The New **Control Component** Generation

RAFIX 22QR

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RAFIX 22QR

## The new 22 mm Control Component Generation made by Rafi

Contact blocks marked with different colours for ease of identification in stock and when connecting:

- NC contacts: red
- NO contacts: green
- NC / NO contacts: red / green
- Lamp socket: black
- Silver contacts:
  basic housing colour is black
- Gold contacts:
  basic housing colour is grey
- The terminals associated with a contact pair are colour coded on the connection side and marked with the respective contact numbers.

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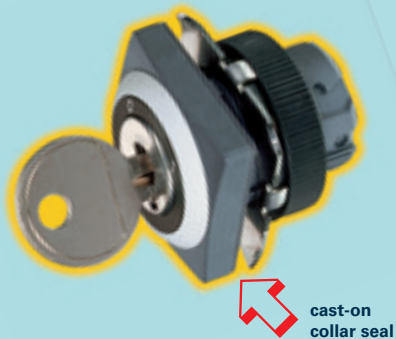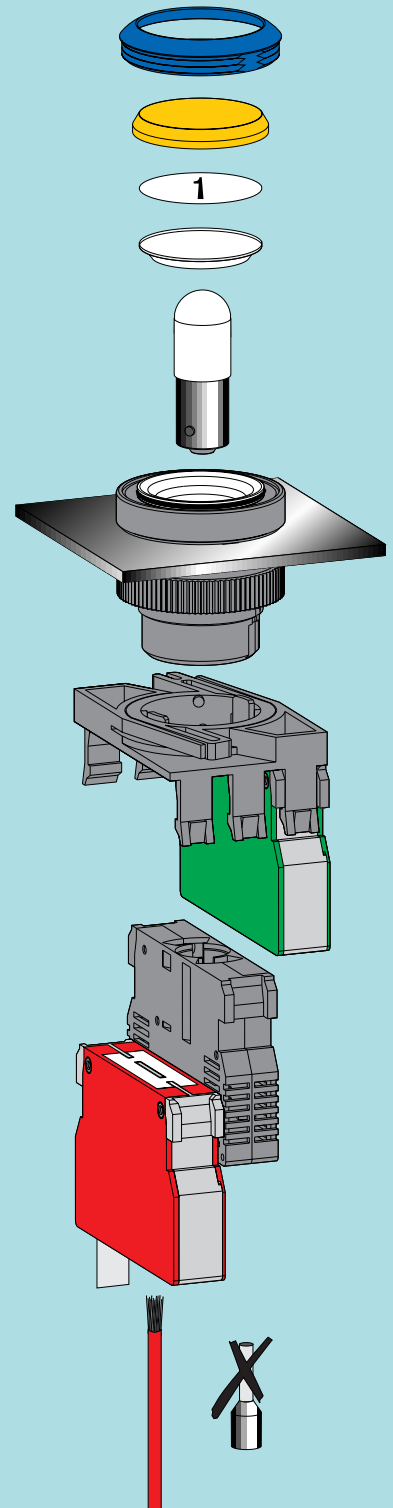
The components feature a removable locating lug. If installed without locating lug, the ring nut with claw can be used. Accurate alignment of the actuator can be achieved behind the front panel. The cast-on collar seal can not get lost nor be twisted during installation and allows single-person assembly: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

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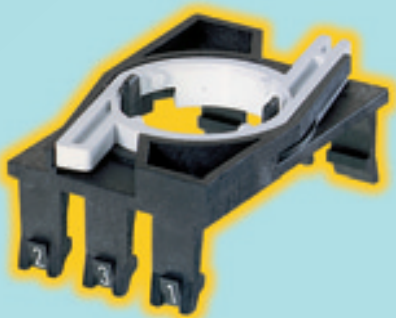
First, snap the lamp socket and contact blocks into the coupling. Then snap the assembly on to the actuator. To release it, the bayonet lever must be pressed (prevents inadvertent releasing at the same time).

Screw terminals or cage clamp terminals

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

RAFIX 22 QR
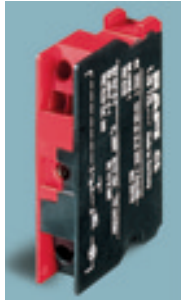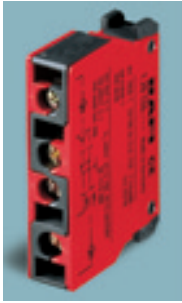
Screw terminals:
The terminals are open and the captive screws are mounted in the terminal recess.

Cage clamp terminals:
Simply insert a screwdriver to open the terminal, insert the cable and remove the screwdriver to close the terminal.

Your advantage:

This offers you 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.

Sealed for life against humidity and dirt

The special seal reliably prevents moisture, oil and dust from penetrating to the contact block. In contrast to other sealing types which move up and down the shaft, this special seal is firmly seated on the housing. This is why the RAFIX 22QR range offers switching reliability throughout the operating life (degree of protection IP 65 to DIN).
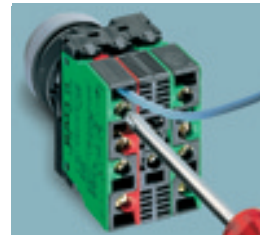
Easy assembly of RAFIX 22 QR.

Screw terminals	Cage clamp terminals
Insert the wire.	Open the terminal.
Tighten the screw.	Insert the wire.
Done.	Remove the screwdriver.

Versatility of design for customized panels

The RAFIX 22QR system does not only have a particularly low profile as compared to its predecessor and its competitors but 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 22QR components are available either with a round or with a square collar. The square version can be mounted in flush fitting rows just like a self-contained pushbutton block. In this way, dirt cannot accumulate between the individual pushbuttons. Your panels will always remain attractive and functionally reliable.

The new RAFIX 22QR control component range meets all the technical requirements and current standards for control gear. All the components have been designed from scratch, with a special view to progressive design and ease of assembly. As a result, we developed a state-of-the-art product with an optimum cost / benefit ratio.

The system is of modular design. Actuators, contact blocks and lamp sockets can be combined freely. This means that you may implement modifications of design or configuration even at the last minute. An additional positive effect is the reduction of stockholding costs.

Sequence of assembly / disassembly

- Fix the actuator in the front panel with the ring nut.
- Snap the individual elements (a maximum three contact blocks or 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.

- 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).

Assembly   Disassembly
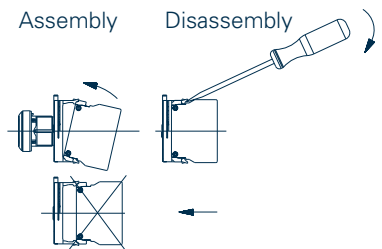
Approvals

● = Approved, ○ = Approval pend-

Part no.	BG zert.	VDE 0660	ENEC 10/15	ULc	GL
1.20 124.– – –	○	○	●	●	○
1.20 125.– – –	○	○	●	○	○
1.30 243.– – –	○				
1.71 213.– – –		○	●	●	○
1.71 214.– – –		○	●	○	○

30.00

50.00
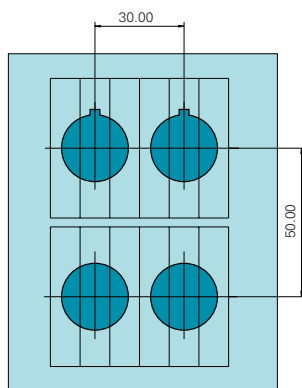
Panel cut-out according to IEC 947

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 947).

All dimensions given in this catalogue are in mm!

5

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Preliminary specifications

Overall system (actuator with contact block)

Approvals:	IEC 947, IEC 1058, UL 508, CSA 22.2;
	corresponding to EU Directive NSR 73/23
CE conformity:	Emergency stop and silver contact blocks meet
	the requirements of the Machinery Directive 89/392
	(statement of conformity available on request)
Ambient temperature, operating:	– 25 ... + 70°C *[– 25 … + 50°C],* with single-Chip-LED: – 25 … + 65°C
Ambient temperature, storage:	– 40 ... + 80°C
Climatic conditions:	IEC 68 Part 2-3 and Part 2-30
Resistance to vibration:	10 g at 40...500 Hz
Shock resistance to IEC 68-2-27:	> 50 g at 11 ms amplitude, half-sinusoidal
Robustness of actuator:	> 100 N
Assembling axis:	Any
Degree of protection on front side of panel:	IP 65 throughout the full operating life

Actuators, operating life specified in no. of operations

Pushbutton:	momentary: > 1 million; latching: > 0.5 million
Selector switch:	momentary: > 0.5 million; latching: > 0.5 million
Keylock switch:	momentary: > 0.3 million; latching: > 50,000
Mushroom-headed pushbutton:	> 1 million
Emergency stop pushbutton:	> 0.1 million
Emergency stop pushbutton with keylock:	> 50,000

