CONTROL COMPONENTS
RAFIX FS Technology

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RAFIX 22 FS+

RAFIX 22 FS+ control component range

- Mounting hole diameter: 22.3 mm to IEC 60947
- Contact blocks with gold or silver contacts
- Depth behind panel only 9.2 resp. 27 mm
- Protection class min. IP65 acc. to DIN EN 60529
- 2 collar shapes, round or square
- The PCB contact blocks can be combined with other components on the same PCB.
- Contact blocks with quick connectors and LED clips
- All products are RoHS compliant.

The specified data apply only if actuators and signal indicators are combined with contact blocks or LED within the same product range.

CONTROL COMPONENTS

RAFIX 22 FS+

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RAFIX 22 FS+

Control components of the future
The RAFIX 22 FS+ series is setting new standards in the world of control components. Extremely flat construction and functional aesthetic design are essential in an increas-ingly design-oriented industrial environment. The wide variety and variability of the actuators give your designer complete freedom: round or square collar types, radiant colours and homogenous illumination of the large actuating areas are among the basic features. Combined with the various front rings, they ensure that you can create a panel with a truly distinctive design. For example, a defined colour can be consistently assigned to a specific command. In addition, the large number of colour options available for the front rings enables easy customisation to suit the corporate design of different OEMs.

Fast

The fastest connection type for every application: with a printed circuit board or directly with quick-connect terminals.

- A printed circuit board is the best and fastest solution, starting with medium quantities. Moreover, PCB contact blocks can be ideally combined with displays, tactile switches and other electronics on a common printed circuit board.
- Alternatively, QC contact blocks can be easily snapped into the actuators without tools. Male quick-connect terminals are used directly for wiring in a conventional manner. This is a fast and efficient variant for applications where a printed circuit board is not cost-effective.

+ PLUS

RAFIX 22 FS+ has additional benefits for you:

- Various actuators and contact block options – a complete series
- Variable thanks to round or square operating elements
- Variable thanks to gold contacts from 5 V or silver contacts up to 250 V
- Short-travel adapter for short-travel actuation (1 mm switching travel) with perceptible key click
- Variable design thanks to various front ring colours
- Variable illumination, compatible with 3 mm THT LEDs or SMT LEDs

SLIM

Now it's a snap to slim the design of your control systems thanks to the low mounting depth.

- Designs with PCB contact blocks feature a distance between the front panel and printed circuit board of only 9.2 mm; the same applies to contact blocks with silver contacts for the mains voltage. That's as slim as it gets.
- Also when fitted with QC contact blocks, RAFIX 22 FS+ panels are unbeatably flat. Requiring only 27 mm of space behind the front panel, they provide tremendous design scope for inspiring control panels.

RAFIX 22 FS+

The RAFIX 22 FS+ series has a variety of actuators with round or square collar types:

Pushbuttons
- Illuminable
- With flush or protruding lens
- With flush or protruding front ring
- With protective cap
- With exchangeable FLEXLAB lens
- With illuminated front ring (optional)

Selector switches
- Rotating angle 40°, 60° or 90°
- Latching or momentary
- Illuminable

Keylock switches
- Rotating angle 40° or 90°
- Latching or momentary

Signal indicators
- Green, yellow, red, blue or white

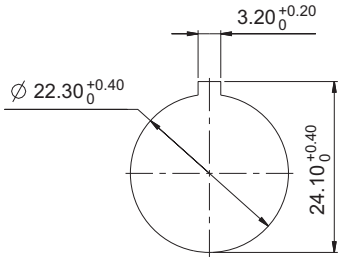
Approvals
- IEC 60947-5-1/5
- UL
- CCC

Safe and reliable
The actuators in the RAFIX 22 FS+ series consistently ensure a degree of protection to at least IP 65, which makes them suitable for many diverse applications.

Durable
The mechanical design of all actuators is optimally suited for long-lasting operation even in heavily used panels.

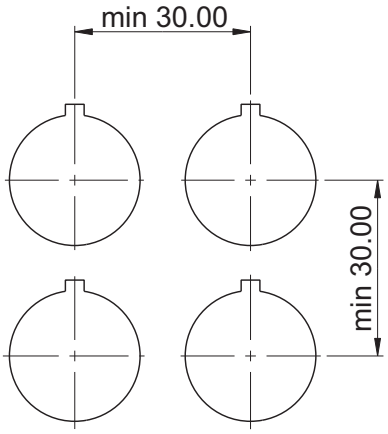
Mounting hole
The actuators in the RAFIX 22 FS+ series are suitable for 22.3 mm panel cut-outs according to IEC 60947-5-1.

All actuators are equipped with a locating pip. This locating pip ensures a perfect fit for actuators and contact blocks with PCB-mounted components and is therefore essential for designs including these contact blocks.



Grid spacing
The design principle makes it possible to use a minimum grid spacing of 30 mm x 30 mm. In such an arrangement, actuators with square collars can be aligned directly without any gaps.

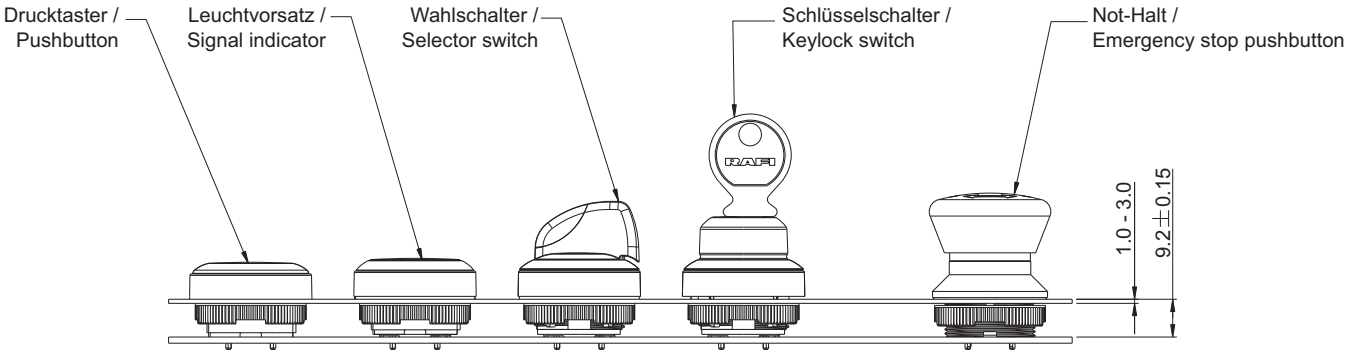
When choosing the grid spacing, it is recommended to consider any external legending required (for example, using label strips inserted into the front panel).



RAFIX 22 FS+ PCB

PCB contact blocks

Dimensional drawing with PCB contact block



Formula for spacer length
9.2 mm
- Front panel thickness
Length of spacer

PCB contact blocks

A printed circuit board is the best and fastest solution, starting with medium quantities. In addition, PCB contact blocks can be ideally combined with displays, short-travel keyswitches and other electronics on a common printed circuit board. Designs with PCB contact blocks feature a distance between the front panel and printed circuit board of only 9.2 mm; the same applies to contact blocks with silver contacts for the mains voltage.
The printed circuit board is attached to the front panel with bolts, while the contact blocks are almost fully immersed in the actuators. This gives the entire system a very low profile. Further benefits: individual wiring is not required, and it is no longer necessary to cut out the printed circuit board around the control components.

FAST: Simply include the PCB contact blocks and LEDs in the layout of the printed circuit board and solder them during production – done as simply as with the other components on the common printed circuit board.

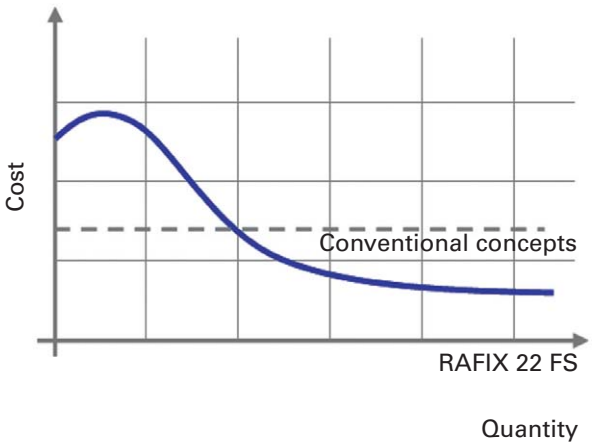
Assembly: Cost savings and reduction of assembly errors. The PCB contact blocks are soldered on the printed circuit board. Two options are available for actuator illumination:

1. A 3 mm THT LED that is inserted into the base of the contact block and soldered together with the contact block on the printed circuit board.
2. A separately placed SMT LED that produces light which is transported by the light conductor and distributed over the entire surface of the lens.

SLIM – enabling lean operation
Designs with PCB contact blocks feature a distance between the front panel and printed circuit board of only 9.2 mm; the same applies to contact blocks with silver contacts for the mains voltage. That's as slim as it gets.

RAFIX 22 FS+ PCB

Putting it all together
As part of the system design, the printed circuit board is attached to the front panel using threaded studs. This one-off construction measure ensures that no assembly errors can occur that would require subsequent troubleshooting. Very cost-effective for large quantities.



Spacers
A distance of 9.2 mm behind the front panel must be maintained. See the RAFI accessories for the necessary spacers.

Formula for spacer length

RAFIX 22 FS+ and RAFIX 22 FSR

9.2 mm
- Front panel thickness
Length of spacers

Benefits
- The extremely low mounting depth is unique and enables applications with entirely new housing and machine designs
- The series can be combined with RAFI short-travel key-switches to tailor the operation to particular customer applications
- Standardised production with printed circuit boards pays off for large quantities and cuts assembly costs

Optimal applications meet the following conditions
- Usage of a printed circuit board is already planned. Printed circuit boards pay off for large quantities since production can be standardised.
- Short-travel keyswitches are used. RAFIX FS PCB contact blocks can be combined, for example, with RAFI short-travel keyswitches from the series MICON 5, RACON 8/12, RF 15/19 and KN 19.
- Tight space requirements: RAFIX FS technology can be used to realise smaller housing formats. This leads to savings on materials as well as tool costs.

Key points at a glance
- Mounting depth only 9.2 mm
- PCB contact blocks with printed circuit board THT terminal
- Gold contacts for totally reliable switching at low voltages (min. 5 V / 1 mA) or
- Silver contacts (max. 250 V / 4 A) for mains voltage
- Contact assignments: 1 NC, 1 NO, 2 NC, 2 NO, 1 NC + 1 NO, or for safety-relevant applications 2 NC + 1 NO (emergency stop “Plus 1”)
- Illumination with LEDs in various colours
- Compatible with all RAFIX 22 FS+, RAFIX 22 FSR and RAFIX FS 30 actuators such as pushbuttons, selector switches, keylock switches, emergency stop buttons and signal indicators with all the benefits of this series

Combination of RAFIX 22 FS+ with RAFI short-travel keyswitches on a common printed circuit board

Top half: RAFI short-travel keyswitches RACON 8/12, MICON 5, RF 15/19, short-travel mains switch KN 19
Bottom half: RAFIX FS contact blocks, some with 3 mm THT LEDs

RAFIX 22 FS+ QC

The system
For the actuators in the RAFIX 22 FS+, RAFIX 22 FSR and RAFIX 30 FS+ series, RAFI offers QC contact blocks with plug-in connection. All it takes is a "click" to latch the contact block into the fixed actuator for a solid connection.

The concept
In cases where usage of a printed circuit board is not feasible or cost-effective, QC contact blocks provide an economical alternative. Locating lugs on the contact block latch into the actuators with precision in the millimetres. Matching guides are arranged in the thread to ensure a solid connection. Wiring the contact block is easy due to the standard male quick-connect terminals. As an isolation aid, there is a middle fin which is also used as a guide for the optional LED clip.

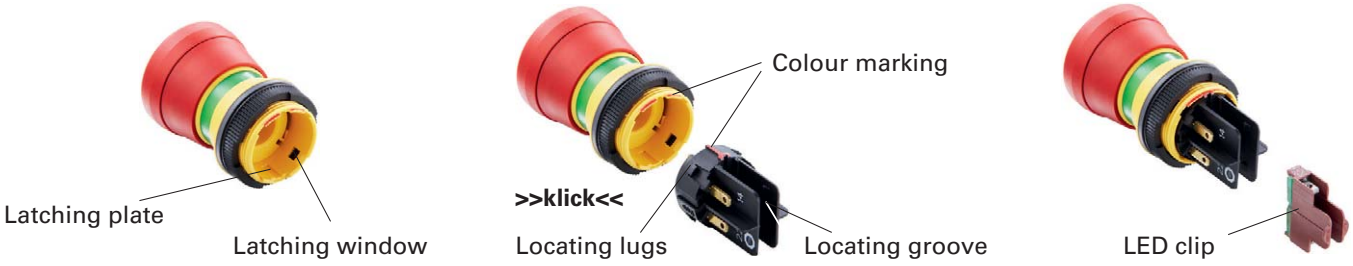
The QC contact block rounds out the RAFIX 22 FS+, RAFIX 22 FSR and RAFIX 30 FS+ series, making them suitable for all customer requirements. Separately installed control devices can be **easily** integrated into the system **without any tools**, helping users to save space, work expense and materials.

Assembly
The colour marking on the actuator thread and contact block helps to prevent incorrect assembly, thereby simplifying the assembly process. Briefly press the contact block and it will securely latch into the actuator ("click to install").

Benefits
- Very fast and simple attachment of QC contact blocks saves valuable assembly time.
- The fixed connection between the contact block and actuator is suitable for applications with tremors and vibrations.
- Cable harnesses can be preassembled with the contact blocks.

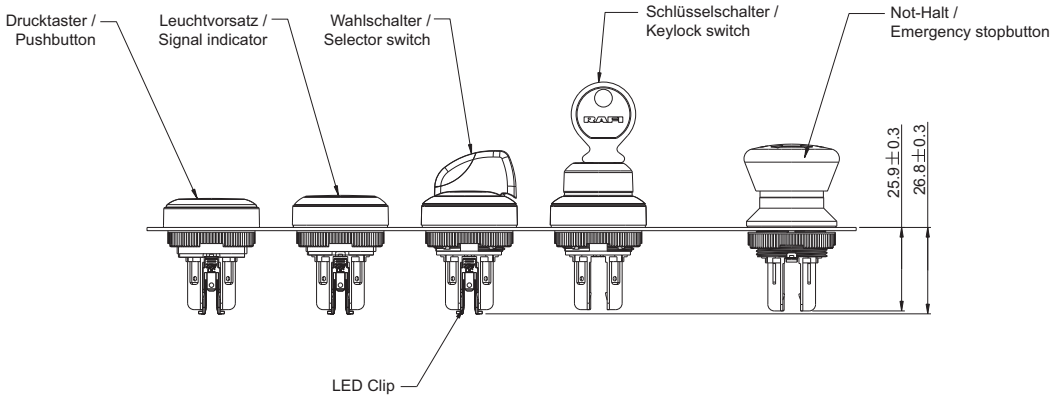
Optimal applications meet the following conditions
- Usage of a printed circuit board is not cost-effective, for example away from main control points (e.g. emergency stop application in a hazard area).
- Typical control components need to be installed quickly. The installation time is significantly shorter for RAFIX QC contact blocks than for other available control component concepts.
- Significant vibrations and tremors are present. All parts are solidly connected.
- Other components need an appropriate amount of space.

RAFIX FS QC: Key points at a glance
- Mounting depth only 27 mm including LED clip and cable lugs
- QC contact blocks with quick-connect/solder terminals 2.8 x 0.8 mm
- The QC contact block engages permanently with the actuator only at the time of final assembly
- Compatible with all RAFIX 22 FS+, RAFIX 22 FSR and RAFIX 30 FS+ actuators such as pushbuttons, selector switches, keylock switches, emergency stop buttons and signal indicators with all the benefits of this series
- Protection against contact for quick-connect terminals and cable lugs: short-circuit-proof even when the connection wires are under tensile strain
- Gold contacts for totally reliable switching at low voltages (min. 5 V / 1 mA) or
- Silver contacts (max. 250 V / 4 A) for mains voltage
- Contact assignments: 1 NC, 1 NO, 2 NC, 2 NO, 1 NC + 1 NO, or for safety-relevant applications 2 NC + 1 NO (emergency stop "Plus 1")
- Illumination with replaceable and extremely bright LED clips in various LED colours, with quick-connect terminals 2.8 x 0.8 mm
- Actuators / contact blocks, signal indicators / lamp sockets and LED clips can be stocked separately and are not connected until final assembly. In this manner, the product range ensures maximum flexibility along with economical inventory management.

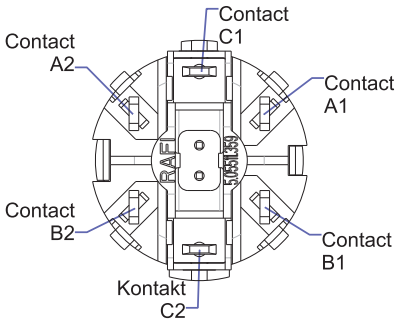


RAFIX 22 FS+ QC

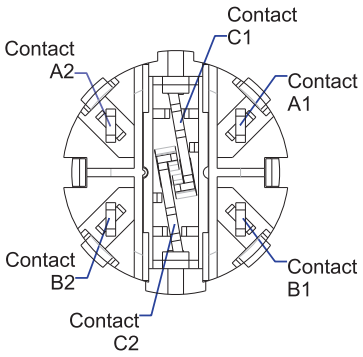
Dimensional drawing with QC contact block



Terminal diagram (view from below)



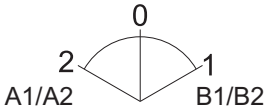
Contact block with LED-Clip
(sight from below)



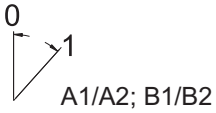
Contact block "Plus 1"
(sight from below)

Contact arrangement	1NO	1NC	2NO	2NC	1NC + 1NO	Plus 1
Contact A1/A2 Terminal legending	1NO 13 - 14	-	1NO 13 - 14	1NC 11 - 12	1NO 13 - 14	1NC 11 - 12
Contact B1/B2 Terminal legending	-	1NC 21 - 22	1NO 23 - 24	1NC 21 - 22	1NC 21 - 22	1NC 21 - 22
Contact C1/C2 Terminal legending *:only when needed	LED* X1 - X2	LED* X1 - X2	LED* X1 - X2	LED* X1 - X2	LED* X1 - X2	1NO 33 - 34

Contact diagram for selector and keylock switches



All actuators with 3 switch positions

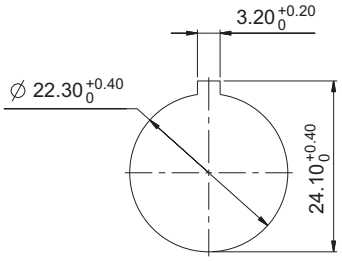


All actuators with 2 switch positions

RAFIX 22 FS+ Pushbuttons

Technical Data

→ General information	
Form of lens	see order block
Color of lens	see order block
Color of front ring	see order block
Form of collar	see order block
→ Dimensions	
Dimensions of collar	see order block
Overall height	see order block
Mounting depth	PCB 9.2 mm, QC 27 mm
Mounting hole	22.3 mm
Key grid	30 x 30 mm
→ Mechanical design	
Mounting	ring nut
Contact function	see order block
Illuminability	see order block
Torque for nut ring	1.2 Nm
→ Mechanical characteristics	
Operating travel	4 mm
Robustness max.	100 N
→ Other specifications	
Ambient temp. operating min.	-25 °C
Ambient temp. operating max.	+70 °C
Storage temperature min.	-40 °C
Storage temperature max.	+80 °C
Operating life	1,000,000 momentary / 500,000 latching
B10	1,300,000 momentary / 650,000 latching
Degree of protection from front side	IP65 (DIN EN 60529)
Environmental restistance	acc. to IEC 60068-2-14, -30, -33 and -78
Salt spray	IEC 600 68-2-11
ROHS compliant	yes
REACH compliant	yes



Panel cut-out to IEC 60947-5-1

Approvals

IEC 60947-5-x

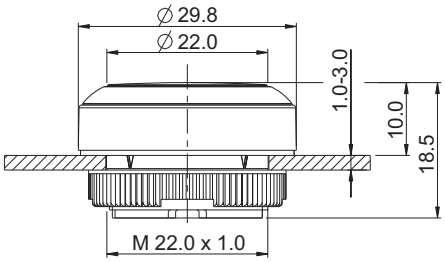
UL 508

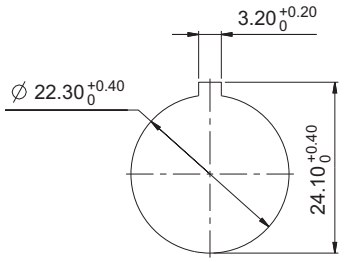
Accessories RAFIX 22 FS+ - Pushbuttons

→ Description	Photo	Order no.	Additional accessories see page
RAFIX 22 FS+ - Contact block PCB silver, Universal, with light conductor		-	2 - 247
RAFIX 22 FS+ - Contact block QC gold, Universal, with light conductor		-	2 - 253
RAFIX 22 FS+ - Contact block QC silver, Universal, with light conductor		-	2 - 256
RAFIX FS - Contact block PCB gold, Universal		-	2 - 243
RAFIX FS - Contact block PCB gold, Universal, with light conductor		-	2 - 242
RAFIX FS - Contact block PCB silver, Universal		-	2 - 248
Fixing spanner for ring nut		5.05.800.062/0000	2 - 145, 2 - 261, 5 - 25

RAFIX 22 FS+ Pushbutton, flush lens, round collar

Technical data see page 2 - 159





Panel cut-out to IEC 60947-5-1

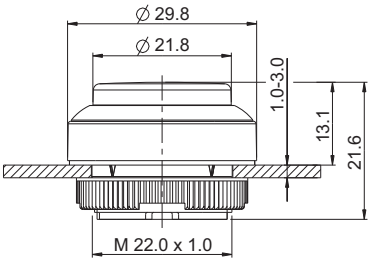
→	Illuminability	Color of lens	Order no. momentary		Order no. latching	
			Plastic front ring	Metallized front ring	Plastic front ring	Metallized front ring
	yes	translucent red	1.30.270.001/23xx	1.30.270.021/2300	1.30.270.011/23xx	1.30.270.031/2300
	yes	translucent yellow	1.30.270.001/24xx	1.30.270.021/2400	1.30.270.011/24xx	1.30.270.031/2400
	yes	translucent green	1.30.270.001/25xx	1.30.270.021/2500	1.30.270.011/25xx	1.30.270.031/2500
	yes	translucent blue	1.30.270.001/26xx	1.30.270.021/2600	1.30.270.011/26xx	1.30.270.031/2600
	yes	translucent white	1.30.270.001/22xx	1.30.270.021/2200	1.30.270.011/22xx	1.30.270.031/2200
	no	opaque slate-grey	1.30.270.001/07xx	1.30.270.021/0700	1.30.270.011/07xx	1.30.270.031/0700
	no	opaque black	1.30.270.001/01xx	1.30.270.021/0100	1.30.270.011/01xx	1.30.270.031/0100

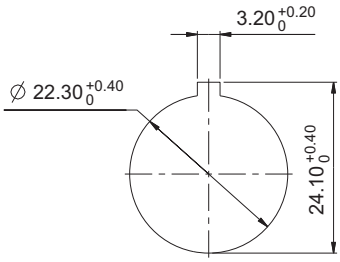
xx = Front ring color: black = 01, red = 03, yellow = 04, green = 05, blue = 06, slate grey = 07, silver grey = 08

Legending on request.

RAFIX 22 FS+
Pushbutton, protruding lens, round collar

Technical data see page 2 - 159





Panel cut-out to IEC 60947-5-1

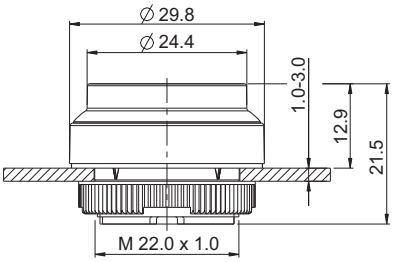
→	Illuminability	Color of lens	Order no. momentary		Order no. latching	
			Plastic front ring	Metallized front ring	Plastic front ring	Metallized front ring
	yes	translucent red	1.30.270.201/23xx	1.30.270.221/2300	1.30.270.211/23xx	1.30.270.231/2300
	yes	translucent yellow	1.30.270.201/24xx	1.30.270.221/2400	1.30.270.211/24xx	1.30.270.231/2400
	yes	translucent green	1.30.270.201/25xx	1.30.270.221/2500	1.30.270.211/25xx	1.30.270.231/2500
	yes	translucent blue	1.30.270.201/26xx	1.30.270.221/2600	1.30.270.211/26xx	1.30.270.231/2600
	yes	translucent white	1.30.270.201/22xx	1.30.270.221/2200	1.30.270.211/22xx	1.30.270.231/2200
	no	opaque slate-grey	1.30.270.201/07xx	1.30.270.221/0700	1.30.270.211/07xx	1.30.270.231/0700
	no	opaque black	1.30.270.201/01xx	1.30.270.221/0100	1.30.270.211/01xx	1.30.270.231/0100

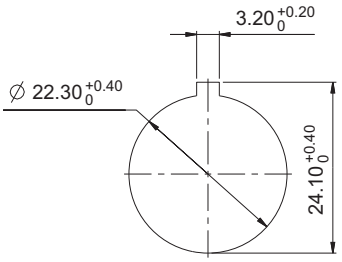
xx = Front ring color: black = 01, red = 03, yellow = 04, green = 05, blue = 06, slate grey = 07, silver grey = 08

Legending on request.

