

AC1400



Pilot Devices

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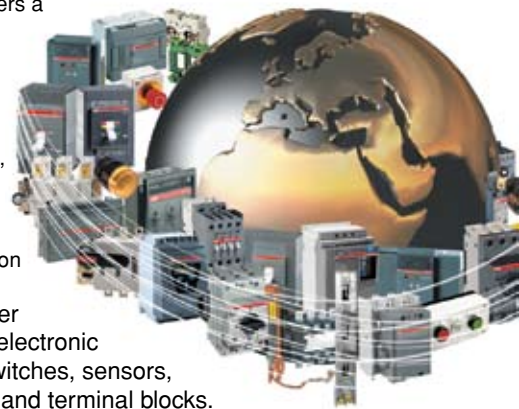
ABB – A sure hit in Pilot Devices



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 & Combination starters and a wider range of electronic relays, switches, sensors, breakers and terminal blocks.



Pilot Devices

ABB offers a complete range of 22 and 30 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

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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.



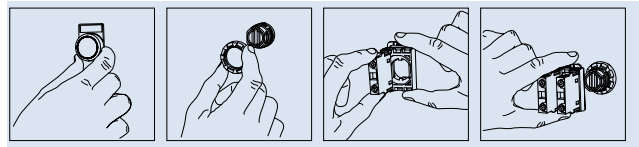
Accessories

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.

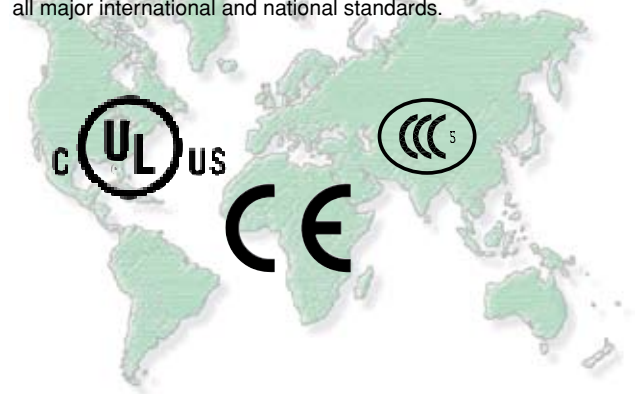


Aesthetic – Functional – Flexible

- 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.





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



General construction

- Snap-on feature reduces installation time
- Bezels: Black plastic or chrome metal. Grey plastic available as accessory.
- Contact block holder features rear mounting with quick-release locking mechanism for high security
- Buttons available in several colors
- Engraved text caps available
- Custom-specific markings on request

Operators

- Pushbuttons, illuminated and non-illuminated
- Double pushbuttons, illuminated and non-illuminated
- Mushroom pushbuttons, illuminated and non-illuminated, Ø 40 mm and Ø 60 mm
- Emergency stop pushbuttons, illuminated and non-illuminated, twist or pull release
- Selector switches, illuminated and non-illuminated, 2 or 3 position, short or long handle
- Key operated selector switches, 2 or 3 position
- Toggle switches, 2 or 3 position

Pilot lights

- Full voltage, resistor and transformer types
- LED & filament bulbs available for illuminated pushbuttons and pilot lights

Contact blocks

- Quick-mount, quick-release contact block holder for fast and easy assembly
- NO & NC contact blocks are color coded for easy identification: Green = NO, Red = NC
- Silver tipped contacts
- Wiping action for high reliability
- Low energy gold plated contact blocks
- Base mounted contact blocks which snap onto a 35 mm DIN rail or into a plastic enclosure
- Contact block holder for three or five blocks in a single row

Additional products

- Buzzer, continuous and pulsating
- 5 k Ω and 10 k Ω potentiometers
- Definite purpose pushbuttons
- Reset pushbuttons
- Broad range of accessories

22 mm Pilot devices - Modular range

Mounting

Exploded view

Contact block

Single pole with making or breaking contact

Holder

Available either for three or five blocks in one single row. Additional blocks can be stacked on holders for three blocks.

Legend plates

Of aluminium with slots that guide the legend plate and the operator into the correct position. Please, see the chapter 'legend plates' for more information.

Lamp block

Illuminated pushbuttons, illuminated selector switches and pilot lights have a lamp block in the center position of the holder.