Contact blocks with gold contacts / silver contacts

Terminals:	Screw terminals with captive and open terminals or cage clamp. Solid or stranded wires can be connected without wire end sleeves. Up to two conductors with different cross-sections can be connected to each terminal.
Wire range:	2 x 0.75 mm^2 ... 2.5 mm^2 solid wires without wire end sleeves,
	2 x 1,0 mm^2…1,5 mm^2 stranded wires without wire end sleeves
	[0.08 mm^2…2.5 mm^2]
	2 x 0.75 mm^2 ... 1.5 mm^2 solid or stranded wires with wire end sleeves
Contact system:	Self-cleaning bridge contacts
Contact arrangement:	1 NC, 1 NO, 2 NC, 2 NO, 1 NC + 1 NO, *[1 NC, 1 NO, 1 NC + 1 NO],* floating contacts
NC contact:	Positive opening contact according to IEC 947-5-1
Operating force:	approx. 5 N per contact element

Specific data for contact blocks with gold contacts

Supply voltage:	1...42 V AC / DC
Current rating:	0.01 ... 100 mA AC / DC
Operating life:	> 1 million operations at 10 mA / 24 V DC
Switching reliability at 24 V/5 mA DC:	10 x 10^{e-6} operations

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6

Specific data for contact blocks with silver contacts

Switching reliability at 24 V/5 mA DC:	$10 \times 10^{e-6}$ operations
Operating life:	> 0.5 million operations at 10 A/250 V AC
	[7×10^4 at 10 A/250 V AC]
	[2×10^5 at 5 A/250 V AC]
	[$0,6 \times 10^6$ at 2 A/250 V AC]

IEC 947, VDE 0660

Rated insulation voltage:	400 V AC/DC
Rated peak voltage:	6 kV
Rated operating current Ie	
AC-15:	125 V/10 A; 250 V/6 A; 400 V/3.5 A
DC-13 Q300:	24 V/2.75 A; 60 V/1.1 A; 125 V/0.55 A; 250 V/0.275 A
Degree of pollution:	3
Positive opening travel:	3 mm
Minimum opening force:	20 N
Actuating speed:	5 ... 1000 mm/s
Class of protection:	II

IEC 1058, VDE 0630

Class of protection:	II
Resistive load:	10 A/250 V AC; 7.5 A/400 V AC
Motor load:	6 A *[5 A]*/250 V AC; 4 A/400 V AC
Peak input current, filament lamps:	36 A/250 V AC
Peak input current, capacitive load:	100 A/250 V AC *[–]*

Lamp socket

Socket type:	BA9s
Supply voltage:	6...250 V AC/DC
Lamp power:	2 W
Terminal…:	x 1 outward contact (–)
	x 2 middle contact (+)

RAFIX 22 QR

7
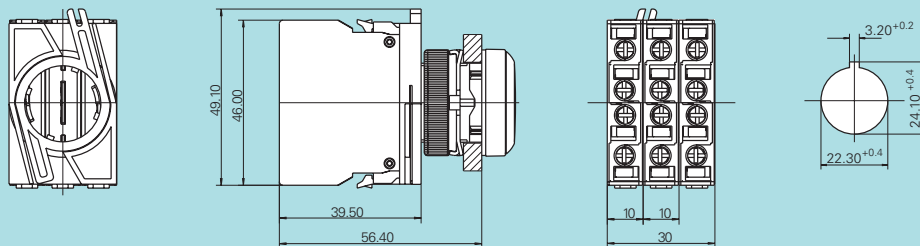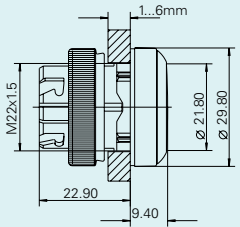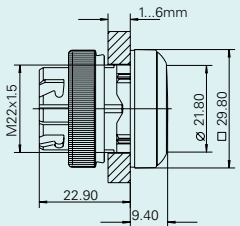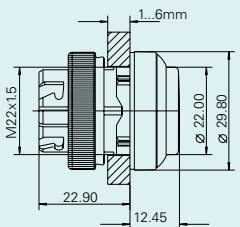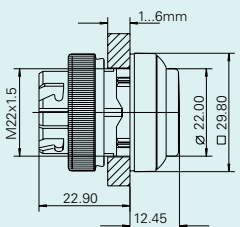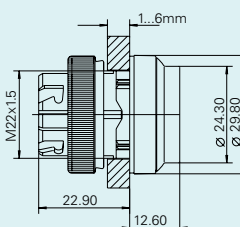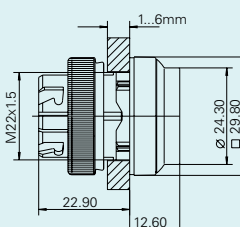
RAFIX 22QR control component assemblies

	Actuator	Contact block	Order no.	Colour no. (lens colour)
(1)	Pushbutton, flush Momentary function Illuminated Metal front ring (order no. 1.30 240.021)	1 NO + 1 lamp socket (order no. 1.20 124 .022)	9.20 124.001	/1000 (colourless) /1300 (red) /1400 (yellow) /1500 (green) /1600 (blue)
		1 NC + 1 NO + 1 lamp socket (order no. 1.20 124.027)	9.20 124.002	
		1 NC + 1 lamp socket (order no. 1.20 124.021)	9.20 124.003	/1000 (colourless) /1300 (red)
(2)	Pushbutton, protruding Momentary function Illuminated Metal front ring (order no. 1.30 240.221)	1 NO + 1 lamp socket (order no. 1.20 124.022)	9.20 124.004	/1000 (colourless) /1300 (red) /1400 (yellow) /1500 (green) /1600 (blue)
		1 NC + 1 NO + 1 lamp socket (order no. 1.20 124.027)	9.20 124.005	
(3)	Pushbutton, flush Momentary function Non-illuminated Metal front ring (order no. 1.30 240.121)	1 NO contact (order no. 1.20 124.002)	9.20 124.006	/0100 (black) /0200 (white) /0300 (red) /0400 (yellow) /0500 (green) /0600 (blue) /0700 (slate grey)
		1 NC + 1 NO contact (order no. 1.20 124.017)	9.20 124.007	
	As above with legend I (order no. 1.30 240.123)	1 NO contact (order no. 1.20 124.002)	9.20 124.008	/0100 (black) /0500 (green)
(4)	Pushbutton, protruding Momentary function Non-illuminated Metal front ring (order no. 1.30 240.321)	1 NO contact (order no. 1.20 124.002)	9.20 124.010	/0100 (black) /0200 (white) /0300 (red) /0400 (yellow) /0500 (green) /0600 (blue) /0700 (slate grey)
		1 NC + 1 NO contact (order no. 1.20 124.017)	9.20 124.011	
		1 NC contact (order no. 1.20 124.001)	9.20 124.013	
	As above with legend 0 (order no. 1.30 240.322)	1 NC contact (order no. 1.20 124.001)	9.20 124.012	/0200 (white) /0300 (red)

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8

RAFIX 22QR control component assemblies

	Actuator	Contact block	Order no.	Colour no.
(1)	Selector switch Metallized front ring Non-illuminated (order no. 1.30 242.702) 1 x 90°, latching	1 NO contact (order no. 1.20 124.002)	9.20 124.020	Colour of mark on handle: /0200 (white)
		1 NC + 1 NO (order no. 1.20 124.017)	9.20 124.021	
	Selector switch Metallized front ring Non-illuminated (order no. 1.30 242.802) 2 x 60°, latching	1 NC + 1 NO (order no. 1.20 124.004)	9.20 124.022	
		1 NC + 1 NO, 1 NC + 1 NO (order no. 1.20 124.018)	9.20 124.023	
	Selector switch Metallized front ring Non-illuminated (order no. 1.30 242.527) 2 x 45°, momentary	1 NO + 1 NO (order no. 1.20 124.004)	9.20 124.024	
		1 NC + 1 NO, 1 NC + 1 NO (order no. 1.20 124.018)	9.20 124.025	
(2)	Keylock switch Key removal position 0 + I Metallized front ring (order no. 1.30 245.322) 1 x 90°, latching	1 NO contact (order no. 1.20 124.002)	9.20 124.040	
		1 NC + 1 NO (order no. 1.20 124.017)	9.20 124.041	
(3)	Emergency stop pushbutton Latching function Non-illuminated (order no. 1.30 243.501)	1 NC contact (order no. 1.20 124.001)	9.20 124.030	/0300 (red)
		1 NC + 1 NO (order no. 1.20 124.017)	9.20 124.031	
(4)	Mushroom-headed pushbutton Function momentary Non-illuminated Ø 40 mm (order no. 1.30 246.502)	1 NO contact (order no. 1.20 124.002)	9.20 124.050	/0100 (black)
		1 NC + 1 NO (order no. 1.20 124.017)	9.20 124.051	
(5)	Signal indicator (order no. 1.74 505.501)	1 lamp socket (order no. 1.71 213.001)	9.71 213.001	/1000 (colourless) /1300 (red) /1400 (yellow) /1500 (green) /1600 (blue)
		1 lamp socket with diode and resistor (order no. 1.71 213.002)	9.71 213.002	

9

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RAFIX 22QR pushbuttons, illuminated, metal front ring

