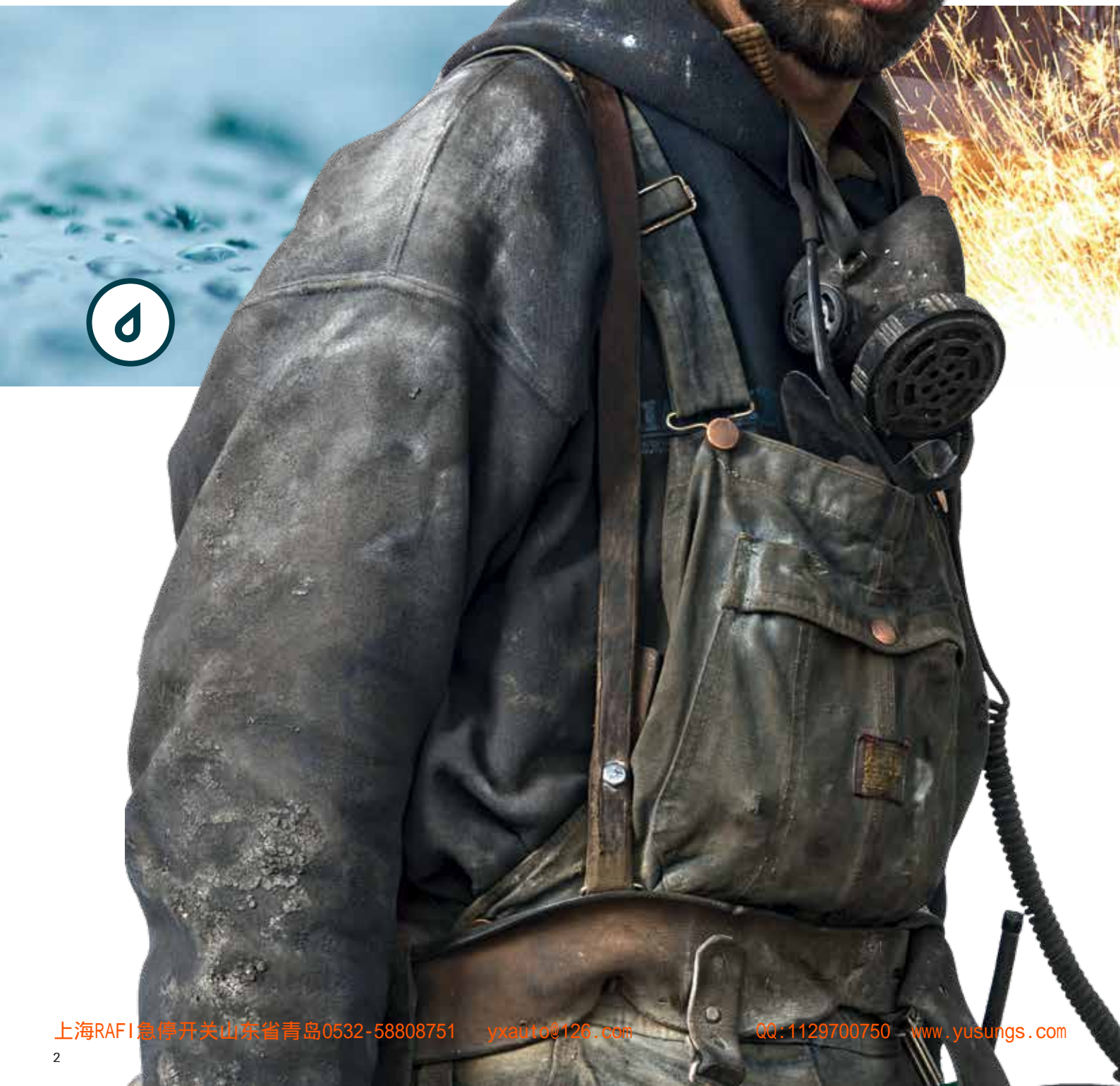GET IN
TOUCH

RAFIX
22 FSR

When the going gets tough, the tough get going!