Nut

Operator

Buttons, lenses and handles in several colors. Illuminated or non-illuminated.

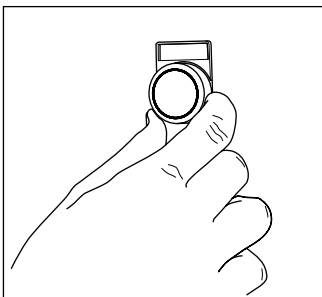
Legend plate holder

Of black plastic. Insert of brushed aluminium. Please, see the chapter 'legend plates' for more information.

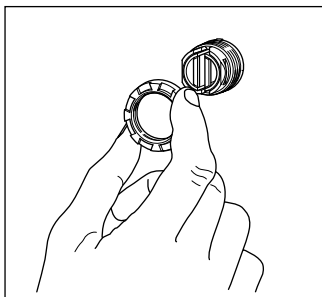
Bezels

Pushbuttons, selector switches and toggle switches with bezel in black plastic or chrome metal are available.

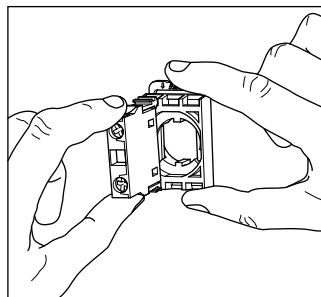
Easy to mount



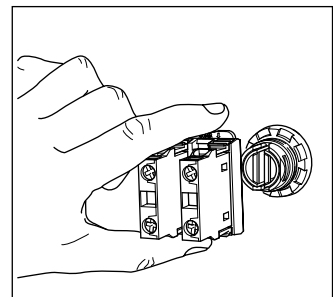
The operator is to be inserted from the front.....



...and secured at the back with a nut.

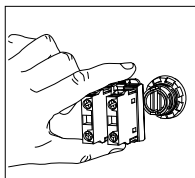
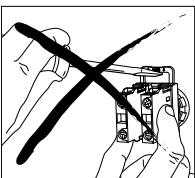


The contact blocks/lamp block are then snapped on to the holder...



...and the holder snaps on to the operator.

...and to demount

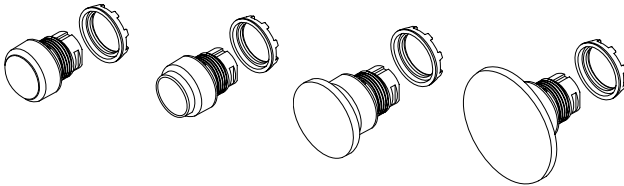


Press down the spring on the holder and pull the holder from the actuator.

