to IEC 947-5-1
Thermal rating	Ithe = 10 A according to IEC 947-5-1
Electric shock protection	Class 2 according to IEC 536
Resistance between terminals	3 0 m according to IEC 954-5-4
Short-circuit protection	Cartridge fuse 10 A gG (gl)
Connection	Screw clamp terminals Clamping capacity min. 1 x 0.5 mm ² , max. 1.5 mm ² with or without ferrule
Electrical life	According to IEC 947-5-1 appendix C
Minimum actuation speed	0.01 m/s

Part numbers

Position of lever

Type of contact

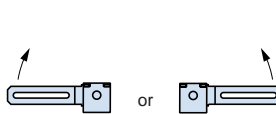
NC+NO 2-pole contact NC+NO break before make, slow action

Additional characteristics

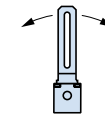
Tripping angle
Minimum actuation torque
Minimum positive opening torque
Mechanical life
Pg11 cable entry according to NFC 68 300
Weight

Operation

Lever movement
83 893 301 / 303



83 893 302

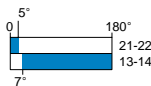


83 893 401

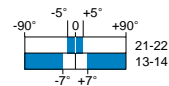


Operating diagrams

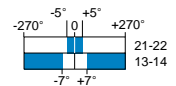
83 893 301 / 303



83 893 302



83 893 401



Operation of contacts

■ closed
□ open

To order, specify:

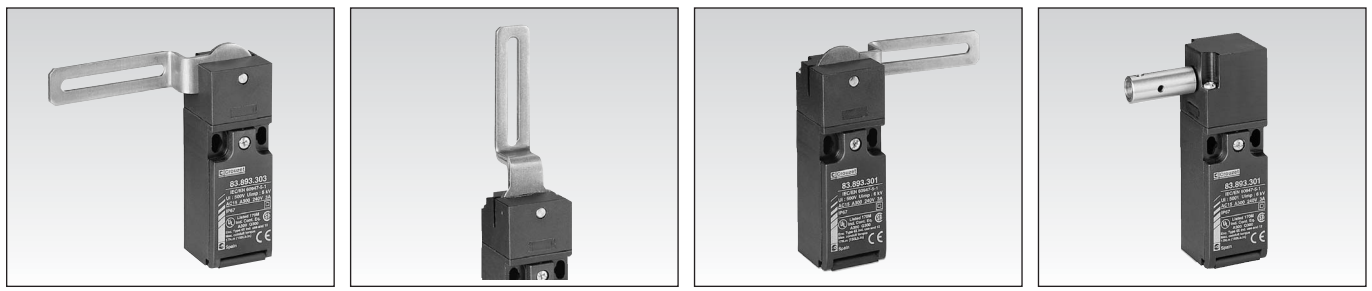
Standard products

1 Part number

Example: Safety limit switch 83 893 302

Products and specifications subject to change without notice.

Order/Technical Support – Tel: (800) 677-5311 / FAX: (800) 677-3865 / www.crouzet-usa.com

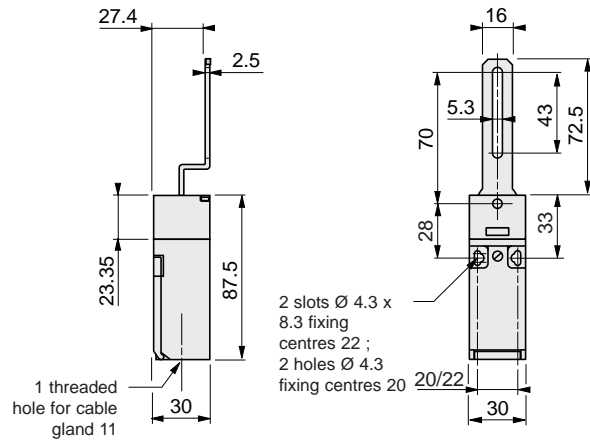


1

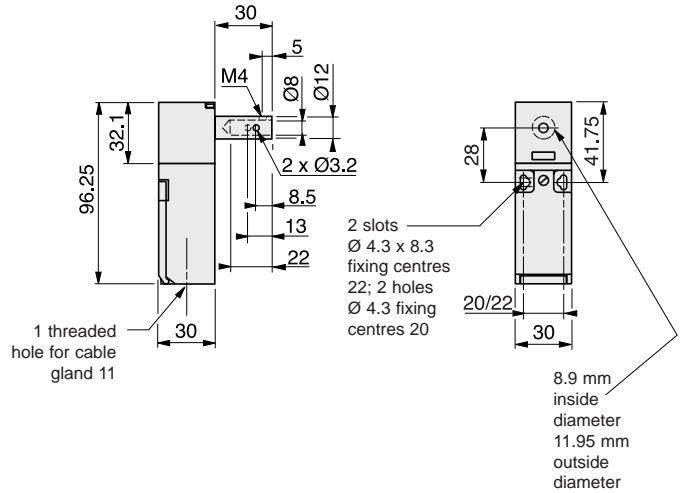
Left	Centre	Right	Length 30 mm
83 893 303	83 893 302	83 893 301	83 893 401
5°	5°	5°	5°
0.1 Nm	0.1 Nm	0.1 Nm	0.1 Nm
0.25 Nm	0.25 Nm	0.25 Nm	0.25 Nm
1 million operating cycles	1 million operating cycles	1 million operating cycles	1 million operating cycles
1	1	1	1
0.145 kg	0.145 kg	0.145 kg	0.145 kg

Dimensions

83 893 3



83 893 401



3

Other information

Products and specifications subject to change without notice.

