



**GET IN
TOUCH**

WITH OUR COMPONENTS

Electromechanical Components

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WHO WE ARE

RAFI is one of the world's leading suppliers of efficient solutions for human-machine communication – for over 100 years now. With about 2,000 employees, the RAFI Group is characterised by independence, healthy growth and profitability. Our long-standing customer relationships are based on our internationally superior performance, quality and cross-industry experience. When developing complex solutions, we place great emphasis on involving the customer in the process – from the very start. This helps to build customer satisfaction as well as very stable relationships.

RAFI products are also very impressive in terms of their quality and sustainability. Their quality is dictated by the customers' needs and requirements. Legal regulations can also play a role, along with the

current state of the art. Economical use of natural resources is an important aspect of the RAFI corporate philosophy. The company's environmental management system is certified according to ISO 14001.

Subsidiaries and locations

The company originally founded in 1900 by Ernst Bucher in Ravensburg, Germany as "Optisches, mechanisches und elektrotechnisches Institut" has evolved to become today's RAFI Group with subsidiaries in China, France, Italy, Hungary and the USA. Thanks to its own in-house sales staff and field service as well as a dense worldwide network of dealers and distributors, RAFI is extremely flexible and can always be reached by its customers.

RAFI Electronics

WHAT WE DO

As a business, we hold a solid position in the market for electromechanical components, complete control systems as well as electronic assemblies and devices.

From buttons, switches, signal lamps, PCB keyswitches and short-travel keyswitches to control and signalling units, all of our products stand out for their reliability and long operating life. We deliver solutions that meet your needs, and if you cannot use a standard product, we will custom-manufacture a product to fulfil your specific requirements.

Moreover, we are known as pioneers in the world of industrial touch data entry systems, providing clever solutions with just the right effect – RAFI is always one step ahead. Let us help you to obtain efficient and cost-effective production of your goods.



RAFI Berg/Ravensburg

Certifications:

DIN EN ISO 9001: 2008
DIN EN ISO 9001: 2008 with Road Traffic Regulations,
EN ISO 13485: 2003
ISO /TS 16949: 2009,
DIN EN ISO: 2004 + Cor 1: 2009



CONTROL SYSTEMS: This is the classic application for our components: short-travel keyswitches below an overlay or RAFIX control components and emergency stop buttons for control and safety functions. Also available as an additional input element for touchscreen units.



CONSUMER GOODS: Our components turn up in countless everyday consumer goods – and not just in washing machines. In most cases, they are customer-specific developments or standard components that have been transformed in some way.



AUTOMOTIVE INDUSTRY: Controls for inside of vehicles are our speciality, involving steering wheels, consoles, door handles as well as remote control systems. Example: A typical overhead control panel contains up to 20 MICON short-travel keyswitches, working together to give the vehicle a highly exclusive brand feeling.

While the contact that is made might only last for seconds and be barely perceptible, its effect is usually far greater.

Whenever someone presses a key, flips a switch or operates a joystick, a reaction is triggered, causing something to happen. Since people usually do not give these fleeting moments a second thought, many of our products go unnoticed in everyday life.

Upon closer examination, however, it is clear that RAFI products are used day after day in all sorts of modern consumer goods in a wide range of situations. From pushbuttons, signal lamps, keylock switches, signalling units and PCB keyswitches to short- and full-travel keyswitches, we have prepared an overview of the various core industries where our products are commonly used.

INDUSTRIES

ELEVATOR AND TRANSPORT SYSTEMS: We supply elevator, cabin and display panels to elevator manufacturers for all types of buildings, including optional digital printing with custom designs for any location. Vandal-proof buttons are used, just in case ...



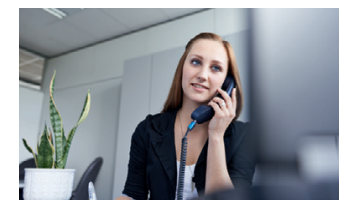
SPECIAL MECHANICAL ENGINEERING: The RG 85 button system was originally developed for vending machines and elevators. Nowadays, coffee machines are controlled using capacitive switches and systems, with intuitive operation and guaranteed hygiene being critical features. Of course, it is all made by RAFI.



TELECOMMUNICATIONS: We rank among the ten largest providers of electronic manufacturing services in Germany. Our customers include the market leader for broadband terminal equipment and smart home products. Any RAFI customer who relies on electronic circuitry will benefit from our advanced expertise.



CLEARLY THE RIGHT SOLUTION FOR YOUR APPLICATION



SALES: We like to keep the focus on our customers. We will work together with you from the start to develop the best solution to meet your needs. Our industry-oriented sales structure reflects our consistent customer focus around the globe.

Within our sales divisions, different industries are handled by independent teams under the leadership of key account managers. This highly targeted approach ensures that our customers receive optimum care and support. We speak your language.



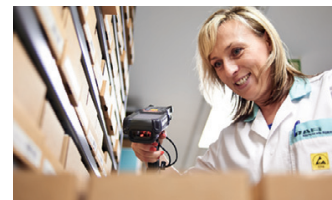
PRODUCTION: From contact technology, plastic injection moulding, sheet metal machining, printing technology and mechanics all the way to electronics, we have a broad spectrum of production capabilities – subject to clearly defined quality standards and optimum cost-effectiveness.



DEVELOPMENT: Ranging from development to product realization and series production, we possess development expertise covering the entire production process. This includes development of mechanics, electronics, and software.

All of this is based on state-of-the-art technologies and simulation tools as well as highly efficient processes. Our development teams accompany products from the initial idea to series-production readiness, ensuring top quality along with comprehensive after-sales service.

MATERIALS MANAGEMENT: Our materials management covers everything from purchasing and order processing to logistics. Purchasing is divided into strategic and operational areas to ensure we remain competitive in the international marketplace. Order processing aims to achieve the optimum balance between cost-effectiveness and availability.



AN INTEGRATED SUPPLY CHAIN WITH CAREFULLY TAILORED CONCEPTS.







PRODUCT OVERVIEW

ELECTROMECHANICAL COMPONENTS

PUSHBUTTONS


**LUMOTAST
FK**
**LUMOTAST
25**
**LUMOTAST
75**
**Keylock
switches**
**Other
pushbuttons**
**RAFIX 16/
RAFIX 16 F**

Panel cut-out	Ø 16.2 mm	Ø 16.2 mm	Ø 16.2 mm	Ø 16.2 mm	Ø 9.1/20.3 mm	Ø 16.2 mm □ 23.1 mm Ø 22.3 mm
Contacts	1 NO	1 NO	1 NC + 1 NO 2 NC + 2 NO	1 to 4 NO	1 NC, 1 NO, 1 NC + 1 NO, 2 NO	1 NC, 1 NO, 1 NC + 1 NO, 2 NC, 2 NO
Contact material	Au	Au	Ag	Au	Ag	Ag / Au
Voltage max./min.	35 V / 0.02 V	35 V / 0.02 V	250 V	35 V	250 V / 0.02 V	250 V / 0.02 V
Current max./min.	100 mA / 0.1 mA	100 mA / 0.1 mA	4 A	100 mA	16 A / 0.1 mA	6 A / 1 mA
Current max./min.	Ribbon cable with connector, PCB plug-in socket	Ribbon cable with connector, PCB plug-in socket	Solder	PCB	Solder, screw, quick connect	Quick-connect, screw, PCB, plug-in socket
Degree of protection	IP 65	IP 65	IP 40 / 65	IP 65	IP 40	IP 65
Terminals	Bi-Pin T1 / T1 1¼	Bi-Pin T1 / T1 1¼	T 4.5	–	BA 9s	W 2 x 4.6d
Lamp socket	Filament lamp, LED	Filament lamp, LED	Filament lamp, LED	–	Filament lamp, LED	Filament lamp, LED
Collar shape	○□□	□	○□□	○□	○	○□
Variants	Illuminated pushbutton, signal lamp	Illuminated pushbutton, EMERGENCY STOP button, keylock switch, selector switch, signal lamp	Illuminated pushbutton, signal lamp, keylock switch	Keylock switch, priority keylock switch	Pushbutton, illuminated pushbutton	Pushbutton, stop button, EMERGENCY STOP button, keylock switch, selector switch, toggle switch, potentiometer drive, signal-lamp unit, signal indicator

CONTROL COMPONENTS				SIGNAL LAMPS	
					
RAFIX 22 FS+	RAFIX 22 FSR	RAFIX 30 FS+	RAFIX 22 QR	Integrated LED	Integrated neon lamp
Ø 22.3 mm	Ø 22.3 mm	Ø 30.5 mm	Ø 22.3 mm	Ø 5–30 mm	Ø 7–14 mm
1 NC, 1 NO, 1 NC + 1 NO, 2 NC, 2 NO	1 NC, 1 NO, 1 NC + 1 NO, 2 NC, 2 NO	1 NC, 1 NO, 1 NC + 1 NO, 2 NC, 2 NO	1 NC, 1 NO, up to 6 NC, 6 NO	–	–
Ag / Au	Ag / Au	Ag / Au	Ag / Au	–	–
250 V / 0.02 V	250 V / 0.02 V	250 V / 0.02 V	500 V / 0.02 V	28 V	230 V
4 A / 1 mA	4 A / 1 mA	4 A / 1 mA	10 A / 1 mA	0.25 – 1 W	–
PCB, quick-connect (QC)	PCB, quick-connect (QC)	PCB, quick-connect (QC)	Screw, cage clamp, quick-connect	Solder, quick-connect	Solder, quick-connect
IP 65	IP 65 / 69 K	IP 65	IP 65	IP 40	IP 40
–	–	–	BA 9s	None	None
LED, clip	LED, clip	LED, clip	Filament lamp, neon lamp, LED	LED	Neon lamp
□	○	○	□	△	□ ↑
Pushbutton, EMERGENCY STOP button, signal indicator, keylock switch, selector switch, potentiometer drive, USB feed- through	Pushbutton, EMERGENCY STOP button, signal indicator, keylock switch, selector switch, USB feedthrough	Pushbutton, signal indicator, keylock switch, selector switch, USB feed- through	Pushbutton, mushroom actuator, EMERGENCY STOP button, twin push- button, signal indica- tor, keylock switch, selector switch, potentiometer drive, signalling unit		


PRODUCT OVERVIEW

ELECTROMECHANICAL COMPONENTS

SHORT-TRAVEL KEYSWITCHES

**MICON 5****RACON 8****RACON 12****RF 15/15 H****RF 15 R****RF 15 N**

Grid min.	6 x 8 mm	12 mm	15,24 mm	19,05 mm	15,24 mm	15,24 mm
Overall height, min.	3.85 mm, variable	5 mm, variable	5 mm, variable	9.7 / 12.5 mm	9.7 / 12.5 mm	6.2 mm, variable
Contacts	1 NO	1 NO	1 NO	1 NO	1 NO	1 NO
Contact material	Au	Au	Au	Ag / Au	Ag / Au	Ag / Au
Rated voltage	0.02...35 V	0.02...35 V	0.02...35 V	0.02...50 V	0.02...50 V	0.02...50 V
Rated current	0,01...100 mA	0,01...100 mA	0,01...100 mA	0,01...250 mA	0,01...250 mA	0,01...250 mA
Operating travel	0.7 ... 1.1 mm	0.34 mm	0.61 mm	0.5 mm	0.5 mm	0.5 mm
Operating force	3.0 ... 8.0 N	3.3 ... 6.3 N	3.6 ... 9.7 N	2 - 3 N	2 - 3 N	2 - 3 N
Terminals	PCB SMT & THT	PCB SMT & THT	PCB SMT & THT	PCB THT	PCB THT	PCB THT
Illumination	Separate LED	separate LED	separate LED	Full / spot	Full / spot	Full / spot
Operating life min.	250,000 / 1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000
Special features	Variable height by use of plungers, different operating forces	Variable height by use of plungers, different operating forces	Variable height by use of plungers, 90° vertical adapter, different operating forces	Variable height by use of plungers, 1-module indicator field		Variable height by use of plungers

				FULL-TRAVEL KEYSWITCHES		KEYLOCK SWITCHES
						
RF 19/19 H	KN 19	RK 90/II	RG 85 III	RS 76 M	RS 76 C	Keylock switches
23 mm	19,05 x 38,1 mm	12,5 / 19,05 mm	35 mm	19.05 mm	19.05 mm	19.05 mm
9.7 / 12.5 mm	9.7 mm		12.08 mm	15.5 mm	15.5 mm	40 mm
1 NO	1 NC + 1 NO/ 2 NC / 2 NO		1 NO	1 NO	1 NO	1 NO – 4 NO
Ag / Au	Ag		Ag	Au	Contactless	Au
0.02...50 V	12...250 V		3...50 V	2...35 V	4.75...5.25 V	2...35 V
0,01...250 mA	6 A		0,1...250 mA	0.01...100 mA	–	0.01...100 mA
0.5 mm	0.5 mm		1 mm	4 mm	4 mm	1...4 x 90° rotating angle
2 - 3 N	9 ± 3 N		3.5 - 4.5 N	0.9...1.4 N	0.7...1 N	–
PCB THT	PCB THT		8-pin Micro Match connector	PCB THT	PCB THT	PCB THT
Full / spot	Spot	Full	Edge and symbol	Full / spot	Spotl	–
1,000,000	50,000 – 200,000		1,000,000	10,000,000	100,000,000	10,000
Indicator fields 1/2-, 1- and 2-module	Mains switch under overlay or keycaps	Plastic or alumi- nium surface, compatible with MICON, RACON, RF and KN 19	Vandal-proof	Fully illumina- ble keycaps (RS 76 MX)	Very soft stroke, ext- remely long operating life	Degree of protection IP 54, priority keylock switch

NEW PRODUCTS IN THE CATALOGUE

ELECTROMECHANICAL COMPONENTS



GET IN TOUCH NEW PRODUCTS

NEW PRODUCTS IN THE CATALOGUE

ELECTROMECHANICAL COMPONENTS



LUMOTAST 22

E-Stop pushbuttons, 22.3 mm

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RAFIX 22 FS+

Pushbuttons FLEXLAB

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RAFIX 22 FS+

Keylock switches compact

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RAFIX 22 FS+

Emergency stop pushbuttons compact

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RAFIX 22 FSR

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RAFIX 22 FSR

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RAFIX 22 FSR

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RAFIX 30 FS+

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MICON 5

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MICON 5

Plungers square, spot-illumination

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HOW TO USE THE CATALOGUE

ELECTROMECHANICAL COMPONENTS

Latest online version as the basis for your order

Since this catalogue is published in paper format only at certain intervals, it is not as up-to-date as our website. For this reason, we recommend using the datasheets on our website when ordering standard products.

You can always find the latest information on our products here: <http://www.shop.rafi.de>

Creation of individual datasheets in PDF format

You can create PDF datasheets in our online catalogue at <http://www.shop.rafi.de>. Find the product you want using the search tool or by entering the order number and then click on the "Create datasheet" link.

3D data and 2D drawings

For many of our products, we can provide 3D models in the *.stp file format. For older products, we usually still have dimensional drawings in dxf format. This data can be found in our online catalogue where the individual products are specified: <http://www.shop.rafi.de>

Correction sheets for the printed catalogue

We provide correction sheets on our home page if we discover errors after the catalogue has been printed. Alternatively, you can download the individual (corrected) chapters of this catalogue in PDF format at [x/Downloads](#).

Availability

We always strive to satisfy the needs of our customers. However, it is necessary to mention that our production is contingent on the availability and delivery of the appropriate base materials. Such issues, in addition to changing legislation, can result in modification or discontinuation of our products.

Specifications

The specifications, depictions and other information about our products are merely the results of individual technical inspections. The conditions are derived from the pertinent standards. These inspections should be considered to be independent of one another and they cannot be used to infer possible interactions, especially also in terms of the applicable usage category, installation situation and/or environmental conditions. If you need an evaluation of your application, we will be happy to prepare an offer on request.

Subject to change

We, the RAFI Group, reserve the right to deviate from the specifications in this catalogue, especially in terms of the technical and exterior designs, colours and materials from which the products are manufactured. Excluded from this provision are the basic core functions of our products, on which our customers rely.

Information about our products (e.g. weights, dimensions, practical values, capacity, tolerances and specifications) as well as the depictions (e.g. drawings, CAD data and figures), both in printed and in electronic format, is authoritative only as an approximation unless usability for the express and contractually stipulated purpose requires precise conformity. Such information and depictions do not represent guaranteed quality features but are non-binding descriptions or indicators of the product characteristics. Deviations which are customary in the trade and deviations which are required by law or represent technical improvements, as well as the substitution of components with equivalent parts (form/fit/function), are permissible insofar as they do not impair the usability for the express and contractually stipulated purpose. This applies in particular to spare parts and subsequent orders.

RoHS conformity



The products in this catalogue are RoHS-compliant (RoHS = Restriction of Hazardous Substances).

The components are qualified for lead-free soldering processes. See the glossary for more details.

Terms and conditions

Our current terms and conditions (sales) can be found at [x/AGBs](#).



2

RAFIX
22 QR

RAFIX 22 QR

RAFIX 22 QR control component range

- Mounting hole diameter of 22.3 mm to IEC 60947-5-1
- 250 V / 10 A max.
- Degree of protection: IP65 acc. to DIN EN 60529
- 2 collar shapes
- The contact blocks snap onto the actuators with a coupling
- Screw, cage clamp or quick connect terminals
- 3 NC + 3 NO for E-Stop on request
- Contact blocks with gold or silver plated contacts
- All products are RoHS compliant.

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

CONTROL COMPONENTS

RAFIX 22 QR

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CONTROL COMPONENTS

RAFIX 22 QR

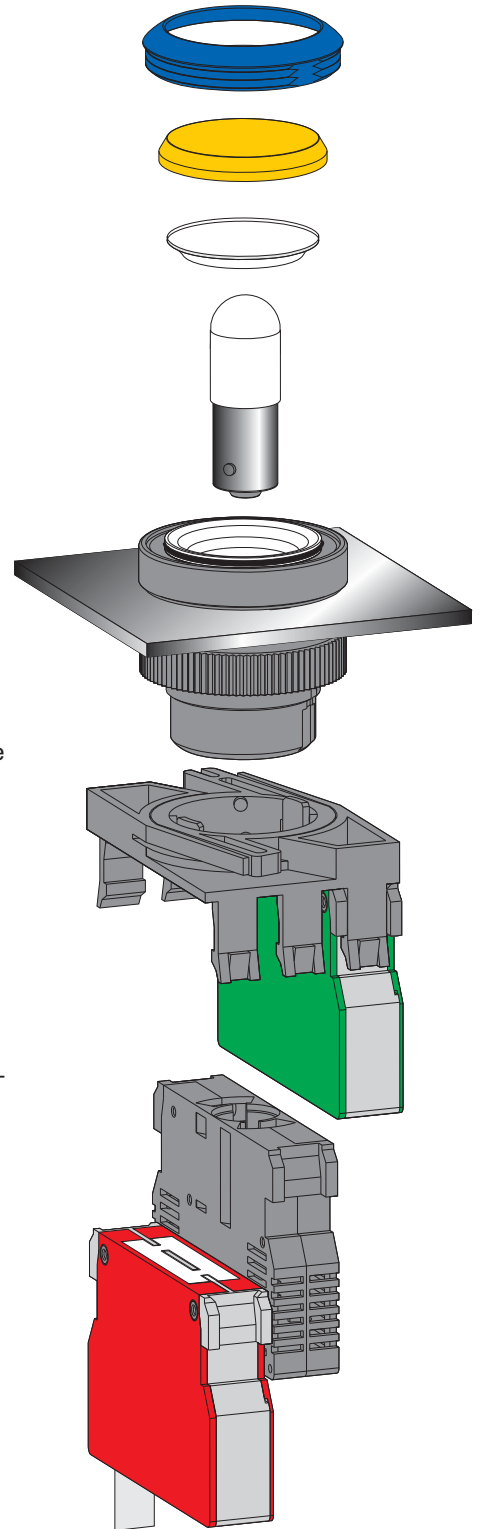
Control Components RAFIX 22 QR



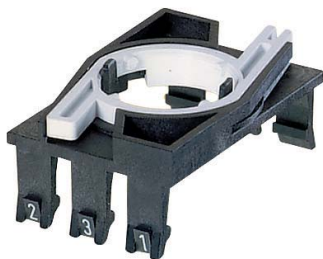
Contact blocks marked with different colors for ease of identification in stock and when connecting.

- NC contacts: red cover
- NO contacts: green cover
- NC/NO contacts: one cover red, one cover green
- Lamp socket: black
- Silver contacts: basic housing color is black
- Gold contacts: basic housing color is grey
- The terminals associated with a contact pair are color coded on the connection side and marked with the respective contact numbers:
1, 2 = NC
3, 4 = NO

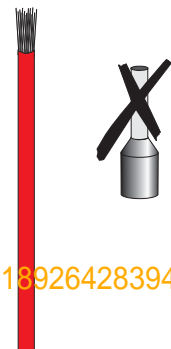
The lamps of pushbuttons and signal lamps can be replaced from the front. This method saves time and increases safety since it eliminates the need for accessing the machine/control station interior and handling live cables for lamp replacement. After unscrewing the front ring, the lens can be removed and the lamp replaced.



The components feature a removable locating lug. If installed without locating lug, the ring nut with claw can be used. Accurate alignment of the actuator can be achieved behind the front panel. The cast-on collar seal can not get lost nor be twisted during installation and allows single-person assembly: the actuator is held in the mounting hole by the cast-on seal and can then be fixed by screwing from the rear.



First, snap the lamp socket and contact blocks into the coupling. Then snap the assembly on to the actuator. To release it, the bayonet must be pressed (prevents inadvertent releasing at the same time)



Terminals

The RAFIX 22 QR contact blocks are available in different connection styles as required for your application:

- **Screw terminals**

The terminals are open and the captive screws are mounted in the terminal recess.

- **Quick connect/solder terminals 6.3 x 0.8 mm**

- **Spring-type terminals**

Simply insert a screwdriver to open the terminal, insert the cable and remove the screwdriver to close the terminal.

Your advantage:

This offers your savings in three ways:

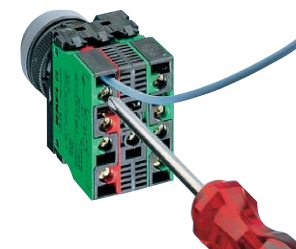
- Drastically reduced assembly time thanks to wire insertion from the rear, i. e. no more bending and lateral insertion of the wires required.
- You save material: No wire end sleeves are required.
- You save the time previously required for mounting the wire end sleeves.

Assembly

Screw terminals



Insert the wire



Tighten the screw

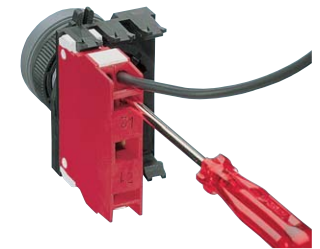


Done

Spring-type terminals



Open the terminal



Insert the wire



Remove the screwdriver

2

RAFIX
22 QR

Versatility of design for customized panels



The RAFIX 22 QR system does not only have a particularly low profile and is also available in many different versions. Your design options for your customized panels are nearly unlimited thanks to the interchangeable front rings and lenses. In this way you can achieve an attractive design while ensuring safe operation of your equipment at the same time. RAFIX 22 QR components are available either with a round or with a square collar.

CONTROL COMPONENTS

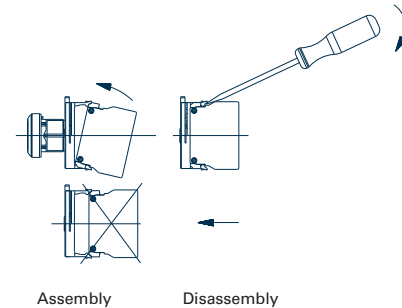
RAFIX 22 QR

The RAFIX 22 QR control component range meets all the technical requirements and current standards for control units. The system is of modular design. Actuators, contact blocks and lamp sockets can be combined freely.



Sequence of assembly/disassembly

- Fix the actuator in the front panel with the ring nut.
- Snap the individual elements (maximum two contact blocks together with a lamp socket) in the coupling. You can install them on any assembling axis.
- Insert the lamp or LED into the lamp socket or snap the LED unit.
- Snap the coupling with the contact blocks on to the actuator.
- Connect the cables.
- Disassembly is performed in reverse order. To remove the coupling from the actuator, the latch lever must be pressed (by hand or with a screwdriver).



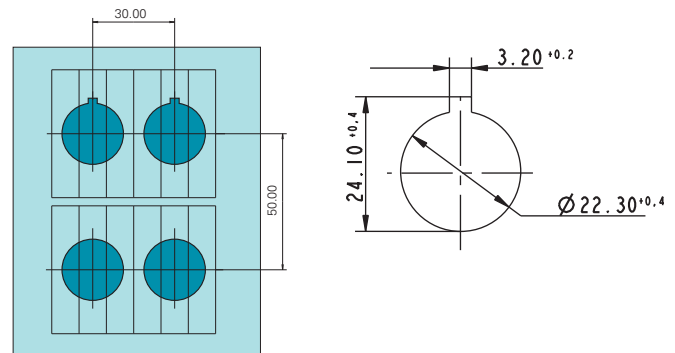
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RAFIX
22 QR

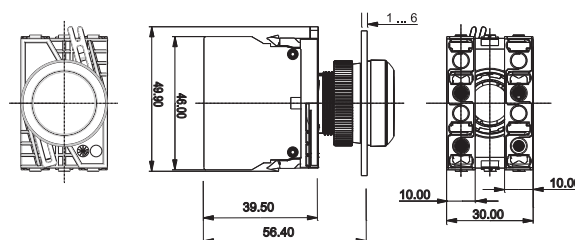
Panel cut-out according to IEC 60947-5-1

All actuators are provided with a locating lug which may be removed using a screwdriver for installation into mounting holes if required.

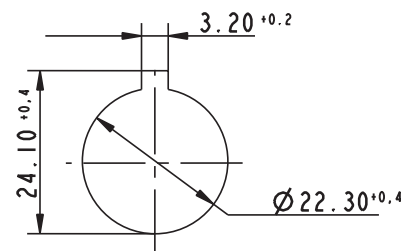
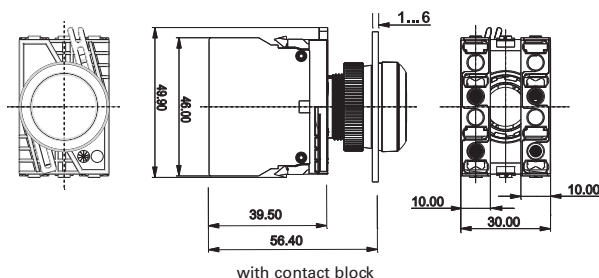
With a grid spacing of 30 mm horizontally and 50 mm vertically, the collars of the square actuators touch each other. We recommend to use the same grid spacing also for the round collar shapes (IEC 60947-5-1)



Dimensional drawing



RAFIX 22 QR Pushbuttons



Panel cut-out to IEC 60947-5-1

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 with contact block	56.4 mm
without cable	
Mounting hole	$\varnothing 22.3$ mm
Mounting grid	50 x 30 mm

→ Mechanical design

Mounting	ring nut
Contact function	see order block
Illumination	see order block

→ Mechanical characteristics

Operating travel	4 mm
Operating force max.	approx. 5 N for 1 switching element
Robustness max.	100 N

→ Other specifications

Operating life (operations)	1,000,000 momentary / 500,000 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 resistance	acc. to IEC 60068-2-14, -30, -33 and -78
ROHS compliant	yes
REACH compliant	yes

Approvals



UL 508, C22.2 No. 14-M91



2004 Steel Vessel Rules



Rules for the Classification of Steel Ships



Marine, offshore and industrial use



German Lloyd's type approval



Accessories RAFIX 22 QR - Pushbutton



→ Description

Description	Photo	Order no.	Additional accessories see page
RAFIX - Insulating housing IP65, $\varnothing 22.3$ mm		-	2 - 79, 2 - 148, 5 - 20
RAFIX 22 QR - Contact blocks with gold contacts		-	2 - 138
RAFIX 22 QR - Contact blocks with silver contacts		-	2 - 135

CONTROL COMPONENTS

RAFIX 22 QR - ACTUATORS AND INDICATORS

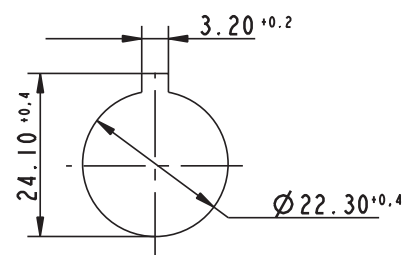
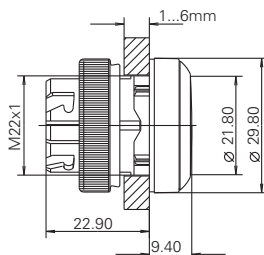
- Table (continued) - Accessories RAFIX 22 QR - Pushbutton

→ Description	Photo	Order no.	Additional accessories see page
Socket BA 9s (MBC/MCC), LED superbright		-	5 - 8
Fixing spanner for ring nut		5.05.800.062/0000	2 - 145, 2 - 261, 5 - 25



RAFIX 22 QR Pushbutton, flush lens, round collar

Technical data see page 2 - 91



Panel cut-out to IEC 60947-5-1

→ Illumination	Color of lens	Order no. momentary		Order no. latching	
		Plastic front ring	Metallized front ring	Plastic front ring	Metallized front ring
yes	transparent red	1.30.240.001/13xx	1.30.240.021/1300	1.30.240.011/13xx	1.30.240.031/1300
yes	transparent yellow	1.30.240.001/14xx	1.30.240.021/1400	1.30.240.011/14xx	1.30.240.031/1400
yes	transparent green	1.30.240.001/15xx	1.30.240.021/1500	1.30.240.011/15xx	1.30.240.031/1500
yes	transparent blue	1.30.240.001/16xx	1.30.240.021/1600	1.30.240.011/16xx	1.30.240.031/1600
yes	transparent white	1.30.240.001/10xx	1.30.240.021/1000	1.30.240.011/10xx	1.30.240.031/1000
no	opaque red	1.30.240.101/03xx	1.30.240.121/0300	1.30.240.111/03xx	1.30.240.131/0300
no	opaque yellow	1.30.240.101/04xx	1.30.240.121/0400	1.30.240.111/04xx	1.30.240.131/0400
no	opaque green	1.30.240.101/05xx	1.30.240.121/0500	1.30.240.111/05xx	1.30.240.131/0500
no	opaque blue	1.30.240.101/06xx	1.30.240.121/0600	1.30.240.111/06xx	1.30.240.131/0600
no	opaque white	1.30.240.101/02xx	1.30.240.121/0200	1.30.240.111/02xx	1.30.240.131/0200
no	opaque slate-grey	1.30.240.101/07xx	1.30.240.121/0700	1.30.240.111/07xx	1.30.240.131/0700
no	opaque black	1.30.240.101/01xx	1.30.240.121/0100	1.30.240.111/01xx	1.30.240.131/0100

xx = Front ring color: black = 01, slate grey = 07, silver grey = 08

Pushbuttons with plastic front ring and white lens are also available with the following front ring colors: red = 03, yellow = 04, green = 05, blue = 06. Other color combinations on request.

