RAFIX 22 FS+

FAST & SLIM
Everything else is outdated.

RAFI
SOLUTIONS WITH PASSION

RAFIX 22 FS+
FAST & SLIM

RAFIX 22 FS+ FAST & SLIM EVERYTHING ELSE IS OUTDATED.

Design is the key! New technologies and new materials make new design worlds possible. That not only goes for Colani and his motor truck vision of the future but also for the control unit in your machine.
The RAFIX 22 FS+ control component generation provides your designers a basis for new designs, plus fast and cost-efficient installation options requiring a minimum amount of space, and is now optimized to the latest generation of super bright SMT LEDs.

Fast

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

- A printed circuit board is the best and fastest solution already for medium-size production volumes. In adition, PCB contact blocks can ideally be combined with displays, short-travel key switches and electronic assemblies on one common printed circuit board.
- Alternatively, QC (= Quick Connect) contact blocks caneasily be snapped into the actuators without tools. Blade terminals are used directly for wiring in a conventional manner. The fast and cost-effective variant - where no PCB is profiable.

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 goes for contact blocks with silver contacts for mains voltage.
  That's as slim as it gets.
- Also when fitted with QC contact blocks, RAFIX 22 FS+ panels are extremely flat. With a small footprint of only 27 mm behind the front panel, they provide tremendous design scope for inspiring control panels.

+

RAFIX 22 FS+ offer additional benefits for you:

- Diverse actuators and contact block options – a complete series
- Variable thanks to round or square operating components
- Variable thanks to gold contacts from 5 V silver contacts up to 250 V
- Variable design thanks to diverse front ring colors
- Variable illumination, compatible with 3 mm THT or newly with SMT LEDs

DESIGN IS THE KEY

Enjoy the look of your operating panel just like your customer will. The front elements feature a classically elegant design and guarantee reliable data input.

Design

The RAFIX 22 FS+ series sets new standards in the control component field. Extremely flat construction and functional esthetic design are absolutely essential in an increasingly design-oriented industrial environment.
The wide variety and variability of actuators give your designer complete design freedom: round or square collar types, radiant colors and homogenous illumination of the large actuating areas are basic features. Combined with the various front rings, this makes it possible to create your panel with a distinctive design. For example, a defined color can always be assigned to a specific command. What's more, the large number of color options for the front ring makes it a snap to customize it to the corporate colors of the various OEMs.

Safe and reliable

The actuators featured in the RAFIX 22 FS+ series are water-jet proof and consistently ensure a degree of protection to at least IP 65, which makes them suitable for many diverse applications. For increased environmental requirements, the series also features actuators with a degree of protection to IP 65/ IP 69K.

Durable

The mechanical lifetime of all actuators is optimally suited for the long-lasting operation of even much-used panels.

RAFIX 22 FS+
FAST & SLIM

PCB & QC – TWO SYSTEMS, ONE TARGET: EFFICIENCY

Quick Connect version

PCB version

In front of the front panel control components are functionally identical. Behind it you'll find the differences which make life easier for your production engineer and number work simpler for your accountant.

Quick Connect

QC contact blocks for maximum variability

When the investment for the layout and production of a printed circuit board does not pay off, your best choice is our QC contact blocks with quick connect terminals.The contact blocks are plugged into the actuators from behind and lock firmly into place.

Blade terminals enable simple wiring, without any additional devices or special tools. The enclosed space in the RAFIX 22 FS$^+$ control components is also used efficiently for the QC contact blocks whose mounting depth including the LED clip and cable lugs is only 27 mm.

Easy to assemble on the printed circuit board

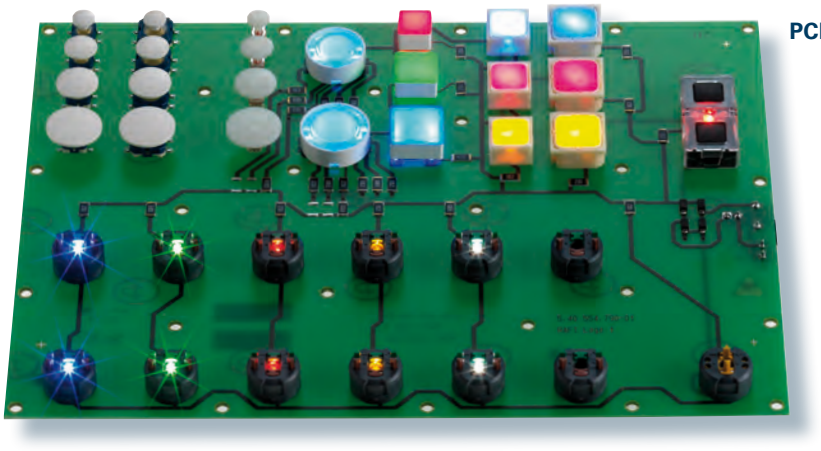
PCB contact blocks for high production volumes

- If you produce your input systems in large volumes, or
- if you use a printed circuit board for the electronics, displays and other components anyway, or
- if you are planning combination with short-travel keyswitches,

RAFIX 22 FS$^+$ with PCB contact blocks is the only real choice.

Simply include the PCB contacts and LEDs in the layout of the printed circuit board and solder them during production – just as simply as the other components on a common printed board.

Your benefits: cost savings and reduction of assembly errors. And don't worry about using up space: the contact blocks require only 9.2 mm of space between the printed circuit board and the front panel.



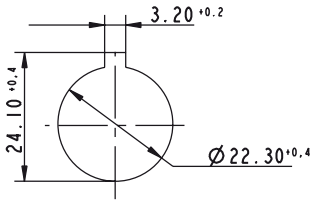
PCB version

COMMON SYSTEM DATA

Front panel

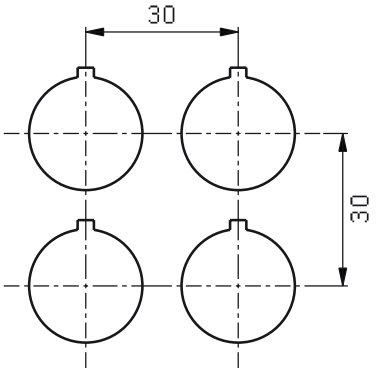
Panel cut-out

The actuators featured 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 the perfect fit of actuators and contact blocks for PCB-mounted components and is therefore essential for a design built with these contact blocks.



Grid spacing

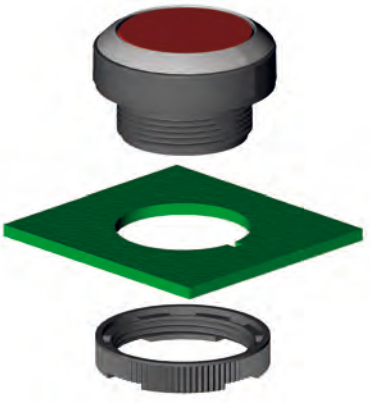
The design principle makes it possible to use a minimum grid spacing of 30 mm x 30 mm. In such an arrangement, actuators with square collars can be aligned directly without any gaps. When designing the grid spacing, it is recommended to consider any external legending required (for example, using labels strips inserted into the front panel).