RAFIX 22 FS+
Pushbutton, protruding front ring, round collar

Technical data see page 2 - 159





Panel cut-out to IEC 60947-5-1

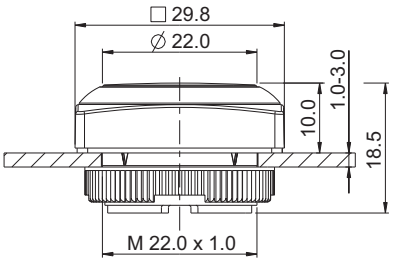
→	Illuminability	Color of lens	Order no. momentary		Order no. latching	
			Plastic front ring	Metallized front ring	Plastic front ring	Metallized front ring
	yes	translucent red	1.30.270.401/23xx	1.30.270.421/2300	-	-
	yes	translucent yellow	1.30.270.401/24xx	1.30.270.421/2400	-	-
	yes	translucent green	1.30.270.401/25xx	1.30.270.421/2500	-	-
	yes	translucent blue	1.30.270.401/26xx	1.30.270.421/2600	-	-
	yes	translucent white	1.30.270.401/22xx	1.30.270.421/2200	-	-
	no	opaque slate-grey	1.30.270.401/07xx	1.30.270.421/0700	-	-
	no	opaque black	1.30.270.401/01xx	1.30.270.421/0100	-	-

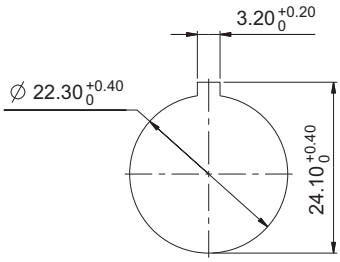
xx = Front ring color: black = 01, red = 03, yellow = 04, green = 05, blue = 06, slate grey = 07, silver grey = 08

Legending on request.

RAFIX 22 FS+
Pushbutton, flush lens, square collar

Technical data see page 2 - 159





Panel cut-out to IEC 60947-5-1

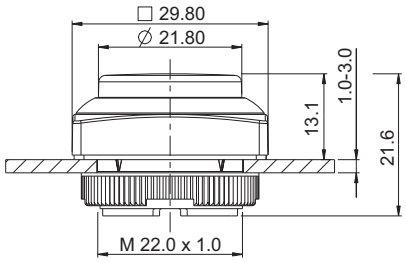
→	Illuminability	Color of lens	Order no. momentary		Order no. latching	
			Plastic front ring	Metallized front ring	Plastic front ring	Metallized front ring
	yes	translucent red	1.30.270.051/23xx	1.30.270.071/2300	1.30.270.061/23xx	1.30.270.081/2300
	yes	translucent yellow	1.30.270.051/24xx	1.30.270.071/2400	1.30.270.061/24xx	1.30.270.081/2400
	yes	translucent green	1.30.270.051/25xx	1.30.270.071/2500	1.30.270.061/25xx	1.30.270.081/2500
	yes	translucent blue	1.30.270.051/26xx	1.30.270.071/2600	1.30.270.061/26xx	1.30.270.081/2600
	yes	translucent white	1.30.270.051/22xx	1.30.270.071/2200	1.30.270.061/22xx	1.30.270.081/2200
	no	opaque slate-grey	1.30.270.051/07xx	1.30.270.071/0700	1.30.270.061/07xx	1.30.270.081/0700
	no	opaque black	1.30.270.051/01xx	1.30.270.071/0100	1.30.270.061/01xx	1.30.270.081/0100

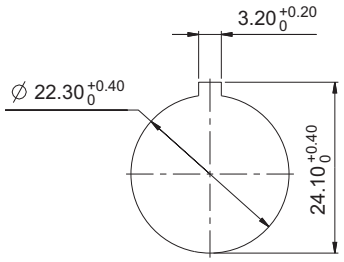
xx = Front ring color: black = 01, red = 03, yellow = 04, green = 05, blue = 06, slate grey = 07, silver grey = 08

Legending on request.

RAFIX 22 FS+
Pushbutton, protruding lens, square collar

Technical data see page 2 - 159





Panel cut-out to IEC 60947-5-1

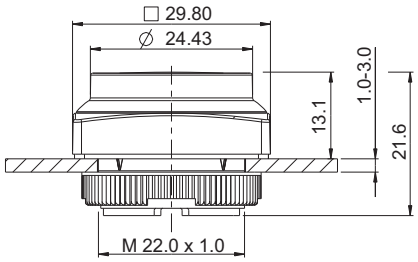
→ Illuminability	Color of lens	Order no. momentary		Order no. latching	
		Plastic front ring	Metallized front ring	Plastic front ring	Metallized front ring
yes	translucent red	1.30.270.251/23xx	1.30.270.271/2300	1.30.270.261/23xx	1.30.270.281/2300
yes	translucent yellow	1.30.270.251/24xx	1.30.270.271/2400	1.30.270.261/24xx	1.30.270.281/2400
yes	translucent green	1.30.270.251/25xx	1.30.270.271/2500	1.30.270.261/25xx	1.30.270.281/2500
yes	translucent blue	1.30.270.251/26xx	1.30.270.271/2600	1.30.270.261/26xx	1.30.270.281/2600
yes	translucent white	1.30.270.251/22xx	1.30.270.271/2200	1.30.270.261/22xx	1.30.270.281/2200
no	opaque slate-grey	1.30.270.251/07xx	1.30.270.271/0700	1.30.270.261/07xx	1.30.270.281/0700
no	opaque black	1.30.270.251/01xx	1.30.270.271/0100	1.30.270.261/01xx	1.30.270.281/0100

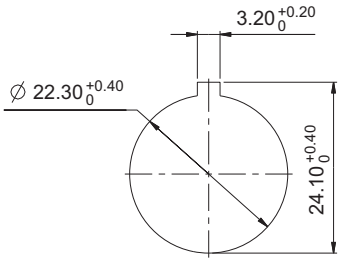
xx = Front ring color: black = 01, red = 03, yellow = 04, green = 05, blue = 06, slate grey = 07, silver grey = 08

Legending on request.

RAFIX 22 FS+
Pushbutton, protruding front ring, square collar

Technical data see page 2 - 159



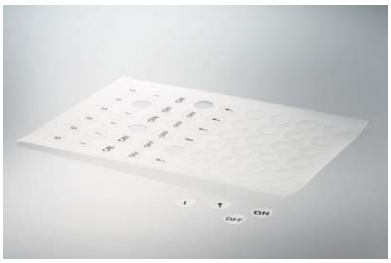


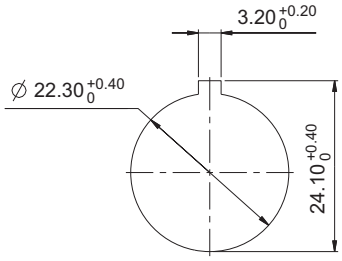
Panel cut-out to IEC 60947-5-1

→	Illuminability	Color of lens	Order no. momentary		Order no. latching	
			Plastic front ring	Metallized front ring	Plastic front ring	Metallized front ring
	yes	translucent red	1.30.270.451/23xx	1.30.270.471/2300	-	-
	yes	translucent yellow	1.30.270.451/24xx	1.30.270.471/2400	-	-
	yes	translucent green	1.30.270.451/25xx	1.30.270.471/2500	-	-
	yes	translucent blue	1.30.270.451/26xx	1.30.270.471/2600	-	-
	yes	translucent white	1.30.270.451/22xx	1.30.270.471/2200	-	-
	no	opaque slate-grey	1.30.270.451/07xx	1.30.270.471/0700	-	-
	no	opaque black	1.30.270.451/01xx	1.30.270.471/0100	-	-

xx = Front ring color: black = 01, red = 03, yellow = 04, green = 05, blue = 06, slate grey = 07, silver grey = 08

Legending on request.





Panel cut-out to IEC 60947-5-1

Approvals

IEC 60947-5-x

UL 508
in preparation

RAFIX 22 FS+ Pushbuttons FLEXLAB

→ The RAFIX 22 FS+ FLEXLAB pushbutton allows individual control component labeling. A DIN A4 label sheet with pre-cut labels which fits in customary office laser printers is available for this option. After the legend inserts are printed, they be detached from the sheet and inserted into the colored lens using the fine stop tabs.

Technical Data

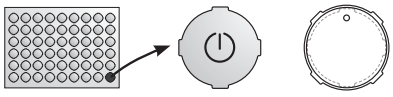
→ General information	
Form of lens	flat lens
Color of lens	see order block
Color of front ring	see order block
Form of collar	see order block
→ Dimensions	
Dimensions of collar	see order block
Overall height	9.85 mm
Mounting depth	PCB 9.2 mm, QC 27 mm
Mounting hole	22.3 mm
Key grid	30 x 30 mm
→ Mechanical design	
Mounting	ring nut
Contact function	see order block
Illuminability	yes
Torque for nut ring	1.2 Nm
→ Mechanical characteristics	
Operating travel	4 mm
Robustness max.	100 N
→ Other specifications	
Ambient temp. operating min.	-25 °C
Ambient temp. operating max.	+70 °C
Storage temperature min.	-40 °C
Storage temperature max.	+80 °C
Operating life	1,000,000 momentary / 500,000 latching
B10	1,300,000 momentary / 650,000 latching
Degree of protection from front side	IP65 (DIN EN 60529)
Environmental restistance	acc. to IEC 60068-2-14, -30, -33 and -78
Salt spray	IEC 600 68-2-11
ROHS compliant	yes
REACH compliant	yes

Accessories RAFIX 22 FS+ - Pushbuttons FLEXLAB

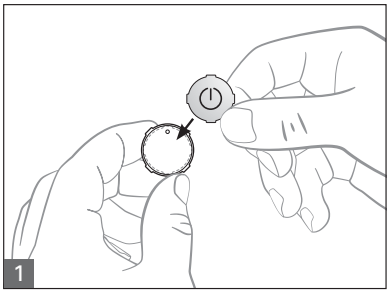
→ Description	Photo	Order no.	Additional accessories see page
RAFIX 22 FS+ - Contact block PCB silver, Universal, with light conductor		-	2 - 247
RAFIX 22 FS+ - Contact block QC gold, Universal, with light conductor		-	2 - 253
RAFIX 22 FS+ - Contact block QC silver, Universal, with light conductor		-	2 - 256
RAFIX FS - Contact block PCB gold, Universal		-	2 - 243
RAFIX FS - Contact block PCB gold, Universal, with light conductor		-	2 - 242
RAFIX FS - Contact block PCB silver, Universal		-	2 - 248
Fixing spanner for ring nut		5.05.800.062/0000	2 - 145, 2 - 261, 5 - 25

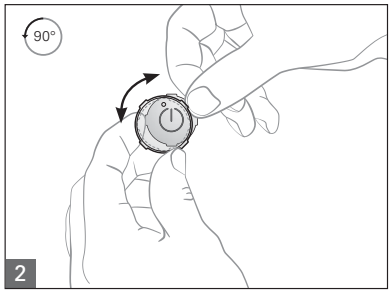
RAFI FLEXLAB

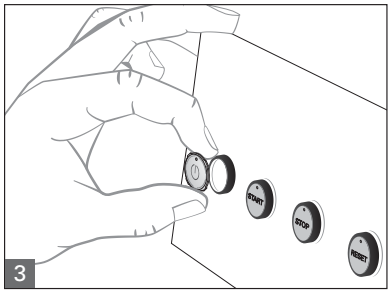
MONTAGEANLEITUNG | ASSEMBLY INSTRUCTIONS | 安装说明

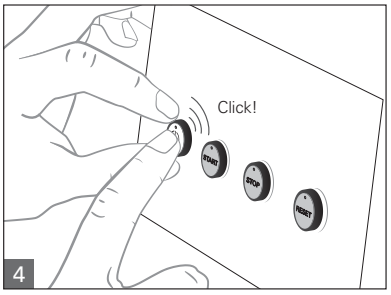


MONTAGE ASSEMBLY 安装

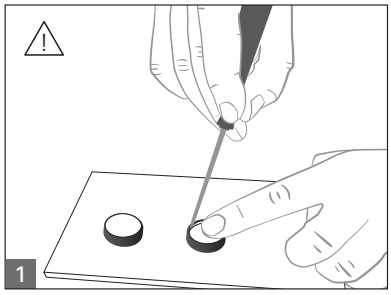


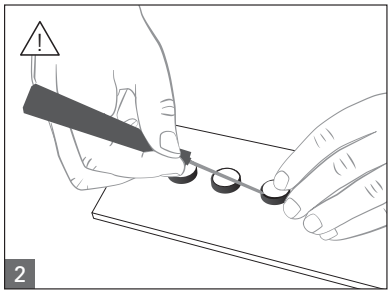






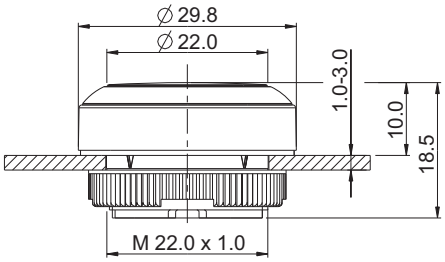
DEMONTAGE DISASSEMBLY 拆除

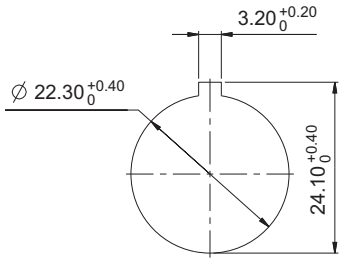




RAFIX 22 FS+ Pushbutton FLEXLAB, round collar

Technical data see page 2 - 166





Panel cut-out to IEC 60947-5-1

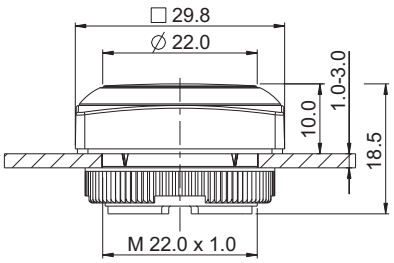
→	Order no. momentary		Order no. latching	
	Plastic front ring	Metallized front ring	Plastic front ring	Metallized front ring
	1.30.270.901/22xx	1.30.270.921/2200	1.30.270.911/22xx	1.30.270.931/2200

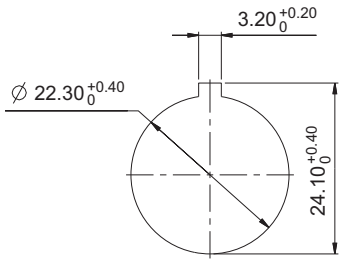
xx = Front ring color: black = 01, red = 03, yellow = 04, green = 05, blue = 06, slate gray = 07, silver gray = 08

Accessoires:
Colored lens for RAFIX FS+ Pushbuttons FLEXLAB, colorless: 5.49.263.062/1000
Colored lens for RAFIX FS+ Pushbuttons FLEXLAB, red: 5.49.263.062/1300
Colored lens for RAFIX FS+ Pushbuttons FLEXLAB, yellow: 5.49.263.062/1400
Colored lens for RAFIX FS+ Pushbuttons FLEXLAB, green: 5.49.263.062/1500
Colored lens for RAFIX FS+ Pushbuttons FLEXLAB, blue: 5.49.263.062/1600
DIN A4 label sheet with 6x9 lenses in total utility: 5.70.800.200/0000

RAFIX 22 FS+ Pushbutton FLEXLAB, square collar

Technical data see page 2 - 166





Panel cut-out to IEC 60947-5-1

→	Form of collar	Order no. momentary		Order no. latching	
		Plastic front ring	Metallized front ring	Plastic front ring	Metallized front ring
	square	1.30.270.951/22xx	1.30.270.971/2200	1.30.270.961/22xx	1.30.270.981/2200

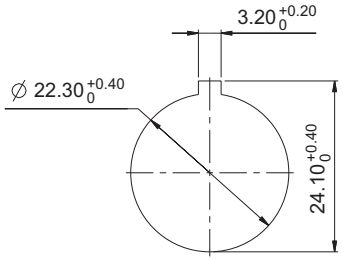
xx = Front ring color: black = 01, red = 03, yellow = 04, green = 05, blue = 06, slate gray = 07, silver gray = 08

Accessoires:
Colored lens for RAFIX FS+ Pushbuttons FLEXLAB, colorless: 5.49.263.062/1000

– Table (continued) –
RAFIX 22 FS+ - Pushbuttons FLEXLAB, square collar

Colored lens for RAFIX FS+ Pushbuttons FLEXLAB, red: 5.49.263.062/1300
Colored lens for RAFIX FS+ Pushbuttons FLEXLAB, yellow: 5.49.263.062/1400
Colored lens for RAFIX FS+ Pushbuttons FLEXLAB, green: 5.49.263.062/1500
Colored lens for RAFIX FS+ Pushbuttons FLEXLAB, blue: 5.49.263.062/1600
DIN A4 label sheet with 6x9 lenses in total utility: 5.70.800.200/0000

RAFIX 22 FS+ Pushbuttons with protective cap



Panel cut-out to IEC 60947-5-1

Approvals

IEC 60947-5-x

UL 508

Technical Data

→ General information	
Form of lens	see order block
Color of lens	see order block
Color of front ring	see order block
Form of collar	see order block
→ Dimensions	
Dimensions of collar	see order block
Overall height	see order block
Mounting depth	PCB 9.2 mm, QC 27 mm
Mounting hole	22.3 mm
Key grid	30 x 30 mm
→ Mechanical design	
Mounting	ring nut
Contact function	see order block
Illuminability	see order block
Torque for nut ring	1.2 Nm
→ Mechanical characteristics	
Operating travel	4 mm
Robustness max.	100 N
→ Other specifications	
Ambient temp. operating min.	-25 °C
Ambient temp. operating max.	+70 °C
Storage temperature min.	-40 °C
Storage temperature max.	+80 °C
Operating life	1,000,000 momentary / 500,000 latching
B10	1,300,000 momentary / 650,000 latching
Degree of protection from front side	IP65 (DIN EN 60529); IP69K (ISO 20653), water temp. 23 °C +-3 °C
Environmental restistance	acc. to IEC 60068-2-14, -30, -33 and -78
Salt spray	IEC 600 68-2-11
ROHS compliant	yes
REACH compliant	yes

Accessories RAFIX 22 FS+ - Pushbuttons with protective cap

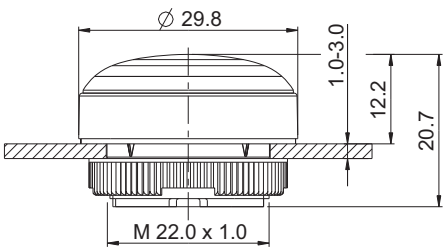
→ Description	Photo	Order no.	Additional accessories see page
RAFIX 22 FS+ - Contact block PCB silver, Universal, with light conductor		-	2 - 247
RAFIX 22 FS+ - Contact block QC gold, Universal, with light conductor		-	2 - 253
RAFIX 22 FS+ - Contact block QC silver, Universal, with light conductor		-	2 - 256
RAFIX FS - Contact block PCB gold, Universal		-	2 - 243
RAFIX FS - Contact block PCB gold, Universal, with light conductor		-	2 - 242

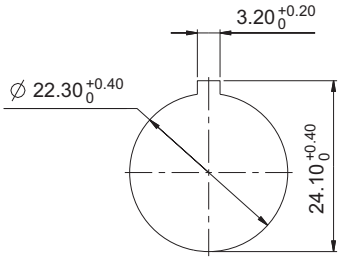
– Table (continued) –
Accessories RAFIX 22 FS+ - Pushbuttons with protective cap

→	Description	Photo	Order no.	Additional accessories see page
	RAFIX FS - Contact block PCB silver, Universal		-	2 - 248
	Fixing spanner for ring nut		5.05.800.062/0000	2 - 145, 2 - 261, 5 - 25

RAFIX 22 FS+
Pushbutton, with protective cap, flush lens, round collar

Technical data see page 2 - 170





Panel cut-out to IEC 60947-5-1

→	Illuminability	Color of lens	Order no. momentary		Order no. latching	
			Plastic front ring	Metallized front ring	Plastic front ring	Metallized front ring
	yes	translucent red	1.30.270.005/23xx	-	-	-
	yes	translucent yellow	1.30.270.005/24xx	-	-	-
	yes	translucent green	1.30.270.005/25xx	-	-	-
	yes	translucent blue	1.30.270.005/26xx	-	-	-
	yes	translucent white	1.30.270.005/22xx	-	-	-
	no	opaque slate-grey	1.30.270.005/07xx	-	-	-
	no	opaque black	1.30.270.005/01xx	-	-	-

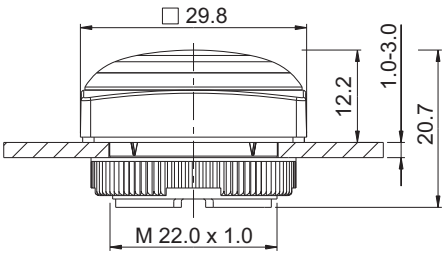
Pushbutton with protective cap for use under rugged conditions.

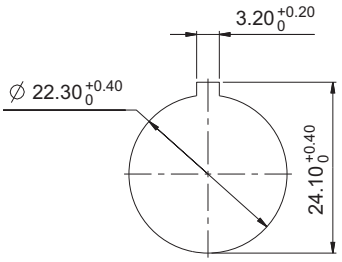
xx = color of front ring: black = 01, silver grey = 08

Legending on request.

RAFIX 22 FS+
Pushbutton, with protective cap, flush lens, square collar

Technical data see page 2 - 170





Panel cut-out to IEC 60947-5-1

→	Illuminability	Color of lens	Order no. momentary		Order no. latching	
			Plastic front ring	Metallized front ring	Plastic front ring	Metallized front ring
	yes	translucent red	1.30.270.055/23xx	-	-	-
	yes	translucent yellow	1.30.270.055/24xx	-	-	-
	yes	translucent green	1.30.270.055/25xx	-	-	-
	yes	translucent blue	1.30.270.055/26xx	-	-	-
	yes	translucent white	1.30.270.055/22xx	-	-	-
	no	opaque slate-grey	1.30.270.055/07xx	-	-	-
	no	opaque black	1.30.270.055/01xx	-	-	-

Pushbutton with protective cap for use under rugged conditions.

xx = Front ring color: black = 01, silver grey = 08

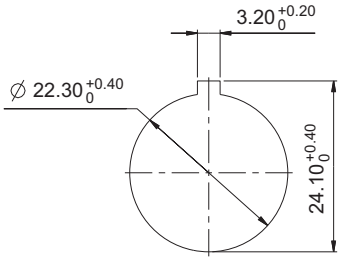
Legending on request.

RAFIX 22 FS+ Selector switches

→ The illuminated selector switches are provided with translucent handle markings. These are opaque on the non-illuminated versions.

Technical Data

→ General information	
Actuator	handle
Marking of handle	see order block
Color of front ring	see order block
Form of collar	see order block
→ Dimensions	
Dimensions of collar	see order block
Overall height	22.24 mm
Mounting depth	PCB 9.2 mm, QC 27 mm
Mounting hole	22.3 mm
Key grid	30 x 30 mm
→ Mechanical design	
Mounting	ring nut
Contact function	see order block
Illuminability	see order block
Rotating angle	see order block
Torque for nut ring	1.2 Nm
→ Mechanical characteristics	
Torque max.	1.5 Nm
→ Other specifications	
Operating life (operations)	500,000 momentary / 300,000 latching
Operating life (operations)	650,000 momentary / 400,000 latching
Degree of protection from front side	IP65 (DIN EN 60529)
Ambient temp. operating min.	-25 °C
Ambient temp. operating max.	+70 °C
Storage temperature min.	-40 °C
Storage temperature max.	+80 °C
Environmental restistance	acc. to IEC 60068-2-14, -30, -33 and -78
Salt spray	IEC 600 68-2-11
ROHS compliant	yes
REACH compliant	yes



Panel cut-out to IEC 60947-5-1

Approvals

IEC 60947-5-x

UL 508

Accessories RAFIX 22 FS+ - Selector switches

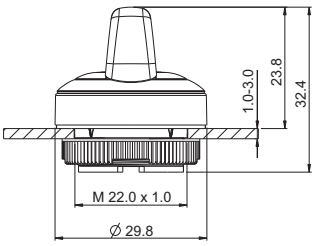
→ Description	Photo	Order no.	Additional accessories see page
RAFIX 22 FS+ - Contact block PCB silver, Universal, with light conductor		-	2 - 247
RAFIX 22 FS+ - Contact block QC gold, Universal, with light conductor		-	2 - 253
RAFIX 22 FS+ - Contact block QC silver, Universal, with light conductor		-	2 - 256
RAFIX FS - Contact block PCB gold, Universal		-	2 - 243
RAFIX FS - Contact block PCB gold, Universal, with light conductor		-	2 - 242

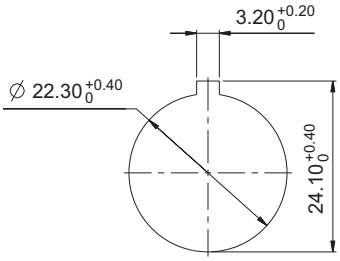
– Table (continued) –
Accessories RAFIX 22 FS+ - Selector switches

→	Description	Photo	Order no.	Additional accessories see page
	RAFIX FS - Contact block PCB silver, Universal		-	2 - 248
	Fixing spanner for ring nut		5.05.800.062/0000	2 - 145, 2 - 261, 5 - 25

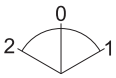
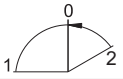
RAFIX 22 FS+
Selector switch, round collar

Technical data see page 2 - 173





Panel cut-out to IEC 60947-5-1

→	Illuminability	Contact function	Rotating angle		Order no. Plastic front ring	Order no. Metallized front ring
	yes	momentary	1 x 40°		1.30.272.001/22xx	1.30.272.002/2200
	yes	momentary	2 x 40°		1.30.272.026/22xx	1.30.272.027/2200
	yes	latching	1 x 90°, form L		1.30.272.101/22xx	1.30.272.102/2200
	yes	latching	1 x 90°, form V		1.30.272.201/22xx	1.30.272.202/2200
	yes	latching	2 x 60°		1.30.272.301/22xx	1.30.272.302/2200
	yes	latching 1 x 90° and momentary 1 x 40°	1 x 90° and 1 x 40°		1.30.272.426/22xx	1.30.272.427/2200

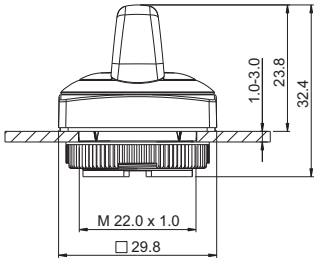
xx = Front ring color: black = 01, red = 03, yellow = 04, green = 05, blue = 06, slate grey = 07, silver grey = 08

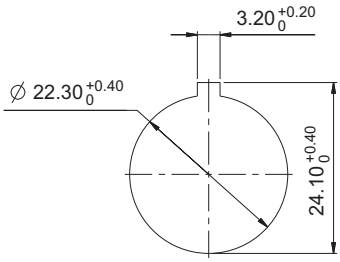
Other contact functions and handle marking colors available on request.

For colored illumination of the handle marking please use colored LED.