Accessoires:

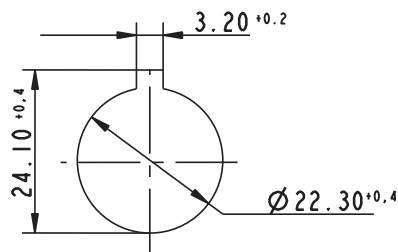
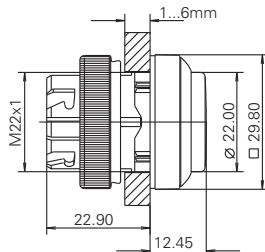
Label holder, round collar, with adhesive tape and release liner on back 50 x 30 x 3.6 mm: 5.07.620.010/0000

Protective cover, suitable for pushbuttons with flush lens: see page 2 - 147

RAFIX 22 QR

Pushbutton, protruding lens, round collar

Technical data see page 2 - 91



Panel cut-out to IEC 60947-5-1



2

→ Illumination	Color of lens	Order no. momentary		Order no. latching	
		Plastic front ring	Metallized front ring	Plastic front ring	Metallized front ring
yes	transparent red	1.30.240.201/13xx	1.30.240.221/1300	1.30.240.211/13xx	1.30.240.231/1300
yes	transparent yellow	1.30.240.201/14xx	1.30.240.221/1400	1.30.240.211/14xx	1.30.240.231/1400
yes	transparent green	1.30.240.201/15xx	1.30.240.221/1500	1.30.240.211/15xx	1.30.240.231/1500
yes	transparent blue	1.30.240.201/16xx	1.30.240.221/1600	1.30.240.211/16xx	1.30.240.231/1600
yes	transparent white	1.30.240.201/10xx	1.30.240.221/1000	1.30.240.211/10xx	1.30.240.231/1000
no	opaque red	1.30.240.301/03xx	1.30.240.321/0300	1.30.240.311/03xx	1.30.240.331/0300
no	opaque yellow	1.30.240.301/04xx	1.30.240.321/0400	1.30.240.311/04xx	1.30.240.331/0400
no	opaque green	1.30.240.301/05xx	1.30.240.321/0500	1.30.240.311/05xx	1.30.240.331/0500
no	opaque blue	1.30.240.301/06xx	1.30.240.321/0600	1.30.240.311/06xx	1.30.240.331/0600
no	opaque white	1.30.240.301/02xx	1.30.240.321/0200	1.30.240.311/02xx	1.30.240.331/0200
no	opaque slate-grey	1.30.240.301/07xx	1.30.240.321/0700	1.30.240.311/07xx	1.30.240.331/0700
no	opaque black	1.30.240.301/01xx	1.30.240.321/0100	1.30.240.311/01xx	1.30.240.331/0100

xx = Front ring color: black = 01, slate grey = 07, silver grey = 08

Pushbuttons with plastic front ring and white lens are also available with the following front ring colors: red = 03, yellow = 04, green = 05, blue = 06. Other color combinations on request.

Accessoires:

Label holder, round collar, with adhesive tape and release liner on back 50 x 30 x 3.6 mm: 5.07620.010/0000

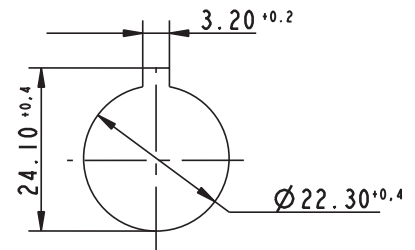
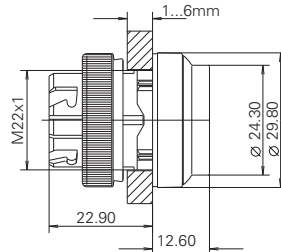
CONTROL COMPONENTS

RAFIX 22 QR - ACTUATORS AND INDICATORS



RAFIX 22 QR Pushbutton, protruding front ring, round collar

Technical data see page 2 - 91



Panel cut-out to IEC 60947-5-1

Illumination	Color of lens	Order no. momentary	
		Plastic front ring	Metallized front ring
yes	transparent red	1.30.240.401/13xx	1.30.240.421/1300
yes	transparent yellow	1.30.240.401/14xx	1.30.240.421/1400
yes	transparent green	1.30.240.401/15xx	1.30.240.421/1500
yes	transparent blue	1.30.240.401/16xx	1.30.240.421/1600
yes	transparent white	1.30.240.401/10xx	1.30.240.421/1000
no	opaque red	1.30.240.501/03xx	1.30.240.521/0300
no	opaque yellow	1.30.240.501/04xx	1.30.240.521/0400
no	opaque green	1.30.240.501/05xx	1.30.240.521/0500
no	opaque blue	1.30.240.501/06xx	1.30.240.521/0600
no	opaque white	1.30.240.501/02xx	1.30.240.521/0200
no	opaque slate-grey	1.30.240.501/07xx	1.30.240.521/0700
no	opaque black	1.30.240.501/01xx	1.30.240.521/0100

xx = Front ring color: black = 01, slate grey = 07, silver grey = 08

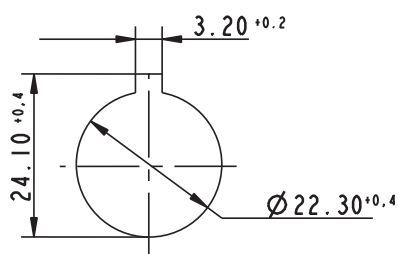
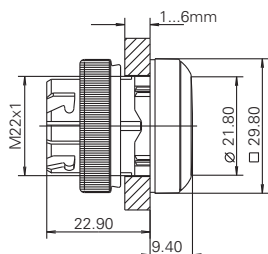
The protruding collar offers protection against inadvertent operation and thereby fulfils the safety requirements of various machinery manufacturers, particularly from the printing industry.

Accessoires:

Label holder, round collar, with adhesive tape and release liner on back 50 x 30 x 3.6 mm: 5.07620.010/0000

RAFIX 22 QR Pushbutton, flush lens, square collar

Technical data see page 2 - 91



Panel cut-out to IEC 60947-5-1



2

→ Illumination	Color of lens	Order no. momentary		Order no. latching	
		Plastic front ring	Metallized front ring	Plastic front ring	Metallized front ring
yes	transparent red	1.30.240.051/13xx	1.30.240.071/1300	1.30.240.061/13xx	1.30.240.081/1300
yes	transparent yellow	1.30.240.051/14xx	1.30.240.071/1400	1.30.240.061/14xx	1.30.240.081/1400
yes	transparent green	1.30.240.051/15xx	1.30.240.071/1500	1.30.240.061/15xx	1.30.240.081/1500
yes	transparent blue	1.30.240.051/16xx	1.30.240.071/1600	1.30.240.061/16xx	1.30.240.081/1600
yes	transparent white	1.30.240.051/10xx	1.30.240.071/1000	1.30.240.061/10xx	1.30.240.081/1000
no	opaque red	1.30.240.151/03xx	1.30.240.171/0300	1.30.240.161/03xx	1.30.240.181/0300
no	opaque yellow	1.30.240.151/04xx	1.30.240.171/0400	1.30.240.161/04xx	1.30.240.181/0400
no	opaque green	1.30.240.151/05xx	1.30.240.171/0500	1.30.240.161/05xx	1.30.240.181/0500
no	opaque blue	1.30.240.151/06xx	1.30.240.171/0600	1.30.240.161/06xx	1.30.240.181/0600
no	opaque white	1.30.240.151/02xx	1.30.240.171/0200	1.30.240.161/02xx	1.30.240.181/0200
no	opaque slate-grey	1.30.240.151/07xx	1.30.240.171/0700	1.30.240.161/07xx	1.30.240.181/0700
no	opaque black	1.30.240.151/01xx	1.30.240.171/0100	1.30.240.161/01xx	1.30.240.181/0100

xx = Front ring color: black = 01, slate grey = 07, silver grey = 08

Pushbuttons with plastic front ring and white lens are also available with the following front ring colors: red = 03, yellow = 04, green = 05, blue = 06. Other color combinations on request.

Accessoires:

Label holder, square collar, with adhesive tape and release liner on back 50 x 30 x 3.6 mm: 5.07.620.011/0000

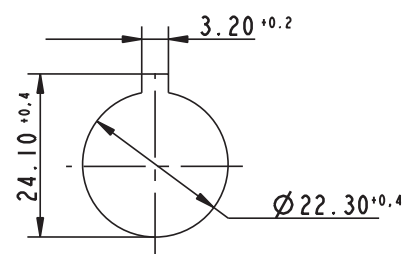
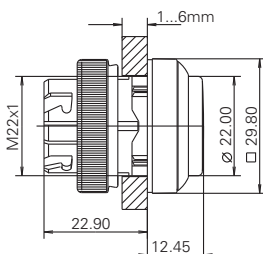
CONTROL COMPONENTS

RAFIX 22 QR - ACTUATORS AND INDICATORS



RAFIX 22 QR Pushbutton, protruding lens, square collar

Technical data see page 2 - 91



Panel cut-out to IEC 60947-5-1

→ Illumination	Color of lens	Order no. momentary		Order no. latching	
		Plastic front ring	Metallized front ring	Plastic front ring	Metallized front ring
yes	transparent red	1.30.240.251/13xx	1.30.240.271/1300	1.30.240.261/13xx	1.30.240.281/1300
yes	transparent yellow	1.30.240.251/14xx	1.30.240.271/1400	1.30.240.261/14xx	1.30.240.281/1400
yes	transparent green	1.30.240.251/15xx	1.30.240.271/1500	1.30.240.261/15xx	1.30.240.281/1500
yes	transparent blue	1.30.240.251/16xx	1.30.240.271/1600	1.30.240.261/16xx	1.30.240.281/1600
yes	transparent white	1.30.240.251/10xx	1.30.240.271/1000	1.30.240.261/10xx	1.30.240.281/1000
no	opaque red	1.30.240.351/03xx	1.30.240.371/0300	1.30.240.361/03xx	1.30.240.381/0300
no	opaque yellow	1.30.240.351/04xx	1.30.240.371/0400	1.30.240.361/04xx	1.30.240.381/0400
no	opaque green	1.30.240.351/05xx	1.30.240.371/0500	1.30.240.361/05xx	1.30.240.381/0500
no	opaque blue	1.30.240.351/06xx	1.30.240.371/0600	1.30.240.361/06xx	1.30.240.381/0600
no	opaque white	1.30.240.351/02xx	1.30.240.371/0200	1.30.240.361/02xx	1.30.240.381/0200
no	opaque slate-grey	1.30.240.351/07xx	1.30.240.371/0700	1.30.240.361/07xx	1.30.240.381/0700
no	opaque black	1.30.240.351/01xx	1.30.240.371/0100	1.30.240.361/01xx	1.30.240.381/0100

xx = Front ring color: black = 01, slate grey = 07, silver grey = 08

Pushbuttons with plastic front ring and white lens are also available with the following front ring colors: red = 03, yellow = 04, green = 05, blue = 06. Other color combinations on request.

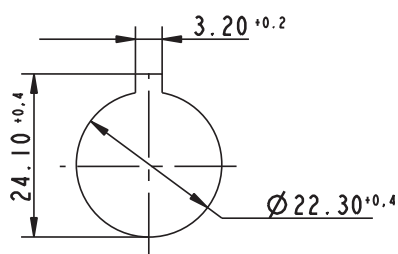
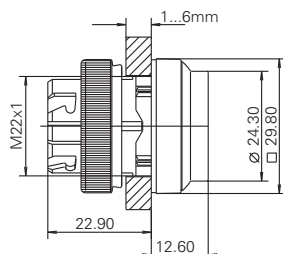
Accessoires:

Label holder, square collar, with adhesive tape and release liner on back 50 x 30 x 3.6 mm: 5.07620.011/0000

RAFIX 22 QR

Pushbutton, protruding front ring, square collar

Technical data see page 2 - 91



Panel cut-out to IEC 60947-5-1



2

RAFIX
22 QR

Illumination	Color of lens	Order no. momentary	
		Plastic front ring	Metallized front ring
yes	transparent red	1.30.240.451/13xx	1.30.240.471/1300
yes	transparent yellow	1.30.240.451/14xx	1.30.240.471/1400
yes	transparent green	1.30.240.451/15xx	1.30.240.471/1500
yes	transparent blue	1.30.240.451/16xx	1.30.240.471/1600
yes	transparent white	1.30.240.451/10xx	1.30.240.471/1000
no	opaque red	1.30.240.551/03xx	1.30.240.571/0300
no	opaque yellow	1.30.240.551/04xx	1.30.240.571/0400
no	opaque green	1.30.240.551/05xx	1.30.240.571/0500
no	opaque blue	1.30.240.551/06xx	1.30.240.571/0600
no	opaque white	1.30.240.551/02xx	1.30.240.571/0200
no	opaque slate-grey	1.30.240.551/07xx	1.30.240.571/0700
no	opaque black	1.30.240.551/01xx	1.30.240.571/0100

xx = Front ring color: black = 01, slate grey = 07, silver grey = 08

The protruding collar offers protection against inadvertent operation and thereby fulfils the safety requirements of various machinery manufacturers, particularly in the industry.

Accessoires:

Label holder, square collar, with adhesive tape and release liner on back 50 x 30 x 3.6 mm: 5.07.620.011/0000

CONTROL COMPONENTS

RAFIX 22 QR - ACTUATORS AND INDICATORS

RAFIX 22 QR Pushbuttons with protective cap

→ Pushbutton with protective cap for use under rugged conditions.

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	see order block
Mounting depth with contact block without cable	56.4 mm
Mounting hole	Ø 22.3 mm
Mounting grid	50 x 30 mm

→ Mechanical design

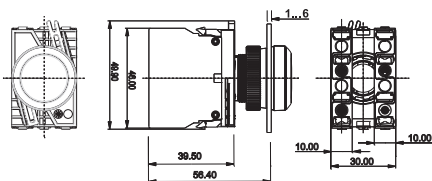
Mounting	ring nut
Contact function	momentary
Illumination	see order block

→ Mechanical characteristics

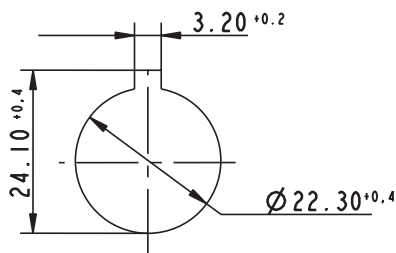
Operating travel	4 mm
Operating force max.	approx. 5 N for 1 switching element
Robustness max.	100 N

→ Other specifications

Operating life (operations)	1,000,000 momentary
Degree of protection from front side	IP65 (DIN EN 60529); IP69K (ISO 20653), water temp. 23 °C ±3 °C
Ambient temp. operating min.	-25 °C
Ambient temp. operating max.	+70 °C
Storage temperature min.	-40 °C
Storage temperature max.	+80 °C
Environmental resistance	acc. to IEC 60068-2-14, -30, -33 and -78
ROHS compliant	yes
REACH compliant	yes



with contact block



Panel cut-out to IEC 60947-5-1

Approvals



UL 508, C22.2 No.
14-M91



2004 Steel Vessel
Rules



Rules for the
Classification of
Steel Ships








Marine, offshore
and industrial
use



German Lloyd's
type approval



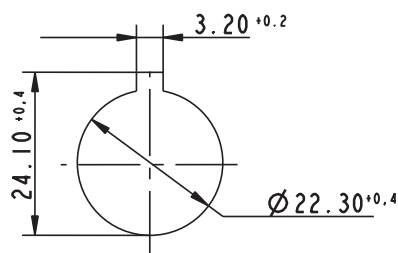
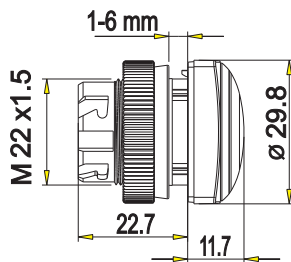
Accessories RAFIX 22 QR - Pushbutton with protective cap

→ Description	Photo	Order no.	Additional accessories see page
RAFIX - Insulating housing IP65, Ø 22.3 mm		-	2 - 79, 2 - 148, 5 - 20
RAFIX 22 QR - Contact blocks with gold contacts		-	2 - 138
RAFIX 22 QR - Contact blocks with silver contacts		-	2 - 135
Socket BA 9s (MBC/MCC), LED superbright		-	5 - 8
Fixing spanner for ring nut		5.05.800.062/0000	2 - 145, 2 - 261, 5 - 25

RAFIX 22 QR

Pushbutton with protective cap, flush lens, round collar

Technical data see page 2 - 98



Panel cut-out to IEC 60947-5-1



2

RAFIX
22 QR

→ Illumination	Color of lens	Order no. momentary		Order no. latching	
		Plastic front ring	Metallized front ring	Plastic front ring	Metallized front ring
yes	transparent red	1.30.240.005/13xx	-	-	-
yes	transparent yellow	1.30.240.005/14xx	-	-	-
yes	transparent green	1.30.240.005/15xx	-	-	-
yes	transparent blue	1.30.240.005/16xx	-	-	-
yes	transparent white	1.30.240.005/10xx	-	-	-
no	opaque red	1.30.240.105/03xx	-	-	-
no	opaque yellow	1.30.240.105/04xx	-	-	-
no	opaque green	1.30.240.105/05xx	-	-	-
no	opaque blue	1.30.240.105/06xx	-	-	-
no	opaque white	1.30.240.105/02xx	-	-	-
no	opaque slate-grey	1.30.240.105/07xx	-	-	-
no	opaque black	1.30.240.105/01xx	-	-	-

CONTROL COMPONENTS

RAFIX 22 QR - ACTUATORS AND INDICATORS

– Table (continued) –

RAFIX 22 QR - Pushbutton with protective cap, flush lens, round collar

Pushbutton with protective cap for use under rugged conditions.

Legending on request.

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

Accessoires:

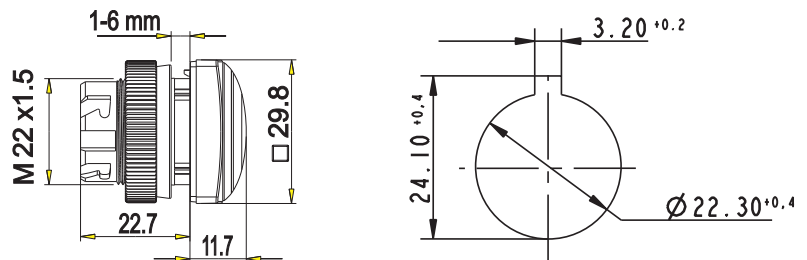
Label holder, round collar, with adhesive tape and release liner on back 50 x 30 x 3.6 mm: 5.07620.010/0000

Protective cover, suitable for pushbuttons with flush lens: see page 2 - 147



RAFIX 22 QR Pushbutton with protective cap, flush lens, square collar

Technical data see page 2 - 98



Panel cut-out to IEC 60947-5-1

→ Illumination	Color of lens	Order no. momentary		Order no. latching	
		Plastic front ring	Metallized front ring	Plastic front ring	Metallized front ring
yes	transparent red	1.30.240.055/13xx	-	-	-
yes	transparent yellow	1.30.240.055/14xx	-	-	-
yes	transparent green	1.30.240.055/15xx	-	-	-
yes	transparent blue	1.30.240.055/16xx	-	-	-
yes	transparent white	1.30.240.055/10xx	-	-	-
no	opaque red	1.30.240.155/03xx	-	-	-
no	opaque yellow	1.30.240.155/04xx	-	-	-
no	opaque green	1.30.240.155/05xx	-	-	-
no	opaque blue	1.30.240.155/06xx	-	-	-
no	opaque white	1.30.240.155/02xx	-	-	-
no	opaque slate-grey	1.30.240.155/07xx	-	-	-
no	opaque black	1.30.240.155/01xx	-	-	-

Pushbutton with protective cap for use under rugged conditions.

Legending on request.

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

Accessoires:

Label holder, square collar, with adhesive tape and release liner on back 50 x 30 x 3.6 mm: 5.07620.011/0000

RAFIX 22 QR Selector switches

→ The illuminated selector switches are provided with translucent handle markings. These are opaque on the non-illuminated versions. For colored illumination of the translucent handle marking please use contact blocks with lamp sockets and colored LED BA9s (see chapter 5 Accessories).

Technical Data

→ General information

Actuator	handle
Marking of handle	white
Color of front ring	see order block
Form of collar	see order block

→ Dimensions

Dimensions of collar	see order block
Overall height	22.2 mm
Mounting depth with contact block without cable	56.4 mm
Mounting hole	Ø 22.3 mm
Mounting grid	50 x 30 mm

→ Mechanical design

Mounting	ring nut
Contact function	see order block
Illumination	see order block
Rotating angle	see order block

→ Mechanical characteristics

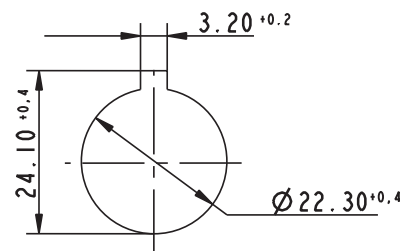
Operating force max.	approx. 5 N for 1 switching element
Torque max.	2 Nm

→ Electrical characteristics

Protection class	II
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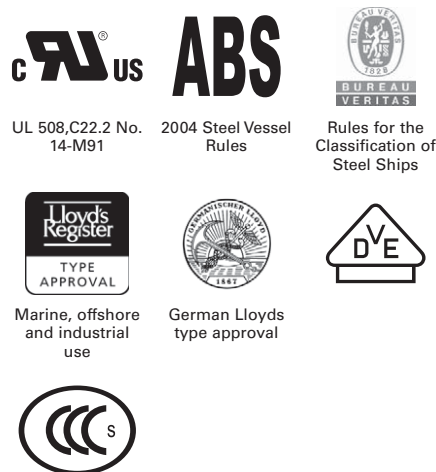
→ Other specifications

Operating life (operations)	500,000
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 resistance	acc. to IEC 60068-2-14, -30, -33 and -78
ROHS compliant	yes
REACH compliant	yes



Panel cut-out to IEC 60947-5-1

Approvals






Accessories RAFIX 22 QR - Selector switch

→ Description	Photo	Order no.	Additional accessories see page
BA 9s base (MBC/MCC), filament lamps, shape A, DIN 49851		-	5 - 11
RAFIX - Insulating housing IP65, Ø 22.3 mm		-	2 - 79, 2 - 148, 5 - 20
RAFIX 22 QR - Contact blocks with gold contacts		-	2 - 138

CONTROL COMPONENTS

RAFIX 22 QR - ACTUATORS AND INDICATORS

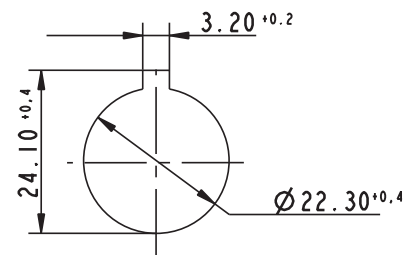
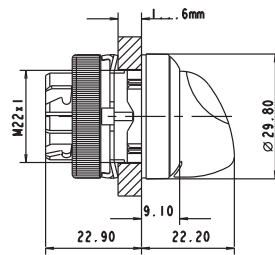
- Table (continued) - Accessories RAFIX 22 QR - Selector switch

→ Description	Photo	Order no.	Additional accessories see page
RAFIX 22 QR - Contact blocks with silver contacts		-	2 - 135
Socket BA 9s (MBC/MCC), LED superbright		-	5 - 8
Fixing spanner for ring nut		5.05.800.062/0000	2 - 145, 2 - 261, 5 - 25











RAFIX 22 QR Selector switch, round collar, short handle







Technical data see page 2 - 101



Panel cut-out to IEC 60947-5-1

→ Illumination	Contact function	Rotating angle		Order no.	
				Plastic front ring	Metallized front ring
yes	momentary	1 x 40°		1.30.242.001/22xx	1.30.242.002/2200
yes	momentary	2 x 40°		1.30.242.026/22xx	1.30.242.027/2200
yes	latching	1 x 90°, form L		1.30.242.101/22xx	1.30.242.102/2200
yes	latching	1 x 90°, form V		1.30.242.201/22xx	1.30.242.202/2200
yes	latching	2 x 60°		1.30.242.301/22xx	1.30.242.302/2200
yes	latching	2 x 90°		1.30.242.126/22xx	1.30.242.127/2200
yes	latching 1 x 90° and momentary 1 x 40°	1 x 90° and 1 x 40°		1.30.242.426/22xx	1.30.242.427/2200
no	momentary	1 x 40°		1.30.242.501/02xx	1.30.242.502/0200

– Table (continued) –
RAFIX 22 QR - Selector switch, round collar, short handle

→ Illumination	Contact function	Rotating angle		Order no.	
				Plastic front ring	Metallized front ring
no	momentary	2 x 40°		1.30.242.526/02xx	1.30.242.527/0200
no	latching	1 x 90°, form L		1.30.242.601/02xx	1.30.242.602/0200
no	latching	1 x 90°, form V		1.30.242.701/02xx	1.30.242.702/0200
no	latching	2 x 60°		1.30.242.801/02xx	1.30.242.802/0200
no	latching	2 x 90°		1.30.242.626/02xx	1.30.242.627/0200
no	latching 1 x 90° and momentary 1 x 40°	1 x 90° and 1 x 40°		1.30.242.926/02xx	1.30.242.927/0200

xx = Front ring color: black = 01, slate grey = 07, silver grey = 08; other colors on request.

Included: Ring nut with claw.

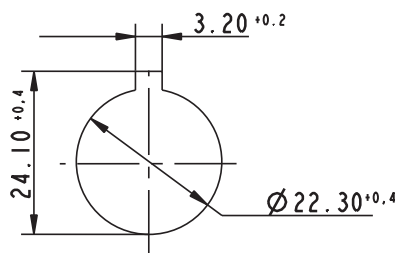
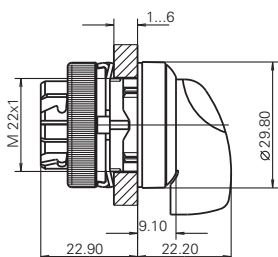
At keylock switches with 3 switching positions (e.g. 2 x 90 degrees), either the left-hand or right-hand contact block is activated, depending on the sense of rotation.

Accessoires:

Label holder, round collar, with adhesive tape and release liner on back 50 x 30 x 3.6 mm: 5.07.620.010/0000



RAFIX 22 QR Selector switch, round collar, long handle

Technical data see page 2 - 101



Panel cut-out to IEC 60947-5-1



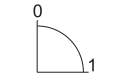
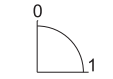
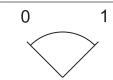
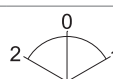

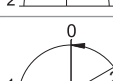
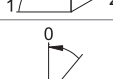
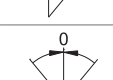
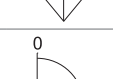


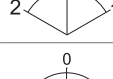
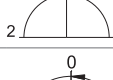
→ Illumination	Contact function	Rotating angle		Order no.	
				Plastic front ring	Metallized front ring
yes	momentary	1 x 40°		1.30.242.011/22xx	1.30.242.012/2200
yes	momentary	2 x 40°		1.30.242.036/22xx	1.30.242.037/2200

CONTROL COMPONENTS

RAFIX 22 QR - ACTUATORS AND INDICATORS

– Table (continued) –

RAFIX 22 QR - Selector switch, round collar, long handle

→ Illumination	Contact function	Rotating angle		Order no.	
				Plastic front ring	Metallized front ring
yes	latching	1 x 90°, form L		1.30.242.111/22xx	1.30.242.112/2200
yes	latching	1 x 90°, form V		1.30.242.211/22xx	1.30.242.212/2200
yes	latching	2 x 60°		1.30.242.311/22xx	1.30.242.312/2200
yes	latching	2 x 90°		1.30.242.136/22xx	1.30.242.137/2200
yes	latching 1 x 90° and momentary 1 x 40°	1 x 90° and 1 x 40°		1.30.242.436/22xx	1.30.242.437/2200
no	momentary	1 x 40°		1.30.242.511/02xx	1.30.242.512/0200
no	momentary	2 x 40°		1.30.242.536/02xx	1.30.242.537/0200
no	latching	1 x 90°, form L		1.30.242.611/02xx	1.30.242.612/0200
no	latching	1 x 90°, form V		1.30.242.711/02xx	1.30.242.712/0200
no	latching	2 x 60°		1.30.242.811/02xx	1.30.242.812/0200
no	latching	2 x 90°		1.30.242.636/02xx	1.30.242.637/0200
no	latching 1 x 90° and momentary 1 x 40°	1 x 90° and 1 x 40°		1.30.242.936/02xx	1.30.242.937/0200

xx = Front ring color: black = 01, slate grey = 07, silver grey = 08; other colors on request.

