

# SUB-SUBMINIATURE MICROSWITCHES - SEALED

## V5S - 8320

- › High precision flexible leaf snap-action mechanism
- › Operation without balance-point, even at extremely slow actuating speed
- › Very small size
- › Extra-long plunger stroke: 2 mm overtravel to absorb dispersions in application
- › Suitable for lateral approach from any direction with angle up to 45°
- › Excellent resistance to harsh environments - IP67/IP69 protection
- › Use from 1 mA 4 V<sub>DC</sub> to 4 A 250 V<sub>AC</sub>
- › Long mechanical life
- › Various terminal types and pre-wired models - Choice of flexible actuators



### Main specifications

		Dual-current 83200
<b>Function</b>	<b>Connections / Locating pins</b>	
I (changeover)	X1 (PCB, straight) / none	83200003
I (changeover)	X1 (PCB, straight) / CAR (two short, rear)	83200011
I (changeover)	X1 (PCB, straight) / CAV (two short, front)	83200012
I (changeover)	X1 (PCB, straight) / LAV, LAR, 4C, 4L	●
I (changeover)	X1L (PCB, straight, long) / none, CAV, CAR, LAV, LAR, 4C, 4L	●
I (changeover)	X2 (PCB, rear) / CAR (two short, rear)	83200005
I (changeover)	X2 (PCB, rear) / LAR (two long, rear)	83200023
I (changeover)	X2 (PCB, rear) / none, CAV, LAV, 4C, 4L	●
I (changeover)	X3 (PCB, front) / CAV (two short, front)	83200006
I (changeover)	X3 (PCB, front) / LAV (two long, front)	83200024
I (changeover)	X3 (PCB, front) / none, CAR, LAR, 4C, 4L	●
I (changeover)	W2 (solder) / none	83200030
I (changeover)	W2 (solder) / LAR (two long, rear)	83200033
I (changeover)	W2 (solder) / LAV (two long, front)	83200034
I (changeover)	W2 (solder) / 4C (four, short)	83200035
I (changeover)	W2 (solder) / CAV, CAR, 4L	●
I (changeover)	W2ST (solder, no hole) / none, CAV, CAR, LAV, LAR, 4C, 4L	●
I (changeover)	FB0 (wires, bottom) / CAR (two short, rear)	83200051
I (changeover)	FB0 (wires, bottom) / 4C (four, short)	83200055
I (changeover)	FG0 (wires, left) / 4C (four, short)	83200062
I (changeover)	FG0 (wires, left) / 4L (four, long)	83200063
I (changeover)	FD0 (wires, right) / none	83200071
I (changeover)	FD0 (wires, right) / 4C (four, short)	83200069
I (changeover)	FD0 (wires, right) / 4L (four, long)	83200070
I (changeover)	FB0, FG0, FD0 / none, CAV, CAR, LAV, LAR, 4L	●
R (normally closed)	FB0, FG0, FD0 / none, CAV, CAR, LAV, LAR, 4C, 4L	● (83202)
C (normally open)	FB0, FG0, FD0 / none, CAV, CAR, LAV, LAR, 4C, 4L	● (83204)
<b>Electrical characteristics</b>		
Rating nominal / 250 V AC (A)		4*
Rating thermal / 250 V AC (A)		5
<b>Mechanical characteristics</b>		
Max. operating force (N)		1.5
Min. Release force (N)		0.2
Max. total travel force (N)		2.5
Max. Allowable overtravel force (N)		10
Max. rest position (mm)		11.1
Operating position (mm)		10.5±0.2
Max. differential travel (mm)		0.10
Min. overtravel (mm)		2
Ambient operating temperature (°C)		-40 → +90
Mechanical life (operations)		10 <sup>6</sup>
Contact gap (mm)		0.3
Weight (terminal versions) (g)		0.75

### Additional specifications

- Cover: PARA GF
- Base: PA66 (UL 94-V2 / GWFI 850 °C)
- Button: POM
- Membrane: silicone rubber
- Moving blade: silver-plated beryllium copper
- Contacts: gold alloy on silver alloy, crossbar
- Terminals: silver-plated brass
- Wire leads: copper, PVC insulated
- Levers: stainless steel

- Degree of protection: IP67/IP69 (mechanism and wire output)
- Protection against electric shock: button and actuators have reinforced insulation for Ui 250V / Uimp 2,5kV / pollution 2
- Recommended min actuating speed: 0.001 mm/s

- Conformity / Certifications: **CE** **CCC** **EMC** / **UL** on request

Standard product

Product made to order



Contact us

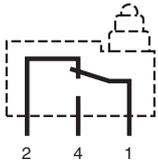
## Product adaptations



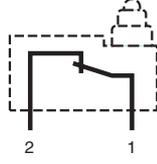
- › Special connections: SMD terminals, special leads, cables, full wiring with custom connector
- › Special levers: special shapes and lengths
- › Fully customized switching modules with integrated connector
- › Integration of resistors for specific electrical diagrams or self-diagnosis function
- › Low switching hysteresis variant: 0.06 mm max differential travel
- › High operating temperature: +125 °C
- › cURus approved versions - ENEC approval

