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1SFC15111C0201

# ABB – A sure hit in pilot devices

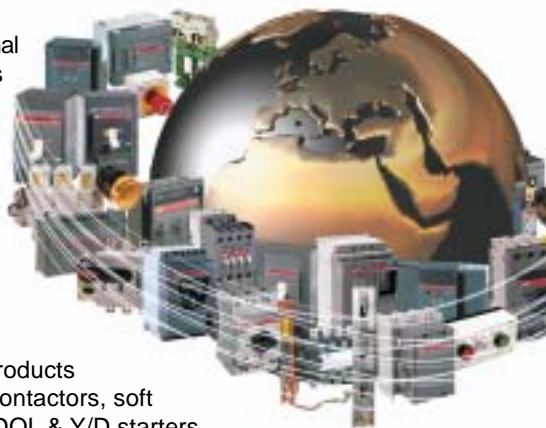


## Part of comprehensive ABB program

The ABB Pilot Devices are part of the comprehensive ABB program of high quality Low Voltage Products and Systems for buildings, industries and OEM's. Much of this is sold through external channel partners such as distributors, system integrators and panel builders. Our products meet all essential national

and international standards such as IEC, EN, UL, CSA, CCC etc.

ABB offers a modern range of Control products such as contactors, soft starters, DOL & Y/D starters and a wider range of electronic relays, switches and sensors.



## Pilot Devices

ABB offers a complete range of 22 mm pushbuttons, emergency stops, selector switches and signalling units. These are complemented with enclosures and a wide range of accessories.

The main advantage is the robustness and the fast and easy installation ensuring cost efficiency for our customers. The ABB Pilot Devices are suitable for all types of industrial environments, indoor as well as outdoor. Other sectors of common usage include trucks, buses, trains and official buildings.

## Complete range

The ABB Pilot Device family is divided into two ranges; the **Modular** range includes operators, holders, contact blocks and accessories that can be combined with high flexibility. The **Compact** range has all functions built-in in one single unit.

## Modular pilot devices

The Modular range is extensive and well known all around the world for its flexibility and robustness. By combining a few basic components a large number of different devices can be acquired.

The Modular range includes pushbuttons, mushroom buttons, selector switches and emergency stops. Non-illuminated or illuminated. Further on we offer pilot lights with filament bulbs or LEDs. Buzzers, potentiometers, toggle switches, reset buttons and special definite purpose buttons (30 mm) complete the range.

The main benefits are:

- Made for tough environments
- Large text and push area
- Up to six contact blocks on one actuator
- Easy to mount and to wire

## Compact pilot devices

The exciting new family of Compact pilot devices is establishing new standards of performance. No matter what your application, the new range will improve your product and streamline your cost.

The all-in-one design makes everything easier; the entire functionality is condensed into one unit. You never need to match items together and each item has a single ordering number.

The Compact range includes pushbuttons, selector switches, emergency stops and pilot lights. These work in perfect harmony with the extensive Modular range since the front design is identical.

The main benefits are:

- Robust design
- Fast mounting
- Built in LED as an option
- Reduced stock keeping
- Low built-in depth

**22 mm or 30 mm** Both ranges for 22 mm can be used in 30 mm mounting holes (1.5 - 4 mm panels) by combining the pilot device with a 30 mm adaptor.



### Emergency stop devices

In the Modular range the Emergency stop pushbuttons from ABB were in the front line to pass the tough tests required to fulfil the standard IEC 60 947-5-5.

The product standard for electrical emergency stop devices with mechanical latching function, IEC 60 947-5-5, verifies the demands from Machine Directive and its reference standard EN 60204 (Safety of machinery).

Now we also can offer Emergency stop devices in our Compact range.



### Signal Towers and Signal Beacons

A wide range of signal devices with optical and audible signal elements.

For Signal Towers up to five elements can be used. With bracket for 2-sided mounting up to ten elements can be mounted.

### Assembled stations and enclosures

There are assembled stations of two types: In plastic enclosures and in metallic enclosures. Both types of enclosures are available in 1-, 2-, 3-, 4- or 6-seat.



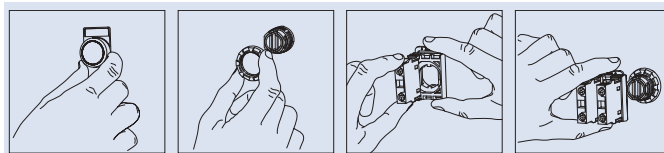
### Accessories

There is a wide assortment of accessories including legend plates, bulbs/LEDs, special blocks, different shrouds and adaptors.



### Fast and easy to install

All pilot devices are easy to install. Spring-loaded tabs ensure that actuators and legend plates are in correct position. Same actuator can be used in both notched and round holes.



### Aesthetic – Functional – Flexible

- The pilot devices have an aesthetic and functional design
  - Tight, withstanding even the toughest environment.
  - No additional protective boot is needed.
- Large text and push area, clear and visible markings for quick and easy handling.
- Different choices of bezels - black plastic or metal. Grey plastic as accessory.
- Contacts are provided with wiping action. The tips of the contacts rub against each other each time the contacts close, thus forcing dust and oxide to the side. The NC block has positive opening for high performance in safety circuits.

### Worldwide availability

ABB is represented in over 130 countries. Our pilot devices meets all major international and national standards.











*The assortment in this catalogue is a selection of the complete product range of our Pilot Devices. For an overview – please see page 4.*

# Pilot Devices

## Overview

### Pilot Devices, Modular range (Assortment presented in this catalogue)

			
<b>Pushbuttons</b> Flush button      Extended button Momentary or      Momentary or Maintained          Maintained <i>Non-illuminated (see page 6)</i> <b>illuminated (see page 7)</b>		<b>Double pushbuttons</b> <i>Non-illuminated (see page 6)</i> Two buttons mounted in one hole. Green upper button, red lower button <b>illuminated (see page 7)</b> Two buttons plus one pilot light mounted in one hole. Green upper button, red lower button	
			
<b>Selector switches</b> 2-position      3-position Maintained      Maintained <i>Non-illuminated (see page 9)</i> <b>illuminated (see page 9)</b>		<b>Pilot light</b> <b>illuminated (see page 10)</b>	
			
<b>Key-operated selector switches</b> 2-position      3-position Maintained      Maintained <i>Non-illuminated (see page 9)</i>		<b>Emergency stop pushbuttons</b> Ø 40 mm      Ø 40 mm Twist release      Pull release <i>Non-illuminated (see page 8)</i> <b>illuminated (see page 8)</b>	
			
<b>Buzzer</b> <i>Non-illuminated (see page 10)</i>		<b>Potentiometer/Resistor</b> <i>Non-illuminated (see page 10)</i>	

### Pilot Devices, Compact Range (The complete range is presented in this catalogue)

							
<b>Pushbuttons</b> Flush button      Extended button Momentary or      Momentary or Maintained          Maintained <i>Non-illuminated (see page 11)</i>		<b>Emergency stop pushbuttons</b> Ø 30 mm      Ø 30 mm      Ø 30 mm      Ø 40 mm      Ø 40 mm      Ø 40 mm Twist release      Pull release      Key release      Twist release      Pull release      Key release <i>Non-illuminated (see page 12)</i>					
							
<b>Selector switches</b> 2-position      3-position Maintained or      Maintained or Momentary          Momentary <i>Non-illuminated (see page 13)</i>		<b>Pilot light</b> with Ba 9s socket      with integrated <b>illuminated (see page 14)</b> LED <b>illuminated (see page 14)</b>					



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### Ordering details

When ordering please give either the "Type" or the "Order Code"

Where not other is stated Type and Order Code refer to one piece.

The products described in this catalogue can be subject to change (design, dimensions, technical data, etc.) without prior notice.

# Pilot devices – Modular range

## Pushbuttons, non-illuminated



Description Included contact blocks	Type	Order Code	Weight, kg
<b>Pushbutton with flush button</b> Momentary	MP1-10■	1SFA 611 100 R100□	0.016
<b>Contact blocks and holder:</b>			
1 NO	MCBH-10	1SFA 611 605 R1101	0.019
1 NC	MCBH-01	1SFA 611 605 R1110	0.019
1 NO +1 NC	MCBH-11	1SFA 611 605 R1111	0.032
2 NO	MCBH-20	1SFA 611 605 R1102	0.032
2 NC	MCBH-02	1SFA 611 605 R1120	0.032
<b>Pushbutton with extended button</b> Momentary	MP3-10■	1SFA 611 102 R100□	0.016
<b>Contact blocks and holder:</b>			
1 NO	MCBH-10	1SFA 611 605 R1101	0.019
1 NC	MCBH-01	1SFA 611 605 R1110	0.019
1 NO +1 NC	MCBH-11	1SFA 611 605 R1111	0.032
2 NO	MCBH-20	1SFA 611 605 R1102	0.032
2 NC	MCBH-02	1SFA 611 605 R1120	0.032
<b>Double pushbutton</b> Green upper button, Red Lower button No text	MPD1-11B	1SFA 611 130 R1106	0.025
<b>Contact blocks and holder:</b>			
1 NO +1 NC	MCBH-11	1SFA 611 605 R1111	0.032
2 NO	MCBH-20	1SFA 611 605 R1102	0.032
2 NC	MCBH-02	1SFA 611 605 R1120	0.032
<b>Double pushbutton</b> Green upper button, Red Lower button Text: I/O	MPD2-11B	1SFA 611 131 R1106	0.025
<b>Contact blocks and holder:</b>			
1 NO +1 NC	MCBH-11	1SFA 611 605 R1111	0.032
2 NO	MCBH-20	1SFA 611 605 R1102	0.032
2 NC	MCBH-02	1SFA 611 605 R1120	0.032
<b>Mushroom pushbutton</b> (red, yellow or black) Momentary	MPM1-10■	1SFA 611 124 R100□	0.039
<b>Contact blocks and holder:</b>			
1 NO	MCBH-10	1SFA 611 605 R1101	0.019
1 NC	MCBH-01	1SFA 611 605 R1110	0.019
1 NO +1 NC	MCBH-11	1SFA 611 605 R1111	0.032
2 NO	MCBH-20	1SFA 611 605 R1102	0.032

### Codes for button colors

Type	Order Code
■ □	
Red R ● 1	
Green G ● 2	
Yellow Y ● 3	
Blue L ● 4	
White W ○ 5	
Black B ● 6	
Clear <sup>1)</sup> C ○ 8	

1) For use with text cap

### Bezel

Bezel in black plastic as standard

Bezel in metal:

Replace 1 in the:

Type MPX-10X

Order Code 1SFA611XXX R1XXX

3 for metal bezel



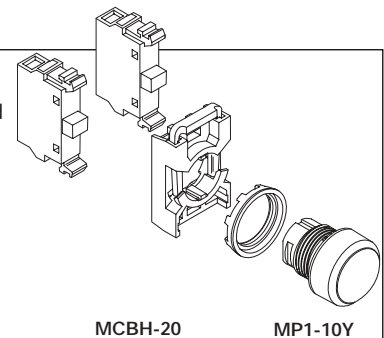
Note: Only black plastic bezel for double pushbutton

### Ordering example

Requested: A non-illuminated pushbutton with flush yellow button and two NO contacts

Order 1 piece of each:

MP1-10Y  
MCBH-20



MCBH-20

MP1-10Y

# Pilot devices – Modular range

## Pushbuttons, illuminated



Description Included contact blocks/lamp block	Type	Order Code	Weight, kg
<b>Pushbutton with flush button</b> Momentary	MP1-11■	1SFA 611 100 R110□	0.016
<b>Contact blocks, lamp block and holder:</b>			
1 NO +1 LB	MCBH-101	1SFA 611 605 R1201	0.034
1 NC +1 LB	MCBH-011	1SFA 611 605 R1210	0.034
1 NO +1 NC +1 LB	MCBH-111	1SFA 611 605 R1211	0.047
2 NO +1 LB	MCBH-201	1SFA 611 605 R1202	0.047
2 NC +1 LB	MCBH-021	1SFA 611 605 R1220	0.047
<b>Pushbutton with extended button</b> Momentary	MP3-11■	1SFA 611 102 R110□	0.016
<b>Contact blocks, lamp block and holder:</b>			
1 NO +1 LB	MCBH-101	1SFA 611 605 R1201	0.034
1 NC +1 LB	MCBH-011	1SFA 611 605 R1210	0.034
1 NO +1 NC +1 LB	MCBH-111	1SFA 611 605 R1211	0.047
2 NO +1 LB	MCBH-201	1SFA 611 605 R1202	0.047
2 NC +1 LB	MCBH-021	1SFA 611 605 R1220	0.047
<b>Double pushbutton</b> <sup>2)</sup> Green upper button, Red Lower button No text	MPD1-11■	1SFA 611 130 R110□	0.025
<b>Contact blocks, lamp block and holder:</b>			
1 NO +1 NC +1 LB	MCBH-111	1SFA 611 605 R1211	0.047
2 NO +1 LB	MCBH-201	1SFA 611 605 R1202	0.047
2 NC +1 LB	MCBH-021	1SFA 611 605 R1220	0.047
<b>Double pushbutton</b> <sup>2)</sup> Green upper button, Red Lower button Text: I/O	MPD2-11■	1SFA 611 131 R110□	0.025
<b>Contact blocks, lamp block and holder:</b>			
1 NO + 1 NC +1 LB	MCBH-111	1SFA 611 605 R1211	0.047
2 NO +1 LB	MCBH-201	1SFA 611 605 R1202	0.047
2 NC +1 LB	MCBH-021	1SFA 611 605 R1220	0.047
<b>Mushroom pushbutton</b> (red or yellow) Momentary	MPM1-11■	1SFA 611 124 R110□	0.039
<b>Contact blocks, lamp block and holder:</b>			
1 NO +1 LB	MCBH-101	1SFA 611 605 R1201	0.034
1 NC +1 LB	MCBH-011	1SFA 611 605 R1210	0.034
1 NO +1 NC +1 LB	MCBH-111	1SFA 611 605 R1211	0.047
2 NO +1 LB	MCBH-201	1SFA 611 605 R1202	0.047
2 NC +1 LB	MCBH-021	1SFA 611 605 R1220	0.047

### Codes for button/lens colors

Type	Order Code
Red <b>R</b> ■	1
Green <b>G</b> ■	2
Yellow <b>Y</b> ■	3
Blue <b>L</b> ■	4
White <b>W</b> ○	5
Clear <sup>1)</sup> <b>U</b> ○	8

<sup>1)</sup>For use with text cap

<sup>2)</sup>Available lens colors; Red, green, yellow and clear

### Bezel

Bezel in black plastic as standard

Bezel in metal:

Replace **1** in the:

Type MPX-**1**1X

Order Code 1SFA611XXX R **1**XXX

**3** for metal bezel



Note: Only black plastic bezel for double pushbutton

### Ordering example

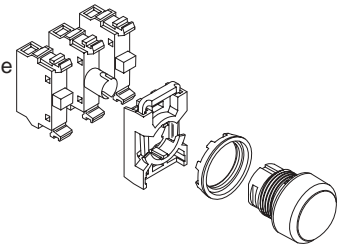
Requested: An illuminated pushbutton with extended blue button and two NO contacts.

