RAFIX FS

CONTROL COMPONENTS WITH FAST & SLIM TECHNOLOGY

RAFI

FS TECHNOLOGY

FS stands for Fast & Slim. The innovative technology sets a new benchmark in the world of control components. The modular mounting concept makes the RAFIX 22 FS$^+$, RAFIX 30 FS$^+$, and RAFIX 22 FSR series a cost-effective, customizable solution.

FAST & SLIM

The fastest connection type for every application: With PCB or directly with quick-connect terminals. The PCB is a good and fast solution even for medium production quantities. In addition, the printed circuit board (PCB) switching elements can be seamlessly integrated with displays, tactile switches and electronic components on a common PCB.

Alternatively, the quick-connect (QC) switching elements can be latched into the actuator without the need for tools and with little effort. Wiring is performed in the conventional manner – directly with quick connectors. This is the fast and inexpensive version, a good solution wherever PCBs are not cost-effective.

Putting the design of your control systems on a diet; all made possible by the low mounting depth. When working with PCB switching elements, the distance between the front and PCB is only 9.2 mm, even for switching elements with silver contacts for mains voltage.

Even with QC switching elements, RAFIX 22 FS$^+$ panels are very flat. With a space requirement of just 27 mm behind the front panel, they offer enormous design freedom for your control panel.

ADVANTAGES OF FS$^+$ TECHNOLOGY

Safe and reliable
At least IP65 on the front side and all current industry approvals (UL, TÜV, CCC)

Flat design
Low mounting depth of 9.2 mm (PCB) or 27 mm (QC)

Quick and safe assembly
Automatic assembly on PCB or assembly without tools (QC)

High flexibility
Wide range of actuators for the respective customer application

Custom design
Wide range of design and legending options

Individually rated power
Different contact materials (gold contacts from 20 mV to 35 V, silver contacts from 10 V to 250 V)

Illumination options
Integrated illumination with cost-effective SMT LEDs (single color or RGB)

Unique tactility
Short switching travel (1 mm/2.5 mm) thanks to the use of the short-travel adapter

YOU HAVE THE CHOICE

The switching elements of the RAFIX FS technology are available as the 'PCB' version for PCB or as the 'QC' version for direct connection. Both variants can be combined with the corresponding actuators from the following product families: RAFIX 22 FS+, RAFIX 22 FSR, and RAFIX 30 FS+.

PRINTED CIRCUIT BOARD ASSEMBLY PCB

The low mounting depth of 9.2 mm enables control component integration in low profile systems. The **PCB concept** saves you space, labor, and material. It also virtually prevents assembly errors, as the circuit diagram is integrated in the design of the printed circuit board. In addition, aesthetically appealing, low-profile control panels can be implemented that not only meet the functional requirements but also stand out visually.

The FS switching elements are mounted together with other components on a PCB. SMT LEDs – either single color or RGB – can be integrated directly below the switching elements on the PCB for illumination of the actuators. The assembled PCB is then fixed behind the front panel, with the associated actuators and signal indicators positioned precisely. The FS+ switching elements are arranged flexibly on the PCB below the actuators, without a fixed mechanical connection to them. This modular design allows a separate, non-permanent connection between the control components and the FS+ switching elements, ensuring easy replacement when required.

QUICK CONNECT QC

The **QC concept** is the practical alternative for applications where a PCB layout is not economically viable. You can manually wire the switching elements using common flat quick-connect terminals (2.8 × 0.8 mm). LED clips that can be used individually in the colors of your choice evenly illuminate the actuators.

A low mounting depth is not the only thing that distinguishes the QC switching elements from conventional control components: They also do not require coupling elements between the actuator and switching element. One light click is sufficient and both elements are inseparably connected to each other. As a result, they can be used in environments with high vibrations and shocks. The built-in locating lug prevents installation errors. Complete, tool-free assembly can also be carried out away from the assembly lines.

9.2 MM TECHNOLOGY
THE MEASURE OF ALL THINGS
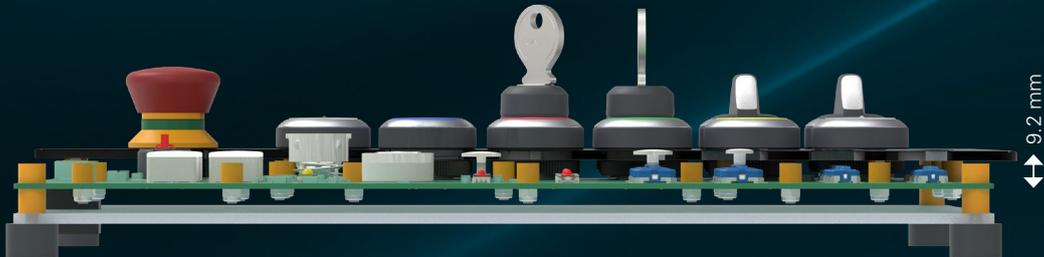
9.2 mm

MAXIMUM FUNCTIONALITY
IN MINIMUM SPACE

Revolutionize your HMI design with RAFI 9.2 mm technology. This technology allows you to seamlessly combine RAFIX FS+ actuators, PCB switching elements, and RAFI micro-switches on a single PCB. The result? An incomparable variety of functions in the smallest of spaces with an impressively low mounting depth of just 9.2 mm – it doesn't get any thinner than this!
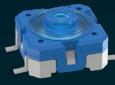
UNIQUE MODULARITY OF ACTUATORS
AND TACTILE SWITCHES
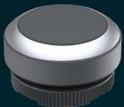
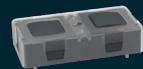**RAFIX 22 FS+**
RAFIX 22 FSR
Control component series

MICON 5
Tactile switches

RACON 8
RACON 12
Tactile switches

RF 15
RF 19
Tactile switches

KN 19
Mains switch

WHAT IS THE COMPOSITION OF THE DIMENSION 9.2 MM?