## Principles

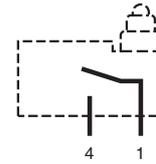
Single break snap-action switch  
Changeover - SPDT (form C)



Normally closed - SPST-NC (form B)



Normally open - SPST-NO (form A)



## Curves

### Electrical life

- 250 V~ 4 A resistive > 6 000 cycles
- 14 V~ 2 A resistive 200 000 cycles
- 14 V~ 10 W lamps 100 000 cycles
- 14 V~ 0.5 A L/R = 4 ms 50 000 cycles

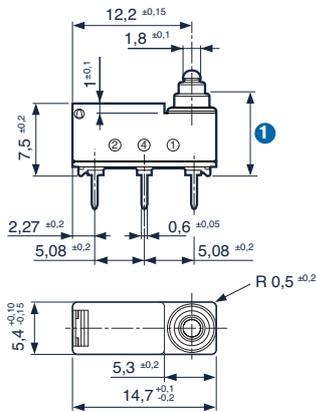
- 5 V~ 1 mA resistive 500 000 cycles

\* These products are designed to operate equally well on low current (1 mA 4 V minimum recommended) or medium-current (4A maximum) circuits. However, a given product should only be used to switch one type of circuit during its working life.

## Dimensions

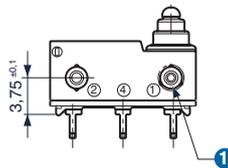
### Products

8320  
Version without locating pins



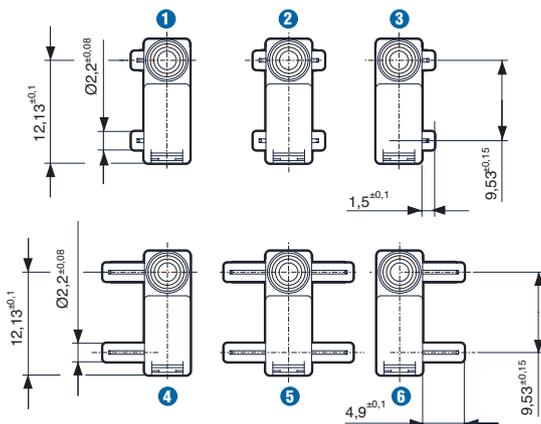
1 Total travel position: max 8.5

8320  
Version with locating pins



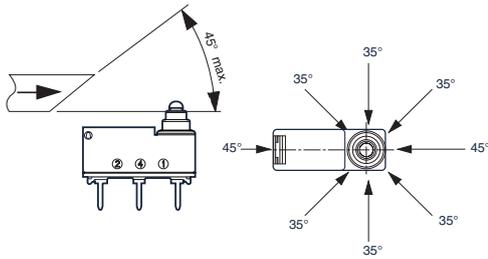
1 Ø 2.6 ±0.1 on ribs

### Locating pins



- 1 2 short pins on rear (CAR)
- 2 4 short pins (4C)
- 3 2 short pins on front (CAV)
- 4 2 long pins on rear (LAR)
- 5 4 long pins (4L)
- 6 2 long pins on front (LAV)

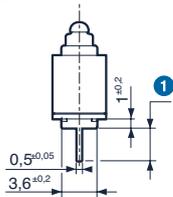
**Recommendations for lateral approach**



In order to reduce friction and wear, the actuating ramp shall preferably be of PA, POM, PBT or steel, and also be as smooth as possible. As a general rule, the use of any lubricant substance is not needed nor recommended. For particular cases, please consult us.

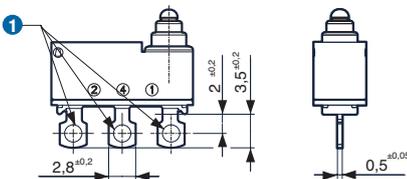
**Connections**

**X1-X1L for printed circuit board, straight output**



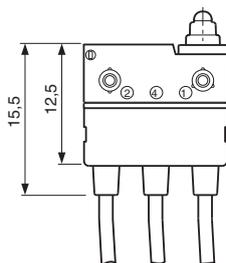
- 1 X1 = 3.5 ± 0.2  
X1L = 7 ± 0.2

**W2 - W2ST solder**



- 1 With holes: W2 Ø 1.8 ± 0.1  
Without holes: W2ST

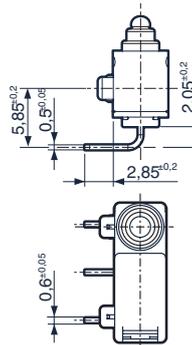
**FB0 wire output on bottom**



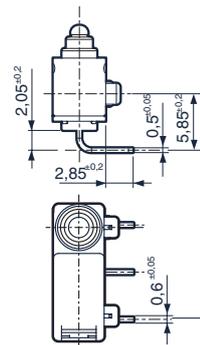
**Wire characteristics**

- 1: Black
- 2: Grey
- 4: Blue
- Cross-section: 0.35 mm<sup>2</sup>
- Standard length: 500 mm
- Other lengths on request (length in meters: e.g. 1.5)