RAFIX 22 FSR

WHEN THE GOING GETS TOUGH.

Harsh weather conditions. Dirt and dust are swirling around, and the sun is beating down mercilessly. It is time to get going – fast. A glove dripping with oil and lubricants pounds a key vigorously, and work goes on!

The cloud cover is increasing, it's raining, the temperature drops below the freezing point and it starts sleeting. Ice crystals stick to the control elements, but the machinery keeps on running.

Dust, dirt, lubricants, moisture, heat, and cold: close to the limit, solutions are required which are extremely rugged, hard-wearing, and tough. RAFIX 22 FSR has taken on this challenge. Under the most adverse conditions, actuators and contact blocks reveal their advantages: ruggedness and know-how based on proven FS technology. A series specifically developed for outdoor applications, RAFIX FSR withstands external impacts – with no ifs, ands, or buts.

CLOSE TO THE LIMIT
THE BEST PERFORMER.

Extremely rugged and economically unbeatable! RAFIX 22 FSR features proven FS technology and a rugged design. The control components have a low mounting depth which saves a lot of space and enables fast installation. Pushbuttons and actuators provide for quick orientation and a clearly distinctive design thanks to their individually combinable colors and shapes.

Rugged: The actuator mechanism is not affected even when it is exposed to harsh external conditions and impacts.

Dirt: No matter whether it is exposed to industrial lubricants or soiling which naturally occurs during outdoor use – the series is extremely resistant and delivers what it promises.
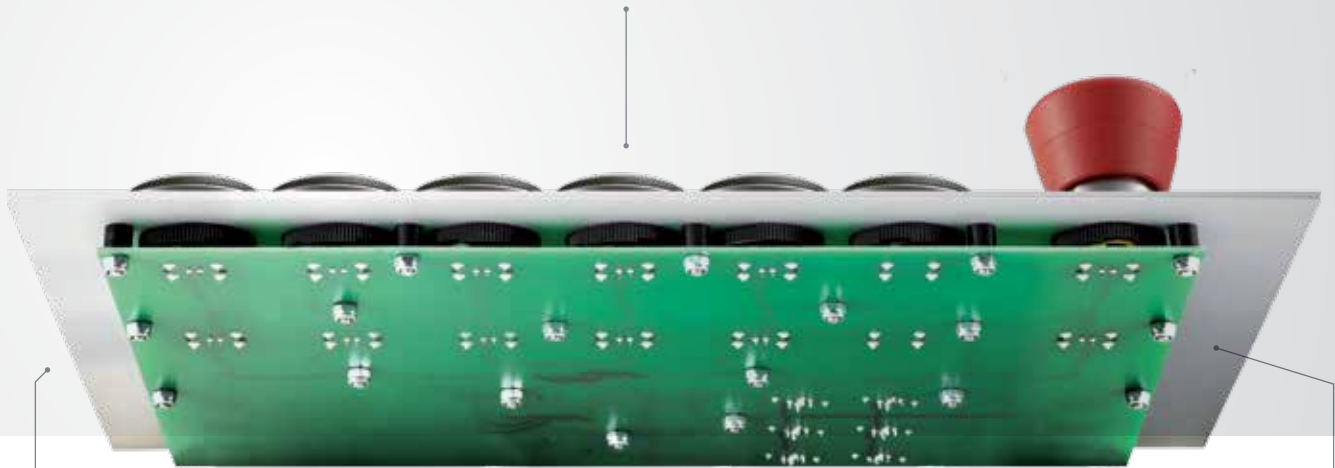
Climate: Sunlight, rain showers, hail or snow – RAFIX 22 FSR easily withstands adverse weather conditions.

Moisture: Waterproof actuators (IP 65 and IP 69 k).

5

Creative freedom in design and illumination: diverse actuators, various lens colors and use of THT or SMT LEDs.

PCB contact blocks: Thanks to their extremely low mounting depth of only 9.2 mm, control components can easily be integrated into system solutions. The RAFIX 22 FS+ contact blocks are arranged with other components on one common printed circuit board, thereby saving space, effort and material.