Included: Ring nut with claw.

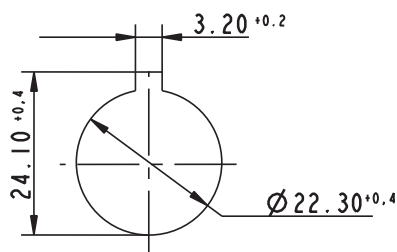
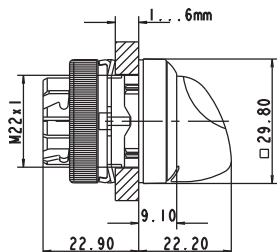
At selector switches with 3 switching positions (e.g. 2 x 90 degrees), either the left-hand or right-hand contact block is activated, depending on the sense of rotation.

Accessoires:

Label holder, round collar, with adhesive tape and release liner on back 50 x 30 x 3.6 mm: 5.07620.010/0000

RAFIX 22 QR Selector switch, square collar, short handle

Technical data see page 2 - 101



Panel cut-out to IEC 60947-5-1



2

→ Illumination	Contact function	Rotating angle		Order no.	
				Plastic front ring	Metallized front ring
yes	momentary	1 x 40°		1.30.242.051/22xx	1.30.242.052/2200
yes	momentary	2 x 40°		1.30.242.076/22xx	1.30.242.077/2200
yes	latching	1 x 90°, form L		1.30.242.151/22xx	1.30.242.152/2200
yes	latching	1 x 90°, form V		1.30.242.251/22xx	1.30.242.252/2200
yes	latching	2 x 60°		1.30.242.351/22xx	1.30.242.352/2200
yes	latching	2 x 90°		1.30.242.176/22xx	1.30.242.177/2200
yes	latching 1 x 90° and momentary 1 x 40°	1 x 90° and 1 x 40°		1.30.242.476/22xx	1.30.242.477/2200
no	momentary	1 x 40°		1.30.242.551/02xx	1.30.242.552/0200
no	momentary	2 x 40°		1.30.242.576/02xx	1.30.242.577/0200
no	latching	1 x 90°, form L		1.30.242.651/02xx	1.30.242.652/0200
no	latching	1 x 90°, form V		1.30.242.751/02xx	1.30.242.752/0200
no	latching	2 x 60°		1.30.242.851/02xx	1.30.242.852/0200
no	latching	2 x 90°		1.30.242.676/02xx	1.30.242.677/0200
no	latching 1 x 90° and momentary 1 x 40°	1 x 90° and 1 x 40°		1.30.242.976/02xx	1.30.242.977/0200

RAFIX
22 QR

CONTROL COMPONENTS

RAFIX 22 QR - ACTUATORS AND INDICATORS

– Table (continued) –

RAFIX 22 QR - Selector switch, square collar, short handle

xx = Front ring color: black = 01, slate grey = 07, silver grey = 08; other colors on request.

Included: Ring nut with claw.

At selector switches with 3 switching positions (e.g. 2 x 90 degrees), either the left-hand or right-hand contact block is activated, depending on the sense of rotation.

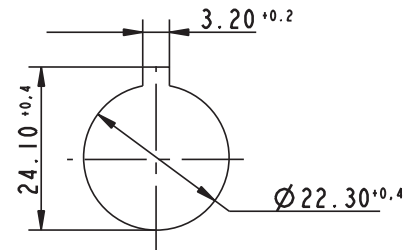
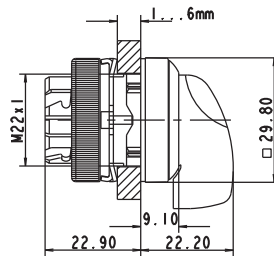
Accessoires:

Label holder, square collar, with adhesive tape and release liner on back 50 x 30 x 3.6 mm: 5.07.620.011/0000



RAFIX 22 QR Selector switch, square collar, long handle

Technical data see page 2 - 101


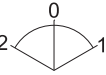
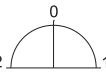
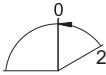


Panel cut-out to IEC 60947-5-1

→ Illumination	Contact function	Rotating angle		Order no.	
				Plastic front ring	Metallized front ring
yes	momentary	1 x 40°		1.30.242.061/22xx	1.30.242.062/2200
yes	momentary	2 x 40°		1.30.242.086/22xx	1.30.242.087/2200
yes	latching	1 x 90°, form L		1.30.242.161/22xx	1.30.242.162/2200
yes	latching	1 x 90°, form V		1.30.242.261/22xx	1.30.242.262/2200
yes	latching	2 x 60°		1.30.242.361/22xx	1.30.242.362/2200
yes	latching	2 x 90°		1.30.242.186/22xx	1.30.242.187/2200
yes	latching 1 x 90° and momentary 1 x 40°	1 x 90° and 1 x 40°		1.30.242.486/22xx	1.30.242.487/2200
no	momentary	1 x 40°		1.30.242.561/02xx	1.30.242.562/0200
no	momentary	2 x 40°		1.30.242.586/02xx	1.30.242.587/0200
no	latching	1 x 90°, form L		1.30.242.661/02xx	1.30.242.662/0200

– Table (continued) –

RAFIX 22 QR - Selector switch, square collar, long handle

→ Illumination	Contact function	Rotating angle		Order no.	
				Plastic front ring	Metallized front ring
no	latching	1 x 90°, form V		1.30.242.761/02xx	1.30.242.762/0200
no	latching	2 x 60°		1.30.242.861/02xx	1.30.242.862/0200
no	latching	2 x 90°		1.30.242.686/02xx	1.30.242.687/0200
no	latching 1 x 90° and momentary 1 x 40°	1 x 90° and 1 x 40°		1.30.242.986/02xx	1.30.242.987/0200

xx = Front ring color: black = 01, slate grey = 07, silver grey = 08; other colors on request.

Included: Ring nut with claw.

At selector switches with 3 switching positions (e.g. 2 x 90 degrees), either the left-hand or right-hand contact block is activated, depending on the sense of rotation.

Accessoires:

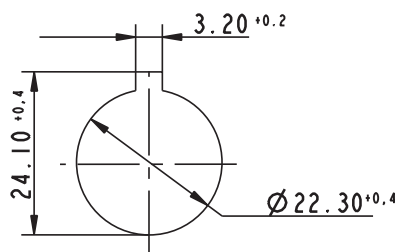
Label holder, square collar, with adhesive tape and release liner on back 50 x 30 x 3.6 mm: 5.07.620.011/0000

CONTROL COMPONENTS

RAFIX 22 QR - ACTUATORS AND INDICATORS



RAFIX 22 QR Keylock switches



Panel cut-out to IEC 60947-5-1

2

Approvals



UL 508, C22.2
No. 14-M91



2004 Steel Vessel
Rules



Rules for the
Classification of
Steel Ships



Marine, offshore
and industrial
use



Type approval



→ The locking systems we use are 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

Actuator	Key
Color of front ring	see order block
Form of collar	see order block

→ Dimensions

Dimensions of collar	see order block
Overall height	30.6 mm
Mounting depth with contact block without cable	56.4 mm
Mounting hole	Ø 22.3 mm
Mounting grid	50 x 30 mm

→ Mechanical design

Mounting	ring nut
Contact function	see order block
Illumination	no
Lock	RONIS
Wafers	4
Lock type	see order block
Main key	no
Symmetric key	no
Rotating angle	see order block
Key removal position	see order block

→ Mechanical characteristics

Operating force max.	approx. 5 N for 1 switching element
Torque max.	2 Nm

→ Electrical characteristics

Protection class	II
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→ Other specifications

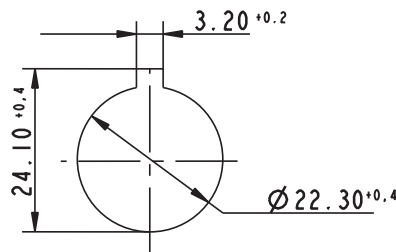
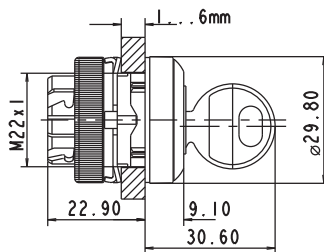
Operating life (operations)	300,000 momentary / 50,000 latching
Degree of protection from front side	IP65 (DIN EN 60529)
Ambient temp. operating min.	-25 °C
Ambient temp. operating max.	+70 °C
Storage temperature min.	-40 °C
Storage temperature max.	+80 °C
Environmental resistance	acc. to IEC 60068-2-14, -30, -33 and -78
ROHS compliant	yes
REACH compliant	yes

Accessories RAFIX 22 QR - Keylock switch

→ Description	Photo	Order no.	Additional accessories see page
RAFIX - Insulating housing IP65, Ø 22.3 mm		-	2 - 79, 2 - 148, 5 - 20
RAFIX 22 QR - Contact blocks with gold contacts		-	2 - 138
RAFIX 22 QR - Contact blocks with silver contacts		-	2 - 135
Fixing spanner for ring nut		5.05.800.062/0000	2 - 145, 2 - 261, 5 - 25
Spare key RONIS 455, delivery content 2 keys		5.58.017.001/0000	-
Spare key RONIS 1122E, delivery content 2 keys		5.58.017.403/0000	-
Spare key RONIS 421, delivery content 2 keys		5.58.017.421/0000	-






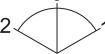
RAFIX 22 QR Keylock switch, round collar

Technical data see page 2 - 108



Panel cut-out to IEC 60947-5-1

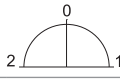
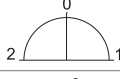
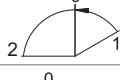








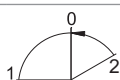
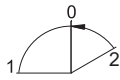
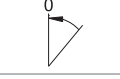








→ Lock type	Rotating angle	Contact function	Key removal position	Rotating angle	Order no.	
					Plastic front ring	Metallized front ring
421	1 x 40°	momentary	0		1.30.245.003/xxxx	1.30.245.004/0000
421	2 x 40°	momentary	0		1.30.245.103/xxxx	1.30.245.104/0000
421	1 x 90°, form L	latching	0		1.30.245.203/xxxx	1.30.245.204/0000
421	1 x 90°, form V	latching	0		1.30.245.303/xxxx	1.30.245.304/0000
421	1 x 90°, form V	latching	0+1		1.30.245.323/xxxx	1.30.245.324/0000
421	2 x 60°	latching	0+1+2		-	1.30.245.734/0000

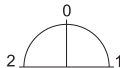
CONTROL COMPONENTS

RAFIX 22 QR - ACTUATORS AND INDICATORS

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

→ Lock type	Rotating angle	Contact function	Key removal position	Rotating angle	Order no.	
					Plastic front ring	Metallized front ring
421	2 x 90°	latching	0		1.30.245.403/xxxx	1.30.245.404/0000
421	2 x 90°	latching	0+1+2		1.30.245.433/xxxx	1.30.245.434/0000
421	1 x 90° and 1 x 40°	latching 1 x 90° and momentary 1 x 40°	0+2		-	1.30.245.524/0000
455	1 x 40°	momentary	0		1.30.245.001/xxxx	1.30.245.002/0000
455	2 x 40°	momentary	0		1.30.245.101/xxxx	1.30.245.102/0000
455	1 x 90°, form L	latching	0		1.30.245.201/xxxx	1.30.245.202/0000
455	1 x 90°, form L	latching	0+1		1.30.245.221/xxxx	1.30.245.222/0000
455	1 x 90°, form V	latching	0		1.30.245.301/xxxx	1.30.245.302/0000
455	1 x 90°, form V	latching	0+1		1.30.245.321/xxxx	1.30.245.322/0000
455	2 x 60°	latching	0+1+2		1.30.245.731/xxxx	1.30.245.732/0000
455	2 x 90°	latching	0+1+2		1.30.245.431/xxxx	1.30.245.432/0000
455	2 x 90°	latching	0		1.30.245.401/xxxx	1.30.245.402/0000
455	1 x 90° and 1 x 40°	latching 1 x 90° and momentary 1 x 40°	0		-	1.30.245.502/0000
455	1 x 90° and 1 x 40°	latching 1 x 90° and momentary 1 x 40°	0+2		-	1.30.245.522/0000
1122E	1 x 40°	momentary	0		1.30.245.005/xxxx	1.30.245.006/0000
1122E	2 x 40°	momentary	0		1.30.245.105/xxxx	1.30.245.106/0000
1122E	1 x 90°, form L	latching	0		1.30.245.205/xxxx	1.30.245.206/0000
1122E	1 x 90°, form V	latching	0		1.30.245.305/xxxx	1.30.245.306/0000
1122E	1 x 90°, form V	latching	0+1		1.30.245.325/xxxx	1.30.245.326/0000
1122E	2 x 90°	latching	0		1.30.245.405/xxxx	1.30.245.406/0000

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

→ Lock type	Rotating angle	Contact function	Key removal position	Rotating angle	Order no.	
					Plastic front ring	Metallized front ring
1122E	2 x 90°	latching	0+1+2		1.30.245.435/xxxx	1.30.245.436/0000

xxxx = Front ring color: black = 0100, slate grey = 0700, silver grey = 0800.
Other versions on request.

Included: Ring nut with claw.

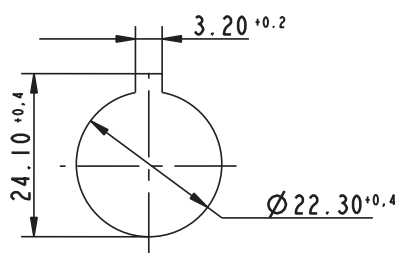
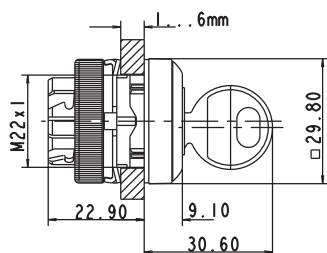
On selector switches with 3 switching positions (e.g. 2 x 90 degrees), either the left-hand or right-hand contact block is activated, depending on the sense of rotation.

Accessoires:

Label holder, round collar, with adhesive tape and release liner on back 50 x 30 x 3.6 mm: 5.07.620.010/0000






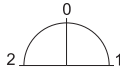
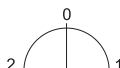
RAFIX 22 QR Keylock switch, square collar

Technical data see page 2 - 108



Panel cut-out to IEC 60947-5-1




















→ Lock type	Rotating angle	Contact function	Key removal position	Rotating angle	Order no.	
					Plastic front ring	Metallized front ring
421	1 x 40°	momentary	0		1.30.245.053/xxxx	1.30.245.054/0000
421	2 x 40°	momentary	0		1.30.245.153/xxxx	1.30.245.154/0000
421	1 x 90°, form L	latching	0		1.30.245.253/xxxx	1.30.245.254/0000
421	1 x 90°, form V	latching	0		1.30.245.353/xxxx	1.30.245.354/0000
421	1 x 90°, form V	latching	0+1		-	1.30.245.374/0000
421	2 x 90°	latching	0		1.30.245.453/xxxx	1.30.245.454/0000
421	2 x 90°	latching	0+1+2		1.30.245.483/xxxx	1.30.245.484/0000

CONTROL COMPONENTS

RAFIX 22 QR - ACTUATORS AND INDICATORS

– Table (continued) –
RAFIX 22 QR - Keylock switch, square collar

→ Lock type	Rotating angle	Contact function	Key removal position	Rotating angle	Order no.	
					Plastic front ring	Metallized front ring
455	1 x 40°	momentary	0		1.30.245.051/xxxx	1.30.245.052/0000
455	2 x 40°	momentary	0		1.30.245.151/xxxx	1.30.245.152/0000
455	1 x 90°, form L	latching	0		1.30.245.251/xxxx	1.30.245.252/0000
455	1 x 90°, form L	latching	0+1		1.30.245.271/xxxx	1.30.245.272/0000
455	1 x 90°, form V	latching	0		1.30.245.351/xxxx	1.30.245.352/0000
455	1 x 90°, form V	latching	0+1		1.30.245.371/xxxx	1.30.245.372/0000
455	2 x 60°	latching	0+1+2		1.30.245.781/xxxx	1.30.245.782/0000
455	2 x 90°	latching	0+1+2		1.30.245.481/xxxx	1.30.245.482/0000
455	2 x 90°	latching	0		1.30.245.451/xxxx	1.30.245.452/0000
455	1 x 90° and 1 x 40°	latching 1 x 90° and momentary 1 x 40°	0+2		-	1.30.245.572/0000
1122E	1 x 40°	momentary	0		1.30.245.055/xxxx	1.30.245.056/0000
1122E	2 x 40°	momentary	0		1.30.245.155/xxxx	1.30.245.156/0000
1122E	1 x 90°, form L	latching	0		1.30.245.255/xxxx	1.30.245.256/0000
1122E	1 x 90°, form V	latching	0		1.30.245.355/xxxx	1.30.245.356/0000
1122E	1 x 90°, form V	latching	0+1		1.30.245.375/xxxx	1.30.245.376/0000
1122E	2 x 90°	latching	0		1.30.245.455/xxxx	1.30.245.456/0000
1122E	2 x 90°	latching	0+1+2		1.30.245.485/xxxx	1.30.245.486/0000

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

Other versions on request.

Included: Ring nut with claw.

On keylock switches with 3 switching positions (e.g. 2 x 90 degrees), either the left-hand or right-hand contact block is activated, depending on the sense of rotation.

- Table (continued) -
RAFIX 22 QR - Keylock switch, square collar

Accessoires:

Label holder, square collar, with adhesive tape and release liner on back 50 x 30 x 3.6 mm: 5.07.620.011/0000

CONTROL COMPONENTS

RAFIX 22 QR - ACTUATORS AND INDICATORS



RAFIX 22 QR Mushroom-headed pushbuttons

Technical Data

→ General information

Actuator	mushroom
Color of mushroom	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	20.1 mm
Mounting depth	56.4 mm
Mounting hole	Ø 22.3 mm
Mounting grid	50 x 30 mm

→ Mechanical design

Mounting	ring nut
Contact function	see order block
Illuminability	see order block

→ Mechanical characteristics

Operating force max.	approx. 5 N for 1 switching element
Robustness max.	100 N

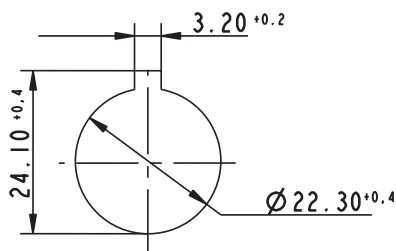
→ Electrical characteristics

Protection class	-
------------------	---

→ Other specifications

Operating life (operations)	1,000,000
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 resistance	acc. to IEC 60068-2-14, -30, -33 and -78
ROHS compliant	yes
REACH compliant	yes

2



Panel cut-out to IEC 60947-5-1

Approvals



UL 508, C22.2 No. 14-M91



2004 Steel Vessel Rules



Rules for the Classification of Steel Ships



Marine, offshore and industrial use



German Lloyd's type approval



Accessories RAFIX 22 QR - Mushroom-headed pushbutton

→ Description

RAFIX - Insulating housing IP65, Ø 22.3 mm

Photo



Order no.

-

Additional accessories see page

2 - 79, 2 - 148, 5 - 20

RAFIX 22 QR - Contact blocks with gold contacts



-

2 - 138

RAFIX 22 QR - Contact blocks with silver contacts



-

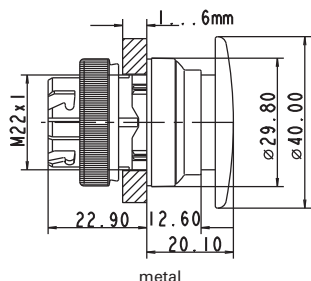
2 - 135

- Table (continued) -
Accessories RAFIX 22 QR - Mushroom-headed pushbutton

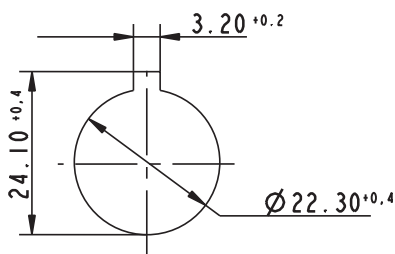
→ Description	Photo	Order no.	Additional accessories see page
Fixing spanner for ring nut		5.05.800.062/0000	2 - 145, 2 - 261, 5 - 25

RAFIX 22 QR Mushroom-headed pushbutton 40 mm, round collar

Technical data see page 2 - 114



metal



Panel cut-out to IEC 60947-5-1



2

RAFIX 22 QR

→ Illuminability	Color of mushroom	Color of front ring	Contact function	Order no.
no	opaque red	plastic slate-grey	momentary	1.30.246.501/0307
no	opaque red	metal	momentary	1.30.246.502/0300
no	opaque black	plastic slate-grey	momentary	1.30.246.501/0107
no	opaque black	metal	momentary	1.30.246.502/0100

xx = Front ring color: slate grey = 07

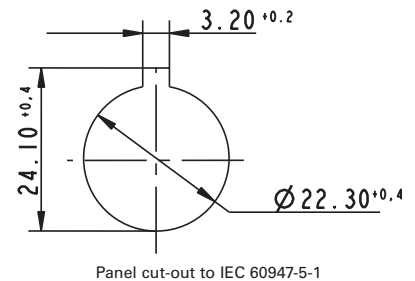
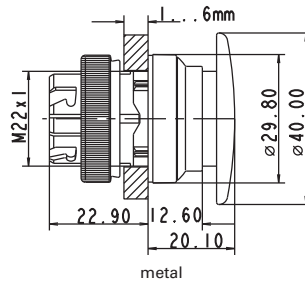
CONTROL COMPONENTS

RAFIX 22 QR - ACTUATORS AND INDICATORS



RAFIX 22 QR Mushroom-headed pushbutton 40 mm, illuminated, round collar

Technical data see page 2 - 114



→ Illuminability	Color of mushroom	Color of front ring	Contact function	Order no.
yes	opaque red/transparent red	plastic slate-grey	momentary	1.30.246.001/0307
yes	opaque red/transparent red	metal	momentary	1.30.246.002/0300

2

RAFIX
22 QR

xx = Front ring color: slate grey = 07

Accessoires:

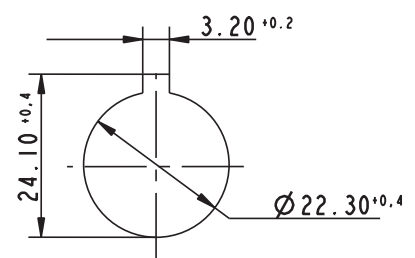
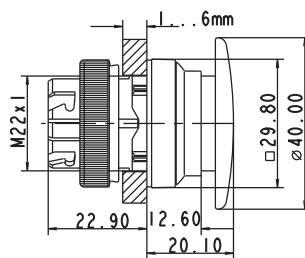
BA 9s base (MBC/MCC), filament lamp, shape A, DIN 49851: see page 5 - 11

Socket BA 9s (MBC/MCC), LED superbright: see page 5 - 8



RAFIX 22 QR Mushroom-headed pushbutton 40 mm, square collar

Technical data see page 2 - 114



→ Illuminability	Color of mushroom	Color of front ring	Contact function	Order no.
no	opaque red	plastic slate-grey	momentary	1.30.246.551/0307
no	opaque red	plastic slate-grey	momentary	1.30.246.551/0107
no	opaque red	plastic silber	momentary	1.30.246.551/0308
no	opaque red	metal	momentary	1.30.246.552/0300
no	opaque red	metal	momentary	1.30.246.552/0100

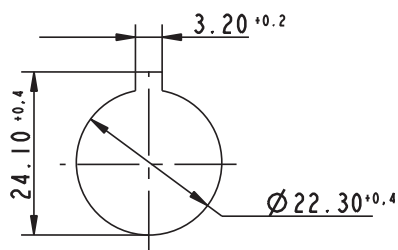
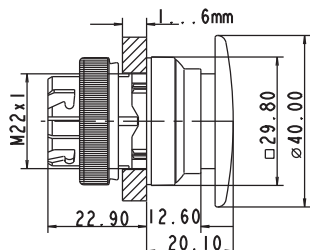
xx = Front ring color: slate grey = 07

RAFIX 22 QR

Mushroom-headed pushbutton

40 mm, illuminated, square collar

Technical data see page 2 - 114



Panel cut-out to IEC 60947-5-1



2

→ Illuminability	Color of mushroom	Color of front ring	Contact function	Order no.
yes	opaque red/transparent red	plastic slate-grey	momentary	1.30.246.051/0307
yes	opaque red/transparent red	plastic silver-gray	momentary	1.30.246.051/0308
yes	opaque red/transparent red	metal	momentary	1.30.246.052/0300

RAFIX
22 QR

xx = Front ring color: slate grey = 07

Accessoires:

BA 9s base (MBC/MCC), filament lamp, shape A, DIN 49851: see page 5 - 11

Socket BA 9s (MBC/MCC), LED superbright: see page 5 - 8

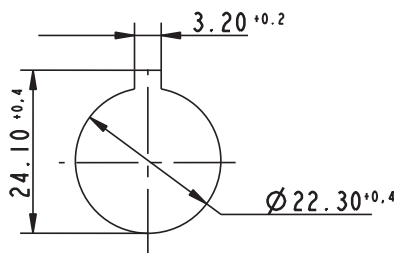
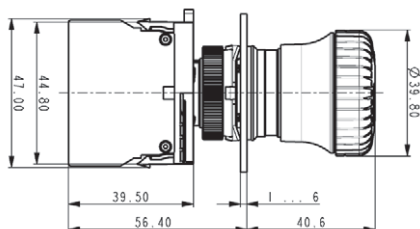
CONTROL COMPONENTS

RAFIX 22 QR - ACTUATORS AND INDICATORS



RAFIX 22 QR Emergency stop pushbuttons, dupe-proof to EN ISO 13850

2



Panel cut-out to IEC 60947-5-1

→ The emergency stop pushbuttons comply with IEC 60 947 and VDE 0113 Part 1.

They are designed dupe-proof according to EN ISO 13850 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.

Original operating instructions see Appendix.

Technical Data

→ General information

Actuator	mushroom
Color of mushroom	see order block
Form of collar	round

→ Dimensions

Dimensions of collar	Ø 29.8 mm
Overall height	see order block
Mounting depth with contact block without cable	56.4 mm
Mounting hole	Ø 22.3 mm
Mounting grid	-

→ Mechanical design

Mounting	ring nut
Contact function	latching
Illuminability	see order block
Reset	see order block
Lock type	see order block

→ Mechanical characteristics

Entsperr-Kraft	see order block
Operating force max.	approx. 5 N for 1 switching element
Robustness max.	100 N
Robustness	acc. to IEC 60947-5-5






→ Other specifications

Operating life (operations)	see order block
Degree of protection from front side	see order block
Ambient temp. operating min.	-25 °C
Ambient temp. operating max.	+70 °C
Storage temperature min.	-40 °C
Storage temperature max.	+80 °C
Environmental resistance	acc. to IEC 60068-2-14, -30, -33 and -78
ROHS compliant	yes
REACH compliant	yes

Approvals

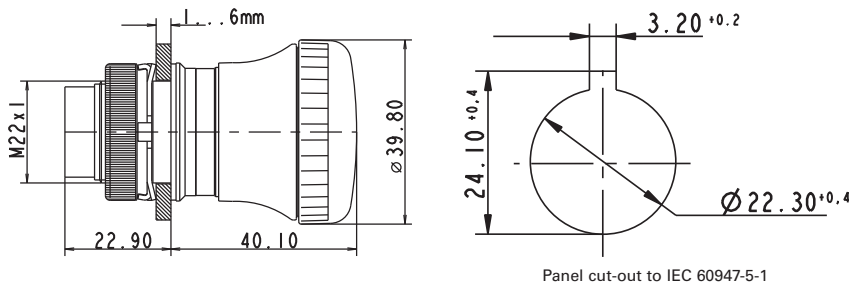
UL 508, C22.2
No. 14-M912004 Steel Vessel
RulesRules for the
Classification of
Steel ShipsMarine, offshore
and industrial
useGerman Lloyd's
type approval

Accessories RAFIX 22 QR - Emergency stop pushbutton, dupe-proof to EN ISO 13850

→ 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 QR - Contact blocks with gold contacts		-	2 - 138
RAFIX 22 QR - Contact blocks with silver contacts		-	2 - 135
RAFIX - Insulating housing, Ø 22.3 mm, IP65, 1-module, yellow/yellow		1.20.810.202/0000	2 - 79, 2 - 148, 5 - 20
Fixing spanner for ring nut		5.05.800.062/0000	2 - 145, 2 - 261, 5 - 25

RAFIX 22 QR Emergency stop pushbutton

Technical data see page 2 - 118



→ Degree of protection from front side	Reset	Illuminability	Operating life (operations)	Lock type	Order no.
IP65 (DIN EN 60529)	by clockwise rotation	no	100,000	-	1.30.243.501/0300

Included: Ring nut with claw.

Switching position indication: In the non-operated condition, a green ring is visible on the side.

For E-stop pushbuttons max. 2 contact block units may be used (eventually with multiple contacts). The middle coupling position may only be used for lamp sockets / LED elements.