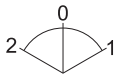
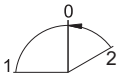
RAFIX 22 FS+
Selector switch, square collar

Technical data see page 2 - 173





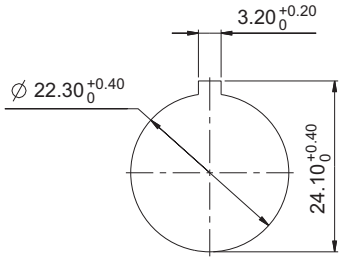
Panel cut-out to IEC 60947-5-1

→	Illuminability	Contact function	Rotating angle		Order no. Plastic front ring	Order no. Metallized front ring
	yes	momentary	1 x 40°		1.30.272.051/22xx	1.30.272.052/2200
	yes	momentary	2 x 40°		1.30.272.076/22xx	1.30.272.077/2200
	yes	latching	1 x 90°, form L		1.30.272.151/22xx	1.30.272.152/2200
	yes	latching	1 x 90°, form V		1.30.272.251/22xx	1.30.272.252/2200
	yes	latching	2 x 60°		1.30.272.351/22xx	1.30.272.352/2200
	yes	latching 1 x 90° and momentary 1 x 40°	1 x 90° and 1 x 40°		1.30.272.476/22xx	1.30.272.477/2200

xx = Front ring color: black = 01, red = 03, yellow = 04, green = 05, blue = 06, slate grey = 07, silver grey = 08

Other contact functions and handle marking colors available on request.

For colored illumination of the handle marking please use colored LED.



Panel cut-out to IEC 60947-5-1

Approvals

IEC 60947-5-x

UL 508

RAFIX 22 FS+ Keylock switches

→ The locking systems we use are created according to DIN EN 1303 by leading lock manufacturers. They are are open, mechanical systems that require occasional maintenance of the machinery or plant operator depending on environmental conditions.

Technical Data

→ General information	
Color of front ring	see order block
Form of collar	see order block
→ Dimensions	
Dimensions of collar	see order block
Overall height	44.1 mm
Mounting depth	PCB 9.2 mm, QC 27 mm
Mounting hole	22.3 mm
Key grid	30 x 30 mm
→ Mechanical design	
Mounting	ring nut
Contact function	see order block
Lock	Micromec
Illuminability	see order block
Wafers	5
Lock type	001
Number of locking positions	500
Main key	on request
Rotating angle	see order block
Key removal position	see order block
Torque for nut ring	1.2 Nm
→ Mechanical characteristics	
Torque max.	1.3 Nm
→ Other specifications	
Operating life	300,000 momentary / 50,000 latching / 30,000 with key removal
B10	400,000 momentary / 65,000 latching / 40,000 with key removal
Degree of protection from front side	IP65 (DIN EN 60529)
Ambient temp. operating min.	-25 °C
Ambient temp. operating max.	+70 °C
Storage temperature min.	-40 °C
Storage temperature max.	+80 °C
Environmental restistance	acc. to IEC 60068-2-14, -30, -33 and -78
ESD-strength lock / contact	15 kV
ESD-strength key / front panel	15 kV
Salt spray	IEC 600 68-2-11
ROHS compliant	yes
REACH compliant	yes

Accessories RAFIX 22 FS+ - Keylock switch

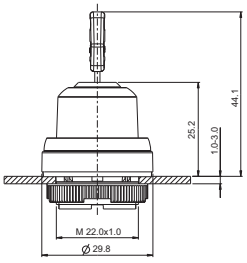
→ Description	Photo	Order no.	Additional accessories see page
RAFIX FS - Contact block PCB gold, Universal		-	2 - 243

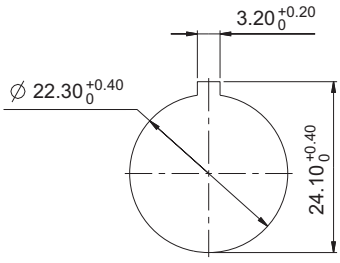
– Table (continued) –
Accessories RAFIX 22 FS+ - Keylock switch

→	Description	Photo	Order no.	Additional accessories see page
	RAFIX FS - Contact block PCB silver, Universal		-	2 - 248
	Fixing spanner for ring nut		5.05.800.062/0000	2 - 145, 2 - 261, 5 - 25
	Spare key, (delivery content 1 key)		5.58.007.001/0000	-
	Spare key, for double action, e.g. 2 x 90° (delivery content 1 key)		5.58.008.001/0000	-

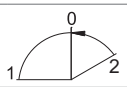
RAFIX 22 FS+ Keylock switch, round collar

Technical data see page 2 - 176





Panel cut-out to IEC 60947-5-1

→	Contact function	Rotating angle		Key removal position	Order no. Plastic front ring	Order no. Metallized front ring
	momentary	1 x 40°		0	1.30.255.001/xxxx	1.30.255.002/0000
	momentary	2 x 40°		0	1.30.255.101/xxxx	1.30.255.102/0000
	latching	1 x 90°, L shape		0	1.30.255.201/xxxx	1.30.255.202/0000
	latching	1 x 90°, L shape		0+1	1.30.255.221/xxxx	1.30.255.222/0000
	latching	1 x 90°, V shape		0	1.30.255.301/xxxx	1.30.255.302/0000
	latching	1 x 90°, V shape		0+1	1.30.255.321/xxxx	1.30.255.322/0000
	latching 1 x 90° and momentary 1 x 40°	1 x 90° and 1 x 40°		0	1.30.255.501/xxxx	1.30.255.502/0000

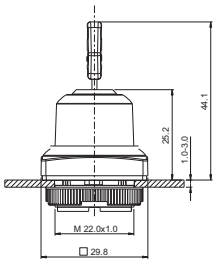
xxxx = Front ring color: black = 0100, red = 0300, yellow = 0400, green = 0500, blue = 0600, slate grey = 0700, silver grey = 0800

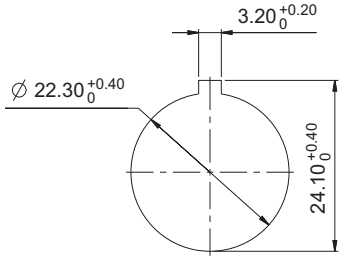
– Table (continued) –
RAFIX 22 FS+ - Keylock switch, round collar

Other lock variants available on request.
Included: 2 keys.

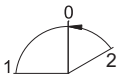
RAFIX 22 FS+
Keylock switch, square collar

Technical data see page 2 - 176





Panel cut-out to IEC 60947-5-1

→	Contact function	Rotating angle		Key removal position	Order no. Plastic front ring	Order no. Metallized front ring
	momentary	1 x 40°		0	1.30.255.051/xxxx	1.30.255.052/0000
	momentary	2 x 40°		0	1.30.255.151/xxxx	1.30.255.152/0000
	latching	1 x 90°, L shape		0	1.30.255.251/xxxx	1.30.255.252/0000
	latching	1 x 90°, L shape		0+1	1.30.255.271/xxxx	1.30.255.272/0000
	latching	1 x 90°, V shape		0	1.30.255.351/xxxx	1.30.255.352/0000
	latching	1 x 90°, V shape		0+1	1.30.255.371/xxxx	1.30.255.372/0000
	latching 1 x 90° and momentary 1 x 40°	1 x 90° and 1 x 40°		0	1.30.255.551/xxxx	1.30.255.552/0000

xxxx = Front ring color: black = 0100, red = 0300, yellow = 0400, green = 0500, blue = 0600, slate grey = 0700, silver grey = 0800

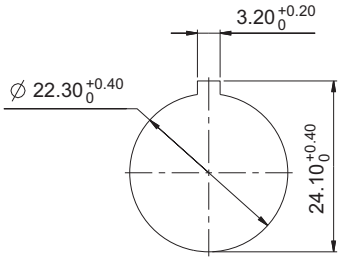
Other lock variants available on request.
Included: 2 keys.

RAFIX 22 FS+ Keylock switches compact

→ The locking systems we use are created according to DIN EN 1303 by leading lock manufacturers. They are are open, mechanical systems that require occasional maintenance of the machinery or plant operator depending on environmental conditions.

Technical Data

→ **General information**	
Color of front ring	see order block
Form of collar	see order block
→ **Dimensions**	
Dimensions of collar	see order block
Overall height	44.1 mm
Mounting depth	PCB 9.2 mm, QC 27 mm
Mounting hole	22.3 mm
Key grid	30 x 30 mm
→ **Mechanical design**	
Mounting	ring nut
Contact function	see order block
Illuminability	see order block
Wafers	5
Lock type	001
Main key	on request
Rotating angle	see order block
Key removal position	see order block
Torque for nut ring	1.2 Nm
→ **Mechanical characteristics**	
Torque max.	1.3 Nm
→ **Other specifications**	
Operating life	300,000 momentary / 50,000 latching / 30,000 with key removal
B10	400,000 momentary / 65,000 latching / 40,000 with key removal
Degree of protection from front side	IP65 (DIN EN 60529)
Ambient temp. operating min.	-25 °C
Ambient temp. operating max.	+70 °C
Storage temperature min.	-40 °C
Storage temperature max.	+80 °C
Environmental restistance	acc. to IEC 60068-2-14, -30, -33 and -78
ESD-strength lock / contact	15 kV
ESD-strength key / front panel	15 kV
Salt spray	IEC 600 68-2-11
ROHS compliant	yes
REACH compliant	yes



Panel cut-out to IEC 60947-5-1

Approvals

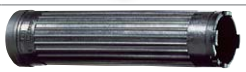
IEC 60947-5-x

UL 508

Accessories RAFIX 22 FS+ - Keylock switch compact

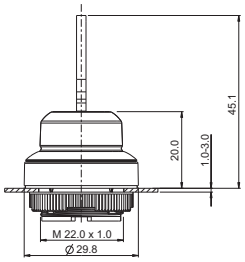
→ Description	Photo	Order no.	Additional accessories see page
RAFIX 22 FS+ - Contact block QC gold, Universal, with light conductor		-	2 - 253

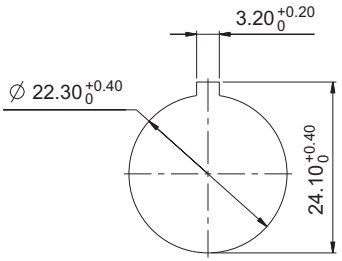
– Table (continued) –
Accessories RAFIX 22 FS+ - Keylock switch compact

→	Description	Photo	Order no.	Additional accessories see page
	RAFIX 22 FS+ - Contact block QC silver, Universal, with light conductor		-	2 - 256
	RAFIX FS - Contact block PCB gold, Universal		-	2 - 243
	RAFIX FS - Contact block PCB silver, Universal		-	2 - 248
	Fixing spanner for ring nut		5.05.800.062/0000	2 - 145, 2 - 261, 5 - 25
	RAFIX FS - Protective cap for keylock switch		5.55.105.454/0111	2 - 267
	Spare key, for single action, e.g. 1 x 90° (delivery content 1 key)		5.58.018.001/0000	-

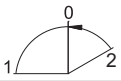
RAFIX 22 FS+ Keylock switch compact, round collar

Technical data see page 2 - 179





Panel cut-out to IEC 60947-5-1

→	Contact function	Rotating angle		Key removal position	Order no. Plastic front ring	Order no. Metallized front ring
	momentary	1 x 40°		0	1.30.275.001/xxxx	1.30.275.002/0000
	momentary	2 x 40°		0	1.30.275.101/xxxx	1.30.275.102/0000
	latching	1 x 90°, L shape		0+1	1.30.275.221/xxxx	1.30.275.222/0000
	latching	1 x 90°, V shape		0+1	1.30.275.321/xxxx	1.30.275.322/0000
	latching 1 x 90° and momentary 1 x 40°	1 x 90° and 1 x 40°		0	1.30.275.501/xxxx	1.30.275.502/0000

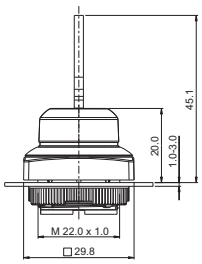
xxxx = Front ring color: black = 0100, slate grey = 0700, silver grey = 0800

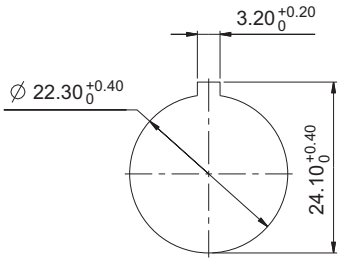
– Table (continued) –
RAFIX 22 FS+ - Keylock switch compact, round collar

Other lock variants available on request.
Included: 2 keys.

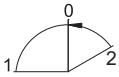
RAFIX 22 FS+ Keylock switch compact, square collar

Technical data see page 2 - 179





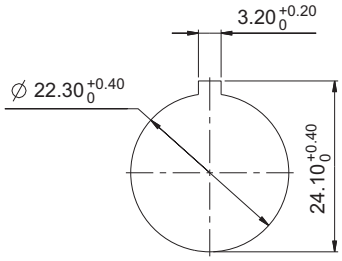
Panel cut-out to IEC 60947-5-1

→	Contact function	Rotating angle		Key removal position	Order no. Plastic front ring	Order no. Metallized front ring
	momentary	1 x 40°		0	1.30.275.051/xxxx	1.30.275.052/0000
	momentary	2 x 40°		0	1.30.275.151/xxxx	1.30.275.152/0000
	latching	1 x 90°, L shape		0+1	1.30.275.271/xxxx	1.30.275.272/0000
	latching	1 x 90°, V shape		0+1	1.30.275.371/xxxx	1.30.275.372/0000
	latching 1 x 90° and momentary 1 x 40°	1 x 90° and 1 x 40°		0	1.30.275.551/xxxx	1.30.275.552/0000

xxxx = Front ring color: black = 0100, slate grey = 0700, silver grey = 0800

Other lock variants available on request.
Included: 2 keys.

RAFIX 22 FS+ Mushroom-headed pushbuttons



Panel cut-out to IEC 60947-5-1

Approvals

IEC 60947-5-x

UL 508
in preparation

Technical Data

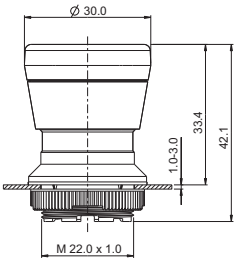
→ General information	
Form of lens	conical mushroom form
Color of lens	black
Form of collar	round
→ Dimensions	
Mushroom Diameter	30 mm
Overall height	see order block
Mounting depth	PCB 9.2 mm, QC 27 mm
Mounting hole	22.3 mm
Diameter of collar	29.8 mm
→ Mechanical design	
Mounting	ring nut
Contact function	see order block
Illuminability	see order block
Reset	see order block
Torque for nut ring	1.2 Nm
→ Mechanical characteristics	
Robustness max.	100 N
→ Other specifications	
Ambient temp. operating min.	-25 °C
Ambient temp. operating max.	+70 °C
Storage temperature min.	-40 °C
Storage temperature max.	+80 °C
Operating life	50,000
B10	65,000
Degree of protection from front side	IP65 (DIN EN 60529)
Environmental restistance	acc. to IEC 60068-2-14, -30, -33 and -78
Salt spray	IEC 600 68-2-11
Robustness	acc. to IEC 600 68-2-3 und 2-30
ROHS compliant	yes
REACH compliant	yes

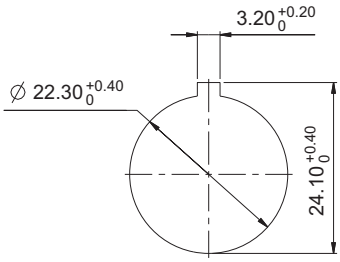
Accessories RAFIX 22 FS+ - Mushroom-headed pushbutton

→ Description	Photo	Order no.	Additional accessories see page
RAFIX 22 FS+ - Contact block PCB silver, E-Stop		-	2 - 249
RAFIX 22 FS+ - Contact block QC gold, E-Stop, with light conductor		-	2 - 253
RAFIX 22 FS+ - Contact block QC silver, E-Stop, with light conductor		-	2 - 257
RAFIX FS - Contact block PCB gold, E-Stop		-	2 - 244
Fixing spanner for ring nut		5.05.800.062/0000	2 - 145, 2 - 261, 5 - 25

RAFIX 22 FS+
Mushroom-headed pushbutton

Technical data see page 2 - 182

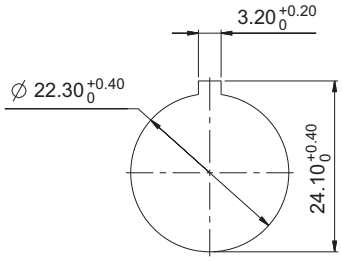




Panel cut-out to IEC 60947-5-1

→ Contact function	Illuminability	Reset	Order no.
momentary	yes	-	1.30.276.201/2200
momentary	no	-	1.30.276.701/0000
latching	yes, lens translucent transparent	by pulling	1.30.276.101/2200
latching	yes, lens translucent transparent	by clockwise rotation	1.30.276.001/2200
latching	no	by pulling	1.30.276.601/0000
latching	no	by clockwise rotation	1.30.276.501/0000

Only use with contact blocks type E-Stop.



Panel cut-out to IEC 60947-5-1

Approvals

IEC 60947-5-x

UL 508 (rotation)
UL 508
in preparation
(pulling)

RAFIX 22 FS+ Emergency stop pushbuttons

→ The emergency stop pushbuttons comply with IEC 60 947 and VDE 0113 Part 1.
They are designed dupe-proof according to EN 418 with a positive mechanical movement sequence. A certain operating force must be exerted at the action point in order to prevent inadvertent operation. The pushbutton latches when pressed.

The special shape of the actuator prevents the emergency stop pushbutton from being blocked. This means that the emergency stop process - once initiated - cannot be impeded by any jamming objects.
Please only combine with „emergency stop" contact blocks.
Original operating instructions see Appendix.

Technical Data

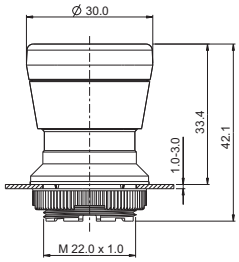
→ **General information**	
Form of lens	conical mushroom form
Color of lens	red
Form of collar	round
→ **Dimensions**	
Mushroom Diameter	30 mm
Overall height	see order block
Mounting depth	PCB 9.2 mm, QC 27 mm
Mounting hole	22.3 mm
Diameter of collar	see order block
→ **Mechanical design**	
Mounting	ring nut
Contact function	latching
Illuminability	see order block
Reset	see order block
Torque for nut ring	1.2 Nm
→ **Mechanical characteristics**	
Robustness max.	100 N
→ **Other specifications**	
Ambient temp. operating min.	-25 °C
Ambient temp. operating max.	+70 °C
Robustness	acc. to IEC 600 68-2-3 und 2-30
Storage temperature min.	-40 °C
Storage temperature max.	+80 °C
Operating life (operations)	50,000
B10	65,000
Degree of protection from front side	see order block
Environmental restistance	acc. to IEC 60068-2-14, -30, -33 and -78
Salt spray	IEC 600 68-2-11
ROHS compliant	yes
REACH compliant	yes

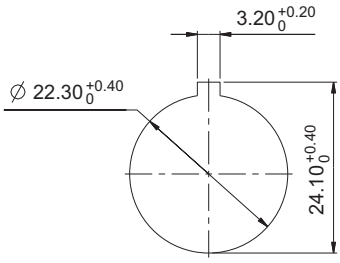
Accessories RAFIX 22 FS+ - Emergency stop pushbutton

→ Description	Photo	Order no.	Additional accessories see page
Emergency stop label, Ø 22.3 mm		-	2 - 82, 2 - 149, 2 - 264, 5 - 21
RAFIX FS - Contact block PCB gold, E-Stop		-	2 - 244
RAFIX FS - Contact block PCB gold, E-Stop, with light conductor		-	2 - 243
RAFIX FS - Contact block PCB silver, E-Stop		-	2 - 249
RAFIX FS - Contact block PCB silver, E-Stop, with light conductor		-	2 - 248
RAFIX FS - Contact block QC gold, E-Stop, with light conductor		-	2 - 253
RAFIX FS - Contact block QC silver, E-Stop, with light conductor		-	2 - 257
Protective Collar for emergency stop RAFIX 22 FS+		5.00.456.001/0000	2 - 265
Fixing spanner for ring nut		5.05.800.062/0000	2 - 145, 2 - 261, 5 - 25

RAFIX 22 FS+
Emergency stop pushbutton, reset by rotation

Technical data see page 2 - 184





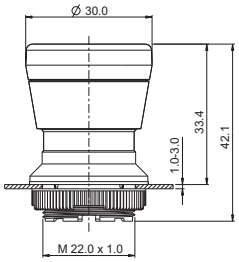
Panel cut-out to IEC 60947-5-1

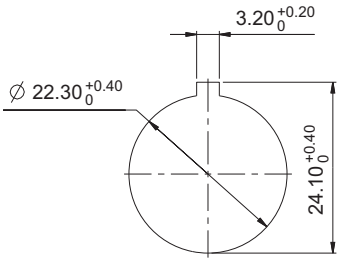
→ Reset	Illuminability	Degree of protection from front side	Order no.
by clockwise rotation	yes, lens translucent	IP65 (DIN EN 60529)	1.30.273.001/2200
by clockwise rotation	yes, lens translucent red	IP65 (DIN EN 60529)	1.30.273.001/2300
by clockwise rotation	no	IP65 (DIN EN 60529)	1.30.273.501/0300

Only use with E-stop contact blocks

RAFIX 22 FS+
Emergency stop pushbutton, reset by pulling (IP65, IP69K)

Technical data see page 2 - 184





Panel cut-out to IEC 60947-5-1

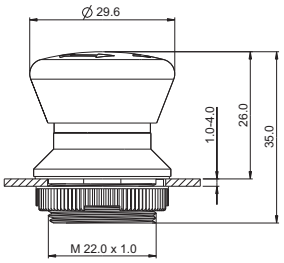
→ Reset	Illuminability	Degree of protection from front side	Order no.
by pulling	yes, lens translucent	IP65 (DIN EN 60529); IP69K (ISO 20653)	1.30.273.101/2200
by pulling	yes, lens translucent red	IP65 (DIN EN 60529); IP69K (ISO 20653)	1.30.273.101/2300
by pulling	no	IP65 (DIN EN 60529); IP69K (ISO 20653)	1.30.273.601/0300

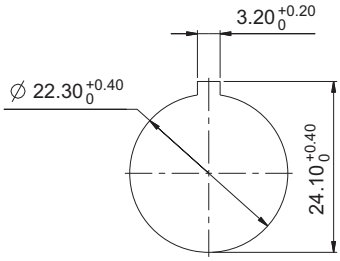
Only use with E-stop contact blocks

RAFIX 22 FS+ Emergency stop pushbuttons compact

→ The emergency stop pushbuttons compact comply with IEC 60 947 and VDE 0113 Part 1.
They are designed dupe-proof according to EN 418 with a positive mechanical movement sequence. A certain operating force must be exerted at the action point in order to prevent inadvertent operation. The pushbutton latches when pressed.

The special shape of the actuator prevents the emergency stop pushbutton from being blocked. This means that the emergency stop process - once initiated - cannot be impeded by any jamming objects.
Only use with E-stop contact blocks
Original operating instructions see Appendix.





Panel cut-out to IEC 60947-5-1

Technical Data

→ General information	
Form of lens	conical mushroom form
Color of lens	red
Form of collar	round
→ Dimensions	
Mushroom Diameter	30 mm
Overall height	see order block
Mounting depth	PCB 9.2 mm, QC 27 mm
Mounting hole	22.3 mm
Diameter of collar	see order block
→ Mechanical design	
Mounting	ring nut
Contact function	latching
Illuminability	see order block
Reset	see order block
Torque for nut ring	1.2 Nm
→ Mechanical characteristics	
Robustness max.	100 N
→ Other specifications	
Ambient temp. operating min.	-25 °C
Ambient temp. operating max.	+70 °C
Robustness	acc. to IEC 600 68-2-3 und 2-30
Storage temperature min.	-40 °C
Storage temperature max.	+80 °C
Operating life (operations)	50,000
B10	65,000
Degree of protection from front side	IP65 (DIN EN 60529)
Environmental restistance	acc. to IEC 60068-2-14, -30, -33 and -78
Salt spray	IEC 600 68-2-11

Approvals

IEC 60947-5-x

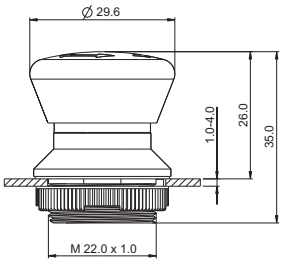
UL 508
in preparation

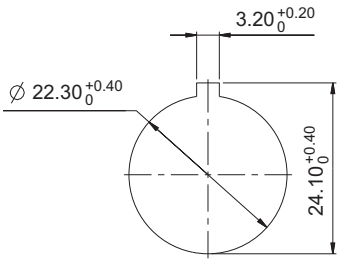
Accessories RAFIX 22 FS+ - Emergency stop pushbutton compact

→ Description	Photo	Order no.	Additional accessories see page
Emergency stop label, Ø 22.3 mm		-	2 - 82, 2 - 149, 2 - 264, 5 - 21
RAFIX 22 FS+ - Contact block PCB silver, E-Stop		-	2 - 249
RAFIX 22 FS+ - Contact block PCB silver, E-Stop, with light conductor		-	2 - 248
RAFIX 22 FS+ - Contact block QC gold, E-Stop, with light conductor		-	2 - 253
RAFIX 22 FS+ - Contact block QC silver, E-Stop, with light conductor		-	2 - 257
RAFIX FS - Contact block PCB gold, E-Stop		-	2 - 244
RAFIX FS - Contact block PCB gold, E-Stop, with light conductor		-	2 - 243
Fixing spanner for ring nut		5.05.800.062/0000	2 - 145, 2 - 261, 5 - 25

RAFIX 22 FS+
Emergency stop pushbutton compact, reset by rotation

Technical data see page 2 - 187



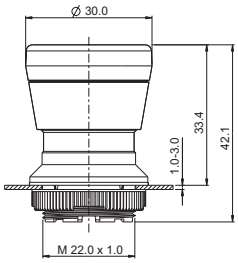


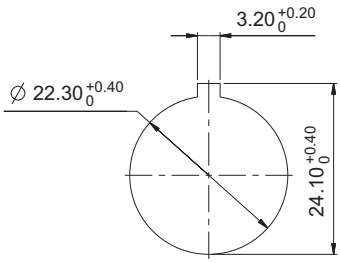
Panel cut-out to IEC 60947-5-1

→ Reset	Illuminability	Degree of protection from front side	Order no.
by rotating	yes	IP65 (DIN EN 60529)	1.30.273.301/2200

Only use with E-stop contact blocks

RAFIX 22 FS+ Emergency stop pushbuttons „Plus 1“





Panel cut-out to IEC 60947-5-1

→ **RAFIX 22 FS „Plus 1“**
Emergency stop pushbutton with 2 NC and 1 signal contact.
This special emergency stop pushbutton offers two redundant normally-closed contacts for the emergency off / emergency stop function and an additional signal contact. Unique design: 3 contacts accommodated in very compact dimensions (mounting depth 9.2 or 27 mm).