Low mounting depth: Extremely slim housing solutions thanks to a mounting depth of 9.2 mm.

QC contact blocks: If the use of printed circuit boards is economically inefficient, QC contact blocks with quick-connect terminals and, if required, LED clips are used. The contact blocks are plugged quickly and easily into the actuators from behind and lock firmly into place, without the use of any additional devices or special tools. Connection is made with "Quick Connect" flat plugs.

Low mounting depth: The QC contact blocks are also extremely compact. Mounting depth only 27 mm behind the front plate.

CONTROL COMPONENTS
ACTUATION COMPONENTS

RAFIX 22 FSR
Pushbutton

→ The RAFIX 22 FSR pushbutton is equipped with a protective cap. The pushbutton is resistant to external impacts and offers a degree of protection to IP 65 and/or IP 69 k as per IEC 60529, which means protection against the ingress of water when highly pressurized water/steam jet cleaners are used at a pressure of 80 – 100 bar.

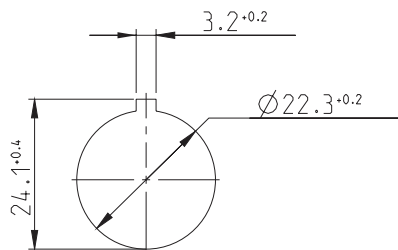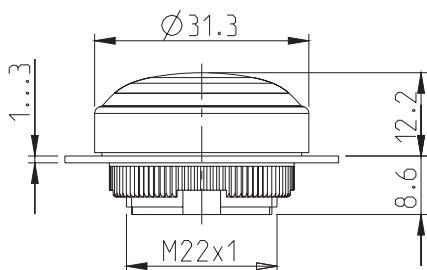### Technical properties

→ **Installation dimensions**

Mounting depth	PCB 9.2 mm, QC 27 mm
Mounting hole	22.3 mm
Pushbutton grid	35 x 35 mm

→ **Mechanical design**

Fixing	Threaded rings
Contact function	momentary
Illuminated	See ordering table

→ **Further details**

Min. operating temperature	-40° C
Max. operating temperature	+85° C
Protection type front	IP 65, IP 69 k
Environmental resistance	as per IEC 60068-2-14, -30, -33 and -78
Salt spray	IEC 600 68-2-11
ROHS compliant	yes
REACH compliant	yes

Ø 31.3

1 +0.3

12.2

8.6

M22x1

3.2 +0.2

Ø 22.3 +0.2

24.1 +0.4

Mounting hole as per IEC 60947-5-1

Approvals

UL 508 in preparation

CCC in preparation

→ **Illuminated**	**Lens color**	**Order number**
yes	translucent white	**1.30.280.001/2201**
yes	translucent red	**1.30.280.001/2301**
yes	translucent yellow	**1.30.280.001/2401**
yes	translucent green	**1.30.280.001/2501**
yes	translucent blue	**1.30.280.001/2601**
no	opaque black	**1.30.280.001/0101**

Legending and front rings in other colors on request

PRELIMINARY SPECIFICATIONS

CONTROL COMPONENTS
ACTUATION COMPONENTS

RAFIX 22 FSR
Emergency stop pushbutton

→ The emergency stop pushbuttons comply with IEC 60 204, IEC 60 073, IEC 60 947, and VDE 0113 part 1. The positively guided mechanical movement of the pushbuttons makes them dupe-proof according to DIN EN ISO 13850. To prevent accidental actuation, the pushbutton has a pressure point which must be pressed first before the pushbutton snaps into place in the pressed position.