Order/Technical Support – Tel: (800) 677-5311 / FAX: (800) 677-3865 / www.crouzet-usa.com

Cable Pull Limit Switches Series 83 894 2 IP 67

- “Emergency stop” safety switches are essential in areas or on machinery where a danger exists during operation
- The cable can be used to request an emergency stop at any point in the operating zone
- Applications : conveying, materials handling, machine tools
- Length of the protected zone: up to 15 metres



General characteristics

Environment

Conforming to standards	Products	IEC 947-5-1, EN 60 947-5-1, VDE 0660-200, EN 418, draft EN 616
	Machine assemblies	EN 60 204-1, EN 292 machinery directive: 89/392/EEC and 91/368/EEC, social directive: 89655/EEC
Certifications		UL, CSA
Protective treatment		"TC"
Temperature	Use	-25°C, +70°C
	Stored	-40°C, +70°C
Vibration resistance		10 gn (10...150 Hz)
Shock resistance		50 gn (duration 11 ms) according to IEC 28-2-27
Degree of protection		IP 65 according to IEC 529 and IEC 947-5-1
Mechanical life		100,000 operating cycles
Length of protected zone		15 m
Cable entry		3 entries for cable gland with a maximum capacity of 12 mm

Electrical characteristics

Assigned working characteristics	AC 15 A300 Ue = 240 V, Ie = 3 A DC 13 Q300 Ue = 250 V, Ie = 0,27 A
Assigned insulation voltage	Ui = 500 V degree of pollution 3 according to IEC 947-5-1 Ui = 300 V according to UL 508, CSA C22-2 no. 14
Assigned impulse voltage	Uimp = 6 KV according to IEC 947-5-1
Thermal rating	Ithe = 10 A
Electric shock protection	Class 1 according to IEC 536 and NF C 20-030
Resistance between terminals	3 5 m according to IEC 954-5-4
Short-circuit protection	Cartridge fuse 10 A gG (gl)
Terminal labelling	According to CENELEC EN 50013

Part numbers

Type of contact

NC+NO	2-pole contact	83 894 201
	NC+NO, slow action	

Additional characteristics

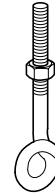
Distance between the cable supports	5 m
Manual reset	Using booted pushbutton
Cable anchor	Right or left
Weight	0.865 kg

Mounting accessories

Fixed cable support	79 214 571
---------------------	-------------------



Pulley support	79 214 577
----------------	-------------------



Pulley for cable max. Ø 5 mm	79 214 576
------------------------------	-------------------



End guards	79 214 572
------------	-------------------



Mounting kit

Mounting kit for cable, length 10 m	79 214 573
-------------------------------------	-------------------

Mounting kit for cable, length 15 m	79 214 574
-------------------------------------	-------------------

Kit comprising: a galvanised cable, Ø 3.2 mm in accordance with the length selected, 1 cable lug, 1 end spring

To order, specify:

Standard products

1

Part number

2

Accessory

3

Mounting kit

Example: Safety limit switch 83 894 201 - Pulley 79 214 576 - Kit 79 214 574

Standard products, non stocked

2

Accessory

3

Mounting kit

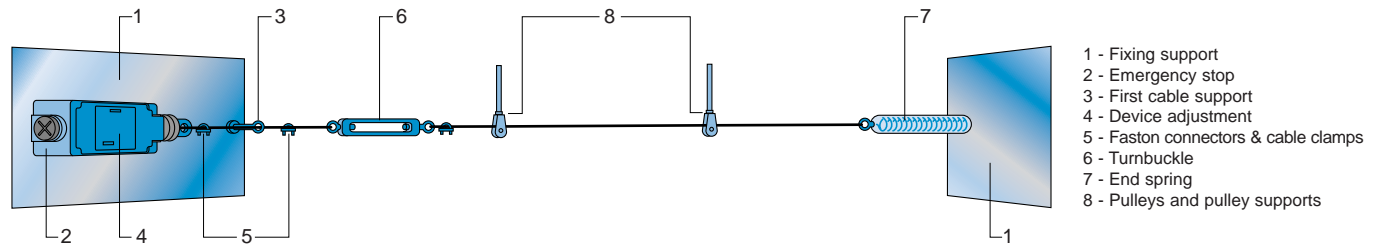
Example: Pulley 79 214 576 - Kit 79 214 574

Products and specifications subject to change without notice.