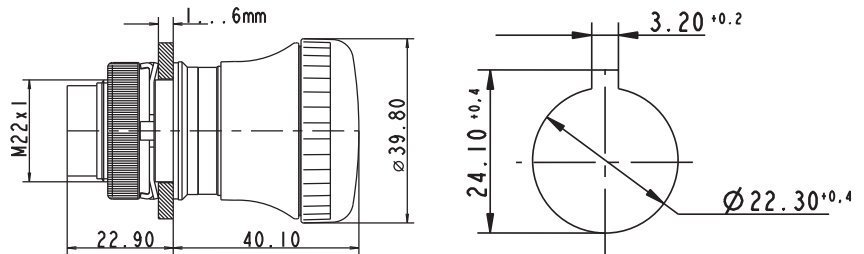
CONTROL COMPONENTS

RAFIX 22 QR - ACTUATORS AND INDICATORS



RAFIX 22 QR Emergency stop pushbutton, with indication

Technical data see page 2 - 118



Panel cut-out to IEC 60947-5-1

→ Degree of protection from front side	Reset	Illuminability	Operating life (operations)	Lock type	Order no.
IP65 (DIN EN 60529)	by clockwise rotation	no	100,000	-	1.30.243.601/0300

2

RAFIX
22 QR

Included: Ring nut with claw.

Switching position indication: In the non-operated condition, a green ring is visible on the side.

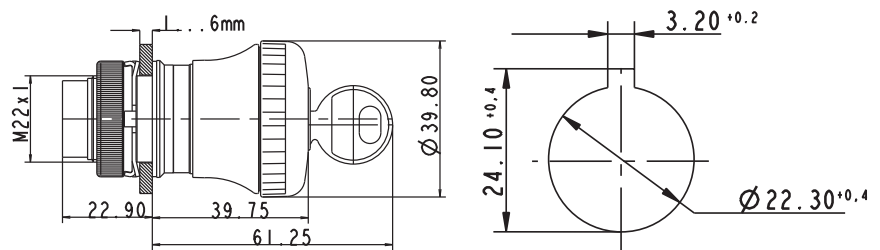
This switching position is visible in addition from the front; a mechanical indicator integrated into the mushroom head changes from green to red when actuated.

For E-stop pushbuttons max. 2 contact block units may be used (eventually with multiple contacts). The middle coupling position may only be used for lamp sockets / LED elements.



RAFIX 22 QR Emergency stop pushbutton, with keylock

Technical data see page 2 - 118



Panel cut-out to IEC 60947-5-1

→ Degree of protection from front side	Reset	Illuminability	Operating life (operations)	Lock type	Order no.
IP40 (DIN EN 60529)	by clockwise rotation	no	50,000	421	1.30.243.702/0300
IP40 (DIN EN 60529)	by clockwise rotation	no	50,000	455	1.30.243.701/0300
IP40 (DIN EN 60529)	by clockwise rotation	no	50,000	1122E	1.30.243.703/0300

Included: Ring nut with claw, 2 keys.

- Table (continued) -**RAFIX 22 QR - Emergency stop pushbutton, with keylock**

Switching position indication: In the non-operated condition, a green ring is visible on the side.

Once actuated, the emergency stop pushbutton can only be reset with the key.

For E-stop pushbuttons max. 2 contact block units may be used (eventually with multiple contacts). The middle coupling position may only be used for lamp sockets / LED elements.

The locking systems we use are 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.

Accessoires:

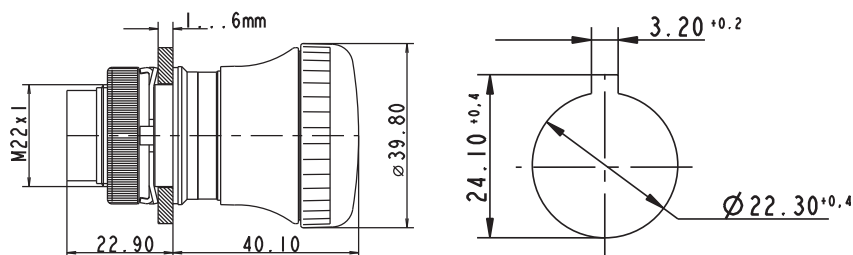
Spare key RONIS 1122E, delivery content 2 keys: 5.58.017403/0000

Spare key RONIS 421, delivery content 2 keys: 5.58.017421/0000

Spare key RONIS 455, delivery content 2 keys: 5.58.017001/0000

RAFIX 22 QR Emergency stop pushbutton, illuminable

Technical data see page 2 - 118



Panel cut-out to IEC 60947-5-1



2

RAFIX
22 QR

→ Degree of protection from front side	Reset	Illuminability	Operating life (operations)	Lock type	Order no.
IP65 (DIN EN 60529)	by clockwise rotation	yes	100,000	-	1.30.243.001/0300

Included: Ring nut with claw.

Switching position indication: In the non-operated condition, a green ring is visible on the side.

For E-stop pushbuttons max. 2 contact block units may be used (eventually with multiple contacts). The middle coupling position may only be used for lamp sockets / LED elements.

Accessoires:

BA 9s base (MBC/MCC), filament lamp, shape A, DIN 49851: see page 5 - 11

Socket BA 9s (MBC/MCC), LED superbright: see page 5 - 8

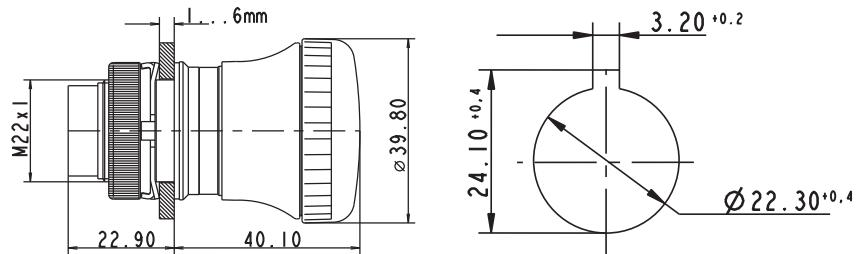
CONTROL COMPONENTS

RAFIX 22 QR - ACTUATORS AND INDICATORS



RAFIX 22 QR Emergency stop pushbutton, reset by pulling

Technical data see page 2 - 118



Panel cut-out to IEC 60947-5-1

→ Degree of protection from front side	Reset	Illuminability	Operating life (operations)	Lock type	Order no.
IP65 (DIN EN 60529)	by pulling	no	100,000	-	1.30.243.901/0300

Included: Ring nut with claw.

Switching position indication: In the non-operated condition, a green ring is visible on the side.

For E-stop pushbuttons max. 2 contact block units may be used (eventually with multiple contacts). The middle coupling position may only be used for lamp sockets / LED elements.

2

RAFIX
22 QR

RAFIX 22 QR Toggle switches

Technical Data

→ General information

Actuator	toggle
Color of toggle	opaque white
Color of front ring	see order block
Form of collar	see order block

→ Dimensions

Dimensions of collar	see order block
Overall height	22.2 mm
Mounting depth	56.4 mm
Mounting hole	Ø 22.3 mm
Mounting grid	50 x 30 mm

→ Mechanical design

Mounting	ring nut
Contact function	latching
Illuminability	no

→ Mechanical characteristics

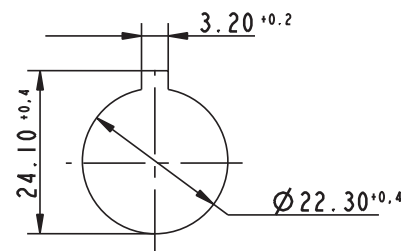
Robustness max.	100 N
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→ Electrical characteristics

Protection class	-
------------------	---

→ Other specifications

Operating life (operations)	100,000
Degree of protection	IP54 (DIN EN 60529)
Storage temperature min.	-40 °C
Storage temperature max.	+80 °C
Environmental resistance	acc. to IEC 60068-2-14, -30, -33 and -78
ROHS compliant	yes
REACH compliant	yes



Panel cut-out to IEC 60947-5-1

Approvals

UL 508, C22.2 No.
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type approval

Accessories RAFIX 22 QR - Toggle switch

→ Description	Photo	Order no.	Additional accessories see page
RAFIX 22 QR - Contact block with gold contacts, with coupling, without lamp socket, screw terminals, 1 NC + 1 NO		1.20.124.117/0000	2 - 140
RAFIX 22 QR - Contact block with gold contacts, with coupling, without lamp socket, spring-type terminals, 1 NO		1.20.125.102/0000	2 - 140
Fixing spanner for ring nut		5.05.800.062/0000	2 - 145, 2 - 261, 5 - 25

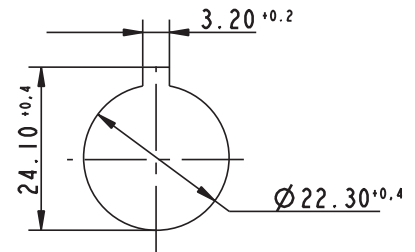
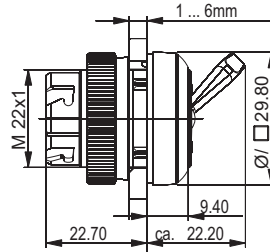
CONTROL COMPONENTS

RAFIX 22 QR - ACTUATORS AND INDICATORS



RAFIX 22 QR Toggle switch, round collar

Technical data see page 2 - 123



Panel cut-out to IEC 60947-5-1

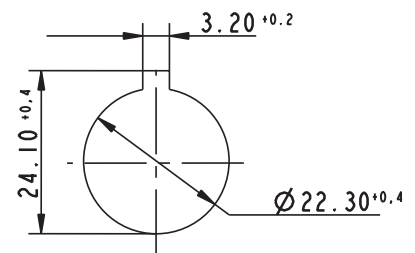
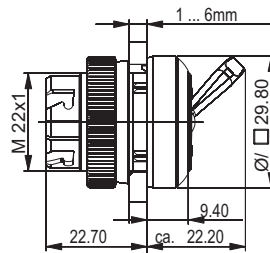
→ Illuminability	Color of toggle	Color of front ring	Contact function	Order no.
no	opaque white	plastic black	latching	1.30.247501/0201
no	opaque white	plastic slate-grey	latching	1.30.247501/0207
no	opaque white	plastic silver-gray	latching	1.30.247501/0208
no	opaque white	metal	latching	1.30.247502/0200

xx = Front ring color: black = 01, slate grey = 07, silver grey = 08



RAFIX 22 QR Toggle switch, square collar

Technical data see page 2 - 123



Panel cut-out to IEC 60947-5-1

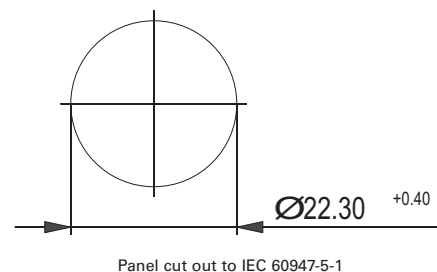
→ Illuminability	Color of toggle	Color of front ring	Contact function	Order no.
no	opaque white	plastic black	latching	1.30.247551/0201
no	opaque white	plastic slate-grey	latching	1.30.247551/0207
no	opaque white	plastic silver-gray	latching	1.30.247551/0208
no	opaque white	metal	latching	1.30.247552/0200

xx = Front ring color: black = 01, slate grey = 07, silver grey = 08

RAFIX 22 QR

Twin pushbuttons

- Lens legends are oriented for vertical installation of the twin pushbutton. Only the signal indicator is illuminated on twin pushbuttons prepared for illumination. This area is opaque slate grey on versions which cannot be illuminated.



Technical Data

→ General information

Legending	see order block
Color of lens	opaque green/opaque red
Color of front ring	see order block
Form of collar	see order block

→ Dimensions

Dimensions of collar	59.6 x 29.8 mm
Overall height	9.1 mm
Mounting depth with contact block without cable	56.4 mm
Mounting hole	Ø 22.3 mm
Mounting grid	-

→ Mechanical design

Mounting	ring nut
Contact function	momentary
Illuminability	see order block

→ Mechanical characteristics

Operating force max.	approx. 5 N for 1 switching element
Robustness max.	100 N

→ 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 resistance	acc. to IEC 60068-2-14, -30, -33 and -78
ROHS compliant	yes
REACH compliant	yes

Approvals



UL 508, C22.2 No. 14-M91



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German Lloyds type approval



Accessories RAFIX 22 QR - Twin pushbutton

→ Description	Photo	Order no.	Additional accessories see page
RAFIX 22 QR - Contact block with silver contacts, with coupling and lamp socket, screw terminals, 1 NO, 1 NC		1.20.124.025/0000	-
RAFIX 22 QR - Contact block with gold contacts, with coupling and lamp socket, spring-type terminals, 1 NO, 1 NC		1.20.125.125/0000	-

For other contact blocks, refer to the chapter „Contact blocks“; for additional accessories, refer to „RAFIX 22 QR special accessories“

CONTROL COMPONENTS

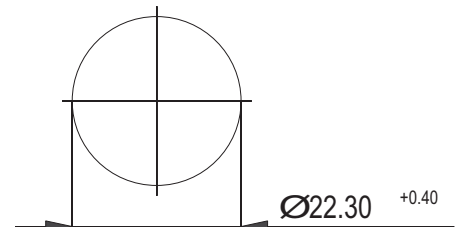
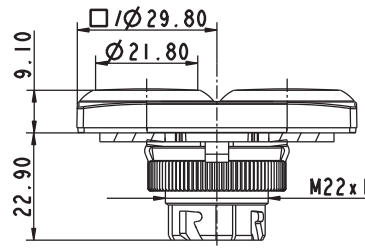
RAFIX 22 QR - ACTUATORS AND INDICATORS



Illuminated area

RAFIX 22 QR Twin pushbutton, oval collar

Technical data see page 2 - 125



Panel cut out to IEC 60947-5-1

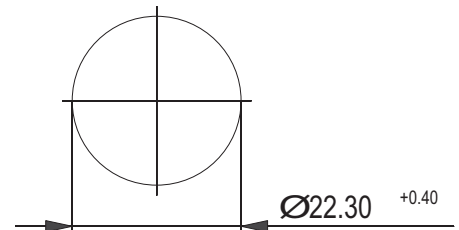
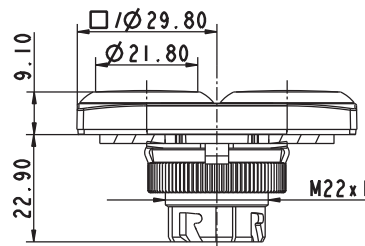
→ Illuminability	Color of lens	Legending	Color of front ring	Order no.
yes	opaque green/opaque red	none	slate-grey	1.30.241.001/2207
yes	opaque green/opaque red	red 0, green I	slate-grey	1.30.241.002/2207

Either the left-hand or right-hand contact block is actuated, depending on the button pressed. For illuminated versions the centre position of the coupling is reserved for the lamp socket. A third contact block arranged in the centre would be actuated by either button.



RAFIX 22 QR Twin pushbutton, rectangular collar

Technical data see page 2 - 125



Panel cut out to IEC 60947-5-1

→ Illuminability	Color of lens	Legending	Color of front ring	Order no.
yes	opaque green/opaque red	none	slate-grey	1.30.241.051/2207
yes	opaque green/opaque red	red 0, green I	slate-grey	1.30.241.052/2207

Either the left-hand or right-hand contact block is actuated, depending on the button pressed. For illuminated versions the centre position of the coupling is reserved for the lamp socket. A third contact block arranged in the centre would be actuated by either button.

RAFIX 22 QR Potentiometer drives



Technical Data

→ General information

Actuator	knob
Color of knob	see order block
Front ring	see order block
Form of collar	see order block

→ Dimensions

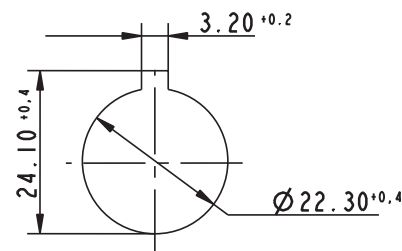
Dimensions of collar	see order block
Overall height	26.2 mm
Mounting depth	according to potentiometer
Mounting hole	Ø 22.3 mm
Mounting grid	50 x 30 mm

→ Mechanical design

Mounting	ring nut
----------	----------

→ Other specifications

Degree of protection from front side	IP65 (DIN EN 60529)
Storage temperature min.	-40 °C
Storage temperature max.	+80 °C
Environmental resistance	acc. to IEC 60068-2-14, -30, -33 and -78
ROHS compliant	yes
REACH compliant	yes



Panel cut-out to IEC 60947-5-1

Approvals

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Accessories RAFIX 22 QR - Potentiometer drive

→ Description

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

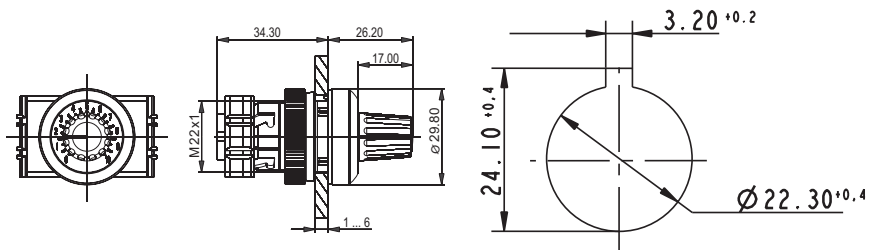
CONTROL COMPONENTS

RAFIX 22 QR - ACTUATORS AND INDICATORS



RAFIX 22 QR Potentiometer drive, round collar

Technical data see page 2 - 127



Panel cut-out to IEC 60947-5-1

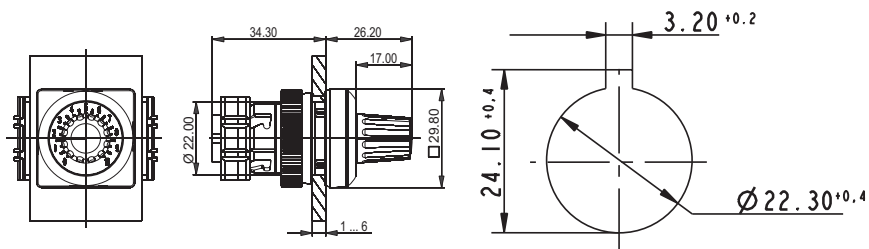
→ Front ring	Color of knob	Order no.
plastic slate-grey	opaque slate-grey	1.30.248.001/0700

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

RAFIX
22 QR

RAFIX 22 QR Potentiometer drive, square collar

Technical data see page 2 - 127



square

Panel cut-out to IEC 60947-5-1

→ Front ring	Color of knob	Order no.
plastic slate-grey	opaque slate-grey	1.30.248.021/0700

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

RAFIX 22 QR Buzzers

Technical Data

→ General information

Form of lens	flat lens
Color of lens	opaque slate-grey
Form of collar	see order block
Sound	see order block

→ Dimensions

Dimensions of collar	see order block
Overall height	9.8 mm
Mounting depth	56.4 mm
Mounting hole	Ø 22.3 mm
Mounting grid	50 x 30 mm

→ Mechanical design

Mounting	ring nut
----------	----------

→ Electrical characteristics

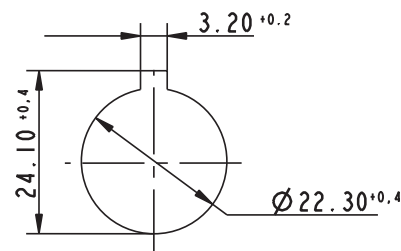
Operating voltage DC	see order block
Input current	see order block

→ Acoustic characteristics

Sonic pressure, 1 m distance min.	see order block
Sound frequency	see order block

→ Other specifications

Degree of protection from front side	IP65 (DIN EN 60529)
Storage temperature min.	-40 °C
Storage temperature max.	+80 °C
Environmental resistance	acc. to IEC 60068-2-14, -30, -33 and -78
ROHS compliant	yes
REACH compliant	yes



Panel cut-out to IEC 60947-5-1

Approvals

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Accessories RAFIX 22 QR - Buzzer

→ Description

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

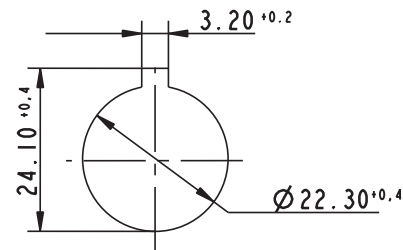
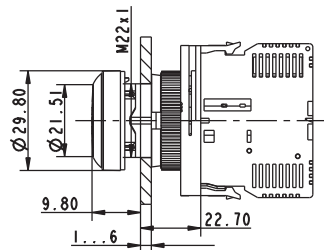
CONTROL COMPONENTS

RAFIX 22 QR - ACTUATORS AND INDICATORS



RAFIX 22 QR Buzzer, round collar

Technical data see page 2 - 129



Panel cut-out to IEC 60947-5-1

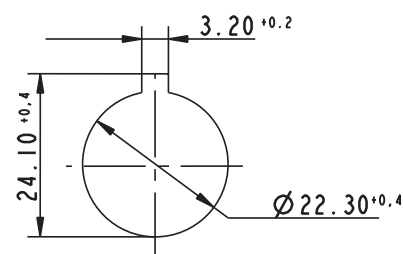
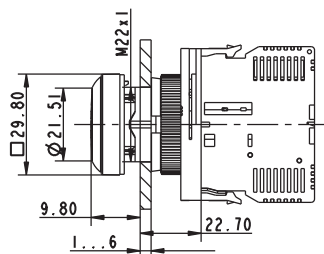
→ Operating voltage DC	Input current	Sound	Sonic pressure, 1 m distance min.	Sound frequency	Order no.
12 V	25 mA	continuos beep	70 dB	2400 - 3100 Hz	1.30.249.002/0000
24 V	25 mA	continuos beep	70 dB	2400 - 3100 Hz	1.30.249.001/0000

2

RAFIX
22 QR

RAFIX 22 QR Buzzer, square collar

Technical data see page 2 - 129



Panel cut-out to IEC 60947-5-1

→ Operating voltage DC	Input current	Sound	Sonic pressure, 1 m distance min.	Sound frequency	Order no.
12 V	25 mA	continuos beep	70 dB	2400 - 3100 Hz	1.30.249.022/0000
24 V	25 mA	continuos beep	70 dB	2400 - 3100 Hz	1.30.249.021/0000

RAFIX 22 QR

Signal indicators

Technical Data

→ General information

Form of lens	see order block
Color of lens	see order block
Legend insert accommodation	see order block
Form of collar	see order block

→ Dimensions

Dimensions of collar	see order block
Overall height	see order block
Mounting depth	56.4 mm
Mounting hole	Ø 22.3 mm
Mounting grid	50 x 30 mm

→ Mechanical design

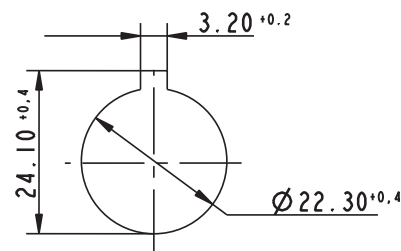
Mounting	ring nut
Illuminability	yes

→ Electrical characteristics

Protection class	-
------------------	---

→ 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 resistance	acc. to IEC 60068-2-14, -30, -33 and -78
ROHS compliant	yes
REACH compliant	yes



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RAFIX
22 QR

Accessories RAFIX 22 QR - Signal indicator




→ Description	Photo	Order no.	Additional accessories see page
BA 9s base (MBC/MCC), filament lamps, shape A, DIN 49851		-	5 - 11
RAFIX - Insulating housing IP65, Ø 22.3 mm		-	2 - 79, 2 - 148, 5 - 20
RAFIX 22 QR - Lamp sockets BA 9s (MBC/MCC)		-	2 - 141

CONTROL COMPONENTS

RAFIX 22 QR - ACTUATORS AND INDICATORS

– Table (continued) –

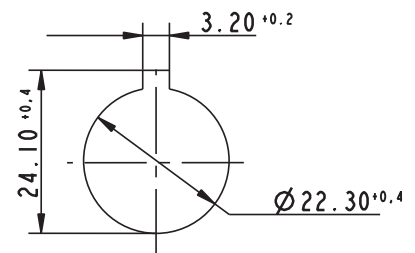
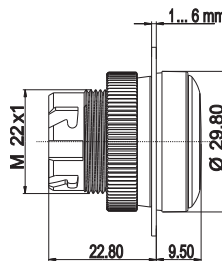
Accessories RAFIX 22 QR - Signal indicator

→ Description	Photo	Order no.	Additional accessories see page
RAFIX 22 QR - LED unit		-	2 - 143
Socket BA 9s (MBC/MCC), LED superbright		-	5 - 8
Fixing spanner for ring nut		5.05.800.062/0000	2 - 145, 2 - 261, 5 - 25



RAFIX 22 QR Signal indicator, flat, round collar, for legend inserts

Technical data see page 2 - 131



Panel cut-out to IEC 60947-5-1

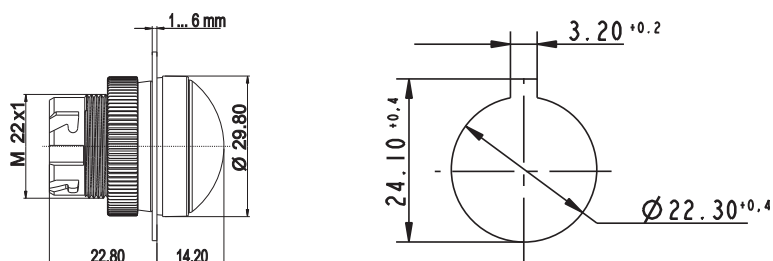
→ Color of lens	Form of collar	Order no.
transparent red	round	1.74.505.501/1300
transparent yellow	round	1.74.505.501/1400
transparent green	round	1.74.505.501/1500
transparent blue	round	1.74.505.501/1600
transparent colorless	round	1.74.505.501/1000

Accessoires:

Legend insert without legend, use only in combination with transparent lenses.: 5.70.803.000/2000

RAFIX 22 QR Signal indicator, high, round collar

Technical data see page 2 - 131



Panel cut-out to IEC 60947-5-1



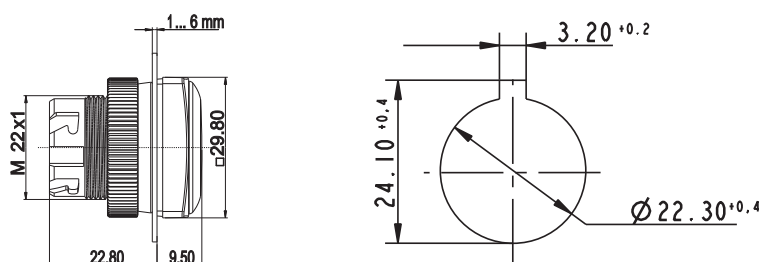
2

→ Color of lens	Form of collar	Order no.
transparent red	round	1.74.505.511/1300
transparent yellow	round	1.74.505.511/1400
transparent green	round	1.74.505.511/1500
transparent blue	round	1.74.505.511/1600
transparent colorless	round	1.74.505.511/1000

RAFIX
22 QR

RAFIX 22 QR Signal indicator, flat, square collar, for legend inserts

Technical data see page 2 - 131



Panel cut-out to IEC 60947-5-1



→ Color of lens	Form of collar	Order no.
transparent red	square	1.74.505.551/1300
transparent yellow	square	1.74.505.551/1400
transparent green	square	1.74.505.551/1500
transparent blue	square	1.74.505.551/1600
transparent colorless	square	1.74.505.551/1000

CONTROL COMPONENTS

RAFIX 22 QR - ACTUATORS AND INDICATORS

– Table (continued) –

RAFIX 22 QR - Signal indicator, flat, square collar, for legend inserts

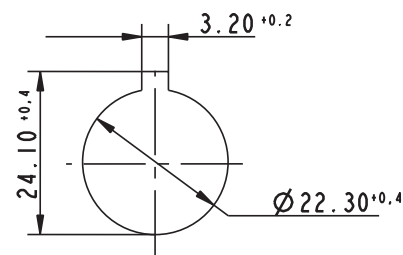
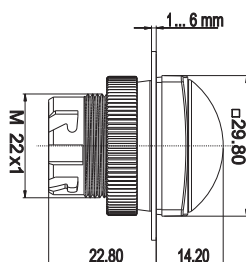
Accessoires:

Legend insert without legend, use only in combination with transparent lenses.: 5.70.803.000/2000



RAFIX 22 QR Signal indicator, high, square collar

Technical data see page 2 - 131



Panel cut-out to IEC 60947-5-1

→ Color of lens	Form of collar	Order no.
transparent red	square	1.74.505.561/1300
transparent yellow	square	1.74.505.561/1400
transparent green	square	1.74.505.561/1500
transparent blue	square	1.74.505.561/1000
transparent blue	square	1.74.505.561/1600

2

RAFIX
22 QR

RAFIX 22 QR

Contact blocks with silver contacts

→ Most of the values specified apply to all terminal versions.

Any deviating values specific to the cage clamp or quick-connect version are given in parentheses ().