9.2 mm = top of front panel to top of PCB

Historically due to our proven RF15/19 series, this dimension became the standard. As a result, we have consistently aligned all our tactile switches and the entire FS+ series precisely to this 9.2 mm mounting depth. This guarantees compatibility and maximum space efficiency.
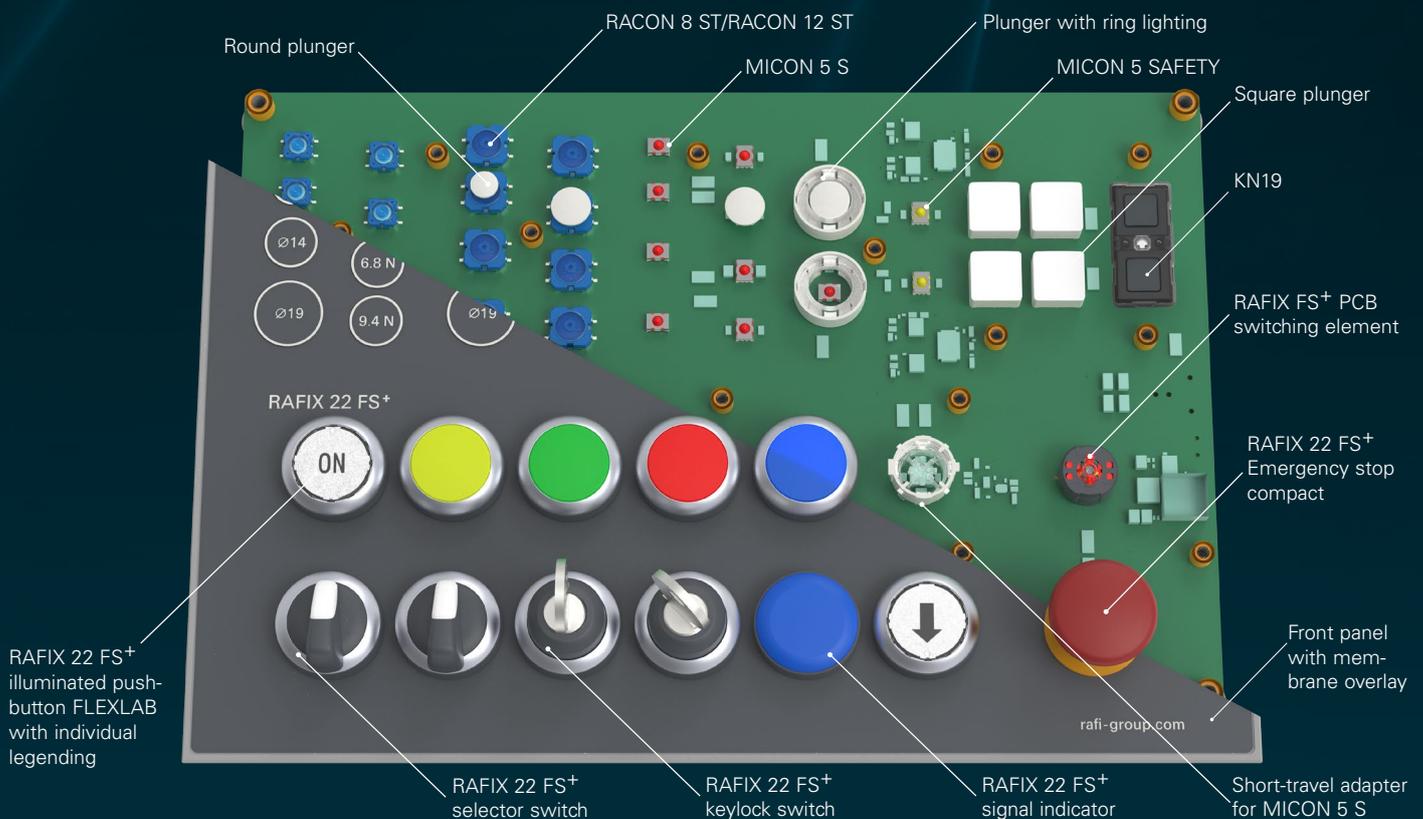
COST EFFICIENCY THROUGH
AUTOMATED PRODUCTION

PCB production offers you additional, long-term cost advantages, especially for large quantities and standardized design.

Cost

Conventional concepts

Quantity
RAFIX FS$^+$
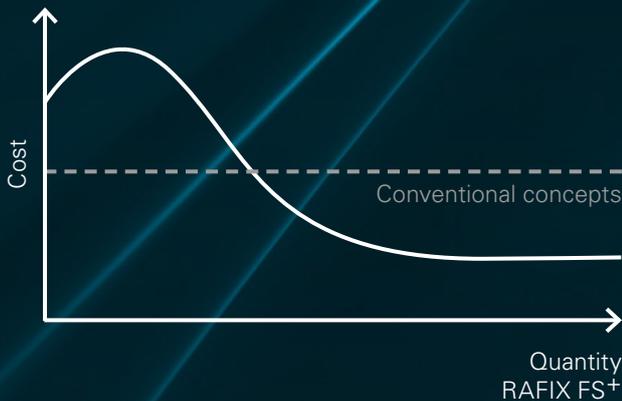
While non-recurring costs may be incurred at the beginning for the design of the front panel and PCB, these investments are quickly amortized:

- **Automated production:** Production is carried out using high-precision automatic assembly and soldering, which significantly reduces production costs.
- **Reduced assembly costs:** Standardized PCB production leads to considerable savings in assembly costs.
- **Error reduction:** Automated assembly minimizes the risk of assembly errors and ensures consistently high quality.

