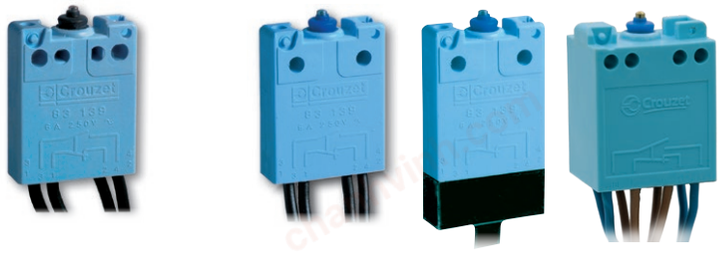
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MINIATURE MICROSWITCHES - SEALED, DOUBLE BREAK

83139

- **Double-break flexible leaf snap-action mechanism**
- **IP66/IP67 protection**
- **Wire lead or cable output**
- **ATEX/IECEx certified flameproof version for use in explosive gas atmospheres**
- **Oil and hydrocarbon-resistant version**
- **Two-pole/DPDT version with synchronized switchings**
- **Class II version with double insulation**
- **Ratings from 1 mA 4 V⎓ to 6 A 250 V~**
- **Operating temperature from -40 °C up to 105 °C**
- **Wide choice of actuators (pre-assembled or retrofittable)**



Main specifications

Function / Fixing	Connections	Standard 831395	Oil-resistant 831390	Flameproof 831391	Double insulation 831392	Two-pole 831398
I (changeover) / A (4 holes)	S0.5 (wires, standard)	**83139503**	**83139003**	-	-	**83139801**
I (changeover) / A (4 holes)	G0.5 (wires, left)	●	●	-	-	-
I (changeover) / A (4 holes)	D0.5 (wires, right)	●	●	-	-	-
I (changeover) / A (4 holes)	C0.5 (cable)	●	●	-	-	-
I (changeover) / B (2 holes)	S0.5 (wires, standard)	**83139518**	●	**83139103**	-	-
I (changeover) / B (2 holes)	G0.5 (wires, left)	●	●	●	-	-
I (changeover) / B (2 holes)	D0.5 (wires, right)	●	●	**83139104**	-	-
I (changeover) / B (2 holes)	C0.5 (cable)	●	●	**83139130**	**83139201**	-
Electrical characteristics						
Rating nominal / 250 V AC (A)		6	6	6	6	6
Rating thermal / 250 V AC (A)		11	11	11	11	11
Mechanical characteristics						
Maximum operating force (N)		3	3	3	3	4.5
Min. Release force (N)		0.6	0.6	0.6	0.6	0.8
Maximum total travel force (N)		4	4	4	4	6
Max. Allowable overtravel force (N)		10	10	10	10	20
Rest position max, fixing A (mm)		8.8	8.8	-	-	8.8
Rest position max, fixing B (mm)		9.8	9.8	9.8	9.8	-
Operating position, fixing A (mm)		$7.7^{\pm 0.4}$	$7.7^{\pm 0.4}$	-	-	$7.7^{\pm 0.4}$ *
Operating position, fixing B (mm)		$8.7^{\pm 0.4}$	$8.7^{\pm 0.4}$	$8.7^{\pm 0.4}$	$8.7^{\pm 0.4}$	-
Differential travel (mm)		$0.35^{\pm 0.1}$	$0.35^{\pm 0.1}$	$0.35^{\pm 0.1}$	$0.35^{\pm 0.1}$	$0.35^{\pm 0.1}$
Min. Overtravel (mm)		0.25	0.25	0.25	0.25	0.25
Ambient operating temperature (° C)		-40 → +85	0 → +85	-40 → +70	-40 → +85	-40 → +85
Mechanical life (operations)		5×10^6	10^7	5×10^6	5×10^6	5×10^6
Contact gap, wire versions (mm)		0.3 x 2	0.3 x 2	0.3 x 2	-	0.3 x 2
Contact gap, cable versions (mm)		0.3	0.3	0.3	0.3	-
Weight, wire versions (g)		33	33	33	-	62
Weight, cable versions (g)		31	31	31	31	-

* Max. deviation between the operating positions of both poles of a single switch: 0.1mm
(For reduced max. deviation, down to 0.06 mm : please consult us)