2 normally-closed (NC) contacts
Redundancy is more and more often a requirement for safety applications in mechanical engineering and control
system development and helps to minimise the probability of failure of a system.

1 signal contact
The third contact – a normally-open contact – may be used, for example, for sending an information signal to a monitoring unit or master safety controller. The safety controller may then initiate a controlled shutdown, depending on the location and type of the hazard indicated.
The signal contatc is only for impulse function and must not be used as a lasting NO contact.
The emergency stop pushbutton complies with the current standards.The positively guided mechanical movement of the pushbutton makes it dupe-proof according to DIN EN ISO 13850.

A RAFIX 22 FS „Plus 1“ emergency stop unit consists of a special emergency stop pushbutton and a suitable emergency stop contact block which can either be mounted directly (quick-connect terminals) or placed on a printed circuit board (THT version).

Only use with emergency stop „Plus 1“ contact blocks.
Original operating instructions see Appendix.

Approvals

IEC 60947-5-x

UL 508
in preparation

Technical Data

→ **General information**	
Form of lens	conical mushroom form
Color of lens	red
Form of collar	round
→ **Dimensions**	
Mushroom Diameter	30 mm
Overall height	33.2 mm
Mounting depth	PCB 9.2 mm, QC 27 mm
Mounting hole	22.3 mm
Diameter of collar	29.8 mm
→ **Mechanical design**	
Mounting	ring nut
Contact function	latching
Illuminability	no
Reset	see order block
Torque for nut ring	1.2 Nm
→ **Mechanical characteristics**	
Robustness max.	100 N
→ **Other specifications**	

– Technical data (continued) –
RAFIX 22 FS+ - Emergency stop pushbutton „Plus 1“

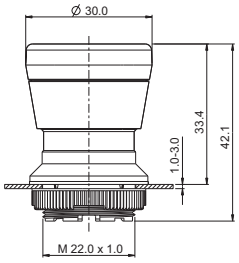
Ambient temp. operating min.	-25
Ambient temp. operating max.	+70
Robustness	acc. to IEC 600 68-2-3 und 2-30
Storage temperature min.	-40
Storage temperature max.	+80
Operating life	50,000
B10	65,000
Degree of protection from front side	see order block
Environmental restistance	acc. to IEC 60068-2-14, -30, -33 and -78
Salt spray	IEC 600 68-2-11
ROHS compliant	yes
REACH compliant	yes

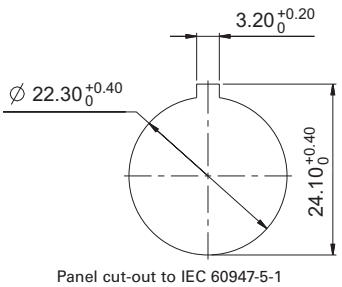
Accessories RAFIX 22 FS+ - Emergency stop pushbutton „Plus 1“

→ Description	Photo	Order no.	Additional accessories see page
Emergency stop label, Ø 22.3 mm		-	2 - 82, 2 - 149, 2 - 264, 5 - 21
RAFIX 22 FS+ - Contact block PCB gold, E-Stop „Plus 1“		1.20.126.414/0000	2 - 244
RAFIX 22 FS+ - Contact block QC gold, E-Stop „Plus 1“		1.20.126.514/0000	2 - 254
Fixing spanner for ring nut		5.05.800.062/0000	2 - 145, 2 - 261, 5 - 25

RAFIX 22 FS+ Emergency stop pushbutton „Plus 1“, reset by rotation

Technical data see page 2 - 189





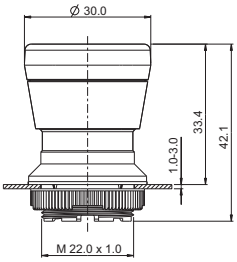
Panel cut-out to IEC 60947-5-1

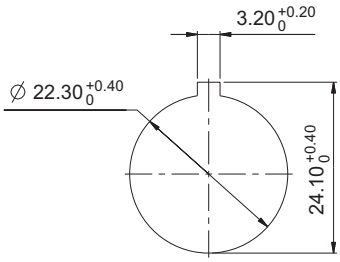
→ Reset	Illuminability	Degree of protection from front side	Order no.
by clockwise rotation	no	IP65 (DIN EN 60529)	1.30.273.502/0300

Only combine with E- stop contact block „Plus 1“

RAFIX 22 FS+
Emergency stop pushbutton „Plus 1“, reset by pulling (IP65, IP69K)

Technical data see page 2 - 189



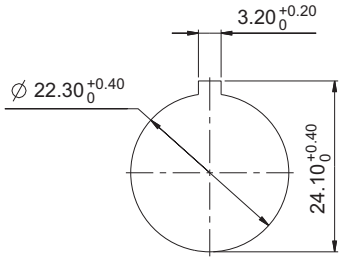


Panel cut-out to IEC 60947-5-1

→	Reset	Illuminability	Degree of protection from front side	Order no.
	by pulling	no	IP65 (DIN EN 60529); IP69K (ISO 20653)	1.30.273.602/0300

Only combine with E- stop contact block „Plus 1“

RAFIX 22 FS+ Potentiometer drives



Panel cut-out to IEC 60947-5-1

Approvals

IEC 60947-5-x

Technical Data

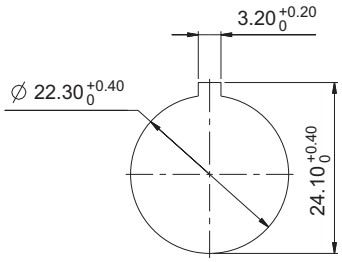
→ General information	
Actuator	knob
Color of knob	see order block
Front ring	see order block
Form of collar	see order block
→ Dimensions	
Dimensions of collar	see order block
Overall height	26 mm
Mounting depth	according to potentiometer
Mounting hole	22.3 mm
Key grid	according to potentiometer
→ Mechanical design	
Mounting	ring nut
Torque for nut ring	1.2 Nm
→ Other specifications	
Degree of protection from front side	IP65 (DIN EN 60529)
Storage temperature min.	-40 °C
Storage temperature max.	+80 °C
Environmental restistance	acc. to IEC 60068-2-14, -30, -33 and -78
Salt spray	IEC 600 68-2-11
ROHS compliant	yes
REACH compliant	yes

Accessories RAFIX 22 FS+ - Potentiometer drive

→ Description	Photo	Order no.	Additional accessories see page
Fixing spanner for ring nut		5.05.800.062/0000	2 - 145, 2 - 261, 5 - 25

RAFIX 22 FS+
Potentiometer drive, round collar

Technical data see page 2 - 192



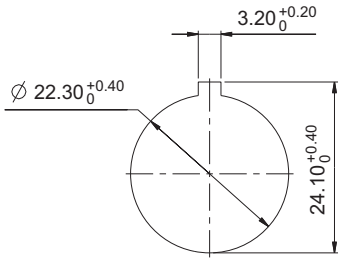
Panel cut-out to IEC 60947-5-1

→ Front ring	Color of knob	Order no.
plastic slate-grey	opaque slate-grey	1.30.258.001/0700

For potentiometers with 6 mm shaft diameter and 50 mm shaft length. Potentiometer not included.

RAFIX 22 FS+
Potentiometer drive, square collar

Technical data see page 2 - 192



Panel cut-out to IEC 60947-5-1

→ Front ring	Color of knob	Order no.
plastic slate-grey	opaque slate-grey	1.30.258.021/0700

For potentiometers with 6 mm shaft diameter and 50 mm shaft length. Potentiometer not included.

RAFIX 22 FS+ Signal indicators

Technical Data

→ General information	
Form of lens	see order block
Color of lens	see order block
Form of collar	see order block
→ Dimensions	
Length of collar	see order block
Overall height	see order block
Mounting depth	PCB 9.2 mm, QC 27 mm
Mounting hole	22.3 mm
Key grid	30 x 30 mm
→ Mechanical design	
Mounting	ring nut
Illuminability	yes
Torque for nut ring	1.2 Nm
→ Other specifications	
Degree of protection from front side	IP65 (DIN EN 60529)
Ambient temp. operating min.	-25 °C
Ambient temp. operating max.	+70 °C
Storage temperature min.	-40 °C
Storage temperature max.	+80 °C
Environmental restistance	acc. to IEC 60068-2-14, -30, -33 and -78
Salt spray	IEC 600 68-2-11
ROHS compliant	yes
REACH compliant	yes

Approvals

IEC 60947-5-x

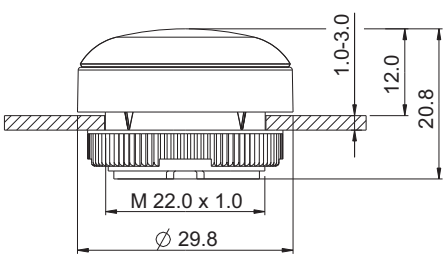
UL 508

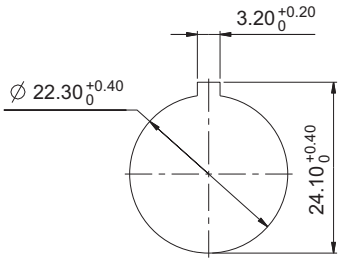
Accessories RAFIX 22 FS+ - Signal indicator

→ Description	Photo	Order no.	Additional accessories see page
LED 3 mm		-	-
LED base for 3 mm THT LED, used in signal indicators, for RAFIX FS PCB		-	2 - 263
QC LED base for signal indicators		-	2 - 261
Fixing spanner for ring nut		5.05.800.062/0000	2 - 145, 2 - 261, 5 - 25

RAFIX 22 FS+
Signal indicator, round collar, flat version

Technical data see page 2 - 194





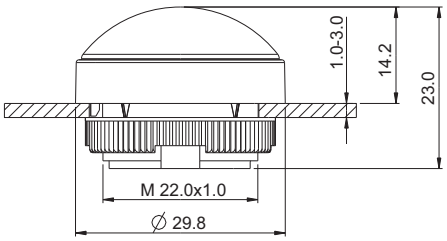
Panel cut-out to IEC 60947-5-1

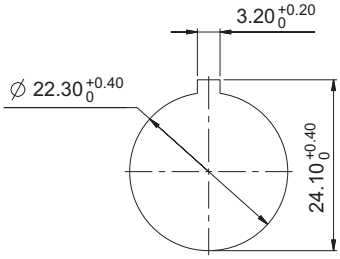
→ Form of collar	Color of lens	Order no.
round	translucent red	1.74.508.001/2300
round	translucent yellow	1.74.508.001/2400
round	translucent green	1.74.508.001/2500
round	translucent blue	1.74.508.001/2600
round	translucent white	1.74.508.001/2200

Legending on request.

RAFIX 22 FS+
Signal indicator, round collar, high version

Technical data see page 2 - 194



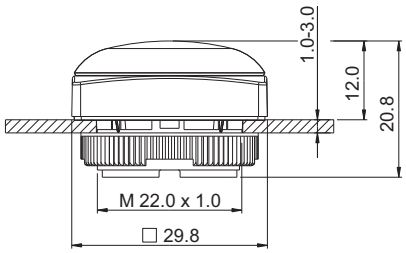


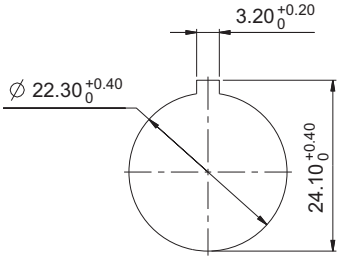
Panel cut-out to IEC 60947-5-1

→ Form of collar	Color of lens	Order no.
round	translucent red	1.74.508.011/2300
round	translucent yellow	1.74.508.011/2400
round	translucent green	1.74.508.011/2500
round	translucent blue	1.74.508.011/2600
round	translucent white	1.74.508.011/2200

RAFIX 22 FS+
Signal indicator, square collar, flat version

Technical data see page 2 - 194





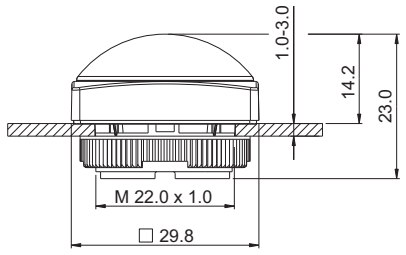
Panel cut-out to IEC 60947-5-1

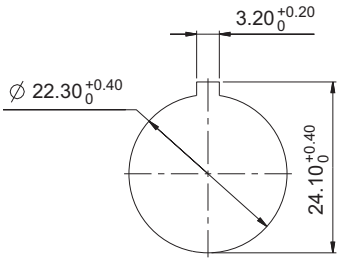
→ Form of collar	Color of lens	Order no.
square	translucent red	1.74.508.051/2300
square	translucent yellow	1.74.508.051/2400
square	translucent green	1.74.508.051/2500
square	translucent blue	1.74.508.051/2600
square	translucent white	1.74.508.051/2200

Legending on request.

RAFIX 22 FS+
Signal indicator, square collar, high version

Technical data see page 2 - 194





Panel cut-out to IEC 60947-5-1

→ Form of collar	Color of lens	Order no.
square	translucent red	1.74.508.061/2300
square	translucent yellow	1.74.508.061/2400
square	translucent green	1.74.508.061/2500
square	translucent blue	1.74.508.061/2600
square	translucent white	1.74.508.061/2200

GET IN TOUCH

RAFIX 22FS+

Fast & Slim. Everything else is a thing of the past

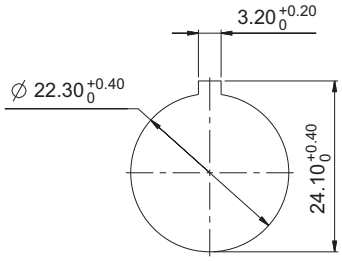
RAFIX 22 FS+ control components are fast and slim. Fast because they're simple to connect, either on a PCB or directly with quick-connect terminals. Slim because of their extremely small mounting depth that leaves plenty of room for additional components and individual designs.

More information: www.RAFIX22FS.de

www.rafi.de

RAFI

RAFIX 22 FS+ USB feedthroughs



Panel cut-out to IEC 60947-5-1

Approvals

IEC 60947-5-x

UL 508

→ Rugged USB feedthroughs for 22.3 mm mounting hole diameter matching the RAFIX 22 FS and RAFIX 22 QR actuator series. The USB feedthrough provides sturdy installation of an easily accessible USB slot in front panels of controllers and IPCs and can be used, for example, to connect a keyboard for maintenance purposes or a USB stick for a software update. The port on the rear accommodates commercially available USB cables of varying lengths with B-type connector. A sealing cap protects the slot and ensures a degree of protection to IP 65. For assembly, simply insert the feedthrough from the front side into the mounting hole and fasten it by means of a ring nut from the rear. The depth behind panel is 27.7 mm. The color of the front ring can be freely selected so that the USB feedthrough can be matched in appearance to the customer-specific design.

Technical Data

→ General information	
Form of lens	see order block
Color of lens	see order block
Color of front ring	see order block
Form of collar	see order block

→ Dimensions	
Dimensions of collar	see order block
Overall height	11.3 mm
Mounting depth	see order block
Mounting hole	22.3 mm
Key grid	30 x 30 mm

→ Mechanical design	
Mounting	ring nut
Front connection	USB Type A
Rear connection	USB Type B
Torque for nut ring	1.2 Nm

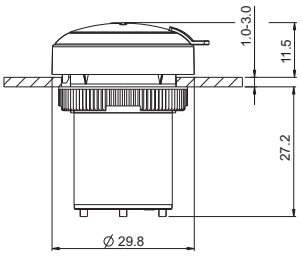
→ Other specifications	
Ambient temp. operating min.	-25 °C
Ambient temp. operating max.	+70 °C
Storage temperature min.	-40 °C
Storage temperature max.	+80 °C
Operating life	1500 operations
Degree of protection from front side	IP65 (DIN EN 60529) with closed sealing cap
Relative humidity	5 bis 95% (non condensed)
Shock resistance to IEC 60068-2-27 (EN 61131-2)	50 g at 11 ms half sine amplitude
Vibration resistance according to IEC 600 68-2-6 (EN 61131-2)	5 g at 10...500 Hz
ROHS compliant	yes
REACH compliant	yes

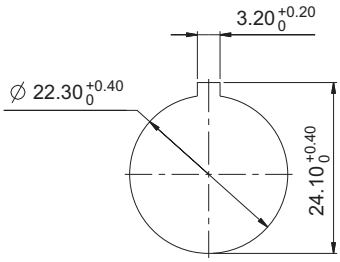
Accessories RAFIX 22 FS+ - USB feedthrough

→ Description	Photo	Order no.	Additional accessories see page
Fixing spanner for ring nut		5.05.800.062/0000	2 - 145, 2 - 261, 5 - 25

RAFIX 22 FS+
USB feedthrough, round collar

Technical data see page 2 - 198



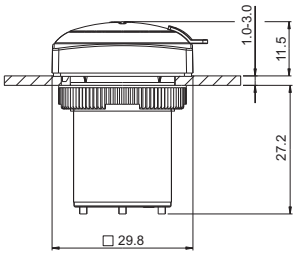


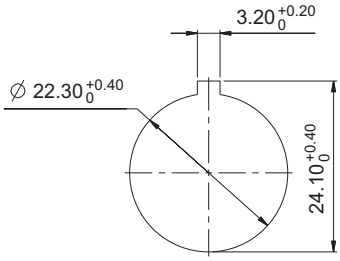
Panel cut-out to IEC 60947-5-1

→ Color of front ring	Front connection	Rear connection	Order no.
slate-grey	USB Type A	USB Type B	1.30.279.001/0707
metallized	USB Type A	USB Type B	1.30.279.021/0700

RAFIX 22 FS+
USB feedthrough, square collar

Technical data see page 2 - 198





Panel cut-out to IEC 60947-5-1

→ Color of front ring	Front connection	Rear connection	Order no.
slate-grey	USB Type A	USB Type B	1.30.279.051/0707
metallized	USB Type A	USB Type B	1.30.279.071/0700

RAFIX 22 FSR

Extremely rugged and economically unbeatable! RAFIX 22 FSR features proven RAFIX 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.

CONTROL COMPONENTS

RAFIX 22 FSR

Content

RAFIX 22 FSR Pushbuttons	**2 - 206**
RAFIX 22 FSR Pushbutton	2 - 207
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RAFIX 22 FSR Keylock switch	2 - 211
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RAFIX 22 FSR Signal indicators	**2 - 215**
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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's critical to keep pushing ahead – fast. A dirty glove dripping with 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 operating 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-natured. RAFIX 22 FSR has taken on this challenge. Under the most adverse conditions, these actuators and contact blocks demonstrate their strengths: ruggedness and know-how based on proven FS technology. A series specifically developed for outdoor applications, RAFIX FSR withstands extreme conditions – with no ifs, ands or buts.

Close to the limit

Extremely rugged and economically unbeatable! RAFIX 22 FSR features proven FS technology and a rugged design. The contact blocks have a low mounting depth, which saves an enormous amount of space and enables fast installation. The pushbuttons and actuators ensure quick orientation along with a highly distinctive design thanks to their individually combinable colors and shapes.

The top performer

Dirt: No matter whether it is exposed to industrial lubricants or soiling which occurs naturally during outdoor use – the series is extremely resistant and delivers what it promises.

Rugged: The actuator mechanism is not affected even by harsh conditions and severe external impacts.

Climate: Intense sunlight, heavy rain, hail or snow – RAFIX 22 FSR easily withstands adverse weather conditions.

Moisture: Waterproof actuators (IP65 and IP69K) ensure dependable operation.

SLIM

- Designs with PCB contact blocks feature a distance between the front panel and printed circuit board of only 9.2 mm.
- With QC contact blocks, only 27 mm of space is needed behind the front panel.

Combinable with all contact blocks and accessories with RAFIX FS technology

- PCB or QC contact blocks
- Gold contacts from 5 V or silver contacts up to 250 V
- Short-travel adapter enables short-travel actuation (1 mm switching travel) with perceptible key click
- Variable illumination, compatible with 3 mm THT LEDs / SMT LEDs or LED clip

RAFIX 22 FSR

The RAFIX 22 FSR series has a variety of actuators and signal indicators

Pushbuttons
- Illuminable
- With protective cap

Emergency stop
- Unlocked by pulling
- Illuminated (optional)
- Metal version (optional)

Selector switches
- Rotating angle 40°, 60° or 90°
- Latching or momentary
- Illuminable

Keylock switches
- Rotating angle 40° or 90°
- Latching or momentary
- With protective cap

Signal indicators
- Green, yellow, red, blue or white

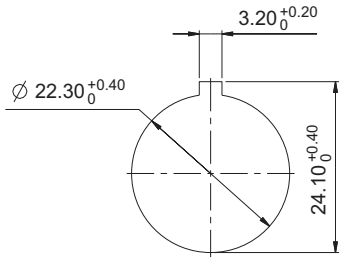
Approvals
- IEC 60947-5-1/5
- UL
- CCC

Safe and reliable
The actuators in the RAFIX 22 FSR series ensure a degree of protection to at least IP65 (DIN EN 60529), IP69K (ISO 20653), which makes them suitable for many diverse applications.

Long operating life
The mechanical design of all actuators is optimally suited for long-lasting operation even in heavily used panels.

Mounting hole
The actuators in the RAFIX 22 FSR series are suitable for 22.3 mm panel cut-outs according to IEC 60947-5-1.

All actuators are equipped with a locating pip. This locating pip ensures a perfect fit for actuators and contact blocks with PCB-mounted components and is therefore essential for designs including these contact blocks.

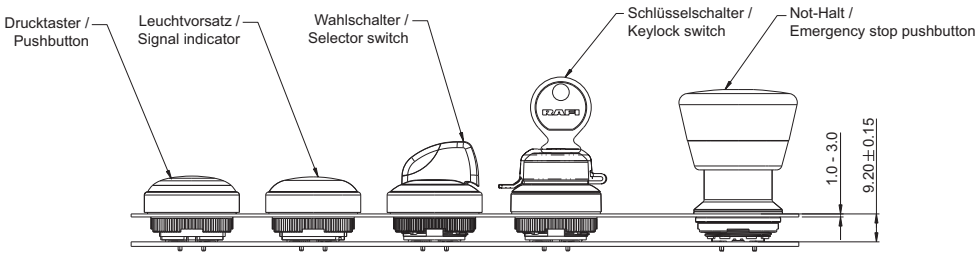


Grid spacing
The design principle makes it possible to use a minimum grid spacing of 35 mm x 35 mm.

When choosing the grid spacing, it is recommended to consider any external legending required (for example, using label strips inserted into the front panel).

RAFIX 22 FSR

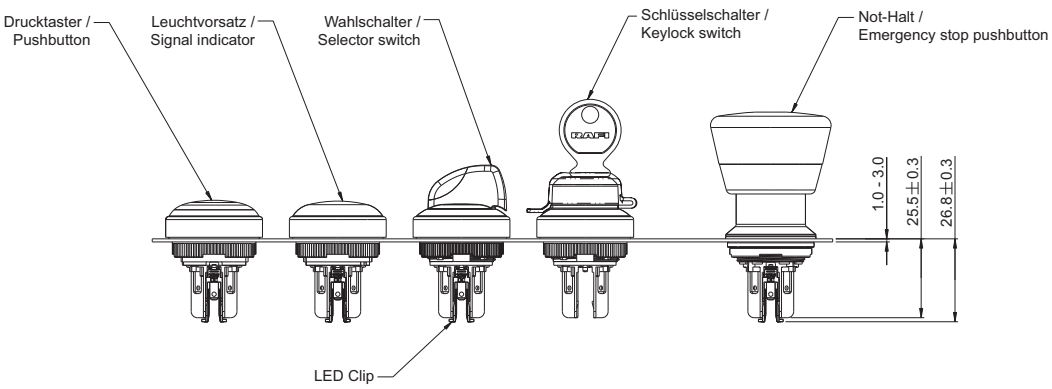
RAFIX 22 FSR with PCB contact block



For printed circuit board hole patterns,
see RAFIX 22 FS-Technology contact blocks

Formula for spacer length
9.2 mm
- Front panel thickness
Length of spacer

RAFIX 22 FSR with QC contact block

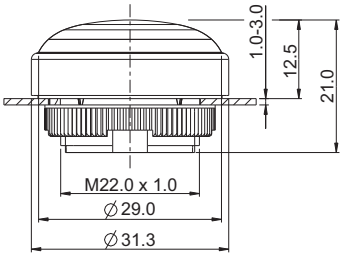


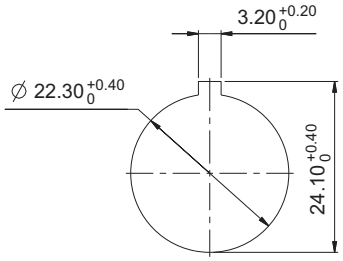
RAFIX 22 FSR Pushbuttons

→ 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.

Preliminary technical data

Due to increasing application experience the specifications of this product are successively added. For current status, see RAFI online catalog at www.rafi.de.