Assembly of the front actuators

Single-handed assembly method

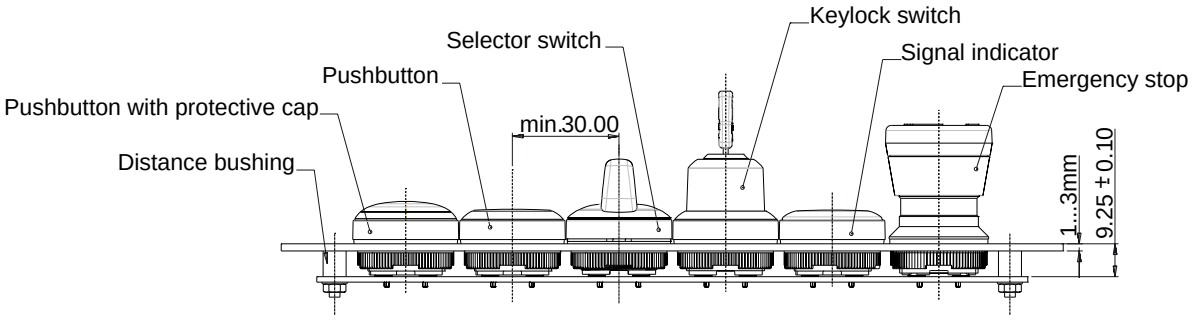
For assembly, insert the actuator into the mounting hole from the front side. It is clamped in the panel cutout. Subsequently you can screw on the actuator from the rear using the ring nut. You can perform these steps one after the other with one hand! Even better: you can start by inserting all actuators from the front side first and subsequently fasten the threaded rings from the rear in one go. We recommend using the RAFIX fixing spanner to ensure proper tightening.



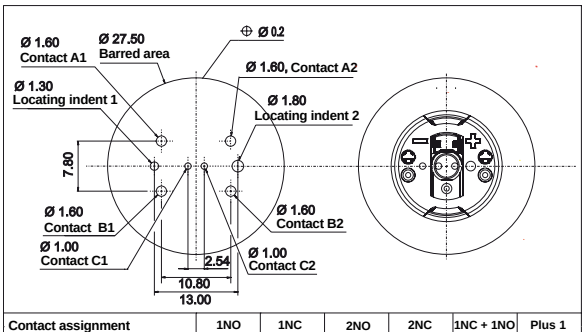
SYSTEM STRUCTURE WITH PCB CONTACT BLOCKS

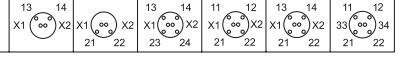
PCB mounting

The PCB contact blocks are soldered on the printed circuit board. Two options for actuator illumination are available:
1.) A 3 mm LED which 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 whose light is transported by the light conductor and distributed over the entire surface of the lenses.
The printed circuit board is fastened to the front panel with bolts, while the contact blocks are almost fully submerged in the actuators, so the entire system is very low. Further benefits: individual wiring is not required, and it is no longer necessary to cut out the printed circuit board around the control components.

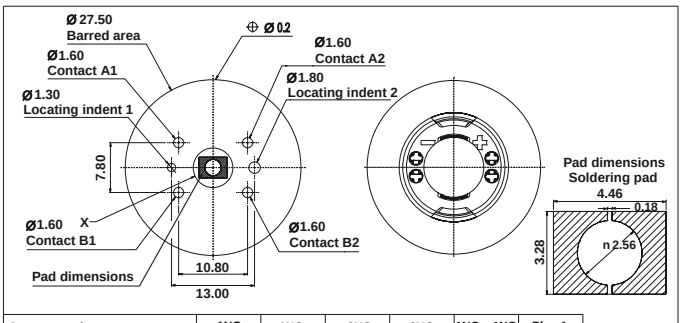


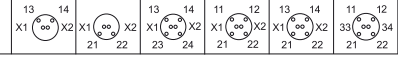
PCB hole pattern with THT LED (view of component side)



Contact assignment	1NO	1NC	2NO	2NC	1NC + 1NO	Plus 1
Contact A1/A2 terminal marking	1NO 13 - 14	-	1NO 13 - 14	1NC 11 - 12	1NO 13 - 14	1NC 11 - 12
Contact B1/B2 terminal marking	-	1NC 21 - 22	1NO 23 - 24	1NC 21 - 22	1NC 21 - 22	1NC 21 - 22
Contact C1/C2 terminal marking *:only if required	LED* X1 - X2	LED* X1 - X2	LED* X1 - X2	LED* X1 - X2	LED* X1 - X2	1NO 33 - 34
*:only if required						

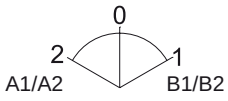
PCB hole pattern with SMT LED (view of component side)



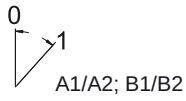
Contact assignment	1NO	1NC	2NO	2NC	1NC + 1NO	Plus 1
Contact A1/A2 terminal marking	1NO 13 - 14	-	1NO 13 - 14	1NC 11 - 12	1NO 13 - 14	1NC 11 - 12
Contact B1/B2 terminal marking	-	1NC 21 - 22	1NO 23 - 24	1NC 21 - 22	1NC 21 - 22	1NC 21 - 22
Contact C1/C2 terminal marking *:only if required	LED* X1 - X2	LED* X1 - X2	LED* X1 - X2	LED* X1 - X2	LED* X1 - X2	1NO 33 - 34
*:only if required						

Contact diagram for selector and keylock switches

All actuators with 3 switch positions



All actuators with 2 switch positions



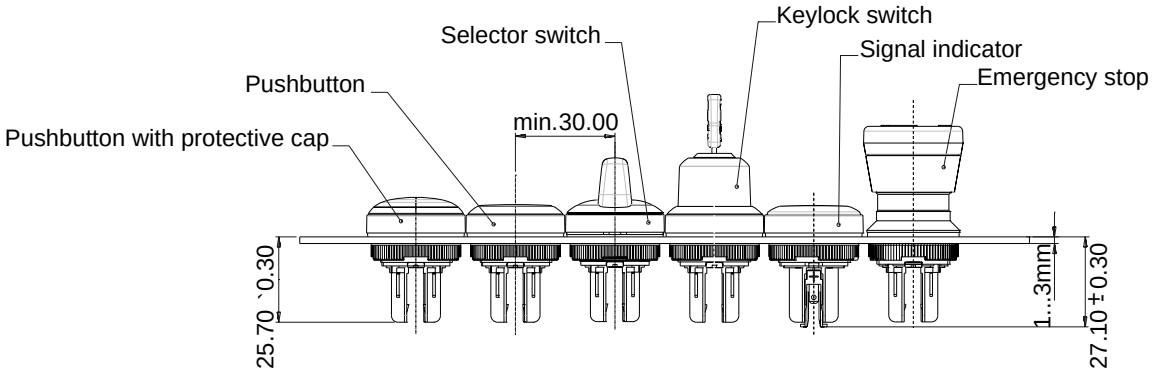
SYSTEM STRUCTURE WITH QC CONTACT BLOCKS

Essential features

- Mounting depth only 27 mm including LED clip and cable lugs
- Quick-connect/solder terminals 2.8 x 0.8 mm
- The contact block engages permanently with the actuator only at the time of final assembly
- Compatible with all RAFIX 22 FS+ actuators: pushbuttons, selector switches, keylock switches, emergency stop buttons and signal indicators, with all benefits this series offers
  -Large actuating and indicating areas
  -Round or square collar shapes
  -Panel cut-out to IEC 60947: 22.3 mm with locating indent
  -Degree of protection IP 65 (water-jet proof)
- 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 of low voltages (5V/1 mA min.) or
- Silver contacts (250V/4A max.) for mains voltage
- Contact assignments: 1NC, 1NO, 2NC, 2NO, 1NC + 1NO
- Illumination with replaceable super bright LED clips in various LED colors, 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 assembled until final assembly. This ensures maximum flexibility and economical stock-keeping for this range