Additional specifications

- Case: PBT GF (UL 94-V0 / GWFI 960 °C)
- Button: stainless steel, POM (831392), brass (831398)
- Membrane: blue fluorosilicone rubber, black nitrile rubber (831390)
- Moving blade: beryllium copper
- Contacts: silver (gold-plated silver : on request)
- Wire leads, Cable: copper, PVC insulated
- Levers: stainless steel, polyamide roller
- Degree of protection: IP66/IP67
- Protection against electric shock: 831392 is suitable for Class II equipment up to 250 V without additional protection
- Recommended min actuating speed: 0.01 mm/s
- 831391 Ex features:
  conform to IEC/EN 60079-0 and IEC/EN 60079-1
  conform to 2014/34/EU directive
  marking: 0081 Ⓔx II 2 G - Ex d IIC Gb
  EC type examination certificate: LCIE 02 ATEX 0034 U
  IECEx certificate of conformity: IECEx LCIE 13.0035U
  see also “installation recommendations”
- Certification marks: cULus on request (except 831398) / IEC IECEx Ⓔx (831391) / EAC CE

Standard product | Product made to order | ● Contact us

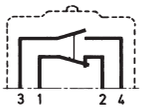
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Product adaptations

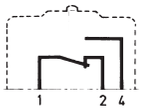
- Special levers : special shapes and lengths
- Special leads and cables (EN 50306 halogen-free, oil-resistant, …), full wiring with custom connector
- Functions on request : normally closed (R) or normally open (C) SPST or DPST microswitches
- 3-wire single break changeover SPDT (form C): “Common point” option
- High operating temperature : +105 °C
- Dual-current version with gold plated contacts for use from 1 mA to 5 A
- Telescopic plunger with up to 4 mm overtravel and adjustable fixing by threaded barrel (SP4257)
- cURus approved versions (except 831398)

Principles

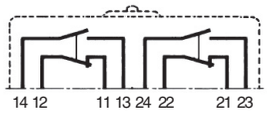
Double break snap-action switch
Changeover - SPDT (form Za)
Types 831390/831391/831395 with wire output



Single break snap-action switch
Changeover - SPDT (form C)
Types 831390/831391/831392/831395 with cable output

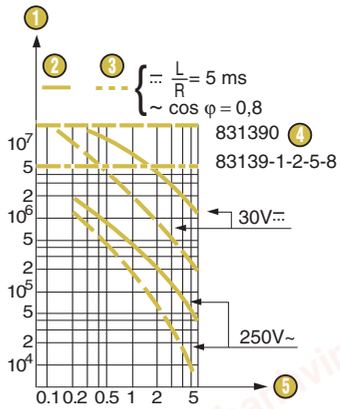


Double break snap-action switch
Changeover - DPDT (2 x form Za)
Type 831398



Curves

Operating curve for types
831390 / 831391 / 831392 / 831395 / 831398



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

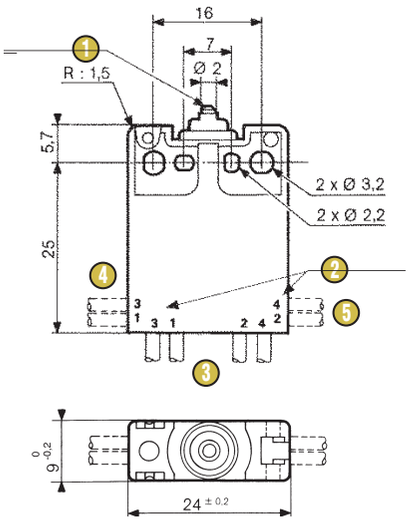
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Dimensions

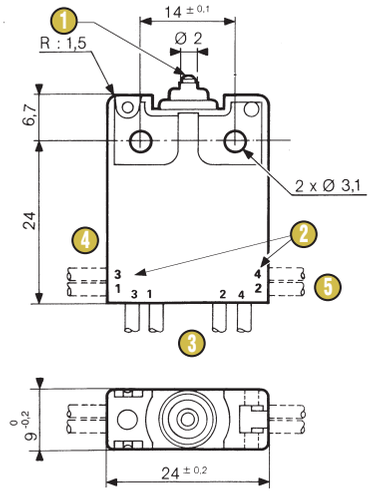
Products and Connections

83139 - wire output

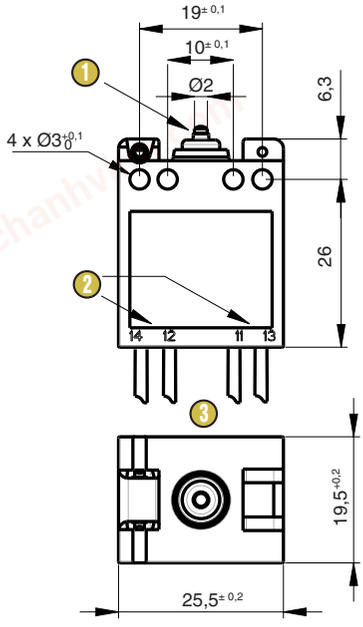
831390 - 831395
Fixing A (4 holes)



831390 - 831391 - 831395
Fixing B (2 holes)