Order 1 piece of each:

MP3-11L

MCBH-201

Filament bulb or LED  
(See accessories)



MCBH-201




MP3-11L

# Pilot devices – Modular range

## Emergency stop pushbuttons

Non-illuminated   Illuminated  

Fulfills IEC 60947-5-5

 NO  NC 	Description	Type	Order Code	Weight, kg
	<b>Included contact blocks/lamp block</b>			
	<b>Emergency stop pushbutton, 40 mm (only red) Twist release</b>	<b>MPMT3-10R</b>	1SFA 611 510 R1001	0.041
	<b>Contact blocks and safety holder:</b>			
	1 NO	<b>MCBH-10</b>	1SFA 611 605 R1101	0.019
	1 NC	<b>MCBH-01</b>	1SFA 611 605 R1110	0.019
	1 NO +1 NC	<b>MCBH-11</b>	1SFA 611 605 R1111	0.032
	2 NO	<b>MCBH-20</b>	1SFA 611 605 R1102	0.032
	2 NC	<b>MCBH-02</b>	1SFA 611 605 R1120	0.032
	<b>Emergency stop pushbutton, 40 mm (only red) Pull release</b>	<b>MPMP3-10R</b>	1SFA 611 511 R1001	0.041
	<b>Contact blocks and safety holder:</b>			
	1 NO	<b>MCBH-10</b>	1SFA 611 605 R1101	0.019
	1 NC	<b>MCBH-01</b>	1SFA 611 605 R1110	0.019
	1 NO +1 NC	<b>MCBH-11</b>	1SFA 611 605 R1111	0.032
	2 NO	<b>MCBH-20</b>	1SFA 611 605 R1102	0.032
	2 NC	<b>MCBH-02</b>	1SFA 611 605 R1120	0.032
	<b>Illuminated emergency stop pushbutton, 40 mm (only red) Twist release</b>	<b>MPMT3-11R</b>	1SFA 611 510 R1101	0.041
	<b>Contact blocks, lamp block and safety holder:</b>			
	1 NO +1 LB	<b>MCBH-101</b>	1SFA 611 605 R1201	0.034
	1 NC +1 LB	<b>MCBH-011</b>	1SFA 611 605 R1210	0.034
	1 NO +1 NC +1 LB	<b>MCBH-111</b>	1SFA 611 605 R1211	0.047
	2 NO +1 LB	<b>MCBH-201</b>	1SFA 611 605 R1202	0.047
	2 NC +1 LB	<b>MCBH-021</b>	1SFA 611 605 R1220	0.047
	<b>Illuminated emergency stop pushbutton, 40 mm (only red) Pull release</b>	<b>MPMP3-11R</b>	1SFA 611 511 R1101	0.041
	<b>Contact blocks, lamp block and safety holder:</b>			
	1 NO +1 LB	<b>MCBH-101</b>	1SFA 611 605 R1201	0.034
	1 NC +1 LB	<b>MCBH-011</b>	1SFA 611 605 R1210	0.034
	1 NO +1 NC +1 LB	<b>MCBH-111</b>	1SFA 611 605 R1211	0.047
	2 NO +1 LB	<b>MCBH-201</b>	1SFA 611 605 R1202	0.047
	2 NC +1 LB	<b>MCBH-021</b>	1SFA 611 605 R1220	0.047

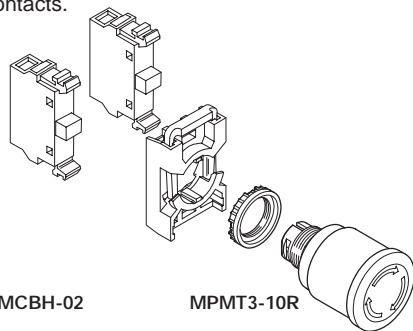
### Ordering example – Emergency stop pushbutton

Requested: A non-illuminated emergency stop pushbutton, twist release, with two NC contacts.

Order 1 piece of each:

MPMT3-10R

MCBH-02





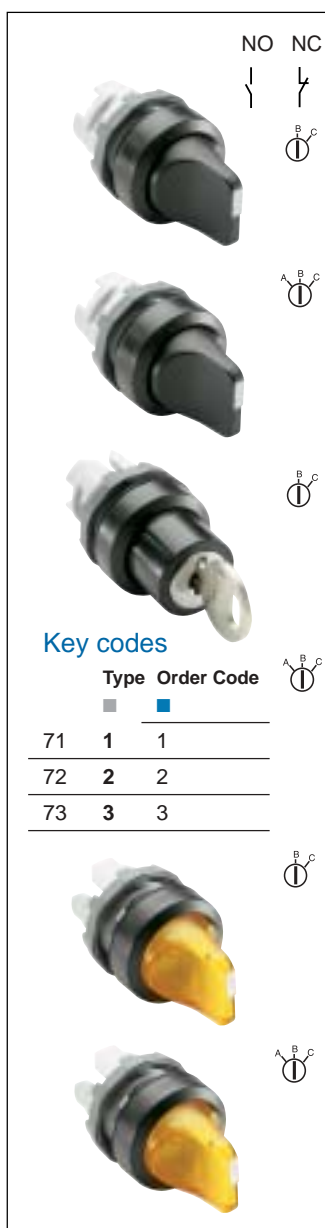
# Pilot devices – Modular range

## Selector switches

Non-illuminated

Illuminated

Modular range



### Key codes

Type	Order Code
■	■
71	1 1
72	2 2
73	3 3

Description Included contact blocks/lamp block	Type	Order Code	Weight, kg
<b>Selector switch, short handle.</b> Two position Maintained <b>Contact blocks and holder:</b> 1 NO 1 NC 1 NO +1 NC 2 NO 2 NC	M2SS1-10■	1SFA 611 200 R100□	0.024
<b>Selector switch, short handle.</b> Three position Maintained <b>Contact blocks and holder:</b> 1 NO 1 NC 1 NO +1 NC 2 NO 2 NC	M3SS1-10■	1SFA 611 210 R100□	0.024
<b>Key-operated selector switch.</b> Two position Key removable in both positions <b>Contact blocks and holder:</b> 1 NO +1 NC 2 NO 2 NC	M2SSK1-10■	1SFA 611 280 R100■	0.069
<b>Key-operated selector switch.</b> Three position Key removeable in all positions <b>Contact blocks and holder:</b> 1 NO +1 NC 2 NO 2 NC	M3SSK1-10■	1SFA 611 283 R100■	0.069
<b>Illuminated selector switch, short handle.</b> Two positions Maintained <b>Contact blocks, lamp block and holder:</b> 1 NO +1 LB 1 NC +1 LB 1 NO +1 NC +1 LB 2 NO +1 LB 2 NC +1 LB	M2SS1-11■	1SFA 611 200 R110□	0.024
<b>Illuminated selector switch, short handle.</b> Three positions Maintained <b>Contact blocks, lamp block and holder:</b> 1 NO +1 LB 1 NC +1 LB 1 NO +1 NC +1 LB 2 NO +1 LB 2 NC +1 LB	M3SS1-11■	1SFA 611 210 R110□	0.024

### Color codes for non-illuminated selector switches

Type	Order Code
■	□
Black B ●	6
Red R ●	1
Grey U ●	7

### Color codes for illuminated selector switches

Type	Order Code
■	□
Red R ●	1
Green G ●	2
Yellow Y ●	3
Blue L ●	4
White W ○	5
Clear C ○	8

### Bezel

Bezel in black plastic as standard

Bezel in metal:

Replace [1] in the:  
Type MXSS1[1]X  
Order Code 1SFA611XXX R[1]XXX  
[3] for metal bezel

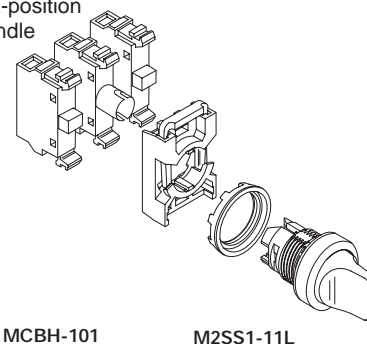
### Ordering example – Selector switches

Requested: An illuminated 2-position selector switch with blue handle and two NO contact.

Order 1 piece of each:

M2SS1-11L  
MCBH-101

Filament bulb or LED,  
(See accessories)



MCBH-101

M2SS1-11L

# Pilot devices – Modular range

## Pilot light, buzzer and potentiometer



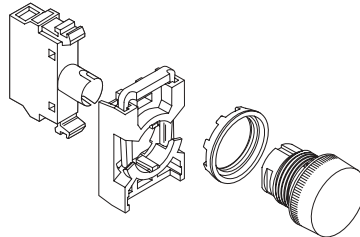
Description/Supply voltage	Type	Order Code	Weight, kg
<b>Pilot light head</b>	ML1-100■	1SFA 611 400 R100■	0.018
<b>Lamp block with holder:</b> For max. 2 W, 230 V AC and DC filament bulb or LED	MCBH-001	1SFA 611 605 R1200	0.021
115 V AC supply voltage. For 60 V filament bulb max. 1.2 W	MCBH-002	1SFA 611 605 R1300	0.023
230 V AC supply voltage. For 130 V filament bulb max. 2 W	MCBH-003	1SFA 611 605 R1400	0.026
For a softer light output and 180 degrees smooth light distribution use text cap with or without text..			
<b>Text cap without text</b>	-	1SFA 616 903 R9001	
For increased visibility from far distance use a light diffusing lens.			
<b>Light diffusing lens</b>	KA1-8005	1SFA 616 920 R8005	0.001
Description/Supply voltage	Type	Order Code	Weight, kg
<b>Buzzer</b> Frequency: 2400 Hz Rated current: ≤8 mA Loudness: Min. 80 dB(A)/10 cm <i>Continuous tone type:</i>			
24 V AC/DC	KB1-4010	1SFA 616 401 R4010	0.020
115V AC/DC	KB1-4030	1SFA 616 401 R4030	0.020
230 V AC/DC	KB1-4040	1SFA 616 401 R4040	0.020
<i>Pulsating tone type:</i>			
24 V AC/DC	KB1-4110	1SFA 616 401 R4110	0.020
115V AC/DC	KB1-4130	1SFA 616 401 R4130	0.020
230 V AC/DC	KB1-4140	1SFA 616 401 R4140	0.020
<b>Potentiometer/Resistor</b> Black knob with integrated position indication and marking in white			
5 kohm	KT-105B	1SFA 616 410 R1056	0.034
10 kohm	KT-110B	1SFA 616 410 R1106	0.034
<b>Operating knob - without resistor</b> Black knob with integrated position indication and marking in white. For shaft diameter 6 - 6.35 mm. Min. shaft length 20 mm	KT-100B	1SFA 616 410 R1006	0.023

### Color codes for pilot light head

Type	Order Code
■	□
Red R ● 1	
Green G ● 2	
Yellow Y ● 3	
Blue L ● 4	
White W ○ 5	
Clear U ○ 8	

### Ordering example

Requested: A red pilot light with a red LED.  
Supply voltage 115 V AC  
Order 1 piece of each:  
ML1-100R  
MCBH-001  
KA2-2131 (= LED acc. to page 18)