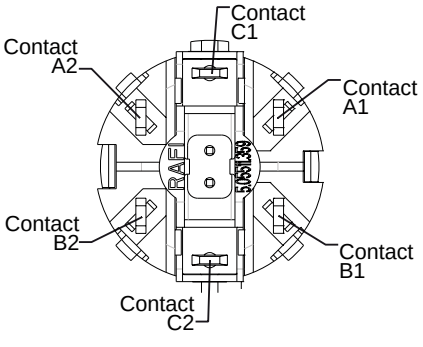
Safe assembly process

Dimensional drawing with QC contact blocks

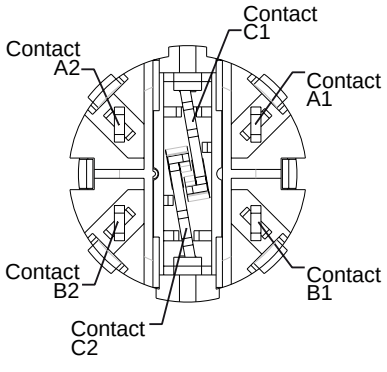


Terminal diagram (view from below)

Contact block with LED clip
(view from below)



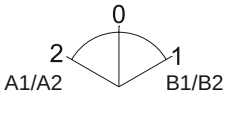
Contact block "Plus 1"
(view from below)



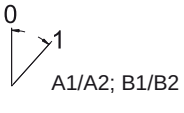
Contact assignment	1NO	1NC	2NO	2NC	1NC + 1NO	Plus 1
Contact A1/A2 terminal marking	1NO 13 - 14	-	1NO 13 - 14	1NC 11 - 12	1NO 13 - 14	1NC 11 - 12
Contact B1/B2 terminal marking	-	1NC 21 - 22	1NO 23 - 24	1NC 21 - 22	1NC 21 - 22	1NC 21 - 22
Contact C1/C2 terminal marking *:only if required	LED* X1 - X2	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



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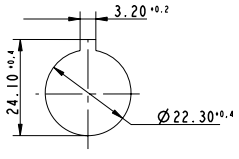
RAFIX 22 FS+ - Pushbuttons



Panel cut-out to IEC 60947-5-1

Technical Data

General information

Form of lens	see order block
Colour of lens	see order block
Colour 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	see order block
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 min.	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
Environmental restistance	acc. to IEC 60068-2-14, -30, -33 and -78
Salt spray	IEC 600 68-2-11

Approvals

IEC 60947-5-x, 60904, 60073

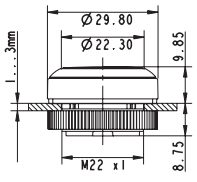
UL 508,C22.2 No. 14-M91

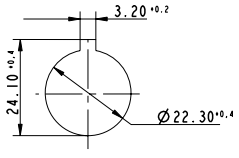
CCC in preparation

Accessories RAFIX 22 FS+ - Pushbuttons

Description	Photo	Order no.	Additional accessories see page
RAFIX 22 FS+ - Contact block PCB gold, Universal		-	59
RAFIX 22 FS+ - Contact block PCB gold, Universal, with light conductor		-	58
RAFIX 22 FS+ - Contact block PCB silver, Universal		-	63
RAFIX 22 FS+ - Contact block PCB silver, Universal, with light conductor		-	63
RAFIX 22 FS+ - Contact block QC gold, Universal, with light conductor		-	52
RAFIX 22 FS+ - Contact block QC silver, Universal, with light conductor		-	55
Fixing spanner for ring nut and front ring		5.05.800.062/0000	65

RAFIX 22 FS+ - Pushbutton, flush lens, round collar





Panel cut-out to IEC 60947-5-1

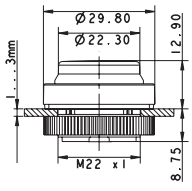
Illuminability	Colour of lens	Order no. momentary		Order no. latching	
		Plastic front ring	Metallized front ring	Plastic front ring	Metallized front ring
yes	translucent white	1.30.270.001/22xx	1.30.270.021/2200	1.30.270.011/22xx	1.30.270.031/2200
yes	translucent red	1.30.270.001/23xx	1.30.270.021/2300	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
no	opaque black	1.30.270.001/01xx	1.30.270.021/0100	1.30.270.011/01xx	1.30.270.031/0100
no	opaque slate-grey	1.30.270.001/07xx	1.30.270.021/0700	1.30.270.011/07xx	1.30.270.031/0700

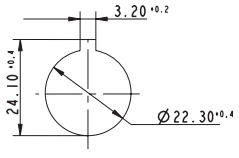
Technical data see page 13

xx = Front ring colour: 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





Panel cut-out to IEC 60947-5-1

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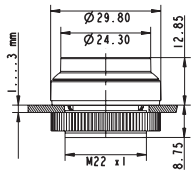
		Plastic front ring	Metallized front ring	Plastic front ring	Metallized front ring
yes	translucent white	1.30.270.201/22xx	1.30.270.221/2200	1.30.270.211/22xx	1.30.270.231/2200
yes	translucent red	1.30.270.201/23xx	1.30.270.221/2300	1.30.270.211/23xx	1.30.270.231/2300
yes	translucent yellow	1.30.270.201/24xx	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
no	opaque black	1.30.270.201/01xx	1.30.270.221/0100	1.30.270.211/01xx	1.30.270.231/0100
no	opaque slate-grey	1.30.270.201/07xx	1.30.270.221/0700	1.30.270.211/07xx	1.30.270.231/0700

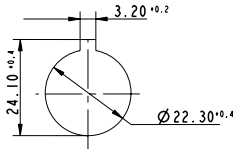
Technical data see page 13

xx = Front ring colour: 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





Panel cut-out to IEC 60947-5-1

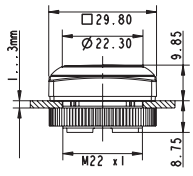
Illuminability	Colour of lens	Order no. momentary		Order no. latching	
		Plastic front ring	Metallized front ring	Plastic front ring	Metallized front ring
yes	translucent white	1.30.270.401/22xx	1.30.270.421/2200	-	-
yes	translucent red	1.30.270.401/23xx	1.30.270.421/2300	-	-
yes	translucent yellow	1.30.270.401/24xx	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	-	-
no	opaque black	1.30.270.401/01xx	1.30.270.421/0100	-	-
no	opaque slate-grey	1.30.270.401/07xx	1.30.270.421/0700	-	-

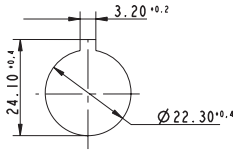
Technical data see page 13

xx = Front ring colour: 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





Panel cut-out to IEC 60947-5-1

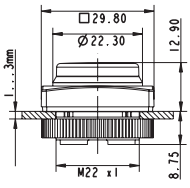
Illuminability	Colour of lens	Order no. momentary		Order no. latching	
		Plastic front ring	Metallized front ring	Plastic front ring	Metallized front ring
yes	translucent white	1.30.270.051/22xx	1.30.270.071/2200	1.30.270.061/22xx	1.30.270.081/2200
yes	translucent red	1.30.270.051/23xx	1.30.270.071/2300	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
no	opaque black	1.30.270.051/01xx	1.30.270.071/0100	1.30.270.061/01xx	1.30.270.081/0100
no	opaque slate-grey	1.30.270.051/07xx	1.30.270.071/0700	1.30.270.061/07xx	1.30.270.081/0700