	Legending in black letters	Order no. Momentary function	Order no. Latching function	
(1) ○, flush pushbutton	None I	1.30 240.021 / Colour no. 1.30 240.023 / Colour no.	1.30 240.031 / Colour no. –	
(2) □, flush pushbutton	None I	1.30 240.071 / Colour no. 1.30 240.073 / Colour no.	1.30 240.081 / Colour no. –	
(3) ○, protruding pushbutton	None 0	1.30 240.221 / Colour no. 1.30 240.222 / Colour no.	1.30 240.231 / Colour no. –	
(4) □, protruding pushbutton	None 0	1.30 240.271 / Colour no. 1.30 240.272 / Colour no.	1.30 240.281 / Colour no. –	
(5) ○, protruding collar	None	1.30 240.421 / Colour no.	–	
(6) □, protruding collar	None	1.30 240.471 / Colour no.	–	
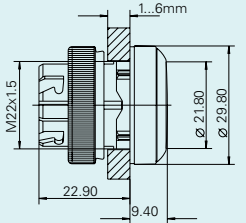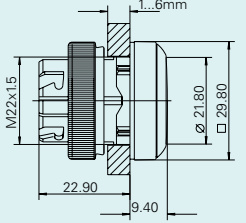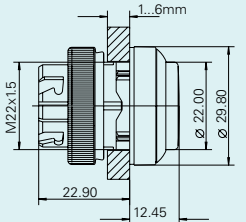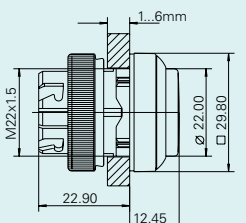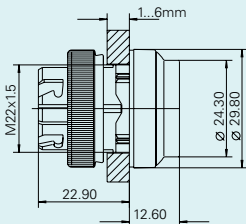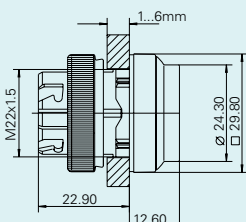
Colour no. for front ring and transparent lens*

Ring \ Lens	colourless	red	yellow	green	blue
metal	/1000	/1300	/1400	/1500	/1600

Ordering example: Flush pushbutton, illuminated,
round collar, without legend, momentary, blue lens
Order no. 1.30 240.021/1600

* For your individual colour combination designs,
please refer to the "RAFIX 22QR single parts" chapter
for various versions of housings, front rings, lenses
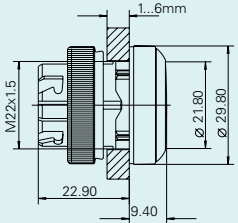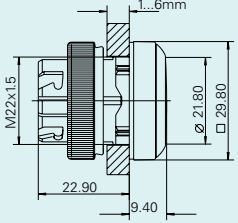and legend inserts.
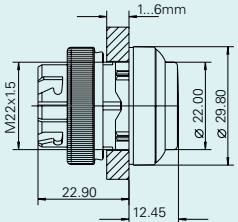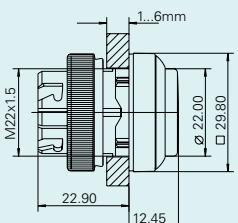
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RAFIX 22QR pushbuttons, illuminated, plastic front ring

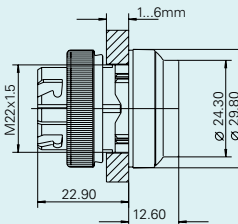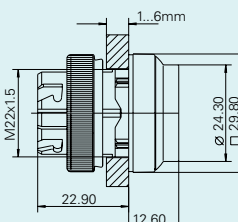|	Legending in black letters	Order no. Momentary function	Order no. Latching function	
(1) ○, flush pushbutton	None I	1.30 240.001 / Colour no. 1.30 240.003 / Colour no.	1.30 240.011 / Colour no. –	M22x1.5 22.90 1...6mm Ø 21.80 Ø 29.80 9.40
(2) □, flush pushbutton	None I	1.30 240.051 / Colour no. 1.30 240.053 / Colour no.	1.30 240.061 / Colour no. –	M22x1.5 22.90 1...6mm Ø 21.80 □ 29.80 9.40
(3) ○, protruding pushbutton	None 0	1.30 240.201 / Colour no. 1.30 240.202 / Colour no.	1.30 240.211 / Colour no. –	M22x1.5 22.90 1...6mm Ø 22.00 Ø 29.80 12.45
(4) □, protruding pushbutton	None 0	1.30 240.251 / Colour no. 1.30 240.252 / Colour no.	1.30 240.261 / Colour no. –	M22x1.5 22.90 1...6mm Ø 22.00 □ 29.80 12.45
(5) ○, protruding collar	None	1.30 240.401 / Colour no.	–	M22x1.5 22.90 1...6mm Ø 24.30 Ø 29.80 12.60
(6) □, protruding collar	None	1.30 240.451 / Colour no.	–	M22x1.5 22.90 1...6mm Ø 24.30 □ 29.80 12.60

Colour no. for front ring and transparent lens*

Lens \ Ring	black	red	yellow	green	blue	slate grey	silver
colourless	/1001	/1003	/1004	/1005	/1006	/1007	/1008
red	–	–	–	–	–	–	/1308
yellow	–	–	–	–	–	–	/1408
green	–	–	–	–	–	–	/1508
blue	–	–	–	–	–	–	/1608

11

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RAFIX 22QR pushbuttons, non-illuminated, metal front ring

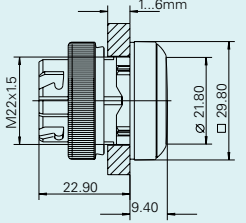|	Legending in black letters	Order no. Momentary function	Order no. Latching function	
(1) ○, flush pushbutton	None	1.30 240.121 / Colour no.	–	
	0	1.30 240.122 / Colour no.	–	
	I	1.30 240.123 / Colour no.	–	
	➔	1.30 240.124 / Colour no.	–	
(2) □, flush pushbutton	None	1.30 240.171 / Colour no.	–	
	0	1.30 240.172 / Colour no.	–	
	I	1.30 240.173 / Colour no.	–	
	➔	1.30 240.174 / Colour no.	–	
(3) ○, protruding pushbutton	None	1.30 240.321 / Colour no.	1.30 240.331 / Colour no.	
	0	1.30 240.322 / Colour no.	–	
	I	1.30 240.323 / Colour no.	–	
	➔	1.30 240.324 / Colour no.	–	
(4) □, protruding pushbutton	None	1.30 240.371 / Colour no.	1.30 240.381 / Colour no.	
	0	1.30 240.372 / Colour no.	–	
	I	1.30 240.373 / Colour no.	–	
	➔	1.30 240.374 / Colour no.	–	
(5) ○, protruding collar	None	1.30 240.521 / Colour no.	–	
(6) □, protruding collar	None	1.30 240.571 / Colour no.	–	
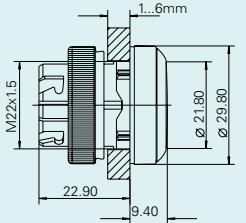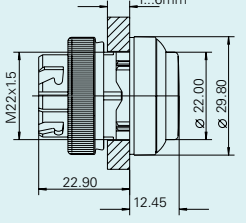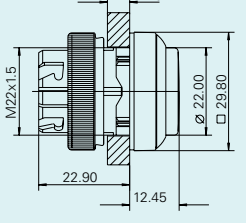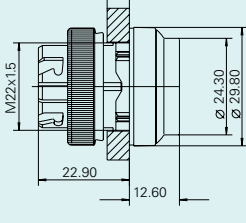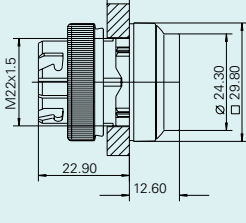
Colour no. for front ring and opaque lens*

Ring ╲ Lens	black	white	red	yellow	green	blue	slate grey
metal	/0100	/0200	/0300	/0400	/0500	/0600	/0700

Ordering example: Flush pushbutton, non-illuminated, round collar, without legend, momentary, blue lens
Order no. 1.30 240.121/0600

* For your individual colour combination designs, please refer to the "RAFIX 22QR single parts" chapter for various versions of housings, front rings, lenses and legend inserts.