The emergency stop pushbutton is non-blocking thanks to the actuator's design. For example, an initiated emergency stop procedure cannot be interrupted by jammed objects. Use only with an emergency stop contact block.
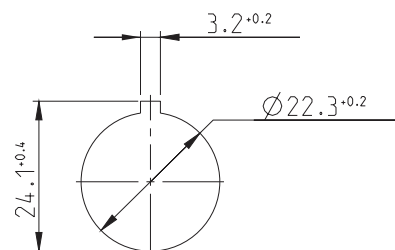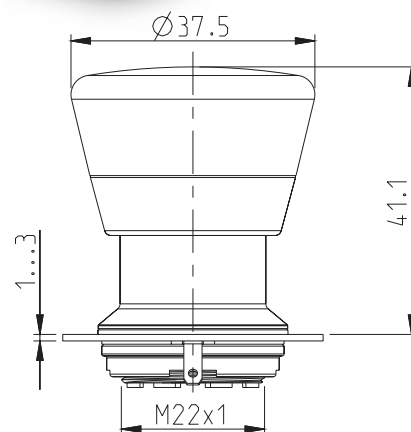
Technical properties

→ **Installation dimensions**

Mounting depth	PCB 9.2 mm, QC 27 mm
Mounting hole	22.3 mm
Pushbutton grid	40 x 40 mm

→ **Mechanical design**

Fixing	Metal threaded rings
Contact function	latching
Illuminated	See ordering table
Reset	by pulling
Torque for threaded ring	1.2 Nm

→ **Further details**

Protection type front	IP 65, IP 69 k
Min. operating temperature	-40° C
Max. operating temperature	+85° C
Environmental resistance	as per IEC 60068-2-14, -30, -33 and -78
Salt spray	IEC 600 68-2-11
ROHS compliant	yes
REACH compliant	yes

Mounting hole as per IEC 60947-5-1

Approvals

UL 508 in preparation   CCC in preparation

Emergency stop pushbutton, metal mushroom

→ Illuminated	Protection type front	Order number
yes, window white	IP 65, IP 69 k	**1.30.283.111/0300**
no	IP 65, IP 69 k	**1.30.283.611/0300**

Emergency stop pushbutton, plastic mushroom

→ Illuminated	Protection type front	Order number
yes, window white	IP 65, IP 69 k	**1.30.283.101/0300**
no	IP 65, IP 69 k	**1.30.283.601/0300**

CONTROL COMPONENTS
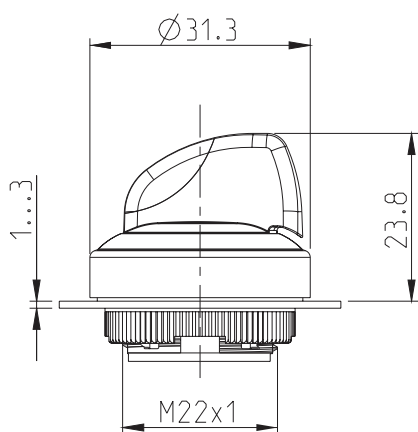## ACTUATION COMPONENTS

RAFIX 22 FSR
Selector switch

→ The marks on the selector switch turning handle are translucent and can be illuminated if required. Colored LEDS or LED clips can be used for colored illuminations.

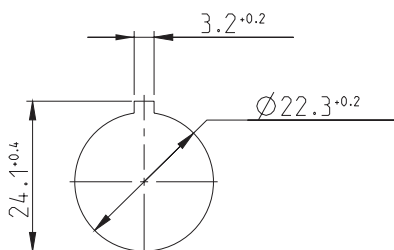### Technical properties

→ **Installation dimensions**

Mounting depth	PCB 9.2 mm, QC 27 mm
Mounting hole	22.3 mm
Pushbutton grid	35 x 35 mm

→ **Mechanical design**

Fixing	Threaded rings
Contact function	See ordering table
Illuminated	yes

→ **Further details**

Protection type front	IP 65, IP 69 k
Min. operating temperature	-40° C
Max. operating temperature	+85° C
Environmental resistance	as per IEC 60068-2-14, -30, -33 and -78
Salt spray	IEC 600 68-2-11
ROHS compliant	yes
REACH compliant	yes