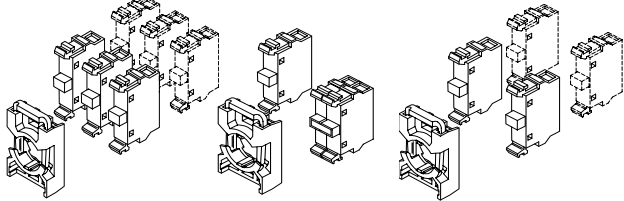
22 mm Pilot devices - Modular range

Selection Guide

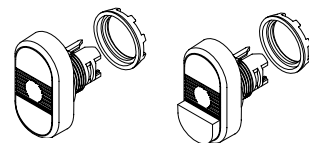
Pushbuttons and Mushroom pushbuttons



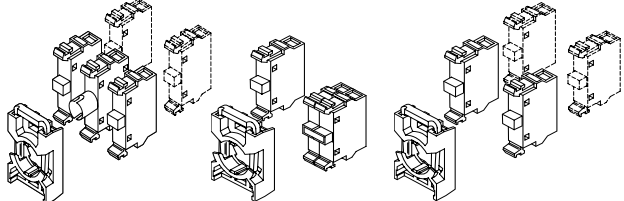
Contact block/lamp block combinations



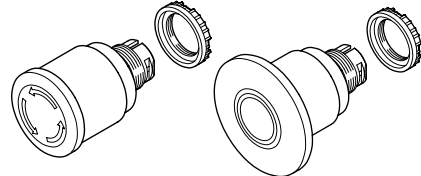
Double pushbuttons



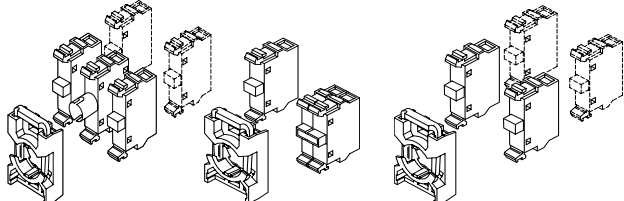
Contact block/lamp block combinations



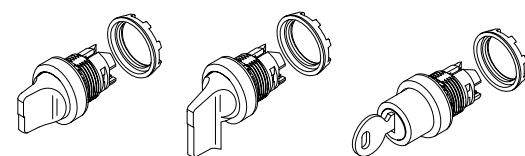
Emergency stop pushbuttons



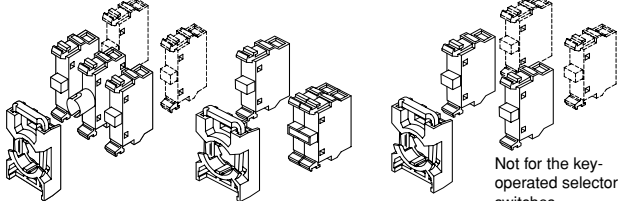
Contact block/lamp block combinations



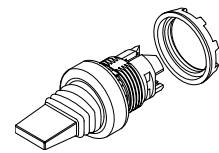
Selector switches



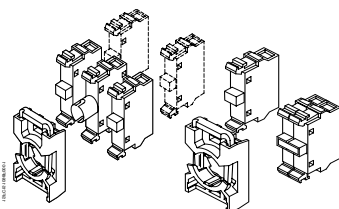
Contact block/lamp block combinations



Toggle switches



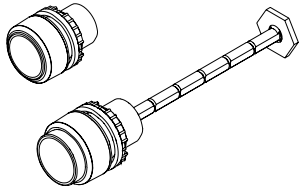
Contact block combinations



Definite purpose push-buttons

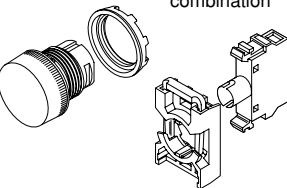


Reset pushbuttons



Pilot lights

Lamp block combination



Buzzers



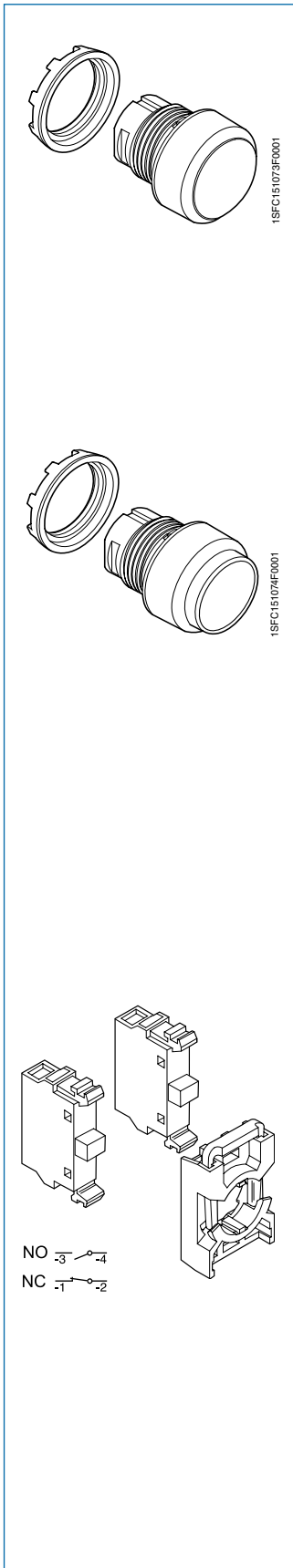
Potentiometers



22 mm Pilot devices - Modular range

Flush and extended pushbuttons, non-illuminated

Momentary and maintained



Operator ...

