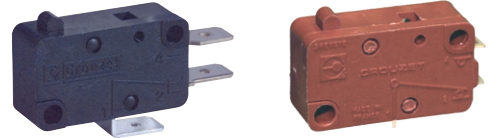


MINIATURE MICROSWITCHES - HEAVY DUTY

83160

- › Coil spring snap-action mechanism with wiping contacts
- › Ratings up to 16(4) A 250 V~ and 10(4) A 400 V~
- › Version with magnetic blowout for enhanced DC breaking capacity up to 5 A 250 V---
- › Long service life: 200 000 operations at nominal rating and up to 10 millions on light load
- › Contact gap less or greater than 3 mm (micro-disconnection (μ) or full disconnection)
- › Operating temperature -40 °C up to +150 °C
- › cURus and NF approved (except 831606 SP3697)
- › Wide choice of actuators: pinned or flexible, stainless steel or plastic



Main specifications

| | | Standard 831600 | Reduced force 831603 | Low force 831604 | Wide contact gap 831606 | High DC rating 831606 SP3697 |
|-------------------------------------|---------------------------|--------------------|-------------------------|---------------------|----------------------------|---------------------------------|
| Function | Connections | | | | | |
| I (changeover) | W2 (solder) | 83160005 | 83160320 | 83160420 | 83160602 | 83160664 |
| I (changeover) | W3 (QC 6.3x0.8) | 83160006 | 83160301 | 83160401 | 83160601 | 83160679 |
| I (changeover) | W6 (QC 4.8x0.5) | 83160045 | 83160321 | 83160415 | ●* | ●* |
| I (changeover) | X1-X2 (PCB straight-rear) | ● | ● | ● | ●* | ●* |
| I (changeover) | X3 (PCB front) | 83160143 | ● | ● | ●* | ●* |
| R (normally closed) | W2 (solder) | 83160001 | ● | ● | ● | ● |
| R (normally closed) | W3 (QC 6.3x0.8) | 83160003 | 83160319 | ● | 83160621 | ● |
| R (normally closed) | W6 (QC 4.8x0.5) | ● | ● | ● | ●* | ●* |
| R (normally closed) | X2-X3 (PCB rear-front) | ● | ● | ● | ●* | ●* |
| C (normally open) | W2 (solder) | 83160002 | 83160324 | ● | 83160603 | ● |
| C (normally open) | W3 (QC 6.3x0.8) | 83160004 | 83160316 | 83160402 | 83160622 | ● |
| C (normally open) | W6 (QC 4.8x0.5) | 83160047 | ● | ● | ●* | ●* |
| C (normally open) | X2-X3 (PCB rear-front) | ● | ● | ● | ●* | ●* |
| Electrical characteristics | | | | | | |
| Rating nominal / 250 V AC (A) | | 16 | 10 | 6 | 16 | 16 |
| Rating nominal / 250 V DC (A) ** | | 0.5 | 0.5 | 0.4 | 0.8 | 5 |
| Rating thermal / 250 V (A) | | 20 | 15 | 10 | 20 | 20 |
| Rating NF / 250 V AC (A) | | 16(4) | 10(4) | 6(2) | 16(4) | - |
| Rating UL / 125/250 V AC (A) | | 8 | 8 | 6 | 10 | - |
| Mechanical characteristics | | | | | | |
| Maximum operating force (N) | | 4 | 2 | 1 | 5 | 5 |
| Min. Release force (N) | | 1.5 | 0.6 | 0.3 | 1 | 1 |
| Maximum total travel force (N) | | 6.5 | 3 | 1.5 | 7 | 7 |
| Max. Allowable overtravel force (N) | | 20 | 20 | 20 | 20 | 20 |
| Rest position max. (mm) | | 15.6 | 15.6 | 15.6 | 15.7 | 15.7 |
| Operating position (mm) | | 14.8 \pm 0.3 | 14.8 \pm 0.3 | 14.7 \pm 0.3 | 14.6 \pm 0.4 | 14.6 \pm 0.4 |
| Maximum differential travel (mm) | | 0.3 | 0.4 | 0.35 | 0.7 | 0.7 |
| Min. overtravel CRA (mm) | | 1.3 | 1.3 | 1.3 | 1 | 1 |
| Ambient operating temperature (°C) | | -40 → +125 | -40 → +125 | -40 → +125 | -40 → +125 | -40 → +125 |
| Mechanical life (operations) | | 10 ⁷ | 10 ⁷ | 10 ⁷ | 10 ⁶ | 10 ⁶ |
| Contact gap (mm) | | 1.2 | 1.2 | 1.2 | 3.2 | 3.2 |
| Weight (g) | | 6.7 | 6.7 | 6.7 | 6.7 | 6.7 |