Order/Technical Support – Tel: (800) 677-5311 / FAX: (800) 677-3865 / www.crouzet-usa.com

Installation

Description of a typical installation

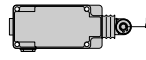


Pulleys must be used if the cable is ever installed with angles (example: perimeter of a machine).

Warning:
The sum total of the cable angles must be less than 180°.

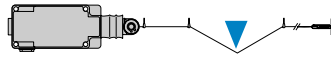
Basic principles

Positive operation



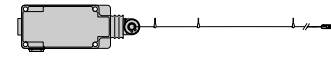
Device operating

Latching



Device stopped

Reset



Device stopped (waiting)

Positive operation: The contacts used are positive break type contacts. The device is tripped by positive actuation.

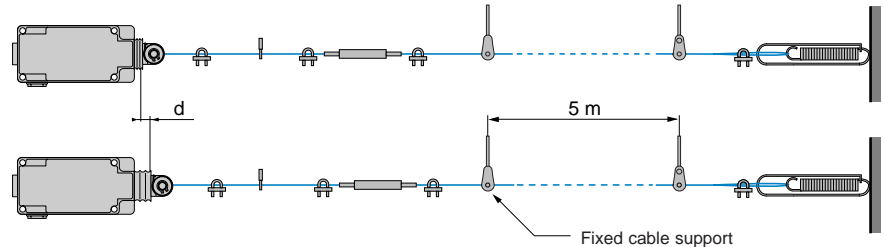
Latching: The device is mechanically latched in the tripped position ("NC" safety contacts open). The "NO" contact is only used for signalling.

Reset: The devices have a reset button which closes the safety contact. The machine must only be started by deliberately pressing a start-up button, separate from the emergency stop.

Cable expansion: d

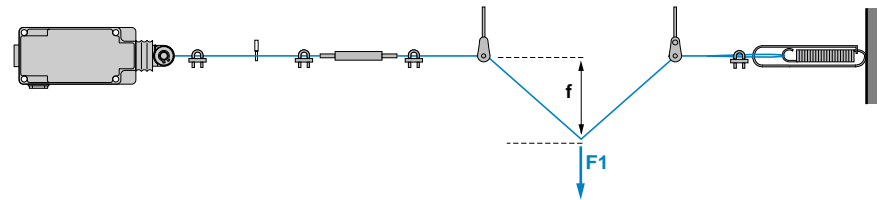
The cable may increase or reduce in length. Variations in length are mainly related to temperature variations on the site of use.

83 894 201 devices are fitted with cable voltage indicators which can be used to check (and correct if necessary) the voltage at any time.



Actuating force and arrows

This is the value of the force **F1** exerted on the cable, causing the device to trip. **f** is the distance covered by the actuator at the bending point of the cable between the point of equilibrium during operation and the tripping point of the device.



Operating values:

Average values of the tripping arrows and forces for 5 m fixing centres (standard force):

- Arrow **f**: 160 mm
- Arrow **F1**: 2 daN

Standards

83 894 201 devices meet the requirements of the harmonised European standard **EN 418** on "emergency stop devices". The strongly recommended use of an end spring meets the requirements of the draft European standard **EN 616** on "continuous materials handling systems and equipment".

Other information

Products and specifications subject to change without notice.

Order/Technical Support – Tel: (800) 677-5311 / FAX: (800) 677-3865 / www.crouzet-usa.com

Plastic or Metal Foot Switches Series 83 895 0 / 83 895 1

- Foot switch for machine tools, wood working machines, rubber and plastics machines, moulding presses
- Plastic foot switch:
without interlock at rest position
- Metal foot switch:
with interlock at rest position and protective cover



Plastic



Metal

General characteristics

Environment	Plastic	Metal
Conforming to standards	IEC 947-5-1, EN 60 947-5-1, VDE 0660-200, UL 508, CSA C22-2 no. 14	IEC 947-5-1, EN 60 947-5-1, VDE 0660-200, UL 508, CSA C22-2 no. 14 With protective cover: NFE 09-031
Certifications	FI	FI, CSA
Protective treatment	"TC"	
Temperature	Use -25°C, +70°C Stored -40°C, +70°C	
Vibration resistance	15 gn (10...150 Hz)	
Shock resistance	25 gn acc. to IEC 68-2-27	20 gn acc. to IEC 68-2-27 (150 gn acc. to NF E 09-031)
Degree of protection	IP 43 acc. to IEC 529	IP 66 acc. to IEC 529
Mechanical life	2 million operations	5 million operations
Cable entry	2 untapped holes for cable gland	2 threaded holes for cable gland