Description	Plastic Bezel		Chrome Metal Bezel	
	Catalogue No.	List price	Catalogue No.	List price
with flush button				
Momentary				
Red	MP1-10R		MP1-30R	
Green	MP1-10G		MP1-30G	
Yellow	MP1-10Y		MP1-30Y	
Blue	MP1-10L		MP1-30L	
White	MP1-10W		MP1-30W	
Black	MP1-10B		MP1-30B	
Clear	MP1-10C		MP1-30C	
Set of 6 color caps	MP1-10M		MP1-30M	
Maintained ¹⁾				
Red	MP2-10R		MP2-30R	
Green	MP2-10G		MP2-30G	
Yellow	MP2-10Y		MP2-30Y	
Blue	MP2-10L		MP2-30L	
White	MP2-10W		MP2-30W	
Black	MP2-10B		MP2-30B	
Clear	MP2-10C		MP2-30C	
with extended button				
Momentary				
Red	MP3-10R		MP3-30R	
Green	MP3-10G		MP3-30G	
Yellow	MP3-10Y		MP3-30Y	
Blue	MP3-10L		MP3-30L	
White	MP3-10W		MP3-30W	
Black	MP3-10B		MP3-30B	
Clear	MP3-10C		MP3-30C	
Set of 6 color caps	MP3-10M		MP3-30M	
Maintained ¹⁾				
Red	MP4-10R		MP4-30R	
Green	MP4-10G		MP4-30G	
Yellow	MP4-10Y		MP4-30Y	
Blue	MP4-10L		MP4-30L	
White	MP4-10W		MP4-30W	
Black	MP4-10B		MP4-30B	
Clear	MP4-10C		MP4-30C	

Contact blocks, and holder

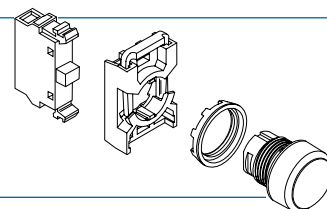
Blocks	Catalogue No.	List price
1 NO with holder	MCBH-10	
1 NC with holder	MCBH-01	
2 NO with holder	MCBH-20	
2 NC with holder	MCBH-02	
1 NO + 1 NC with holder	MCBH-11	
1 NO without holder	MCB-10	
1 NC without holder	MCB-01	
Holder for 3 blocks	MCBH-00	

¹⁾ No contact block in the center position

Ordering example

Requested: A modular pushbutton, momentary, with red flush button and one NO contact.

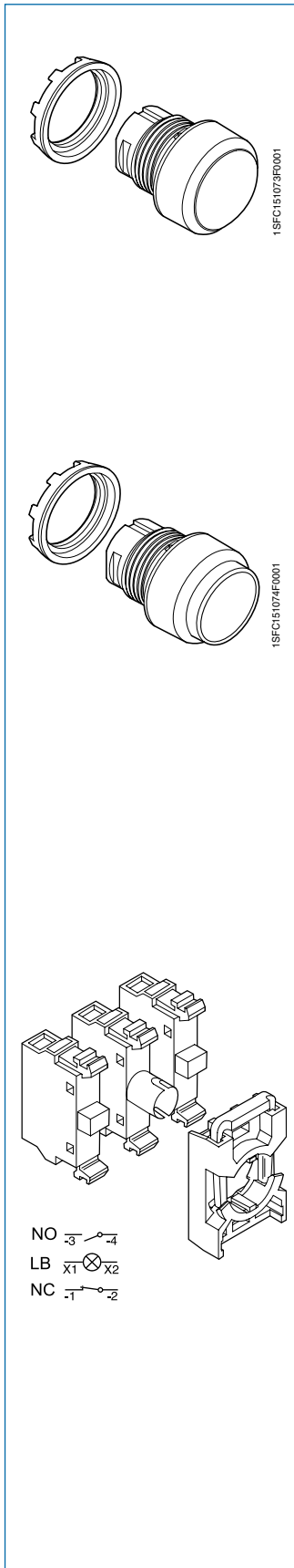
Order: 1 piece of MP1-10R + 1 piece of MCBH-10



22 mm Pilot devices - Modular range

Flush and extended pushbuttons, illuminated

Momentary and maintained



Operator ...