RAFI

12

RAFIX 22QR pushbuttons, non-illuminated, plastic front ring

	Legending in black letters	Order no. Momentary function	Order no. Latching function	
(1) ○, flush pushbutton	None	1.30 240.101 / Colour no.	–	
	0	1.30 240.102 / Colour no.	–	
	I	1.30 240.103 / Colour no.	–	
	➜	1.30 240.104 / Colour no.	–	
(2) □, flush pushbutton	None	1.30 240.151 / Colour no.	–	
	0	1.30 240.152 / Colour no.	–	
	I	1.30 240.153 / Colour no.	–	
	➜	1.30 240.154 / Colour no.	–	
(3) ○, protruding pushbutton	None	1.30 240.301 / Colour no.	1.30 240.311 / Colour no.	
	0	1.30 240.302 / Colour no.	–	
	I	1.30 240.303 / Colour no.	–	
	➜	1.30 240.304 / Colour no.	–	
(4) □, protruding pushbutton	None	1.30 240.351 / Colour no.	1.30 240.361 / Colour no.	
	0	1.30 240.352 / Colour no.	–	
	I	1.30 240.353 / Colour no.	–	
	➜	1.30 240.354 / Colour no.	–	
(5) ○, protruding collar	None	1.30 240.501 / Colour no.	–	
(6) □, protruding collar	None	1.30 240.551 / Colour no.	–	
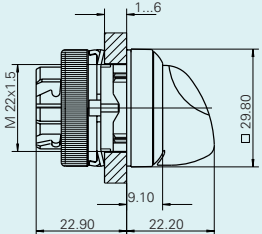
Colour no. for front ring and opaque lens*

Lens ╲ Ring	black	red	yellow	green	blue	slate grey	silver
white	/0201	/0203	/0204	/0205	/0206	/0207	/0208
black	–	–	–	–	–	–	/0108
red	–	–	–	–	–	–	/0308
yellow	–	–	–	–	–	–	/0408
green	–	–	–	–	–	–	/0508
blue	–	–	–	–	–	–	/0608
slate grey	–	–	–	–	–	–	/0708

Ordering example: Flush pushbutton, non-illuminated, round collar, without legend, momentary, black front ring: Order no. 1.30 240.101/0201

* For your individual colour combination designs, please refer to the "RAFIX 22QR single parts" chapter for various versions of housings, front rings, lenses and legend inserts.

13

RAFI

RAFIX 22 QR selector switches, illuminated

	Function	Collar shape	Front ring	Order no. Short handle	Order no. Long handle
	1 x 45°, momentary	○	Plastic	1.30 242.001	1.30 242.011
		□	Plastic	1.30 242.051	1.30 242.061
		○	Metallized	1.30 242.002	1.30 242.012
		□	Metallized	1.30 242.052	1.30 242.062
□ collar, short handle	2 x 45°, momentary*	○	Plastic	1.30 242.026	1.30 242.036
		□	Plastic	1.30 242.076	1.30 242.086
		○	Metallized	1.30 242.027	1.30 242.037
		□	Metallized	1.30 242.077	1.30 242.087
	1 x 90°, latching	○	Plastic	1.30 242.101	1.30 242.111
		□	Plastic	1.30 242.151	1.30 242.161
		○	Metallized	1.30 242.102	1.30 242.112
		□	Metallized	1.30 242.152	1.30 242.162
	2 x 90°, latching*	○	Plastic	1.30 242.126	1.30 242.136
		□	Plastic	1.30 242.176	1.30 242.186
		○	Metal	1.30 242.127	1.30 242.137
		□	Metal	1.30 242.177	1.30 242.187
○ collar, long handle	1 x 90°, latching	○	Plastic	1.30 242.201	1.30 242.211
		□	Plastic	1.30 242.251	1.30 242.261
		○	Metallized	1.30 242.202	1.30 242.212
		□	Metallized	1.30 242.252	1.30 242.262
	2 x 60°, latching*	○	Plastic	1.30 242.301	1.30 242.311
		□	Plastic	1.30 242.351	1.30 242.361
		○	Metallized	1.30 242.302	1.30 242.312
		□	Metallized	1.30 242.352	1.30 242.362
	1 x 90°, latching* 1 x 45°, momentary	○	Plastic	1.30 242.426	1.30 242.436
		□	Plastic	1.30 242.476	1.30 242.486
		○	Metallized	1.30 242.427	1.30 242.437
		□	Metallized	1.30 242.477	1.30 242.487
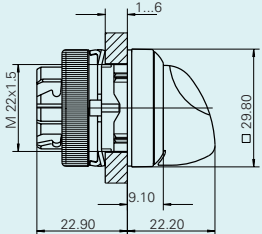
Ring Mark	Front ring plastic							Front ring metal
	black	**red**	**yellow**	**green**	**blue**	**slate grey**	**silver**	
white	/2201	/2203	/2204	/2205	/2206	/2207	/2208	/2200
red	–	–	–	–	–	–	–	/2300
yellow	–	–	–	–	–	–	–	/2400
green	–	–	–	–	–	–	–	/2500
blue	–	–	–	–	–	–	–	/2600

Ordering example: Selector switch, illuminated, 1 x 45°, momentary, round collar, black plastic front ring, short handle, white handle mark
Order no. 1.30 242.001/2201

*Please use only two contact blocks on left and right position. A third contact block in the middle position may not be mounted.

Ring nut with claw included

RAFIX 22 QR selector switches, non-illuminated

□ collar, short handle

○ collar, long handle

Function	Collar shape	Front ring	Order no. Short handle	Order no. Long handle
1×45°, momentary	○	Plastic	1.30 242.501	1.30 242.511
	□	Plastic	1.30 242.551	1.30 242.561
	○	Metallized	1.30 242.502	1.30 242.512
	□	Metallized	1.30 242.552	1.30 242.562
2×45°, momentary*	○	Plastic	1.30 242.526	1.30 242.536
	□	Plastic	1.30 242.576	1.30 242.586
	○	Metallized	1.30 242.527	1.30 242.537
	□	Metallized	1.30 242.577	1.30 242.587
1×90°, latching	○	Plastic	1.30 242.601	1.30 242.611
	□	Plastic	1.30 242.651	1.30 242.661
	○	Metallized	1.30 242.602	1.30 242.612
	□	Metallized	1.30 242.652	1.30 242.662
2×90°, latching*	○	Plastic	1.30 242.626	1.30 242.636
	□	Plastic	1.30 242.676	1.30 242.686
	○	Metallized	1.30 242.627	1.30 242.637
	□	Metallized	1.30 242.677	1.30 242.687
1×90°, latching	○	Plastic	1.30 242.701	1.30 242.711
	□	Plastic	1.30 242.751	1.30 242.761
	○	Metallized	1.30 242.702	1.30 242.712
	□	Metallized	1.30 242.752	1.30 242.762
2×60°, latching*	○	Plastic	1.30 242.801	1.30 242.811
	□	Plastic	1.30 242.851	1.30 242.861
	○	Metallized	1.30 242.802	1.30 242.812
	□	Metallized	1.30 242.852	1.30 242.862
1×90°, latching*	○	Plastic	1.30 242.926	1.30 242.936
1×45°, momentary	□	Plastic	1.30 242.976	1.30 242.986
	○	Metallized	1.30 242.927	1.30 242.937
	□	Metallized	1.30 242.977	1.30 242.987

Colour no. for front ring and opaque handle mark
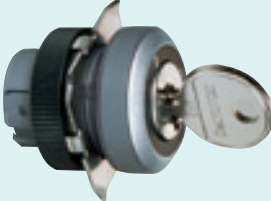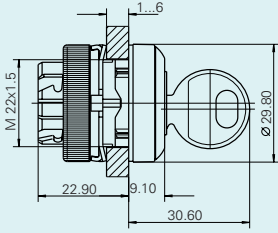
Ring Mark	Front ring plastic							Front ring metal
	black	**red**	**yellow**	**green**	**blue**	**slate grey**	**silver**	
white	/0201	/0203	/0204	/0205	/0206	/0207	/0208	/0200
red	–	–	–	–	–	–	–	/0300
yellow	–	–	–	–	–	–	–	/0400
green	–	–	–	–	–	–	–	/0500
blue	–	–	–	–	–	–	–	/0600

Ordering example: Selector switch, non-illuminated, 1 x 45°, momentary, round collar, black plastic front ring, short handle, white handle mark
Order no. 1.30 242.501/0201

*Please use only two contact blocks on left and right position. A third contact block in the middle position may not be mounted.