Electrical characteristics

Assigned working characteristics	AC 15 A300 U _e = 240 V, I _e = 3 A DC 13 Q300 U _e = 250 V, I _e = 0.27 A
Assigned insulation voltage	U _i = 500 V, degree of pollution 3 according to IEC 947-5-1 U _i = 300 V according to UL 508, CSA C22-2 no. 14
Assigned impulse voltage	U _{imp} = 6 kV according to IEC 947-5-1
Electric shock protection	Class 2 acc. to IEC 536 and NF C 20-030 Class 1, acc. to IEC 536 and NF C 20-030
Resistance between terminals	25 m according to IEC 954-5-4
Short-circuit protection	Cartridge fuse 10 A gG (gl)

Part numbers

Type of contact

1 "NC+NO"	83 895 001		
2 "NC+NO"		83 895 030	
1 "NC+NO"			83 895 101
Plastic	●	●	
Metal			●

Additional characteristics

Operating principle	1 step	2 steps	1 step
Operating frequency (maximum)	600 / hr	600 / hr	600 / hr
Weight	0.275 kg	0.295 kg	2.570 kg

To order, specify:

Standard products

1

Part number

Example: Plastic foot switch 83 895 001

Standard products, non stocked

1

Part number

Example: Metal foot switch 83 895 101

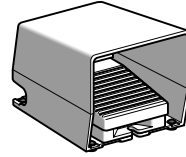
Products and specifications subject to change without notice.

Order/Technical Support – Tel: (800) 677-5311 / FAX: (800) 677-3865 / www.crouzet-usa.com

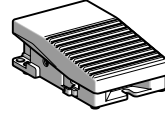
Presentation

83 895 0 and **83 895 101** foot switches are an ideal solution for controlling starting and stopping of numerous industrial machines with many different operating modes: pulsed, step-by-step, continuous.

The range comprises metal foot switches (for heavy loads where there is an increased risk) for heavy duty requirements, and plastic foot switches (for lighter loads where there is a reduced risk).



Fitted with a **protective cover**, metal foot switch **83 895 101** should be used whenever a start/stop command could pose a danger (**increased risk**).



83 895 0 foot switches **without covers** are suitable for start commands which pose a **reduced risk** and for machine stop commands.

Terminology

Positive break operation

A device meets the requirements of this specification when all its normally closed contact elements can be safely set to their opening position.

All **foot switches** fitted with a snap action "NC+NO" contact element are positive break type and meet all the requirements of standard IEC 947-5-1, section 3.

Snap action contact

The linear speed of the moving contacts is independent of the speed of the control device. This feature enables high levels of electrical performance, even with low control device linear speeds.

Safety contacts

Devices with snap action positive break type contacts.

Metal foot switches can have one or two "NC + NO" contact blocks. These foot switches are in positive operation when released: positive actuation is required to maintain the machine in rest mode or cause it to stop (machine stop).

2-step pedals

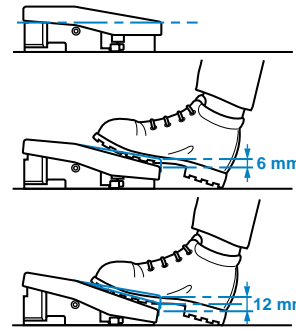
Pedals with two steps are ideal for machines with two operating speeds.

Examples:

- first speed: slow (used for tool adjustment or maintenance),
- second speed: fast (used for normal machine operation).

The first step, connected to an "NC + NO" contact, is achieved by briefly applying gentle pressure to the foot switch (6 mm and 2 daN depression).

The second step, connected to a second "NC + NO" contact, is achieved by applying maximum pressure to the foot switch (12 mm and 9 daN for depression up to the end stop).

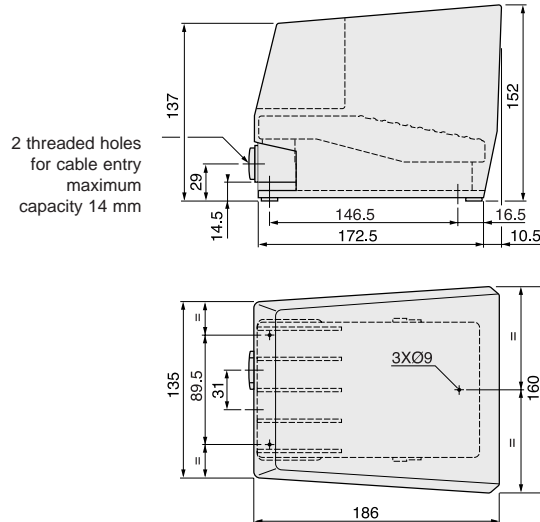


1st step

2nd step

Dimensions

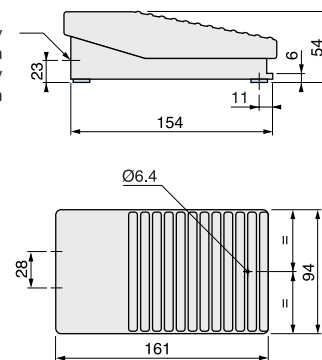
83 895 101 with protective cover



2 threaded holes for cable entry maximum capacity 14 mm

83 895 0

1 untapped hole for cable entry maximum capacity 12 mm
1 untapped hole for cable entry maximum capacity 8 mm



Other information

Products and specifications subject to change without notice.