# Pilot devices - Compact range

## Flush and extended pushbuttons, non-illuminated

Compact range



Description	Type	Order Code	Weight, kg
<b>Pushbutton with flush button</b>			
<b>Momentary</b>			
<u>Contacts included:</u>			
1 NO	CP1-10■-10	1SFA 619 100 R101□	0.018
2 NO	CP1-10■-20	1SFA 619 100 R102□	0.022
1 NC	CP1-10■-01	1SFA 619 100 R104□	0.018
2 NC	CP1-10■-02	1SFA 619 100 R105□	0.022
1 NO +1 NC	CP1-10■-11	1SFA 619 100 R107□	0.022
<b>Maintained</b>			
<u>Contacts included:</u>			
1 NO	CP2-10■-10	1SFA 619 101 R101□	0.018
2 NO	CP2-10■-20	1SFA 619 101 R102□	0.022
1 NC	CP2-10■-01	1SFA 619 101 R104□	0.018
2 NC	CP2-10■-02	1SFA 619 101 R105□	0.022
1 NO +1 NC	CP2-10■-11	1SFA 619 101 R107□	0.022
<b>Pushbutton with extended button</b>			
<b>Momentary</b>			
<u>Contacts included:</u>			
1 NO	CP3-10■-10	1SFA 619 102 R101□	0.019
2 NO	CP3-10■-20	1SFA 619 102 R102□	0.022
1 NC	CP3-10■-01	1SFA 619 102 R104□	0.019
2 NC	CP3-10■-02	1SFA 619 102 R105□	0.022
1 NO +1 NC	CP3-10■-11	1SFA 619 102 R107□	0.022
<b>Maintained</b>			
<u>Contacts included:</u>			
1 NO	CP4-10■-10	1SFA 619 103 R101□	0.019
2 NO	CP4-10■-20	1SFA 619 103 R102□	0.022
1 NC	CP4-10■-01	1SFA 619 103 R104□	0.019
2 NC	CP4-10■-02	1SFA 619 103 R105□	0.022
1 NO +1 NC	CP4-10■-11	1SFA 619 103 R107□	0.022
<b>Pushbutton with flush button</b>			
<b>Momentary</b>			
White button with black I			
<u>Contacts included:</u>			
1 NO	CP11-10W-10	1SFA 619 110 R1015	0.018
<b>Momentary</b>			
White button with black II			
<u>Contacts included:</u>			
1 NO	CP12-10W-10	1SFA 619 120 R1015	0.018
<b>Pushbutton with extended button</b>			
<b>Momentary</b>			
Black button with white O			
<u>Contacts included:</u>			
1NC	CP33-10B-01	1SFA 619 132 R1046	0.018

### Codes for button colors

Type	Order Code
■	□
Red R ●	1
Green G ●	2
Yellow Y ●	3
Blue L ●	4
White W ○	5
Black B ●	6
Grey U ●	7

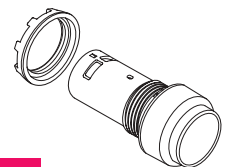
### Bezel

Bezel in black plastic as standard  
 Bezel in metal:  
 Replace 1 in the:  
 Type CPX-10X  
 Order Code 1SFA619XXX R1XXX  
 3 for metal bezel

### Ordering example – Compact pushbutton

Requested: A compact pushbutton, momentary, with red extended button and one NO contact.

Order: 10 pieces of CP3-10R-10



**Minimum order quantity: 10 pieces**  
**Packing: 10 pieces/plastic bag,**  
**10 bags/box**

# Pilot devices - Compact range

## Emergency stop pushbutton, non-illuminated

Fulfills IEC 60947-5-5



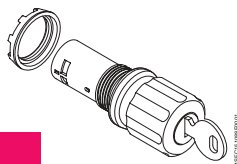
Description	Color	Type	Order Code	Weight, kg
<b>Emergency stop pushbutton, Ø 30 mm</b>				
<b>Twist release</b>	Red			
<u>Contacts included:</u>				
1 NC		CE3T-10R-01	1SFA 619 500 R1041	0.032
2 NO		CE3T-10R-20	1SFA 619 500 R1021	0.032
2 NC		CE3T-10R-02	1SFA 619 500 R1051	0.032
1 NO +1 NC		CE3T-10R-11	1SFA 619 500 R1071	0.032
<b>Pull release</b>	Red			
<u>Contacts included:</u>				
2 NC		CE3P-10R-02	1SFA 619 501 R1051	0.032
1 NO +1 NC		CE3P-10R-11	1SFA 619 501 R1071	0.032
<b>Key release</b>	Red			
(Key code 71, Ronis 455)				
<u>Contacts included:</u>				
2 NC		CE3K1-10R-02	1SFA 619 502 R1051	0.060
1 NO +1 NC		CE3K1-10R-11	1SFA 619 502 R1071	0.060
<b>Emergency stop pushbutton, Ø 40 mm</b>				
<b>Twist release</b>	Red			
<u>Contacts included:</u>				
1 NC		CE4T-10R-01	1SFA 619 550 R1041	0.036
2 NO		CE4T-10R-20	1SFA 619 550 R1021	0.036
2 NC		CE4T-10R-02	1SFA 619 550 R1051	0.036
1 NO +1 NC		CE4T-10R-11	1SFA 619 550 R1071	0.036
<b>Pull release</b>	Red			
<u>Contacts included:</u>				
2 NC		CE4P-10R-02	1SFA 619 551 R1051	0.036
1 NO +1 NC		CE4P-10R-11	1SFA 619 551 R1071	0.036
<b>Key release</b>	Red			
(Key code 71, Ronis 455)				
<u>Contacts included:</u>				
2 NC		CE4K1-10R-02	1SFA 619 552 R1051	0.064
1 NO +1 NC		CE4K1-10R-11	1SFA 619 552 R1071	0.064

The emergency stops with key release are delivered with two keys.

### Ordering example – Compact Emergency stop pushbutton

Requested: A compact emergency stop pushbutton, 30 mm, with key release and two NC contacts.

Order: 10 pieces of CE3K1-10R-02.



**Minimum order quantity: 10 pieces**  
**Packing: 1 piece/plastic bag.**  
**50 pieces/box**

# Pilot devices - Compact range

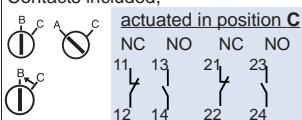
## Two and three position selector switches, non-illuminated



### Contacts actuated

#### Two position selector switch

Contacts included,



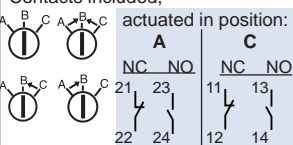
	11	13	21	23
1NO	-	1	-	-
2NO	-	1	-	1
1NC	1	-	-	-
2NC	1	-	1	-
1NO + 1NC	-	1	1	-



### Contacts actuated

#### Three position selector switch

Contacts included,



	21	23	11	13
2NO	-	1	-	1
2NC	1	-	1	-
1NO + 1NC	1	-	-	1

Description	Type	Order Code	Weight, kg
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### Selector switch with. Short handle.

#### Two positions

##### Maintained

Contacts included:

1 NO		C2SS1-10■-10	1SFA 619 200 R101□	0.020
2 NO		C2SS1-10■-20	1SFA 619 200 R102□	0.024
1 NC		C2SS1-10■-01	1SFA 619 200 R104□	0.020
2 NC		C2SS1-10■-02	1SFA 619 200 R105□	0.024
1 NO + 1 NC		C2SS1-10■-11	1SFA 619 200 R107□	0.024

##### Maintained

Contacts included:

1 NO		C2SS2-10■-10	1SFA 619 201 R101□	0.020
2 NO		C2SS2-10■-20	1SFA 619 201 R102□	0.024
1 NC		C2SS2-10■-01	1SFA 619 201 R104□	0.020
2 NC		C2SS2-10■-02	1SFA 619 201 R105□	0.024
1 NO + 1 NC		C2SS2-10■-11	1SFA 619 201 R107□	0.024

##### Momentary

Contacts included:

1 NO		C2SS3-10■-10	1SFA 619 202 R101□	0.020
2 NO		C2SS3-10■-20	1SFA 619 202 R102□	0.024
1 NC		C2SS3-10■-01	1SFA 619 202 R104□	0.020
2 NC		C2SS3-10■-02	1SFA 619 202 R105□	0.024
1 NO + 1 NC		C2SS3-10■-11	1SFA 619 202 R107□	0.024

### Selector switch with. Short handle.

#### Three positions

##### Maintained

Contacts included:

2 NO		C3SS1-10■-20	1SFA 619 210 R102□	0.024
2 NC		C3SS1-10■-02	1SFA 619 210 R105□	0.024
1 NO + 1 NC		C3SS1-10■-11	1SFA 619 210 R107□	0.024

##### Momentary

Contacts included:

2 NO		C3SS2-10■-20	1SFA 619 211 R102□	0.024
2 NC		C3SS2-10■-02	1SFA 619 211 R105□	0.024
1 NO + 1 NC		C3SS2-10■-11	1SFA 619 211 R107□	0.024

##### Momentary

Contacts included:

2 NO		C3SS3-10■-20	1SFA 619 212 R102□	0.024
2 NC		C3SS3-10■-02	1SFA 619 212 R105□	0.024
1 NO + 1 NC		C3SS3-10■-11	1SFA 619 212 R107□	0.024

##### Momentary

Contacts included:

2 NO		C3SS7-10■-20	1SFA 619 216 R102□	0.024
2 NC		C3SS7-10■-02	1SFA 619 216 R105□	0.024
1 NO + 1 NC		C3SS7-10■-11	1SFA 619 216 R107□	0.024

### Codes for handles

Type	Order Code
Black <b>B</b>	6
Red <b>R</b>	1
Grey <b>U</b>	7

### Bezel

Bezel in black plastic as standard

Bezel in metal:

Replace **1** in the:

Type CPX-**1**0X

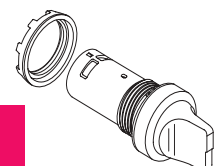
Order Code 1SFA619XXX R **1**XXX

**3** for metal bezel

### Ordering example – Compact selector switches

Requested: A red compact selector switch with three positions, Momentary, spring return from A to B and maintained position in C. With 2 NC contacts.

Order: 10 pieces of C3SS7-10R-02



Minimum order quantity: 10 pieces  
Packing: 10 pieces/plastic bag,  
10 bags/box

# Pilot devices - Compact range

## Pilot lights/Pilot lights with integrated LED



Description	Type	Order Code	Weight, kg
<b>Pilot light</b> Ba 9s base, bulb not included			
<i>Color:</i>			
Red	CL-100R	1SFA 619 402 R1001	0.018
Green	CL-100G	1SFA 619 402 R1002	0.018
Yellow	CL-100Y	1SFA 619 402 R1003	0.018
Blue	CL-100L	1SFA 619 402 R1004	0.018
White	CL-100W	1SFA 619 402 R1005	0.018
Clear	CL-100C	1SFA 619 402 R1008	0.018

Color	Rated current mA	Lumiance mcd	Wave-length nm	Type	Order Code	Weight, kg
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### Pilot light with integrated LED

Service life >50 000 hours

#### Rated voltage 12 V, DC <sup>1)</sup>

Red	30	60	625	CL-501R	1SFA 619 402 R5011	0.023
Green	15	126	520	CL-501G	1SFA 619 402 R5012	0.023
Yellow	30	60	590	CL-501Y	1SFA 619 402 R5013	0.023
Blue	30	22	470	CL-501L	1SFA 619 402 R5014	0.023
White	30	88	<sup>2)</sup>	CL-501W	1SFA 619 402 R5015	0.023

#### Rated voltage 24 V, AC/DC

Red	15	60	625	CL-502R	1SFA 619 402 R5021	0.023
Green	15	126	520	CL-502G	1SFA 619 402 R5022	0.023
Yellow	15	60	590	CL-502Y	1SFA 619 402 R5023	0.023
Blue	15	22	470	CL-502L	1SFA 619 402 R5024	0.023
White	15	88	<sup>2)</sup>	CL-502W	1SFA 619 402 R5025	0.023

#### Rated voltage 48 V, AC/DC

Red	15	60	625	CL-504R	1SFA 619 402 R5041	0.023
Green	15	126	520	CL-504G	1SFA 619 402 R5042	0.023
Yellow	15	60	590	CL-504Y	1SFA 619 402 R5043	0.023
Blue	15	22	470	CL-504L	1SFA 619 402 R5044	0.023
White	15	88	<sup>2)</sup>	CL-504W	1SFA 619 402 R5045	0.023

#### Rated voltage 60 V, AC/DC

Red	15	60	625	CL-505R	1SFA 619 402 R5051	0.023
Green	15	126	520	CL-505G	1SFA 619 402 R5052	0.023
Yellow	15	60	590	CL-505Y	1SFA 619 402 R5053	0.023
Blue	15	22	470	CL-505L	1SFA 619 402 R5054	0.023
White	15	88	<sup>2)</sup>	CL-505W	1SFA 619 402 R5055	0.023

#### Rated voltage 110-130 V, AC

Red	15	60	625	CL-513R	1SFA 619 402 R5131	0.023
Green	15	126	520	CL-513G	1SFA 619 402 R5132	0.023
Yellow	15	60	590	CL-513Y	1SFA 619 402 R5133	0.023
Blue	15	22	470	CL-513L	1SFA 619 402 R5134	0.023
White	15	88	<sup>2)</sup>	CL-513W	1SFA 619 402 R5135	0.023

#### Rated voltage 110-130 V, DC <sup>1)</sup>

Red	15	60	625	CL-515R	1SFA 619 402 R5151	0.023
Green	15	126	520	CL-515G	1SFA 619 402 R5152	0.023
Yellow	15	60	590	CL-515Y	1SFA 619 402 R5153	0.023
Blue	15	22	470	CL-515L	1SFA 619 402 R5154	0.023
White	15	88	<sup>2)</sup>	CL-515W	1SFA 619 402 R5155	0.023

#### Rated voltage 220 V, DC <sup>1)</sup>

Red	15	60	625	CL-520R	1SFA 619 402 R5201	0.023
Green	15	126	520	CL-520G	1SFA 619 402 R5202	0.023
Yellow	15	60	590	CL-520Y	1SFA 619 402 R5203	0.023
Blue	15	22	470	CL-520L	1SFA 619 402 R5204	0.023
White	15	88	<sup>2)</sup>	CL-520W	1SFA 619 402 R5205	0.023

#### Rated voltage 230 V, AC

Red	15	60	625	CL-523R	1SFA 619 402 R5231	0.023
Green	15	126	520	CL-523G	1SFA 619 402 R5232	0.023
Yellow	15	60	590	CL-523Y	1SFA 619 402 R5233	0.023
Blue	15	22	470	CL-523L	1SFA 619 402 R5234	0.023
White	15	88	<sup>2)</sup>	CL-523W	1SFA 619 402 R5235	0.023

#### Rated voltage 380 V, AC

Red	15	60	625	CL-530R	1SFA 619 402 R5301	0.023
Green	15	126	520	CL-530G	1SFA 619 402 R5302	0.023
Yellow	15	60	590	CL-530Y	1SFA 619 402 R5303	0.023
Blue	15	22	470	CL-530L	1SFA 619 402 R5304	0.023
White	15	88	<sup>2)</sup>	CL-530W	1SFA 619 402 R5305	0.023

#### Rated voltage 415 V, AC

Red	15	60	625	CL-541R	1SFA 619 402 R5411	0.023
Green	15	126	520	CL-541G	1SFA 619 402 R5412	0.023
Yellow	15	60	590	CL-541Y	1SFA 619 402 R5413	0.023
Blue	15	22	470	CL-541L	1SFA 619 402 R5414	0.023
White	15	88	<sup>2)</sup>	CL-541W	1SFA 619 402 R5415	0.023

<sup>1)</sup> Care should be taken for DC supply where + and - must be correctly connected.(this is marked on the product, X1 (+) and X2 (-)).