Ring nut with claw included

15

RAFI

RAFIX 22QR keylock switches, metal front ring

Function	Key removal position	Collar shape	Order no.
1 x 45°, momentary	0	◯	1.30 245.002
	0	▢	1.30 245.052
2 x 45°, momentary*	0	◯	1.30 245.102
	0	▢	1.30 245.152
1 x 90°, latching	0	◯	1.30 245.202
	0	▢	1.30 245.252
	I	◯	1.30 245.212
	I	▢	1.30 245.262
	0 + I	◯	1.30 245.222
	0 + I	▢	1.30 245.272
1 x 90°, latching	0	◯	1.30 245.302
	0	▢	1.30 245.352
	I	◯	1.30 245.312
	I	▢	1.30 245.362
	0 + I	◯	1.30 245.322
	0 + I	▢	1.30 245.372
2 x 90°, latching*	0	◯	1.30 245.402
	0	▢	1.30 245.452
	0 + I	◯	1.30 245.412
	0 + I	▢	1.30 245.462
	0 + 2	◯	1.30 245.422
	0 + 2	▢	1.30 245.472
	0 + I + 2	◯	1.30 245.432
	0 + I + 2	▢	1.30 245.482
2 x 60°, latching*	0 + I + 2	◯	1.30 245.732
	0 + I + 2	▢	1.30 245.782
1 x 90°, latching* 1 x 45°, momentary	0	◯	1.30 245.502
	0	▢	1.30 245.552
	2	◯	1.30 245.512
	2	▢	1.30 245.562
	0 + 2	◯	1.30 245.522
	0 + 2	▢	1.30 245.572

◯ collar

▢ collar

M 22x1.5   1...6   Ø 29.80   22.90   9.10   30.60

M 22x1.5   1...6   ▢ 29.80   22.90   9.10   30.60

Lock no. 455, Ronis.
Other lock numbers on request.
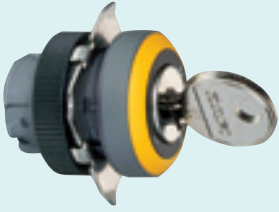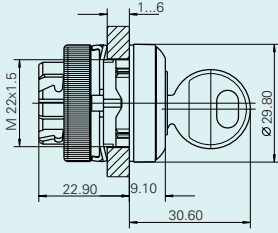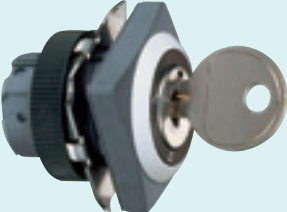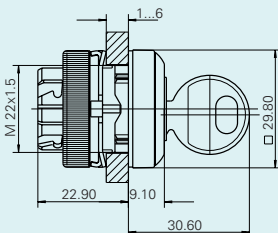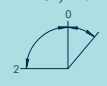
Lock characteristics (metal and plastic front ring)
Wafers: 4
No. of lock types: 200
Main key: No
Group key: No

*Please use only two contact blocks on left and right position. A third contact block in the middle position may not be mounted.

Ring nut with claw and 2 keys included.

RAFIX 22QR keylock switches, plastic front ring
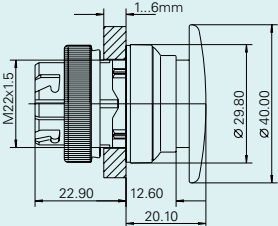
○ **collar**

□ **collar**

Lock characteristics
and delivery contents
see page 16.

Function	Key removal position	Collar shape	Order no.
1 x 45°, momentary	0	○	1.30 245.001
	0	□	1.30 245.051
2 x 45°, momentary*	0	○	1.30 245.101
	0	□	1.30 245.151
1 x 90°, latching	0	○	1.30 245.201
	0	□	1.30 245.251
	I	○	1.30 245.211
	I	□	1.30 245.261
	0 + I	○	1.30 245.221
	0 + I	□	1.30 245.271
1 x 90°, latching*	0	○	1.30 245.301
	0	□	1.30 245.351
	I	○	1.30 245.311
	I	□	1.30 245.361
	0 + I	○	1.30 245.321
	0 + I	□	1.30 245.371
2 x 90°, latching*	0	○	1.30 245.401
	0	□	1.30 245.451
	0 + I	○	1.30 245.411
	0 + I	□	1.30 245.461
	0 + 2	○	1.30 245.421
	0 + 2	□	1.30 245.471
	0 + I + 2	○	1.30 245.431
	0 + I + 2	□	1.30 245.481
2 x 60°, latching*	0 + I + 2	○	1.30 245.731
	0 + I + 2	□	1.30 245.781
1 x 90°, latching* 1 x 45°, momentary	0	○	1.30 245.501
	0	□	1.30 245.551
	2	○	1.30 245.511
	2	□	1.30 245.561
	0 + 2	○	1.30 245.521
	0 + 2	□	1.30 245.571

M 22x1.5   1...6   Ø 29.80   22.90   9.10   30.60

M 22x1.5   1...6   □ 29.80   22.90   9.10   30.60

Colour no. for front ring

Ring	black	red	yellow	green	blue	slate grey	silver
Colour no.	/0100	/0300	/0400	/0500	/0600	/0700	/0800

*Please use only two contact blocks on left and right position.
 A third contact block in the middle position may not be mounted.

17   RAFI

RAFIX 22 QR mushroom-headed pushbuttons, non-illuminated
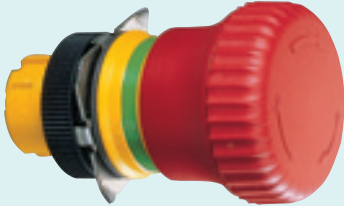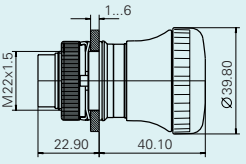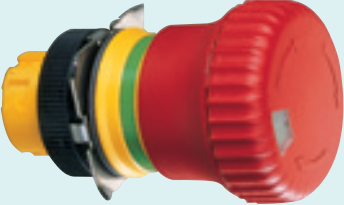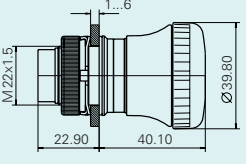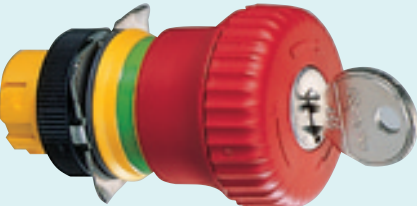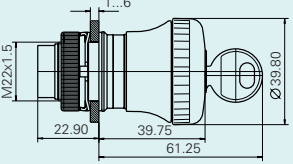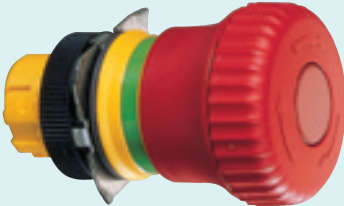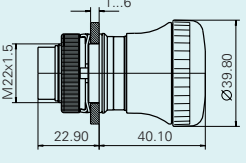
	Collar shape	Front ring	Order no. Momentary function	Order no. Latching function	
○, **mushroom head** ∅ **40 mm**	○	Plastic, silver	1.30 246.501	1.30 246.511	
	○	Metal	1.30 246.502	1.30 246.512	
	□	Plastic, silver	1.30 246.551	1.30 246.561	
	□	Metal	1.30 246.552	1.30 246.562	
□ , **mushroom head** ∅ **60 mm**	○	Plastic, silver	1.30 246.601	–	
	○	Metal	1.30 246.602	–	
	□	Plastic, silver	1.30 246.651	–	
	□	Metal	1.30 246.652	–	

Colour no. for front ring and mushroom head

Ring / Head	black	white	red	yellow	green	blue	slate grey
plastic, silver	/0108	/0208	/0308	/0408	/0508	/0608	/0708
metal	/0100	/0200	/0300	/0400	/0500	/0600	/0700

Ordering example:
Mushroom-headed pushbutton ∅ 40 mm, round collar,
silver plastic front ring, black mushroom head
Order no. 1.30 246.501/0108

RAFI

RAFIX 22QR emergency stop pushbuttons, dupe-proof to EN 418

	Order no. Non-illuminated	Order no. Illuminated	
(1)	1.30 243.501 /0300	–	
(2) with indicator acc. to EN 81	1.30 243.601 /0300	–	
(3) with keylock	1.30 243.701 /0300	–	
(4) beleuchtbar	–	1.30 243.001 /0300	

Ring nut with claw included, (3): 2 keys included

The emergency stop pushbuttons meet the requirements of DIN EN 60 204, IEC 73, IEC 204, IEC 947, DIN EN 60 947, VDE 0660 Part 200 and VDE 0113 Part 1. They are dupe-proof according to EN 418 thanks to the positive-action mechanical movement sequence. To prevent inadvertent actuation, a certain operating force must be exerted at the action point.

The button latches when being pressed and can be reset by turning to the right or left. Due to the design of the actuating element the emergency stop switch is protected against interlocking, i.e. a started emergency stop process cannot be interrupted by jamming elements.

The green ring below the actuator shows the switching position of the pushbutton – it can not be seen any more when the pushbutton is pressed.

Emergency stop label plates see accessories.

Switching position indication according EN 81

According to this norm the switching position of an emergency stop pushbutton must be visible from the front and from the side.