Rely on RAFI's 9.2 mm technology and revolutionize your HMI solutions – powerful, compact, and cost-efficient.

Round plunger

RACON 8 ST/RACON 12 ST

Plunger with ring lighting

MICON 5 S

MICON 5 SAFETY

Square plunger

KN19

Ø14   6.8 N

Ø19   9.4 N   Ø19

RAFIX 22 FS$^+$

ON

RAFIX FS$^+$ PCB switching element

RAFIX 22 FS$^+$ Emergency stop compact

RAFIX 22 FS$^+$ illuminated push-button FLEXLAB with individual legending

rafi-group.com

Front panel with membrane overlay

RAFIX 22 FS$^+$ selector switch

RAFIX 22 FS$^+$ keylock switch

RAFIX 22 FS$^+$ signal indicator

Short-travel adapter for MICON 5 S

The sample board shows the potential combinations of classic control and signaling devices and tactile switches under a membrane overlay with a common, continuous PCB.

SWITCHING ELEMENTS
CONFIGURATION

MOUNTING TYPE

PCB

Universal
for pushbutton,
selector and
keylock switch

Emergency stop
for emergency stop
and mushroom
pushbutton

QC

Universal
for pushbutton,
selector and
keylock switch

Emergency stop
for emergency stop
and mushroom
pushbutton

CONTACT TYPE/CONTACT MATERIAL

Gold (Au)
Gray housing

Silver (Ag)
Black housing

CONTACT FUNCTION

**Normally closed
contact (NC)**
Red plunger

**Normally open
contact (NO)**
Green plunger

**Normally closed contact (NC) and
normally open contact (NO)**
Yellow plunger (emergency stop)

POSSIBLE CONTACT FUNCTIONS

- 1 normally closed contact (1 NC)
- 2 normally closed contacts (2 NC)
- 1 normally open contact (1 NO)
- 2 normally open contacts (2 NO)
- 1 normally closed contact + 1 normally open contact (1 NC + 1 NO)
- 2 normally closed contacts + 1 normally open contact (2 NC + 1 NO) (only for emergency stop)

LIGHTING FUNCTION

**Short light
conductor PCB**
RGB LED

**Long light
conductor PCB**
SMT LED

**Without light
conductor PCB**
3mm THT LED

**Long light
conductor QC**
LED clip

SHORT-TRAVEL ADAPTER

Find out more about the short-travel adapter as an efficient alternative to the conventional PCB switching element in conjunction with our RAFIX FS pushbuttons. The adapter is fully compatible with all MICON 5 switches. The MICON 5 is characterized by its unique tactility. The large selection of operating forces from 1.5 N to 7.0 N enables the implementation of a wide range of solutions. The MICON 5 SAFETY with two normally closed (NC) and normally open (NO) contacts, each of which is potential-free and separate from each other, enables use in safety-relevant applications.

By using the adapter, travel is reduced from 4.0 mm to 2.5 mm or 1.0 mm. The compact design of the MICON 5 allows several SMT LEDs to be integrated into the installation space. It is also possible to place two MICONs next to each other without any issues. All MICON 5 variants are available as SMT versions, so that control components with SMT connection technology can also be realized. Discover an innovative solution that is flexible, reliable, and powerful with the short-travel adapter and the MICON 5.
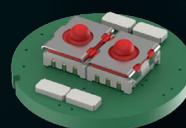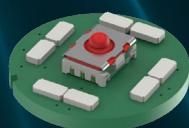
Short-travel adapter
with 1 normally open contact
(1 NO)

Short-travel adapter
with 2 normally open contacts
(2 NO, redundant)

You can find more information and technical data on the short-travel adapter here:

PCB

	Emergency stop	Universal	Emergency stop	Universal
	Gold		Silver	
GENERAL				
Disassembly possible	No			
Operating temperature, min.	-40 °C			
Operating temperature, max.	85 °C			
Storage temperature, min.	-40 °C			
Storage temperature, max.	85 °C			
Illuminated	Yes			
Luminous elements	LED			
Lamp socket	THT LED/SMT LED			
Soldering	Manual/wave			
Electrical operating life	1,000,000 (10 mA/24 V DC) cycles		1,000,000 (1 A/250 V AC) cycles 100,000 (2 A/250 V AC) cycles 30,000 (4 A/250 V AC) cycles	
B10 electric	1,300,000 (10 mA/24 V DC) cycles		1,300,000 (1 A/250 V AC) cycles 200,000 (2 A/250 V AC) cycles 70,000 (4 A/250 V AC) cycles	
Environmental resistance	IEC 60068-2-14/IEC 60068-2-30/IEC 60068-2-33/IEC 60068-2-78			
Shock resistance	15 g at 11 ms amplitude semi-sinusoidal			
Vibration resistance	5 g at 10 – 500 Hz			
RoHS/REACH compliant	Yes			
Approval	CE, TÜV, UL		CE, TÜV, UL, CCC	
MOUNTING DIMENSIONS				
Outside dimension, width	16.75 mm		17.3 mm	
Outside dimension, height	13.85 mm		16.9 mm	
Mounting depth	9.20 mm			
MECHANICAL CHARACTERISTICS				
Operating force, max.	100 N			
Contact function	1 NC/1 NO/2 NC/2 NO/1 NC + 1 NO/2 NC + 1 NO		1 NC/ 1 NO/2 NC/2 NO/1 NC + 1 NO	
Contact system	Bridge contact			
Contact material	Gold		Silver	
Fixing	Soldering			
Solderability	Yes			
Terminal on the rear	THT			
ELECTRICAL CHARACTERISTICS				
Rated insulation voltage	50/250 V			
Rated surge voltage	500 V		2,500 V	
Rated voltage, min.	20 mV		10 V	
Rated voltage, max.	35 V		250 V	
Rated current, min.	1 mA		10 mA	
Rated current, max.	100 mA		4 A	
Rated power, max.	0.25 W		-	
Rated power, min.	-		0.5 W	
Usage categories	AC-15, DC-13		AV-15/B300, DC-13/Q300	
Conditional short-circuit current	1,000 A			
Article no.	1.20.146.xxx/xxx		1.20.126.xxx/xxxx	