<sup>2)</sup> X=0.31, Y=0.32

Minimum order quantity: 10 pieces  
Packing: 10 pieces/plastic bag, 10 bags/box

# Assembled stations with modular range pilot devices



## Plastic enclosures. Yellow top/light grey bottom

Description <sup>1)</sup>	Type	Order Code	Weight, kg
<b>1-seat Emergency stop pushbutton, 40 mm.</b> Twist release. No legend plate			
Red 2 NC	MEPY1-1005	1SFA 611 821 R1005	0.234
Red 1 NO + 2 NC	MEPY1-1024	1SFA 611 821 R1024	0.250

## 1-seat Plastic enclosures. Dark grey top/light grey bottom

Description <sup>1)</sup>	Type	Order Code	Weight, kg
<b>One flush pushbutton. Momentary</b>			
Green 1 NO I	MEP1-1001	1SFA 611 811 R1001	0.200

## 2-seat Plastic enclosure. Dark grey top/light grey bottom

Description <sup>1)</sup>	Type	Order Code	Weight, kg
<b>Two flush pushbuttons. Momentary.</b>			
Left    Right Red    Green 1 NC   1 NO I       O	MEP2-1001	1SFA 611 812 R1001	0.220

## 3-seat Plastic enclosure. Dark grey top/light grey bottom

Description <sup>1)</sup>	Type	Order Code	Weight, kg
<b>Two flush pushbuttons, pilot light in centre position.</b> Momentary (Lamp block type MLB-1)			
Left    Center    Right Red    Clear    Green 1 NC   1 LB    1 NO O       I       I	MEP3-1001	1SFA 611 813 R1001	0.300

## 1-seat Metallic enclosure. Grey

Description <sup>1)</sup>	Type	Order Code	Weight, kg
<b>One flush pushbutton</b> Momentary. Degree of protection IP 66			
Green 1 NC I	MEM1-1001	1SFA 611 831 R1001	0.380
<b>40 mm emergency stop button</b> Maintained. Pull release. Degree of protection IP 66.			
Red 1 NC Emergency stop	MEM1-1018	1SFA 611 831 R1018	0.406

<sup>1)</sup> Description = Button color/cap color, Included contact blocks (NO, NC) & Lamp block (LB), Legend plate text

# Empty plastic enclosures and accessories

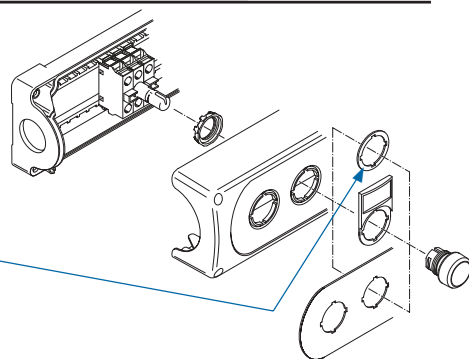
## for mounting modular range pilot devices

### Empty plastic enclosures Now with stainless steel screws

Size	Color top/bottom	Type	Order Code	Weight, kg
1-seat	Dark grey/Light grey	MEP1-0	1SFA 611 811 R1000	0.15
1-seat	Yellow/Light grey	MEPY1-0	1SFA 611 821 R1000	0.15
2-seat	Dark grey/Light grey	MEP2-0	1SFA 611 812 R1000	0.17
3-seat	Dark grey/Light grey	MEP3-0	1SFA 611 813 R1000	0.20
4-seat	Dark grey/Light grey	MEP4-0	1SFA 611 814 R1000	0.23
6-seat	Dark grey/Light grey	MEP6-0	1SFA 611 816 R1000	0.30

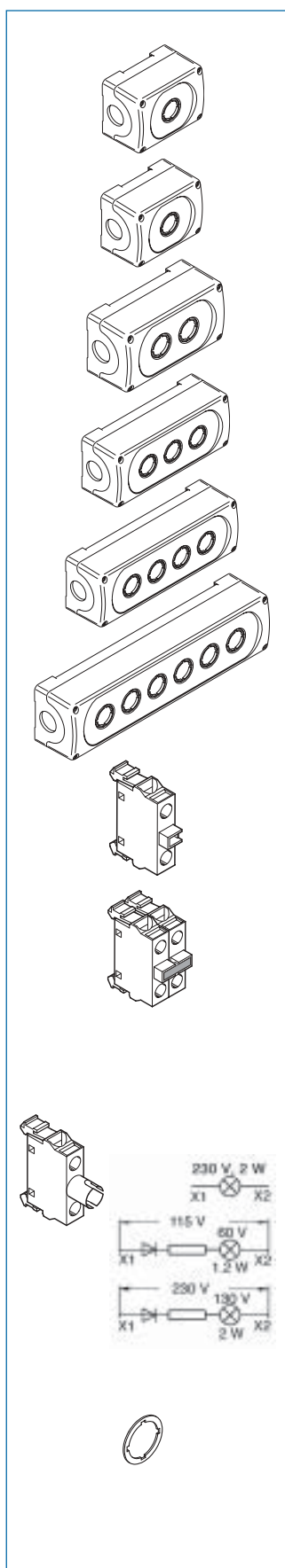
### When ordering

- Select operators from page 6-14.
- N.B. Selector switches with short handle for vertically mounted selector switches must be ordered from Catalogue 1SFC151001C0201, page 50-51.
- Select contact blocks and lamp blocks for rear mounting according to below.
- Accessories, see Catalogue 1SFC151001C0201, page 49
- N.B. **One spacer per operator** has to be ordered if legend plate is not used. (for rear mounted pilot devices)



### Accessories

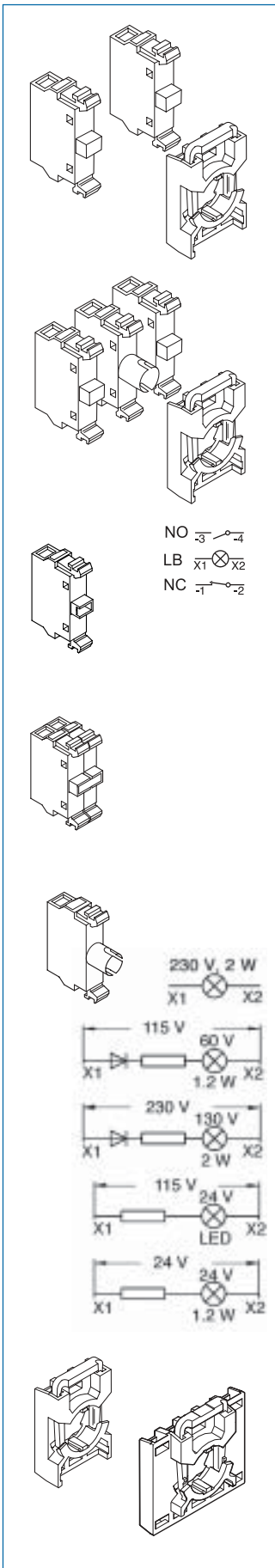
Description	Type	Order Code	Weight, kg
<b>Contact blocks for rear mounting</b>			
1NO	MCB-10B	1SFA 611 610 R2001	0.013
1NC	MCB-01B	1SFA 611 610 R2010	0.013
<b>Double contact block for rear mounting</b>			
2NO	MCB-20B	1SFA 611 610 R2002	0.026
2NC	MCB-02B	1SFA 611 610 R2020	0.026
1NO+1NC	MCB-11B	1SFA 611 610 R2011	0.026
<b>Contact block for rear mounting with gold plated contacts</b>			
1NO	MCB-10BG	1SFA 611 610 R2101	0.013
1NC	MCB-01BG	1SFA 611 610 R2110	0.013
<b>Lamp blocks for rear mounting</b>			
For max. 2 W, 230 V AC and DC filament bulb or LED	MLB-1B	1SFA 611 620 R2001	0.015
115 V AC supply voltage. For 60 V filament bulb max. 1.2 W	MLB-2B	1SFA 611 620 R2002	0.017
230 V AC supply voltage. For 130 V filament bulb max. 2 W	MLB-3B	1SFA 611 620 R2003	0.020
<b>Spacer</b>			
1 mm thick. Needed when legend plates are not used in plastic enclosures.			
Spacer (Packing unit 10 pieces)	-	SK 615 516-1	0.002
Spacer for Modular emergency stop pushbutton, page 8 (Packing unit 10 pieces)	KA1-8045	1SFA 616 920 R 8045	0.004





# Pilot devices, Ø 22 mm – Accessories

## Contact blocks/lamp blocks for Modular range



Description	Type	Order Code	Weight, kg
<b>Contact blocks and lamp blocks with holder. For front mounting</b>			
Max. number of blocks in holder	Included blocks		
<b>For non-illuminated operators</b>			
3	1 NC	MCBH-01 1SFA 611 605 R1110	0.019
3	1 NO	MCBH-10 1SFA 611 605 R1101	0.019
3	2 NC	MCBH-02 1SFA 611 605 R1120	0.032
3	2 NO	MCBH-20 1SFA 611 605 R1102	0.032
3	3 NC	MCBH-03 1SFA 611 605 R1130	0.045
3	3 NO	MCBH-30 1SFA 611 605 R1103	0.045
3	1 NO + 1 NC	MCBH-11 1SFA 611 605 R1111	0.032
3	1 NO + 2 NC	MCBH-12 1SFA 611 605 R1121	0.045
3	2 NO + 1 NC	MCBH-21 1SFA 611 605 R1112	0.045
<b>For illuminated operators</b>			
3	1 NC + 1 LB	MCBH-011 1SFA 611 605 R1210	0.034
3	1 NO + 1 LB	MCBH-101 1SFA 611 605 R1201	0.034
3	1 NO + 1 NC + 1 LB	MCBH-111 1SFA 611 605 R1211	0.047
3	2 NC + 1 LB	MCBH-021 1SFA 611 605 R1220	0.047
3	2 NO + 1 LB	MCBH-201 1SFA 611 605 R1202	0.047
<b>Single contact blocks. For front mounting</b>			
1 NO	MCB-10	1SFA 611 610 R1001	0.013
1 NC	MCB-01	1SFA 611 610 R1010	0.013
1 NO with gold plated contacts	MCB-10G	1SFA 611 610 R1101	0.013
1 NC with gold plated contacts	MCB-01G	1SFA 611 610 R1110	0.013
<b>Double contact block. For front mounting</b>			
To be used together with MCBH5-00 when contact blocks in position 4- and 5- are needed.			
Also when using MCBH-00 together with selector switch and contact block in position 3- is needed			
2 NO	MCB-20	1SFA 611 610 R1002	0.026
2 NC	MCB-02	1SFA 611 610 R1020	0.026
1 NO + 1 NC	MCB-11	1SFA 611 610 R1011	0.026
<b>Single lamp blocks for front mounting, Ba 9s base</b>			
For max. 2 W, 230 V AC and DC filament bulb or LED			
MLB-1	1SFA 611 620 R1001	0.015	
115 V AC supply voltage. For 60 V filament bulb max. 1.2 W			
MLB-2	1SFA 611 620 R1002	0.017	
230 V AC supply voltage. For 130 V filament bulb max. 2 W			
MLB-3	1SFA 611 620 R1003	0.020	
115 V AC and DC supply voltage For 24 V LED			
MLB-4	1SFA 611 620 R1004	0.017	
24 V AC and DC supply voltage. With resistor. Intended for electronic circuits. The resistor limits the making current and protects against distur- bances in the electronic circuit For 24 V filament bulb			
MLB-5	1SFA 611 620 R1005	0.017	
<b>Holders</b>			
Holders for front mounting			
For three blocks	MCBH-00	1SFA 611 605 R1100	0.006
For five blocks	MCBH5-00	1SFA 611 601 R1100	0.008

## Pilot devices, Ø 22 mm – Accessories



Description	Type	Order Code	Weight, kg
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**Filament bulbs** Ba 9s base Type of current: AC/DC. A lamp changing tool is required for changing bulb.