The Rafi pushbutton (position 2) has a mechanical indicator at the top which changes from green to red, when actuated. The green ring shows the switching position from the side.
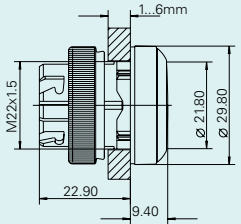
not actuated

actuated

RAFI

RAFIX 22QR signal indicators

	Order no. Labelling with legend inserts*	Order no. No labelling	
(1) ○ collar	1.74 505.501 / Colour no.	1.74 505.001 / Colour no.	
(2) □ collar	1.74 505.551 / Colour no.	1.74 505.051 / Colour no.	
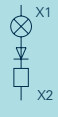
Colour no. for signal indicators

Version \ Lens	colourless transp.	red transparent	yellow transparent	green transparent	blue transparent
For legend inserts	/1000	/1300	/1400	/1500	/1600
No labelling	/2200	/2300	/2400	/2500	/2600
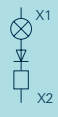
* Please order legend inserts separately;
  see accessories page

Ordering example: Signal indicator, round collar,
no labelling, blue
Order no. 1.74 505.001/2600

RAFIX 22QR lamp sockets with coupling, screw terminals

	Version	Switching symbol	Order no.
	Lamp socket BA 9 s 250 V / 2 W	X1 ⊗ X2	1.71 213.001
	Lamp socket BA 9 s with diode and series resistor 250 V / 130 V / 2 W	X1 ⊗ X2	1.71 213.004

RAFIX 22QR lamp sockets without coupling, screw terminals

	Version	Switching symbol	Order no.	Accessory
	Lamp socket 250 V / 2 W	X1 ⊗ X2	5.00 070.074	Coupling 5.05 510.935
	Lamp socket with diode and series resistor 250 V / 130 V / 2 W	X1 ⊗ X2	5.00 070.080	

For lamps and LEDs, refer to accessories page.

RAFI

RAFIX 22 QR contact blocks complete with coupling, screw terminals

	Version	Reference no. on coupling			Switching symbol	Order no. silver 250 V	Order no. gold 42 V
Example: **1 NO contact, silver, 250 V**		**1**	**3**	**2**			
	1 NC contact			●	21 / 22	1.20 124.001	1.20 124.101
	1 NO contact	●			13 / 14	1.20 124.002	1.20 124.102
	1 NC, 1 NC	●		●	11 / 12, 21 / 22	1.20 124.003	1.20 124.103
	1 NO, 1 NO	●		●	13 / 14, 23 / 24	1.20 124.004	1.20 124.104
	1 NO, 1 NC	●		●	13 / 14, 21 / 22	1.20 124.005	1.20 124.105
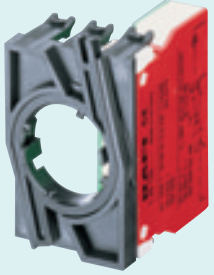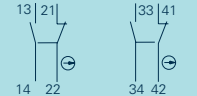
RAFIX 22 QR contact blocks and lamp sockets complete with coupling, screw terminals

	Version	Reference no. on coupling			Switching symbol	Order no. silver 250 V	Order no. gold 42 V
Example: **1 NC contact, silver, 250 V, 1 lamp socket**		**1**	**3**	**2**			
	1 NC, 1 lamp socket		●	●	X1 21, X2 22	1.20 124.021	1.20 124.121
	1 NO contact, 1 lamp socket	●	●		13 / 14, X1 / X2	1.20 124.022	1.20 124.122
	1 NC, 1 NC, 1 lamp socket	●	●	●	11 / 12, X1 / X2, 21 / 22	1.20 124.023	1.20 124.123
	1 NO, 1 NO, 1 lamp socket	●	●	●	13 / 14, X1 / X2, 23 / 24	1.20 124.024	1.20 124.124
	1 NO, 1 NC, 1 lamp socket	●	●	●	13 / 14, X1 / X2, 21 / 22	1.20 124.025	1.20 124.125

RAFIX 22 QR contact blocks without coupling, screw terminals*

	Version	Switching symbol	Order no. silver 250 V	Order no. gold 42 V	Accessory
Example: **1 NC contact, silver, 250 V**	1 NC contact	.1 / .2	5.00 100.139	5.00 100.164	Coupling 5.05 510.935
	1 NO contact	.3 / .4	5.00 100.140	5.00 100.165	

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22

RAFIX 22QR contact blocks complete with coupling, screw terminals

Example: **1 NC contact + 1 NO contact, gold, 42 V**	Version	Reference no. on coupling			Switching symbol	Order no. silver 250 V	Order no. gold 42 V
		1/2	5/6	3/4			
	1 NC + 1 NO	●				1.20 124.017	1.20 124.117
	2 NC contacts			●		1.20 124.019	1.20 124.119
	2 NO contacts	●				1.20 124.020	1.20 124.120
	1 NC + 1 NO, 1 NC + 1 NO	●		●		1.20 124.018	1.20 124.118

RAFIX 22QR contact blocks and lamp sockets complete with coupling, screw terminals

Example: **1 NC contact, 1 NO contact, 1 lamp socket, 1 NC contact, 1 NO contact, silver, 250 V**	Version	Reference no. on coupling			Switching symbol	Order no. silver 250 V	Order no. gold 42 V
		1/2	5/6	3/4			
	1 NC + 1 NO, 1 lamp socket	●	●			1.20 124.027	1.20 124.127
	2 NC contacts, 1 lamp socket		●	●		1.20 124.029	1.20 124.129
	2 NO contacts, 1 lamp socket	●	●			1.20 124.030	1.20 124.130
	1 NC + 1 NO, 1 NC + NO, 1 lamp socket	●	●	●		1.20 124.028	1.20 124.128

RAFIX 22QR contact blocks without coupling, screw terminals*
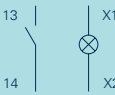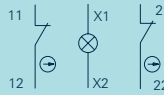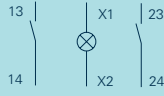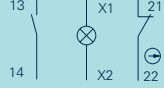
Example: **2 NC contacts, silver, 250 V**	Version	Switching symbol	Order no. silver 250 V	Order no. gold 42 V	Accessory
	1 NC + 1 NO		5.00 100.143	5.00 100.163	
	2 NO contacts		5.00 100.142	5.00 100.162	Coupling 5.05 510.936
	2 NC contacts		5.00 100.141	5.00 100.161	

* For lamp sockets, see page 21

23

RAFIX 22QR contact blocks complete with coupling, cage clamp terminals

Example:
1 NC contact, gold, 42 V

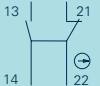| Version	Reference no. on coupling			Switching symbol	Order no. silver 250 V	Order no. gold 42 V
	1	3	2			
1 NC contact			●	21 / 22	1.20 125.001	1.20 125.101
1 NO contact	●			13 / 14	1.20 125.002	1.20 125.102
1 NC, 1 NC	●		●	11 12 / 21 22	1.20 125.003	1.20 125.103
1 NO, 1 NO	●		●	13 14 / 23 24	1.20 125.004	1.20 125.104
1 NO, 1 NC	●		●	13 14 / 21 22	1.20 125.005	1.20 125.105

RAFIX 22QR contact blocks and lamp sockets complete with coupling, cage clamp terminals

Example:
1 NC contact, 1 NO contact, 1 lamp socket, 1 NC contact, 1 NO contact, silver, 250 V

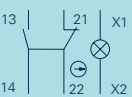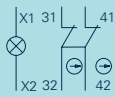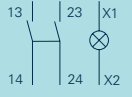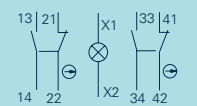| Version	Reference no. on coupling			Switching symbol	Order no. silver 250 V	Order no. gold 42 V
	1	3	2			
1 NC contact, 1 lamp socket BA 9 s		●	●	X1 21 / X2 22	1.20 125.021	1.20 125.121
1 NO contact, 1 lamp socket BA 9 s	●	●		13 14 / X1 X2	1.20 125.022	1.20 125.122
1 NC, 1 NC, 1 lamp socket	●	●	●	11 12 / X1 X2 / 21 22	1.20 125.023	1.20 125.123
1 NO, 1 NO, 1 lamp socket	●	●	●	13 14 / X1 X2 / 23 24	1.20 125.024	1.20 125.124
1 NO, 1 NC, 1 lamp socket	●	●	●	13 14 / X1 X2 / 21 22	1.20 125.025	1.20 125.125

RAFIX 22QR contact blocks without coupling, cage clamp terminals

Example:
1 NC contact, silver, 250 V

Version	Switching symbol	Order no. silver 250 V	Order no. gold 42 V	Accessory
1 NC contact	.1 / .2	5.00 100.144	5.00 100.159	Coupling 5.05 510.935
1 NO contact	.3 / .4	5.00 100.145	5.00 100.160	

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24

RAFIX 22 QR lamp sockets complete with coupling, cage clamp terminals

(1)	Version	Switching symbol	Order no.
	Lamp socket BA 9 s 250 V / 2 W	X1 ⊗ X2	1.71 214.001

RAFIX 22 QR lamp sockets without coupling, cage clamp terminals

(2)	Version	Switching symbol	Order no.	Accessory
	Lamp socket BA 9 s 250 V / 2 W	X1 ⊗ X2	5.00 070.078	Coupling 5.05 510.935