Panel cut-out to IEC 60947-5-1

Approvals

IEC 60947-5-x

UL 508 in preparation

Technical Data

→ **General information**	
Form of lens	flush
Color of lens	see order block
Color of front ring	black
Form of collar	round
→ **Dimensions**	
Dimensions of collar	Ø 31.3 mm
Overall height	12.2 mm
Mounting hole	22.3 mm
Key grid	35 x 35 mm
→ **Mechanical design**	
Mounting	ring nut
Contact function	momentary
Illuminability	see order block
Torque for nut ring	1.2 Nm
→ **Mechanical characteristics**	
Operating travel	4 mm
Robustness max.	100 N
→ **Other specifications**	
Ambient temp. operating min.	-40 °C
Ambient temp. operating max.	+85 °C
Storage temperature min.	-40 °C
Storage temperature max.	+85 °C
Degree of protection from front side	IP65 (DIN EN 60529), IP69K (ISO 20653) water temp. 23 °C +/- 3 °C
Environmental restistance	acc. to IEC 60068-2-14, -30, -33 and -78
Salt spray	IEC 600 68-2-11
ROHS compliant	yes
REACH compliant	yes

Accessories RAFIX 22 FSR - Pushbutton

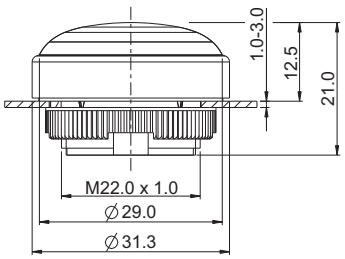
→ Description	Photo	Order no.	Additional accessories see page
RAFIX 22 FS+ - Contact block PCB silver, Universal, with light conductor		-	2 - 247
RAFIX 22 FS+ - Contact block QC gold, Universal, with light conductor		-	2 - 253

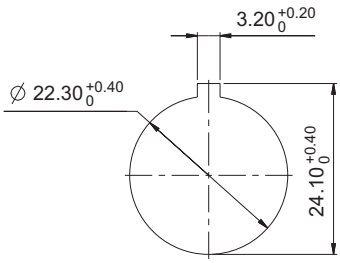
– Table (continued) –
Accessories RAFIX 22 FSR - Pushbutton

➔	Description	Photo	Order no.	Additional accessories see page
	RAFIX 22 FS+ - Contact block QC silver, Universal, with light conductor		-	2 - 256
	RAFIX FS - Contact block PCB gold, Universal		-	2 - 243
	RAFIX FS - Contact block PCB gold, Universal, with light conductor		-	2 - 242
	RAFIX FS - Contact block PCB silver, Universal		-	2 - 248
	Fixing spanner for ring nut		5.05.800.062/0000	2 - 145, 2 - 261, 5 - 25

RAFIX 22 FSR Pushbutton

Technical data see page 2 - 206





Panel cut-out to IEC 60947-5-1

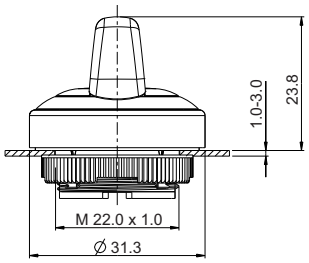
➔	Illuminability	Color of lens	Order no.
	yes	translucent red	1.30.280.001/2301
	yes	translucent yellow	1.30.280.001/2401
	yes	translucent green	1.30.280.001/2501
	yes	translucent blue	1.30.280.001/2601
	yes	translucent white	1.30.280.001/2201
	no	opaque black	1.30.280.001/0101

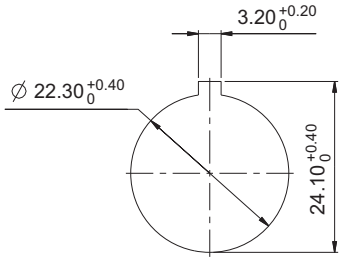
Legending and front rings in other colors on request

RAFIX 22 FSR Selector switches

→ 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.

Preliminary technical data
Due to increasing application experience the specifications of this product are successively added. For current status, see RAFI online catalog at www.rafi.de.





Panel cut-out to IEC 60947-5-1

Approvals

IEC 60947-5-x

UL 508 in preparation

Technical Data

→ General information	
Actuator	handle
Marking of handle	see order block
Color of front ring	black
Form of collar	round

→ Dimensions	
Dimensions of collar	Ø 31.3 mm
Overall height	23.8 mm
Mounting hole	22.3 mm
Key grid	35 x 35 mm

→ Mechanical design	
Mounting	ring nut
Contact function	see order block
Illuminability	yes
Rotating angle	see order block
Torque for nut ring	1.2 Nm

→ Mechanical characteristics	
Torque max.	2 Nm

→ Other specifications	
Degree of protection from front side	IP65 (DIN EN 60529); IP69K (ISO 20653)
Ambient temp. operating min.	-40 °C
Ambient temp. operating max.	+85 °C
Storage temperature min.	-40 °C
Storage temperature max.	+85 °C
Environmental restistance	acc. to IEC 60068-2-14, -30, -33 and -78
Salt spray	IEC 600 68-2-11
ROHS compliant	yes
REACH compliant	yes

Accessories RAFIX 22 FSR - Selector switch

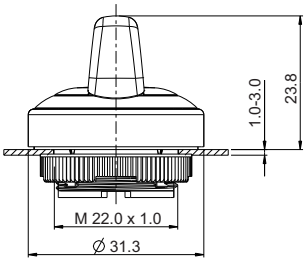
→ Description	Photo	Order no.	Additional accessories see page
RAFIX 22 FS+ - Contact block PCB silver, Universal, with light conductor		-	2 - 247
RAFIX 22 FS+ - Contact block QC gold, Universal, with light conductor		-	2 - 253
RAFIX 22 FS+ - Contact block QC silver, Universal, with light conductor		-	2 - 256

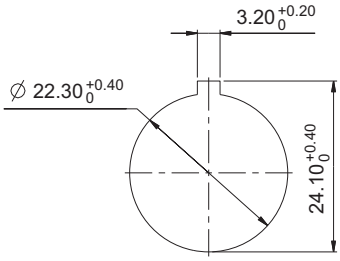
– Table (continued) –
Accessories RAFIX 22 FSR - Selector switch

→	Description	Photo	Order no.	Additional accessories see page
	RAFIX FS - Contact block PCB gold, Universal, with light conductor		-	2 - 242
	Fixing spanner for ring nut		5.05.800.062/0000	2 - 145, 2 - 261, 5 - 25

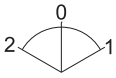
RAFIX 22 FSR
Selector switch

Technical data see page 2 - 208





Panel cut-out to IEC 60947-5-1

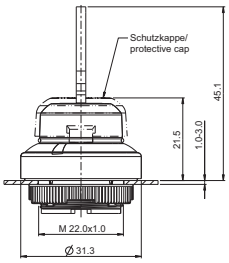
→	Illuminability	Contact function	Rotating angle		Order no.
	yes	momentary	1 x 40°		1.30.282.001/2201
	yes	momentary	2 x 40°		1.30.282.026/2201
	yes	latching	1 x 90°, L shape		1.30.282.101/2201
	yes	latching	1 x 90°, V shape		1.30.282.201/2201
	yes	latching	2 x 60°		1.30.282.301/2201

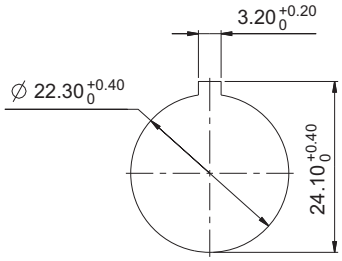
RAFIX 22 FSR Keylock switches

➔ The RAFIX 22 FSR keylock switches are equipped with a plastic protective cap which protects against dirt, water and danger of icing when it is closed. Two keys respectively are included in the delivery.
The locking systems we use were created according to DIN EN 1303 by leading lock manufacturers. They are open, mechanical systems that require occasional maintenance of the machinery or plant operator depending on environmental conditions.

Two keys are included.

Preliminary technical data
Due to increasing application experience the specifications of this product are successively added. For current status, see RAFI online catalog at www.rafi.de.





Panel cut-out to IEC 60947-5-1

Approvals

IEC 60947-5-x

UL 508 in preparation

Technical Data

➔ **General information**

Color of front ring	black
Form of collar	round

➔ **Dimensions**

Dimensions of collar	Ø 31.3 mm
Overall height	45.1 mm
Mounting hole	22.3 mm
Key grid	35 x 35 mm

➔ **Mechanical design**

Mounting	ring nut
Contact function	see order block
Illuminability	no
Wafers	5
Lock type	001
Main key	on request
Rotating angle	see order block
Key removal position	see order block
Torque for nut ring	1.2 Nm

➔ **Mechanical characteristics**

Torque max.	1.3 Nm

➔ **Other specifications**

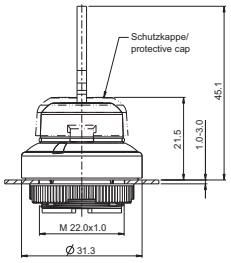
Degree of protection from front side	IP65 (DIN EN 60529); IP69K (ISO 20653) water temp. 23 °C +/- 3 °C
Ambient temp. operating min.	-40 °C
Ambient temp. operating max.	+85 °C
Storage temperature min.	-40 °C
Storage temperature max.	+85 °C
Environmental restistance	acc. to IEC 60068-2-14, -30, -33 and -78
Salt spray	IEC 600 68-2-11
ROHS compliant	yes
REACH compliant	yes

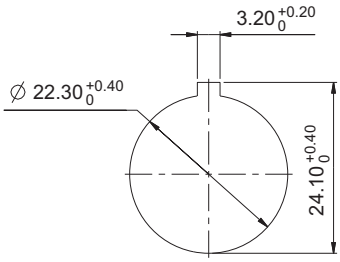
Accessories RAFIX 22 FSR - Keylock switch

→	Description	Photo	Order no.	Additional accessories see page
	RAFIX 22 FS$^+$ - Contact block QC gold, Universal, with light conductor		-	2 - 253
	RAFIX 22 FS$^+$ - Contact block QC silver, Universal, with light conductor		-	2 - 256
	RAFIX FS - Contact block PCB gold, Universal		-	2 - 243
	RAFIX FS - Contact block PCB silver, Universal		-	2 - 248
	Fixing spanner for ring nut		5.05.800.062/0000	2 - 145, 2 - 261, 5 - 25

RAFIX 22 FSR
Keylock switch

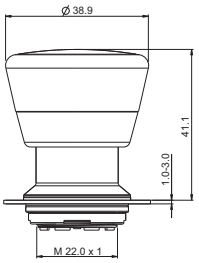
Technical data see page 2 - 210

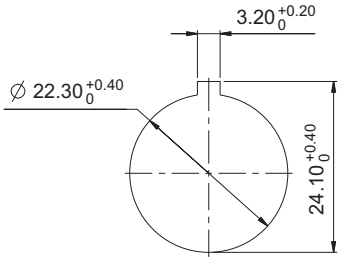




Panel cut-out to IEC 60947-5-1

→	Contact function	Rotating angle		Key removal position	Order no.
	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





Panel cut-out to IEC 60947-5-1

Approvals

IEC 60947-5-x

UL 508 in preparation

RAFIX 22 FSR Emergency stop pushbuttons

→ The emergency stop pushbuttons comply with 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.
Original manual, see Appendix.

Preliminary technical data
Due to increasing application experience the specifications of this product are successively added. For current status, see RAFI online catalog at www.rafi.de.

Technical Data

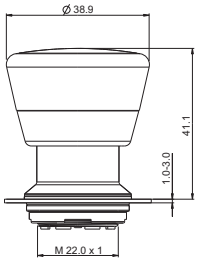
→ **General information**	
Form of lens	conical mushroom form
Color of lens	red
Form of collar	round
→ **Dimensions**	
Mushroom Diameter	37.5 mm
Overall height	41.1 mm
Mounting hole	22.3 mm
Key grid	40 x 40 mm
→ **Mechanical design**	
Mounting	Metal threaded rings
Contact function	latching
Reset	by pulling
Illuminability	see order block
Torque for nut ring	1.2 Nm
→ **Mechanical characteristics**	
Robustness max.	100 N
	750 N static
→ **Other specifications**	
Degree of protection from front side	IP65 (DIN EN 60529); IP69K (ISO 20653)
Ambient temp. operating min.	-40 °C
Ambient temp. operating max.	+85 °C
Storage temperature min.	-40 °C
Storage temperature max.	+85 °C
Environmental restistance	acc. to IEC 60068-2-14, -30, -33 and -78
Salt spray	IEC 600 68-2-11
ROHS compliant	yes
REACH compliant	yes

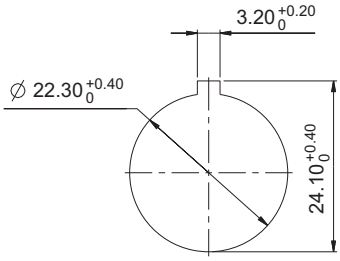
Accessories RAFIX 22 FSR - Emergency stop pushbutton

→	Description	Photo	Order no.	Additional accessories see page
	Emergency stop label, Ø 22.3 mm		-	2 - 82, 2 - 149, 2 - 264, 5 - 21
	RAFIX FS - Contact block PCB gold, E-Stop		-	2 - 244
	RAFIX FS - Contact block PCB gold, E-Stop, with light conductor		-	2 - 243
	RAFIX FS - Contact block PCB silver, E-Stop		-	2 - 249
	RAFIX FS - Contact block PCB silver, E-Stop, with light conductor		-	2 - 248
	RAFIX FS - Contact block QC gold, E-Stop, with light conductor		-	2 - 253
	RAFIX FS - Contact block QC silver, E-Stop, with light conductor		-	2 - 257
	Protective Collar for emergency stop RAFIX 22 QR / RAFIX 22 FSR		5.00.456.002/0000	2 - 150
	Fixing spanner for ring nut		5.05.800.062/0000	2 - 145, 2 - 261, 5 - 25

RAFIX 22 FSR
Emergency stop pushbutton, metal mushroom

Technical data see page 2 - 212



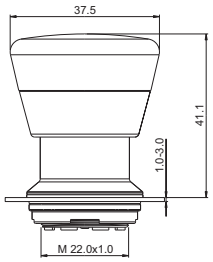


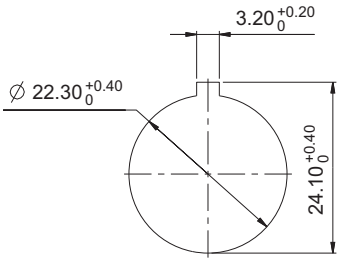
Panel cut-out to IEC 60947-5-1

→	Illuminability	Degree of protection from front side	Order no.
	yes, window white	IP65 (DIN EN 60529); IP69K (ISO 20653)	1.30.283.111/0300
	no	IP65 (DIN EN 60529); IP69K (ISO 20653)	1.30.283.611/0300

RAFIX 22 FSR
Emergency stop pushbutton, plastic mushroom

Technical data see page 2 - 212





Panel cut-out to IEC 60947-5-1

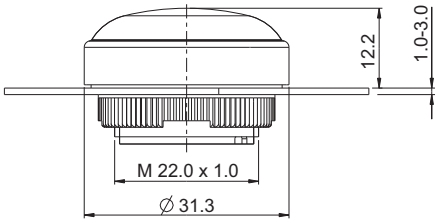
→ Illuminability	Degree of protection from front side	Order no.
yes, window white	IP65 (DIN EN 60529); IP69K (ISO 20653)	1.30.283.101/0300
no	IP65 (DIN EN 60529); IP69K (ISO 20653)	1.30.283.601/0300

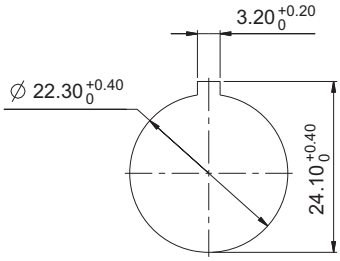
RAFIX 22 FSR Signal indicators

→ The RAFIX 22 FSR lenses are designed for illumination with SMT or THT LEDs. They guarantee full area illumination.
Preliminary technical data
Due to increasing application experience the specifications of this product are successively added. For current status, see RAFI online catalog at www.rafi.de.

Technical Data

→ General information	
Color of lens	see order block
Form of collar	round
→ Dimensions	
Mounting hole	22.3 mm
Key grid	35 x 35 mm
→ Mechanical design	
Mounting	ring nut
Illuminability	yes
→ Other specifications	
Degree of protection from front side	IP65 (DIN EN 60529); IP69K (ISO 20653)
Ambient temp. operating min.	-40 °C
Ambient temp. operating max.	+85 °C
Storage temperature min.	-40 °C
Storage temperature max.	+85 °C
Environmental restistance	acc. to IEC 60068-2-14, -30, -33 and -78
Salt spray	IEC 600 68-2-11
ROHS compliant	yes
REACH compliant	yes





Panel cut-out to IEC 60947-5-1

Approvals

IEC 60947-5-x

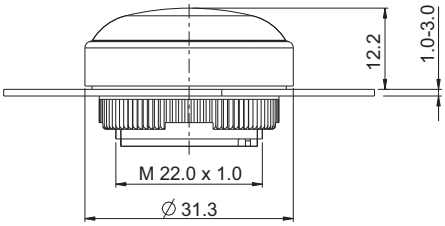
UL 508 in preparation

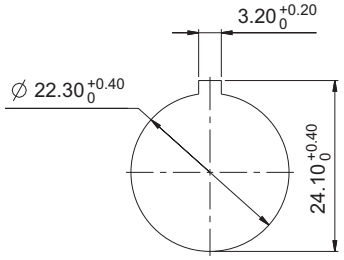
Accessories RAFIX 22 FSR - Signal indicator

→ Description	Photo	Order no.	Additional accessories see page
LED 3 mm		-	-
LED base for 3 mm THT LED, used in signal indicators, for RAFIX FS PCB		-	2 - 263
QC LED base for signal indicators		-	2 - 261
Fixing spanner for ring nut		5.05.800.062/0000	2 - 145, 2 - 261, 5 - 25

RAFIX 22 FSR
Signal indicator

Technical data see page 2 - 215





Panel cut-out to IEC 60947-5-1

→ Illuminability	Color of lens	Order no.
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
yes	translucent white	1.74.509.011/2200

RAFIX 30 FS+

PERFECT DESIGN.
RAFIX 30 FS+ features all the benefits of the control component series RAFIX 22 FS+ plus extra flat lenses and a low overall height. On request, the push-buttons in this series can be individually equipped with SMD LEDs or a MICON 5 short-travel keyswitch for improved haptic perception. In short: the flat alternative for users with extremely high design standards.

CONTROL COMPONENTS

RAFIX 30 FS+

Content

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RAFIX 30 FS+ Selector switch	2 - 227
RAFIX 30 FS+ Keylock switches	**2 - 228**
RAFIX 30 FS+ Keylock switch	2 - 229
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RAFIX 30 FS+ Signal indicator	2 - 231
RAFIX 30 FS+ USB feedthroughs	**2 - 232**
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RAFIX 30 FS+

DESIGNED TO PERFECTION
RAFIX 30 FS+ stands out for all the benefits of the control component series RAFIX 22 FS+ plus extra flat lenses and a low overall height. On request, the pushbuttons in this series can be individually equipped with SMD LEDs or a MICON 5 tactile keyswitch for improved haptic perception. In short: The flat alternative for users with extremely high design standards.

SLIM
- Designs with PCB contact blocks feature a distance between the front panel and printed circuit board of only 15.8 mm.
- With QC contact blocks, only 33 mm of space is needed behind the front panel.

Combinable with all contact blocks and accessories with RAFIX FS technology
- PCB or QC contact blocks
- Gold contacts from 5 V or silver contacts up to 250 V
- Short-travel adapter enables short-travel actuation (1 mm switching travel) with perceptible key click
- Variable illumination, compatible with 3 mm THT LEDs / SMT LEDs or LED clip

The RAFIX 30 FS+ series has a variety of actuators and signal indicators

Pushbuttons
- Illuminable
- Optional FLEXLAB with exchangeable legend insert

Selector switches
- Rotating angle 40°, 60° or 90°
- Latching or momentary
- Illuminable

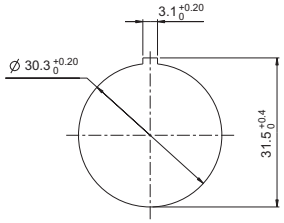
Keylock switches
- Rotating angle 40° or 90°
- Latching or momentary

Signal indicators
- Green, yellow, red, blue or white

USB grommet
- USB type A to USB type B
- With protective cap

Approvals
- IEC 60947-5-1/5
- UL
- CCC

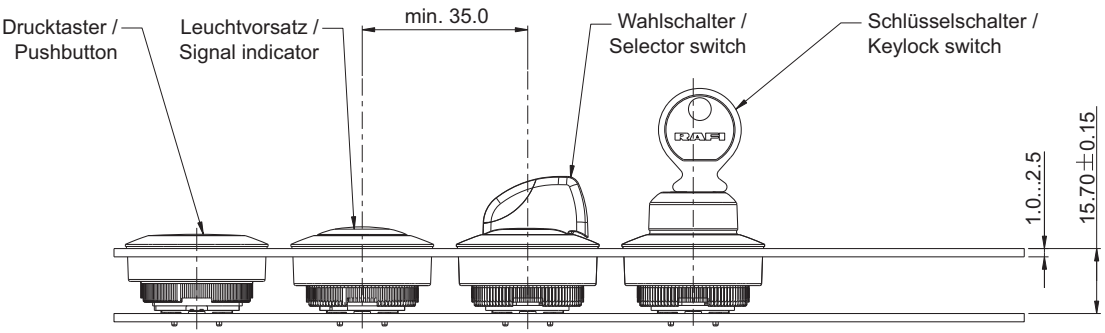
Mounting hole
The actuators in the RAFIX 30 FS+ series are designed for 30.3 mm mounting holes.
All actuators are equipped with a locating pip. This locating pip ensures a perfect fit for actuators and contact blocks with PCB-mounted components and is therefore essential for designs including these contact blocks.



Grid spacing
The design principle makes it possible to use a minimum grid spacing of 35 mm x 35 mm. When choosing the grid spacing, it is recommended to consider any external legending required (for example, using label strips inserted into the front panel).

RAFIX 30 FS+

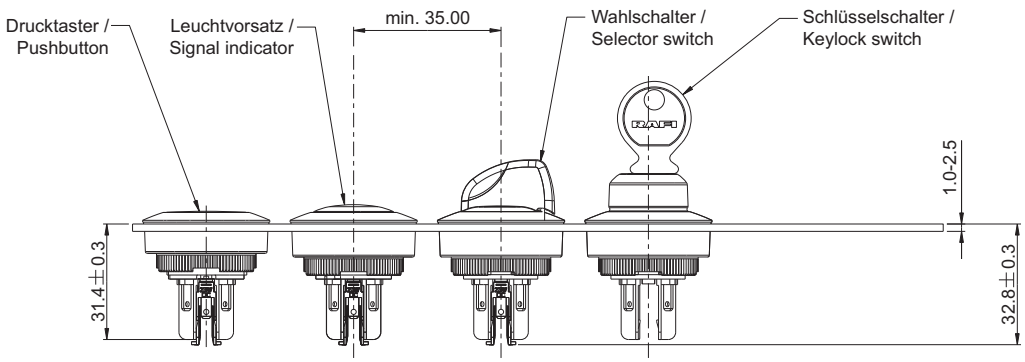
RAFIX 30 FS+ with PCB contact block



For printed circuit board hole patterns,
see RAFIX 22 FS-Technology contact blocks

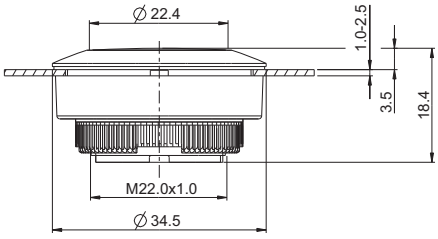
Formula for spacer length
15.8 mm
- Front panel thickness
Length of spacer

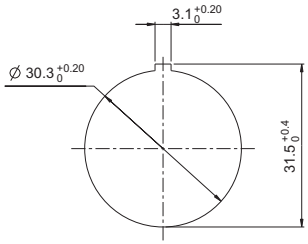
RAFIX 30 FS+ with QC contact block



RAFIX 30 FS+ Pushbuttons

→ The RAFIX 30 FS+ pushbuttons offer large actuating areas with a low overall height. They are available in different lens colors and with full area illumination.
Legending on request.





Technical Data

→ General information	
Form of lens	flush
Color of lens	see order block
Front ring	stainless steel
Form of collar	round
→ Dimensions	
Dimensions of collar	ø 34.5 mm
Overall height	3.45 mm
Mounting hole	30.3 mm
Key grid	min. 35 x 35 mm
→ Mechanical design	
Mounting	threaded rings + adapters
Contact function	see order block
Illuminability	see order block
Torque for nut ring	1.2 Nm
→ Mechanical characteristics	
Operating travel	4 mm
Robustness max.	100 N
→ Other specifications	
Ambient temp. operating min.	-25 °C
Ambient temp. operating max.	+70 °C
Storage temperature min.	-40 °C
Storage temperature max.	+80 °C
Operating life	1,000,000 momentary / 500,000 latching
B10	1,300,000 momentary / 650,000 latching
Degree of protection from front side	IP65 (DIN EN 60529)
Environmental restistance	acc. to IEC 60068-2-14, -30, -33 and -78
Salt spray	IEC 600 68-2-11
ROHS compliant	yes
REACH compliant	yes

Approvals

IEC 60947-5-x

UL 508
in preparation

Accessories RAFIX 30 FS+ - Pushbutton

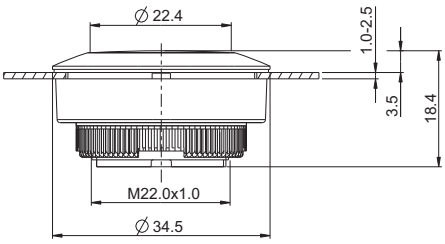
→ Description	Photo	Order no.	Additional accessories see page
RAFIX 22 FS+ - Contact block PCB silver, Universal, with light conductor		-	2 - 247
RAFIX 22 FS+ - Contact block QC gold, Universal, with light conductor		-	2 - 253
RAFIX 22 FS+ - Contact block QC silver, Universal, with light conductor		-	2 - 256
RAFIX FS - Contact block PCB gold, Universal		-	2 - 243

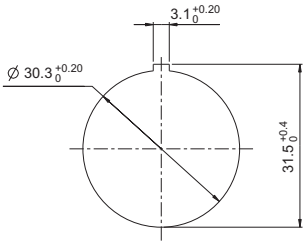
– Table (continued) –
Accessories RAFIX 30 FS+ - Pushbutton

→	Description	Photo	Order no.	Additional accessories see page
	RAFIX FS - Contact block PCB gold, Universal, with light conductor		-	2 - 242
	RAFIX FS - Contact block PCB silver, Universal		-	2 - 248
	Fixing spanner for ring nut		5.05.800.062/0000	2 - 145, 2 - 261, 5 - 25
	Retaining ring for front panel thickness 2.5 ... 4 mm		5.45.201.556/0700	2 - 266

RAFIX 30 FS+ Pushbutton

Technical data see page 2 - 221

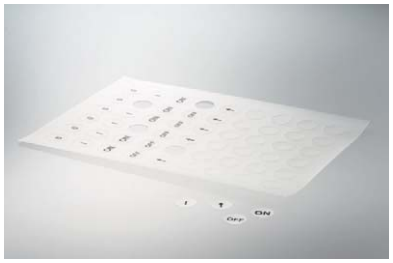


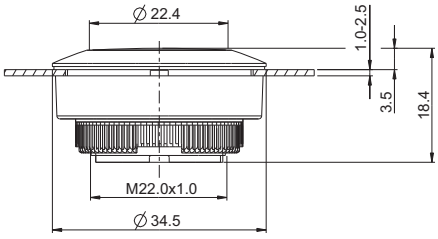


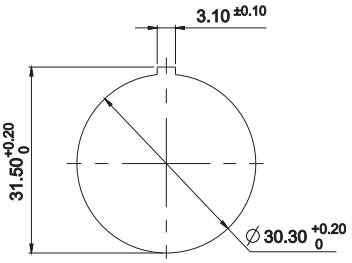
Color of lens	Illuminability	Order no.	
		Contact function momentary	Contact function latching
translucent red	yes	1.30.290.021/2300	1.30.290.031/2300
translucent yellow	yes	1.30.290.021/2400	1.30.290.031/2400
translucent green	yes	1.30.290.021/2500	1.30.290.031/2500
translucent blue	yes	1.30.290.021/2600	1.30.290.031/2600
translucent white	yes	1.30.290.021/2200	1.30.290.031/2200
opaque black	no	1.30.290.021/0100	1.30.290.031/0100

Legending on request.