QC

	Emergency stop	Universal	Emergency stop	Universal
	Gold		Silver	
GENERAL				
Disassembly possible	No			
Operating temperature, min.	-40 °C			
Operating temperature, max.	85 °C			
Storage temperature, min.	-40 °C			
Storage temperature, max.	85 °C			
Illuminated	Yes			
Luminous elements	LED			
Lamp socket	LED clip			
Electrical operating life	1,000,000 (10 mA/24 V DC) cycles		1,000,000 (1 A/250 V AC) cycles 100,000 (2 A/250 V AC) cycles 30,000 (4 A/250 V AC) cycles	
B10 electric	1,300,000 (10 mA/24 V DC) cycles		1,000,000 (1 A/250 V AC) cycles 200,000 (2 A/250 V AC) cycles 70,000 (4 A/250 V AC) cycles	
Environmental resistance	IEC 60068-2-14/IEC 60068-2-30/IEC 60068-2-33/IEC 60068-2-78			
Shock resistance	15 g at 11 ms amplitude semi-sinusoidal			
Vibration resistance	5 g at 10 – 500 Hz			
RoHS/REACH compliant	Yes			
Approval	CE, TÜV, UL		CE, CCC, TÜV, UL	
MOUNTING DIMENSIONS				
Outside dimension, length	19.7 mm			
Outside dimension, width	18.6 mm			
Outside dimension, height	30.65 mm			
Mounting depth	27 mm			
MECHANICAL CHARACTERISTICS				
Operating force, max.	100 N			
Contact function	1 NC/1 NO/2 NC/2 NO/1 NC + 1 NO/2 NC + 1 NO		1 NC/1 NO/2 NC/2 NO/1 NC + 1 NO	
Contact system	Bridge contact			
Contact material	Gold		Silver	
Fixing	Latching			
Solderability	No			
Terminal on the rear	Flat quick-connect terminal 2.8 × 0.8 mm			
Connection markings	Normally closed contact (NC): 11/12, 21/22, normally open contact (NO): 13/14, 23/24			
ELECTRICAL CHARACTERISTICS				
Rated insulation voltage	50 V		250 V	
Rated surge voltage	500 V		2,500 V	
Rated voltage, min.	20 mV		10 V	
Rated voltage, max.	35 V		250 V	
Voltage type	AC/DC			
Nominal operating voltage	0.02-35 V		10-250 V	
Rated current, min.	0.01 mA		10 mA	
Rated current, max.	100 mA		4 A	
Rated power, max.	0.25 W		-	
Rated power, min.	-		0.5 W	
Power dissipation	0.1 mW		0.32 W	
Usage category	AC-15, DC-13		AC-15/B300, DC-13/Q300	
Conditional short-circuit current	1,000 A			
Article no.	1.20.126.xxx/xxxx		1.20.126.xxx/xxxx	

RAFIX FS
OVERVIEW OF ACTUATORS

All RAFIX series come in modular design. They consist of an actuator and a switching element. You benefit because you only need to store the individual parts and can combine them as you wish. This gives you almost unlimited combination options for production and final assembly. In this way, no needs are left unmet. Basically, the differences between the RAFIX series consist of the mounting depth, terminal types, and mounting holes from 22.3 mm to 30.3 mm.
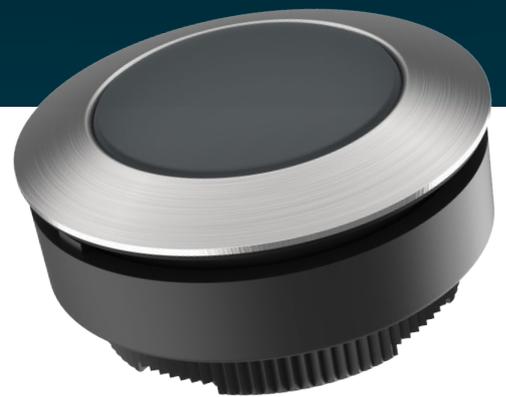
RAFIX 22 FS[+]

The RAFIX 22 FS[+] series with a mounting hole of 22.3 mm sets the standard in the control component sector. Their modern construction and aesthetic, functional design are indispensable in an increasingly design-oriented industrial environment. The comprehensive selection and variability of actuators gives designers maximum creative freedom, including brilliant colors and homogeneous illumination of large actuating areas. By combining different front rings, you can create a distinctive, easily recognizable control panel. This enables, for example, the intuitive assignment of a defined color to a specific input command.

RAFIX 30 FS⁺

The RAFIX 30 FS⁺ series combines all the advantages of the tried-and-tested RAFIX 22 FS⁺ control component family. The series also features an extremely flat installation height in front of the front panel with a mounting hole of 30.3 mm. The high-quality stainless steel front ring gives the RAFIX 30 FS⁺ a sleek and elegant design that meets even the highest aesthetic demands.

RAFIX 22 FSR

RAFIX 22 FSR is the ideal choice for applications where ruggedness, economy, and maximum efficiency are essential. With proven FS⁺ technology and robust design, this guarantees reliable performance. The low mounting depth of the switching elements saves valuable space and enables quick assembly.