Rated voltage V	Rated current mA	Rated output W	Service life h	Luminance mcd		
6	200	1.2	10 000	350		5911 086-11 0.002
12	100	1.2	10 000	230		5911 086-12 0.002
24	50	1.2	10 000	280		5911 086-13 0.002
30	40	1.2	10 000	250		5911 086-4 0.002
48	42	2	6 000	500		5911 086-5 0.002
60	20	1.2	5 000	190		5911 086-14 0.002
110	18	2	7 500	250		5911 086-7 0.002
130	15	2	7 500	120		5911 086-15 0.002

### LEDs

With one diode chip mounted on a Ba 9s base. Choose the same color for the LED and the lamp cap or else use a clear lamp cap.

For white light use white LED with clear lamp cap. At DC the lamp base have to be connected to cathode (-) and the bottom contact to anode (+)

Color	Rated current mA	Wave-length nm	Luminance mcd			
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#### Rated voltage 12 V, DC Service life >50 000 h

Red	15	630	250	KA2-2011	1SFA 616 921 R2011	0.005
Green	15	525	1000	KA2-2012	1SFA 616 921 R2012	0.005
Yellow	15	592	250	KA2-2013	1SFA 616 921 R2013	0.005
Blue	15	470	450	KA2-2014	1SFA 616 921 R2014	0.005
White	15	x=0.31 y=0.32	600	KA2-2015	1SFA 616 921 R2015	0.005

#### Rated voltage 24 V, (AC)/DC <sup>1)</sup> Service life >50 000 h

Red	15	630	250	KA2-2021	1SFA 616 921 R2021	0.005
Green	15	525	800	KA2-2022	1SFA 616 921 R2022	0.005
Yellow	15	592	250	KA2-2023	1SFA 616 921 R2023	0.005
Blue	15	470	400	KA2-2024	1SFA 616 921 R2024	0.005
White	15	x=0.31 y=0.32	500	KA2-2025	1SFA 616 921 R2025	0.005

#### Rated voltage 48 V, (AC)/DC <sup>1)</sup> Service life >50 000 h

Red	12	630	200	KA2-2041	1SFA 616 921 R2041	0.005
Green	12	525	1700	KA2-2042	1SFA 616 921 R2042	0.005
Yellow	12	592	240	KA2-2043	1SFA 616 921 R2043	0.005
Blue	12	470	720	KA2-2044	1SFA 616 921 R2044	0.005
White	12	x=0.31 y=0.32	1200	KA2-2045	1SFA 616 921 R2045	0.005

#### Rated voltage 60 V, (AC)/DC <sup>1)</sup> Service life >50 000 h

Red	10	630	160	KA2-2051	1SFA 616 921 R2051	0.005
Green	10	525	1400	KA2-2052	1SFA 616 921 R2052	0.005
Yellow	10	592	200	KA2-2053	1SFA 616 921 R2053	0.005
Blue	10	470	600	KA2-2054	1SFA 616 921 R2054	0.005
White	10	x=0.31 y=0.32	1000	KA2-2055	1SFA 616 921 R2055	0.005

#### Rated voltage 110-130 V, AC <sup>1)</sup> Service life 25 000 h

Red	4-6	630	60-100	KA2-2131	1SFA 616 921 R2131	0.005
Green	4-6	525	500-850	KA2-2132	1SFA 616 921 R2132	0.005
Yellow	4-6	592	70-120	KA2-2133	1SFA 616 921 R2133	0.005
Blue	4-6	470	220-350	KA2-2134	1SFA 616 921 R2134	0.005
White	4-6	x=0.31 y=0.32	350-600	KA2-2135	1SFA 616 921 R2135	0.005

#### Rated voltage 110-130 V, AC/DC <sup>1)</sup> Service life 25 000 h

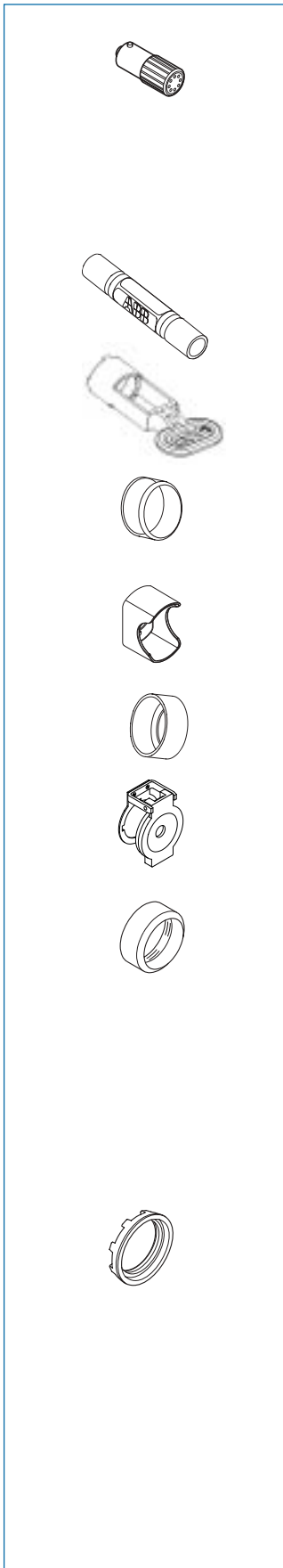
Red	4-6	630	60-100	KA2-2141	1SFA 616 921 R2141	0.005
Green	4-6	525	500-850	KA2-2142	1SFA 616 921 R2142	0.005
Yellow	4-6	592	70-120	KA2-2143	1SFA 616 921 R2143	0.005
Blue	4-6	470	220-350	KA2-2144	1SFA 616 921 R2144	0.005
White	4-6	x=0.31 y=0.32	350-600	KA2-2145	1SFA 616 921 R2145	0.005

#### Rated voltage 230 V, AC <sup>1)</sup> Service life 25 000 h

Red	4	630	60	KA2-2221	1SFA 616 921 R2221	0.005
Green	4	525	500	KA2-2222	1SFA 616 921 R2222	0.005
Yellow	4	592	70	KA2-2223	1SFA 616 921 R2223	0.005
Blue	4	470	220	KA2-2224	1SFA 616 921 R2224	0.005
White	4	x=0.31 y=0.32	350	KA2-2225	1SFA 616 921 R2225	0.005

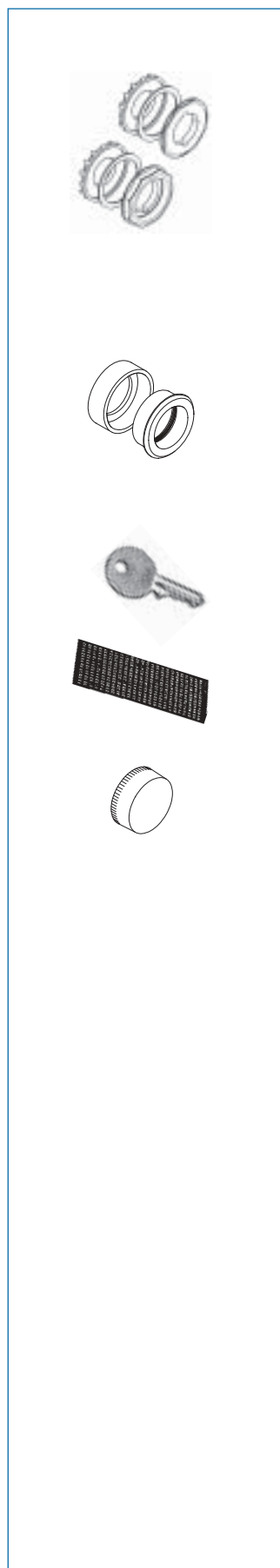
<sup>1)</sup> At AC the luminance is decreased with 30 % and there is also a slight flickering.

## Pilot devices, Ø 22 mm – Accessories



Description	Type	Order Code	Weight, kg
<b>Flashing LED</b>			
A lamp changing tool is required for changing bulb. Choose the same color for the LED and the lamp cap or use a clear lamp cap. The lamp base has to be connected to cathode (-) and the bottom contact to anode (+).			
Rated voltage 24 V, rated current 25 mA, DC			
	Wave length nm	Service life hours	
Color			
Red	630	50 000	4950 512-1
Green	565	50 000	4950 512-2
Yellow	585	50 000	4950 512-3
<b>Lamp changing tool</b>			
For LEDs and for bulbs	KA1-8072	1SFA 616 920 R8072	0.002
<b>Mounting tool</b>			
Grey. Used for tightening the sleeve	MA1-8015	1SFA 611 920 R8015	0.021
<b>Membrane of rubber</b>			
Of transparent, heat and cold resistant rubber. Does not harden at low temperature. Gives IP 67 degree of protection. When membrane is used, remove the gasket.			
For flush button	KA1-8052	1SFA 616 920 R8052	0.002
For extended button	KA1-8002	1SFA 616 920 R8002	0.002
<b>Emergency stop shroud</b> Not for use with plastic enclosure			
For 40 mm Emergency Stop Pushbuttons. To prevent inadvertant operation.			
Yellow	KA1-8053	1SFA 616 920 R8053	0.020
<b>Protective ring</b>			
For flush and extended buttons To prevent inadvertant operation. Not together with legend plate holder.			
		SK 615 512-1	0.002
<b>Protective cover</b>			
For flush button. To prevent inadvertant operation. Not together with legend plate holder.			
	KA1-8010	1SFA 616 920 R8010	0.008
<b>Bezel</b> (Packing unit 10 pieces)			
<b>For pushbutton</b>			
Grey, plastic	KA1-8079	1SFA 616 920 R8079	0.025
Black, plastic	KA1-8022	1SFA 616 920 R8022	0.025
Metal	KA1-8021	1SFA 616 920 R8021	0.025
<b>For modular selector switch</b>			
Grey, plastic	KA1-8077	1SFA 616 920 R8077	0.020
Black, plastic	KA1-8080	1SFA 616 920 R8080	0.025
Metal	KA1-8024	1SFA 616 920 R8024	0.025
<b>For compact selector switch</b>			
Grey	CA1-8076	1SFA 619 920 R8076	0.001
Black	CA1-8077	1SFA 619 920 R8077	0.001
Metal	CA1-8078	1SFA 619 920 R8078	0.005
<b>Locking nut</b> (Packing unit 10 pieces)			
For modular range		1SFA 611 920 R8019	0.001

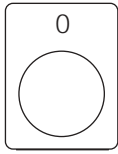
## Pilot devices, Ø 22 mm – Accessories



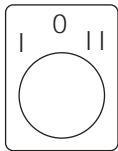
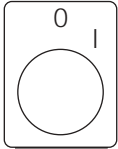
Description	Type	Order Code	Weight. kg
<b>30 mm adaptors</b>			
For use when fitting the 22 mm pilot devices in 30 mm mounting holes. (1.5 – 4 mm panels)			
<b>For use with modular emergency stop pushbuttons</b>			
Black plastic.	KA1-8027	1SFA 616 920 R8027	0.007
Metal.	KA1-8028	1SFA 616 920 R8028	0.021
<b>For use with modular and compact pushbuttons, selector switches, pilot lights and for potentiometers, buzzers and compact emergency stop pushbuttons</b>			
Black plastic.	KA1-8029	1SFA 616 920 R8029	0.010
Metal.	KA1-8030	1SFA 616 920 R8030	0.035
<b>Adaptors</b>			
For flush mounted modular and compact pushbutton	KA1-8073	1SFA 616 920 R8073	0.050
For flush mounted modular selector switches	KA1-8074	1SFA 611 920 R8074	0.046
For flush mounted compact selector switches	CA1-8075	1SFA 619 920 R8075	0.046
<b>Extra key</b>			
Ronis 455 (key code 71)		SK 616 021-71	0.007
Ronis 421 (key code 72)		SK 616 021-72	0.007
Ronis 3433-E (key code 73)		SK 616 021-73	0.007
<b>Label sheet</b>			
For marking of contact blocks at two levels		2949 1725-1	0.001
<b>Lenses for pilot lights</b> (Packing unit 10 pieces)			
Red	KA1-8031	1SFA 616 920 R8031	0.02
Green	KA1-8032	1SFA 616 920 R8032	0.02
Yellow	KA1-8033	1SFA 616 920 R8033	0.02
Blue	KA1-8034	1SFA 616 920 R8034	0.02
White	KA1-8035	1SFA 616 920 R8035	0.02

# Pilot devices, Ø 22 mm – Accessories

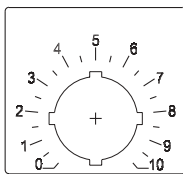
## Legend plates



H=39 mm W=29,6 mm



Symbol plate  
29.6 x 44.5 mm

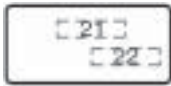
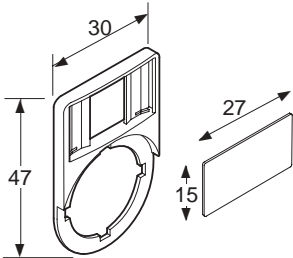


Width 48.5 mm  
Height 44.5 mm

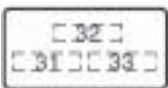
Description	Order Code	Weight. kg
<b>Legend plate</b>		
Engraved fixed plates with of silver-grey aluminium. Black text		
<b>For pushbutton</b>		
Symbol/text		
O	<b>SK 615 550-61</b>	0.002
Start	<b>SK 615 550-44</b>	0.002
Stop	<b>SK 615 552-31</b>	0.002
<b>For two-position selector switch</b>		
Symbol/text		
Centre Right		
O I	<b>SK 615 550-75</b>	0.002
Stop Start	<b>SK 615 552-55</b>	0.002
<b>For three-position selector switch</b>		
Symbol/text		
Left Centre Right		
I O II	<b>SK 615 550-81</b>	0.002
Hand O Auto	<b>SK 615 550-80</b>	0.002
Slow Off Fast	<b>SK 615 552-60</b>	0.002
<b>Emergency stop legend plate</b>		
Engraved plate of aluminium, yellow with black text. Quantity per package: 10.		
Text:		
Nöd Stopp	<b>SK 615 546-1</b>	0.010
Emergency Stop	<b>SK 615 546-2</b>	0.010
Not Aus	<b>SK 615 546-3</b>	0.010
ARRET D'URGENCE	<b>SK 615 546-4</b>	0.010
HÄTÄSEIS	<b>SK 615 546-5</b>	0.010
PARADA DE EMERGENCIA	<b>SK 615 546-6</b>	0.010
EMERGENCY STOP		
NOT AUS		
ARRET D'URGENCE	<b>SK 615 546-13</b>	0.010
(In Russian, Cyrillic letters)	<b>SK 615 546-17</b>	0.010
<b>Legend plate for potentiometer</b>		
Engraved plate of aluminium. 29.6 x 44.5 mm		
Text:		
Symbol plate	<b>SK 615 562-87</b>	0.002
Scale 0 - 10	<b>SK 615 562-88</b>	0.002

# Pilot devices, Ø 22 mm – Accessories

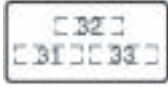
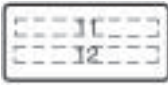
## Legend plates



For two-position selector switch

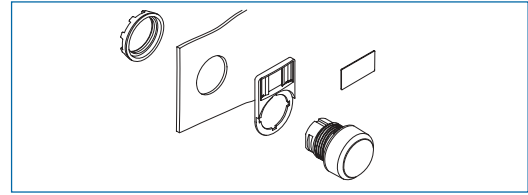


For three-position selector switch



### Legend plate holders with inserts

- Holder of black plastic.  
- Insert of brushed aluminium on black plastic.  
The insert is securely retained in a pocket and can be removed.  
3 mm high text in typeface Helvetica.