Order/Technical Support – Tel: (800) 677-5311 / FAX: (800) 677-3865 / www.crouzet-usa.com

Emergency Stop Switches Series 79 697

- Ø 22 control unit with mechanical latch
- "CE" conforming product
- Positive opening contacts
- Pushbutton with positive mechanical action acc. to EN 418



Technical characteristics of contacts

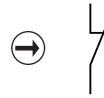
Safety component	Positive opening contacts	
Certification	UL, CSA	
Mechanical life	3 x 10 ⁶ operations	
Electrical life	Operating category AC21 230 V/50 - 60Hz conforms to IEC 947-3	
	Working current (A)	Number of operations (x 10 ⁶)
	14	0.2
	10	0.5
	6	1
	2	3
Insulation voltage	Degree of pollution 3-690 V conforms to UTE, VDE, IEC for flush-mounting	
Voltage for withstanding shocks	U impulse: 6 kV	
Electrical performance	A.C.	
	Working voltage (50 -60 Hz)	Working current
	(IEC 947-3)	(IEC 947-5-1)
	AC21	AC15
	I _e (A)	I _e (A)
	230	14
	400	12
	440	11
	500	10
	690	6
	220 V	1
	D.C.	
	Working voltage	Working current
	(IEC 947-5-1)	
	DC13	
	I _e (A)	
	24 V	1.5 A
	48 V	1 A
	60 V	0.7 A
	110 V	0.3 A
	220 V	0.2 A
Protection against short-circuits	HPC fuse 10 A gl - gG conforms to IEC 269	
Temperature limits	Use	- 30 to + 60 °C
	Storage	- 50 to + 80 °C
Terminal capacity	2 x 2.5 mm ² with cable ends	
Connection	Via captive screw terminals	
Protection indices	Pushbutton	IP 65
	Box	IP 657 double insulation

Type

Part numbers

Type	Mushroom head
1 "N/C" contact	79 697 003
1 "N/O" contact	79 697 004
Contact mounting bracket	79 697 005
Metal label, diameter 80, yellow	79 697 006
Push-pull head with 2 stable positions	79 697 008
Push-turn head with 2 stable positions	79 697 009
Locking head with key (supplied)	79 697 010
Mushroom head D = 70 black 1 "N/C" + 1 "N/O"	79 697 101
Mushroom head D = 70 black	79 697 011

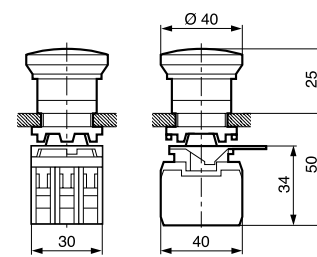
Symbol



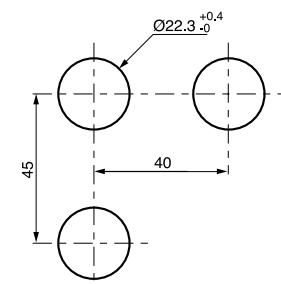
Conformity

European "Machinery" Directive 89/392/EEC	•
French Decrees 92/765-766-767-768	•
European "Usage" Directive 89/655/EEC	•
French Decrees 93-40 and 93-41	•
European standard NF EN 60204-1 (Machine safety - Electrical equipment)	•
European standards NF EN 292-1 and 2 (Machine safety - Basic concepts)	•
European standard NF EN 418 (Machine safety - Emergency stop devices)	•

Dimensions



Cut-outs for consoles and cabinets



To order, specify:

Standard products

1 Part number

Example: Emergency stop pushbuttons for safety applications 79 697 003

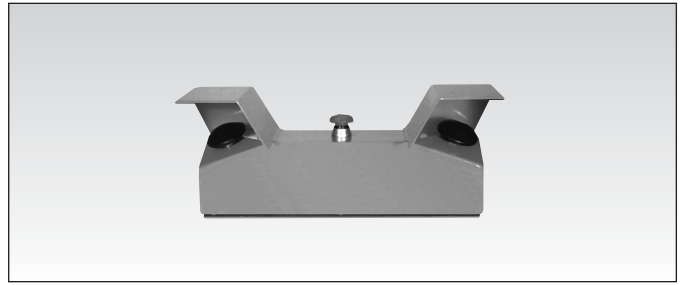
Standard products, non stocked

Products and specifications subject to change without notice.