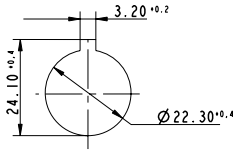
Technical data see page 13

xx = Front ring colour: 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





Panel cut-out to IEC 60947-5-1

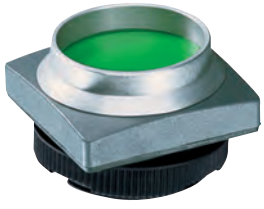
Illuminability	Colour of lens	Order no. momentary		Order no. latching	
		Plastic front ring	Metallized front ring	Plastic front ring	Metallized front ring
yes	translucent white	1.30.270.251/22xx	1.30.270.271/2200	1.30.270.261/22xx	1.30.270.281/2200
yes	translucent red	1.30.270.251/23xx	1.30.270.271/2300	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
no	opaque black	1.30.270.251/01xx	1.30.270.271/0100	1.30.270.261/01xx	1.30.270.281/0100
no	opaque slate-grey	1.30.270.251/07xx	1.30.270.271/0700	1.30.270.261/07xx	1.30.270.281/0700

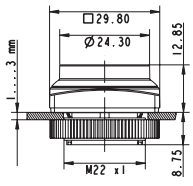
Technical data see page 13

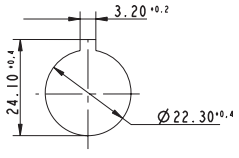
xx = Front ring colour: black = 01, red = 03, yellow = 04, green = 05, blue = 06, slate grey = 07, silver grey = 08

Legending on request.

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







Panel cut-out to IEC 60947-5-1

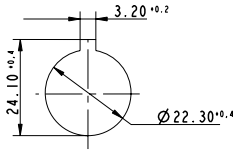
Illuminability	Colour of lens	Order no. momentary		Order no. latching	
		Plastic front ring	Metallized front ring	Plastic front ring	Metallized front ring
yes	translucent white	1.30.270.451/22xx	1.30.270.471/2200	-	-
yes	translucent red	1.30.270.451/23xx	1.30.270.471/2300	-	-
yes	translucent yellow	1.30.270.451/24xx	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	-	-
no	opaque black	1.30.270.451/01xx	1.30.270.471/0100	-	-
no	opaque slate-grey	1.30.270.451/07xx	1.30.270.471/0700	-	-

Technical data see page 13

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

Legending on request.

RAFIX 22 FS+ - Pushbuttons with protective cap



Panel cut-out to IEC 60947-5-1

Technical Data

General information

Form of lens	see order block
Colour of lens	see order block
Colour 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	see order block
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 min.	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, IP69K
Environmental restistance	acc. to IEC 60068-2-14, -30, -33 and -78
Salt spray	IEC 600 68-2-11

Approvals

IEC 60947-5-x, 60904, 60073

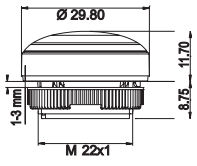
UL 508,C22.2 No. 14-M91

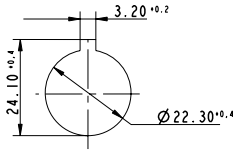
CCC in preparation

Accessories RAFIX 22 FS+ - Pushbuttons with protective cap

Description	Photo	Order no.	Additional accessories see page
RAFIX 22 FS+ - Contact block PCB gold, Universal		-	59
RAFIX 22 FS+ - Contact block PCB gold, Universal, with light conductor		-	58
RAFIX 22 FS+ - Contact block PCB silver, Universal		-	63
RAFIX 22 FS+ - Contact block PCB silver, Universal, with light conductor		-	63
RAFIX 22 FS+ - Contact block QC gold, Universal, with light conductor		-	52
RAFIX 22 FS+ - Contact block QC silver, Universal, with light conductor		-	55
Fixing spanner for ring nut and front ring		5.05.800.062/0000	65

RAFIX 22 FS^{+} - Pushbutton, with protective cap, flush lens, round collar





Panel cut-out to IEC 60947-5-1

Illuminability	Colour of lens	Order no. momentary		Order no. latching	
		Plastic front ring	Metallized front ring	Plastic front ring	Metallized front ring
yes	translucent white	1.30.270.005/22xx	-	-	-
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	-	-	-
no	opaque black	1.30.270.005/01xx	-	-	-
no	opaque slate-grey	1.30.270.005/07xx	-	-	-

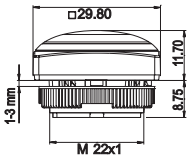
Technical data see page 21

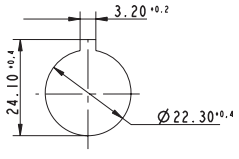
Pushbutton with protective cap for use under rugged conditions.

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

Legending on request.

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





Panel cut-out to IEC 60947-5-1

Illuminability	Colour of lens	Order no. momentary		Order no. latching	
		Plastic front ring	Metallized front ring	Plastic front ring	Metallized front ring
yes	translucent white	1.30.270.055/22xx	-	-	-
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	-	-	-
no	opaque black	1.30.270.055/01xx	-	-	-
no	opaque slate-grey	1.30.270.055/07xx	-	-	-

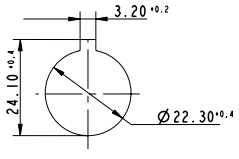
Technical data see page 21

Pushbutton with protective cap for use under rugged conditions.

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

Legending on request.

RAFIX 22 FS+ - Selector switches



Panel cut-out to IEC 60947-5-1

General Data

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
Colour 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	see order block
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
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

Approvals

IEC 60947-5-x, 60904, 60073

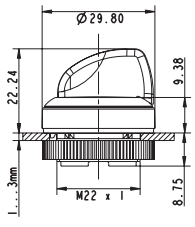
UL 508,C22.2 No. 14-M91

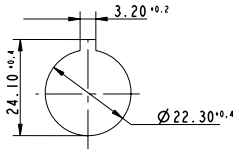
CCC in preparation

Accessories RAFIX 22 FS+ - Selector switches

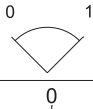
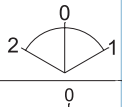
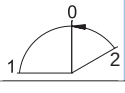
Description	Photo	Order no.	Additional accessories see page
RAFIX 22 FS+ - Contact block PCB gold, Universal		-	59
RAFIX 22 FS+ - Contact block PCB gold, Universal, with light conductor		-	58
RAFIX 22 FS+ - Contact block PCB silver, Universal		-	63
RAFIX 22 FS+ - Contact block PCB silver, Universal, with light conductor		-	63
RAFIX 22 FS+ - Contact block QC gold, Universal, with light conductor		-	52
RAFIX 22 FS+ - Contact block QC silver, Universal, with light conductor		-	55
Fixing spanner for ring nut and front ring		5.05.800.062/0000	65

RAFIX 22 FS^{+} - Selector switch, round collar





Panel cut-out to IEC 60947-5-1

Illuminability	Contact function	Rotating angle		Order no.	
				Plastic front ring	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

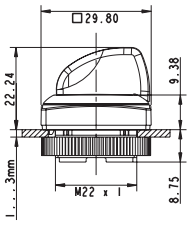
Technical data see page 25

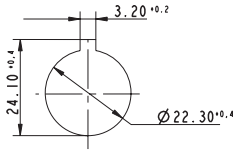
xx = Front ring colour: black = 01, red = 03, yellow = 04, green = 05, blue = 06, slate grey = 07, silver grey = 08

Other contact functions and handle marking colours available on request.