25

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RAFIX 22QR single parts

	Designation	Order no.	Colour no.
(1) ○ collar	Housing for pushbutton Flush pushbutton, momentary	1.30 240.601	–
(2) □ collar	Housing for pushbutton Flush pushbutton, momentary	1.30 240.602	–
(3)	Metal front ring	5.45 638.015 / 6030	–
(4)	Plastic front ring	5.45 639.020 / Colour no.	/01 black /03 red /04 yellow /05 green /06 blue /07 slate grey /08 silver
(5)	Transparent lens with diffuser (for illuminated pushbuttons) Please order legend inserts separately (see next page)	For flush pushbutton 5.04 926.008 / Colour no.	/10 colourless /13 red /14 yellow /15 green /16 blue
(6)	Opaque lens (for non-illuminated pushbuttons)	5.49 263.014 / Colour no.	/01 black /02 white /03 red /04 yellow /05 green /06 blue / 07 slate grey

RAFIX 22QR label holders

	Designation	Order no.
(1)	RAFIX 22QR label holder (with adhesive tape and cover foil on rear)	5.07 620.010
(2)	RAFIX 22QR label holder (with adhesive tape and cover foil on rear)	5.07 620.011

RAFIX 22QR legend label

	Designation	Legend	Order no.
ON OFF	Legend label to clip into label holder, 0.8 mm thick Front side: brushed silver finish Rear side: mat black Legend: on front side according to DIN 1451 black Background colour: mat silver Type size: 3.5 mm	Blank (with cover foil)	5.73 110.000
		ON	5.73 110.004
		OFF	5.73 110.005
		HAND AUTO	5.73 110.021
		AUTO HAND	5.73 110.022
		HAND 0 AUTO	5.73 110.023
		0 I	5.73 110.026
		I 0 II	5.73 110.027
		ON OFF	5.73 110.028
		OFF ON	5.73 110.029

RAFIX 22QR legend inserts for illuminated pushbuttons and signal indicators
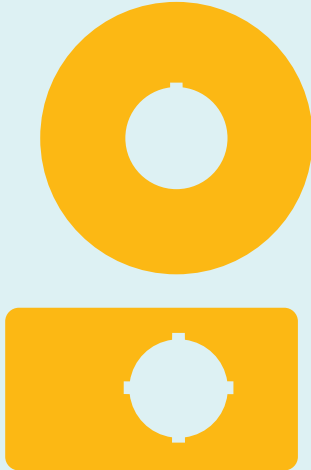
Legend Black letters on white background	Order no. for flush pushbutton and indicator	Order no. for protruding pushbutton
Blank	5.70 800.000 / 2000	5.70 802.000 / 2000
DOWN	5.70 800.001 / 0200	5.70 802.001 / 0200
UP	5.70 800.002 / 0200	5.70 802.002 / 0200
ON	5.70 800.003 / 0200	5.70 802.003 / 0200
OFF	5.70 800.004 / 0200	5.70 802.004 / 0200
START	5.70 800.006 / 0200	5.70 802.006 / 0200
STOP	5.70 800.007 / 0200	5.70 802.007 / 0200
I	5.70 800.010 / 0200	5.70 802.010 / 0200
+	5.70 800.017 / 0200	5.70 802.017 / 0200
-	5.70 800.018 / 0200	5.70 802.018 / 0200
->	5.70 800.019 / 0200	5.70 802.019 / 0200
OPERATION	5.70 800.020 / 0200	5.70 802.020 / 0200
FAULT	5.70 800.033 / 0200	5.70 802.033 / 0200
0	5.70 800.034 / 0200	5.70 802.034 / 0200

Special legends according to your specifications can be made for you by engraving or printing techniques.

We require the following information from you:
1. Legend (text or symbol)
2. Type size
3. Line thickness
4. Legend colour / background colour
5. Assembling axis (mounting position)
6. Sketch / drawing or sample

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RAFIX 22QR emergency stop label plates

Description	Plate shape	Order no.	Legending	
			Front side	Back side
Ø 60 mm, RAL 1003 yellow hard PVC 1 mm degree of protection: IP40	round	5.76 207.001 5.76 207.002	NOT-AUS EMERGENCY-STOP	– ARRÊT-D'URGENCE
Ø 60 mm, RAL 1004 yellow made of PVC foil (adhesive) degree of protection: IP65	round	5.76 204.100 5.76 204.101 5.76 204.103 5.76 204.102	– NOT-AUS EMERGENCY-STOP ARRÊT-D'URGENCE	– – – –
RAL 1004 yellow made of PVC foil (adhesive) degree of protection: IP65	square 36 x 64 mm	5.76 205.011	–	–

RAFIX 22QR lamps, BA 9s

	Rated voltage	Order no.	Lamp extractor order no.
(1) Filament lamp	6 – 7 V 12 – 15 V 24 – 30 V 110 – 130 V	1.90 060.131 1.90 060.132 1.90 060.133 1.90 060.137	1.90 900.007 1.90 900.007 1.90 900.007 1.90 900.007
(2) Neon lamp	220 V ~ (red) 220 V ~ (green)	1.90 560.102 1.90 560.104	1.90 900.007 1.90 900.007

RAFIX 22QR multi-chip LED, BA 9s

	24V DC +– 10%	Order no.	Lamp extractor order no.
(3)	LED red LED green LED yellow LED blue LED white	1.90 690.341 1.90 690.342 1.90 690.343 1.90 690.344 1.90 690.345	1.90 900.007 1.90 900.007 1.90 900.007 1.90 900.007 1.90 900.007

RAFIX 22 QR accessories

	Designation	Order no.
(1) □ collar		
	RAFIX 22 QR blanking cap Fixing method: Ring nut Degree of protection: IP 65	5.05 800.065
(2) ○ collar		
	RAFIX 22 QR blanking cap Fixing method: Ring nut Degree of protection: IP 65	5.05 800.064
(3)		
	Fixing spanner for ring nut and for mounting of front rings	5.05 800.062
(4)		
	Lamp tester This tester allows you to perform a lamp test on the complete panel, i.e. one press of a button activates all lamps installed. One lamp tester required for each light / lamp.	5.03 771.678

RAFIX 22 QR couplings

	Marked with reference numbers	Order no.
(5)		
	1 – 3 – 2	5.05 510.935
(6)		
	1/2 – 5/6 – 3/4	5.05 510.936

RAFIX 22 QR accessories

	Designation	Order no.
(7)		
	Ring nut	5.24 279.012
(8)		
	Ring nut with claw (for mounting holes without locating indent, with guide groove for aligning the actuators behind the front panel)	5.02 420.001
(9)		
	Marking tag (only for contact blocks / lamp sockets with screw terminals)	5.40 010.131