Order/Technical Support – Tel: (800) 677-5311 / FAX: (800) 677-3865 / www.crouzet-usa.com

Two-Hand Control Console Series 85 100

- Used in conjunction with a "KZH3" safety start module for two-hand control applications: folding, clipping, punching, rail-cutting, bending, drilling, presses, etc.
- Supplied with an emergency stop button and 2 spring-return mushroom head pushbuttons.
- Conforms to EN 574 concerning safety applications



Part numbers

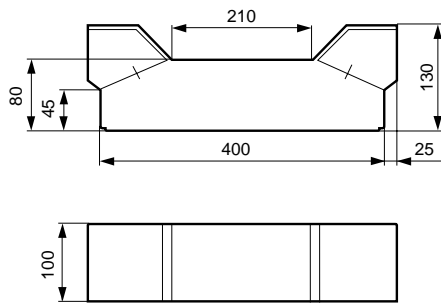
KSP2 two-hand control console (metal case)	85 100 291
KSP2 two-hand control console (plastic case)	85 100 293
KSP console fixing foot	85 100 292

Can be ordered separately

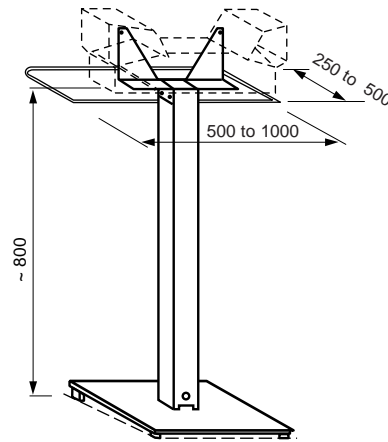
Mushroom head	Push-pull 2 "N/C" + 1 "N/O"	79 697 001
Emergency stop	(red pushbutton + contacts + Ø 80 metal yellow label)	
Spring-return pushbuttons	Mushroom head Ø 70 black 1 "N/C" + 1 "N/O"	79 697 101

Dimensions

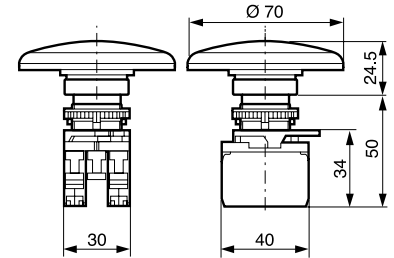
85 100 293



85 100 292



79 697 101



To order, specify:

Standard products

1 Part number

Example: 2-hand control console - 85 100 293

Standard products,
non stocked

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Limit Switches – Technical Guide

Introduction

What is meant by a "position detector" is any device which needs to be operated by a member which exerts a physical force, in view of :

- either the form which its operating device takes
- or the considerable force needed to operate it

The distinguishing features of position detectors are :

- their high electrical performance capability
- their excellent resistance to accidental impact
- good protection against splashed or dripping water
- a wide range of operating devices to allow the detectors to be adapted to a vast variety of mechanisms

Construction

Our detectors are designed to conform to international IEC recommendations and/or European standards (EN). Proof that a detector conforms to these standards or recommendations takes the form of a conformity declaration made by the manufacturer (drafted as indicated in guidance document ISO/IEC 22 - EN 450-14). Characteristics in line with the general requirements of standards NFC 63140, IEC 947.5.1 and EN 60947.5.1.

- Leakage paths and air gaps : IEC 664.1 - NFC 20-040.

Our position detectors which comply with IEC 947.5.1 can be fitted to machine-tools and industrial machines complying with NFC 79130, IEC 204.1, EN60204 or VDE 113.

Electrical characteristics

Assigned working current (Ie):

- the current level adopted as a basis for the operating conditions quoted for a detector, and for the life tests on it.

Thermal rating (Ith):

- the current the microswitch will withstand when not being operated electrically, for a temperature rise of not more than 60 °C.

Assigned insulation voltage (Ui):

- the voltage adopted as a reference for the dielectric tests and leakage paths. It must be equal to or greater than the assigned working voltage.

Categories of use (IEC 947.5.1):

- AC 15 for operating AC solenoids and electromagnets
- DC 13 for operating DC solenoids and electromagnets

Contact element designation (IEC 947.5.1):

- a letter and number which define the use category and the assigned working voltage and current

For example, A 300 means : in category AC 15, a maximum working voltage of 300 V and 6 A at 120 V or 3 A at 240 V.

Contact block electrical wiring diagram

Form Za



Both contacts have the same polarity

Form Zb



The 2 contacts are electrically isolated

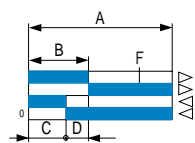
Positive break contact operation (IEC 947-5-1, chapter 3)

For contacts used in safety applications, limit switches, emergency stop devices, assurance that opening has occurred is essential (see IEC 204, EN60204). After each attempt, contact opening is checked by an impulse voltage test (2500 V).

Contact element :

- Snap action contact

This is characterized by tripping points and release points which cannot be confused. The speed at which the control devices moves is independent from the speed of the control device. This feature makes it possible to obtain satisfactory electrical performance even where the control device is moving at low speed.



A : Total travel (TT) of the control device
 B : Pre-travel (PT) until the contact element opens
 C : Release travel until the contact element closes
 D : B-C = Differential travel
 F : Travel required to reach the positive opening point (POT)

Rules and regulations

EC Directives

Our detectors conform to the EC Low Voltage Technical Directive 73/23/EEC and can be used in accordance with the specifications of the Machinery Directive 89/392/EEC.