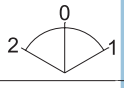
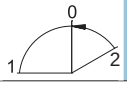
For coloured illumination of the handle marking please use coloured LED.

RAFIX 22 FS+ - Selector switch, square collar





Panel cut-out to IEC 60947-5-1

Illuminability	Contact function	Rotating angle		Order no.	
				Plastic front ring	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

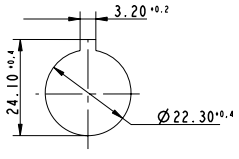
Technical data see page 25

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

Other contact functions and handle marking colours available on request.

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

RAFIX 22 FS+ - Keylock switch



Panel cut-out to IEC 60947-5-1

Technical Data

General information

Colour 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	see order block
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
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

Approvals

IEC 60947-5-x, 60904, 60073

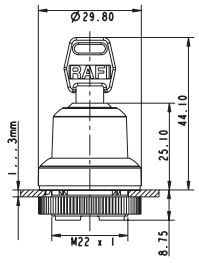
UL 508,C22.2 No. 14-M91

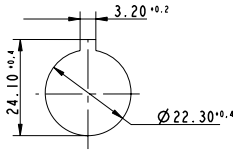
CCC in preparation

Accessories RAFIX 22 FS+ - Keylock switch

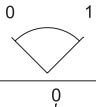
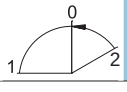
Description	Photo	Order no.	Additional accessories see page
RAFIX 22 FS+ - Contact block PCB gold, Universal		-	59
RAFIX 22 FS+ - Contact block PCB silver, Universal		-	63
RAFIX 22 FS+ - Contact block QC gold, Universal, with light conductor		-	52
RAFIX 22 FS+ - Contact block QC silver, Universal, with light conductor		-	55
Fixing spanner for ring nut and front ring		5.05.800.062/0000	65
Spare key, for single action, e.g. 1 x 90° (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





Panel cut-out to IEC 60947-5-1

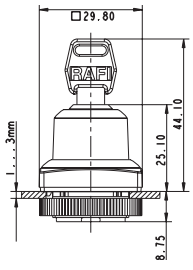
Contact function	Rotating angle	Key removal position	Rotating angle	Order no.	
				Plastic front ring	Metallized front ring
momentary	1 x 40°	0		1.30.255.001/xxxx	1.30.255.002/0000
momentary	2 x 40°	0		1.30.255.101/xxxx	1.30.255.102/0000
latching	1 x 90°, form L	0+1		1.30.255.221/xxxx	1.30.255.222/0000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

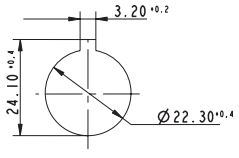
Technical data see page 29

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

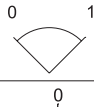
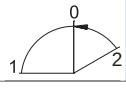
Other lock variants available on request.
Included: 2 keys.

RAFIX 22 FS+ - Keylock switch, square collar





Panel cut-out to IEC 60947-5-1

Contact function	Rotating angle	Key removal position	Rotating angle	Order no.	
				Plastic front ring	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°, form L	0+1		1.30.255.271/xxxx	1.30.255.272/0000
latching	1 x 90°, form L	0		1.30.255.251/xxxx	1.30.255.252/0000
latching	1 x 90°, form V	0+1		1.30.255.371/xxxx	1.30.255.372/0000
latching	1 x 90°, form V	0		1.30.255.351/xxxx	1.30.255.352/0000
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

Technical data see page 29

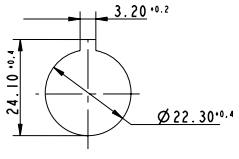
xxxx = Front ring colour: black = 0100, red = 0300, yellow = 0400, green = 0500, blue = 0600, slate grey = 0700, silver grey = 0800

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

RAFIX 22 FS+ - Mushroom-headed pushbutton

Reset by pulling

Reset by rotation, illuminated



Panel cut-out to IEC 60947-5-1

Technical Data

General information

Form of lens	conical mushroom form
Colour of lens	black
Form of collar	round

Dimensions

Mushroom Diameter	30 mm
Overall height	see order block
Mounting depth	see order block
Mounting hole	22.3 mm
Key grid	33.2 mm
Diameter of collar	29.8 mm

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 min.	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
Operating life	50,000
B10	65,000
Degree of protection from front side	see order block
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

Approvals

IEC 60947-5-x, 60904, 60073

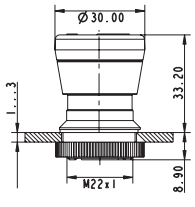
UL 508,C22.2 No. 14-M91

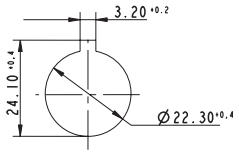
CCC in preparation

Accessories RAFIX 22 FS+ - Mushroom-headed pushbutton

Description	Photo	Order no.	Additional accessories see page
RAFIX 22 FS+ - Contact block PCB gold, E-Stop		-	60
RAFIX 22 FS+ - Contact block PCB gold, E-Stop, with light conductor		-	59
RAFIX 22 FS+ - Contact block PCB silver, E-Stop		-	64
RAFIX 22 FS+ - Contact block PCB silver, E-Stop, with light conductor		-	64
RAFIX 22 FS+ - Contact block QC gold, E-Stop, with light conductor		-	53
RAFIX 22 FS+ - Contact block QC silver, E-Stop, with light conductor		-	56
Fixing spanner for ring nut and front ring		5.05.800.062/0000	65

RAFIX 22 FS+ - Mushroom-headed pushbutton





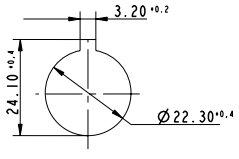
Panel cut-out to IEC 60947-5-1

Contact function	Reset	Illuminability	Degree of protection from front side	Order no.
latching	by clockwise rotation	yes, lens transparent white	IP65	1.30.276.001/2200
latching	by clockwise rotation	no	IP65	1.30.276.501/0000
latching	by pulling	yes, lens transparent white	IP65, IP69K	1.30.276.101/2200
latching	by pulling	no	IP65, IP69K	1.30.276.601/0000
momentary	-	yes	IP65	1.30.276.201/2200
momentary	-	no	IP65	1.30.276.701/0000

Technical data see page 33

Only use with contact blocks type E-Stop.

RAFIX 22 FS+ - Emergency stop pushbutton



Panel cut-out to IEC 60947-5-1

General Data

The emergency stop pushbuttons comply with IEC 60 204, IEC 60 073, 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 „emergency stop“ contact block.