* Please consult us ** with resistive load

Additional specifications

- Case, Button: PBT GF (UL 94-V0 / GWFI 960 °C)
PA66 GF (GWFI 960 °C) - 831606 SP3697 case
- Contacts: silver alloy (gold-plated silver alloy : on request)
- Terminals: brass (except W2/X : copper nickel), silver plated common
- Levers: stainless steel or polyamide, polyamide roller

- Degree of protection: IP40 (mechanism)
- Proof tracking index: PTI 250 (PTI 600 on 831606 SP3697)
- Recommended min actuating speed: 0.1 mm/s

- Certification marks: (except 831606 SP3697) /

Product adaptations



- › **Special levers: special shapes and lengths**
- › **Special connections: angled, screw with clamp (W5), full wiring with custom connector....**
- › **Telescopic plunger and adjustable fixing by threaded barrel: plastic version (153L accessory) or metal version (SP9603 or 83556, single or double pole)**
- › **High operating temperature: +150 °C**
- › **Variant for irradiated environment (SF1320)**
- › **400 Vac NF approved versions (SP9654)**
- › **cURus / NF approvals for 831606 SP3697**

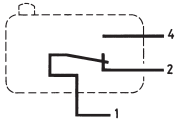
Standard product

Product made to order

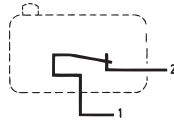
● Contact us

Principles

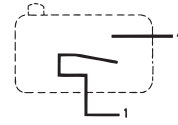
Single break snap-action switch
Changeover - SPDT (form C)



Normally closed - SPST-NC (form B)

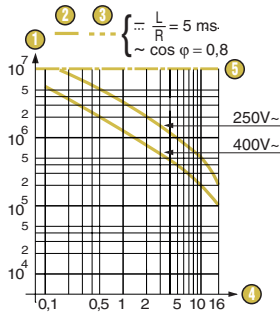


Normally open - SPST-NO (form A)



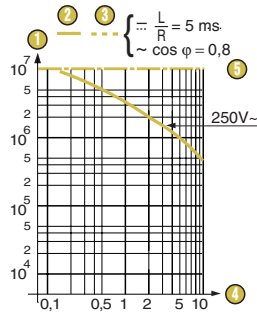
Curves

Operating curve for type 831600



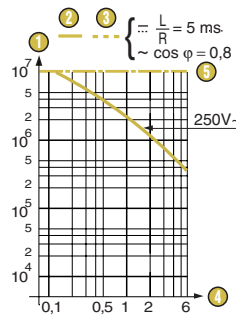
- 1 Number of cycles
- 2 Resistive circuit
- 3 Inductive circuit
- 4 Current in Amps
- 5 Mechanical life limit

Operating curve for type 831603



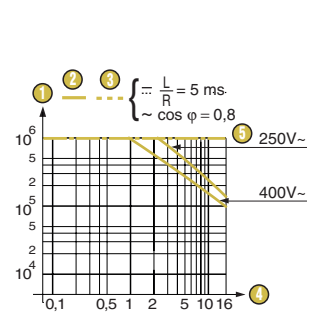
- 1 Number of cycles
- 2 Resistive circuit
- 3 Inductive circuit
- 4 Current in Amps
- 5 Mechanical life limit