RAFIX 30 FS+ Pushbuttons FLEXLAB







→ The RAFIX 30 FS+ FLEXLAB pushbutton allows individual control component labeling. A DIN A4 label sheet with pre-cut labels which fits in customary office laser printers is available for this option. After the legend inserts are printed, the labels can be detached from the sheet and inserted into the colored lens using the fine stop tabs.

Technical Data

→ General information	
Form of lens	flush
Color of lens	see order block
Front ring	stainless steel
Form of collar	round
→ Dimensions	
Dimensions of collar	ø 34.5 mm
Overall height	3.45 mm
Mounting hole	30.3 mm
Key grid	min. 35 x 35 mm
→ Mechanical design	
Mounting	threaded rings + adapters
Contact function	see order block
Illuminability	yes
Torque for nut ring	1.2 Nm
→ Mechanical characteristics	
Operating travel	4 mm
Robustness max.	100 N
→ Other specifications	
Ambient temp. operating min.	-25 °C
Ambient temp. operating max.	+70 °C
Storage temperature min.	-40 °C
Storage temperature max.	+80 °C
Operating life	1,000,000 momentary / 500,000 latching
B10	1,300,000 momentary / 650,000 latching
Degree of protection from front side	IP65 (DIN EN 60529)
Environmental restistance	acc. to IEC 60068-2-14, -30, -33 and -78
Salt spray	IEC 600 68-2-11
ROHS compliant	yes
REACH compliant	yes

Approvals

IEC 60947-5-x

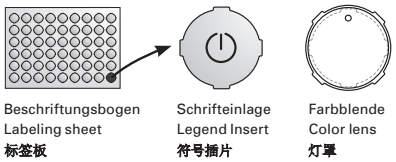
UL 508 in preparation

Accessories RAFIX 30 FS+ - FLEXLAB pushbutton

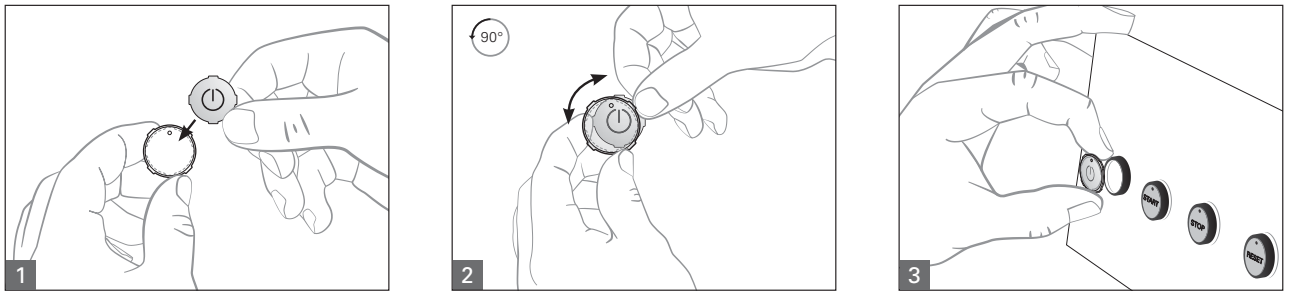
→	Description	Photo	Order no.	Additional accessories see page
	RAFIX 22 FS+ - Contact block PCB silver, Universal, with light conductor		-	2 - 247
	RAFIX 22 FS+ - Contact block QC gold, Universal, with light conductor		-	2 - 253
	RAFIX 22 FS+ - Contact block QC silver, Universal, with light conductor		-	2 - 256
	RAFIX FS - Contact block PCB gold, Universal, with light conductor		-	2 - 242
	Fixing spanner for ring nut		5.05.800.062/0000	2 - 145, 2 - 261, 5 - 25
	Retaining ring for front panel thickness 2.5 ... 4 mm		5.45.201.556/0700	2 - 266

RAFI FLEXLAB

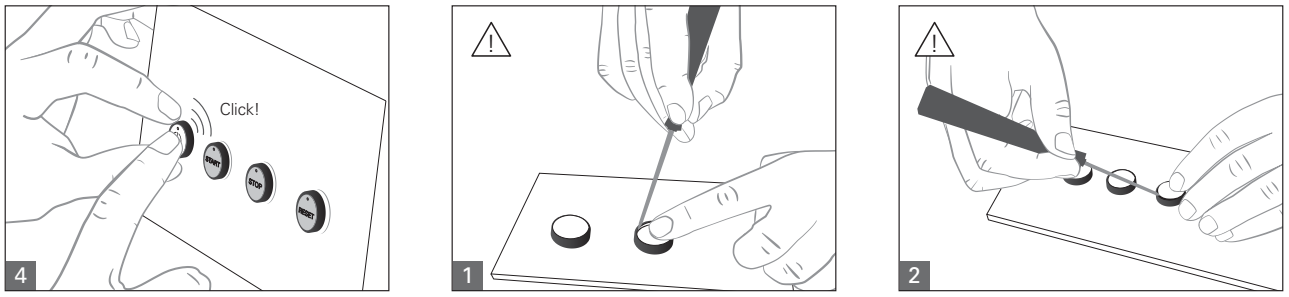
MONTAGEANLEITUNG | ASSEMBLY INSTRUCTIONS | 安装说明



MONTAGE ASSEMBLY 安装

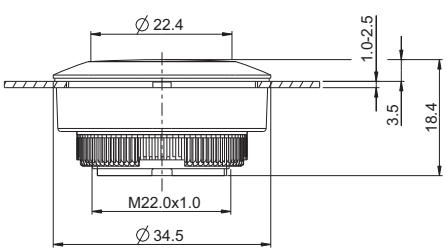


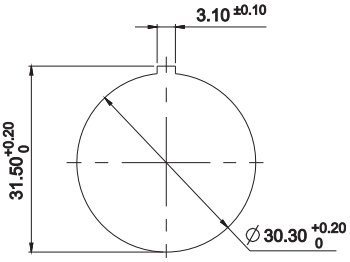
DEMONTAGE DISASSEMBLY 拆除



RAFIX 30 FS+
Pushbutton FLEXLAB

Technical data see page 2 - 223



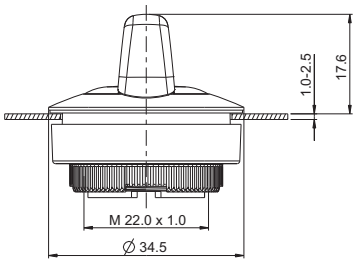


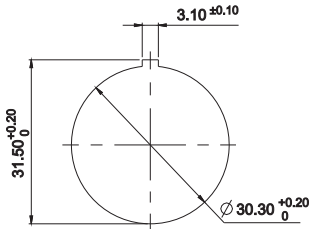
Form of collar	Order no.	
	Contact function momentary	Contact function latching
round	1.30.290.921/0000	1.30.290.931/0000

Accessoires:
Colored lens for RAFIX FS+ Pushbuttons FLEXLAB, colorless: 5.49.263.062/1000
Colored lens for RAFIX FS+ Pushbuttons FLEXLAB, red: 5.49.263.062/1300
Colored lens for RAFIX FS+ Pushbuttons FLEXLAB, yellow: 5.49.263.062/1400
Colored lens for RAFIX FS+ Pushbuttons FLEXLAB, green: 5.49.263.062/1500
Colored lens for RAFIX FS+ Pushbuttons FLEXLAB, blue: 5.49.263.062/1600
DIN A4 label sheet with 6x9 lenses in total utility: 5.70.800.200/0000

RAFIX 30 FS+ Selector switches

→ 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 Data

→ General information	
Actuator	handle
Marking of handle	translucent white
Front ring	stainless steel
Form of collar	round
→ Dimensions	
Dimensions of collar	ø 34.5 mm
Overall height	17.43 mm
Mounting hole	30.3 mm
Key grid	min. 35 x 35 mm
→ Mechanical design	
Mounting	threaded rings + adapters
Contact function	see order block
Illuminability	yes
Rotating angle	see order block
Torque for nut ring	1.2 Nm
→ Mechanical characteristics	
Torque max.	1.5 Nm
→ Other specifications	
Ambient temp. operating min.	-25 °C
Ambient temp. operating max.	+70 °C
Operating life (operations)	500,000 momentary / 300,000 latching
Operating life (operations)	650,000 momentary / 400,000 latching
Degree of protection from front side	IP65 (DIN EN 60529)
Storage temperature min.	-40 °C
Storage temperature max.	+80 °C
Environmental restistance	acc. to IEC 60068-2-14, -30, -33 and -78
Salt spray	IEC 600 68-2-11
ROHS compliant	yes
REACH compliant	yes

Approvals

IEC 60947-5-x

UL 508 in preparation

Accessories RAFIX 30 FS+ - Selector switch

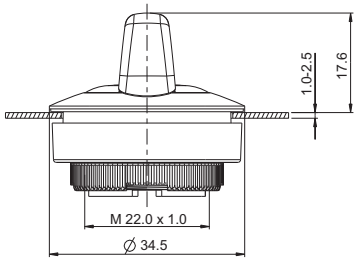
→ Description	Photo	Order no.	Additional accessories see page
RAFIX 22 FS+ - Contact block PCB silver, Universal, with light conductor		-	2 - 247
RAFIX 22 FS+ - Contact block QC gold, Universal, with light conductor		-	2 - 253
RAFIX 22 FS+ - Contact block QC silver, Universal, with light conductor		-	2 - 256
RAFIX FS - Contact block PCB gold, Universal		-	2 - 243

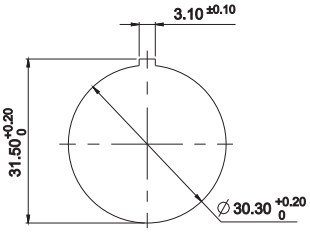
– Table (continued) –
Accessories RAFIX 30 FS+ - Selector switch

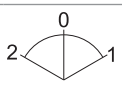
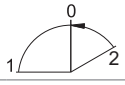
→	Description	Photo	Order no.	Additional accessories see page
	RAFIX FS - Contact block PCB gold, Universal, with light conductor		-	2 - 242
	RAFIX FS - Contact block PCB silver, Universal		-	2 - 248
	Fixing spanner for ring nut		5.05.800.062/0000	2 - 145, 2 - 261, 5 - 25
	Retaining ring for front panel thickness 2.5 ... 4 mm		5.45.201.556/0700	2 - 266

RAFIX 30 FS+ Selector switch

Technical data see page 2 - 226

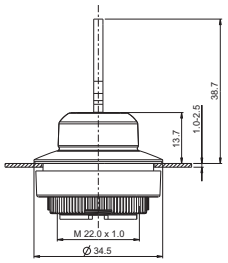


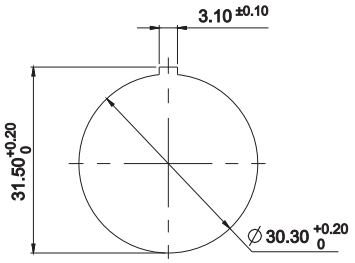


→	Illuminability	Contact function	Rotating angle		Order no.
	yes	momentary	1 x 40°		1.30.292.002/2200
	yes	momentary	2 x 40°		1.30.292.027/2200
	yes	latching	1 x 90°, L shape		1.30.292.102/2200
	yes	latching	1 x 90°, V shape		1.30.292.202/2200
	yes	latching	2 x 60°		1.30.292.302/2200
	yes	90° latching, 40° momentary	1 x 90° / 1 x 40°		1.30.292.427/2200

RAFIX 30 FS+ Keylock switches

➔ The RAFIX 30 FS+ keylock switches feature an extremely compact design which is consistent with the overall concept of RAFIX 30 FS+. Two keys respectively are included in the delivery. Customer-specific closings are possible on request.
The locking systems we use were created according to DIN EN 1303 by leading lock manufacturers. They are open, mechanical systems that require occasional maintenance of the machinery or plant operator depending on environmental conditions.





Technical Data

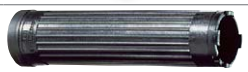
➔ General information	
Front ring	stainless steel
Form of collar	round
➔ Dimensions	
Dimensions of collar	ø 34.5 mm
Overall height	38.70 mm
Mounting hole	30.3 mm
Key grid	min. 35 x 35 mm
➔ Mechanical design	
Mounting	threaded rings + adapters
Contact function	see order block
Illuminability	no
Wafers	5
Lock type	001
Main key	on request
Rotating angle	see order block
Key removal position	see order block
Torque for nut ring	1.2 Nm
➔ Mechanical characteristics	
Torque max.	1.3 Nm
➔ Other specifications	
Ambient temp. operating min.	-25 °C
Ambient temp. operating max.	+70 °C
Operating life	300,000 momentary / 50,000 latching / 30,000 with key removal
B10	400,000 momentary / 65,000 latching / 40,000 with key removal
Degree of protection from front side	IP65 (DIN EN 60529)
Storage temperature min.	-40 °C
Storage temperature max.	+80 °C
Environmental restistance	acc. to IEC 60068-2-14, -30, -33 and -78
ESD-strength lock / contact	15 kV
ESD-strength key / front panel	15 kV
Salt spray	IEC 600 68-2-11
ROHS compliant	yes
REACH compliant	yes

Approvals

IEC 60947-5-x

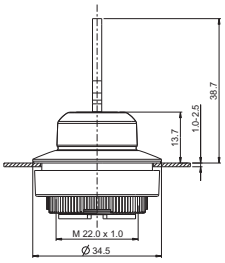
UL 508 in preparation

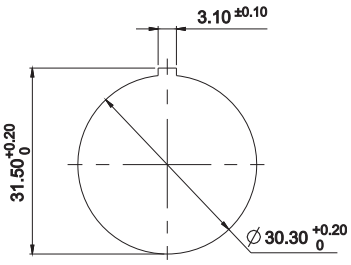
Accessories RAFIX 30 FS+ - Keylock switch

→	Description	Photo	Order no.	Additional accessories see page
	RAFIX 22 FS+ - Contact block QC gold, Universal, with light conductor		-	2 - 253
	RAFIX 22 FS+ - Contact block QC silver, Universal, with light conductor		-	2 - 256
	RAFIX FS - Contact block PCB gold, Universal		-	2 - 243
	RAFIX FS - Contact block PCB silver, Universal		-	2 - 248
	Fixing spanner for ring nut		5.05.800.062/0000	2 - 145, 2 - 261, 5 - 25
	Retaining ring for front panel thickness 2.5 ... 4 mm		5.45.201.556/0700	2 - 266
	RAFIX FS - Protective cap for keylock switch		5.55.105.454/0111	2 - 267

RAFIX 30 FS+ Keylock switch

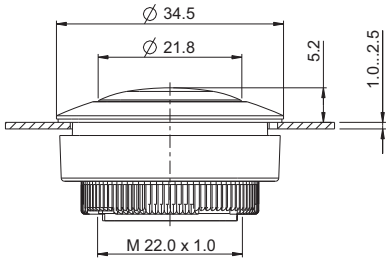
Technical data see page 2 - 228

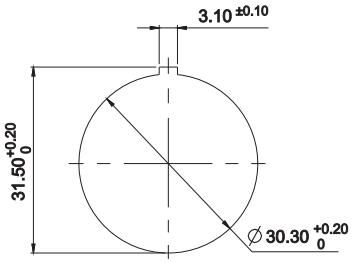




→	Contact function	Rotating angle		Key removal position	Order no.
	momentary	1 x 40°		0	1.30.295.002/0000
	momentary	2 x 40°		0	1.30.295.102/0000
	latching	1 x 90°, L shape		0+1	1.30.295.222/0000
	latching	1 x 90°, V shape		0+1	1.30.295.322/0000

RAFIX 30 FS+ Signal indicators





Technical Data

→ General information	
Form of lens	flush
Color of lens	see order block
Front ring	stainless steel
Form of collar	round
→ Dimensions	
Dimensions of collar	ø 34.5 mm
Overall height	5.25 mm
Mounting hole	30.3 mm
Key grid	min. 35 x 35 mm
→ Mechanical design	
Mounting	threaded ring + adapter
Illuminability	yes
Torque for nut ring	1.2 Nm
→ Other specifications	
Degree of protection from front side	IP65 (DIN EN 60529)
Ambient temp. operating min.	-25 °C
Ambient temp. operating max.	+70 °C
Storage temperature min.	-40 °C
Storage temperature max.	+80 °C
Environmental restistance	acc. to IEC 60068-2-14, -30, -33 and -78
Salt spray	IEC 600 68-2-11
ROHS compliant	yes
REACH compliant	yes

Approvals

IEC 60947-5-x

UL 508 in preparation

Accessories RAFIX 30 FS+ - Lens

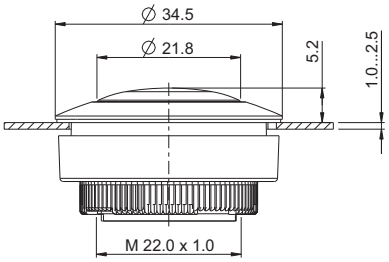
→ Description	Photo	Order no.	Additional accessories see page
LED 3 mm		-	-
LED base for 3 mm THT LED, used in signal indicators, for RAFIX FS PCB		-	2 - 263
QC LED base for signal indicators		-	2 - 261
Fixing spanner for ring nut		5.05.800.062/0000	2 - 145, 2 - 261, 5 - 25

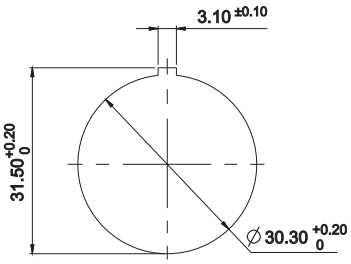
– Table (continued) –
Accessories RAFIX 30 FS+ - Lens

→	Description	Photo	Order no.	Additional accessories see page
	Retaining ring for front panel thickness 2.5 ... 4 mm		5.45.201.556/0700	2 - 266

RAFIX 30 FS+ Signal indicator

Technical data see page 2 - 230

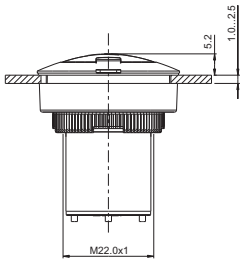


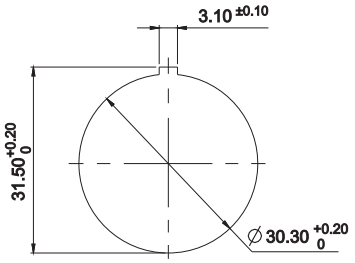


→	Illuminability	Color of lens	Order no.
	yes	translucent red	1.74.510.011/2300
	yes	translucent yellow	1.74.510.011/2400
	yes	translucent green	1.74.510.011/2500
	yes	translucent blue	1.74.510.011/2600
	yes	translucent white	1.74.510.011/2200

RAFIX 30 FS+ USB feedthroughs

→ The USB feedthrough ensures sturdy installation of an easily accessible USB slot in the front panels of controllers and IPCs. The port on the rear accommodates commercially available USB cables with B-type connectors. A sealing cap protects the slot and ensures a degree of protection to IP 65. For assembly, simply insert the feedthrough from the front side into the mounting hole and fasten it by means of a ring nut from the rear.





Technical Data

→ General information	
Front ring	stainless steel
Form of collar	round
→ Dimensions	
Dimensions of collar	ø 34.5 mm
Overall height	5.17 mm
Mounting depth	35.5
Mounting hole	30.3 mm
Key grid	min. 35 x 35 mm
→ Mechanical design	
Mounting	threaded ring + adapter
Front connection	USB Type A
Rear connection	USB Type B
Torque for nut ring	1.2 Nm
→ Other specifications	
Ambient temp. operating min.	-25 °C
Ambient temp. operating max.	+70 °C
Storage temperature min.	-40 °C
Storage temperature max.	+80 °C
Operating life	1500 operations
Degree of protection from front side	IP65 (DIN EN 60529) with closed sealing cap
Relative humidity	5 bis 95% (non condensed)
Shock resistance to IEC 60068-2-27 (EN 61131-2)	50 g at 11 ms half sine amplitude
Vibration resistance according to IEC 600 68-2-6 (EN 61131-2)	5 g at 10...500 Hz
ROHS compliant	yes
REACH compliant	yes

Approvals

IEC 60947-5-x

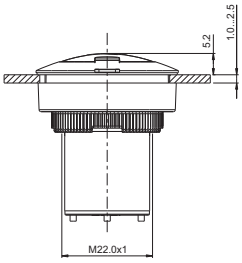
UL 508 in preparation

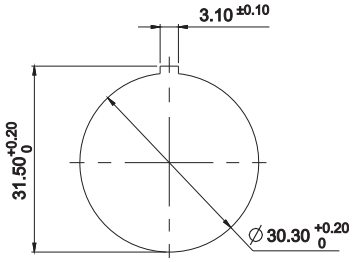
Accessories RAFIX 30 FS+ - USB feedthrough

→ Description	Photo	Order no.	Additional accessories see page
Fixing spanner for ring nut		5.05.800.062/0000	2 - 145, 2 - 261, 5 - 25
Retaining ring for front panel thickness 2.5 ... 4 mm		5.45.201.556/0700	2 - 266

RAFIX 30 FS+ USB feedthrough

Technical data see page 2 - 232





→ Description	Order no.
RAFIX 30 FS+ - USB feedthrough	1.30.299.021/0700

RAFIX FS Technology - Contact blocks

The contact blocks of the RAFIX FS technology are available as PCB version or as „QC“ (Quick Connect) version for direct connection. Both variants can be combined with the appropriate actuators of the following product families: RAFIX 22 FS$^+$, RAFIX 22 FSR and RAFIX 30 FS$^+$.

Content

RAFIX 22 FS Contact blocks PCB gold	**2 - 241**
RAFIX FS Contact block PCB gold, Universal, with light conductor	2 - 242
RAFIX FS Contact block PCB gold, Universal	2 - 243
RAFIX FS Contact block PCB gold, E-Stop, with light conductor	2 - 243
RAFIX FS Contact block PCB gold, E-Stop	2 - 244
RAFIX FS Contact block PCB gold, E-Stop, „Plus 1“	2 - 244
RAFIX 22 FS$^+$ Contact blocks PCB silver	**2 - 246**
RAFIX 22 FS$^+$ Contact block PCB silver, Universal, with light conductor	2 - 247
RAFIX FS Contact block PCB silver, Universal	2 - 248
RAFIX 22 FS$^+$ Contact block PCB silver, E-Stop, with light conductor	2 - 248
RAFIX 22 FS$^+$ Contact block PCB silver, E-Stop	2 - 249
RAFIX 22 FS$^+$ Contact blocks QC gold	**2 - 252**
RAFIX 22 FS$^+$ Contact block QC gold, Universal, with light conductor	2 - 253
RAFIX 22 FS$^+$ Contact block QC gold, E-Stop, with light conductor	2 - 253
RAFIX 22 FS$^+$ Contact block QC gold, E-Stop, „Plus 1“	2 - 254
RAFIX 22 FS$^+$ Contact blocks QC silver	**2 - 255**
RAFIX 22 FS$^+$ Contact block QC silver, Universal, with light conductor	2 - 256
RAFIX 22 FS$^+$ Contact block QC silver, E-Stop, with light conductor	2 - 257
RAFIX FS Short-travel adapters	**2 - 258**
RAFIX FS Short-travel adapter	2 - 258

RAFIX FS Technology Contact Blocks

Combination with actuators

The RAFIX FS contact blocks can be combined with appropriate actuators from the following product families:

- RAFIX 22 FS+
- RAFIX 22 FSR
- RAFIX 30 FS+

PCB contact blocks

PCB contact blocks are arranged with other components on a common printed circuit board. The unit can then be attached behind the front panel with the actuators and signal indicators. This allows the contact blocks to "float" right below the actuators on the printed circuit board, leaving plenty of room for other components. In the centre channel of the contact blocks, either light conductors are integrated to allow usage of SMT LEDs, or 3 mm THT LEDs can be mounted to provide illumination.

PCB mounting depths

- 9.2 mm for RAFIX 22 FS+ and RAFIX 22 FSR
- 15.7 mm for RAFIX 30 FS+

QC contact blocks

QC contact blocks can be easily snapped into the actuators without tools. Male quick-connect terminals are used directly for wiring in a conventional manner. This is a fast and efficient variant for applications where a printed circuit board is not cost-effective.