831398



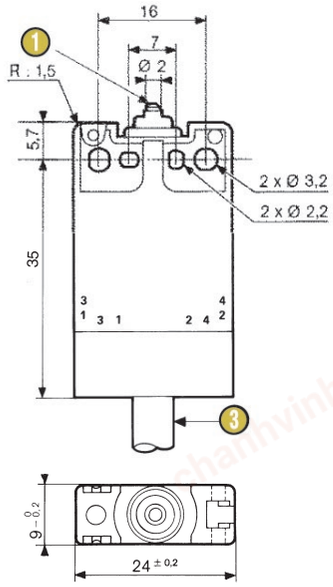
1. R: 1.5 spherical
2. Wire identification
3. **S wire output on bottom, standard:** 1-2-3-4=black
4. **G wire output on left:** 1 = black, 2 = brown, 3 = grey, 4 = blue
5. **D wire output on right:** 1 = black, 2 = brown, 3 = grey, 4 = blue

Wire characteristics: Cross section: 0.75 mm²
Standard length: 0.5 m
Other lengths on request (length in meters: e.g. 1.5)

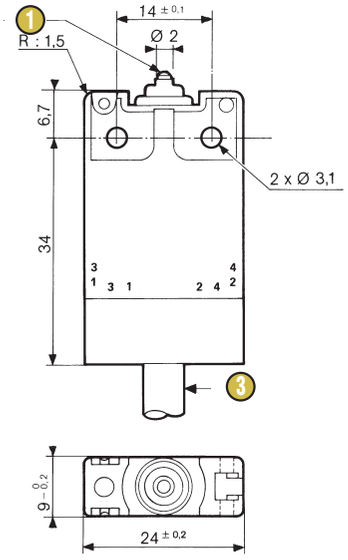
1. R: 1.5 spherical
2. Wire identification
3. **S wire output:** 11-12-21-22 = brown
   13-14-23-24 = blue

83139 - cable output

831390 - 831395
Fixing A (4 holes)



831390 - 831391 - 831392 - 831395
Fixing B (2 holes)



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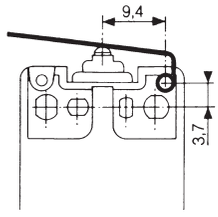
1 R: 1.5 spherical
3 **C cable output:** 1 = black, 2 = brown, 4 = blue

Cable characteristics: Cross section: 3 x 0.75 mm²
Standard length: 0.5 m
Other lengths on request (length in meters: e.g. 1.5)

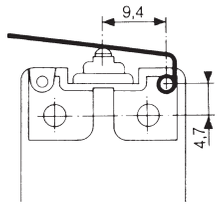
Actuator mounting positions

139-type levers (pinned)

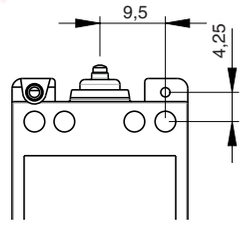
831390 - 831395
Fixing A (4 holes)



831390 - 831391 - 831392 - 831395
Fixing B (2 holes)

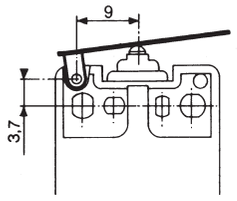


831398 (consult us)

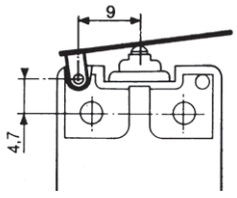


161-type levers (clipped-on)

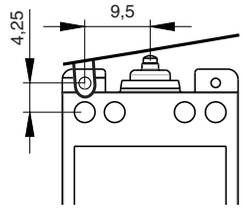
831390 - 831395
Fixing A (4 holes)



831390 - 831391 - 831392 - 831395
Fixing B (2 holes)