Technical Data

General information	
Form of lens	conical mushroom form
Colour of lens	red
Form of collar	round

Dimensions	
Mushroom Diameter	30 mm
Overall height	see order block
Mounting depth	see order block
Mounting hole	22.3 mm
Key grid	33.2 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 min.	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
Operating life (operations)	50,000
B10	65,000
Degree of protection from front side	see order block
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

Approvals

IEC 60947-5-x, 60904, 60073

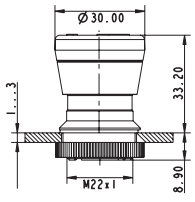
UL 508,C22.2 No. 14-M91

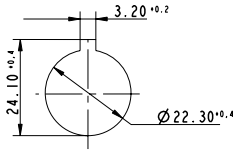
CCC in preparation

Accessories RAFIX 22 FS+ - Emergency stop pushbutton

Description	Photo	Order no.	Additional accessories see page
Emergency stop label, Ø 22.3 mm		-	68
RAFIX 22 FS+ - Contact block PCB gold, E-Stop		-	60
RAFIX 22 FS+ - Contact block PCB gold, E-Stop, with light conductor		-	59
RAFIX 22 FS+ - Contact block PCB silver, E-Stop		-	64
RAFIX 22 FS+ - Contact block PCB silver, E-Stop, with light conductor		-	64
RAFIX 22 FS+ - Contact block QC gold, E-Stop, with light conductor		-	53
RAFIX 22 FS+ - Contact block QC silver, E-Stop, with light conductor		-	56
Fixing spanner for ring nut and front ring		5.05.800.062/0000	65

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



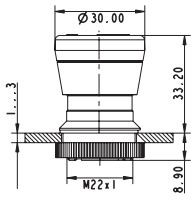


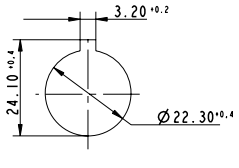
Panel cut-out to IEC 60947-5-1

Reset	Illuminability	Degree of protection from front side	Order no.
by clockwise rotation	yes, lens transparent red	IP65	1.30.273.001/2300
by clockwise rotation	yes, lens transparent white	IP65	1.30.273.001/2200
by clockwise rotation	no	IP65	1.30.273.501/0300

Technical data see page 35

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



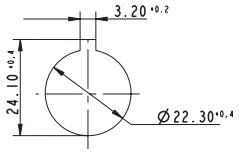


Panel cut-out to IEC 60947-5-1

Reset	Illuminability	Degree of protection from front side	Order no.
by pulling	yes, lens transparent red	IP65, IP69K	1.30.273.101/2300
by pulling	yes, lens transparent white	IP65, IP69K	1.30.273.101/2200
by pulling	no	IP65, IP69K	1.30.273.601/0300

Technical data see page 35

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



Panel cut-out to IEC 60947-5-1

General Data

RAFIX 22 FS „Plus 1“
Emergency stop pushbutton with 2 NC and 1 NO contacts
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 normally-open (NO) 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 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).

Approbations: IEC 60947-5-5 and UL 508 in preparation.

Only use with emergency stop „Plus 1“ contact blocks.

Technical Data

General information	
Form of lens	conical mushroom form
Colour of lens	red
Form of collar	round

Dimensions	
Mushroom Diameter	30
Overall height	33.2
Mounting depth	see order block
Mounting hole	22.3
Key grid	33.2
Diameter of collar	29.8

Mechanical design	
Mounting	ring nut
Contact function	latching
Illuminability	no
Reset	see order block
Torque for nut ring	1.2 Nm

Mechanical characteristics	
Robustness min.	100 N

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

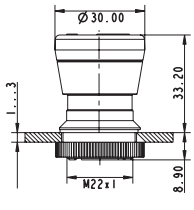
Approvals

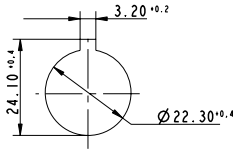
CCC in preparation

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

Description	Photo	Order no.	Additional accessories see page
Emergency stop label, Ø 22.3 mm		-	68
RAFIX 22 FS+ - Contact block PCB gold, E-Stop „Plus 1“		1.20.126.414/0000	60
RAFIX 22 FS+ - Contact block QC gold, E-Stop „Plus 1“		1.20.126.514/0000	53
Fixing spanner for ring nut and front ring		5.05.800.062/0000	65

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



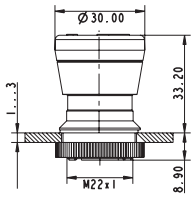


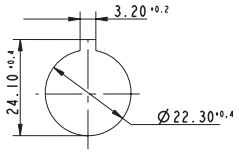
Panel cut-out to IEC 60947-5-1

Reset	Illuminability	Degree of protection from front side	Order no.
by clockwise rotation	no	IP65	1.30.273.502/0300

Technical data see page 38

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





Panel cut-out to IEC 60947-5-1

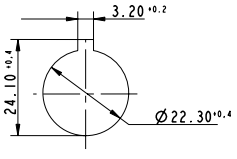
Reset	Illuminability	Degree of protection from front side	Order no.
by pulling	no	IP65, IP69K	1.30.273.602/0300

Technical data see page 38

RAFIX 22 FS+ - Potentiometer drive

Pict: assembled

Pict: delivery content



Panel cut-out to IEC 60947-5-1

Technical Data

General information

Actuator	knob
Colour 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

Mechanical characteristics

Robustness min.	100 N

Other specifications

Degree of protection from front side	IP65
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

Approvals

IEC 60947-5-x, 60904, 60073

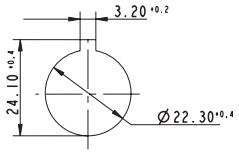
CCC in preparation

Accessories RAFIX 22 FS+ - Potentiometer drive

Description	Photo	Order no.	Additional accessories see page
Fixing spanner for ring nut and front ring		5.05.800.062/0000	65

RAFIX 22 FS+ - Potentiometer drive, round collar

Pict: assembled



Panel cut-out to IEC 60947-5-1

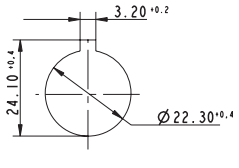
Front ring	Colour of knob	Order no.
plastic slate-grey	opaque slate-grey	1.30.258.001/0700

Technical data see page 41

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

RAFIX 22 FS+ - Potentiometer drive, square collar

Pict: delivery content



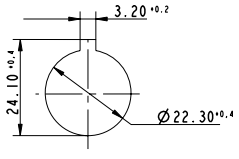
Panel cut-out to IEC 60947-5-1

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

Technical data see page 41

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

RAFIX 22 FS+ - Signal indicator



Panel cut-out to IEC 60947-5-1

Technical Data

General information

Form of lens	see order block
Colour 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	see order block
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

Mechanical characteristics

Robustness min.	100 N

Other specifications

Degree of protection from front side	IP65
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

Approvals

IEC 60947-5-x, 60904, 60073

UL 508,C22.2 No. 14-M91

CCC in preparation

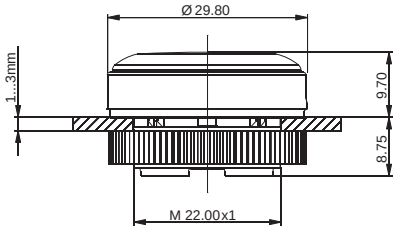
Accessories RAFIX 22 FS+ - Signal indicator

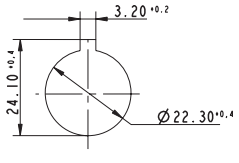
Description	Photo	Order no.	Additional accessories see page
LED 3 mm		-	67

Accessories RAFIX 22 FS+ - Signal indicator

Description	Photo	Order no.	Additional accessories see page
LED base for 3 mm THT LEDs, used in signal indicators, for RAFIX 22 FS+ PCB		-	67
QC LED base for signal indicators		-	65
Fixing spanner for ring nut and front ring		5.05.800.062/0000	65

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





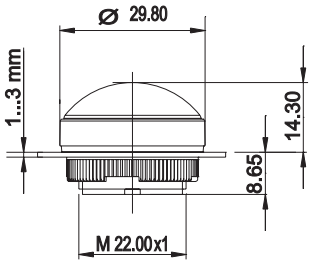
Panel cut-out to IEC 60947-5-1

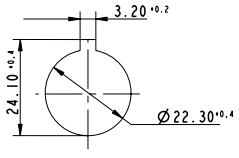
Form of collar	Colour of lens	Order no.
round	translucent white	1.74.508.001/2200
round	translucent red	1.74.508.001/2300
round	translucent yellow	1.74.508.001/2400
round	translucent green	1.74.508.001/2500
round	translucent blue	1.74.508.001/2600

Technical data see page 43

Legending on request.