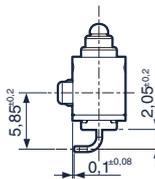
**X2 for printed circuit board, rear output**



**X3 for printed circuit board, front output**

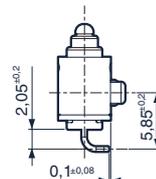


**CMS2 for surface mounting, rear output**



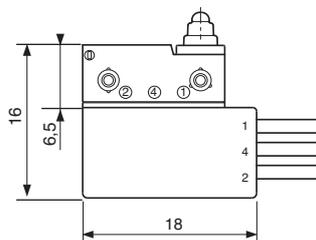
Please contact us

**CMS3 for surface mounting, front output**

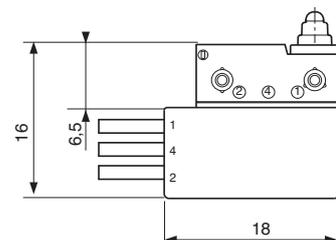


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**FD0 wire output on right**

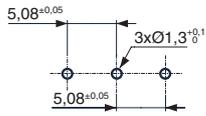


**FG0 wire output on left**

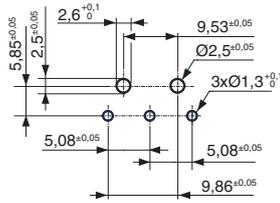


## Drilling

### Installation on printed circuit board X1-X1L-X2-X3

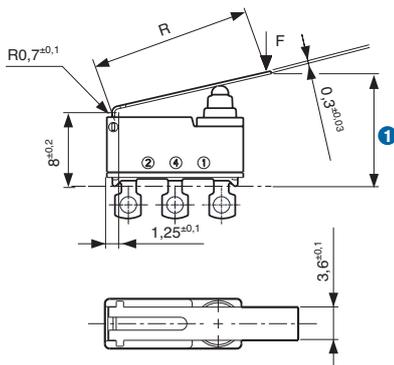


### Installation on printed circuit board with locating pins



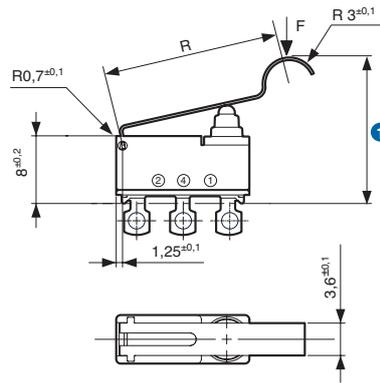
## Actuators

### 200AF flexible flat



1 Operating position

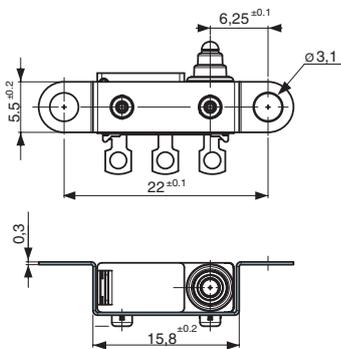
### 200FF flexible dummy roller



Other shapes and dimensions:  
consult us

## Mounting accessories

### Stainless steel mounting flange



## Actuators and mounting accessories

### Actuators

Flexibles actuators

Flat **200AF** R15

Flat **200AF** R20

Dummy roller **200FF** R17



Max. operating force	(N)	1.5	1.3	1.5
Min. release force	(N)	0.1	0.05	0.1
Operating position	(mm)	11.4 ±0.4	12.2 ±0.4	14.75 ±0.5

Actuators are factory mounted

### Mounting accessories

**79257491**

Stainless steel mounting flange



### V5S - 8320 microswitches with referenced actuators

Actuators		200AF R15
83200	X1	83200229
	X2	83200215
	W2 LAR	83200223
	FBO CAR	83200224

## Installation recommendations

See "Basic technical concepts"

## How to order

Use the 8 digit part numbers when they are defined

Other cases, precise: Type and Function - Connection - Locating pins - Actuator\* - Adaptation\* + Mounting accessories\*  
\* if needed

Example: 83200 W2 CAV 200AF R15 + 79257491

## Examples of special adaptations



IP67 module with 45° rotary operation, maintained action, integrated connector and quick fastening



IP67 module with integrated connector and quick fastening



Printed circuit board assembly with connector



Special levers



"V4 size" conversion housing and wire lead or cable output



Customized wiring

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