Environmental conditions

Temperature limits

When they are used in the temperature range quoted, the mechanical and electrical characteristics of our position detectors will remain substantially unchanged. If you intend to use them outside this range, please consult us.

Protective treatment

The treatment given to our position detectors is suitable in the vast majority of applications. Parts made of steel are zinc-coated or painted according to their mechanical function. Further information is available on request. This treatment allows our detectors to be used under the following temperature and humidity conditions :

T °C	20	40	50
Relative humidity %	95	80	50

This treatment may thus be suitable for applications in tropical or equatorial climates where the equipment concerned is in an interior location sheltered from direct exposure to atmospheric conditions. Other types of reinforced protection are possible for resistance to very severe environments. Please enquire.

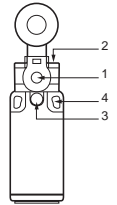
Mounting requirements

Electric shock protection. The user should observe the mounting instructions relating to the mode of protection against electric shocks defined in the IEC 536.1, EN 60204.1 - NFC 20030 standards :

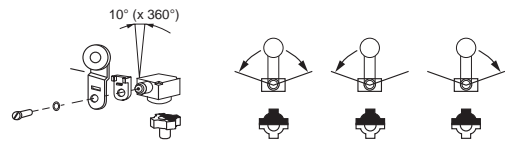
- Class I : earth circuit link. Protection via differential circuit-breaker.
- Class II : double insulation.
- Class III : very low safety voltage.

Screw tightening torque :

1 : Actuator tightening	1.2 to 1.5 Nm	
	Plastic body	Metal body
2 : Head fixing screw	0.7 to 0.8 Nm	0.8 to 1 Nm
3 : Body fixing screw	0.7 to 0.8 Nm	0.8 to 1 Nm
4 : Fixing screw	2 to 2.5 Nm	



Adjustment of rotary heads with momentary action to right and left :
 For series 83 850, 83 851, 83 861, 83 854, 83 855, 83 863



Degree of protection

Under the IEC 529 or NFC 20010 classification scheme, standards employ an IP code to define the degree or class of protection which a position detector provides against access to live components and against the entry of solid foreign bodies and the entry of water.

1 st numeral		
Protection equipment provides against the entry of solid foreign bodies		Protection for persons against access to dangerous parts
0 (not protected)		(not protected)
4 diameter 1 mm		1 mm Ø wire
5 protected against dust		1 mm Ø wire
6 sealed against dust		1 mm Ø wire

2 nd numeral		
Protection equipment provides against the entry of water		
0 (not protected)		6 high-pressure hosed water
4 splashed water		7 temporary immersion
5 hosed water		8 prolonged immersion

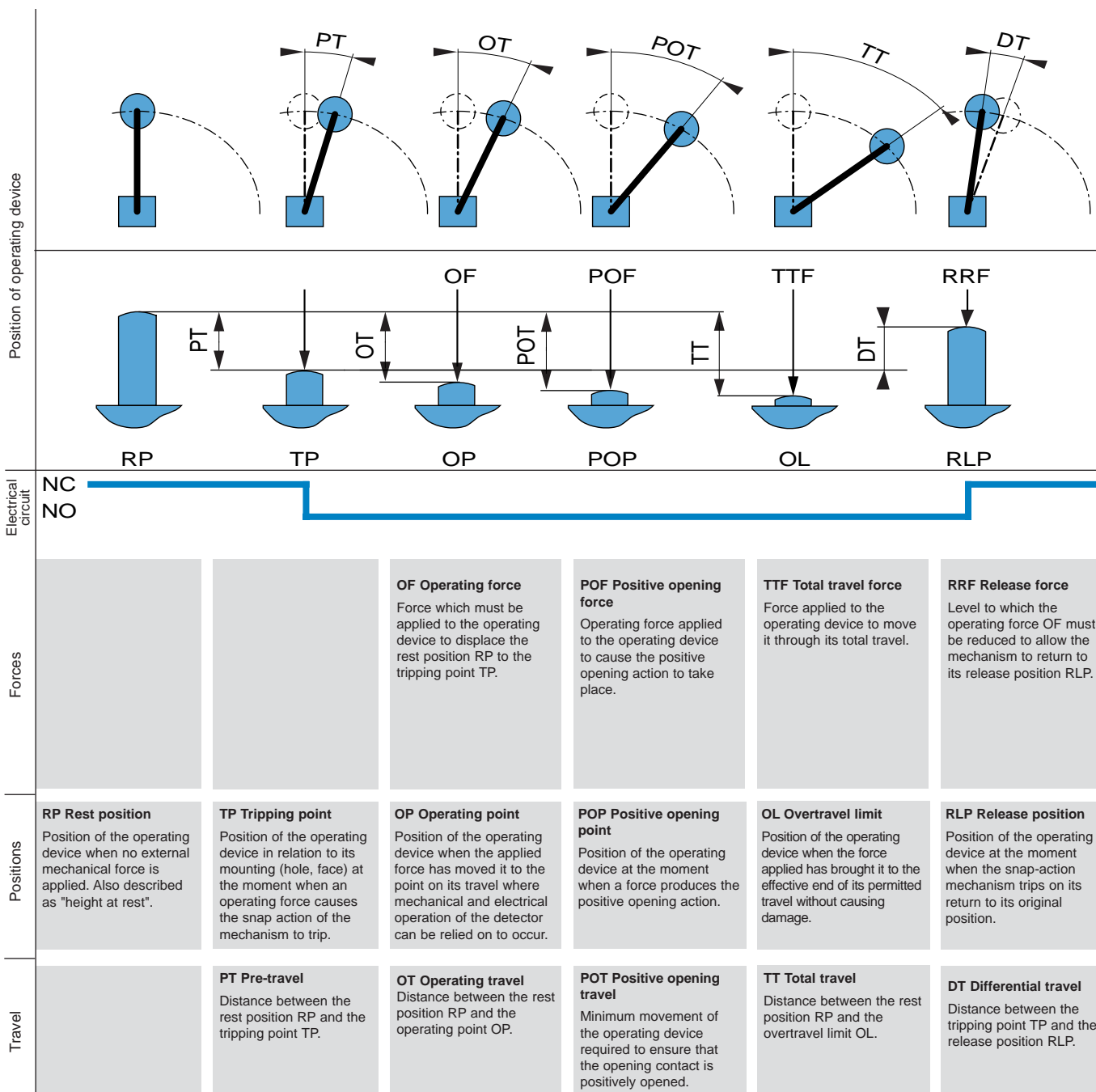
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Mechanical characteristics