Technical Data

→ Dimensions

Dimensions with coupling	39.5 x 49.9 x 30 mm
Mounting depth without cable	56.4 mm

→ Mechanical design

Mounting	snap on coupling and actuator
Contact system	bridge-contact self cleaning
Contact materials	Ag
Contact arrangement	see order block
Coupling position 1 (1/2)	see order block
Coupling position 3 (5/6), centre	see order block
Coupling position 2 (3/4)	see order block
NC contact forcibly actuated acc. to IEC 60947-5-1	yes
Terminals	see order block
Terminal marking	color encoded
Robustness	100 N
Wire range solid wires without wire end sleeves	2 x 0.75 ... 2.5 mm ²
Wire range stranded wires without end sleeves	2 x 1.0...1.5 (2 x 0.08 ... 2.5) mm ²
Stripping length, solid or stranded	8 mm
Wire range with wire end sleeves	2 x 0.75 ... 1.5 mm ²

→ Electric characteristics acc. to IEC 60947

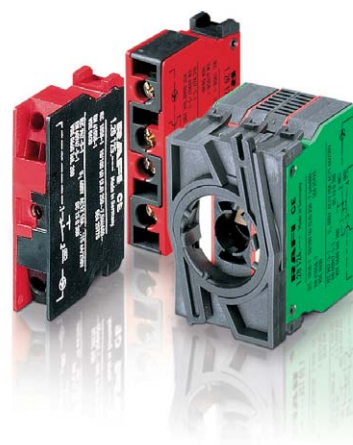
Rated insulation voltage AC/DC	400 V
Rated peak voltage	6,000 V
Rated operating current I _e AC 12 / DC 12	10 A
Rated operating current I _e AC-15	125 V/10 A, 250 V/6 A, 400 V/3.5 A
Rated operating current I _e DC-13 Q300	24V/2.75A, 60V/1.1A, 125V/0.55A, 250V/0.275A
Degree of pollution	3
Positive opening travel	3 mm
Operating speed	5 ... 1000 mm/c

→ Electric characteristics acc. to IEC 61058

Resistive load AC	10 A / 250 V; 7.5 A / 400 V
Motor load AC	6 A / 250 V; 4 A / 400 V (5 A / 250 V)
Peak input current filament lamp AC	36 A
Peak capacity input current AC	100 A
Protection class	II

→ Other specifications

Operating life at 10 A/250 V AC	70,000 (10A), 200,000 (5A)
Switching reliability at 24V/5mA DC	10 x 10 ⁻⁶
Robustness	acc. to IEC 60947-5-5
Corresponding to CE	acc. EU-guideline NSR 72/73
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
Ambient temp. operating min.	-25 °C
Ambient temp. operating max.	+70°C (+50°C)
Storage temperature min.	-40 °C
Storage temperature max.	+80 °C



Approvals



UL 508, C22.2
No. 14-M91



2004 Steel Vessel
Rules



Rules for the
Classification of
Steel Ships



Marine, offshore
and industrial
use



German Lloyds
type approval
only valid for
version with
screw terminals



IEC 61058 only
for versions with
spring-type
terminal



CONTROL COMPONENTS

RAFIX 22 QR - CONTACT BLOCKS AND INDICATORS

- Technical data (continued) -**RAFIX 22 QR - Contact blocks with silver contacts**

Flame class acc. to UL 94	V 0
Hot wire ignition acc. to IEC 60695-2-1	yes
Environmental resistance	acc. to IEC 60068-2-14, -30, -33 and -78
ROHS compliant	yes
REACH compliant	yes

Accessories RAFX 22 QR - Contact blocks with silver contacts

→ Description	Photo	Order no.	Additional accessories see page
RAFIX 22 QR - Lamp socket BA 9s, without coupling		-	2 - 142
RAFIX 22 QR - LED unit		-	2 - 143
Socket BA 9s (MBC/MCC), LED superbright		-	5 - 8



RAFIX 22 QR Contact block with silver contacts

Technical data see page 2 - 135



Silver contacts, 1 NC, spring-type terminals



Silver contacts, 1 NO, quick connector

→ Contact arrangement	Terminals	Coupling position 1 (1/2)	Coupling position 3 (5/6), centre	Coupling position 2 (3/4)	Order no.
1 NO	screw terminals	-	-	-	5.00.100.140/0000
1 NO	spring type	-	-	-	5.00.100.145/0000
1 NO	solder/quick connector 6.3 x 0.8 mm	-	-	-	5.00.100.196/0000
1 NC	screw terminals	-	-	-	5.00.100.139/0000
1 NC	spring type	-	-	-	5.00.100.144/0000
1 NC	solder/quick connector 6.3 x 0.8 mm	-	-	-	5.00.100.194/0000
2 NO	screw terminals	-	-	-	5.00.100.142/0000
2 NC	screw terminals	-	-	-	5.00.100.141/0000
1 NO, 1 NC	screw terminals	-	-	-	5.00.100.143/0000

– Table (continued) –
RAFIX 22 QR - Contact block with silver contacts

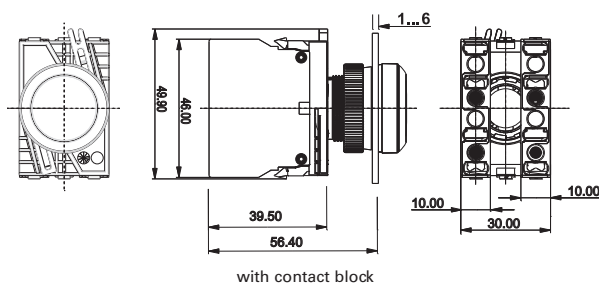
Accessoires:

Coupling: see page 2 - 146

RAFIX 22 QR

Contact block assembly, with coupling, silver contacts

Technical data see page 2 - 135



2

RAFIX
22 QR

→ Contact arrangement	Terminals	Coupling position 1 (1/2)	Coupling position 3 (5/6), centre	Coupling position 2 (3/4)	Order no.
1 NO	screw terminals	1 NO	-	-	1.20.124.002/0000
1 NO	spring type	1 NO	-	-	1.20.125.002/0000
1 NC	screw terminals	-	-	1 NC	1.20.124.001/0000
1 NC	spring type	-	-	1 NC	1.20.125.001/0000
2 NO	screw terminals	2 NO	-	-	1.20.124.020/0000
1 NO, 1 NO	screw terminals	1 NO	-	1 NO	1.20.124.004/0000
1 NO, 1 NO	spring type	1 NO	-	1 NO	1.20.125.004/0000
2 NC	screw terminals	-	-	2 NC	1.20.124.019/0000
1 NC, 1 NC	screw terminals	1 NC	-	1 NC	1.20.124.003/0000
1 NC, 1 NC	spring type	1 NC	-	1 NC	1.20.125.003/0000
1 NC + 1 NO	screw terminals	1 NC + 1 NO	-	-	1.20.124.017/0000
1 NO, 1 NC	screw terminals	1 NO	-	1 NC	1.20.124.005/0000
1 NO, 1 NC	spring type	1 NO	-	1 NC	1.20.125.005/0000
1 NC + 1 NO, 1 NC + 1 NO	screw terminals	1 NC + 1 NO	-	1 NC + 1 NO	1.20.124.018/0000

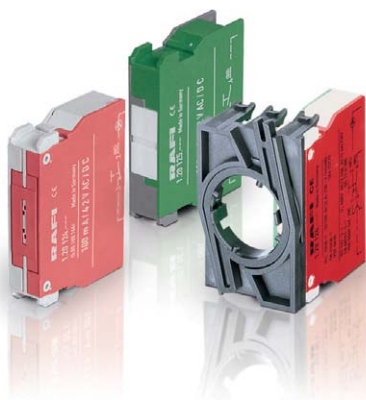
Contact arrangement example (1 NO = 1 normally open contact, 1 NC = 1 normally closed contact)

The centre coupling position 3 (5/6) is provided for the LED element resp. the lamp socket element.

CONTROL COMPONENTS

RAFIX 22 QR - CONTACT BLOCKS AND INDICATORS

RAFIX 22 QR Contact blocks with gold contacts



2

RAFIX
22 QR

→ Most of the values specified apply to all terminal and cage clamp terminal versions. Any deviating values specific to the cage clamp or quick connect version are given in parentheses ().

Technical Data

→ Dimensions

Dimensions with coupling	39.5 x 49.9 x 30 mm
Mounting depth without cable	56.4 mm

→ Mechanical design

Mounting	snap on coupling and actuator
Contact system	bridge-contact self cleaning
Contact materials	Au
Contact arrangement	see order block
Coupling position 1 (1/2)	see order block
Coupling position 3 (5/6), centre	see order block
Coupling position 2 (3/4)	see order block
NC contact forcibly actuated acc. to IEC 60947-5-1	yes
Terminals	see order block
Terminal marking	color encoded
Robustness	100 N
Operating force	-
Wire range solid wires without wire end sleeves	2 x 0.75 ... 2.5 mm ²
Wire range stranded wires without wire end sleeves	2 x 1.0 ... 1.5 mm ²
Stripping length, solid or stranded	8 mm
Wire range with wire end sleeves	2 x 0.75 ... 1.5 mm ²

→ Electrical characteristics

Operating voltage AC/DC	1 ... 35 V
Operating current AC/DC	0.01 ... 100 mA
Rated power max.	1 W (ohmic load)

→ Other specifications

Operating life (operations)	1,000,000 (24 V DC 10 mA)
Switching reliability at 24V/5mA DC	10 x 10 ⁻⁶
Robustness	acc. to IEC 60947-5-5
Corresponding to CE	acc. EU-guideline NSR 72/73
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
Ambient temp. operating min.	-25 °C
Ambient temp. operating max.	+70 °C
Storage temperature min.	-40 °C
Storage temperature max.	+80 °C
Environmental resistance	acc. to IEC 60068-2-14, -30, -33 and -78
ROHS compliant	yes
REACH compliant	yes

Accessories RAFIX 22 QR - Contact blocks with gold contacts

→ Description	Photo	Order no.	Additional accessories see page
BA 9s base (MBC/MCC), filament lamps, shape A, DIN 49851		-	5 - 11
RAFIX 22 QR - Lamp socket BA 9s, without coupling		-	2 - 142
RAFIX 22 QR - LED unit		-	2 - 143
Socket BA 9s (MBC/MCC), LED superbright		-	5 - 8

RAFIX 22 QR

Contact block with gold contacts

Technical data see page 2 - 138



Gold contacts, 1 NO, spring-type terminals



Gold contacts, 1 NO, quick connector



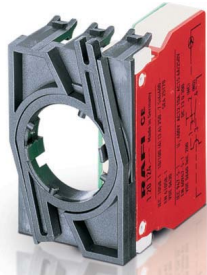
→ Contact arrangement	Terminals	Coupling position 1 (1/2)	Coupling position 3 (5/6), centre	Coupling position 2 (3/4)	Order no.
1 NO	screw terminals	-	-	-	5.00.100.165/0000
1 NO	spring type	-	-	-	5.00.100.160/0000
1 NO	solder/quick connector 6.3 x 0.8 mm	-	-	-	5.00.100.195/0000
1 NC	screw terminals	-	-	-	5.00.100.164/0000
1 NC	spring type	-	-	-	5.00.100.159/0000
1 NC	solder/quick connector 6.3 x 0.8 mm	-	-	-	5.00.100.193/0000
2 NO	screw terminals	-	-	-	5.00.100.162/0000
2 NC	screw terminals	-	-	-	5.00.100.161/0000
1 NC + 1 NO	screw terminals	-	-	-	5.00.100.163/0000

Accessoires:

Coupling: see page 2 - 146

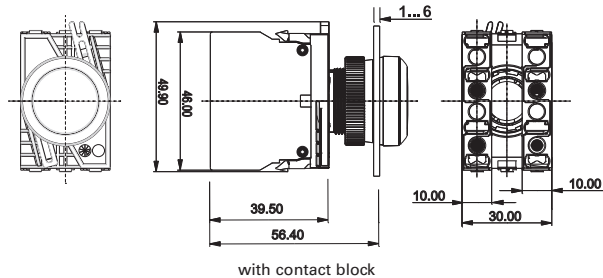
CONTROL COMPONENTS

RAFIX 22 QR - CONTACT BLOCKS AND INDICATORS



RAFIX 22 QR Contact block assembly, with coupling, gold contacts

Technical data see page 2 - 138



2

RAFIX
22 QR

→ Contact arrangement	Terminals	Coupling position 1 (1/2)	Coupling position 3 (5/6), centre	Coupling position 2 (3/4)	Order no.
1 NO	screw terminals	1 NO	-	-	1.20.124.102/0000
1 NO	spring type	1 NO	-	-	1.20.125.102/0000
1 NC	screw terminals	-	-	1 NC	1.20.124.101/0000
1 NC	spring type	-	-	1 NC	1.20.125.101/0000
2 NO	screw terminals	2 NO	-	-	1.20.124.120/0000
1 NO, 1 NO	screw terminals	1 NO	-	1 NO	1.20.124.104/0000
1 NO, 1 NO	spring type	1 NO	-	1 NO	1.20.125.104/0000
2 NC	screw terminals	-	-	2 NC	1.20.124.119/0000
1 NC, 1 NC	screw terminals	1 NC	-	1 NC	1.20.124.103/0000
1 NC, 1 NC	spring type	1 NC	-	1 NC	1.20.125.103/0000
1 NC + 1 NO	screw terminals	1 NC + 1 NO	-	-	1.20.124.117/0000
1 NO, 1 NC	screw terminals	1 NO	-	1 NC	1.20.124.105/0000
1 NO, 1 NC	spring type	1 NO	-	1 NC	1.20.125.105/0000
1 NC + 1 NO, 1 NC + 1 NO	screw terminals	1 NC + 1 NO	-	1 NC + 1 NO	1.20.124.118/0000

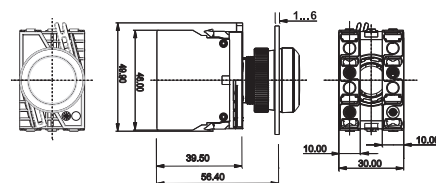
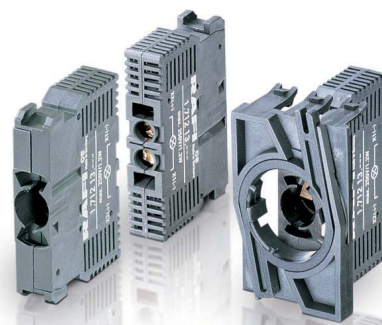
Contact arrangement example (1 NO = 1 normally open contact, 1 NC = 1 normally closed contact)

The centre coupling position 3 (5/6) is provided for the LED element resp. the lamp socket element.

RAFIX 22 QR Lamp sockets BA 9s (MBC/MCC)

Technical Data

→ Dimensions	
Dimensions with coupling	39.5 x 49.9 x 30 mm
Mounting depth without cable	56.4 mm
→ Mechanical design	
Mounting	snap on coupling and actuator
Diode and resistor	see order block
Terminals	see order block
Terminal marking	X1 = anode, X2 = cathode
→ Lamp characteristics	
Lamp socket	BA 9 s
Operating voltage AC/DC	see order block
Lamp power max.	2 W
Lamp voltage	see order block
→ Other specifications	
Approvals	see order block
Robustness	acc. to IEC 60947-5-5
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	10 g at 40 ... 500 Hz
Environmental resistance	acc. to IEC 60068-2-14, -30, -33 and -78
Ambient temp. operating max.	+70 °C
Ambient temp. operating min.	-25 °C
Storage temperature min.	-40 °C
Storage temperature max.	+80 °C
Flame class acc. to UL 94	V 0
Hot wire ignition acc. to IEC 60695-2-1	yes
ROHS compliant	yes
REACH compliant	yes



with contact block

Approvals

UL 508, C22.2 No.
14-M912004 Steel Vessel
RulesRules for the
Classification of
Steel ShipsMarine, offshore
and industrial
useType approval
only valid for
version with
screw terminals

Accessories RAFIX 22 QR - Lamp sockets BA 9s (MBC/MCC)

→ Description	Photo	Order no.	Additional accessories see page
BA 9s base (MBC/MCC), filament lamps, shape A, DIN 49851		-	5 - 11
Socket BA 9s (MBC/MCC), LED superbright		-	5 - 8

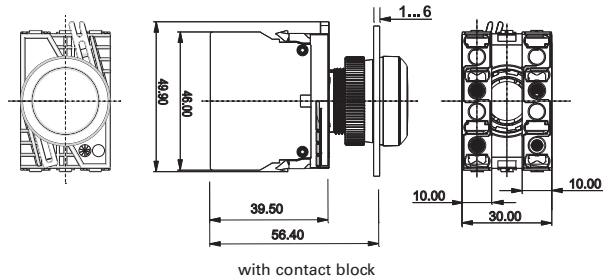
CONTROL COMPONENTS

RAFIX 22 QR - CONTACT BLOCKS AND INDICATORS



RAFIX 22 QR Lamp socket BA 9s, without coupling

Technical data see page 2 - 141

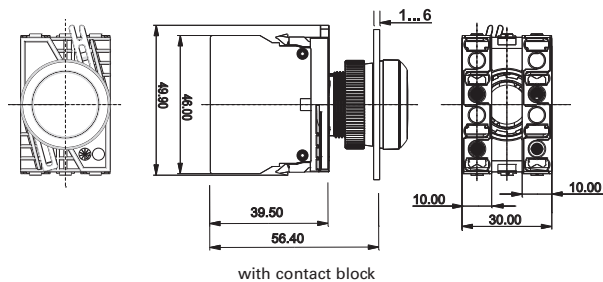


→ Terminals	Operating voltage AC/DC	Lamp voltage	Diode and resistor	Order no.
spring type	6 ... 250 V	6 ... 250 V	no	5.00.070.078/0000
solder/quick connector 6.3 x 0.8 mm	6 ... 250 V	6 ... 250 V	no	5.00.070.087/0000
screw terminals	250 V	130 V	yes	5.00.070.080/0000



RAFIX 22 QR Lamp socket BA 9s, assembly with coupling

Technical data see page 2 - 141



→ Terminals	Operating voltage AC/DC	Lamp voltage	Diode and resistor	Order no.
screw terminals	6 ... 250 V	6 ... 250 V	no	1.71.213.001/0000
spring type	6 ... 250 V	6 ... 250 V	no	1.71.214.001/0000
screw terminals	with diode and series resistor 250 V	130 V	yes	1.71.213.004/0000

The lamp socket is mounted in the middle coupling position 3 (5/6).

RAFIX 22 QR LED units

Technical Data

→ Dimensions

Dimensions without coupling	46 x 10 x 39.5 mm
Mounting depth without cable	56.4 mm

→ Mechanical design

Mounting	snap on coupling and actuator
Diode and resistor	see order block
LED color	see order block
Terminals	screw terminals
Terminal marking	X1 = anode, X2 = cathode

→ Lamp characteristics

Operating voltage	see order block
Max. current, I _F	see order block

→ Other specifications

Robustness	acc. to IEC 60947-5-1
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	10 g at 40 ... 500 Hz
Environmental resistance	acc. to IEC 60068-2-14, -30, -33 and -78
Ambient temp. operating max.	+65 °C
Ambient temp. operating min.	-20 °C
Storage temperature min.	-40 °C
Storage temperature max.	+80 °C
Flame class acc. to UL 94	V 0
Hot wire ignition acc. to IEC 60695-2-1	yes
ROHS compliant	yes
REACH compliant	yes



Approvals

ABS2004 Steel Vessel
RulesRules for the
Classification of
Steel ShipsMarine, offshore
and industrial
useGerman Lloyd's
type approval

2

RAFIX
22 QR

Accessories RAFIX 22 QR - LED unit

→ Description

Description	Photo	Order no.	Additional accessories see page
Coupling		-	2 - 146

CONTROL COMPONENTS

RAFIX 22 QR - CONTACT BLOCKS AND INDICATORS



RAFIX 22 QR LED unit, without coupling

Technical data see page 2 - 143

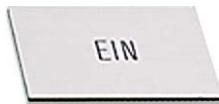
2

RAFIX
22 QR

→ LED color	Operating voltage	Max. current, I _F	Terminals	Order no.
red	AC/DC 24 V	15 mA	screw terminals	5.00.070.083/0300
red	AC 115 V	16 mA	screw terminals	5.00.070.085/0300
red	AC 230 V	16 mA	screw terminals	5.00.070.086/0300
yellow	AC/DC 24 V	15 mA	screw terminals	5.00.070.083/0400
yellow	AC 115 V	16 mA	screw terminals	5.00.070.085/0400
yellow	AC 230 V	16 mA	screw terminals	5.00.070.086/0400
green	AC/DC 24 V	15 mA	screw terminals	5.00.070.083/0500
green	AC 115 V	16 mA	screw terminals	5.00.070.085/0500
green	AC 230 V	16 mA	screw terminals	5.00.070.086/0500
blue	AC/DC 24 V	15 mA	screw terminals	5.00.070.083/0600
blue	AC 115 V	16 mA	screw terminals	5.00.070.085/0600
blue	AC 230 V	16 mA	screw terminals	5.00.070.086/0600
white	AC/DC 24 V	15 mA	screw terminals	5.00.070.083/0200
white	AC 115 V	16 mA	screw terminals	5.00.070.085/0200
white	AC 230 V	16 mA	screw terminals	5.00.070.086/0200

CONTROL COMPONENTS

RAFIX 22 QR - SPECIAL ACCESSORIES



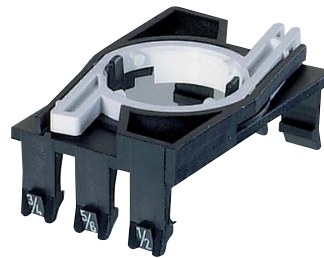
Legend label to clip into label holder 5.07.620.xxx

→ Dimensions	Label	Order no.
28 x 16 x 0,9 mm	-	5.73.110.000/0000
28 x 16 x 0,9 mm	EIN	5.73.110.004/0000
28 x 16 x 0,9 mm	AUS	5.73.110.005/0000
28 x 16 x 0,9 mm	HAND 0 AUTO	5.73.110.021/0000
28 x 16 x 0,9 mm	AUTO HAND	5.73.110.022/0000
28 x 16 x 0,9 mm	HAND 0 AUTO	5.73.110.023/0000
28 x 16 x 0,9 mm	0 I	5.73.110.026/0000
28 x 16 x 0,9 mm	I 0 II	5.73.110.027/0000
28 x 16 x 0,9 mm	EIN AUS	5.73.110.028/0000
28 x 16 x 0,9 mm	AUS EIN	5.73.110.029/0000

Legending available on request.



Coupling

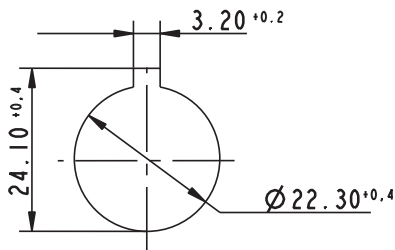


→ Description	Order no.
Coupling with reference numbers 1-3-2, for contact blocks with single contacts	5.05.510.935/0000
Coupling with reference numbers 1/2-5/6-3/4, for contact blocks with double contacts	5.05.510.936/0000

RAFIX 22 QR Blanking cap, Ø 22.3 mm



round blanking cap



Panel cut-out to IEC 60947-5-1



→ Description	Order no.
Blanking cap IP65, ring nut, square, slate grey	5.05.800.065/0000
Blanking cap IP65, ring nut, round, slate grey	5.05.800.064/0000

Protection acc. to DIN EN 60529

Protective cover, suitable for pushbuttons with flush lens



Protective cover, mounted



→ Description	Order no.
Protective cover, latching	5.05.511.195/0000
Protective cover, auto-closing	5.05.511.194/0000

2

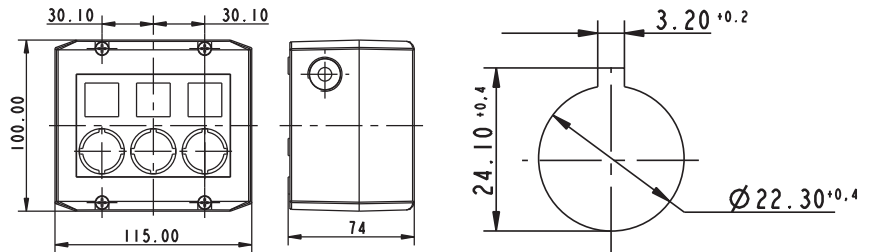
RAFIX
 22 QR

CONTROL COMPONENTS

RAFIX 22 QR - SPECIAL ACCESSORIES



RAFIX Insulating housing IP65, Ø 22.3 mm



Panel cut-out to IEC 60947-5-1

→ Description	Number of cut-outs	Ø	Dimensions	Order no.
RAFIX - Insulating housing, Ø 22.3 mm, IP65, 1-module, light grey/dark grey	1	22,3 mm	100x55x74 mm	1.20.810.201/0000
RAFIX - Insulating housing, Ø 22.3 mm, IP65, 1-module, yellow/yellow	1	22,3 mm	100x55x74 mm	1.20.810.202/0000
RAFIX - Insulating housing, Ø 22.3 mm, IP65, 2-module, light grey/dark grey	2	22,3 mm	100x115x74 mm	1.20.820.201/0000
RAFIX - Insulating housing, Ø 22.3 mm, IP65, 3-module, light grey/dark grey	3	22,3 mm	100x115x74 mm	1.20.830.201/0000
RAFIX - Insulating housing, Ø 22.3 mm, IP65, 4-module, light grey/dark grey	4	22,3 mm	100x145x74 mm	1.20.840.201/0000

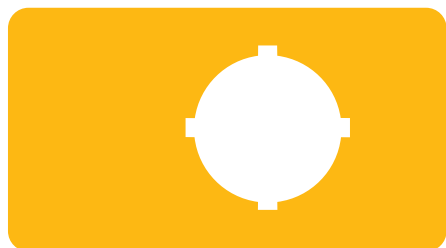
- Plastic housing to accommodate up to 4 control components
- 2 cable entries prepared: 1-,2-,3-part: M20x1.5, 4-part: M25x1.5
- Degree of protection IP65 to DIN EN 60529

- All grey housings with overlay, legending possible with legend inserts
- Wall mounting with 2 screws through housing bottom prepared
- Dimensions: (feature 2) x 100 mm x 74 mm
- Accessories: 50 pre-perforated legend inserts on a DIN A4 sheet

Accessoires:

Label sheet for housing (50 foil legend inserts): 5.40.451.283/0000

Emergency stop label, Ø 22.3 mm



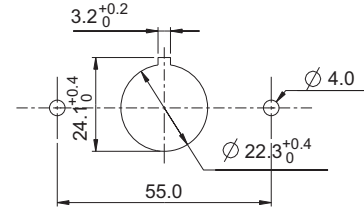
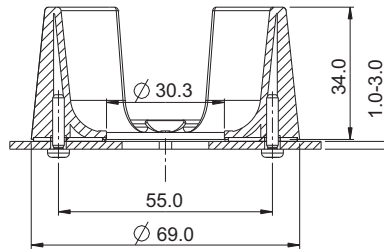
→ Dimensions	inside Ø	Label	Order no.
36 x 64 mm	22.3 mm	-	5.76.205.011/0400
Ø 40 mm	22.3 mm	„NOT-HALT, EMERGENCY STOP, ARRET D'URGENCE, EMERGENZA“	5.76.204.115/0400
Ø 40 mm	22.3 mm	4 x „NOT-HALT“	5.76.204.117/0400
Ø 40 mm	22.3 mm	4 x „NOT-AUS“	5.76.204.119/0400
Ø 40 mm	22.3 mm	4 x „EMERGENCY STOP“	5.76.204.121/0400
Ø 60 mm	22.3 mm	1 x „NOT-AUS“	5.76.207.001/0400
Ø 60 mm	22.3 mm	„EMERGENCY-STOP / ARRET D'URGENCE“	5.76.207.002/0400
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	„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

CONTROL COMPONENTS

RAFIX 22 QR - SPECIAL ACCESSORIES



RAFIX 22 QR / RAFIX 22 FSR Protective collar



2

→ 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.

RAFIX
22 QR

2

CONTROL COMPONENTS

RAFIX FS Technology

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2

RAFIX
22 FS⁺

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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2

RAFIX
22 FS⁺

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 increasingly 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 actuat-

ing 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.



2

RAFIX
22 FS⁺

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.



CONTROL COMPONENTS

RAFIX 22 FS⁺ CONTROL COMPONENTS

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.

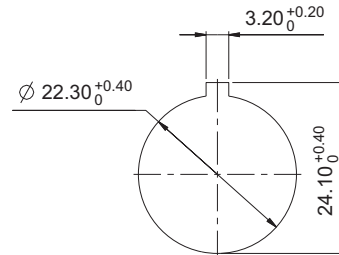
Durable

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.

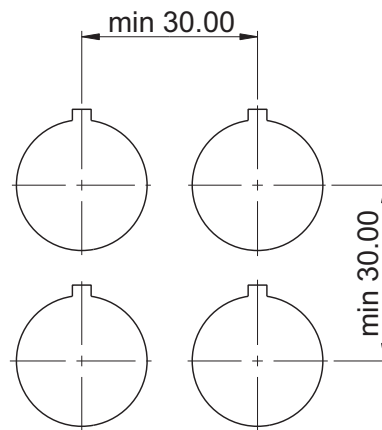
All actuators are equipped with a locating pip. This locating pip ensures a perfect fit for actuators and contact blocks with PCB-mounted components and is therefore essential for designs including these contact blocks.



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).



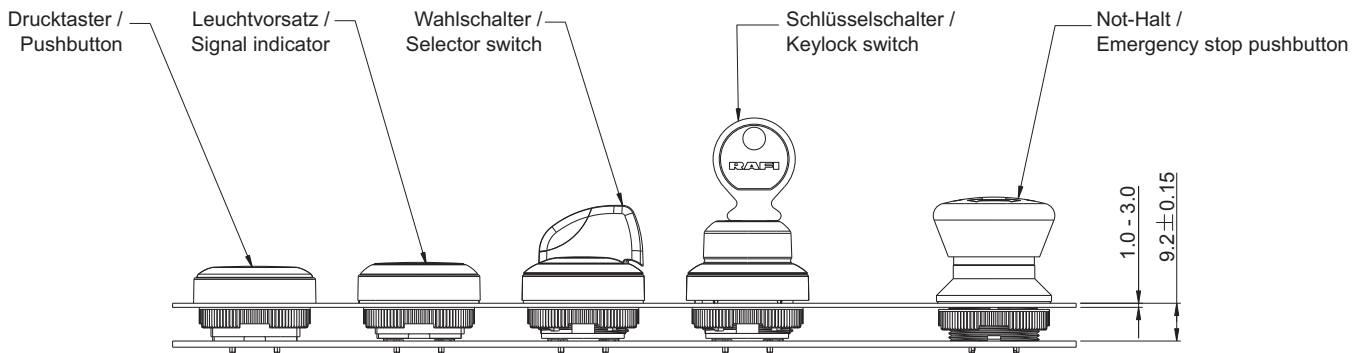
RAFIX 22 FS⁺ PCB

PCB contact blocks



2

Dimensional drawing with PCB contact block



Formula for spacer length
 9.2 mm
 - Front panel thickness

 Length of spacer

RAFIX
22 FS⁺

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.