RAFIX 22 FS^{+} - Signal indicator, round collar, high version



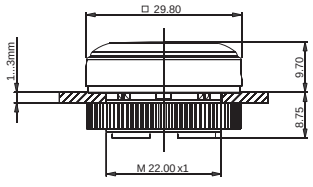


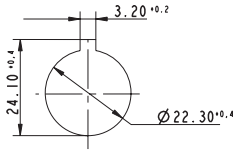
Panel cut-out to IEC 60947-5-1

Form of collar	Colour of lens	Order no.
round	translucent white	1.74.508.011/2200
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

Technical data see page 43

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





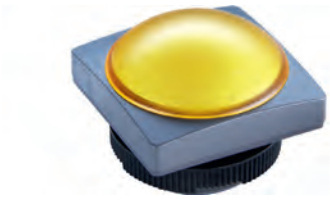
Panel cut-out to IEC 60947-5-1

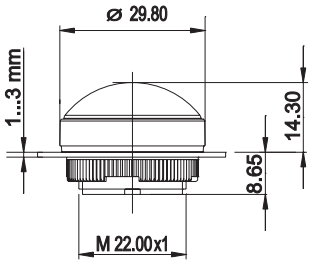
Form of collar	Colour of lens	Order no.
square	translucent white	1.74.508.051/2200
square	translucent red	1.74.508.051/2300
square	translucent yellow	1.74.508.051/2400
square	translucent green	1.74.508.051/2500
square	translucent blue	1.74.508.051/2600

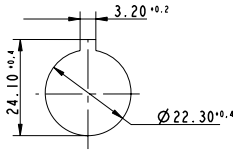
Technical data see page 43

Legending on request.

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





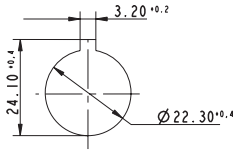


Panel cut-out to IEC 60947-5-1

Form of collar	Colour of lens	Order no.
square	translucent white	1.74.508.061/2200
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

Technical data see page 43

RAFIX 22 FS+ - USB feedthrough



Panel cut-out to IEC 60947-5-1

General Data

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 colour 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
Colour of lens	see order block
Colour 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	27.7 mm
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 (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

Approvals

IEC 60947-5-x, 60904, 60073

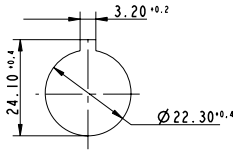
UL 508,C22.2 No. 14-M91

CCC in preparation

Accessories RAFIX 22 FS+ - USB feedthrough

Description	Photo	Order no.	Additional accessories see page
Fixing spanner for ring nut and front ring		5.05.800.062/0000	65

RAFIX 22 FS+ - USB feedthrough, round collar

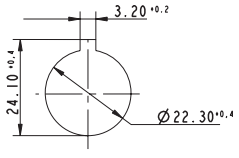


Panel cut-out to IEC 60947-5-1

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

Technical data see page 48

RAFIX 22 FS+ - USB feedthrough, square collar



Panel cut-out to IEC 60947-5-1

Colour 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	1.30.279.071/0707

Technical data see page 48

RAFIX 22 FS+ - Contact block QC gold

Universal with light conductor

E-Stop

General Data

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 colour in the same colour as the lens of the actuator in order to ensure satisfactory illumination.

Technical Data

General information	
Lamp optional	see order block

Dimensions	
Diameter	17.3 mm
Recommended key grid	30 mm
Mounting depth	27 mm

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
Robustness	100 N

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	10×10^{-6}
Ambient temp. operating min.	-25 °C
Storage temperature max.	+70 °C
Storage temperature min.	-40 °C
Storage temperature max.	+80 °C
Colour 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
Colour of housing	grey

Approvals

IEC 60947-5-x, 60904, 60073

UL 508,C22.2 No. 14-M91

CCC in preparation

Accessories RAFIX 22 FS+ - Contact block QC gold

Description	Photo	Order no.	Additional accesso-ries see page
LED base for contact blocks QC		-	66

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

Universal with light conductor

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

Technical data see page 51

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

E-Stop

Contact arrangement	Lamp optional	Operating life at 10 mA / 24V DC	B10	Colour of plunger	Order no.
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

Technical data see page 51

Caution: Emergency stop contact blocks can only be used with emergency stop pushbuttons.

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

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

Technical data see page 51

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

RAFIX 22 FS+ - Contact block QC silver

General Data

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 colour in the same colour as the lens of the actuator in order to ensure satisfactory illumination.

Technical Data

General information	
Lamp optional	LED-Clip

Dimensions	
Diameter	17.3 mm
Recommended key grid	30 mm
Mounting depth	27 mm

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
Robustness	100 N

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

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.	+70
Ambient temp. operating min.	-25
Storage temperature min.	-40
Storage temperature max.	+80
Colour 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
Colour of housing	black

Approvals

IEC 60947-5-x, 60904, 60073

UL 508,C22.2 No. 14-M91

CCC in preparation

Accessories RAFIX 22 FS+ - Contact block QC silver

Description	Photo	Order no.	Additional accesso-ries see page
Female quick-connect terminal DIN 46340-B 2.8-1-MS		-	65
LED base for contact blocks QC		-	66

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

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

Technical data see page 54

Please note: E-stop contact blocks can only be combined with E-stop actuators.

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

Contact arrangement	Lamp optional	Colour of plunger	Order no.
2 NC	LED-Clip	red	1.20.126.704/9000
1 NC + 1 NO	LED-Clip	yellow	1.20.126.703/9000

Technical data see page 54

Please note: E-stop contact blocks can only be combined with E-stop actuators.

RAFIX 22 FS+ - Contact block PCB gold

Universal, 1 NC + 1 NO

E-Stop, 2 NC

General Data

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

Dimensions	
Diameter	17.3 mm
Recommended key grid	30 mm
Mounting depth	9.2 mm

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
Robustness	100 N

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	10×10^{-6}
Ambient temp. operating max.	+70 °C
Ambient temp. operating min.	-25 °C
Storage temperature min.	-40 °C
Storage temperature max.	+80
Colour 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	IEC 600 68-2-20
Solder techniques	wave solder bath / manual soldering
Colour of housing	grey

Approvals

IEC 60947-5-x, 60904, 60073

UL 508,C22.2 No. 14-M91

CCC in preparation

Accessories RAFIX 22 FS+ - Contact block PCB gold

Description	Photo	Order no.	Additional accessories see page
LED 3 mm		-	67
LED base for 3 mm THT LEDs, used in signal indicators, for RAFIX 22 FS+ PCB		-	67
SMT LED		-	66
Spacers, round		-	69
Spacers, triangular		-	70

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

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

Technical data see page 57

RAFIX 22 FS^{+} - Contact block PCB gold, Universal

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

Technical data see page 57

RAFIX 22 FS^{+} - Contact block PCB gold, E-Stop, with light conductor

Contact arrangement	Lamp optional	Operating life at 10 mA / 24 V DC	B10	Colour of plunger	Order no.
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

Technical data see page 57

Caution: Emergency stop contact blocks can only be used with emergency stop pushbuttons.

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

Contact arrangement	Lamp optional	Operating life at 10 mA / 24 V DC	B10	Colour of plunger	Order no.
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

Technical data see page 57

Caution: Emergency stop contact blocks can only be used with emergency stop pushbuttons.