Thanks to its IP 65/IP 69 degree of protection on the front side, RAFIX 22 FSR provides optimum protection against dirt and moisture. This makes the product family perfect for demanding environments and ensures reliable operation even under extreme conditions. Rely on RAFIX 22 FSR and secure yourself a robust, economical, and high-performance solution.

RAFIX 22 FS⁺

VERSATILE. MODULAR. PRACTICE-PROVEN.

Pushbutton
Momentary, latching
Illuminated

Pushbutton
Protective cap
Momentary
Illuminated

Pushbutton
Bezels, protruding
Momentary, latching
Illuminated

Pushbutton
Front ring, protruding
Momentary
Illuminated

Pushbutton Ring lighting
Momentary
Illuminated

Signal indicator

Mushroom pushbutton
Momentary, latching
Illuminated

Mushroom pushbutton 40 mm
Momentary
Illuminated

Illuminated selector switch
Momentary, latching
Rotating angle 40°, 60°, 90°

Keylock switch
Momentary, latching
Rotating angle 40°, 90°

Keylock switch special types
Momentary, latching
Rotating angle 40°, 90°
E and SSG locking positions

USB feed-through
USB 2.0

Emergency stop
Rotary release
Pull release

Emergency stop
Rotary release
Pull release
Illuminated

Compact emergency stop
Rotary release
Illuminated

Compact emergency stop
Active/inactive
Rotary release
Illuminated mushroom head

INDIVIDUAL CUSTOMER SOLUTIONS
Large selection of actuators

SAFE AND RELIABLE
Protection rating IP65 to the front side

MOUNTING HOLE 22.3 MM
According to IEC 60947-5-1

SYSTEM DESIGN WITH PCB SWITCHING ELEMENT

Pushbutton   Illuminated pushbutton   Illuminated selector switch   Keylock switch   Emergency stop

1.0 - 3.0
9.2 ± 0.15

SYSTEM DESIGN WITH QC SWITCHING ELEMENT

1.0 - 3.0
25.9 ± 0.3
26.8 ± 0.3

LED clip
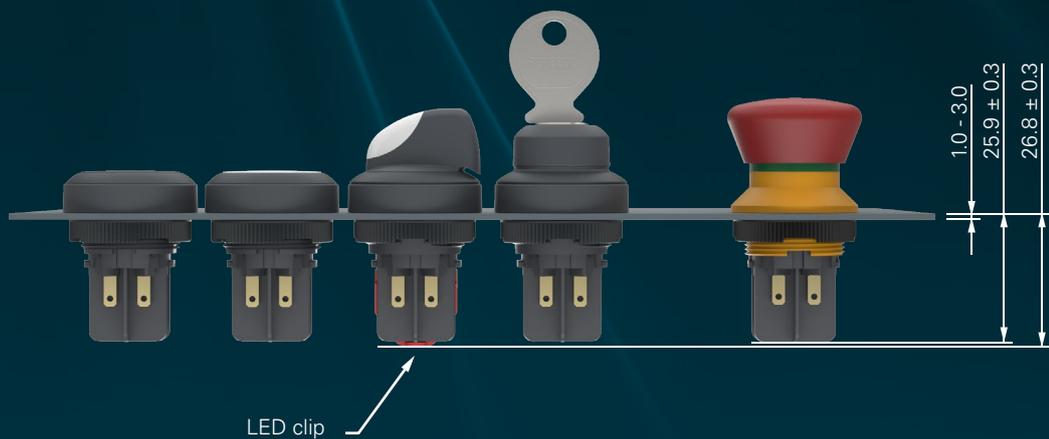
RAFIX 22 FS⁺

Technical data	Pushbutton	Signal indicator	Illuminated selector switch
General			
Bezel color	Selectable	Selectable	-
Bezel property	Selectable	Translucent	-
Front ring color	Selectable		
Operating temperature, min.	-25 °C		
Operating temperature, max.	70 °C		
Storage temperature, min.	-40 °C		
Storage temperature, max.	80 °C		
Illuminated	Yes		
Operating life	1,000,000 cycles (momentary) 500,000 cycles (latching)	-	500,000 cycles (momentary) 300,000 cycles (latching)
B10	1,300,000 cycles (latching) 650,000 cycles (latching)	-	650,000 cycles (momentary) 390,000 cycles (latching)
Degree of protection to the front side (DIN EN 60529)	IP65		
UL enclosure type rating	Type 1, type 4x (front side)		
Environmental resistance	IEC 60068-2-14, IEC 60068-2-30, IEC 60068-2-33, IEC 60068-2-78		
Salt spray resistance	IEC 60068-2-11		
RoHS/REACH compliant	Yes		
Approvals	CE, UL, TÜV, VDE, CCC	CE, UL, TÜV	CE, UL, TÜV, VDE, CCC
Mounting dimensions			
Mounting hole	22.3 mm		
Mounting depth	9.2 mm		
Installation height	9.85 mm	9.7 mm	22.24 mm
Grid, min.	30 × 30 mm		
Outside dimension, length	29.8 mm		
Outside dimension, width	29.8 mm		
Outside dimension, height	18.5 mm	20.8 mm	32.4 mm
Collar dimension	Ø 29.8 mm		
Mechanical characteristics			
Actuation function	Momentary, latching	-	Momentary, latching
Operating force, max.	100 N	-	
Operating torque, max.	-		1.5 Nm
Operating travel, max.	4 mm	-	
Resetting	-		
Fixing	Threaded ring		
Threaded ring torque, max.	1.2 Nm		
Article no.	1.30.270.xxx/xxxx	1.74.508.xxx/xxxx	1.30.272.xxx/xxxx