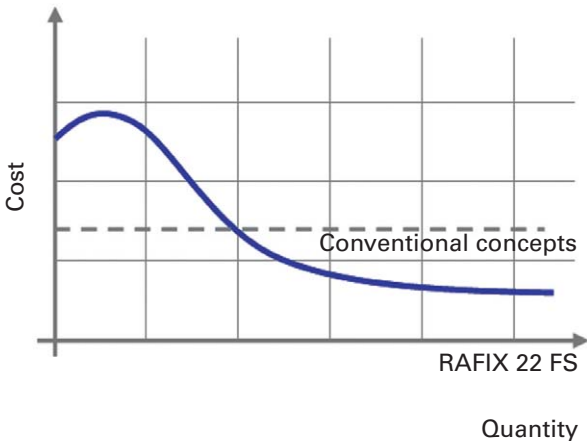
CONTROL COMPONENTS

RAFIX 22 FS⁺ CONTROL COMPONENTS

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.



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

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 keyswitches to tailor the operation to particular customer applications
- Standardised production with printed circuit boards pays off for large quantities and cuts assembly costs



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

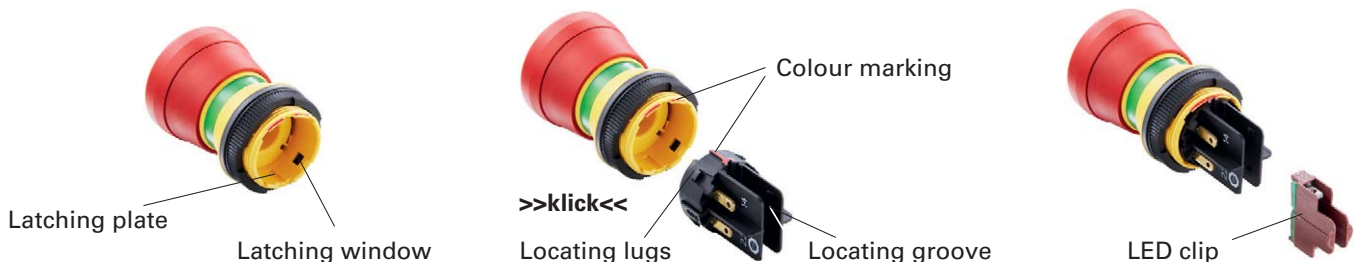
- Very fast and simple attachment of QC contact blocks saves valuable assembly time.
- The fixed connection between the contact block and actuator is suitable for applications with tremors and vibrations.
- Cable harnesses can be preassembled with the contact blocks.

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.

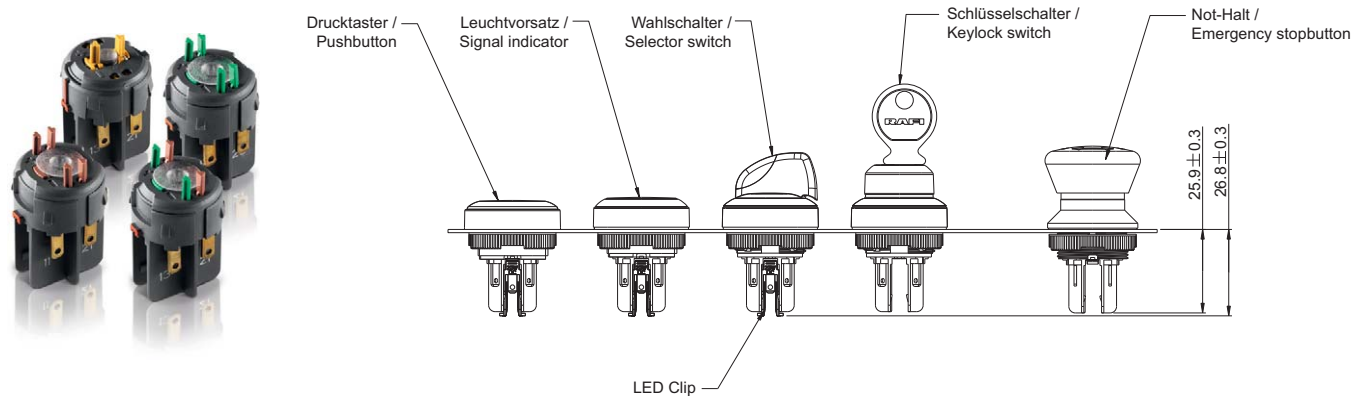


CONTROL COMPONENTS

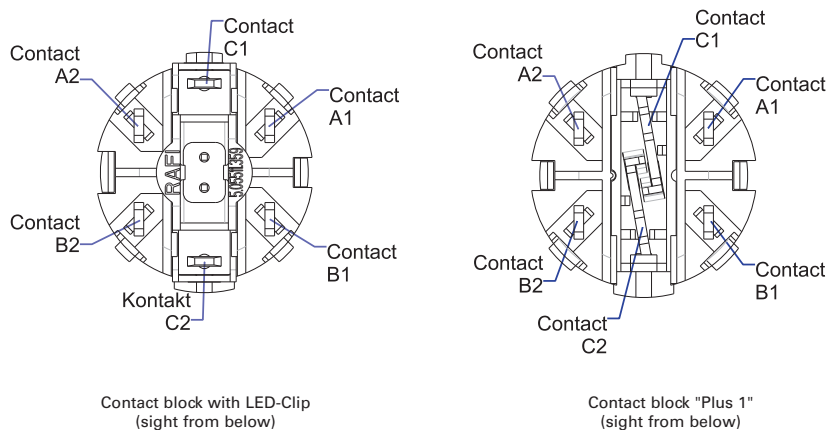
RAFIX 22 FS⁺ CONTROL COMPONENTS

RAFIX 22 FS⁺ QC

Dimensional drawing with QC contact block

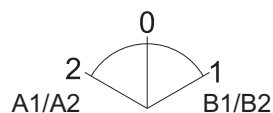


Terminal diagram (view from below)

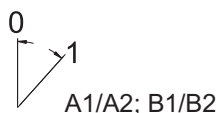


Contact arrangement	1NO	1NC	2NO	2NC	1NC + 1NO	Plus 1
Contact A1/A2 Terminal legending	1NO 13 - 14	-	1NO 13 - 14	1NC 11 - 12	1NO 13 - 14	1NC 11 - 12
Contact B1/B2 Terminal legending	-	1NC 21 - 22	1NO 23 - 24	1NC 21 - 22	1NC 21 - 22	1NC 21 - 22
Contact C1/C2 Terminal legending *:only when needed	LED* X1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

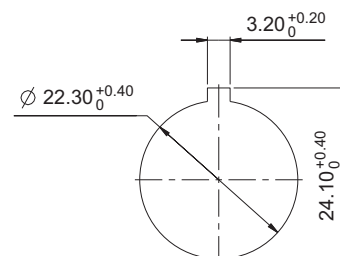
Mounting	ring nut
Contact function	see order block
Illuminability	see order block
Torque for nut ring	1.2 Nm

→ 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 resistance	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

RAFIX
22 FS⁺

Accessories RAFIX 22 FS⁺ - Pushbuttons

→ Description

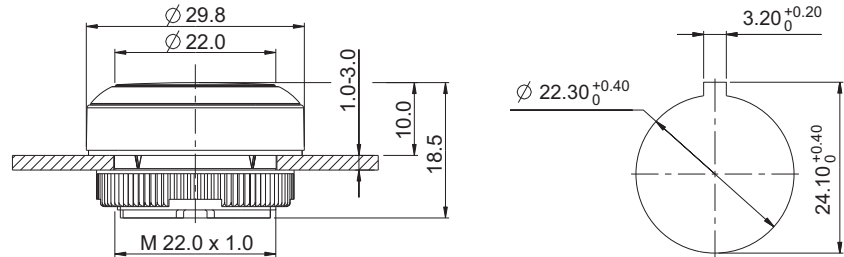
Description	Photo	Order no.	Additional accessories see page
RAFIX 22 FS ⁺ - Contact block PCB silver, Universal, with light conductor		-	2 - 247
RAFIX 22 FS ⁺ - Contact block QC gold, Universal, with light conductor		-	2 - 253
RAFIX 22 FS ⁺ - Contact block QC silver, Universal, with light conductor	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

CONTROL COMPONENTS

RAFIX 22 FS⁺ - ACTUATORS

RAFIX 22 FS⁺ Pushbutton, flush lens, round collar

Technical data see page 2 - 159



Panel cut-out to IEC 60947-5-1

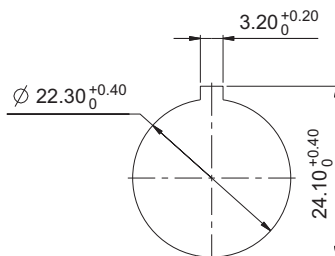
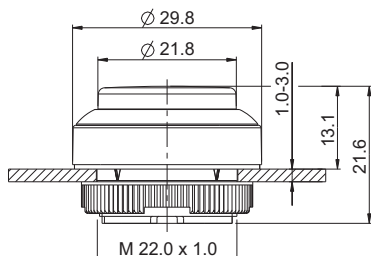
→ Illuminability	Color of lens	Order no. momentary		Order no. latching	
		Plastic front ring	Metallized front ring	Plastic front ring	Metallized front ring
yes	translucent red	1.30.270.001/23xx	1.30.270.021/2300	1.30.270.011/23xx	1.30.270.031/2300
yes	translucent yellow	1.30.270.001/24xx	1.30.270.021/2400	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



2

→ 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

RAFIX 22 FS⁺

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

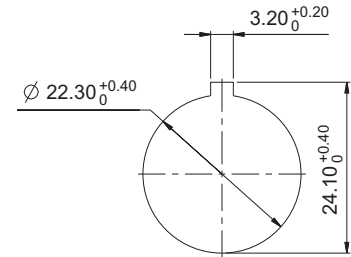
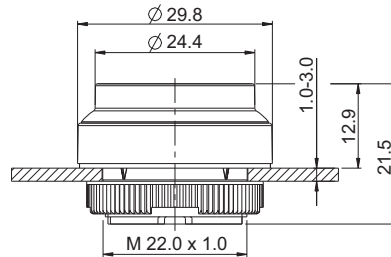
Legending on request.

CONTROL COMPONENTS

RAFIX 22 FS⁺ - ACTUATORS

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	-	-

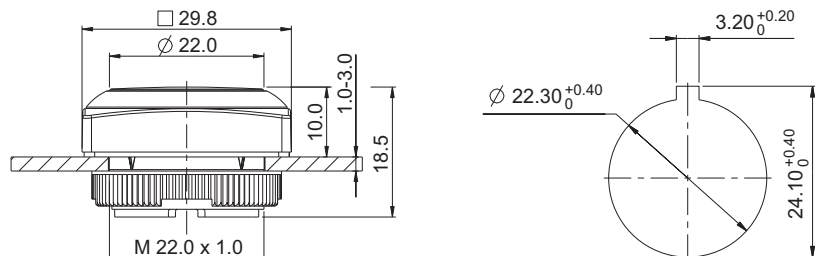
xx = Front ring color: black = 01, red = 03, yellow = 04, green = 05, blue = 06, slate grey = 07, silver grey = 08

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

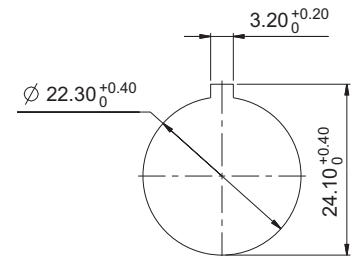
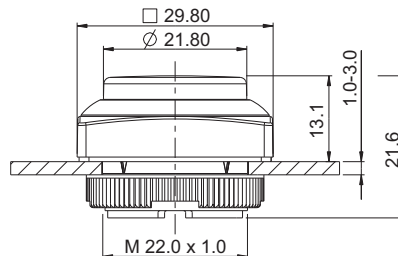
Legending on request.

CONTROL COMPONENTS

RAFIX 22 FS⁺ - ACTUATORS

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

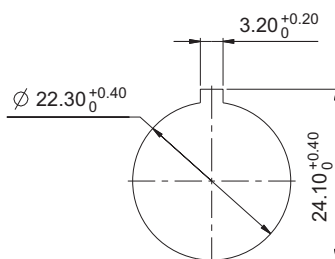
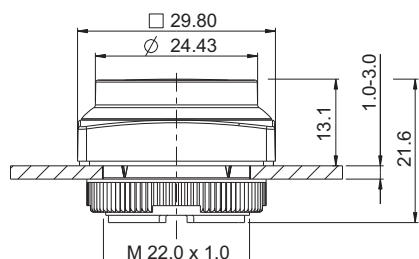
xx = Front ring color: black = 01, red = 03, yellow = 04, green = 05, blue = 06, slate grey = 07, silver grey = 08

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

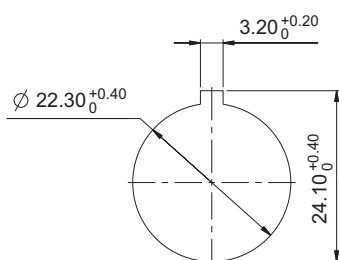
→ Illuminability	Color of lens	Order no. momentary		Order no. latching	
		Plastic front ring	Metallized front ring	Plastic front ring	Metallized front ring
yes	translucent red	1.30.270.451/23xx	1.30.270.471/2300	-	-
yes	translucent yellow	1.30.270.451/24xx	1.30.270.471/2400	-	-
yes	translucent green	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.

CONTROL COMPONENTS

RAFIX 22 FS⁺ - ACTUATORS



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 resistance	acc. to IEC 60068-2-14, -30, -33 and -78
Salt spray	IEC 600 68-2-11
ROHS compliant	yes
REACH compliant	yes

2

RAFIX
22 FS⁺

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

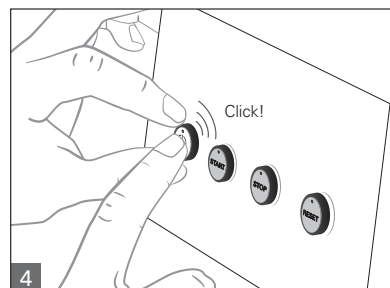
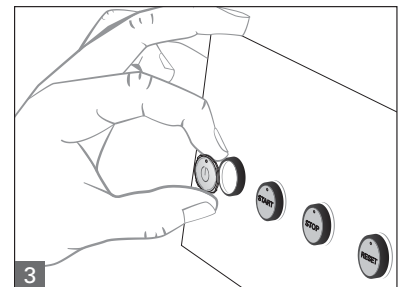
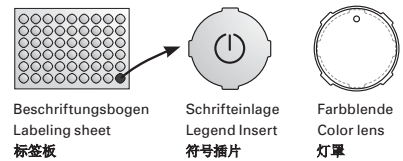
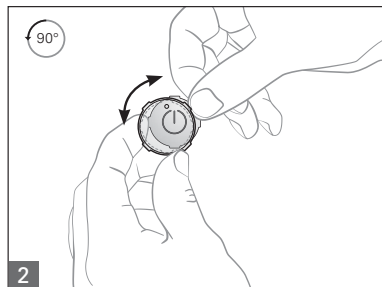
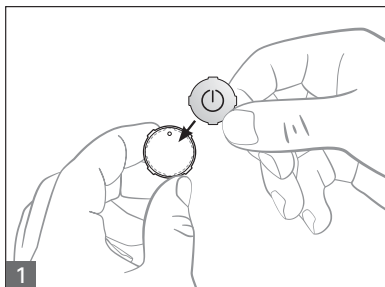
2

RAFIX 22 FS⁺

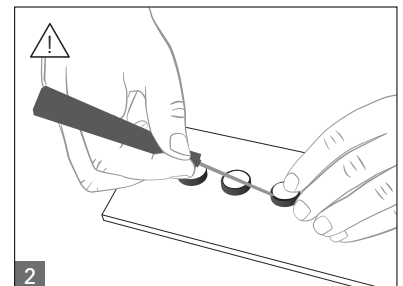
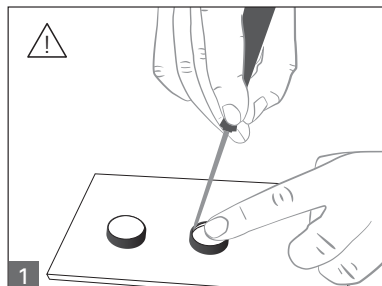
RAFI FLEXLAB

MONTAGEANLEITUNG | ASSEMBLY INSTRUCTIONS | 安装说明

MONTAGE ASSEMBLY 安装



DEMONTAGE DISASSEMBLY 拆除



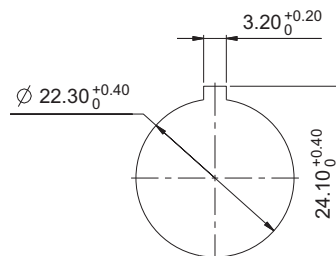
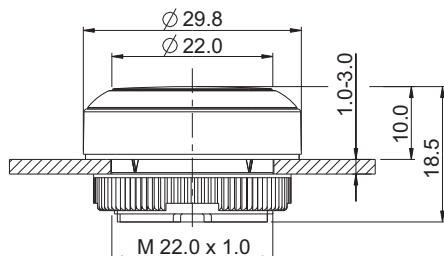
CONTROL COMPONENTS

RAFIX 22 FS⁺ - ACTUATORS



RAFIX 22 FS⁺ Pushbutton FLEXLAB, round collar

Technical data see page 2 - 166



Panel cut-out to IEC 60947-5-1

2

→	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:

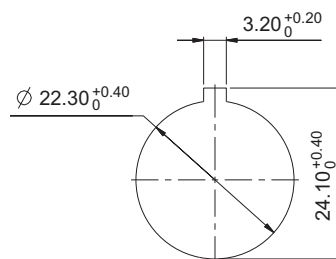
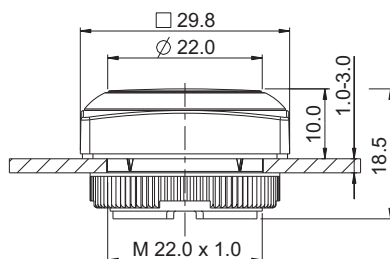
- Colored lens for RAFIX FS⁺ Pushbuttons FLEXLAB, colorless: 5.49.263.062/1000
- Colored lens for RAFIX FS⁺ Pushbuttons FLEXLAB, red: 5.49.263.062/1300
- Colored lens for RAFIX FS⁺ Pushbuttons FLEXLAB, yellow: 5.49.263.062/1400
- Colored lens for RAFIX FS⁺ Pushbuttons FLEXLAB, green: 5.49.263.062/1500
- 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⁺



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) –

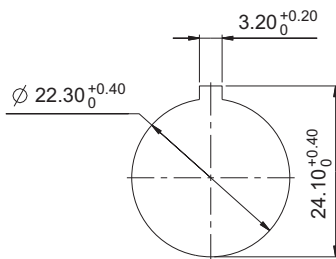
RAFIX 22 FS⁺ - Pushbuttons FLEXLAB, square collar

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

CONTROL COMPONENTS

RAFIX 22 FS⁺ - ACTUATORS

RAFIX 22 FS⁺ Pushbuttons with protective cap



Panel cut-out to IEC 60947-5-1

2

RAFIX
22 FS⁺

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 resistance	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

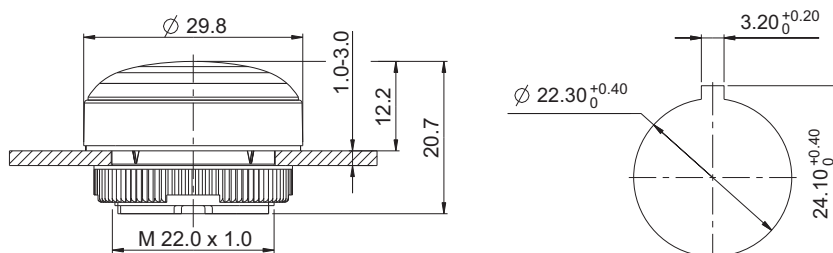
Description	Photo	Order no.	Additional accessories see page
RAFIX 22 FS ⁺ - Contact block PCB silver, Universal, with light conductor		-	2 - 247
RAFIX 22 FS ⁺ - Contact block QC gold, Universal, with light conductor		-	2 - 253
RAFIX 22 FS ⁺ - Contact block QC silver, Universal, with light conductor	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



2

RAFIX
22 FS⁺

→ 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

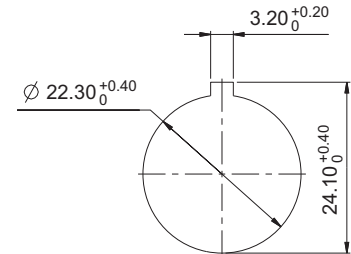
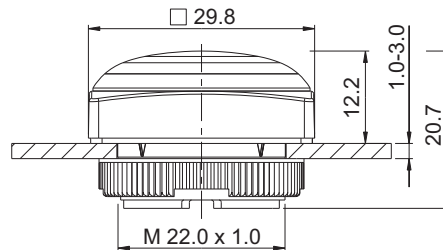
Legending on request.

CONTROL COMPONENTS

RAFIX 22 FS⁺ - ACTUATORS

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

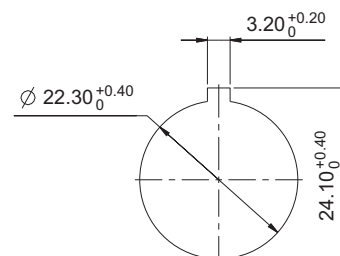
Mounting	ring nut
Contact function	see order block
Illuminability	see order block
Rotating angle	see order block
Torque for nut ring	1.2 Nm

→ 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 resistance	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



RAFIX
22 FS⁺

Accessories RAFIX 22 FS⁺ - Selector switches


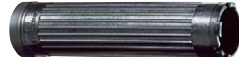
→ Description	Photo	Order no.	Additional accessories see page
RAFIX 22 FS ⁺ - Contact block PCB silver, Universal, with light conductor		-	2 - 247
RAFIX 22 FS ⁺ - Contact block QC gold, Universal, with light conductor		-	2 - 253
RAFIX 22 FS ⁺ - Contact block QC silver, Universal, with light conductor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

CONTROL COMPONENTS

RAFIX 22 FS⁺ - ACTUATORS

– Table (continued) –

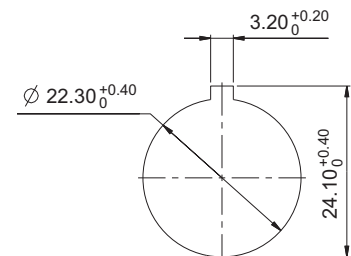
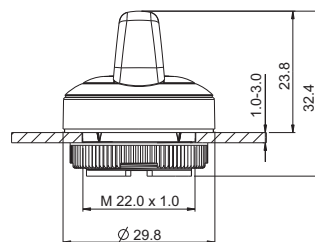
Accessories RAFIX 22 FS⁺ - Selector switches

→ 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





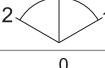



RAFIX 22 FS⁺ Selector switch, round collar

Technical data see page 2 - 173



Panel cut-out to IEC 60947-5-1

→ Illuminability	Contact function	Rotating angle		Order no.	
				Plastic front ring	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

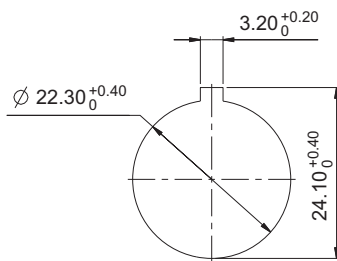
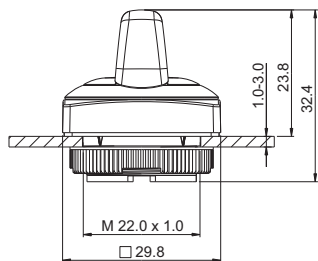
xx = Front ring color: black = 01, red = 03, yellow = 04, green = 05, blue = 06, slate grey = 07, silver grey = 08

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



2

→ 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

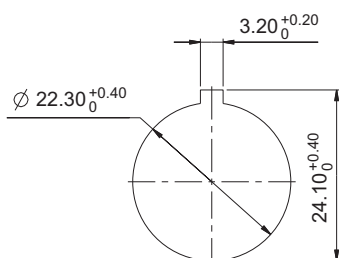
RAFIX 22 FS⁺

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.

CONTROL COMPONENTS

RAFIX 22 FS⁺ - ACTUATORS

Panel cut-out to IEC 60947-5-1

2

RAFIX
22 FS⁺

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 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
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→ 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 resistance	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

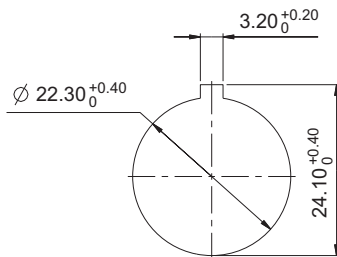
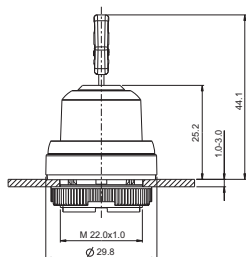
→ Description	Photo	Order no.	Additional accessories see page
RAFIX FS - Contact block PCB gold, Universal		-	2 - 243

**- 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	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

CONTROL COMPONENTS

RAFIX 22 FS⁺ - ACTUATORS

– Table (continued) –

RAFIX 22 FS⁺ - Keylock switch, round collar

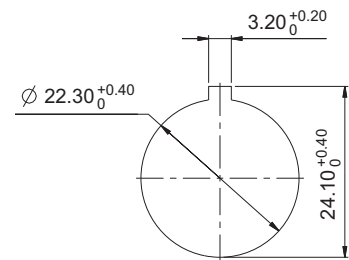
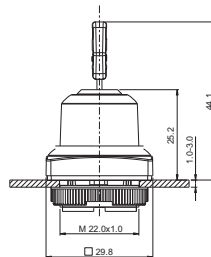
Other lock variants available on request.

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	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 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

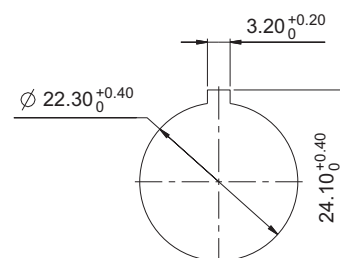
Torque max.	1.3 Nm
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→ Other specifications

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 resistance	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



NEW



Panel cut-out to IEC 60947-5-1

Approvals



IEC 60947-5-x



UL 508



RAFIX
22 FS⁺

2

Accessories RAFIX 22 FS⁺ - Keylock switch compact




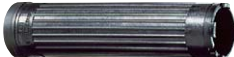


→ Description	Photo	Order no.	Additional accessories see page
RAFIX 22 FS ⁺ - Contact block QC gold, Universal, with light conductor		-	2 - 253

CONTROL COMPONENTS

RAFIX 22 FS⁺ - ACTUATORS

- Table (continued) -

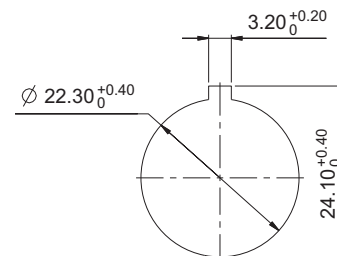
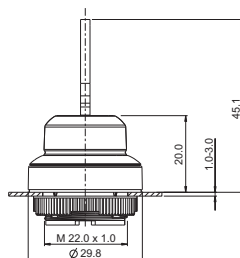
Accessories RAFIX 22 FS⁺ - Keylock switch compact

→ 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	-





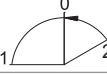


RAFIX 22 FS⁺ Keylock switch compact, round collar

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	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

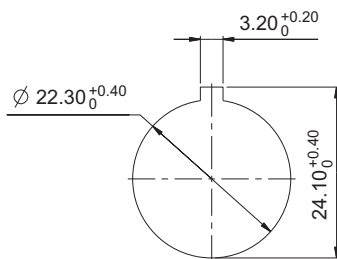
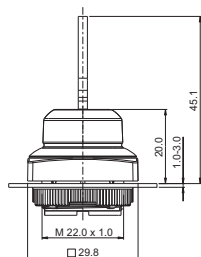
xxxx = Front ring color: black = 0100, slate grey = 0700, silver grey = 0800

- 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



2

→ Contact function	Rotating angle	Key removal position	Order no.		
			Plastic front ring	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

RAFIX 22 FS⁺

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

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

CONTROL COMPONENTS

RAFIX 22 FS⁺ - ACTUATORS

RAFIX 22 FS⁺ Mushroom-headed pushbuttons

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

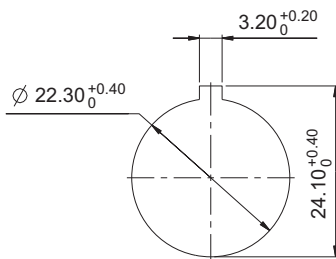
Mounting	ring nut
Contact function	see order block
Illuminability	see order block
Reset	see order block
Torque for nut ring	1.2 Nm

→ 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 resistance	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



Panel cut-out to IEC 60947-5-1

2

RAFIX
22 FS⁺

Approvals



IEC 60947-5-x

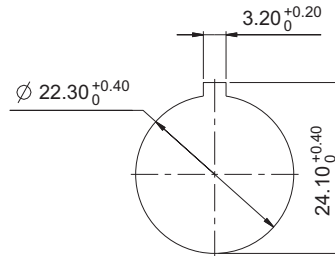
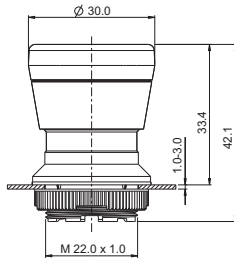
UL 508
in preparation

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

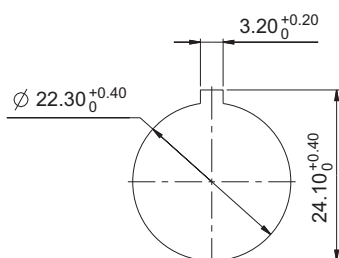
Only use with contact blocks type E-Stop.