QC mounting depths

- 26.8 mm for RAFIX 22 FS+ and RAFIX 22 FSR
- 32.8 mm for RAFIX 30 FS+

Contact materials / data (PCB & QC)

The Au / Ag versions of the PCB and QC variants are distinguished by the colouring scheme of the housing:

- Gold contacts for low voltages up to 35 V / 100 mA: grey housing
- Silver contacts up to 250 V / 4 A: black housing

Contact assignments (PCB & QC)

The assignments are indicated with different plunger colours:

- Normally-closed contact (NC) = red
- Normally-open contact (NO) = green
- NC + NO for emergency stop = yellow

The following contact assignments are available:

- 1 normally-closed contact (1 NC)
- 1 normally-open contact (1 NO)
- 2 normally-closed contacts (2 NC)
- 2 normally-open contacts (2 NO)
- 1 normally-closed contact and 1 normally-open contact (1 NC + 1 NO)
- 2 normally-closed contacts and 1 normally-open contact (2 NC + 1 NO), only emergency stop “Plus 1”

Universal / emergency stop versions (PCB & QC)

The universal and emergency stop versions differ in terms of the position of the plungers:

- Universal = plunger outside
- Emergency stop = plunger inside

As a result, only the following combinations are possible:

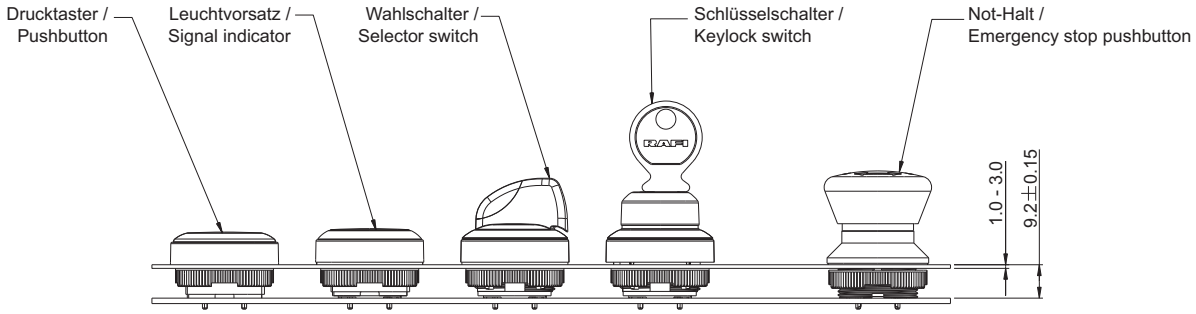
- Universal contact blocks with pushbutton, selector switch and keylock switch
- Emergency stop contact blocks with emergency stop and mushroom pushbutton

Illumination / LED types (for PCB version only)

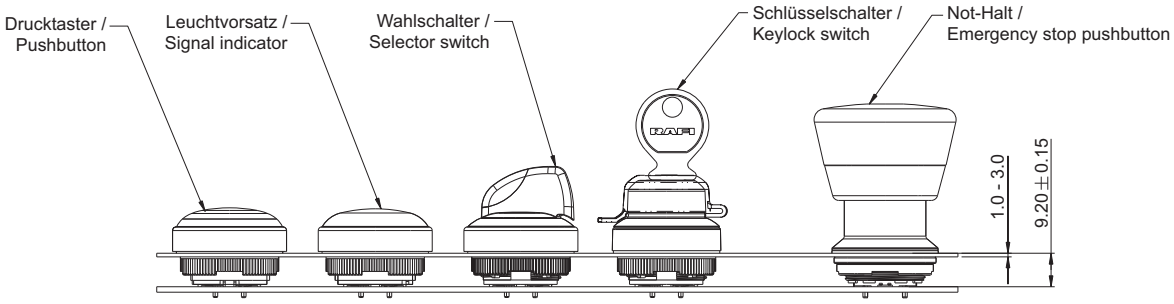
- Version with light conductor for SMT LED
- Version without light conductor for 3 mm THT LED

RAFIX 22 FS+ PCB

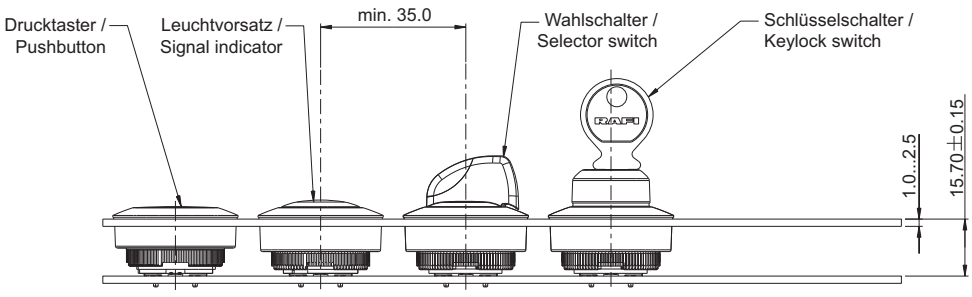
Dimensional drawing RAFIX 22 FS+, PCB



Dimensional drawing RAFIX 22 FSR, PCB

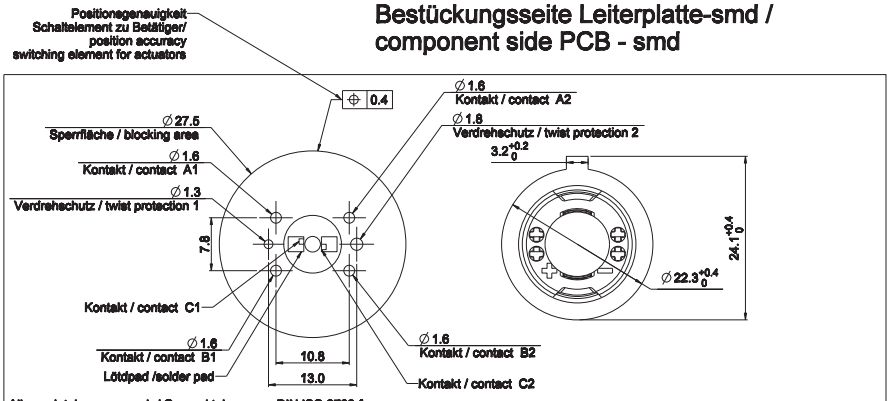


Dimensional drawing RAFIX 30 FS+, PCB



RAFIX 22 FS+ PCB

PCB hole pattern SMT LED
View on component side



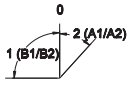
Allgemeintoleranzen nach / General tolerances: DIN ISO 2768-f

Variante / variant	1S / 1NO	1Ö / 1NC	2S / 2NO	2Ö / 2NC	1S + 1Ö / 1NO + 1NC
Kontakt / contact A1/A2 Anschlussbezeichnung / connection designation	1S / 1NO 13 - 14	-	1S / 1NO 13 - 14	1Ö / 1NC 11-12	1S / 1NO 13 - 14
Kontakt / contact B1/B2 Anschlussbezeichnung / connection designation	-	1Ö / 1NC 21-22	1S / 1NO 23-24	1Ö / 1NC 21-22	1Ö / 1NC 21-22
Kontakt / contact C1/C2* Anschlussbezeichnung / connection designation	LED*	LED*	LED*	LED*	LED*

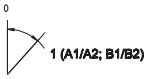
Die Schaltung der Kontakte erfolgt nach folgendem Schema: /
The contact circuits are carried out according to the following scheme:

* LED Belegung bei Beleuchtung des Betätigers /
LED pinning to illuminate an actuator

Betätiger mit 3 Schaltstellungen
Actuator with 3 switch positions



Betätiger mit 2 Schaltstellungen
Actuator with 2 switch positions

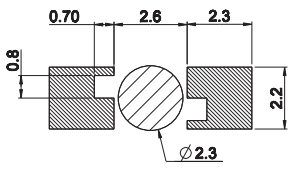


Solder pad design SMT LED
View on component side

Empfohlenes Lötpaddesign

bei Verwendung
pointLED OSRAM
Selektionsklasse: T1-U1

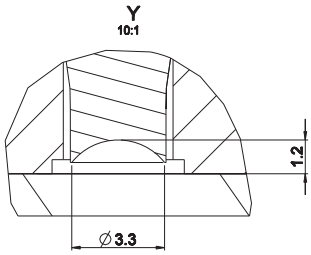
recommended solder pad
for using
pointLED OSRAM
selectionclass: T1-U1

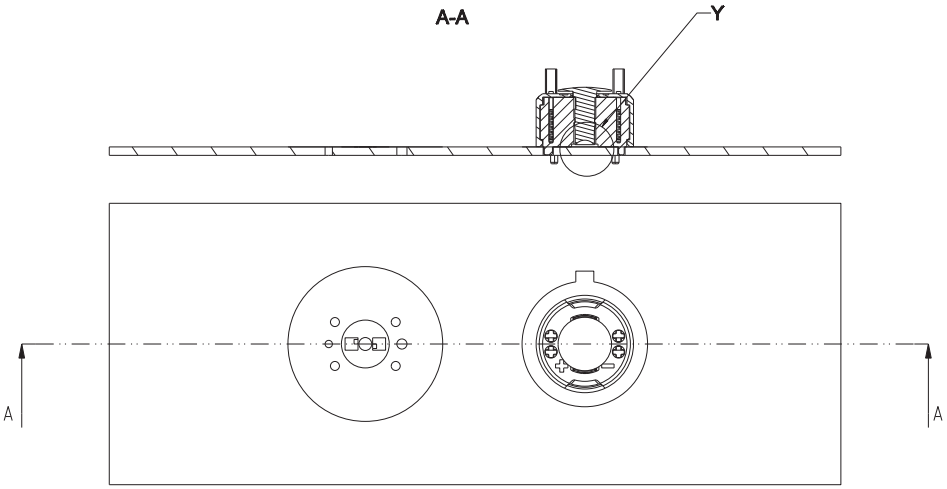


Lötstopplack/Solder resist

Kein Lötstopplack; kein Kupfer
No solder resist; no cooper pad

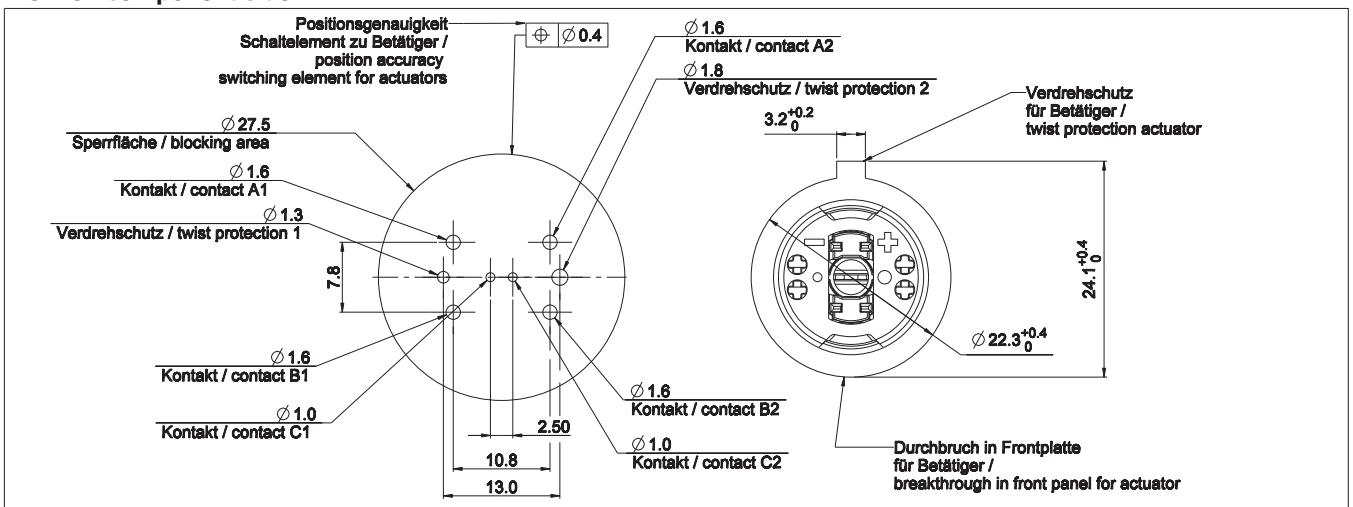
Allgemeiner Bauraum / general space
LED Type 1206
max. Höhe: siehe Schaubild "x" /
max. high: view figure "x"





RAFIX 22 FS+ PCB, THT

PCB hole pattern THT LED
View on component side

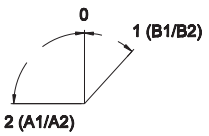


Allgemeintoleranzen nach / General tolerances: DIN ISO 2768-f

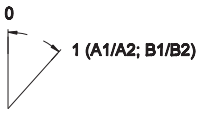
Variante/variant	1S / 1NO	1Ö / 1NC	2S / 2NO	2Ö / 2NC	1S + 1Ö / 1NO + 1NC	Plus 1
Kontakt/contact A1/A2 Anschlussbezeichnung/connection designation 1x	1S / 1NO 13 - 14	-	1S / 1NO 13 - 14	1Ö / 1NC 11-12	1S / 1NO 13 - 14	1Ö / 1NC 11-12
Kontakt/contact B1/B2 Anschlussbezeichnung/connection designation 2x	-	1Ö / 1NC 21-22	1S / 1NO 23-24	1Ö / 1NC 21-22	1Ö / 1NC 21-22	1Ö / 1NC 21-22
Kontakt/contact C1/C2 Anschlussbezeichnung/connection designation	LED* X1-X2	LED* X1-X2	LED* X1-X2	LED* X1-X2	LED* X1-X2	1S / 1NO 33-34
*:Nur bei Bedarf/only if required						

Die Schaltung der Kontakte erfolgt nach folgendem Schema: /
The contact circuits are carried out according to the following scheme:

Betätiger mit 3 Schaltstellungen
Actuator with 3 switch positions



Betätiger mit 2 Schaltstellungen
Actuator with 2 switch positions



RAFIX 22 FS Contact blocks PCB gold

→ **Illumination information**

The PCB contact blocks are included into the PCB layout and arranged next to other components. They are located directly behind the actuators at a distance of only 9.2 mm behind the front panel.

When actuators shall be illuminated there are 2 alternative LED technologies.

THT LEDs: Can be assembled and soldered together with the PCB contact blocks.

SMT LEDs: Can be pre-assembled and soldered with other SMT components. Then they are covered by the PCB contact blocks with light conductor.

Technical Data

→ **General information**	
Lamp optional	see order block
→ **Mechanical design**	
Mounting	soldering in PCB
Contact system	bridge-contact self cleaning
Contact materials	Au
Contact arrangement	see order block
NC contact forcibly actuated acc. to IEC 60947-5-1	yes
Terminals	THT solder terminals with locating lug
→ **Electrical characteristics**	
Operating voltage AC / DC min.	5 V
Operating voltage AC / DC max.	35 V
Operating current AC / DC min.	1 mA
Operating current AC / DC max.	100 mA
Rated power max.	250 mW
→ **Other specifications**	
Operating life at 10 mA / 24 V DC	see order block
B10	see order block
Switching reliability at 24V / 5mA DC	10 x 10^{-6}
Ambient temp. operating max.	+85 °C
Ambient temp. operating min.	-40 °C
Storage temperature min.	-40 °C
Storage temperature max.	+85
Color of plunger	see order block
Robustness	acc. to IEC 60947-5-5 (TÜV)
Shock resistance acc. to IEC 60068-2-27	15 g at 11 ms, amplitude half sinusoidal
Resistance to vibrations acc. to IEC 60068-2-6	5 g at 10 ... 500 Hz
Environmental restistance	acc. to IEC 60068-2-14, -30, -33 and -78
Solderability / solder heat resistance	DIN EN 60068-2-20
Solder techniques	wave solder bath / manual soldering
Color of housing	grey
ROHS compliant	yes
REACH compliant	yes

Approvals

IEC 60947-5-x

UL 508

Accessories RAFIX 22 FS - Contact block PCB gold

→	Description	Photo	Order no.	Additional accessories see page
	LED 3 mm		-	-
	LED base for 3 mm THT LED, used in signal indicators, for RAFIX FS PCB		-	2 - 263
	SMT LED		-	2 - 263
	Spacers, round		-	2 - 265, 4 - 97, 5 - 32
	Spacers, triangular		-	4 - 98, 5 - 33

RAFIX FS
Contact block PCB gold, Universal, with light conductor

Technical data see page 2 - 241

→	Contact arrangement	Lamp optional	Operating life at 10 mA / 24 V DC	B10	Color of plunger	Order no.
	1 NO	SMT LED	1,000,000	1,300,000	green	1.20.126.002/9000
	1 NC	SMT LED	1,000,000	1,300,000	red	1.20.126.001/9000
	2 NO	SMT LED	1,000,000	1,300,000	green	1.20.126.005/9000
	2 NC	SMT LED	1,000,000	1,300,000	red	1.20.126.004/9000
	1 NC + 1 NO	SMT LED	1,000,000	1,300,000	red and green	1.20.126.003/9000

Caution: can not be used with emergency stop and mushroom headed pushbuttons.

RAFIX FS
Contact block PCB gold, Universal

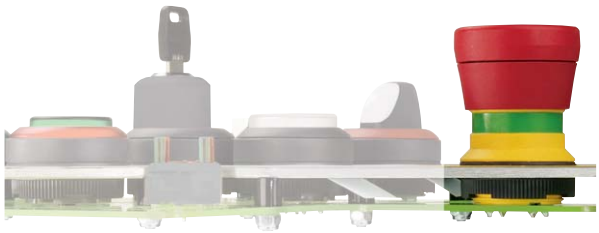
Technical data see page 2 - 241

→	Contact arrangement	Lamp optional	Operating life at 10 mA / 24 V DC	B10	Color of plunger	Order no.
	1 NO	THT LED	1,000,000	1,300,000	green	1.20.126.002/0000
	1 NC	THT LED	1,000,000	1,300,000	red	1.20.126.001/0000
	2 NO	THT LED	1,000,000	1,300,000	green	1.20.126.005/0000
	2 NC	THT LED	1,000,000	1,300,000	red	1.20.126.004/0000
	1 NC + 1 NO	THT LED	1,000,000	1,300,000	red and green	1.20.126.003/0000

Caution: can not be used with emergency stop and mushroom headed pushbuttons.

RAFIX FS
Contact block PCB gold, E-Stop, with light conductor

Technical data see page 2 - 241



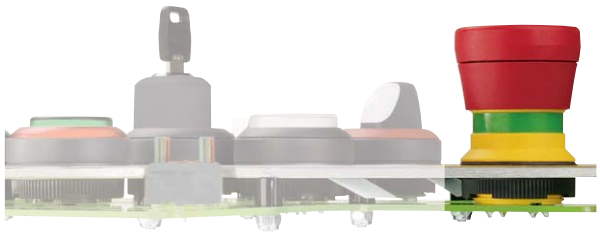
→	Contact arrangement	Lamp optional	Operating life at 10 mA / 24 V DC	B10	Color of plunger	Order no.
	1 NO	SMT LED	1,000,000	1,300,000	green	1.20.126.402/9000
	1 NC	SMT LED	1,000,000	1,300,000	red	1.20.126.401/9000
	2 NO	SMT LED	1,000,000	1,300,000	green	1.20.126.405/9000
	2 NC	SMT LED	1,000,000	1,300,000	red	1.20.126.404/9000
	1 NC + 1 NO	SMT LED	1,000,000	1,300,000	yellow	1.20.126.403/9000

– Table (continued) –
RAFIX FS - Contact block PCB gold, E-Stop, with light conductor

Caution: E-stop contact blocks can only be used with emergency stop and mushroom headed pushbuttons.

RAFIX FS
Contact block PCB gold, E-Stop

Technical data see page 2 - 241

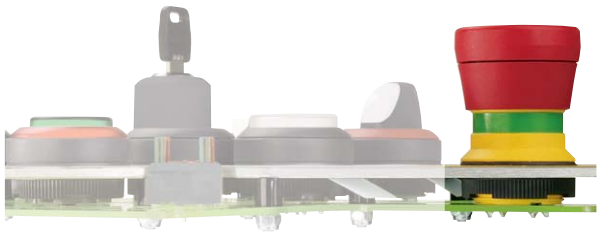


→ Contact arrangement	Lamp optional	Operating life at 10 mA / 24 V DC	B10	Color of plunger	Order no.
1 NO	THT LED	1,000,000	1,300,000	green	1.20.126.402/0000
1 NC	THT LED	1,000,000	1,300,000	red	1.20.126.401/0000
2 NO	THT LED	1,000,000	1,300,000	green	1.20.126.405/0000
2 NC	THT LED	1,000,000	1,300,000	red	1.20.126.404/0000
1 NC + 1 NO	THT LED	1,000,000	1,300,000	yellow	1.20.126.403/0000

Caution: E-stop contact blocks can only be used with emergency stop and mushroom headed pushbuttons.

RAFIX FS
Contact block PCB gold, E-Stop, „Plus 1“

Technical data see page 2 - 241



→ Contact arrangement	Lamp	Operating life at 10 mA / 24 V DC	B10	Color of plunger	Order no.
2 NC + 1 signal contact	-	50,000	65,000	red	1.20.126.414/0000

– Table (continued) –
RAFIX FS - Contact block PCB gold, E-Stop, „Plus 1“

Caution: E-stop contact blocks „Plus 1“ can only be used with emergency stop pushbuttons „Plus 1“.

RAFIX 22 FS+ Contact blocks PCB silver

→ **Illumination information**

The PCB contact blocks are included into the PCB layout and arranged next to other components. They are located directly behind the actuators at a distance of only 9.2 mm behind the front panel.

When actuators shall be illuminated there are 2 alternative LED technologies.

THT LEDs: Can be assembled and soldered together with the PCB contact blocks.

SMT LEDs: Can be pre-assembled and soldered with other SMT components. Then they are covered by the PCB contact blocks with light conductor.

Technical Data

→ **General information**	
Lamp optional	see order block
→ **Mechanical design**	
Mounting	soldering in PCB
Contact system	bridge-contact self cleaning
Contact materials	Ag
Contact arrangement	see order block
NC contact forcibly actuated acc. to IEC 60947-5-1	yes
Terminals	THT solder terminals with locating lug
→ **Electrical characteristics acc. to IEC 60947, AC-15, DC-13**	
Rated insulation voltage AC / DC	250 V
Rated peak 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
Max. fuse protection	microfuse 5 x 20 mm, 6.3 A, inert
→ **Other specifications**	
Operating life at 250V / 1A	1,000,000
B10 at 250V / 1A	1,300,000
Operating life at 250V / 2A	100,000
B10 at 250V / 2A	130,000
Operating life at 250V / 4A	30,000
B10 at 250V / 4A	40,000
Switching reliability at 24V / 5mA DC	10×10^{-6}
Ambient temp. operating max.	+85 °C
Ambient temp. operating min.	-40 °C
Storage temperature min.	-40 °C
Storage temperature max.	+85 °C
Color of plunger	see order block
Robustness	acc. to IEC 60947-5-5 (TÜV)
Shock resistance acc. to IEC 60068-2-27	50 g at 11 ms, amplitude half sinusoidal
Resistance to vibrations acc. to IEC 60068-2-6	5 g at 10 ... 500 Hz
Environmental restistance	acc. to IEC 60068-2-14, -30, -33 and -78
Solderability / solder heat resistance	DIN EN 60068-2-20
Solder techniques	wave solder bath / manual soldering
Flame class acc. to UL 94	V 0
Hot wire ignition acc. to IEC 60695-2-1	yes
Color of housing	black
ROHS compliant	yes
REACH compliant	yes

Approvals

IEC 60947-5-x

UL 508

Accessories RAFIX 22 FS+ - Contact block PCB silver

→	Description	Photo	Order no.	Additional accessories see page
	LED 3 mm		-	-
	LED base for 3 mm THT LED, used in signal indicators, for RAFIX FS PCB		-	2 - 263
	SMT LED		-	2 - 263
	Spacers, round		-	2 - 265, 4 - 97, 5 - 32
	Spacers, triangular		-	4 - 98, 5 - 33

RAFIX 22 FS+
Contact block PCB silver, Universal, with light conductor

Technical data see page 2 - 246

→	Contact arrangement	Lamp optional	Color of plunger	Order no.
	1 NO	SMT LED	green	1.20.126.202/9000
	1 NC	SMT LED	red	1.20.126.201/9000
	2 NO	SMT LED	green	1.20.126.205/9000
	2 NC	SMT LED	red	1.20.126.204/9000
	1 NC + 1 NO	SMT LED	red and green	1.20.126.203/9000

Caution: can not be used with emergency stop and mushroom headed pushbuttons.

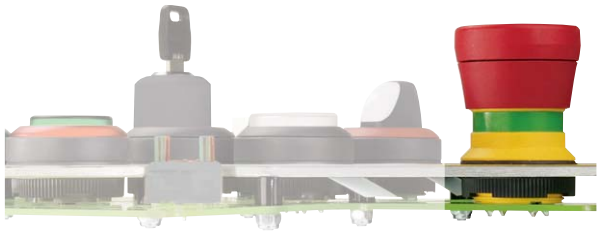
RAFIX FS
Contact block PCB silver, Universal

Technical data see page 2 - 246

→ Contact arrangement	Lamp optional	Color of plunger	Order no.
1 NO	THT LED	green	1.20.126.202/0000
1 NC	THT LED	red	1.20.126.201/0000
2 NO	THT LED	green	1.20.126.205/0000
2 NC	THT LED	red	1.20.126.204/0000
1 NC + 1 NO	THT LED	red and green	1.20.126.203/0000

RAFIX 22 FS+
Contact block PCB silver, E-Stop, with light conductor

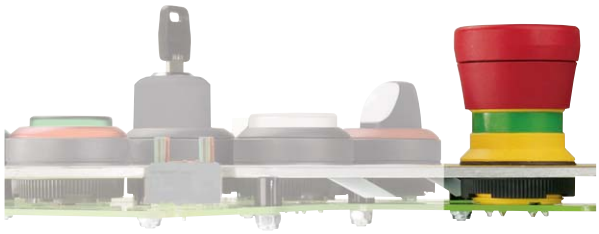
Technical data see page 2 - 246



→ Contact arrangement	Lamp optional	Color of plunger	Order no.
1 NO	SMT LED	green	1.20.126.602/9000
1 NC	SMT LED	red	1.20.126.601/9000
2 NO	SMT LED	green	1.20.126.605/9000
2 NC	SMT LED	red	1.20.126.604/9000
1 NC + 1 NO	SMT LED	yellow	1.20.126.603/9000

RAFIX 22 FS+
Contact block PCB silver, E-Stop

Technical data see page 2 - 246

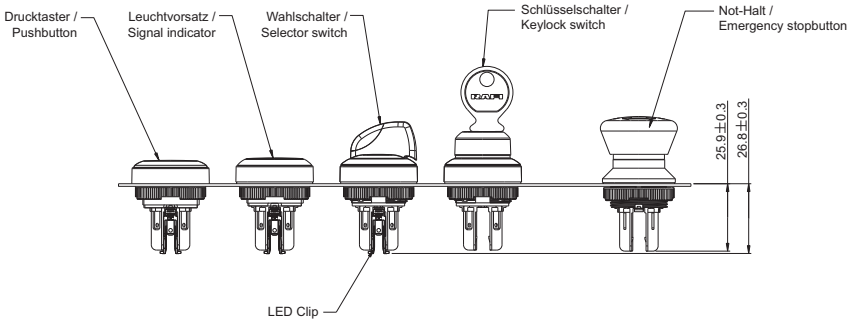


→ Contact arrangement	Lamp optional	Color of plunger	Order no.
1 NO	THT LED	green	1.20.126.602/0000
1 NC	THT LED	red	1.20.126.601/0000
2 NO	THT LED	green	1.20.126.605/0000
2 NC	THT LED	red	1.20.126.604/0000
1 NC + 1 NO	THT LED	yellow	1.20.126.603/0000

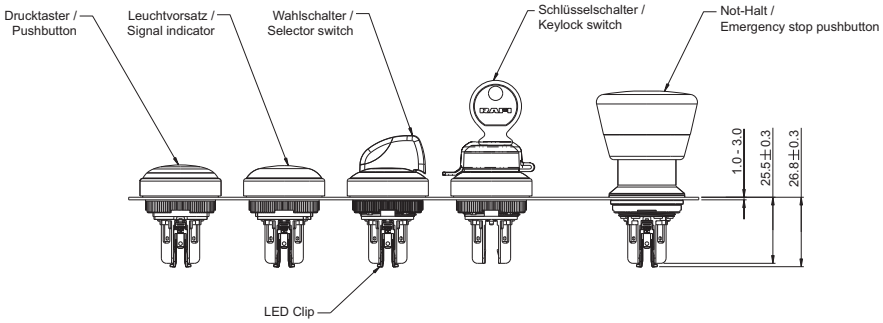
Caution: E-stop contact blocks can only be used with emergency stop and mushroom headed pushbuttons.