Keylock switch	USB feed-through	Emergency stop
-		
-		
Selectable		-
-25 °C		
70 °C		
-40 °C		
80 °C		
No		Yes
300,000 cycles (momentary) 50,000 cycles (latching)	1,500 cycles	50,000 cycles
390,000 cycles (momentary) 65,000 cycles (latching)	-	65,000 cycles
IP65		
Type 1, type 4x (front side)		
IEC 60068-2-14, IEC 60068-2-30, IEC 60068-2-33, IEC 60068-2-78		
IEC 60068-2-11		
Yes		
CE, UL, TÜV, CCC	CE, UL, TÜV	CE, UL, TÜV, VDE, CCC
22.3 mm		
9.2 mm	-	9.2 mm
20 mm (45.6 mm with key)	11.5 mm	33.2 mm
30 × 30 mm		35 × 35 mm
29.8 mm		
29.8 mm		
28.6 mm	40.6 mm	42.1 mm
Ø 29.8 mm		
Momentary, latching	-	Latching
-		100 N
1.3 Nm	-	
-		
-		Rotate/pull
Threaded ring		
1.2 Nm		
1.30.275.xxx/xxxx	1.30.279.xxx/xxxx	1.30.273.xxx/xxxx

RAFIX 30 FS⁺

FLAT. VERSATILE. CHIC.

Pushbutton
Momentary, latching
Illuminated

Pushbutton
Bezels, protruding
Momentary
Illuminated

Pushbutton
Ring lighting
Momentary
Illuminated

Pushbutton
Ring spot illumination
Momentary
Illuminated

Signal indicator

Illuminated
selector switch
Momentary, latching
Rotating angle 40°,
60°, 90°

Keylock switch
Momentary, latching
Rotating angle 40°, 90°

USB feed-through
USB 2.0

EXTRA FLAT DESIGN
Low installation height from 3.55 mm

SLEEK AND ELEGANT DESIGN
Stainless steel front ring

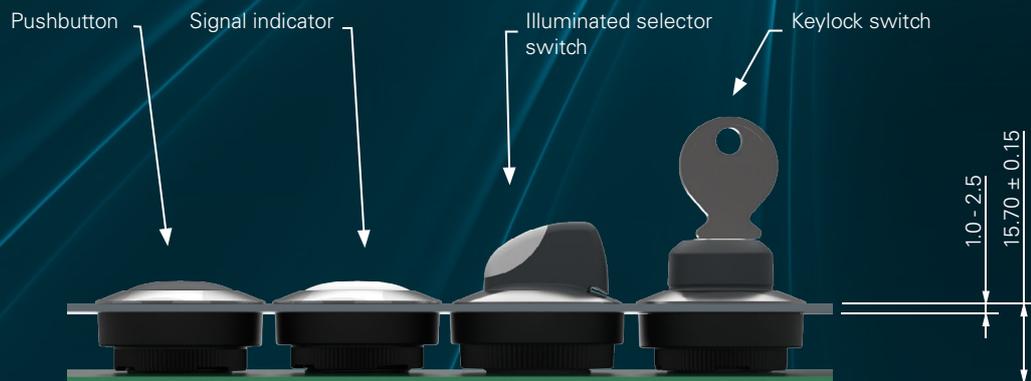## SAFE AND RELIABLE
Protection rating IP65 to the front side

MOUNTING HOLE 30.3 MM
According to IEC 60947-5-1

SYSTEM DESIGN WITH PCB SWITCHING ELEMENT

Pushbutton   Signal indicator   Illuminated selector switch   Keylock switch

1.0 - 2.5

15.70 ± 0.15

SYSTEM DESIGN WITH QC SWITCHING ELEMENT

1.0 - 2.5

31.4 ± 0.3

32.8 ± 0.3

LED clip

RAFIX 30 FS⁺

Technical data	Pushbutton	Signal indicator
General		
Bezel color	Selectable	
Bezel property	Selectable	Translucent
Front ring color	Stainless steel	
Operating temperature, min.	-25 °C	
Operating temperature, max.	70 °C	
Storage temperature, min.	-40 °C	
Storage temperature, max.	80 °C	
Illuminated	Yes	
Operating life	1,000,000 cycles (momentary) 500,000 cycles (latching)	-
B10	1,300,000 cycles (momentary) 650,000 cycles (latching)	-
Degree of protection to the front side (DIN EN 60529)	IP65	
Impact resistance IK	08 frontal	-
UL enclosure type rating	Type 1, type 4x (front side)	
Environmental resistance	IEC 60068-2-14, IEC 60068-2-30, IEC 60068-2-33, IEC 60068-2-78	
Salt spray resistance	IEC 60068-2-11	
RoHS/REACH compliant	Yes	
Approval	CE, UL, TÜV, CCC	
Mounting dimensions		
Mounting hole	30.3 mm	
Mounting depth	15.7 mm	
Installation height	3.55 mm	5.25 mm
Grid, min.	35 × 35 mm	
Outside dimension, length	34.5 mm	
Outside dimension, width	34.5 mm	
Outside dimension, height	18.5 mm	20.7 mm
Collar dimension	Ø 34.5 mm	
Mechanical characteristics		
Actuation function	Momentary, latching	-
Operating force, max.	100 N	-
Operating torque, max.	-	
Operating travel, max.	4 mm	-
Fixing	Threaded ring	
Threaded ring torque, max.	1.2 Nm	
Article no.	1.30.290.xxx/xxxx	1.74.510.xxx/xxxx