Ø31.3

1…3

23.8

M22x1

3.2 $^{+0.2}$

Ø22.3 $^{+0.2}$

24.1 $^{+0.4}$

Mounting hole as per IEC 60947-5-1

Approvals

UL 508 in preparation

CCC in preparation

→	Illuminated	Contact function	Rotating angles		Order number
	yes	momentary	1 x 40°		**1.30.282.001/2201**
	yes	momentary	2 x 40°		**1.30.282.026/2201**
	yes	latching	1 x 90°, L shape		**1.30.282.101/2201**
	yes	latching	1 x 90°, V shape		**1.30.282.201/2201**
	yes	latching	2 x 60°		**1.30.282.301/2201**

RAFIX 22 FSR
Keylock switch

→ The RAFIX 22 FSR keylock switches are equipped with a plastic protective cap which guarantees a degree of protection to IP 65 and to IP 69 k when it is closed. Two keys respectively are included in the delivery.

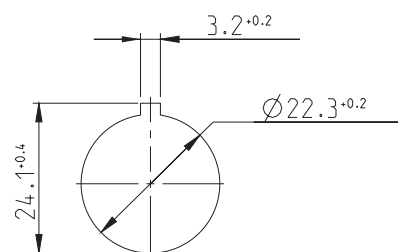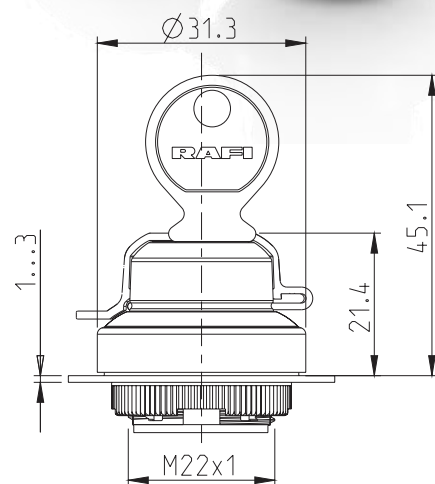**Technical properties**

→ **Installation dimensions**

Overall height	45.1 mm
Mounting depth	PCB 9.2 mm, QC 27 mm
Mounting hole	22.3 mm
Pushbutton grid	35 x 35 mm

→ **Mechanical design**

Fixing	Threaded rings

→ **Further details**

Protection type front	IP 65, IP 69k (when protective cap is closed)
Min. operating temperature	-40° C
Max. operating temperature	+85° C
Environmental resistance	as per IEC 60068-2-14, -30, -33 and -78
Salt spray	IEC 600 68-2-11
ROHS compliant	yes
REACH compliant	yes

Mounting hole as per IEC 60947-5-1

Approvals

UL 508 in preparation

CCC in preparation

→ Contact function	Rotating angles	Key removal position	Order number
momentary	1 x 40°	0	**1.30.285.001/0100**
momentary	2 x 40°	0	**1.30.285.101/0100**
latching	1 x 90°, L shape	0+1	**1.30.285.221/0100**
latching	1 x 90°, V shape	0+1	**1.30.285.321/0100**

CONTROL COMPONENTS
SIGNAL COMPONENTS

RAFIX 22 FSR
Lens

→ The RAFIX 22 FSR lenses are designed for illumination with SMT or THT LEDs. They guarantee full area illumination.

Technical properties
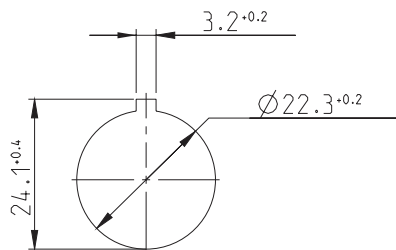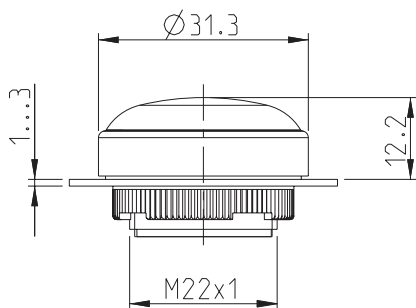
→ **Installation dimensions**