Operating curve for type 831604



- 1 Number of cycles
- 2 Resistive circuit
- 3 Inductive circuit
- 4 Current in Amps
- 5 Mechanical life limit

Operating curve for types 831606



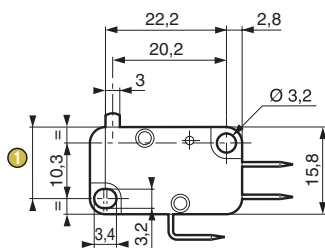
- 1 Number of cycles
- 2 Resistive circuit
- 3 Inductive circuit
- 4 Current in Amps
- 5 Mechanical life limit

Electrical life for type 831606 SP3697: 250 V~: 5 A resistif 300 000 cycles
 250 V~: 1,5 A L/R 5 ms 30 000 cycles
 250 V~: 0,5 A L/R 50 ms 50 000 cycles
 125 V~: 3 A L/R 5 ms 30 000 cycles

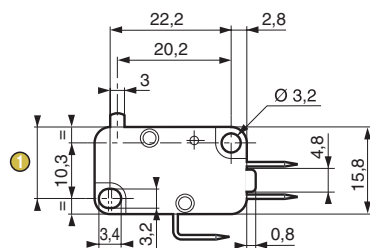
Dimensions

Products

831600 / 3 / 4 / 6



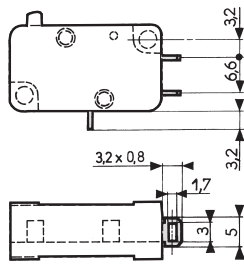
831606 SP3697



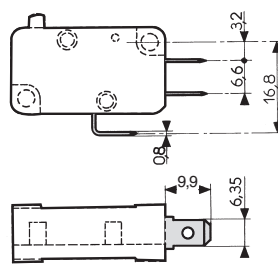
1 Total travel position = 13.2 max.