Illuminated selector switch	Keylock switch	USB feed-through
-		
-		
Stainless steel		
-25 °C		
70 °C		
-40 °C		
80 °C		
Yes	No	
500,000 cycles (momentary) 300,000 cycles (latching)	300,000 cycles (momentary) 50,000 cycles (latching)	-
650,000 cycles (momentary) 390,000 cycles (latching)	390,000 cycles (momentary) 65,000 cycles (latching)	-
IP65		
-		
Type 1, type 4x (front side)		
IEC 60068-2-14, IEC 60068-2-30, IEC 60068-2-33, IEC 60068-2-78		
IEC 60068-2-11		
Yes		
CE, UL, TÜV, CCC		
30.3 mm		
15.7 mm		35.5 mm
17.43 mm	13.7 mm (38.5 mm with key)	5.17 mm
35 × 35 mm		
34.5 mm		
34.5 mm		
32.5 mm	29.2 mm	41.5 mm
Ø 34.5 mm		
Momentary, latching		-
-		
1.5 Nm	1.3 Nm	-
-		
Threaded ring		
1.2 Nm		
1.30.292.xxx/xxxx	1.30.295.xxx/xxxx	1.30.299.xxx/xxxx

RAFIX 22 FSR

ROBUST. FLEXIBLE. STRONG.

Pushbutton
Momentary, latching
Illuminated

Signal indicator

Illuminated selector switch
Momentary, latching
Rotating angle 40°, 60°, 90°

Keylock switch
Momentary, latching
Rotating angle 40°, 90°

Emergency stop
Pull release
Mushroom head plastic

Emergency stop
Pull release
Mushroom head plastic
Illuminated

Emergency stop
Pull release
Mushroom head metal

Emergency stop
Pull release
Mushroom head metal
Illuminated

ROBUST
Use of stainless steel front rings and aluminum mushroom heads

TEMPERATURE-RESISTANT
Extended operating temperature from -40 °C to +85 °C
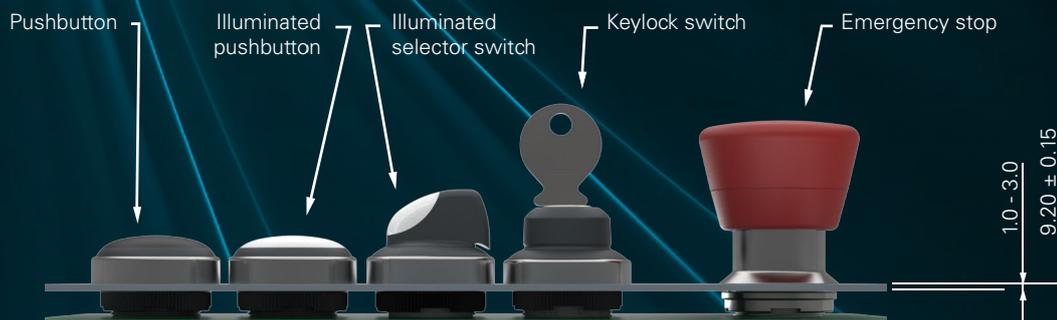
RESISTANT TO DIRT AND DUST
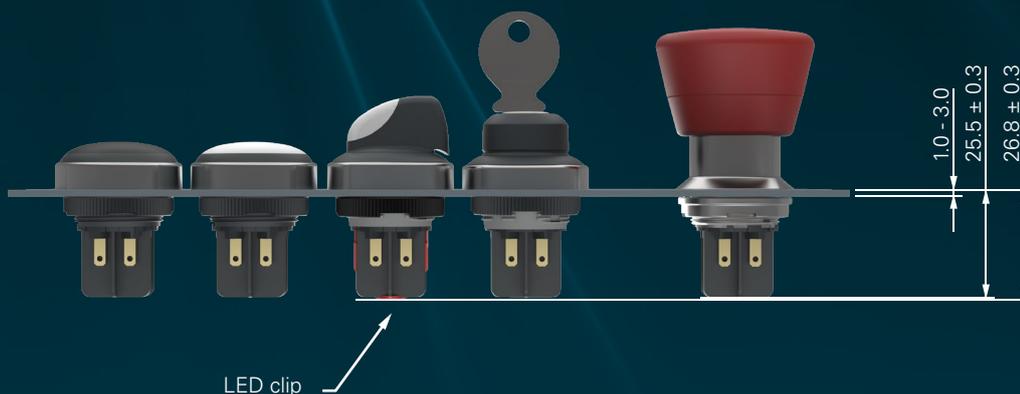Protection rating IP65/IP69 to the front side

MOUNTING HOLE 22.3 MM
According to IEC 60947-5-1

SYSTEM DESIGN WITH PCB SWITCHING ELEMENT

Pushbutton

Illuminated pushbutton

Illuminated selector switch

Keylock switch

Emergency stop

1.0 - 3.0

9.20 ± 0.15

SYSTEM DESIGN WITH QC SWITCHING ELEMENT

1.0 - 3.0

25.5 ± 0.3

26.8 ± 0.3

LED clip

RAFIX 22 FSR

Technical data	Pushbutton	Signal indicator
General		
Bezel color	Selectable	
Front ring color	Black	-
Operating temperature, min.	-40 °C	
Operating temperature, max.	85 °C	
Storage temperature, min.	-40 °C	
Storage temperature, max.	85 °C	
Illuminated	Yes	
Operating life	1,000,000 cycles	-
B10	1,300,000 cycles	-
Degree of protection to the front side (DIN EN 60529)	IP65, IP69 with water spray distance >25 cm	IP65, IP67, IP69
Degree of protection to the front side (ISO 20653)		
UL enclosure type rating	Type 1, type 4x (front side)	
Environmental resistance	IEC 60068-2-14, IEC 60068-2-30, IEC 60068-2-33, IEC 60068-2-78	
Salt spray resistance	IEC 60068-2-11	
RoHS/REACH compliant	Yes	
Impact resistance class IK	06	-
Resistance to force on the side	-	
Approval	CE, UL, TÜV, CCC	CE, UL, TÜV
Mounting dimensions		
Mounting hole	22.3 mm	
Mounting depth	9.2 mm	
Installation height	12.2 mm	
Grid, min.	32 × 32 mm	
Outside dimension, length	31.3 mm	
Outside dimension, width	31.3 mm	
Outside dimension, height	21 mm	20.8 mm
Collar dimension	Ø 31.3 mm	
Mechanical characteristics		
Actuation function	Momentary	-
Operating power, max.	100 N	
Operating torque, max.	-	-
Operating path, max.	4 mm	
Resetting	-	
Fixing	Threaded ring	
Threaded ring torque, max.	1.2 Nm	
Article no.	1.30.280.xxx/xxxx	1.74.509.xxx/xxxx