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Order Number Guide

Order no.	Page	Order no.	Page	Order no.	Page	Order no.	Page	Order no.	Page
		1.20 125.001	24	1.30 240.172	12	1.30 242.001	14	1.30 242.427	14
1.20 124.001	8	1.20 125.002	24	1.30 240.173	12	1.30 242.002	14	1.30 242.436	14
1.20 124.001	9	1.20 125.003	24	1.30 240.174	12	1.30 242.011	14	1.30 242.437	14
1.20 124.001	22	1.20 125.004	24	1.30 240.201	11	1.30 242.012	14	1.30 242.476	14
1.20 124.002	8	1.20 125.005	24	1.30 240.202	11	1.30 242.026	14	1.30 242.477	14
1.20 124.002	9	1.20 125.021	24	1.30 240.211	11	1.30 242.027	14	1.30 242.486	14
1.20 124.002	22	1.20 125.022	24	1.30 240.221	8	1.30 242.036	14	1.30 242.487	14
1.20 124.003	22	1.20 125.023	24	1.30 240.221	10	1.30 242.037	14	1.30 242.501	15
1.20 124.004	9	1.20 125.024	24	1.30 240.222	10	1.30 242.051	14	1.30 242.502	15
1.20 124.004	22	1.20 125.025	24	1.30 240.231	10	1.30 242.052	14	1.30 242.511	15
1.20 124.005	22	1.20 125.101	24	1.30 240.251	11	1.30 242.061	14	1.30 242.512	15
1.20 124.017	8	1.20 125.102	24	1.30 240.252	11	1.30 242.062	14	1.30 242.526	15
1.20 124.017	9	1.20 125.103	24	1.30 240.261	11	1.30 242.076	14	1.30 242.527	9
1.20 124.017	23	1.20 125.104	24	1.30 240.271	10	1.30 242.077	14	1.30 242.527	15
1.20 124.018	9	1.20 125.105	24	1.30 240.272	10	1.30 242.086	14	1.30 242.536	15
1.20 124.018	23	1.20 125.121	24	1.30 240.281	10	1.30 242.087	14	1.30 242.537	15
1.20 124.019	23	1.20 125.122	24	1.30 240.301	13	1.30 242.101	14	1.30 242.551	15
1.20 124.020	23	1.20 125.123	24	1.30 240.302	13	1.30 242.102	14	1.30 242.552	15
1.20 124.021	8	1.20 125.124	24	1.30 240.303	13	1.30 242.111	14	1.30 242.561	15
1.20 124.021	22	1.20 125.125	24	1.30 240.304	13	1.30 242.112	14	1.30 242.562	15
1.20 124.022	8	1.30 240.001	11	1.30 240.311	13	1.30 242.126	14	1.30 242.576	15
1.20 124.022	22	1.30 240.003	11	1.30 240.321	8	1.30 242.127	14	1.30 242.577	15
1.20 124.023	22	1.30 240.011	11	1.30 240.321	12	1.30 242.136	14	1.30 242.586	15
1.20 124.024	22	1.30 240.021	8	1.30 240.322	8	1.30 242.137	14	1.30 242.587	15
1.20 124.025	22	1.30 240.021	10	1.30 240.322	12	1.30 242.151	14	1.30 242.601	15
1.20 124.027	8	1.30 240.023	10	1.30 240.323	12	1.30 242.152	14	1.30 242.602	15
1.20 124.027	23	1.30 240.031	10	1.30 240.324	12	1.30 242.161	14	1.30 242.611	15
1.20 124.028	23	1.30 240.051	11	1.30 240.331	12	1.30 242.162	14	1.30 242.612	15
1.20 124.029	23	1.30 240.053	11	1.30 240.351	13	1.30 242.176	14	1.30 242.626	15
1.20 124.030	23	1.30 240.061	11	1.30 240.352	13	1.30 242.177	14	1.30 242.627	15
1.20 124.101	22	1.30 240.071	10	1.30 240.353	13	1.30 242.187	14	1.30 242.636	15
1.20 124.102	22	1.30 240.073	10	1.30 240.354	13	1.30 242.201	14	1.30 242.637	15
1.20 124.103	22	1.30 240.081	10	1.30 240.361	13	1.30 242.202	14	1.30 242.651	15
1.20 124.104	22	1.30 240.101	13	1.30 240.371	12	1.30 242.211	14	1.30 242.652	15
1.20 124.105	22	1.30 240.102	13	1.30 240.372	12	1.30 242.212	14	1.30 242.661	15
1.20 124.117	23	1.30 240.103	13	1.30 240.373	12	1.30 242.251	14	1.30 242.662	15
1.20 124.118	23	1.30 240.104	13	1.30 240.374	12	1.30 242.252	14	1.30 242.676	15
1.20 124.119	23	1.30 240.121	8	1.30 240.381	12	1.30 242.261	14	1.30 242.677	15
1.20 124.120	23	1.30 240.121	12	1.30 240.401	11	1.30 242.262	14	1.30 242.686	15
1.20 124.121	22	1.30 240.122	12	1.30 240.421	10	1.30 242.301	14	1.30 242.687	15
1.20 124.122	22	1.30 240.123	8	1.30 240.451	11	1.30 242.302	14	1.30 242.701	15
1.20 124.123	22	1.30 240.123	12	1.30 240.471	10	1.30 242.311	14	1.30 242.702	9
1.20 124.124	22	1.30 240.124	12	1.30 240.501	13	1.30 242.312	14	1.30 242.702	15
1.20 124.125	22	1.30 240.151	13	1.30 240.521	12	1.30 242.351	14	1.30 242.711	15
1.20 124.127	23	1.30 240.152	13	1.30 240.551	13	1.30 242.352	14	1.30 242.712	15
1.20 124.128	23	1.30 240.153	13	1.30 240.571	12	1.30 242.361	14	1.30 242.751	15
1.20 124.129	23	1.30 240.154	13	1.30 240.601	26	1.30 242.362	14	1.30 242.752	15
1.20 124.130	23	1.30 240.171	12	1.30 240.602	26	1.30 242.426	14	1.30 242.761	15

Part	Pg	Part	Pg	Part	Pg	Part	Pg	Part	Pg
1.30 242.762	15	1.30 245.352	16	1.30 246.651	18	5.05 510.935	29	5.73 110.004	27
1.30 242.801	15	1.30 245.361	17	1.30 246.652	18	5.05 510.936	23	5.73 110.005	27
1.30 242.802	9	1.30 245.362	16	1.71 213.001	9	5.05 510.936	29	5.73 110.021	27
1.30 242.802	15	1.30 245.371	17	1.71 213.001	21	5.05 800.062	29	5.73 110.022	27
1.30 242.811	15	1.30 245.372	16	1.71 213.002	9	5.05 800.064	29	5.73 110.023	27
1.30 242.812	15	1.30 245.401	17	1.71 213.004	21	5.05 800.065	29	5.73 110.026	27
1.30 242.851	15	1.30 245.402	16	1.71 214.001	25	5.07 620.010	27	5.73 110.027	27
1.30 242.852	15	1.30 245.411	17	1.74 505.001	20	5.07 620.011	27	5.73 110.028	27
1.30 242.861	15	1.30 245.412	16	1.74 505.051	20	5.24 279.012	29	5.73 110.029	27
1.30 242.862	15	1.30 245.421	17	1.74 505.501	9	5.40 010.131	29	5.76 204.100	28
1.30 242.926	15	1.30 245.422	16	1.74 505.501	20	5.45 638.015	26	5.76 204.101	28
1.30 242.927	15	1.30 245.431	17	1.74 505.551	20	5.45 639.020	26	5.76 204.102	28
1.30 242.936	15	1.30 245.432	16	1.90 060.131	28	5.49 263.014	26	5.76 204.103	28
1.30 242.937	15	1.30 245.451	17	1.90 060.132	28	5.70 800.000	27	5.76 205.011	28
1.30 242.976	15	1.30 245.452	16	1.90 060.133	28	5.70 800.001	27	5.76 207.001	28
1.30 242.977	15	1.30 245.461	17	1.90 060.137	28	5.70 800.002	27	5.76 207.002	28
1.30 242.986	15	1.30 245.462	16	1.90 560.102	28	5.70 800.003	27	9.20 124.001	8
1.30 242.987	15	1.30 245.471	17	1.90 560.104	28	5.70 800.004	27	9.20 124.002	8
1.30 243.001	19	1.30 245.472	16	1.90 690.341	28	5.70 800.006	27	9.20 124.003	8
1.30 243.501	9	1.30 245.481	17	1.90 690.342	28	5.70 800.007	27	9.20 124.004	8
1.30 243.501	17	1.30 245.482	16	1.90 690.343	28	5.70 800.010	27	9.20 124.005	8
1.30 245.002	16	1.30 245.501	17	1.90 690.344	28	5.70 800.017	27	9.20 124.006	8
1.30 245.051	17	1.30 245.502	16	1.90 690.345	28	5.70 800.018	27	9.20 124.007	8
1.30 245.052	16	1.30 245.511	17	1.90 900.007	28	5.70 800.019	27	9.20 124.008	8
1.30 245.101	17	1.30 245.512	16	5.00 070.074	21	5.70 800.020	27	9.20 124.010	8
1.30 245.102	16	1.30 245.521	17	5.00 070.078	25	5.70 800.033	27	9.20 124.011	8
1.30 245.151	17	1.30 245.522	16	5.00 070.080	21	5.70 800.034	27	9.20 124.012	8
1.30 245.152	16	1.30 245.551	17	5.00 100.139	22	5.70 802.000	27	9.20 124.013	8
1.30 245.201	17	1.30 245.552	16	5.00 100.140	22	5.70 802.001	27	9.20 124.020	9
1.30 245.202	16	1.30 245.561	17	5.00 100.141	23	5.70 802.002	27	9.20 124.021	9
1.30 245.211	17	1.30 245.562	16	5.00 100.142	23	5.70 802.003	27	9.20 124.022	9
1.30 245.212	16	1.30 245.571	17	5.00 100.143	23	5.70 802.004	27	9.20 124.023	9
1.30 245.221	17	1.30 245.572	16	5.00 100.144	24	5.70 802.006	27	9.20 124.024	9
1.30 245.222	16	1.30 245.731	17	5.00 100.145	24	5.70 802.007	27	9.20 124.025	9
1.30 245.251	17	1.30 245.732	16	5.00 100.159	24	5.70 802.010	27	9.20 124.030	9
1.30 245.252	16	1.30 245.781	17	5.00 100.160	24	5.70 802.017	27	9.20 124.031	9
1.30 245.261	17	1.30 245.782	16	5.00 100.161	23	5.70 802.018	27	9.20 124.040	9
1.30 245.262	16	1.30 246.501	18	5.00 100.162	23	5.70 802.019	27	9.20 124.041	9
1.30 245.271	17	1.30 246.502	9	5.00 100.163	23	5.70 802.020	27	9.20 124.050	9
1.30 245.272	16	1.30 246.502	18	5.00 100.164	22	5.70 802.033	27	9.20 124.051	9
1.30 245.301	17	1.30 246.511	18	5.00 100.165	22	5.70 802.034	27	9.71 213.001	9
1.30 245.302	16	1.30 246.512	18	5.02 420.001	29	5.73 110.000	27	9.71 213.002	9
1.30 245.311	17	1.30 246.551	18	5.03 771.678	29				
1.30 245.312	16	1.30 246.552	18	5.04 926.008	26				
1.30 245.321	17	1.30 246.561	18	5.05 510.935	21				
1.30 245.322	9	1.30 246.562	18	5.05 510.935	22				
1.30 245.322	16	1.30 246.601	18	5.05 510.935	24				
1.30 245.351	17	1.30 246.602	18	5.05 510.935	25				

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