

# Sealed

## → V4 Sealed



- IP 67 protection
- Nominal ratings 0.1 A to 10 A/250 VAC
- Minimum rating 1 mA/4 VDC
- Operating temperature -40°C to +125°C
- Choice of actuators with 2 possible fixing positions



### Main specifications

		High-current 83 180	Dual-current 83 181	Medium current 83 183	Standard 83 186
<b>Function</b>	<b>Connections</b>				
I (changeover)	W2S	●	●	●	83 186 001
I (changeover)	W7S	●	●	●	83 186 002
I (changeover)	FD0	●	●	●	83 186 003
I (changeover)	X1A* - X1S* - X2A* - X2S* - X3A* - X3S* - FB0 - FG0 - CD0** - CB0** - CG0**	83 180 0	83 181 0	83 183 0	83 186 0
R (normally closed)	W2S - W7S - FD0 - FB0 - FG0 - CD0** - CB0** - CG0**	83 180 6	83 181 6	83 183 6	83 186 6
C (normally open)	W2S - W7S - FD0 - FB0 - FG0 - CD0** - CB0** - CG0**	83 180 8	83 181 8	83 183 8	83 186 8
<b>Electrical characteristics</b>					
Rating nominal / 250 V AC (A)		10	6	3	6
Rating thermal / 250 V AC (A)		12.5	7.5	4	7.5
<b>Mechanical characteristics</b>					
Maximum operating force (N)		3.4	2.5	2.5	2.5
Min. Release force (N)		1	0.8	0.8	0.8
Maximum total travel force (N)		5	4.2	4.2	4.2
Max. permitted overtravel force (N)		10	10	10	10
Maximum rest position (mm)		9.3	9.3	9.3	9.3
Tripping point (mm)		8.4 <sup>+0.3</sup>	8.4 <sup>+0.3</sup>	8.4 <sup>+0.3</sup>	8.4 <sup>+0.3</sup>
Maximum differential travel (mm)		0.1	0.1	0.1	0.1
Min. overtravel (mm)		0.6	0.6	0.6	0.6
Ambient operating temperature for blade version (°C)		-40 → +125	-40 → +125	-40 → +125	-40 → +125
Ambient operating temperature for wires/cable version (°C)		-40 → +105	-40 → +105	-40 → +105	-40 → +105
Mechanical life (operations)		10 <sup>6</sup>	2x10 <sup>6</sup>	2x10 <sup>6</sup>	2x10 <sup>6</sup>
Contact gap (mm)		0.4	0.4	0.4	0.4
Weight (tag version) g		2	2	2	2
<b>Comments</b>					
* Type 83 180 available on request					
** Cable version for types 83 181, 83 183 and 83 186					

### Additional specifications

#### Components

##### Material

- Case : polyester UL 94VO
- Button : polyester
- Membrane : silicon
- Contacts : AgCdO or AgSnO<sub>2</sub> gold-plated AgNi (dual-current)
- Terminals : silver-plated, tinned brass
- Cable/Lead : PVC

##### Levers

- Flat : stainless steel
- Roller : stainless steel, polyamide roller

### Product adaptations

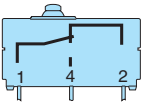


- Special levers
- Specific fixings
- Special leads, cables, cable harnesses
- NF - UL - cUL approvals

To order, see page 12

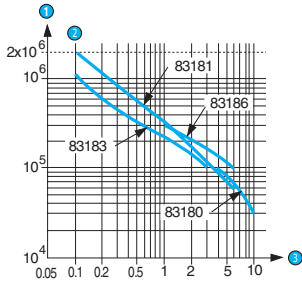
## Principles

### Single break changeover switch



## Curves

### Operating curve 250 VAC



### Switch rating with DC supply

		83 180	83 181	83 183	83 186
12 V	Resistive	10 A	6 A	3 A	6 A
	Inductive L/R5 ms	10 A	6 A	3 A	6 A
24 V	Resistive	10 A	6 A	3 A	6 A
	Inductive L/R5 ms	5 A	5 A	3 A	5 A

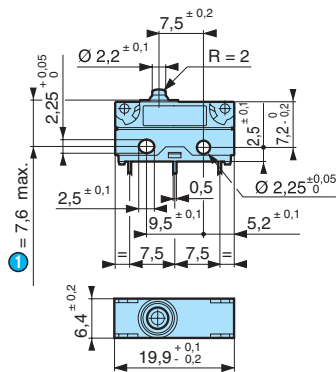
- ① Number of cycles
- ② Resistive circuit
- ③ Current in Amperes

Model 83 181 is designed to operate equally well on dual-current (1 mA 4 V minimum) or medium-current (6 A maximum) circuits. However, a given product should only be used to switch one type of circuit during its working life.