RAFIX 22 FS+ QC

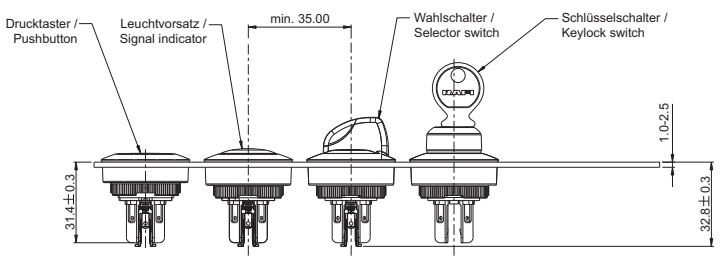
Dimensional drawing RAFIX 22 FS+, QC



Dimensional drawing RAFIX 22 FSR, QC

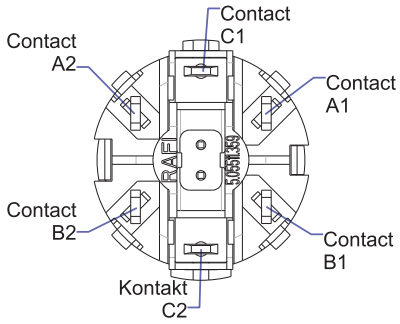


Dimensional drawing RAFIX 30 FS+, QC

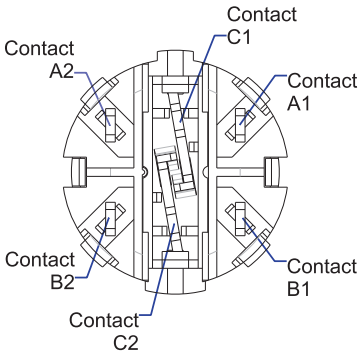


RAFIX 22 FS+ QC

Dimensional drawing with QC contact blocks



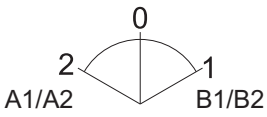
Contact block with LED-Clip
(sight from below)



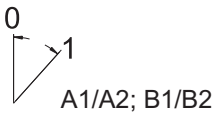
Contact block "Plus 1"
(sight from below)

Contact arrangement	1NO	1NC	2NO	2NC	1NC + 1NO	Plus 1
Contact A1/A2 Terminal legending	1NO 13 - 14	-	1NO 13 - 14	1NC 11 - 12	1NO 13 - 14	1NC 11 - 12
Contact B1/B2 Terminal legending	-	1NC 21 - 22	1NO 23 - 24	1NC 21 - 22	1NC 21 - 22	1NC 21 - 22
Contact C1/C2 Terminal legending *:only when needed	LED* X1 - X2	LED* X1 - X2	LED* X1 - X2	LED* X1 - X2	LED* X1 - X2	1NO 33 - 34

Contact diagramm for selector and keylock switches



All actuators with 3 switch positions



All actuators with 2 switch positions

RAFIX 22 FS+ Contact blocks QC gold

→ The contact blocks are inserted into the actuators and latch there permanently. Emergency stop pushbuttons require special contact blocks which can be recognised by the plungers situated closer to the middle. In addition, the emergency stop contact blocks and actuators feature two assembly guides which prevent rotation during assembly. We recommend to choose the LED color in the same color as the lens of the actuator in order to ensure satisfactory illumination.

Approvals

IEC 60947-5-x

UL 508

Technical Data

→ **General information**	
Lamp optional	see order block
→ **Mechanical design**	
Mounting	snap on actuator
Contact system	bridge-contact self cleaning
Contact materials	Au
Contact arrangement	see order block
NC contact forcibly actuated acc. to IEC 60947-5-1	yes
Terminals	quick connect terminals 2.8 x 0.5 mm mm
→ **Electrical characteristics**	
Operating voltage min.	5 V
Operating voltage max.	35 V
Operating current min.	1 mA
Operating current max.	100 mA
Rated power max.	250 mW
→ **Other specifications**	
Operating life at 10 mA / 24V DC	see order block
B10	see order block
Switching reliability at 5mA / 24V DC	10 x 10^{-6}
Ambient temp. operating min.	-40 °C
Storage temperature max.	+85 °C
Storage temperature min.	-40 °C
Storage temperature max.	+85 °C
Color of plunger	see order block
Robustness	acc. to IEC 60947-5-5 (TÜV)
Shock resistance acc. to IEC 60068-2-27	15 g at 11 ms, amplitude half sinusoidal
Resistance to vibrations acc. to IEC 60068-2-6	5 g at 10 ... 500 Hz
Environmental restistance	acc. to IEC 60068-2-14, -30, -33 and -78
Color of housing	grey
ROHS compliant	yes
REACH compliant	yes

Accessories RAFIX 22 FS+ - Contact block QC gold

→ Description	Photo	Order no.	Additional accessories see page
LED base for contact blocks QC		-	2 - 262

RAFIX 22 FS+
Contact block QC gold, Universal, with light conductor

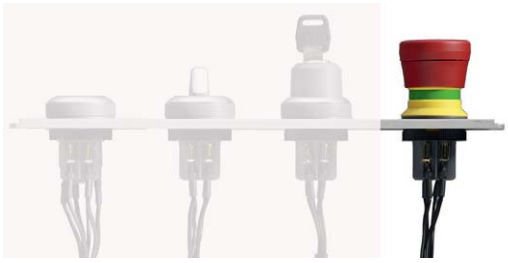
Technical data see page 2 - 252

→	Contact arrangement	Lamp optional	Operating life at 10 mA / 24V DC	B10	Color of plunger	Order no.
	1 NO	LED-Clip	1,000,000	1,300,000	green	1.20.126.102/9000
	1 NC	LED-Clip	1,000,000	1,300,000	red	1.20.126.101/9000
	2 NO	LED-Clip	1,000,000	1,300,000	green	1.20.126.105/9000
	2 NC	LED-Clip	1,000,000	1,300,000	red	1.20.126.104/9000
	1 NC + 1 NO	LED-Clip	1,000,000	1,300,000	red and green	1.20.126.103/9000

Caution: can not be used with emergency stop and mushroom headed pushbuttons.

RAFIX 22 FS+
Contact block QC gold, E-Stop, with light conductor

Technical data see page 2 - 252



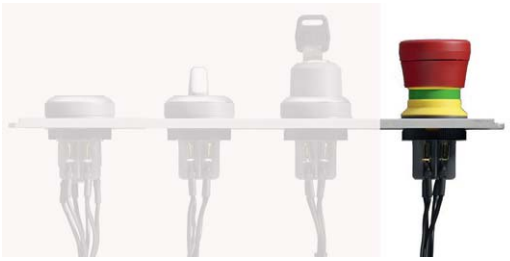
→	Contact arrangement	Lamp optional	Operating life at 10 mA / 24V DC	B10	Color of plunger	Order no.
	1 NO	LED-Clip	1,000,000	1,300,000	green	1.20.126.502/9000
	1 NC	LED-Clip	1,000,000	1,300,000	red	1.20.126.501/9000
	2 NO	LED-Clip	1,000,000	1,300,000	green	1.20.126.505/9000
	2 NC	LED-Clip	1,000,000	1,300,000	red	1.20.126.504/9000
	1 NC + 1 NO	LED-Clip	1,000,000	1,300,000	yellow	1.20.126.503/9000

– Table (continued) –
RAFIX 22 FS+ - Contact block QC gold, E-Stop, with light conductor

Caution: E-stop contact blocks can only be used with emergency stop and mushroom headed pushbuttons.

RAFIX 22 FS+
Contact block QC gold, E-Stop, „Plus 1“

Technical data see page 2 - 252



→	Contact arrangement	Lamp optional	Operating life at 10 mA / 24V DC	B10	Color of plunger	Order no.
	2 NC + 1 NO	LED-Clip	50,000	65,000	red	1.20.126.514/0000

Caution: E-stop contact blocks „Plus 1“ can only be used with emergency stop pushbuttons „Plus 1“.

RAFIX 22 FS+ Contact blocks QC silver

→ The contact blocks are inserted into the actuators and latch there permanently. Emergency stop pushbuttons require special contact blocks which can be recognised by the plungers situated closer to the middle. In addition, the emergency stop contact blocks and actuators feature two assembly guides which prevent rotation during assembly.
We recommend to choose the LED color in the same color as the lens of the actuator in order to ensure satisfactory illumination.

Technical Data

→ **General information**	
Lamp optional	LED-Clip
→ **Mechanical design**	
Mounting	snap on actuator
Contact system	bridge-contact self cleaning
Contact materials	Ag
Contact arrangement	see order block
NC contact forcibly actuated acc. to IEC 60947-5-1	yes
Terminals	quick connect terminals 2.8 x 0.5 mm
→ **Electrical characteristics acc. to IEC 60947, AC-15, DC-13**	
Rated insulation voltage AC / DC	250 V
Rated peak 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
Max. fuse protection	microfuse 5 x 20 mm, 6.3 A, inert
→ **Other specifications**	
Operating life at 250V / 1A	1,000,000
B10 at 250V / 1A	1,300,000
Operating life at 250V / 2A	100,000
B10 at 250V / 2A	130,000
Operating life at 250V / 4A	30,000
B10 at 250V / 4A	40,000
Switching reliability at 24V / 5mA DC	10 x 10^{-6}
Ambient temp. operating max.	+85 °C
Ambient temp. operating min.	-40 °C
Storage temperature min.	-40 °C
Storage temperature max.	+85 °C
Color of plunger	see order block
Robustness	acc. to IEC 60947-5-5 (TÜV)
Shock resistance acc. to IEC 60068-2-27	15 g at 11 ms, amplitude half sinusoidal
Resistance to vibrations acc. to IEC 60068-2-6	5 g at 10 ... 500 Hz
Environmental restistance	acc. to IEC 60068-2-14, -30, -33 and -78
Flame class acc. to UL 94	V 0
Hot wire ignition acc. to IEC 60695-2-1	yes
Color of housing	black
ROHS compliant	yes
REACH compliant	yes

Approvals

IEC 60947-5-x

UL 508

Accessories RAFIX 22 FS+ - Contact block QC silver

→ Description	Photo	Order no.	Additional accessories see page
Female quick-connect terminal DIN 46340-B 2.8-1-MS		-	2 - 76, 2 - 262, 5 - 27
LED base for contact blocks QC		-	2 - 262

RAFIX 22 FS+
Contact block QC silver, Universal, with light conductor

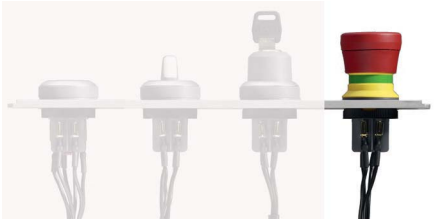
Technical data see page 2 - 255

→ Contact arrangement	Lamp optional	Color of plunger	Order no.
1 NO	LED-Clip	green	1.20.126.302/9000
1 NC	LED-Clip	red	1.20.126.301/9000
2 NO	LED-Clip	green	1.20.126.305/9000
2 NC	LED-Clip	red	1.20.126.304/9000
1 NC + 1 NO	LED-Clip	red and green	1.20.126.303/9000

Caution: can not be used with emergency stop and mushroom headed pushbuttons.

RAFIX 22 FS+
Contact block QC silver, E-Stop, with light conductor

Technical data see page 2 - 255



→ Contact arrangement	Lamp optional	Color of plunger	Order no.
1 NO	LED-Clip	green	1.20.126.702/9000
1 NC	LED-Clip	red	1.20.126.701/9000
2 NO	LED-Clip	green	1.20.126.705/9000
2 NC	LED-Clip	red	1.20.126.704/9000
1 NC + 1 NO	LED-Clip	yellow	1.20.126.703/9000

Caution: E-stop contact blocks can only be used with emergency stop and mushroom headed pushbuttons.

NEW

RAFIX FS
Short-travel adapters

→ The short-travel adapter can easily be inserted into a RAFIX 22 FS+ series and RAFIX 30 FS+ pushbutton. The tactile properties of the short-travel key-switch become noticeable when the pushbutton is pressed. In addition the small footprint of the MICON 5 enables the placement of diverse LEDs, allowing several light functions.

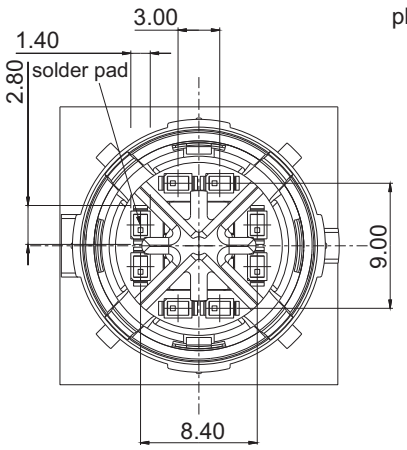
Technical Data

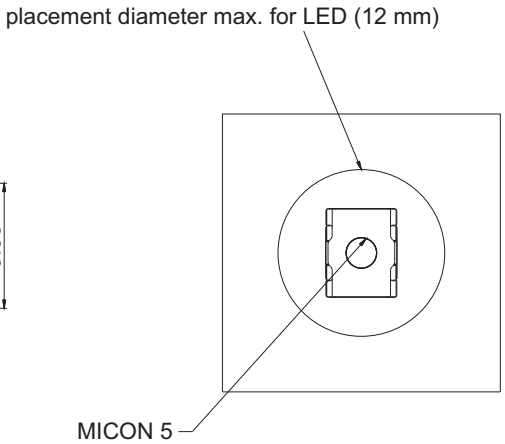
→ **General information**

Operating life	1.000.000 operations on MICON 5 1.14.002.101/0000

→ **Other specifications**

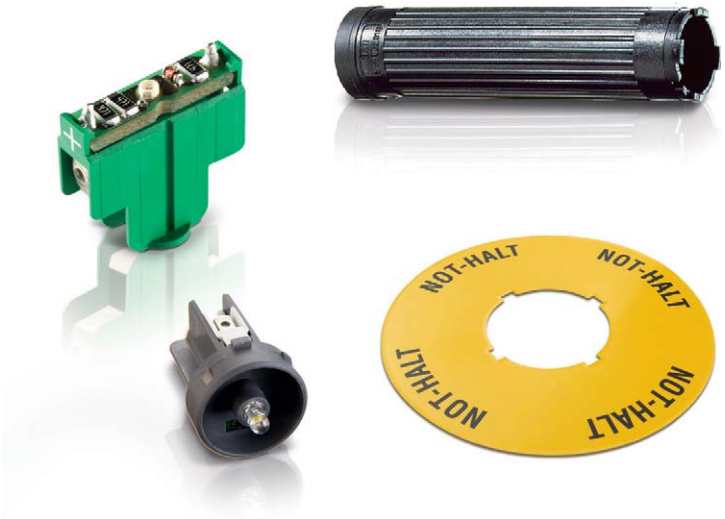
ROHS compliant	yes
REACH compliant	yes





RAFIX FS
Short-travel adapter

→ Description	Order no.
RAFIX FS - Short-travel adapter on MICON 5	5.05.511.917/0000



RAFIX FS Technology - Special accessories

CONTROL COMPONENTS

RAFIX FS TECHNOLOGY - SPECIAL ACCESSORIES

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RAFIX FS TECHNOLOGY Special accessories

Fixing spanner for ring nut and front ring

→	Description	Fitting for	Order no.
	Fixing spanner for ring nut	RAFIX 22 QR/FS	5.05.800.062/0000

QC LED base for signal indicators

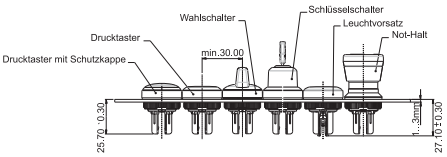
→	Description	Order no.
	RAFIX 22 FS^{+} - Socket for LED-Clip, quick-connect terminals	5.05.511.855/9000

Female quick-connect terminal DIN 46340-B 2.8-1-MS

→ Description	Order no.
Female quick-connect terminal DIN 46340-B 2.8-1-MS	5.37.540.024/8622

With latching detent for mating with a multipole connector.

LED base for contact blocks QC



→ Voltage DC	Color	Order no.
12 V	red	5.05.511.747/0300
12 V	yellow	5.05.511.747/0400
12 V	green	5.05.511.747/0500
12 V	blue	5.05.511.747/0600
12 V	white	5.05.511.747/0200
24 V	red	5.05.511.747/1300
24 V	yellow	5.05.511.747/1400
24 V	green	5.05.511.747/1500
24 V	blue	5.05.511.747/1600
24 V	white	5.05.511.747/1200

Accessoires:
LED base for signal indicators: see page

SMT LED

→ Description	Order no.

For the best illumination of actuators and signal indicators we suggest to use the following SMT LED type: OSRAM LT P4SG

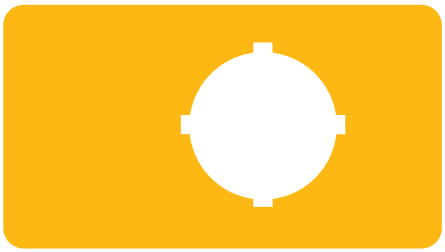
LED base for 3 mm THT LED, used in signal indicators, for RAFIX FS PCB

→ Description	Order no.
LED base for signal indicators, height 5 mm	5.30.109.020/0756

THT LED 3 mm, without base

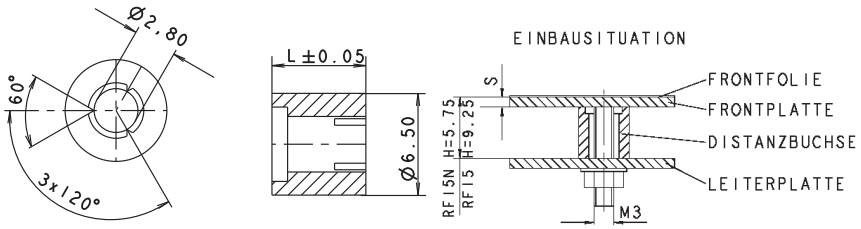
→ Color	Forward voltage typ. U_F at I_F	Max. current, I_F	Order no.
red	1.6 V / 1 mA	30 mA	1.90.690.228/0000
red	1.9 V / 20 mA	50 mA	1.90.690.269/0000
yellow	1.9 V / 20 mA	50 mA	1.90.690.267/0000
green	3.2 V / 20 mA	35 mA	1.90.690.684/0000
blue	3.6 V / 20 mA	30 mA	1.90.690.282/0000
white	3.6 V / 20 mA	30 mA	1.90.690.295/0000

Emergency stop label, Ø 22.3 mm



→ Dimensions	inside Ø	Label	Order no.
36 x 64 mm	22.3 mm	-	5.76.205.011/0400
Ø 40 mm	22.3 mm	„NOT-HALT, EMERGENCY STOP, ARRET D´URGENCE, EMERGENZA"	5.76.204.115/0400
Ø 40 mm	22.3 mm	4 x „NOT-AUS"	5.76.204.119/0400
Ø 40 mm	22.3 mm	4 x „NOT-HALT"	5.76.204.117/0400
Ø 40 mm	22.3 mm	4 x „EMERGENCY STOP"	5.76.204.121/0400
Ø 60 mm	22.3 mm	1 x „NOT-AUS"	5.76.204.101/0400
Ø 60 mm	22.3 mm	1 x „ARRET D´URGENCE"	5.76.204.102/0400
Ø 60 mm	22.3 mm	1 x „EMERGENCY STOP"	5.76.204.103/0400
Ø 60 mm	22.3 mm	„EMERGENCY-STOP / ARRET D'URGENCE"	5.76.207.002/0400
Ø 60 mm	22.3 mm	„NOT-HALT, EMERGENCY STOP, ARRET D´URGENCE, EMERGENZA"	5.76.204.107/0400
Ø 60 mm	22.3 mm	4 x „NOT-HALT"	5.76.204.109/0400
Ø 60 mm	22.3 mm	4 x „NOT-AUS"	5.76.204.111/0400
Ø 60 mm	22.3 mm	4 x „EMERGENCY STOP"	5.76.204.113/0400
Ø 60 mm	22.3 mm	1 x „NOT-AUS"	5.76.207.001/0400

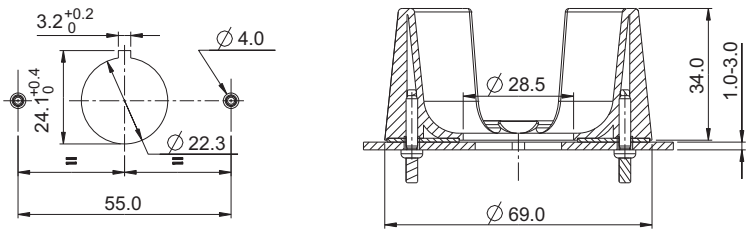
Spacers, round



→ Length L	Color	Order no.
6.25 mm	red	5.30.759.034/0000
6.50 mm	blue transparent	5.30.759.035/0000
6.75 mm	black	5.30.759.036/0000
7 mm	yellow orange transparent	5.30.759.037/0000
7.25 mm	yellow	5.30.759.038/0000
7.50 mm	green	5.30.759.039/0000
7.75 mm	blue	5.30.759.040/0000
8 mm	red	5.30.759.041/0000
8.25 mm	blue transparent	5.30.759.042/0000

<p style="“font-weight: bold;“>Required spacer length
For keyboards: Overall height of key - front panel thickness - 0.5 mm (area embossing).
For RAFIX 22 FS: 9.25 mm - front panel thickness -thickness of overlay, if existing

RAFIX 22 FS+ Protective Collar



→ Description	Order no.
Protective Collar for emergency stop RAFIX 22 FS+	5.00.456.001/0000

– Table (continued) –
RAFIX 22 FS^{+} Protective Collar

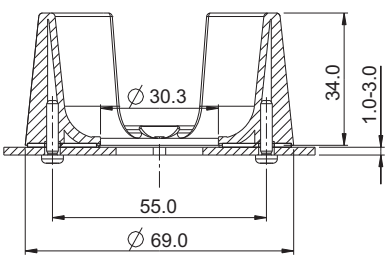
RAFI protective collars protect the pushbuttons from unintentional operation and damage. Another great advantage is that they can be mounted directly on the front panel using two screws and without mechanical attachment to the actuator and/or emergency stop pushbutton. This provides for additional safety because lateral forces are not transferred to the actuator housing.

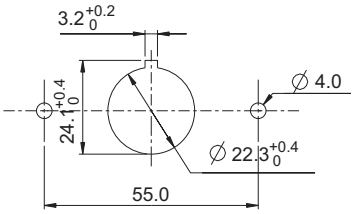
When using the protective collar, the preliminary contents of EN ISO 13850, chapter 4.3.9 and 4.5.1 have to be respected.

The protective collar is not allowed with RAFIX FSR Emergency stop pushbutton 1.30.283.xxx. The protective collar 5.00.456.002/0000 from RAFIX 22 QR should be used instead, see catalog page 2-150.

The protective collar must not be used with RAFIX 22 FS+ Emergency stop pushbutton compact 1.30.273.301/2200

RAFIX 22 QR Protective Collar





→	Description	Order no.
	Protective Collar for emergency stop RAFIX 22 QR	5.00.456.002/0000

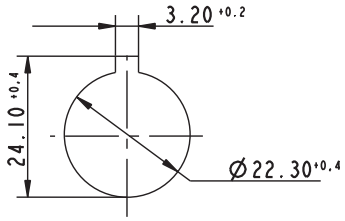
RAFI protective collars protect the pushbuttons from unintentional operation and damage. Another great advantage is that they can be mounted directly on the front panel using two screws and without mechanical attachment to the actuator and/or emergency stop pushbutton. This provides for additional safety because lateral forces are not transferred to the actuator housing.

When using the protective collar, the preliminary contents of EN ISO 13850, chapter 4.3.9 and 4.5.1 have to be respected.

RAFIX 22 FS
Blanking cap, Ø 22.3 mm

round, high version

square blanking cap



Panel cut-out to IEC 60947-5-1

→	Description	Form	Overall height	Order no.
	Blanking cap IP65, ring nut, round, slate gery, flat	round	flush	5.05.800.067/0000
	Blanking cap IP65, ring nut, round, high version, can be used for covering mounted PCB contact blocks.	round	high	5.05.200.025/0000
	Blanking cap IP65, ring nut, square, slate grey, flat	square	flush	5.05.800.068/0000
	Blanking cap IP65, ring nut, square, high version, can be used for covering mounted PCB contact blocks.	square	high	5.05.200.026/0000

Retaining ring for front panel thickness 2.5 ... 4 mm

→	Description	Order no.
	Retaining ring for front panel thickness 2.5 ... 4 mm	5.45.201.556/0700

RAFIX FS
Protective cap for keylock switch

→	Description	Order no.
	RAFIX FS - Protective cap for keylock switch	5.55.105.454/0111