Illuminated selector switch	Keylock switch	Emergency stop
-		
Black		-
-40 °C		
85 °C		
-40 °C		
85 °C		
Yes	No	Yes
500,000 cycles (momentary) 300,000 cycles (latching)	300,000 cycles (momentary) 50,000 cycles (latching)	10,000 cycles
650,000 cycles (momentary) 390,000 cycles (latching)	390,000 cycles (momentary) 65,000 cycles (latching)	13,000 cycles
IP65; IP69	IP65; IP69	IP65, IP67, IP69, IPx9K (according to ISO 20653)
IPx9k	-	IPx9k
Type 1, type 4x (front side)		
IEC 60068-2-14, IEC 60068-2-30, IEC 60068-2-33, IEC 60068-2-78		
IEC 60068-2-11		
Yes		
-		
		750 N
CE, UL, TÜV, CCC		
22.3 mm		
9.2 mm		
23.80 mm	21.5 mm (45.6 mm with key)	41.1 mm
32 × 32 mm		40 × 40 mm
31.3 mm		
31.3 mm		
32.4 mm	30.1 mm	49.4 mm
Ø 31.3 mm		
Momentary, latching		Latching
-		100 N
2 Nm	1.3 Nm	-
-	-	
-		Pull
Threaded ring		
1.2 Nm		2 Nm
1.30.282.xxx/xxxx	1.30.285.xxx/xxxx	1.30.283.xxx/xxxx

DESIGN AND LEGEN

FLEXIBLE. CUSTOMIZABLE. UNIQUE.

FLEXLAB

FLEXLAB stands for FLEXIBLE LABELING – flexible legending of RAFIX pushbuttons or signal indicator bezels. FLEXLAB makes it possible for customers to carry out custom legending of these extremely compact components.

FLEXLAB offers the option of custom legending of control components. In order to label the components, we offer a DIN A4 legending sheet complete with pre-punched labels that can be printed using commercially available office laser printers. Printing is carried out on the side with the smooth surface, which is provided with an adhesive primer.

After printing, the legend inserts can be removed from the sheet and then inserted into the RAFIX colour bezels using the fine retaining lugs.

The retaining lugs ensure secure positioning and prevent the symbol from shifting. We recommend the wearing of gloves to protect the print template and its labels from fingerprints and scratches.

Alternatively, RAFI also offers printing on the FLEXLAB bezels using pad printing. You can choose from several standard symbols here.

Both legending options are available for the RAFIX 22 FS$^+$ and RAFIX 30 FS$^+$ product families.

In addition to FLEXLAB, we also offer custom direct printing on the bezels of our RAFIX 22 FS$^+$ and RAFIX 30 FS$^+$ pushbuttons and signal indicators using pad printing. Printing is possible both on the front side and on the rear. A protective lacquer against abrasion is optionally available for bezels printed on the front side. For bezels printed on the rear that use backlighting, a light-blocking print is used.

For the RAFIX 30 FS$^+$ pushbuttons with ring lighting, we also offer precise, custom, and direct legending using a laser process.

RAFIX 22 FS⁺

Flat bezels, flat front rings, and the ring lighting of the RAFIX 22 FS⁺ product family offer a smooth, flush surface that blends in well with the device design. Protruding bezels and front rings protrude beyond the housing and offer an elevated position, which highlights the buttons. All versions are available in different colors.

| Bezels, flat | Bezels, protruding | Front ring, protruding | Ring lighting |

RAFIX 30 FS⁺

Expand your design possibilities with the RAFIX 30 FS⁺ product family. From impressive ring lighting and innovative ring spot illumination to illuminated pushbuttons with protruding bezels. All variants are available in a variety of colors.

| Bezels, flat | Bezels, protruding | Ring lighting | Ring spot illumination |

ACCESSORIES

With the RAFIX accessories, we complete our operating element range and offer you an extensive variety of accessories. These include LED clips for illumination, spacers, and blanking caps that perfectly complement your operating elements. We offer protective collars especially for emergency stop switches to prevent unintentional or accidental actuation. Expand your possibilities and design your operating elements according to your individual needs!

ACCESSORIES FOR PRINTED CIRCUIT BOARDS (PCB)

Spacers between the front panel and PCB in various sizes

Spacer for 3 mm THT LED

LED CLIPS FOR QC SWITCHING ELEMENTS

Blue

Green

Red

Yellow

White

FURTHER ACCESSORIES

Blanking caps

Key protection cap

Emergency stop protective collar

Emergency stop adhesive sign

Clip holder for signal indicators

CUSTOMER REFERENCES

The RAFIX product family includes a wide range of control components for use in various applications and industries, whether in safety technology, robotics, or automation technology. RAFIX operating elements feature a high degree of flexibility, reliable function, and a rugged design for industrial applications. Thanks to their proven quality, they are particularly suitable for demanding applications where durable and reliable operating solutions are required. Users of RAFIX particularly emphasize the low mounting depth and the versatile legending options of the RAFIX FS$^+$ buttons, which enable flexible integration into a wide variety of operating concepts.

RAFI