Description	Type	Order Code	Weight, kg
<b>Legend plate holder (black)</b>			
Black	KA1-8120	1SFA 616 920 R8120	0.002
<b>Inserts</b>			
Of brushed aluminium on black plastic			
Without text or symbol	KA1-8121	1SFA 616 920 R8121	0.001
<b>Inserts with text/symbol</b>			
Of brushed aluminium on black plastic			
With text or symbol			
O	MA6-1032	1SFA 611 930 R1032	0.001
I	MA6-1033	1SFA 611 930 R1033	0.001
→	MA6-1034	1SFA 611 930 R1034	0.001
→→	MA6-1035	1SFA 611 930 R1035	0.001
Close	MA6-1036	1SFA 611 930 R1036	0.001
Open	MA6-1037	1SFA 611 930 R1037	0.001
On	MA6-1038	1SFA 611 930 R1038	0.001
Off	MA6-1039	1SFA 611 930 R1039	0.001
Fast	MA6-1040	1SFA 611 930 R1040	0.001
Slow	MA6-1041	1SFA 611 930 R1041	0.001
Down	MA6-1042	1SFA 611 930 R1042	0.001
Up	MA6-1043	1SFA 611 930 R1043	0.001
Start	MA6-1044	1SFA 611 930 R1044	0.001
Stop	MA6-1045	1SFA 611 930 R1045	0.001

### Inserts for two-position selector switches

Of brushed aluminium on black plastic  
With text or symbol

Pos. 21	Pos. 22			
O	I	MA6-1070	1SFA 611 930 R 1070	0.001
I	II	MA6-1071	1SFA 611 930 R 1071	0.001
→	→→	MA6-1072	1SFA 611 930 R 1072	0.001
Off	On	MA6-1073	1SFA 611 930 R 1073	0.001
Stop	Start	MA6-1074	1SFA 611 930 R 1074	0.001
Low	High	MA6-1075	1SFA 611 930 R 1075	0.001
Slow	Fast	MA6-1076	1SFA 611 930 R 1076	0.001
Close	Open	MA6-1077	1SFA 611 930 R 1077	0.001
Jog	Run	MA6-1078	1SFA 611 930 R 1078	0.001
Hand	Auto	MA6-1079	1SFA 611 930 R 1079	0.001

### Inserts for three-position selector switches

Of brushed aluminium on black plastic  
With text or symbol

Pos. 31	Pos. 32	Pos. 33		
←	O	→	MA6-1080	1SFA 611 930 R 1080
→	O	→→	MA6-1081	1SFA 611 930 R 1081
I	O	II	MA6-1082	1SFA 611 930 R 1082
Hand	O	Auto	MA6-1083	1SFA 611 930 R 1083
Slow	Off	Fast	MA6-1084	1SFA 611 930 R 1084

### Inserts with customer-selected text/symbols <sup>1)</sup>

Of brushed aluminium on black plastic

With text	MA6-1090	1SFA 611 930 R 1090	0.001
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### When ordering state (in addition to Order Code)

Text line: Pos. 11 or 12 - max 11 characters per line

Pos. 31 - max 5 characters per line

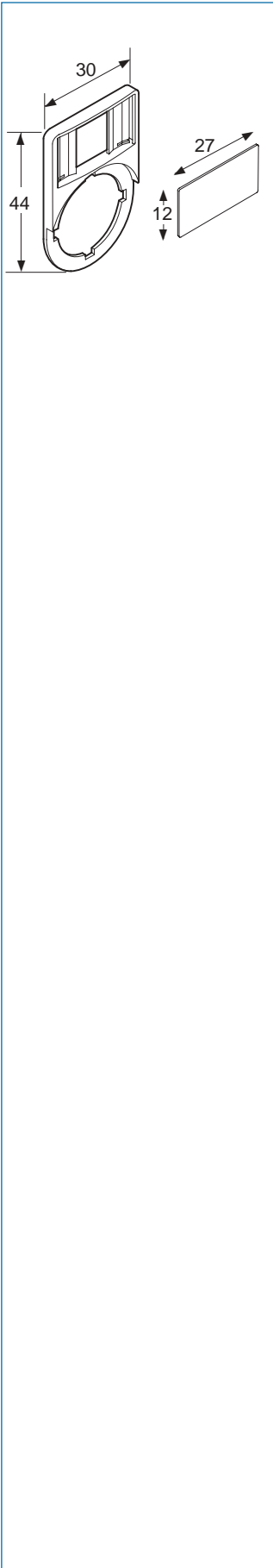
Pos. 21 or 32 - max 5 characters

Pos. 22 or 33 - max 5 characters

<sup>1)</sup> Text height 3 mm. Only the initial character is upper case unless other is stated

# Pilot devices, Ø 22 mm – Accessories

## Legend plates



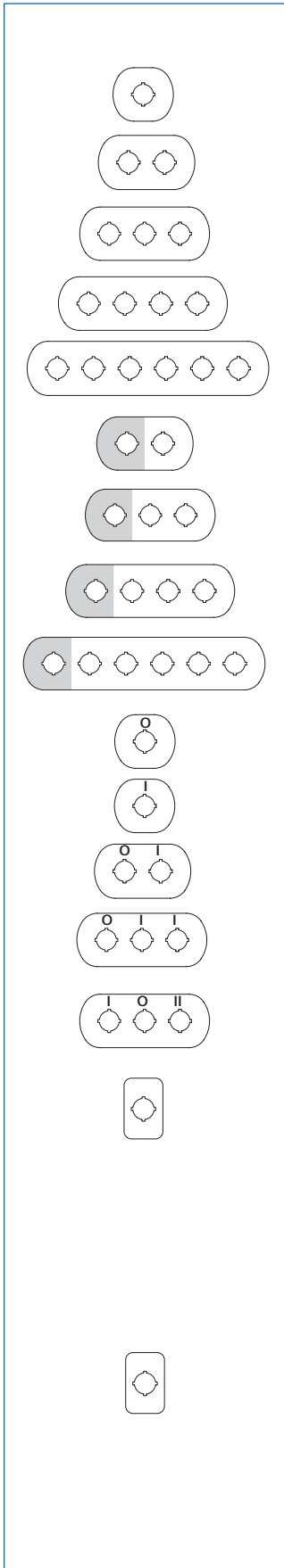
### Legend plate holders with inserts – for plastic enclosures

- Holder of grey plastic.
  - Insert of brushed aluminium on black plastic.
- The insert is securely retained in a pocket and can be removed.  
3 mm high text in typeface Helvetica.

Description	Type	Order Code	Weight, kg
<b>Legend plate holder (grey) for plastic enclosures</b>			
Grey	MA6-1060	1SFA 611 930 R1060	0.002
<b>Inserts</b>			
Of brushed aluminium on black plastic			
Without text or symbol	MA6-1061	1SFA 611 930 R1061	0.001
<b>Inserts with text/symbol</b>			
Of brushed aluminium on black plastic			
<u>With text or symbol</u>			
O	MA6-1062	1SFA 611 930 R1062	
I	MA6-1063	1SFA 611 930 R1063	0.001
II	MA6-1064	1SFA 611 930 R1064	0.001

## Pilot devices - Accessories

### Special legend plates for plastic enclosures



Description	Type	Order Code	Weight, kg
<b>Legend plates for plastic enclosures</b>			
Of silvergrey aluminium.			
1-seat	MA6-1000	1SFA 611 930 R1000	0.004
2-seat	MA6-1002	1SFA 611 930 R1002	0.006
3-seat	MA6-1003	1SFA 611 930 R1003	0.008
4-seat	MA6-1004	1SFA 611 930 R1004	0.010
6-seat	MA6-1005	1SFA 611 930 R1005	0.012
<b>Legend plates for plastic enclosures</b>			
Of silvergrey aluminium.(Pos. 1 Yellow)			
2-seat	MA6-1006	1SFA 611 930 R1006	0.006
3-seat	MA6-1007	1SFA 611 930 R1007	0.008
4-seat	MA6-1008	1SFA 611 930 R1008	0.010
6-seat	MA6-1009	1SFA 611 930 R1009	0.012
<b>Legend plates for plastic enclosures</b>			
Of silvergrey aluminium.			
1-seat O	MA6-1012	1SFA 611 930 R1012	0.004
1-seat I	MA6-1013	1SFA 611 930 R1013	0.004
2-seat O I	MA6-1014	1SFA 611 930 R1014	0.006
3-seat O I I	MA6-1015	1SFA 611 930 R1015	0.008
3-seat I O II	MA6-1016	1SFA 611 930 R1016	0.008
<b>Emergency stop legend plate</b>			
Black text on an yellow aluminium plate.			
Legend plate without text	MA6-1010	1SFA 611 930 R1010	
Legend plate (1SFA 611 930 R1010) with text:			
Nöd stopp	MA6-1017	1SFA 611 930 R1017	0.005
Not Aus	MA6-1018	1SFA 611 930 R1018	0.005
Emergency Stop	MA6-1019	1SFA 611 930 R1019	0.005
ARRET D'URGENCE	MA6-1020	1SFA 611 930 R1020	0.005
Hätäseis	MA6-1021	1SFA 611 930 R1021	0.005
PARADA DE EMERGENCIA	MA6-1022	1SFA 611 930 R1022	0.005
Black text on an yellow plastic plate.			
Legend plate without text	MA6-1011	1SFA 611 930 R1011	0.002
Legend plate (1SFA 611 930 R1011) with text:			
Emergency Stop	MA6-1023	1SFA 611 930 R1023	0.002



# Pilot devices

## Technical data – Modular range

### Certifications and Approvals

The pushbuttons, selector switches and pilot lights are approved by:  
 - National approval agencies: UL and China Compulsory Product Certification  
 - Marine classifications: Det Norske Veritas and Germanische Lloyd  
 For detail information please contact ABB



### Standards

IEC 60947-1	Low-voltage switchgear and controlgear - Part 1: General rules
IEC 60947-5-1	Low-voltage switchgear and controlgear - Part 5-1: Control circuit devices and switching elements - Electromechanical control circuit devices
IEC 60947-5-5	Low-voltage switchgear and controlgear - Part 5-5: Control circuit devices and switching elements - Electrical emergency stop device with mechanical latching function
IEC 60073	Basic and safety principles for man-machine interface, marking and identification - Coding principles for indicators and actuators
IEC 60529	Degrees of protection provided by enclosures (IP Code)
EN 60947-1	Low-voltage switchgear and controlgear - Part 1: General rules
EN 60947-5-1	Low-voltage switchgear and controlgear - Part 5-1: Control circuit devices and switching elements - Electromechanical control circuit devices
EN 60947-5-5	Low-voltage switchgear and controlgear - Part 5-5: Control circuit devices and switching elements - Electrical emergency stop device with mechanical latching function
EN 60073	Basic and safety principles for man-machine interface, marking and identification - Coding principles for indication devices and actuators
EN 60529	Degrees of protection provided by enclosures (IP Code)
EN 50013	Low-voltage switchgear and controlgear for industrial use - Terminal marking and distinctive number for particular control switches
UL 508	Industrial Control Equipment
CSA C22.2 No 14	Industrial Control Equipment

### Degrees of protection

Operators	IP	UL/CSA
Pushbutton with flush or extended button, MP	IP 66	Type 1, 3R, 4, 4X, 12, 13
Double pushbutton, MPD	IP 66	Type 1, 3R, 4, 4X, 12, 13
Mushroom pushbutton, momentary, MPM	IP 66	Type 1, 3R, 4, 4X, 12, 13
Emergency stop pushbutton, MPMT/P	IP 66	Type 1, 3R, 4, 4X, 12, 13
Selector switch, M2SS/M3SS	IP 66	Type 1, 3R, 4, 4X, 12, 13
Key operated selector switch, M2SSK/M3SSK	IP 66	Type 1, 3R, 4, 4X, 12
Toggle switch, MTS2/MTS3	IP 66	Type 1, 3R, 4, 4X, 12, 13
Definite purpose pushbutton, 30 mm, KP6	IP 66	–
Reset button, KPR	IP 66	Type 1, 3R, 4, 4X, 12, 13
Pilot lights, ML	IP 66	Type 1, 3R, 4, 4X, 12, 13
Buzzer, KB	IP 65	Type 4X
Potentiometer, KT	IP 66	Type 1, 3R, 4, 4X, 12, 13
Contact block and transformer block	IP 20	
Enclosures		
Plastic enclosures	IP 66	
Metallic enclosures	IP 67	

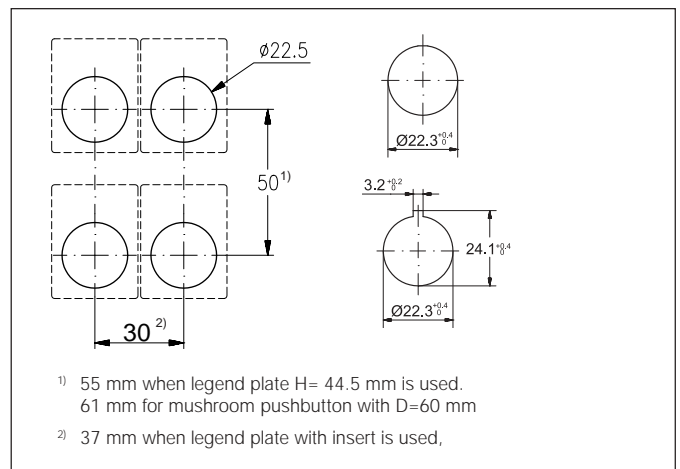
### Material

No ozone depleting substances in the products.