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

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

Technical data see page 57

Caution: E-Stop „Plus 1“ contact blocks can only be combined with E-stop „Plus 1“ actuators.

RAFIX 22 FS+ - Contact block PCB silver

Universal, 1 NC + 1 NO

E-Stop with light conductor

General Data

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

Dimensions	
Diameter	17.3 mm
Recommended key grid	30 mm
Mounting depth	9.2 mm

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
Robustness	100 N

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

Other specifications	**Operating life**	**B10**
at 250V / 1A	1,000,000	1,300,000
at 250V / 2A	100,000	130,000
at 250V / 4A	30,000	40,000
Switching reliability at 24V / 5mA DC	10×10^{-6}	
Ambient temp. operating max.	+70 °C	
Ambient temp. operating min.	-25 °C	
Storage temperature min.	-40 °C	
Storage temperature max.	+80 °C	
Colour of plunger	see order block	
Classifications for ships	on request	
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	IEC 600 68-2-20	
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	
Colour of housing	black	

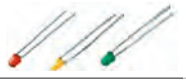
Approvals

IEC 60947-5-x, 60904, 60073

UL 508,C22.2 No. 14-M91

CCC in preparation

Accessories RAFIX 22 FS+ - Contact block PCB silver

Description	Photo	Order no.	Additional accessories see page
LED 3 mm		-	67
LED base for 3 mm THT LEDs, used in signal indicators, for RAFIX 22 FS+ PCB		-	67
SMT LED		-	66
Spacers, round		-	69
Spacers, triangular		-	70

RAFIX 22 FS^{+} - Contact block PCB silver, Universal, with light conductor

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

Technical data see page 61

RAFIX 22 FS^{+} - Contact block PCB silver, Universal

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

Technical data see page 61

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

Contact arrangement	Lamp optional	Colour of plunger	Order no.
2 NC	SMT LED	red	1.20.126.604/9000
1 NC + 1 NO	SMT LED	yellow	1.20.126.603/9000

Technical data see page 61

Caution: Emergency stop contact blocks can only be used with emergency stop pushbuttons.

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

Contact arrangement	Lamp optional	Colour of plunger	Order no.
2 NC	THT LED	red	1.20.126.604/0000
1 NC + 1 NO	THT LED	yellow	1.20.126.603/0000

Technical data see page 61

Caution: Emergency stop contact blocks can only be used with emergency stop pushbuttons.

Fixing spanner for ring nut and front ring

Description	Fitting for	Order no.
Fixing spanner for ring nut and front ring	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

Description	Order no.
LED-Clip, LED red, 24 V DC	5.05.511.747/1300
LED-Clip, LED yellow, 24 V DC	5.05.511.747/1400
LED-Clip, LED green, 24 V DC	5.05.511.747/1500
LED-Clip, LED blue, 24 V DC	5.05.511.747/1600
LED-Clip, LED white, 24 V DC	5.05.511.747/1200
LED-Clip, LED red, 12 V DC	5.05.511.747/0300
LED-Clip, LED yellow, 12 V DC	5.05.511.747/0400
LED-Clip, LED green, 12 V DC	5.05.511.747/0500
LED-Clip, LED white, 12 V DC	5.05.511.747/0200
LED-Clip, LED blue, 12 V DC	5.05.511.747/0600

Accessoires
LED base for signal indicators

SMT LED

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 LEDs, used in signal indicators, for RAFIX 22 FS+ PCB

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

THT LED 3 mm, without base

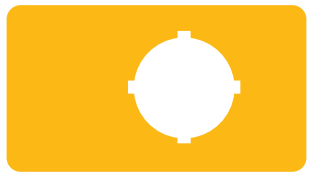
Socket	Colour	Forward voltage typ. U_F at I_F	Max. current, I_F	Light intensity	Order no.
without socket	white	3,6 V / 20 mA	30 mA	-	1.90.690.295/0000
without socket	red	1,6 V / 1 mA	30 mA	-	1.90.690.228/0000
without socket	red	1.9 V / 20 mA	50 mA	-	1.90.690.269/0000
without socket	yellow	1.9 V / 20 mA	50 mA	-	1.90.690.267/0000
without socket	green	3.5 V / 20 mA	30 mA	-	1.90.690.285/0000
without socket	blue	3,6 V / 20 mA	30 mA	-	1.90.690.282/0000

Processing information for 1.90.690.267/0000 and 1.90.690.269/0000

The qualifications for the higher soldering temperatures on lead free soldering processes are as follows:

Temperature stability according J-STD 020 C for reflow soldering 245°C and for wave soldering 245°C / 10s.

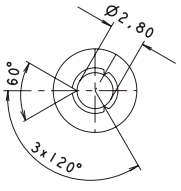
Emergency stop label, Ø 22.3 mm

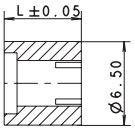


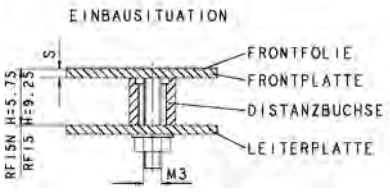
Dimensions	inside Ø	Label	Order no.
36 x 64 mm	22.3 mm	-	5.76.205.011/0400
Ø 40 mm	22.3 mm	„NOT-HALT, EMERGENCY STOP, ARRET D´URGENCE, EMERGENZA"	5.76.204.115/0400
Ø 40 mm	22.3 mm	4 x „NOT-AUS"	5.76.204.119/0400
Ø 40 mm	22.3 mm	4 x „NOT-HALT"	5.76.204.117/0400
Ø 40 mm	22.3 mm	4 x „EMERGENCY STOP"	5.76.204.121/0400
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

Spacers, round

round version





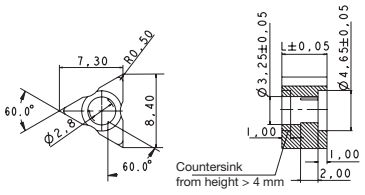


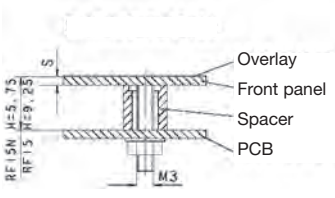
Height	Order no.
6.25 mm	5.30.759.034/0000
6.50 mm	5.30.759.035/0000
6.75 mm	5.30.759.036/0000
7 mm	5.30.759.037/0000
7.25 mm	5.30.759.038/0000
7.50 mm	5.30.759.039/0000
7.75 mm	5.30.759.040/0000
8 mm	5.30.759.041/0000
8.25 mm	5.30.759.042/0000

Required spacer length = Overall height of key - front panel thickness - 0.5 mm (area embossing).

Spacers, triangular

triangular version





Height	Order no.
6.25 mm	5.30.759.109/0000
6.50 mm	5.30.759.110/0000
6.75 mm	5.30.759.111/0000
7 mm	5.30.759.112/0000
7.25 mm	5.30.759.113/0000
7.50 mm	5.30.759.114/0000
7.75 mm	5.30.759.115/0000
8 mm	5.30.759.116/0000
8.25 mm	5.30.759.117/0000

Required spacer length = Overall height of key - front panel thickness - 0.5 mm (area embossing).

RAFIX 22 FS+

FAST & SLIM
Everything else is outdated.

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Technical data are approximate and intended solely for general orientation in the selection of a product. Subject to modifications and errors. Images and other graphics may only be similar. For more information, refer to www.rafi.de chapter Imprint / Data Protection.

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