2

RAFIX
22 FS⁺

CONTROL COMPONENTS

RAFIX 22 FS⁺ - ACTUATORS



Panel cut-out to IEC 60947-5-1

2

RAFIX
22 FS⁺

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 resistance	acc. to IEC 60068-2-14, -30, -33 and -78
Salt spray	IEC 600 68-2-11
ROHS compliant	yes
REACH compliant	yes

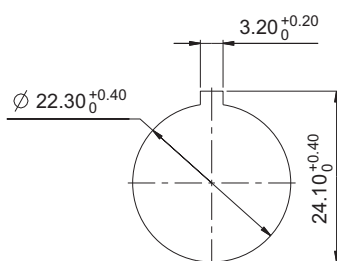
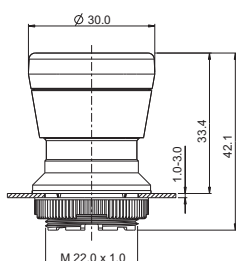
Accessories RAFIX 22 FS⁺ - Emergency stop pushbutton

→ 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

2

RAFIX
22 FS⁺**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

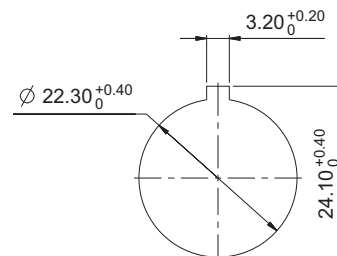
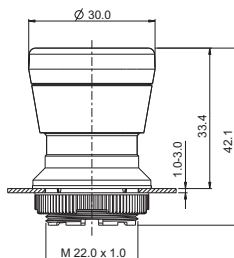
Only use with E-stop contact blocks

CONTROL COMPONENTS

RAFIX 22 FS⁺ - ACTUATORS

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⁺

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.

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

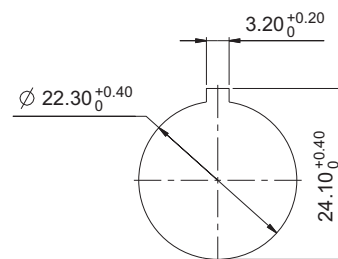
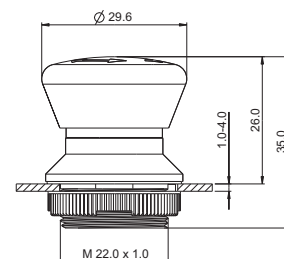
Mounting	ring nut
Contact function	latching
Illuminability	see order block
Reset	see order block
Torque for nut ring	1.2 Nm

→ Mechanical characteristics

Robustness max.	100 N
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→ 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 resistance	acc. to IEC 60068-2-14, -30, -33 and -78
Salt spray	IEC 600 68-2-11



Panel cut-out to IEC 60947-5-1

Approvals



IEC 60947-5-x











UL 508
in preparation



CONTROL COMPONENTS

RAFIX 22 FS⁺ - ACTUATORS

Accessories RAFIX 22 FS⁺ - Emergency stop pushbutton compact

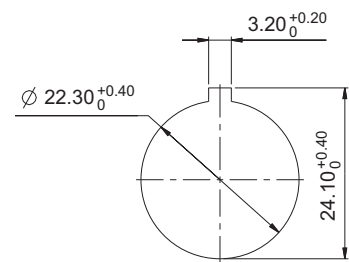
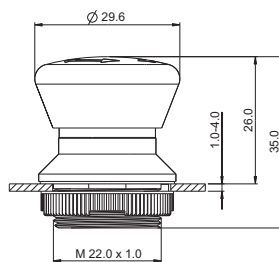
→ Description	Photo	Order no.	Additional accessories see page
Emergency stop label, Ø 22.3 mm		-	2 - 82, 2 - 149, 2 - 264, 5 - 21
RAFIX 22 FS ⁺ - Contact block PCB silver, E-Stop		-	2 - 249
RAFIX 22 FS ⁺ - Contact block PCB silver, E-Stop, with light conductor		-	2 - 248
RAFIX 22 FS ⁺ - Contact block 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

2

RAFIX
22 FS⁺

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“

→ RAFX 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.

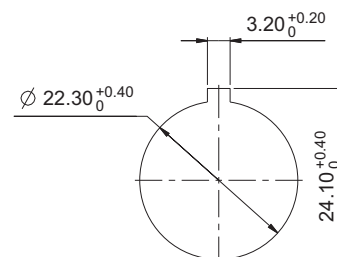
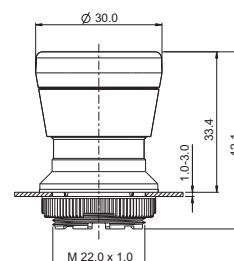
The signal contact is only for impulse function and must not be used as a lasting NO contact.

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 RAFX 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.



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	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

CONTROL COMPONENTS

RAFIX 22 FS⁺ - ACTUATORS





- 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 resistance	acc. to IEC 60068-2-14, -30, -33 and -78
Salt spray	IEC 600 68-2-11
ROHS compliant	yes
REACH compliant	yes

2

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

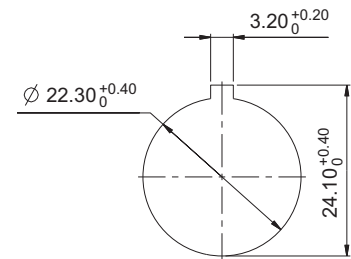
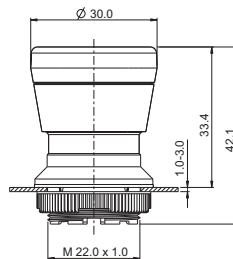
→ Description	Photo	Order no.	Additional accessories see page
Emergency stop label, Ø 22.3 mm		-	2 - 82, 2 - 149, 2 - 264, 5 - 21
RAFIX 22 FS ⁺ - Contact block PCB gold, E-Stop „Plus 1“		1.20.126.414/0000	2 - 244
RAFIX 22 FS ⁺ - Contact block QC gold, E-Stop „Plus 1“		1.20.126.514/0000	2 - 254
Fixing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

RAFIX
22 FS⁺



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

Technical data see page 2 - 189



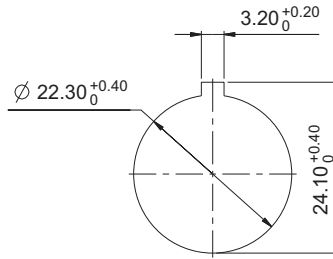
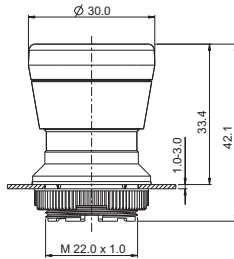
Panel cut-out to IEC 60947-5-1

→ 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



2

→ 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

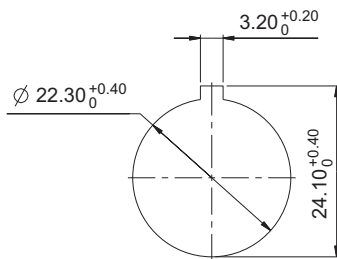
Only combine with E- stop contact block „Plus 1“

RAFIX
22 FS⁺

CONTROL COMPONENTS

RAFIX 22 FS⁺ - ACTUATORS

RAFIX 22 FS⁺ Potentiometer drives



Panel cut-out to IEC 60947-5-1

2

RAFIX
22 FS⁺

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

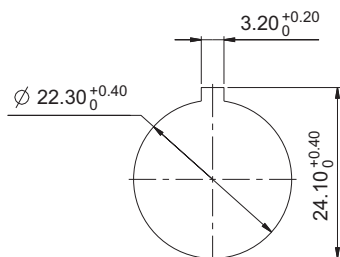
Degree of protection from front side	IP65 (DIN EN 60529)
Storage temperature min.	-40 °C
Storage temperature max.	+80 °C
Environmental resistance	acc. to IEC 60068-2-14, -30, -33 and -78
Salt spray	IEC 600 68-2-11
ROHS compliant	yes
REACH compliant	yes

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

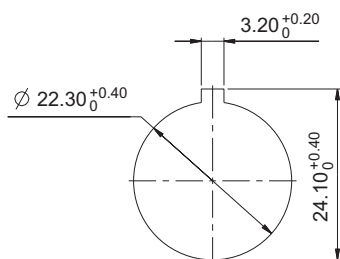


→ Front ring	Color of knob	Order no.
plastic slate-grey	opaque slate-grey	1.30.258.001/0700

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.

2

RAFIX
22 FS⁺

CONTROL COMPONENTS

RAFIX 22 FS⁺ - INDICATORS

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 resistance	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



2

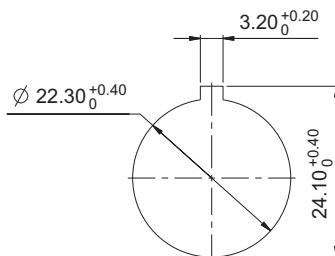
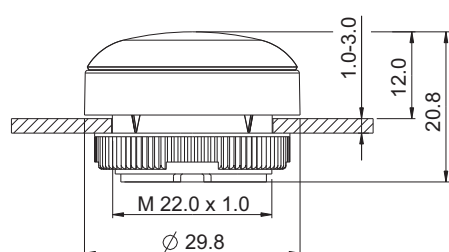
RAFIX
22 FS⁺

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



2

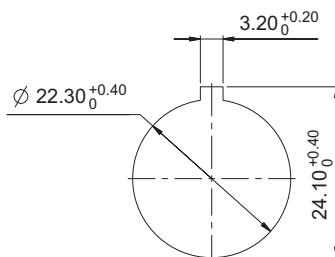
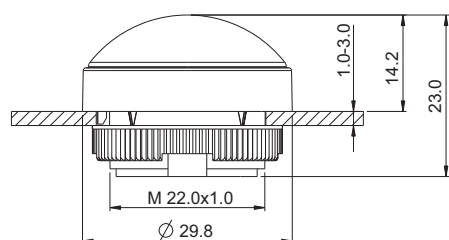
→ Form of collar	Color of lens	Order no.
round	translucent red	1.74.508.001/2300
round	translucent yellow	1.74.508.001/2400
round	translucent green	1.74.508.001/2500
round	translucent blue	1.74.508.001/2600
round	translucent white	1.74.508.001/2200

Legending on request.

RAFIX
22 FS⁺

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

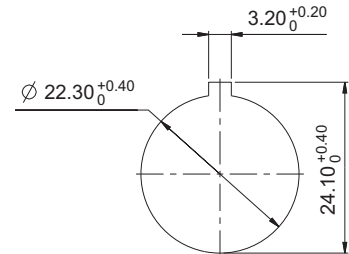
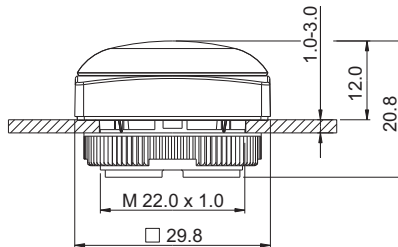
CONTROL COMPONENTS

RAFIX 22 FS⁺ - INDICATORS

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



Technical data see page 2 - 194



Panel cut-out to IEC 60947-5-1

2

→ 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

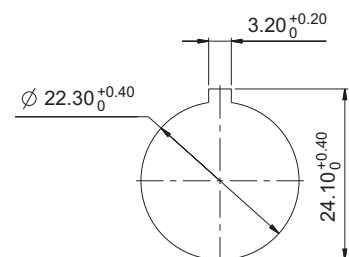
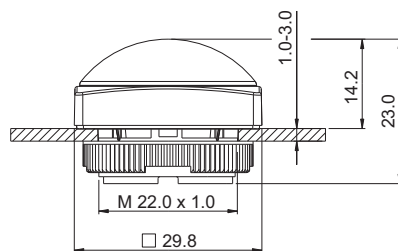
RAFIX
22 FS⁺

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 22 FS⁺

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

x

RAFI

RAFIX 22 FS⁺ USB feedthroughs

→ 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

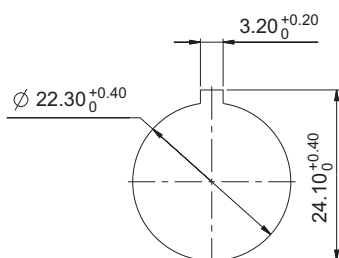
Dimensions of collar	see order block
Overall height	11.3 mm
Mounting depth	see order block
Mounting hole	22.3 mm
Key grid	30 x 30 mm

→ 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



Panel cut-out to IEC 60947-5-1

2

RAFIX
22 FS⁺

Approvals



IEC 60947-5-x



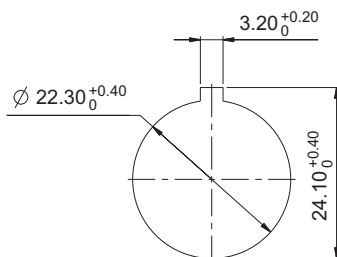
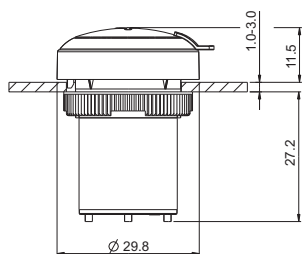
UL 508

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

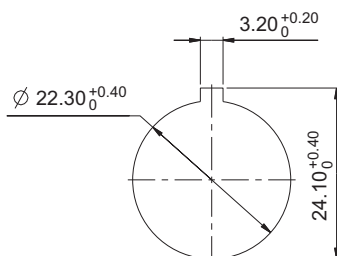
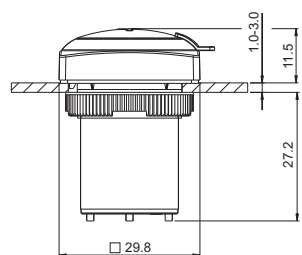


→ Color of front ring	Front connection	Rear connection	Order no.
slate-grey	USB Type A	USB Type B	1.30.279.001/0707
metallized	USB Type A	USB Type B	1.30.279.021/0700

2

RAFIX 22 FS⁺ USB feedthrough, square collar

Technical data see page 2 - 198



Panel cut-out to IEC 60947-5-1



RAFIX
22 FS⁺

→ 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



2

RAFIX 22 FSR

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
RAFIX 22 FSR Selector switches	2 - 208
RAFIX 22 FSR Selector switch	2 - 209
RAFIX 22 FSR Keylock switches	2 - 210
RAFIX 22 FSR Keylock switch	2 - 211
RAFIX 22 FSR Emergency stop pushbuttons	2 - 212
RAFIX 22 FSR Emergency stop pushbutton, metal mushroom	2 - 213
RAFIX 22 FSR Emergency stop pushbutton, plastic mushroom	2 - 214
RAFIX 22 FSR Signal indicators	2 - 215
RAFIX 22 FSR Signal indicator	2 - 216

2

RAFIX
22 FSR

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.



2

RAFIX
22 FSR

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



CONTROL COMPONENTS

RAFIX 22 FSR CONTROL COMPONENTS

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.

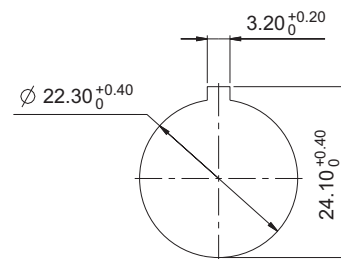
Long operating life

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

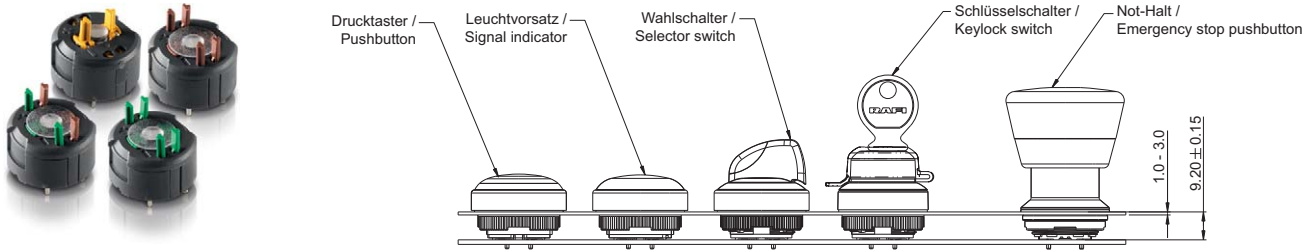
The design principle makes it possible to use a minimum grid spacing of 35 mm x 35 mm.

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

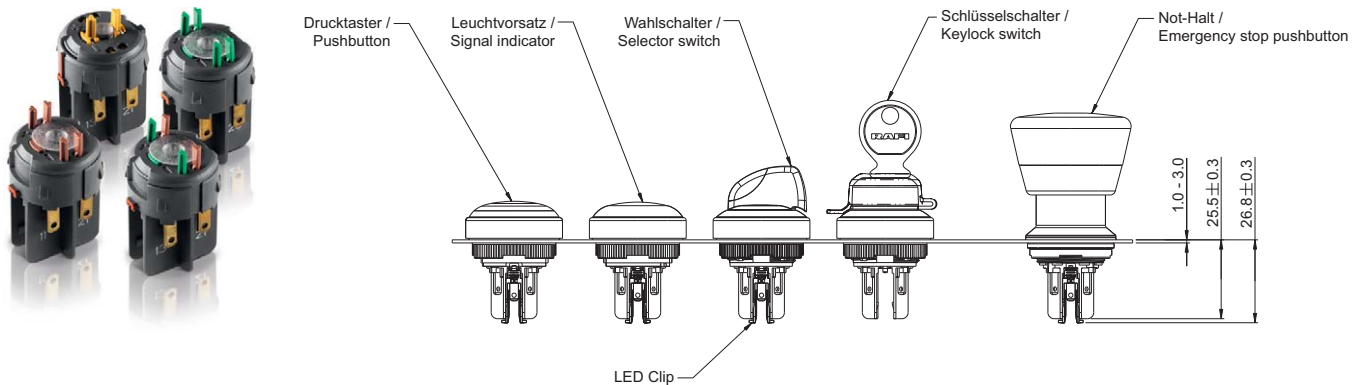
RAFIX 22 FSR with PCB contact block



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

<p>Formula for spacer length</p> $\frac{9.2 \text{ mm} - \text{Front panel thickness}}{\text{Length of spacer}}$
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RAFIX 22 FSR with QC contact block



CONTROL COMPONENTS

RAFIX 22 FSR - ACTUATORS

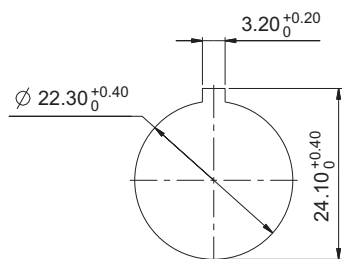
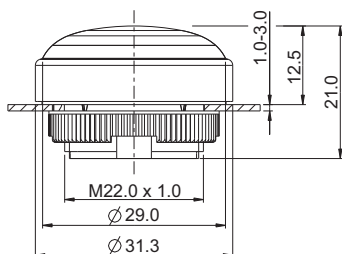


RAFIX 22 FSR Pushbuttons

→ 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 x.



Panel cut-out to IEC 60947-5-1

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 resistance	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 FSR - Pushbutton

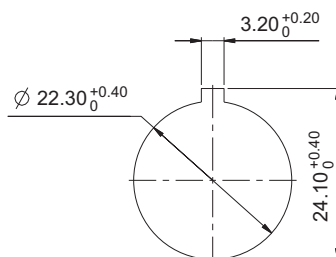
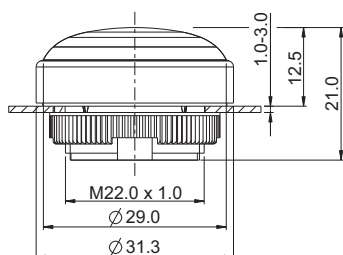
→ Description	Photo	Order no.	Additional accessories see page
RAFIX 22 FS ⁺ - Contact block PCB silver, Universal, with light conductor		-	2 - 247
RAFIX 22 FS ⁺ - Contact block QC gold, Universal, with light conductor		-	2 - 253

**- 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



RAFIX
22 FSR

→ 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

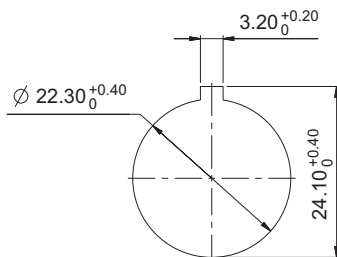
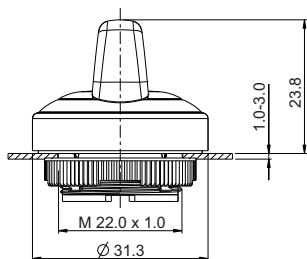
Legending and front rings in other colors on request

CONTROL COMPONENTS

RAFIX 22 FSR - ACTUATORS



NEW



Panel cut-out to IEC 60947-5-1

Approvals



IEC 60947-5-x



UL 508



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 x.

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 resistance	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

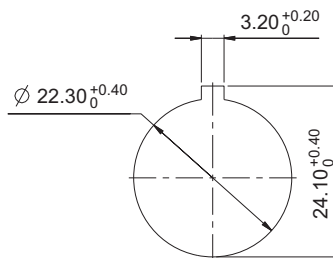
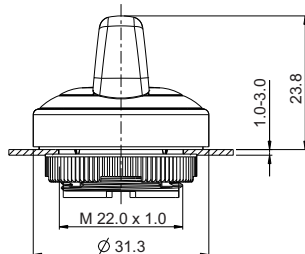
→ Description	Photo	Order no.	Additional accessories see page
RAFIX 22 FS ⁺ - Contact block PCB silver, Universal, with light conductor		-	2 - 247
RAFIX 22 FS ⁺ - Contact block QC gold, Universal, with light conductor		-	2 - 253
RAFIX 22 FS ⁺ - Contact block QC silver, Universal, with light conductor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



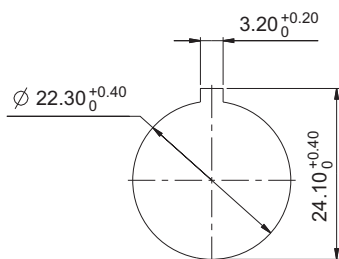
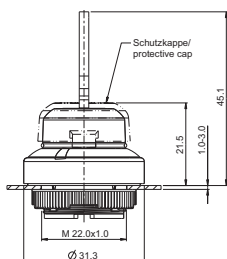
Panel cut-out to IEC 60947-5-1



→ 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



NEW



Panel cut-out to IEC 60947-5-1

Approvals



IEC 60947-5-x



UL 508



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 x.

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

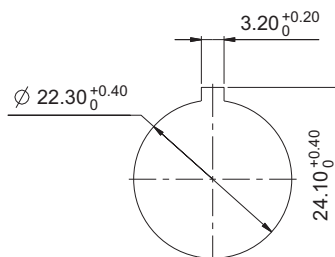
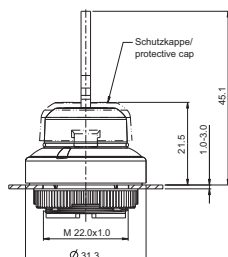
Degree of protection from front side	IP65 (DIN EN 60529); IP69K (ISO 20653)
water temp.	23 °C +/- 3 °C
Ambient temp. operating min.	-40 °C
Ambient temp. operating max.	+85 °C
Storage temperature min.	-40 °C
Storage temperature max.	+85 °C
Environmental resistance	acc. to IEC 60068-2-14, -30, -33 and -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



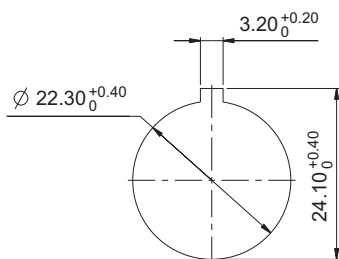
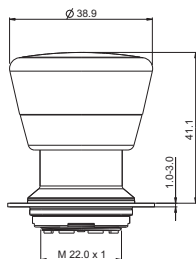
2

RAFIX 22 FSR

→ 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

CONTROL COMPONENTS

RAFIX 22 FSR - ACTUATORS



Panel cut-out to IEC 60947-5-1

Approvals



IEC 60947-5-x



UL 508



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 x.

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 resistance	acc. to IEC 60068-2-14, -30, -33 and -78
Salt spray	IEC 600 68-2-11
ROHS compliant	yes
REACH compliant	yes

2

RAFIX
22 FSR

Accessories RAFIX 22 FSR - Emergency stop pushbutton

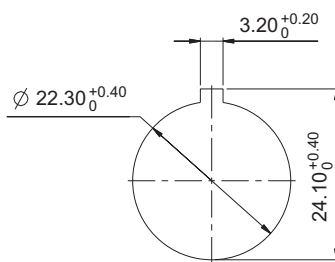
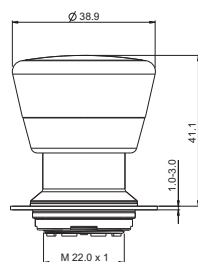
→ Description	Photo	Order no.	Additional accessories see page
Emergency stop label, Ø 22.3 mm		-	2 - 82, 2 - 149, 2 - 264, 5 - 21
RAFIX FS - Contact block PCB gold, E-Stop		-	2 - 244
RAFIX FS - Contact block PCB gold, E-Stop, with light conductor		-	2 - 243
RAFIX FS - Contact block PCB silver, E-Stop		-	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

2

RAFIX 22 FSR

Emergency stop pushbutton, metal mushroom

Technical data see page 2 - 212



Panel cut-out to IEC 60947-5-1

RAFIX
22 FSR

→ 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

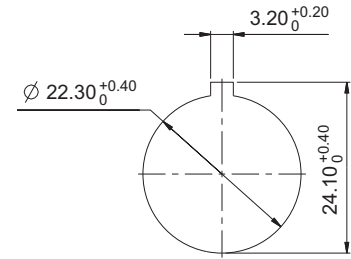
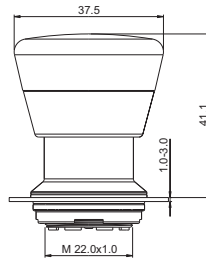
CONTROL COMPONENTS

RAFIX 22 FSR - ACTUATORS



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

2

RAFIX
22 FSR

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 x.

Technical Data

→ General information

Color of lens	see order block
Form of collar	round

→ Dimensions

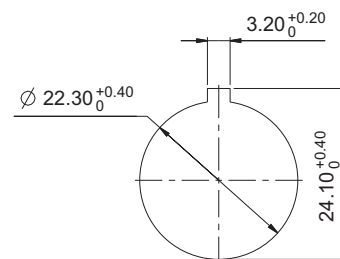
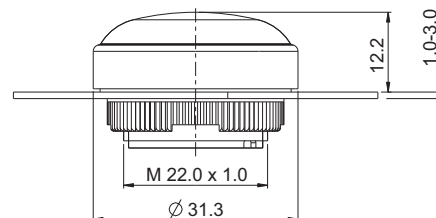
Mounting hole	22.3 mm
Key grid	35 x 35 mm

→ 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 resistance	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

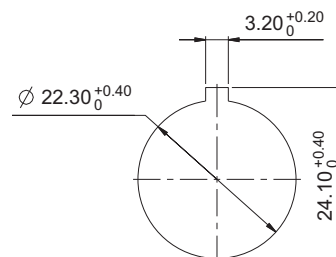
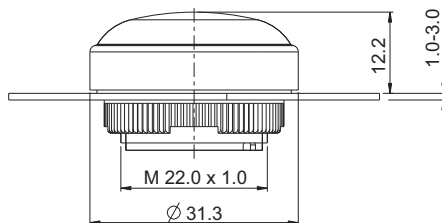
CONTROL COMPONENTS

RAFIX 22 FSR - INDICATORS



RAFIX 22 FSR Signal indicator

Technical data see page 2 - 215



Panel cut-out to IEC 60947-5-1

2

→ 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
22 FSR



2

RAFIX FS Technology - Contact blocks

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⁺.