All front parts are made of polycarbonate

Material		
PC	Polycarbonate	High impact strength, good outdoor resistance. Can withstand light acid solutions, aliphatic hydrocarbons, paraffin, alcohols, animal and vegetable greases.
PSU	Polysulphone	Can withstand high temperatures, acids, basic solutions, alkaline compounds, oils, alcohols.
PA	Polyamide	Can withstand high temperatures, aliphatic, aromatic and chlorinated hydrocarbons, esters, ketone-aldehydes, alcohols and basic solutions.
PBT		Can withstand temperature, aliphatic and aromatic hydrocarbons, acids, basic solutions, alcohols, grease and oils
Zinc		Good corrosion resistance in inland-, sea and industrial atmosphere.
Light-alloy		Good corrosion resistance in inland-, sea and industrial atmosphere.
Rubber		Chloroprene Nitrile

### Drilling plan for pushbuttons, switches and pilot lights



# Pilot devices, Ø 22 mm

## Technical data – Modular range

### Mechanical life

#### Operators

Pushbuttons with flush or extended button, momentary mushroom pushbutton	2 million operations
Selector switch, maintained mushroom pushbutton, key operated selector switch and double pushbutton	0.5 million operations
Emergency stop pushbutton	0.1 million operations
Toggle switch	1 million operations
Lockable pushbuttons	0.3 million operations

### Temperature

Ambient temperature during operation	-25 to +70 °C
Storage temperature	-30 to +85 °C

### Terminals

Plus-minus Pozidriv No.2 screw with DIN-washer.	
Connectable area	min. 1 x 0.5 mm <sup>2</sup> /AWG 20 max. 2 x 2.5 mm <sup>2</sup> /2 x AWG14
Recommended torque	0.9 Nm

### Tightening torque

Locking nut, M22	Min. 2 Nm Max. 2.3 Nm
------------------	--------------------------

### Contact blocks

Mechanical endurance	10 million operations
Self cleaning contacts of silver, NC contact with positive opening. At voltages and currents below 24 V and 5.6 mA two contact blocks in parallel are recommended. As an alternative, gold plated contacts can be used.	

Ratings as per UL, CSA, NEMA	A600 AC	Q600 DC
Rated insulation voltage	600 V	600 V
Rated thermal current	10 A	2.5 A
Rated operational current	at 120 V 6 A 240 V 3 A 480 V 1.5 A 600 V 1.2 A	at 125 V 0.55 A 250 V 0.27 A 480 V 0.10 A 600 V 0.10 A

Ratings as per IEC 60 947-5-1	
Rated insulation voltage, $U_i$	690 V
Rated thermal current, $I_{th}$	10 A
Rated operational current, $I_e$	
utilisation category AC 15, at 120 V	8 A
230 V	6 A
400 V	4 A
690 V	2 A
Rated operational current, $I_e$	
utilisation category DC 13, at 24 V	5 A
125 V	1.1 A
250 V	0.55 A

Contact resistance	< 25 mΩ
Compulsory function test	at 5V, 16 mA

Max. number of contact blocks per operator <sup>1)</sup>	
Pushbutton, toggle switch and mushroom pushbutton	6
Maintained pushbutton	4
Double pushbutton, selector switch, key operated selector switch and emergency stop pushbutton	4

Short circuit protection	
Max. fuse at 1 kA	16 A ordinary 10 A delayed

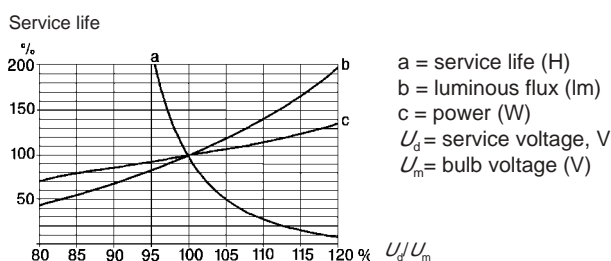
<sup>1)</sup> The contact blocks can be stacked in max. two levels on the 3- block holder.  
Only one level is accepted on the 5-block holder.

### Lamp block

Ratings as per IEC 60 947-5-1	
Rated insulation voltage	230 V
Base	Ba 9s
Permissible power, up to	2 W

#### Service life of filament bulb

Relative service life, luminous flux and power consumption at different service voltages.  
It is generally true to say that bulbs for lower voltages give more light and have better vibration-withstand capability than bulbs for higher voltages.



#### Lamp comparison

Bulb type	Approx. service life (hours)	Shock and vibration immunity	High operating temperature	Low power consumption	Brightness
Filament	5000 - 10 000	+	+	+	+++
LED	25 000 - 50 000	+++	++	++	++

Very good +++  
Good ++  
Less good +

### Transformer block

Suitable for filament bulb 6 or 24 V AC and 1.2 W and LED 24 V.

Rated power	1.5 W
Rated voltage	Ratio, see Accessories page ??
Rated insulation voltage acc. to IEC 70 °C (DT)	Class E

# Pilot devices, Ø 22 mm

## Technical data – Compact range



### Approvals

The pushbuttons, selector switches and pilot lights are approved by:  
- National approval agencies: UL and China Compulsory Product Certification

For detail information please contact ABB

### Standards

IEC 60947-1	Low-voltage switchgear and controlgear - Part 1: General rules
IEC 60947-5-1	Low-voltage switchgear and controlgear - Part 5-1: Control circuit devices and switching elements - Electromechanical control circuit devices
IEC 60947-5-5	Low-voltage switchgear and controlgear - Part 5-5: Control circuit devices and switching elements - Electrical emergency stop device with mechanical latching function
IEC 60073	Basic and safety principles for man-machine interface, marking and identification - Coding principles for indicators and actuators
IEC 60529	Degrees of protection provided by enclosures (IP Code)
EN 60947-1	Low-voltage switchgear and controlgear - Part 1: General rules
EN 60947-5-1	Low-voltage switchgear and controlgear - Part 5-1: Control circuit devices and switching elements - Electromechanical control circuit devices
EN 60947-5-5	Low-voltage switchgear and controlgear - Part 5-5: Control circuit devices and switching elements - Electrical emergency stop device with mechanical latching function
EN 60073	Basic and safety principles for man-machine interface, marking and identification - Coding principles for indication devices and actuators
EN 60529	Degrees of protection provided by enclosures (IP Code)
EN 50013	Low-voltage switchgear and controlgear for industrial use - Terminal marking and distinctive number for particular control switches
UL 508	Industrial Control Equipment
CSA C22.2 No 14	Industrial Control Equipment

### Degrees of protection

Pilot device:	IP	UL/CSA
Compact pushbutton, CP1, CP2, CP3, CP4	IP66	Type 1, 3R, 4, 4X, 12, 13
Compact selector switch, C2SS, C3SS	IP66	Type 1, 3R, 4, 4X, 12, 13
Compact pilot light, CL	IP66	Type 1, 3R, 4, 4X, 12, 13
Compact emergency stop pushbutton, CE3T, CE3P, CE4T, CE4P, CE3K1, CE4K1	IP66	Type 1, 3R, 4, 4X, 12, 13
Terminals	IP20	

### Temperature

Ambient temperature during operation	-25 to +70 °C
Storage temperature	-30 to +85 °C

### Tightening torque

Locking nut, M22	Min. 2 Nm Max. 2.3 Nm
------------------	--------------------------

### Contacts

Ratings as per UL, CSA, NEMA	C300	R300
Rated insulation voltage	250 V	250 V
Rated thermal current	2.5 A	1 A
Rated operational current		
at 120 V	1.5 A	
125 V		0.22 A
240 V	0.75 A	
250 V		0.11 A

### Ratings as per IEC 60947-5-1

Rated insulation voltage, $U_i$	300 V
Rated thermal current, $I_{th}$	5 A
Rated operational current, $I_e$ , utilisation category AC-15	
at 120 V	1.5 A
240 V	1 A
Rated operational current, $I_e$ , utilisation category DC-13,	
at 24 V	0.3 A
125 V	0.2 A

### Short circuit protection

Max. fuse at 1 kA	16 A ordinary 10 A delayed
-------------------	-------------------------------

### Tightening torque

compact pushbutton & selector switch	0.8 Nm (M3)
compact pilot light	0.9 Nm (M3.5)
compact emergency stop pushbutton	0.8 Nm (M3)

### Terminals

Plus-minus Pozidriv No. 2	
Compact pushbutton	
Compact selector switch	
Compact emergency stop	
Connectable area	min. 1 x 0.5 mm <sup>2</sup> /1 x AWG22 max. 2 x 1.5 mm <sup>2</sup> /2 x AWG14
Compact pilot light	
Connectable area	min. 1 x 0.5 mm <sup>2</sup> /1 x AWG20 max. 2 x 2.5 mm <sup>2</sup> /2 x AWG14

### Material

#### No ozone depleting substances in the products.

All front parts are made of polycarbonate

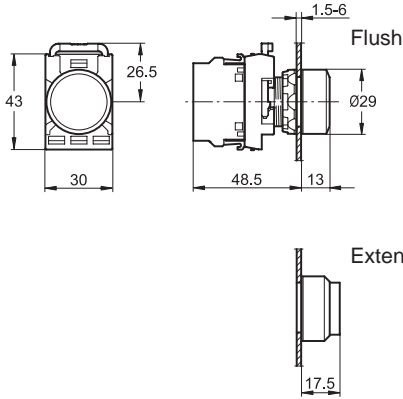
Material	Characteristics
PC Polycarbonate	High impact strength, good outdoor resistance. Can withstand light acid solutions, aliphatic hydrocarbons, paraffin, alcohols, animal and vegetable greases.
PA Polyamide	Can withstand high temperatures, aliphatic, aromatic and chlorinated hydrocarbons, esters, ketone-aldehydes, alcohols and basic solutions.
PBT	Can withstand temperature, aliphatic and aromatic hydrocarbons, acids, basic solutions, alcohols, grease and oils
Zinc	Good corrosion resistance in inland-, sea and industrial atmosphere.
Light-alloy	Good corrosion resistance in inland-, sea and industrial atmosphere.
Rubber	Chloroprene Nitrile