Terminology

Forces - Positions - Travel



- Positive opening action : see IEC 947-5-1 chapter 3, § 2.2

N.B. : The max. and min. values quoted for each detector (min. operating force, max. total travel, etc.) are the maxima and minima users must allow for if they are to use our products under the proper conditions.

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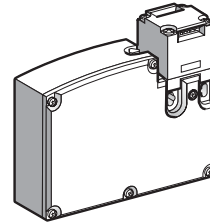
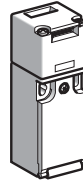
Key-operated safety interlock switch, plastic

Without key locking

Switches with plastic body for use on light machinery, **without inertia**. For use in unstable environments where there is a risk of the guard opening accidentally (due to vibrations, if the guard is positioned at an angle, bouncing of the guard, etc). **The guard is kept closed by adding a door stopping mechanism.**

With interlocking and locking of the key using an electromagnet

Devices in plastic cases for use on machines **with inertia**, or which require controlled opening of the guard. The moving guard is locked by removing the voltage, or by applying voltage to the electromagnet. A special tool can be used to unlock the guard manually, to ensure the safety of personnel carrying out maintenance operations on the machine, or if there is a malfunction.



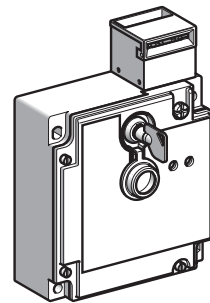
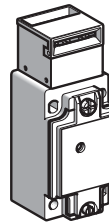
Key-operated safety interlock switch, metal

Without key locking

Switches with metal body for use on machines **without inertia** in a **stable environment** where there is no risk of the guard opening accidentally (due to vibrations, if the guard is positioned at an angle, bouncing of the guard, etc)

With interlocking and locking of the key using an electromagnet

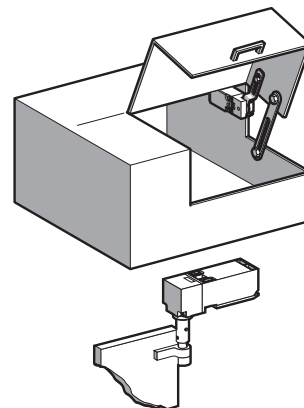
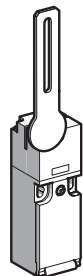
Devices in metal cases for use on machines **without inertia**, or which require controlled opening of the guard. The moving guard is locked by removing the voltage. A key-operated lock can be used to unlock the guard manually, to ensure the safety of personnel carrying out maintenance operations on the machine, or if there is a malfunction. These devices are fitted with 2 LEDs: one indicates the opening/closing of the guard, the other whether it is locked.



Safety switch for hinged guards

With angular or rotary movement head

Switches with plastic body and angled lever or rotary shaft. They are designed for use on small industrial machines with compact doors, covers or **rotating housings**. These ensure the safety of the operator by stopping the dangerous movement immediately the lever or rotary shaft reaches an angle of 5°. These devices provide a solution for monitoring **rotary guards** with a small opening radius on machines without inertia. They are particularly suitable for adapting existing machines to meet applicable standards, as they can be mounted on covers which are already installed, including those mounted imprecisely. Mounting the switch increases the safety of the operator as it reduces the opening distance of the guard, and therefore the risk of reaching the danger zone.



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