Description	Black Plastic Bezel		Chrome Metal Bezel	
	Catalogue No.	List price	Catalogue No.	List price
with flush button				
Momentary ¹⁾				
Red	MP1-11R		MP1-31R	
Green	MP1-11G		MP1-31G	
Yellow	MP1-11Y		MP1-31Y	
Blue	MP1-11L		MP1-31L	
White	MP1-11W		MP1-31W	
Clear	MP1-11C		MP1-31C	
Set of 6 color caps	MP1-11M		MP1-31M	
Maintained ^{1) 3)}				
Red	MP2-11R		MP2-31R	
Green	MP2-11G		MP2-31G	
Yellow	MP2-11Y		MP2-31Y	
Blue	MP2-11L		MP2-31L	
White	MP2-11W		MP2-31W	
Clear	MP2-11C		MP2-31C	
with extended button				
Momentary ¹⁾				
Red	MP3-11R		MP3-31R	
Green	MP3-11G		MP3-31G	
Yellow	MP3-11Y		MP3-31Y	
Blue	MP3-11L		MP3-31L	
White	MP3-11W		MP3-31W	
Clear	MP3-11C		MP3-31C	
Set of 6 color caps	MP3-11M		MP3-31M	
Maintained ^{1) 3)}				
Red	MP4-11R		MP4-31R	
Green	MP4-11G		MP4-31G	
Yellow	MP4-11Y		MP4-31Y	
Blue	MP4-11L		MP4-31L	
White	MP4-11W		MP4-31W	
Clear	MP4-11C		MP4-31C	

Contact blocks, lamp block and holder ²⁾

Blocks	Catalogue No.	List price
1 NO + 1 LB with holder	MCBH-101	
1 NC + 1 LB with holder	MCBH-011	
2 NO + 1 LB with holder	MCBH-201	
2 NC + 1 LB with holder	MCBH-021	
1 NO + 1 NC + 1 LB with holder	MCBH-111	
1 NO without holder	MCB-10	
1 NC without holder	MCB-01	
Lamp block for 2 W, max 230 V AC/DC bulb or LED	MLB-1	
Holder for 3 blocks	MCBH-00	

¹⁾ No contact block in the center position

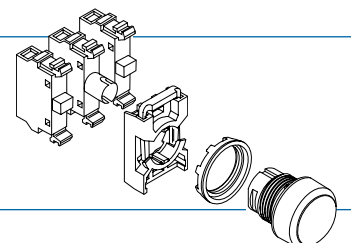
²⁾ Lamp block MLB-1. Bulb not included. For other lamp blocks see Accessories.

³⁾ Bulb max 1.2 W, not included.

Ordering example

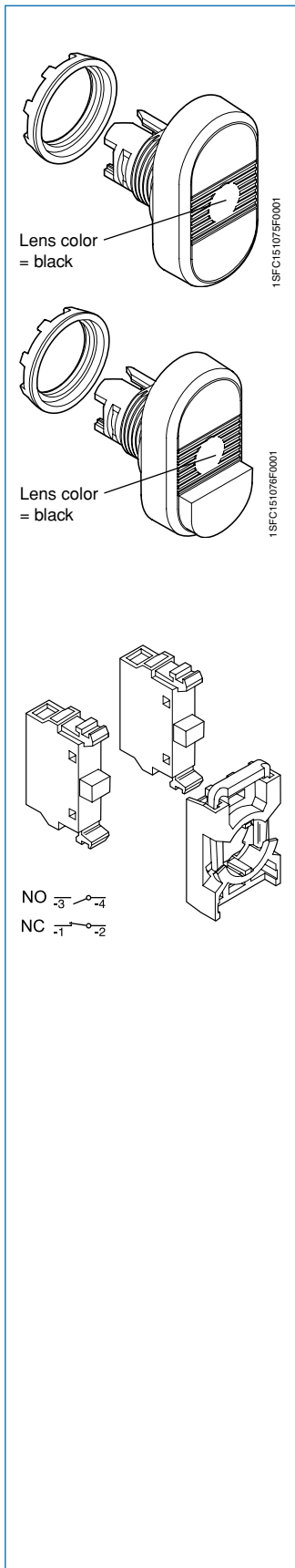
Requested: A modular pushbutton, maintained and illuminated with green flush button and one NO + one NC contact.

Order: 1 piece of MP2-11G + 1 piece of MCBH-111
Bulb - see accessories



22 mm Pilot devices - Modular range

Double pushbuttons, non-illuminated



Operator ...