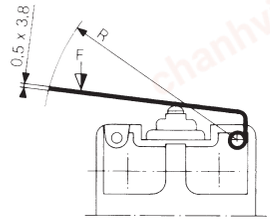


831398

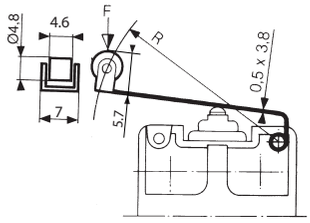


Actuators

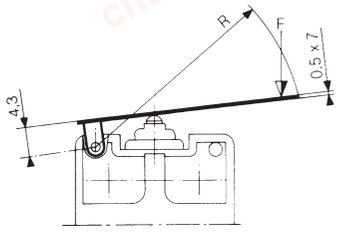
139AX flat



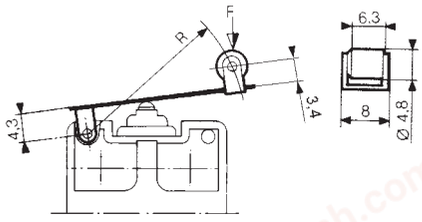
139EX roller



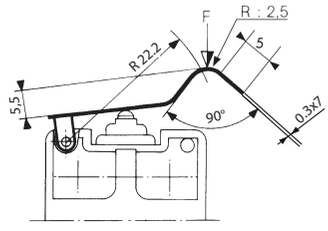
161A flat



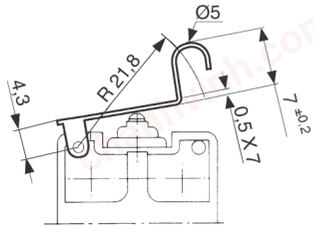
161E roller



161F dummy roller



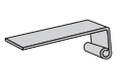
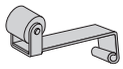
161G dummy roller



Other shapes and dimensions: consult us

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Actuators and mounting accessories

Part numbers for standard actuators		79211671*		79211674*		79215740		70507524	
Actuators		Flat **139AX** R29.7		Roller **139EX** R28.7		Flat **161A** R14.2		Flat **161A** R25.4	
									
		831390/1/2/5	831398	831390/1/2/5	831398	831390/1/2/5	831398	831390/1/2/5	831398
Operating force max.	N	1.5	-	1.5	-	2.6	3.9	1.7	2.6
Release force min.	N	0.2	-	0.2	-	0.35	0.5	0.2	0.3
Operating position, fixing A	mm	8.2 ±1.2	-	13.4 ±1.2	-	8.2 ±0.6	8.1 ±0.6	8.2 ±1	7.3 ±1
Operating position, fixing B	mm	9.2 ±1.2	-	14.4 ±1.2	-	9.2 ±0.6	-	9.2 ±1	-
Differential travel max.	mm	1.5	-	1.5	-	0.7	0.7	1.25	1.35

Part numbers for standard actuators		79215742		70507529		70507528		79218651	
Actuators		Roller **161E** R13.6		Roller **161E** R24.1		Dummy roller **161F** R22.2		Dummy roller **161G** R21.8	
									
		831390/1/2/5	831398	831390/1/2/5	831398	831390/1/2/5	831398	831390/1/2/5	831398
Operating force max.	N	2.6	3.9	1.7	2.6	2	3	2	3
Release force min.	N	0.35	0.5	0.2	0.3	0.2	0.3	0.2	0.3
Operating position, fixing A	mm	13.9 ±0.7	13.6 ±0.7	13.9 ±1	12.9 ±1	13.3 ±1	12.4 ±1	14.7 ±1	13.8 ±1
Operating position, fixing B	mm	14.9 ±0.7	-	14.9 ±1	-	14.3 ±1	-	15.7 ±1	-
Differential travel max.	mm	0.7	0.7	1.2	1.3	1.1	1.2	1.1	1.2

Unless mentioned specifically, 161-type levers are supplied unmounted . For factory mounting, see preferred part numbers in table below.

* 139-type levers are preferably factory mounted : see preferred part numbers in table below . For unmounted supply, please also order associated pin **79210424** .

Note: we recommend greasing the switch button lightly when fitting actuators, excluding greases containing silicone.

83139 microswitches with referenced actuators

	Actuators	139AX R29.7	139EX R28.7	161A R14.2	161A R25.4	161E R13.6	161E R24.1	161G R21.8
		79211671	79211674	79215740	70507524	79215742	70507529	79218651
831390	I A S0.5	83139006	83139008	83139023	83139024	83139025	83139026	83139027
831391	I B S0.5	83139118	83139117	●	●	83139129	83139121	●
	I B G0.5	●	83139120	●	●	●	●	●
	I B C0.5	●	●	83139124**	●	●	●	●
831395	I A S0.5	83139505	83139507	●	●	●	●	●

** Actuator width is 4 mm

Installation recommendations

See “Basic technical concepts”
Special condition for safe use of 831391 in explosive atmospheres: the component must be installed in an enclosure which meets the mechanical strength requirements of IEC/EN 60079-0.

How to order

Use the 8 digit part numbers when they are defined

Other cases, precise:
Type of microswitch - Function - Fixing - Connexion - UL approval* - Actuator* - Adaptation*
* if needed
Example: 831395 I B D0.5 UL 139EX R28.7

Standard product | Product made to order | ● Contact us

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Examples of special adaptations



Telescopic roller plunger with 2.5 mm overtravel and adjustable fixing by threaded barrel (SP4257)



2-pole DPST-NO flameproof special microswitch, for explosive atmospheres



Halogen-free wire version with flat pinned lever, for railway applications



3-wire SPDT (Form C) variant with lateral output



2-pole model with extra-short lever, stainless steel roller and extended overtravel



SPST-NO version with insulated connexions and dummy roller lever

Warning:

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