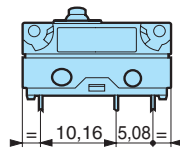
## Dimensions

### → Product

#### Symmetrical version types 83 180 / 181 / 183 / 186



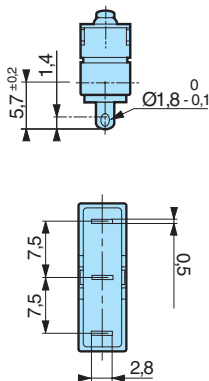
#### Asymmetrical version types 83 180 / 181 / 183 / 186



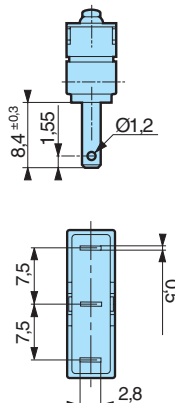
Fixed by 2 M2 screws  
Torque with screw only : 0.2 Nm, with screw  
+ washer : 0.3 Nm

### → Connections

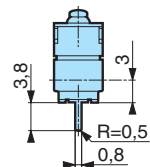
#### W2S Solder



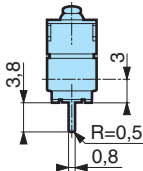
#### W7S Faston 2.8 x 0.5



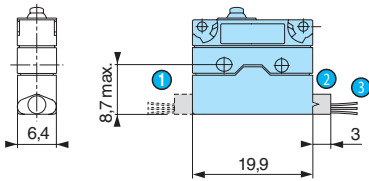
#### X1A Straight PCB output



**X1S**  
Straight PCB output



**Lead outputs**

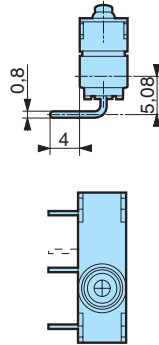


- 1 FG0
- 2 FD0
- 3 Standard 500 mm

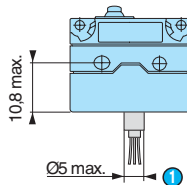
Black = Common  
Grey = NC  
Blue = NO

Conductor cross-section :  
83181 / 83 183 / 83 186 = 0.5 mm<sup>2</sup>  
83 180 = 0.75 mm<sup>2</sup>

**X2A - X2S**  
Side outputs, PCB rear



**Lead/cable output**  
CB0 cable output on bottom

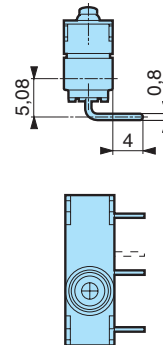


- 1 Standard 500 mm

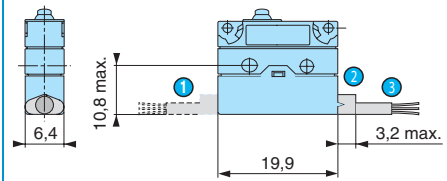
Black = Common  
Grey = NC  
Blue = NO

Conductor cross-section :  
83181 / 83 183 / 83 186 = 0.5 mm<sup>2</sup>  
83 180 = 0.75 mm<sup>2</sup>