Connections

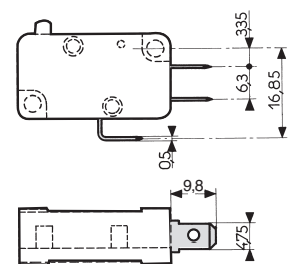
W2 solder



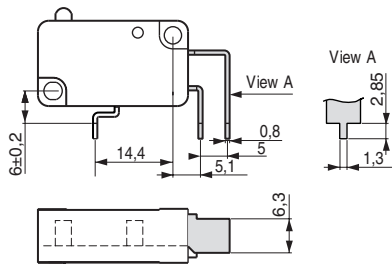
W3 quick-connect 6.3 x 0.8



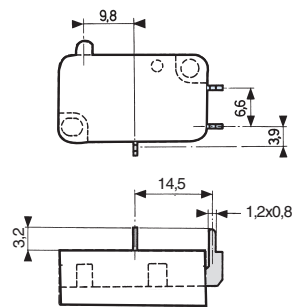
W6 quick-connect 4.8 x 0.5



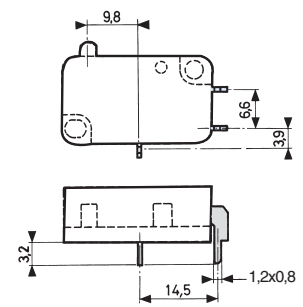
X1 for PCB, straight output



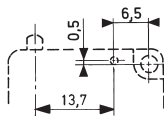
X2 for PCB, rear output



X3 for PCB, front output

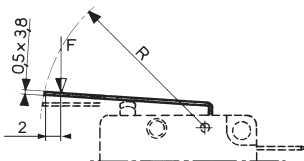


Actuator mounting position

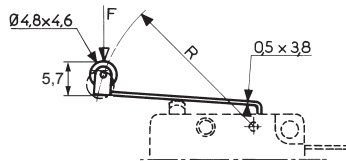


Actuators

153AX flat






153EX roller



Other shapes and dimensions: consult us

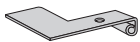
Actuators and mounting accessories

| Actuators | Flat 153AX R29.7 | | | Roller 153EX R15.8 | | | Roller 153 EX R28.7 | | | |
|--------------------------|-----------------------------------------------------------------------------------|---------------|---------------|------------------------------------------------------------------------------------|---------------|---------------|-------------------------------------------------------------------------------------|---------------|---------------|------------|
| |  | | |  | | |  | | | |
| | 831600 | 831603 | 831606 | 831600 | 831603 | 831606 | 831600 | 831603 | 831606 | |
| Operating position | mm | 15.3 ±0.5 | 15.3 ±0.5 | 14.4 ±0.6 | 20.5 ±0.45 | 20.5 ±0.45 | 20.3 ±0.55 | 20.5 ±0.65 | 20.5 ±0.65 | 19.6 ±0.75 |
| Operating force - max. | N | 2 | 1 | 2.6 | 4 | 2 | 5 | 2 | 1 | 2.6 |
| Release force - min. | N | 0.4 | 0.25 | 0.3 | 1 | 0.55 | 0.75 | 0.4 | 0.25 | 0.3 |
| Pretravel - max. | mm | 2.5 | 2.5 | 3.1 | 1.2 | 1.2 | 1.4 | 2.5 | 2.5 | 3.1 |
| Differential travel max. | mm | 0.6 | 0.8 | 1.5 | 0.3 | 0.4 | 0.7 | 0.6 | 0.8 | 1.5 |
| Total travel max. | mm | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 4.6 | 4.6 | 4.6 |

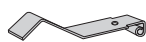
We recommend that levers are assembled in our factories

Actuators

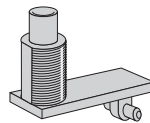
Two-pole **153A2X** R15,9**



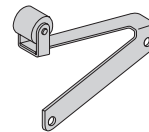
Dummy roller **153FX** R24.3**



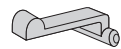
Telescopic plunger **153L****



Flexible with roller **153B****



Plastic **153 V****



** Please consult us

831600 microswitches with referenced actuators

| Actuators | | 153AX R29.7 | 153EX R15.8 | 153EX R28.7 |
|----------------------|------|-------------|-------------|-------------|
| 831600 | I W2 | ● | 83160134 | 83160038 |
| | I W3 | 83160067 | 83160029 | 83160065 |
| | I W6 | 83160115 | 83160069 | ● |
| 831603 | I W2 | 83160345 | ● | ● |
| | I W3 | 83160347 | 83160327 | 83160329 |
| | I W6 | ● | ● | ● |
| 831606 | I W2 | ● | ● | ● |
| | I W3 | ● | 83160669 | 83160674 |
| 831606 SP3697 | I W2 | ● | 83160681 | ● |
| | I W3 | ● | 83160680 | ● |

Installation recommendations

See "Basic technical concepts"

How to order

Use the 8 digit part numbers when they are defined

Other cases, precise: Type of microswitch - Function - Connection - Actuator* - Adaptation*

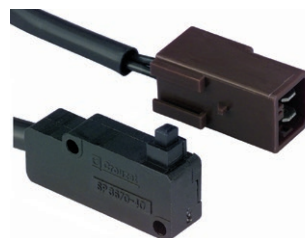
* if needed

Example: 831600 I X1 153AX R29.7

Examples of special adaptations



Special lever and angled W3 terminals



Full wiring with custom connector



Customised version for nuclear application. Has radiation-resistant housing, 180 °C max operating temperature, W5 screw terminals and magnetic blowout for highly inductive circuit switching at 250 V...

Standard product

Product made to order



Contact us



Telescopic plunger with Ø12 mm adjustable fixing and 4 mm overtravel. Metal version for heavy duty (SP9603)



Telescopic plunger with Ø10 mm threaded barrel, metal bracket and plastic button. Single or double pole (83556)

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