CONTROL COMPONENTS

RAFIX FS TECHNOLOGY - CONTACT BLOCKS

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

2

Contact
blocks

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

CONTROL COMPONENTS

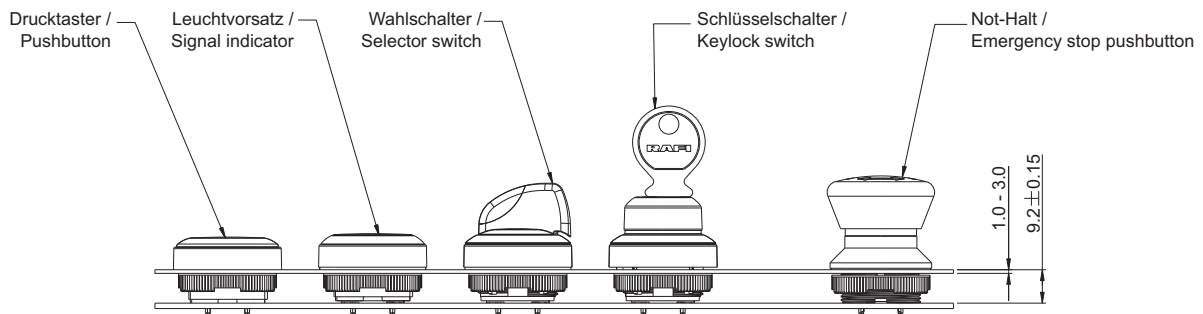
RAFIX FS TECHNOLOGY - CONTACT BLOCKS

RAFIX 22 FS⁺ PCB

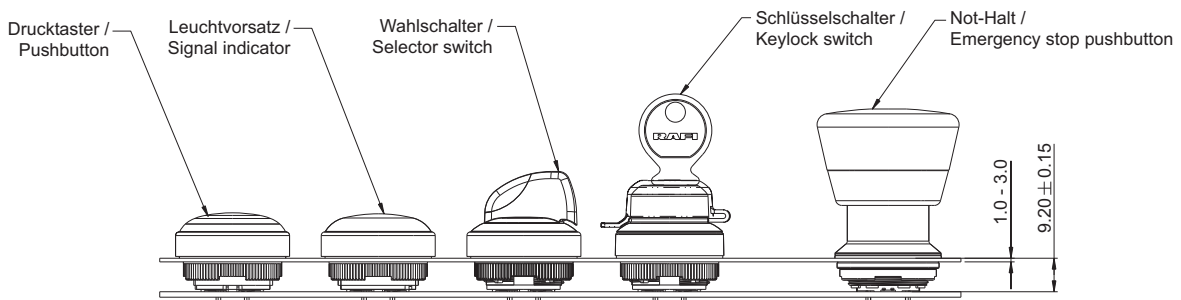


2

Dimensional drawing RAFIX 22 FS⁺, PCB

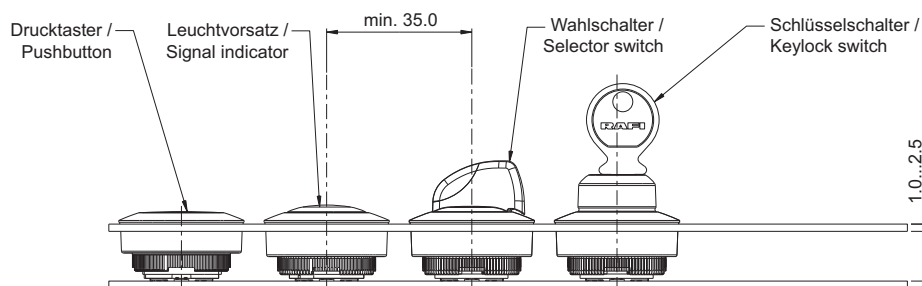


Dimensional drawing RAFIX 22 FSR, PCB



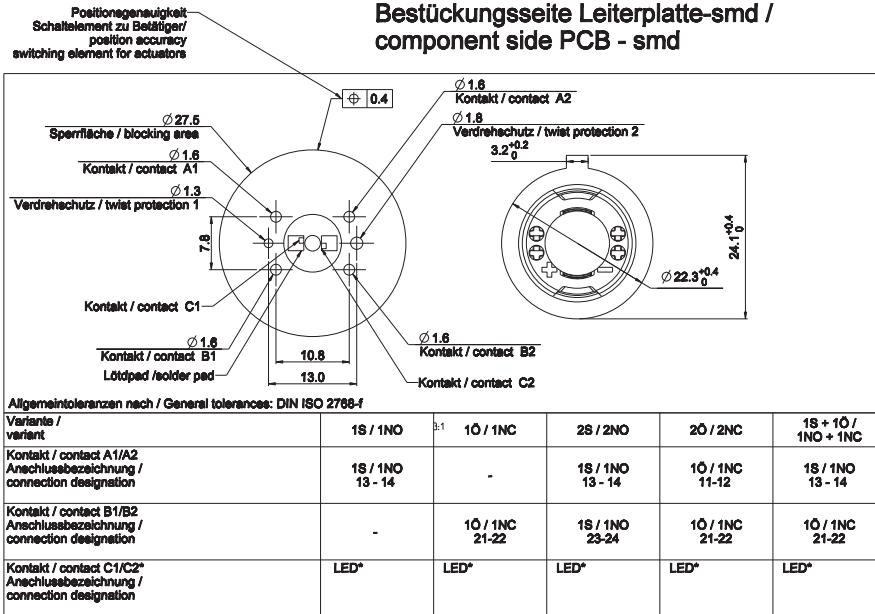
Contact blocks

Dimensional drawing RAFIX 30 FS⁺, PCB



RAFIX 22 FS⁺ PCB

PCB hole pattern SMT LED View on component side

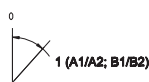
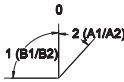


Die Schaltung der Kontakte erfolgt nach folgendem Schema: /
The contact circuits are carried out according to the following scheme:

* 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

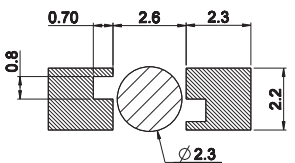


Solder pad design SMT LED View on component side

Empfohlenes Lötstpladdesign

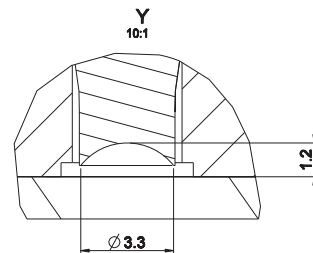
bei Verwendung
pointLED OSRAM
Selektionsklasse: T1-U1

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



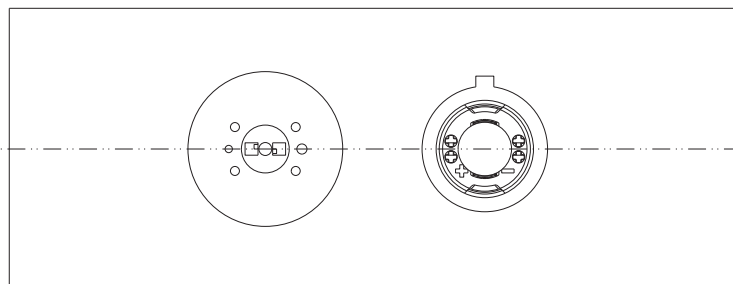
- Lötstplack/Solder resist
- Kein Lötstplack; kein Kupfer
No solder resist; no copper pad

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



A-A

Y



Contact
blocks

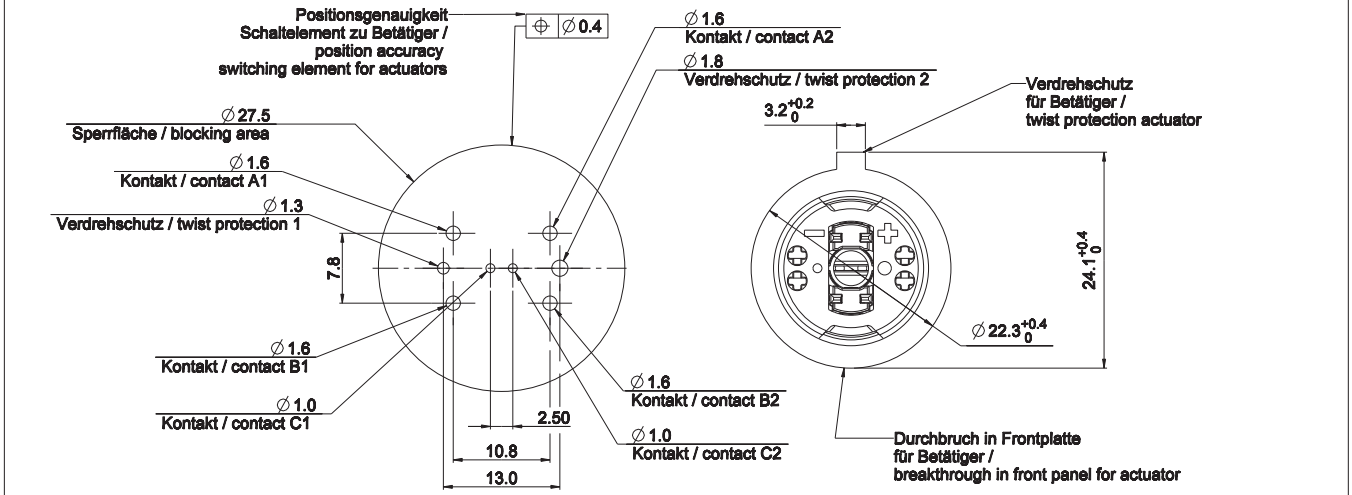
CONTROL COMPONENTS

RAFIX FS TECHNOLOGY - CONTACT BLOCKS

RAFIX 22 FS⁺ PCB, THT

PCB hole pattern THT LED

View on component side

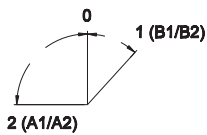


Allgemeintoleranzen nach / General tolerances: DIN ISO 2768-f

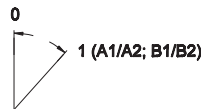
Variante/variant	1S / 1NO	1Ö / 1NC	2S / 2NO	2Ö / 2NC	1S + 1Ö / 1NO + 1NC	Plus 1
Kontakt/contact A1/A2 Anschlussbezeichnung/connection designation 1x	1S / 1NO 13 - 14	-	1S / 1NO 13 - 14	1Ö / 1NC 11-12	1S / 1NO 13 - 14	1Ö / 1NC 11-12
Kontakt/contact B1/B2 Anschlussbezeichnung/connection designation 2x	-	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	13 14 X1 X2	X1 X2 21 22	13 14 X1 X2 23 24	11 12 X1 X2 21 22	13 14 X1 X2 21 22	11 12 33 34 21 22

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



Contact blocks

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	10×10^{-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 resistance	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

CONTROL COMPONENTS

RAFIX FS - CONTACT BLOCKS PCB GOLD

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
blocks

→ 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

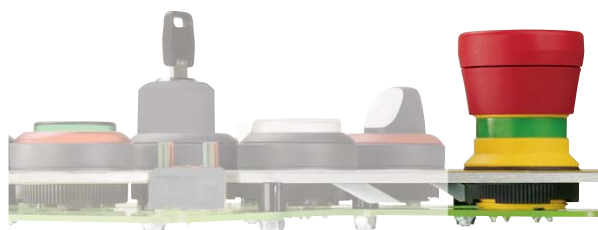


→ Contact arrangement	Lamp optional	Operating life at 10 mA / 24 V DC	B10	Color of plunger	Order no.
1 NO	THT LED	1,000,000	1,300,000	green	1.20.126.002/0000
1 NC	THT LED	1,000,000	1,300,000	red	1.20.126.001/0000
2 NO	THT LED	1,000,000	1,300,000	green	1.20.126.005/0000
2 NC	THT LED	1,000,000	1,300,000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

2

Contact
blocks

CONTROL COMPONENTS

RAFIX FS - CONTACT BLOCKS PCB GOLD

– Table (continued) –

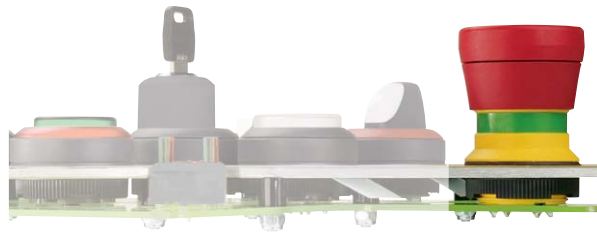
RAFIX FS - Contact block PCB gold, E-Stop, with light conductor

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.

Contact
blocks

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“.

CONTROL COMPONENTS

RAFIX FS - CONTACT BLOCKS PCB SILVER

RAFIX 22 FS⁺ Contact blocks PCB silver



2

→ 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 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	50 g at 11 ms, amplitude half sinusoidal
Resistance to vibrations acc. to IEC 60068-2-6	5 g at 10 ... 500 Hz
Environmental resistance	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



Contact
blocks

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.

CONTROL COMPONENTS

RAFIX FS - CONTACT BLOCKS PCB SILVER



RAFIX FS

Contact block PCB silver, Universal

Technical data see page 2 - 246



2

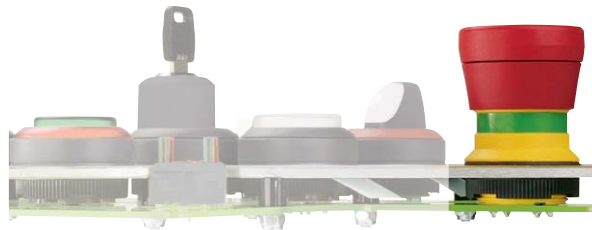
→ Contact arrangement	Lamp optional	Color of plunger	Order no.
1 NO	THT LED	green	1.20.126.202/0000
1 NC	THT LED	red	1.20.126.201/0000
2 NO	THT LED	green	1.20.126.205/0000
2 NC	THT LED	red	1.20.126.204/0000
1 NC + 1 NO	THT LED	red and green	1.20.126.203/0000

Contact
blocks

RAFIX 22 FS⁺

Contact block PCB silver, E-Stop, with light conductor

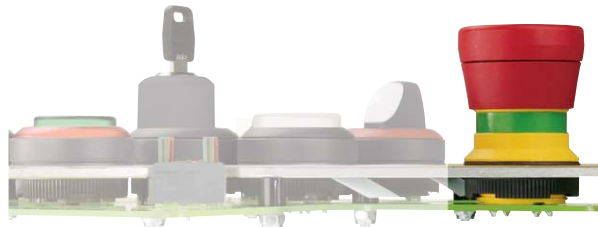
Technical data see page 2 - 246



→ 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.

2

Contact
blocks

CONTROL COMPONENTS

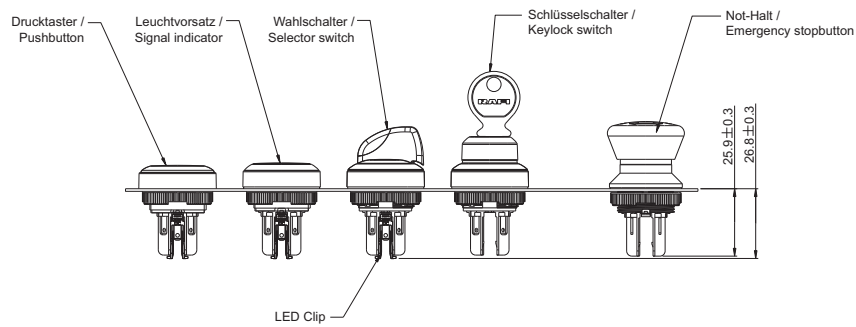
RAFIX FS TECHNOLOGY - CONTACT BLOCKS

RAFIX 22 FS⁺ QC

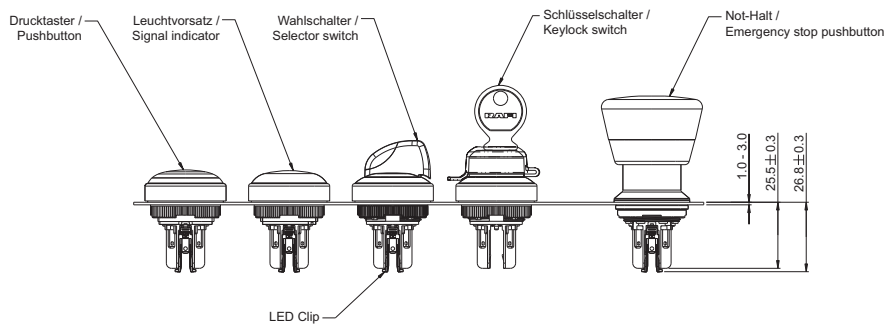


2

Dimensional drawing RAFIX 22 FS⁺, QC

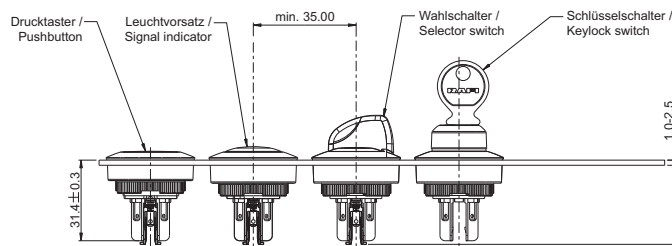


Dimensional drawing RAFIX 22 FSR, QC



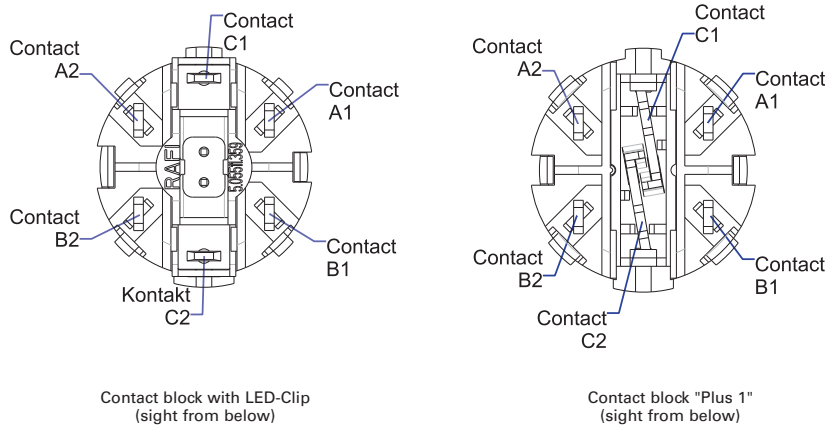
Contact blocks

Dimensional drawing RAFIX 30 FS⁺, QC



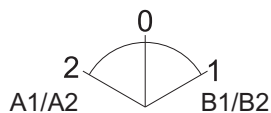
RAFIX 22 FS⁺ QC

Dimensional drawing with QC contact blocks

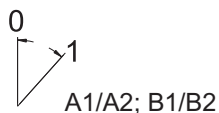


Contact arrangement	1NO	1NC	2NO	2NC	1NC + 1NO	Plus 1
Contact A1/A2 Terminal legending	1NO 13 - 14	-	1NO 13 - 14	1NC 11 - 12	1NO 13 - 14	1NC 11 - 12
Contact B1/B2 Terminal legending	-	1NC 21 - 22	1NO 23 - 24	1NC 21 - 22	1NC 21 - 22	1NC 21 - 22
Contact C1/C2 Terminal legending *:only when needed	LED* X1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

2

Contact blocks

CONTROL COMPONENTS

RAFIX FS - CONTACT BLOCKS QC GOLD



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.

Technical Data

Approvals



IEC 60947-5-x



UL 508

→ 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 10×10^{-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 resistance 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

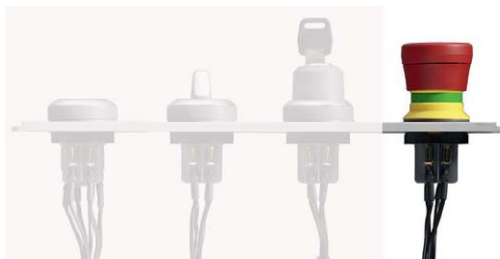


→ Contact arrangement	Lamp optional	Operating life at 10 mA / 24V DC	B10	Color of plunger	Order no.
1 NO	LED-Clip	1,000,000	1,300,000	green	1.20.126.102/9000
1 NC	LED-Clip	1,000,000	1,300,000	red	1.20.126.101/9000
2 NO	LED-Clip	1,000,000	1,300,000	green	1.20.126.105/9000
2 NC	LED-Clip	1,000,000	1,300,000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

CONTROL COMPONENTS

RAFIX FS - CONTACT BLOCKS QC GOLD

– Table (continued) –

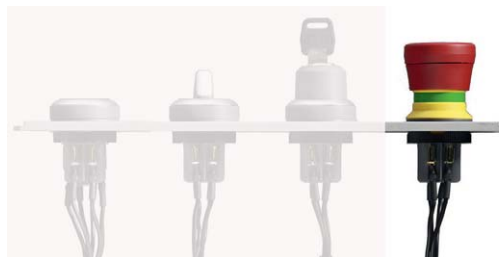
RAFIX 22 FS⁺ - Contact block QC gold, E-Stop, with light conductor

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.



2

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 resistance	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

Contact
blocks

CONTROL COMPONENTS

RAFIX FS - CONTACT BLOCKS QC SILVER

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

2



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



2

→ 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.

Contact
blocks

CONTROL COMPONENTS

RAFIX FS - SHORT-TRAVEL ADAPTER

**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.

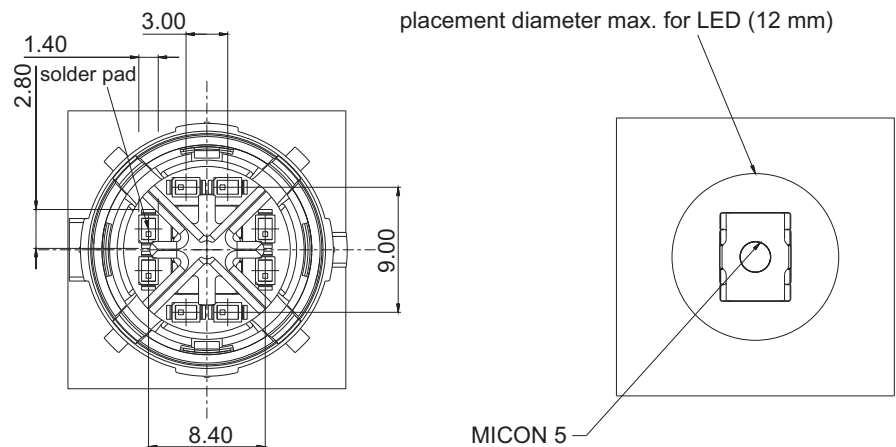
Technical Data

→ General information

Operating life	1.000.000 operations on MICON 5
	1.14.002.101/0000

→ Other specifications

ROHS compliant	yes
REACH compliant	yes



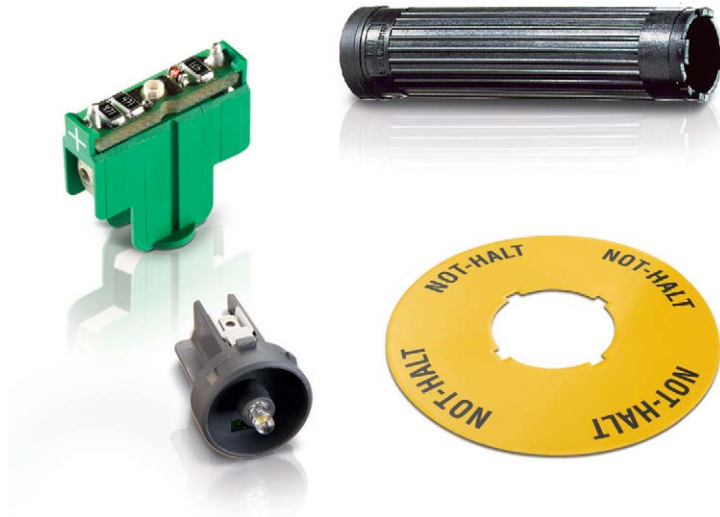
RAFIX FS Short-travel adapter

→ 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

Content

RAFIX FS Technology Special accessories	2 - 261
Fixing spanner for ring nut and front ring	2 - 261
QC LED base for signal indicators	2 - 261
Female quick-connect terminal DIN 46340-B 2.8-1-MS	2 - 262
LED base for contact blocks QC	2 - 262
SMT LED	2 - 263
LED base for 3 mm THT LED, used in signal indicators, for RAFIX FS PCB	2 - 263
THT LED 3 mm, without base	2 - 263
Emergency stop label, Ø 22.3 mm	2 - 264
Spacers, round	2 - 265
RAFIX 22 FS+ / RAFIX 22 FSR Protective Collar	2 - 265
RAFIX 22 FS Blanking cap, Ø 22.3 mm	2 - 266
Retaining ring for front panel thickness 2.5 ... 4 mm	2 - 266
RAFIX FS Protective cap for keylock switch	2 - 267

2

Spec.
accessories

RAFIX FS TECHNOLOGY Special accessories

2

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

Spec.
accessories

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

CONTROL COMPONENTS

RAFIX FS TECHNOLOGY - SPECIAL ACCESSORIES



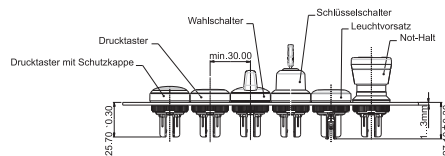
Female quick-connect terminal DIN 46340-B 2.8-1-MS

→ Description	Order no.
Female quick-connect terminal DIN 46340-B 2.8-1-MS	5.37540.024/8622

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.

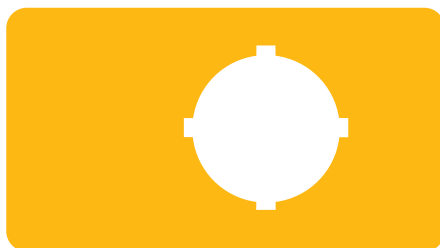
red	1.6 V / 1 mA	30 mA	1.90.690.228/0000
red	1.9 V / 20 mA	50 mA	1.90.690.269/0000
yellow	1.9 V / 20 mA	50 mA	1.90.690.267/0000
green	3.2 V / 20 mA	35 mA	1.90.690.684/0000
blue	3.6 V / 20 mA	30 mA	1.90.690.282/0000
white	3.6 V / 20 mA	30 mA	1.90.690.295/0000

Spec.
accessories

CONTROL COMPONENTS

RAFIX FS TECHNOLOGY - SPECIAL ACCESSORIES

Emergency stop label, Ø 22.3 mm

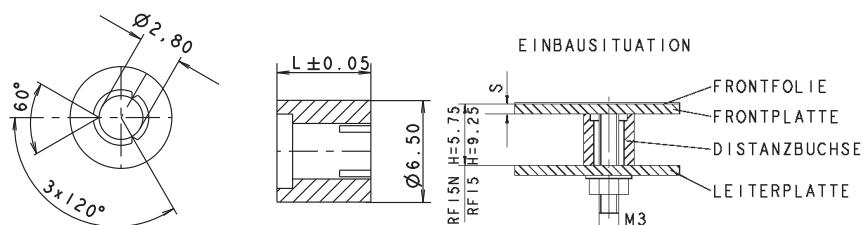


2

→ 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

Spec.
accessories

Spacers, round

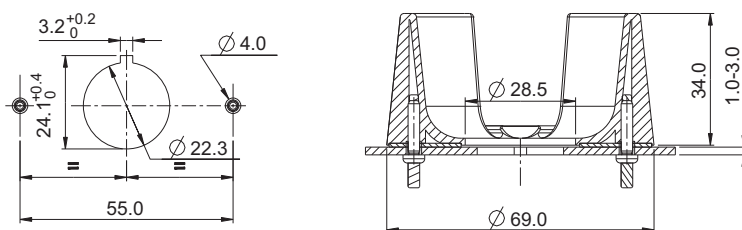


→ Length L	Color	Order no.
6.25 mm	red	5.30.759.034/0000
6.50 mm	blue transparent	5.30.759.035/0000
6.75 mm	black	5.30.759.036/0000
7 mm	yellow orange transparent	5.30.759.037/0000
7.25 mm	yellow	5.30.759.038/0000
7.50 mm	green	5.30.759.039/0000
7.75 mm	blue	5.30.759.040/0000
8 mm	red	5.30.759.041/0000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

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

Spec.
 acces-
 sories



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

CONTROL COMPONENTS

RAFIX FS TECHNOLOGY - SPECIAL ACCESSORIES

- 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.

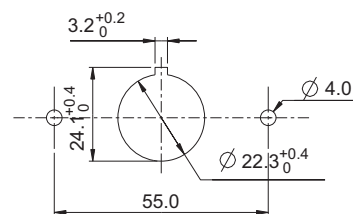
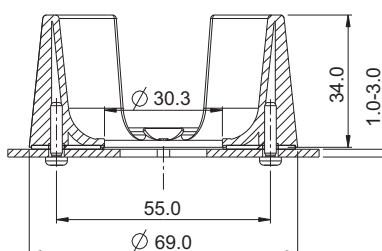
When using the protective collar, the preliminary contents of EN ISO 13850, chapter 4.3.9 and 4.5.1 have to be respected.

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

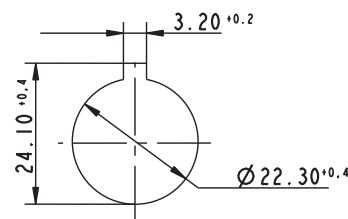
Blanking cap, Ø 22.3 mm



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

APPENDIX

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1.01.102.001/0507	1 - 84	1.14.002.001/0000	4 - 8	1.15.108.851/0000	1 - 43	1.20.122.172/0000	2 - 64
1.01.102.011/0104	1 - 84	1.14.002.003/0000	4 - 8	1.15.108.852/0000	1 - 44	1.20.122.173/0000	2 - 64
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1.01.102.011/0507	1 - 84	1.14.002.016/0000	4 - 9	1.15.108.941/0000	1 - 43	1.20.123.004/0000	2 - 70
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1.02.157.201/1500	3 - 12	1.14.002.111/0000	4 - 8	1.15.108.982/0000	1 - 53	1.20.123.014/0000	2 - 65
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1.20.126.005/0000	2 - 243	1.20.820.001/0000	2 - 78	1.30.070.301/0100	2 - 11	1.30.076.301/0000	2 - 22
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5.80.000.000/0152	4 - 162	1.30.145.006/0000	KEYLOCK SWITCH LATCHING
5.80.000.000/0242	4 - 162	1.30.145.009/0000	KEYLOCK SWITCH LATCHING
5.82.000.000/0152	4 - 161	1.30.155.006/0000	KEYLOCK SWITCH LATCHING
5.82.000.000/0242	4 - 161		
5.82.110.000/0152	4 - 163		
5.82.110.000/0242	4 - 163		
5.92.025.368/0000	1 - 8		
5.92.025.368/0000	1 - 12		
5.92.025.368/0000	1 - 20		
5.92.025.368/0000	1 - 25		
5.92.025.368/0000	1 - 27		
5.92.025.368/0000	1 - 30		
5.92.025.368/0000	1 - 33		
5.92.025.368/0000	5 - 28		
7.16.102.006/0000	4 - 119		