**X3A - X3S**  
Side outputs, PCB front



**Cable outputs**



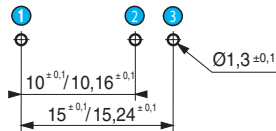
- 1 CG0
- 2 CD0
- 3 Standard 500 mm

Black = Common  
Grey = NC  
Blue = NO

Conductor cross-section :  
83181 / 83 183 / 83 186 = 3 x 0.5 mm<sup>2</sup>

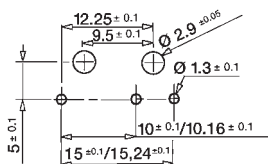
→ **Drilling**

**Printed circuit board mounting**  
Asymmetrical  
X1A, X2A, X3A

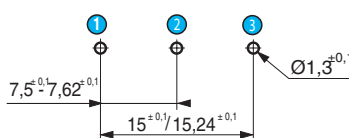


- 1 1.C
- 2 4.NO
- 3 2.NC

**Mounting on a printed circuit board**  
with fixing pins  
Asymmetrical

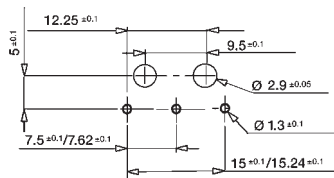


**Printed circuit board mounting**  
Symmetrical  
X1S, X2S, X3S



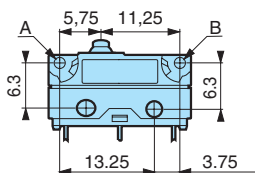
- 1 1.C
- 2 4.NO
- 3 2.NC

**Mounting on a printed circuit board**  
with fixing pins  
Symmetrical



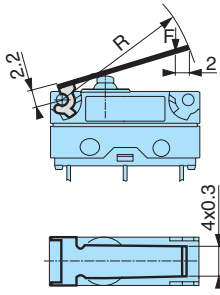
→ **Actuator mounting positions**

**Fixing position**

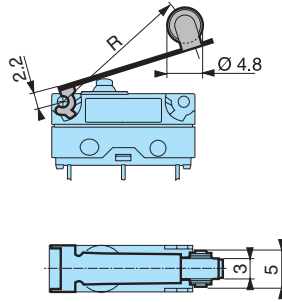


→ Actuators

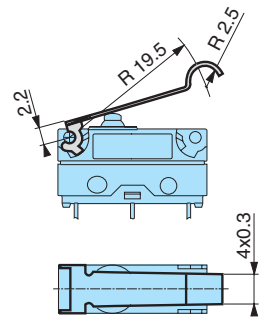
170 A  
Flat



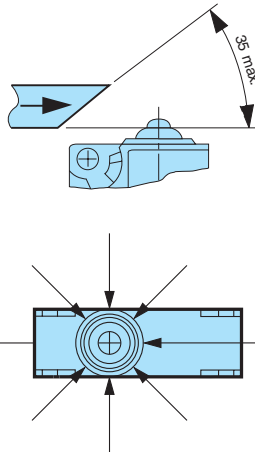
170 E  
Roller



170 F  
Dummy roller

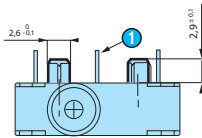


Recommendations for operation from the side



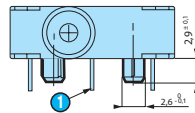
→ Mounting accessories

Fixing pins





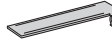

1 X2 output


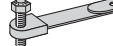
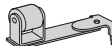
Fixing pins



1 X3 output

## Actuators and fixing positions

Part numbers for standard actuators	79 253 327		79 253 326		79 218 454			
Actuators	Flat 170A R18.3		Flat 170A R24		Flat 170A R41		Roller 170E R20	
								
Mounting position	A	B	A	B	A	B	A	B
Coefficient	3	1.5	4	2	7	3.5	3	1.5
Tripping point	10 <sup>±1.4</sup>	9.2 <sup>±0.9</sup>	10.7 <sup>±1.7</sup>	9.6 <sup>±1</sup>	12.7 <sup>±3</sup>	10.6 <sup>±1.8</sup>	15.5 <sup>±1.4</sup>	14.5 <sup>±0.9</sup>
83 180					11 <sup>±3</sup>	8.8 <sup>±1.8</sup>		
83 181 / 183 / 186					11.4 <sup>±3</sup>	9.3 <sup>±1.8</sup>		

Part numbers for standard actuators	79 253 329		
Actuators	Dummy roller 170F R19.5	Screw 170D *	Transverse roller 170 EL *
			
Mounting position	A	B	
Coefficient	3	1.5	
Tripping point	12.9 <sup>±1.5</sup>	11.9 <sup>±1.1</sup>	

Except where otherwise indicated, levers are supplied unmounted.

For factory mounting, specify fixing position A or B.

\* To special order

## Other information

### Mounting - Operation

See basic technical concepts

### Degree of protection

- Tag version :
  - casing = IP67
  - terminals = IP00
- Lead/cable version :
  - output/casing = IP67

**To calculate force** : divide the switch force by the coefficient in the table.

**To calculate travel** : multiply the switch travel by the same coefficient.