Mounting depth	PCB 9.2 mm, QC 27 mm
Mounting hole	22.3 mm
Pushbutton grid	35 x 35 mm

→ **Mechanical design**

Fixing	Threaded rings
Illuminated	yes

→ **Further details**

Protection type front	IP 65, IP 69 k
Min. operating temperature	-40° C
Max. operating temperature	+85° C
Environmental resistance	as per IEC 60068-2-14, -30, -33 and -78
Salt spray	IEC 600 68-2-11
ROHS compliant	yes
REACH compliant	yes

Ø31.3 — 1...3 — 12.2 — M22x1

3.2⁺⁰·² — Ø22.3⁺⁰·² — 24.1⁺⁰·⁴

Mounting hole as per IEC 60947-5-1

Approvals

UL 508 in preparation

CCC in preparation

→ Illuminated	Lens color	Order number
yes	translucent white	**1.74.509.011/2200**
yes	translucent red	**1.74.509.011/2300**
yes	translucent yellow	**1.74.509.011/2400**
yes	translucent green	**1.74.509.011/2500**
yes	translucent blue	**1.74.509.011/2600**

CONTROL COMPONENTS
CONTACT BLOCKS

RAFIX 22 FS⁺
PCB contact blocks

→ The PCB contact blocks are included in the PCB design and arranged next to other components. The contact blocks are located directly behind the actuators at a distance of only 9.2 mm behind the front panel. It is possible to choose from two alternative LED technologies for illuminated applications.

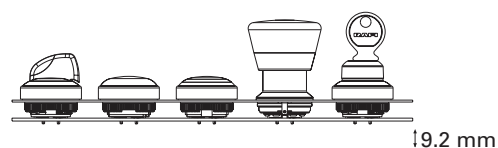**Technical properties**

→ **Installation dimensions**

Mounting depth	9.2 mm

→ **Mechanical design**

Contact material	Gold
Contacts	1 NC + 1 NO, 2 NC, 2 NO

→ **Electrical characteristics**

Min. AC/DC operating voltage	5 V
Max. AC/DC operating voltage	35 V
Min. AC/DC operating current	1 mA
Max. AC/DC operating current	100 mA
Max. switching voltage	250 mW

9.2 mm

For PCB contact blocks with silver contacts (max. 250 V / 2.5 A), PCB hole patterns, and order numbers, please refer to the RAFI main catalog/brochure "RAFIX 22 FS⁺" which can be downloaded at www.rafi.de.

RAFIX 22 FS⁺
QC contact blocks

→ The QC contact blocks are plugged into the actuators and lock firmly into place. Special contacts recognizable by their internal plungers are required for emergency stop pushbuttons. In addition the emergency stop contact blocks and actuators are equipped with two assembly guides which prevent twisting during assembly.
To ensure optimum illumination, the LED color of the LED clip should be chosen to match the lens color of the actuator.
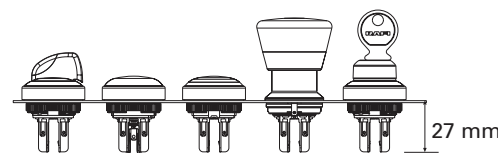
Technical properties

→ **Installation dimensions**

Mounting depth	27 mm

→ **Mechanical design**

Contact material	Silver
Contacts	1 NC + 1 NO, 2 NC, 2 NO

→ **Electrical characteristics as per IEC 60947, AC-15, DC-13**

Rated insulation voltage AC/DC	250 V
Rated impulse withstand voltage	2500 V
Rated operating current I_E, AC15 B300	3 A/120 V; 1.5 A/240 V; I_{the}: 5 A
Rated operating current I_E, DC13 Q300	550 mA/120 V; 270 mA/240 V; I_{the}: 2.5 A

27 mm

For QC contact blocks with gold contacts, terminal assignments and order numbers, please refer to the RAFI main catalog/brochure "RAFIX 22 FS⁺" which can be downloaded at www.rafi.de.