# Pilot devices, Ø 22 mm

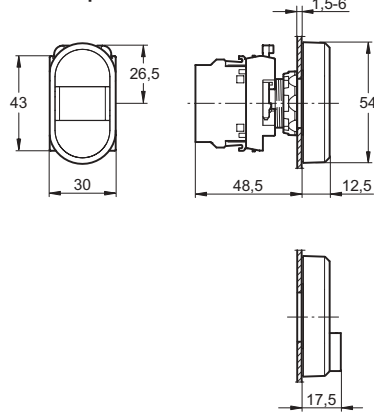
## Dimensions

### Modular range

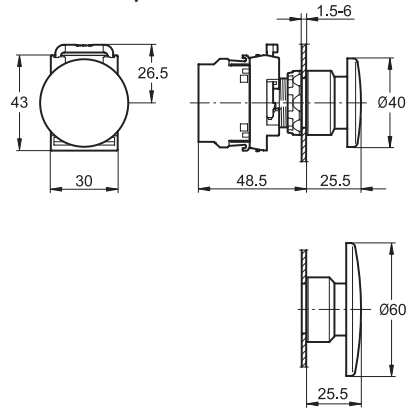
Pushbutton



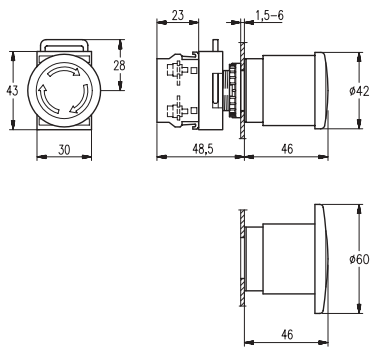
Double pushbutton



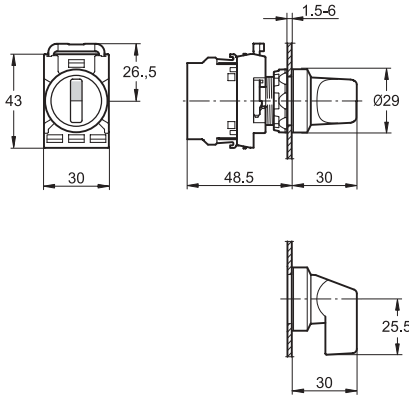
Mushroom pushbutton



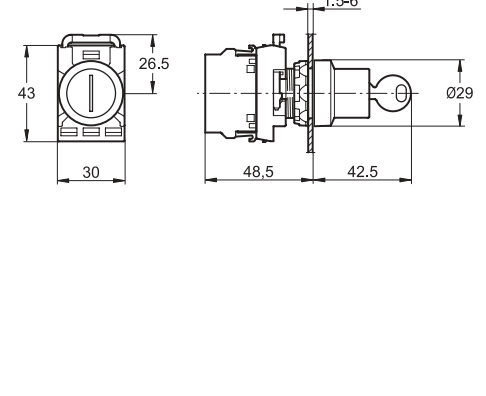
Emergency stop pushbutton



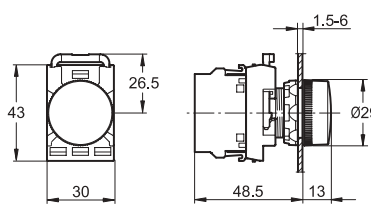
Selector switch



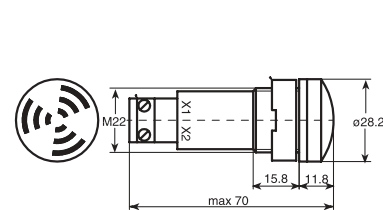
Key-operated selector switch



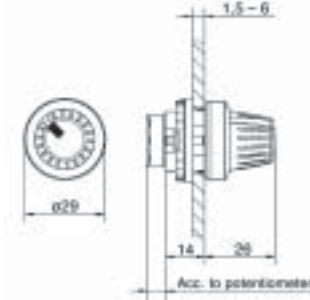
Pilot light



Buzzer

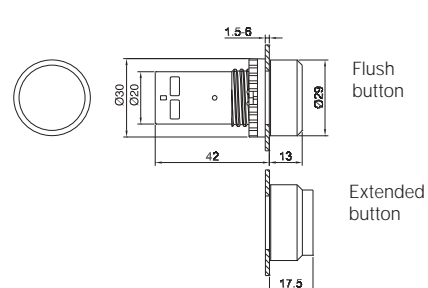


Potentiometer

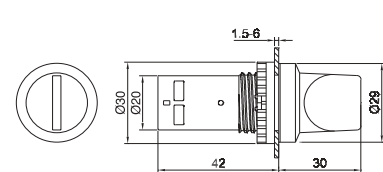


### Compact range

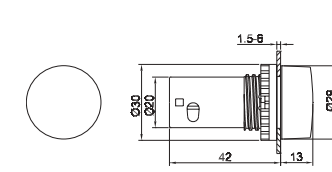
Pushbutton



Selector switch



Pilot light



Dimensions in mm.

Drilling plans for modular and compact pilot devices See page 25

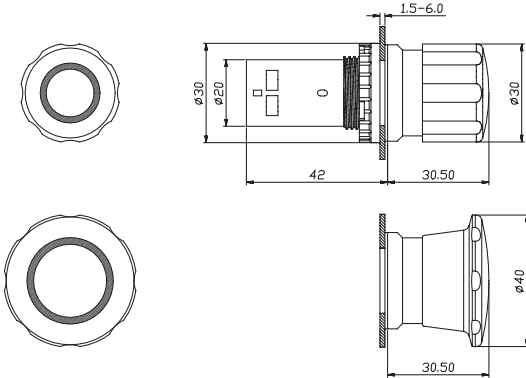
# Pilot devices, Ø 22 mm

## Dimensions

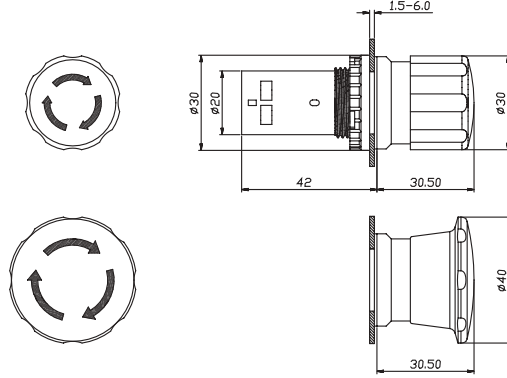
### Compact range

#### Emergency stop pushbuttons

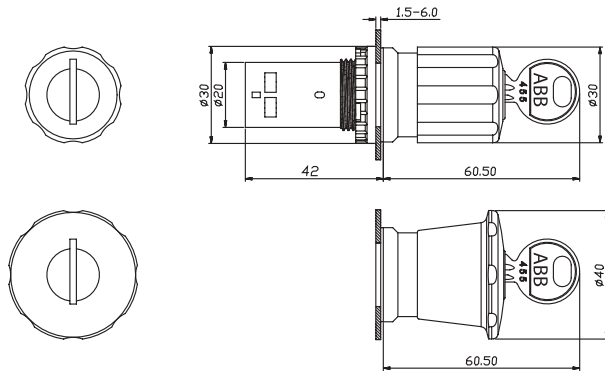
##### CE3P/CE4P (Pull release)



##### CE3T/CE4T (Twist release)



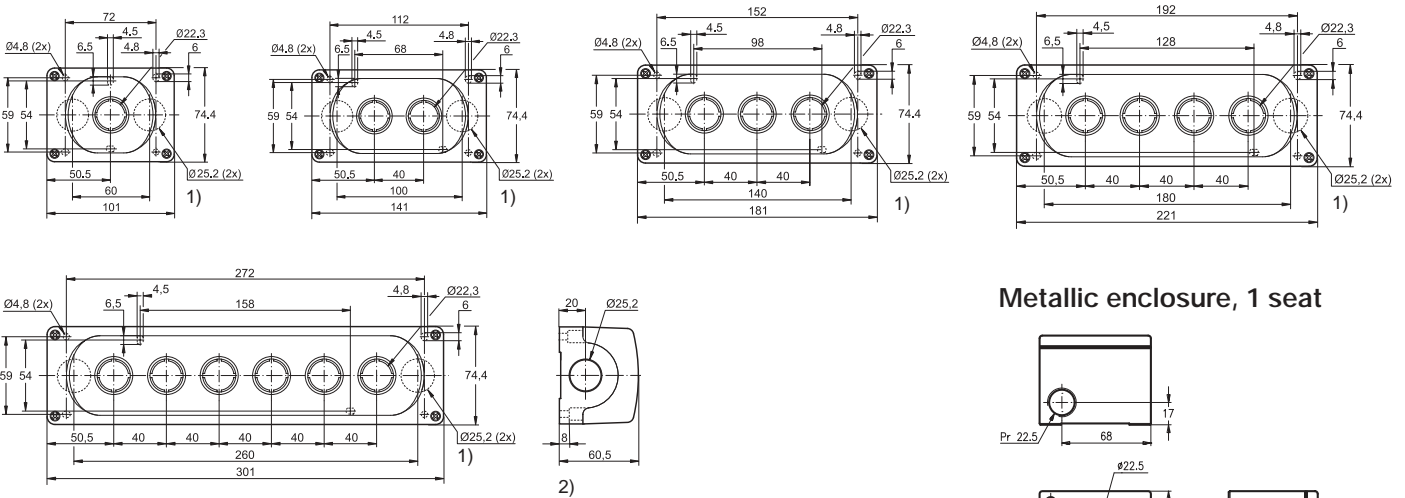
##### CE3K1/CE4K1



### Enclosures

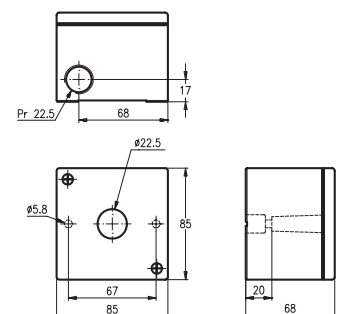
#### Plastic enclosures, 1, 2, 3, 4 and 6 seat

Dimensions in mm.



- 1) Knock-outs in the bottom
- 2) Both sides identical. Knock-outs, D = 22.5 or 28.6

#### Metallic enclosure, 1 seat



# Pilot devices, 22 mm

## Color selection





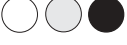
### Color selection according to IEC 60 073

IEC 60 073 specifies coding principles for indicators and actuators and gives recommendation regarding the use of colors. An excerpt from the standard is given below. For detailed information, see the standard.

#### Choice of colors

The general principles for the meaning of colors for the indication of information are given in table below

#### Meaning of colors – General principles

Color	Meaning		
	Safety of persons or environment	Condition of process	State of equipment
RED 	Danger	Emergency	Faulty
YELLOW 	Warning/caution	Abnormal	Abnormal
GREEN 	Safe	Normal	Normal
BLUE 	Mandatory significance		
WHITE, GREY, BLACK 	No specific meaning assigned		

### Non-illuminated actuators

#### Emergency actuators

EMERGENCY-STOP / OFF actuators shall be identified by the color **RED**

#### STOP / OFF actuators

**WHITE**, **GREY** and **BLACK** are the preferred colors for STOP / OFF actuators, with the main preference being for **BLACK**. **RED** is also permitted. **GREEN** shall not be used.

#### START / ON actuators

**WHITE**, **GREY** and **BLACK** are the preferred colors for START / ON actuators, which cause the closing of switching devices and the equipment to start, with the main preference being for **WHITE**. **GREEN** is also permitted. **RED** shall not be used.

#### Use of **WHITE** and **BLACK** for specific meanings

Where the colors **WHITE** and **BLACK** are used to distinguish between START / ON and STOP / OFF actuators, then the color **WHITE** shall be used for START / ON actuators and the color **BLACK** shall be used for STOP / OFF actuators.

#### The same actuators serving for START and STOP or ON and OFF

**WHITE**, **GREY** and **BLACK** are the preferred colors for actuators which, when actuated several times, act alternately as a START / ON and STOP / OFF actuator.

The colors **YELLOW** and **GREEN** shall not be used. The color **RED** shall be used only in cases where the same actuator, other than a push-button, is used for both EMERGENCYSTOP / OFF and normal operation.

**WHITE**, **GREY** and **BLACK** are preferred colors for actuators which cause a movement while they are actuated and stop the movement when they are released (such as inching or jogging actuators). **GREEN** is also permitted. **RED** shall not be used.

#### RESET actuators

RESET actuators (used, for example, with protective relays) shall be **BLUE**, **WHITE**, **GREY** or **BLACK**, except RESET actuators which also act as STOP / OFF actuators. The color of such STOP / OFF actuators shall be in accordance with

**STOP / OFF actuators** above.

# Pilot devices, 22 mm

## Explanation of type codes

### Explanation of type code

#### Modular Pilot Devices

##### Pilot light

Example 1: Type **ML1-100R**

**L1** Pilot Light Head

**Lens color:**  
**R** = Red    **W** = White  
**G** = Green   **C** = Clear  
**Y** = Yellow  
**L** = Blue

##### Operators

Example 2: Type **MP1-10Y**

**P** Pushbutton  
**PD** Pushbutton, Double  
**PK** Pushbutton, Key-lockable  
**PM** Pushbutton, Mushroom  
**PMT** Pushbutton, Mushroom, Twist release  
**PMP** Pushbutton, Mushroom, Pull release  
**2SS** 2-pos. Selector Switch  
**3SS** 3-pos. Selector Switch  
**KB** Buzzer  
**KT** Potentiometer

**Button color:**  
**R** = Red    **W** = White  
**G** = Green   **B** = Black (non-illuminated only)  
**Y** = Yellow   **C** = Clear  
**L** = Blue    **U** = Grey (non-illuminated only)

**Lens color for double pushbuttons:**  
**R** = Red  
**G** = Green  
**Y** = Yellow  
**C** = Clear  
**B** = Black (non-illuminated only)

Example 3: Type **M2SSK1-101**

**2SSK** 2-pos. Selector Switch, Key-lockable  
**3SSK** 3-pos. Selector Switch, Key-lockable  
**PK** Pushbutton, Key-lockable

**Key code :**  
**1** = 71  
**2** = 72  
**3** = 73

##### Buzzer, contact blocks, lamp block

Example 4: Type **MCBH-10**

**B** Buzzer  
**CB** Contact Block  
**CBH** Contact Block with Holder  
**LB** Lamp Block

**Contact blocks:**  
**10** 1 NO  
**01** 1 NC  
**11** 1 NO +1 NC  
**02** 2 NC  
**20** 2 NO

M= "Generation" M, Modular range

#### Compact Pilot Devices

Example 5: Type **CL-100R**

Example 6: Type **C2SS1-10R-10**

**E** Emergency stop  
**L** Pilot Light  
**P** Pushbutton  
**2SS** 2-pos. Selector Switch  
**3SS** 3-pos. Selector Switch

**Button color/ Lens colour for compact pilot light and pushbuttons**  
**R** = Red    **W** = White  
**G** = Green   **B** = Black  
**Y** = Yellow   **C** = Clear (pilot light only)  
**L** = Blue    **U** = Grey

**Button color for compact selector switch**  
**R** = Red  
**B** = Black  
**U** = Grey

C= Compact Range



## ***Get in touch with the Pilot Devices from ABB***

A pushbutton has to be sturdy and reliable, applicable in all environments and adaptable to widely differing requirements. Further, it should be easy to install. You will find all these features in ABB's range of Pilot Devices.



ABB Automation Technologies AB/Cewe-Control  
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