Upper button		Lower button		Catalogue No.	List Price		
Color	Text	Color	Text				
with flush buttons ¹⁾							
Green	No text ON START	Red	No text O OFF STOP	MPD1-11B MPD2-11B MPD3-11B MPD4-11B MPD5-11B MPD6-11B MPD7-11B MPD8-11B			
White	No text ON START	Black	No text O OFF STOP				
with extended lower button ¹⁾							
Green	No text ON START	Red	No text O OFF STOP			MPD12-11B MPD13-11B MPD14-11B MPD15-11B MPD16-11B MPD17-11B MPD18-11B MPD19-11B	
White	No text ON START	Black	No text O OFF STOP				

Contact blocks, and holder

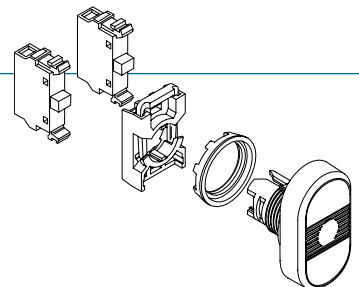
Blocks	Catalogue No.	List Price
2 NO with holder	MCBH-20	
2 NC with holder	MCBH-02	
1 NO + 1 NC with holder	MCBH-11	
1 NO without holder	MCB-10	
1 NC without holder	MCB-01	
Holder for 3 blocks	MCBH-00	

¹⁾ No contact block in the center position.

Ordering example – Double pushbutton

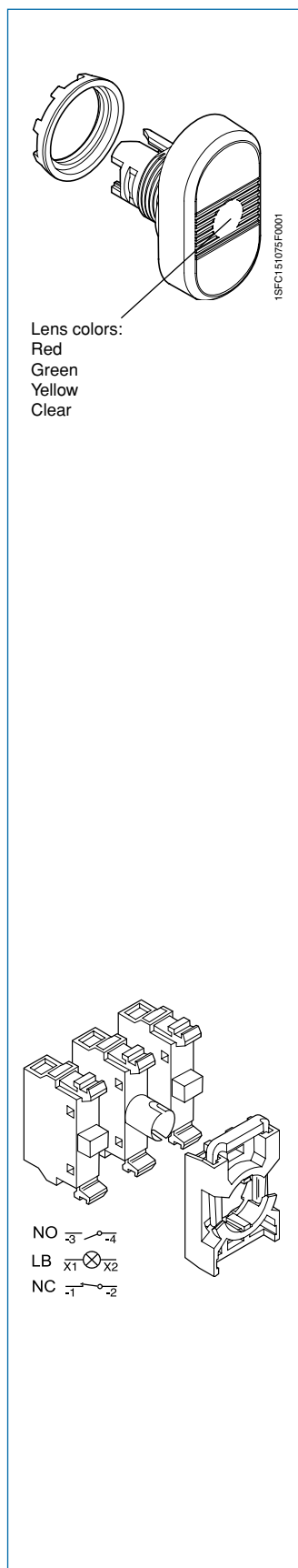
Requested: A non-illuminated double pushbutton, Green/Red, No text, with 2 NO blocks

Order: 1 piece of MPD1-11B + 1 piece of MCBH-20



22 mm Pilot devices - Modular range

Double pushbuttons, illuminated



Operator ...

Upper button		Lower button		Catalogue No.	List Price				
Color	Text	Color	Text						
with flush buttons ¹⁾									
Red lens									
Green	No text ON START	Red	No text O OFF STOP	MPD1-11R MPD2-11R MPD3-11R MPD4-11R MPD5-11R MPD6-11R MPD7-11R MPD8-11R					
White	No text ON START	Black	No text O OFF STOP						
Green lens									
Green	No text ON START	Red	No text O OFF STOP			MPD1-11G MPD2-11G MPD3-11G MPD4-11G MPD5-11G MPD6-11G MPD7-11G MPD8-11G			
White	No text ON START	Black	No text O OFF STOP						
Yellow lens									
Green	No text ON START	Red	No text O OFF STOP					MPD1-11Y MPD2-11Y MPD3-11Y MPD4-11Y MPD5-11Y MPD6-11Y MPD7-11Y MPD8-11Y	
White	No text ON START	Black	No text O OFF STOP						
Clear lens									
Green	No text ON START	Red	No text O OFF STOP	MPD1-11C MPD2-11C MPD3-11C MPD4-11C MPD5-11C MPD6-11C MPD7-11C MPD8-11C					
White	No text ON START	Black	No text O OFF STOP						

Contact blocks, lamp block and holder ²⁾

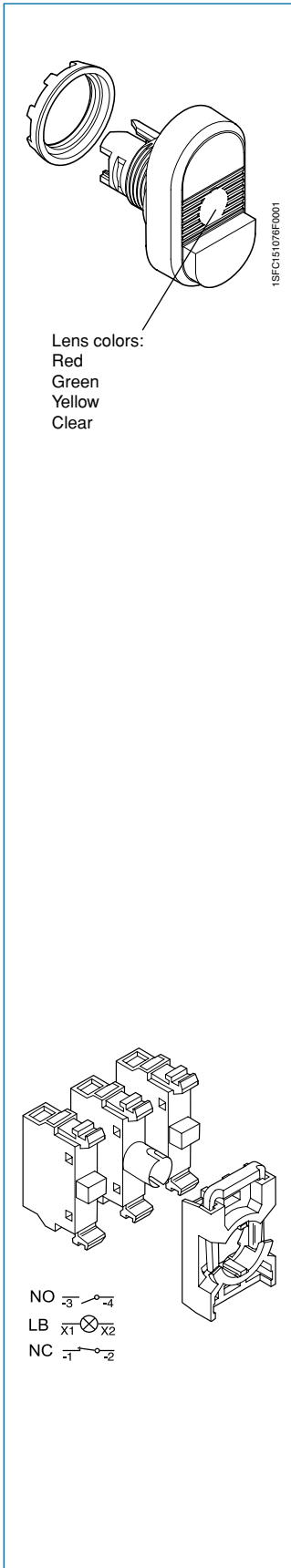
Blocks	Catalogue No.	List Price
2 NO + 1 LB with holder	MCBH-201	
2 NC + 1 LB with holder	MCBH-021	
1 NO + 1 NC + 1 LB with holder	MCBH-111	
1 NO without holder	MCB-10	
1 NC without holder	MCB-01	
Lamp block for 2 W, max 230 V AC/DC bulb or LED	MLB-1	
Holder for 3 blocks	MCBH-00	

¹⁾ No contact block in the center position.

²⁾ Lamp block MLB-1. Bulb not included. For other lamp blocks see Accessories, bulb max 2 W.

22 mm Pilot devices - Modular range

Double pushbuttons, illuminated



Operator ...

Upper button		Lower button		Catalogue No.	List Price
Color	Text	Color	Text		
with extended lower button ¹⁾					
Red lens					
Green	No text	Red	No text	MPD12-11R MPD13-11R MPD14-11R MPD15-11R	
	I		O		
	ON		OFF		
	START		STOP		
White	No text	Black	No text	MPD16-11R MPD17-11R MPD18-11R MPD19-11R	
	I		O		
	ON		OFF		
	START		STOP		
Green lens					
Green	No text	Red	No text	MPD12-11G MPD13-11G MPD14-11G MPD15-11G	
	I		O		
	ON		OFF		
	START		STOP		
White	No text	Black	No text	MPD16-11G MPD17-11G MPD18-11G MPD19-11G	
	I		O		
	ON		OFF		
	START		STOP		
Yellow lens					
Green	No text	Red	No text	MPD12-11Y MPD13-11Y MPD14-11Y MPD15-11Y	
	I		O		
	ON		OFF		
	START		STOP		
White	No text	Black	No text	MPD16-11Y MPD17-11Y MPD18-11Y MPD19-11Y	
	I		O		
	ON		OFF		
	START		STOP		
Clear lens					
Green	No text	Red	No text	MPD12-11C MPD13-11C MPD14-11C MPD15-11C	
	I		O		
	ON		OFF		
	START		STOP		
White	No text	Black	No text	MPD16-11C MPD17-11C MPD18-11C MPD19-11C	
	I		O		
	ON		OFF		
	START		STOP		

Contact blocks, lamp block and holder ²⁾

Blocks	Catalogue No.	List Price
2 NO + 1 LB with holder	MCBH-201	
2 NC + 1 LB with holder	MCBH-021	
1 NO + 1 NC + 1 LB with holder	MCBH-111	
1 NO without holder	MCB-10	
1 NC without holder	MCB-01	
Lamp block for 2 W, max 230 V AC/DC bulb or LED	MLB-1	
Holder for 3 blocks	MCBH-00	

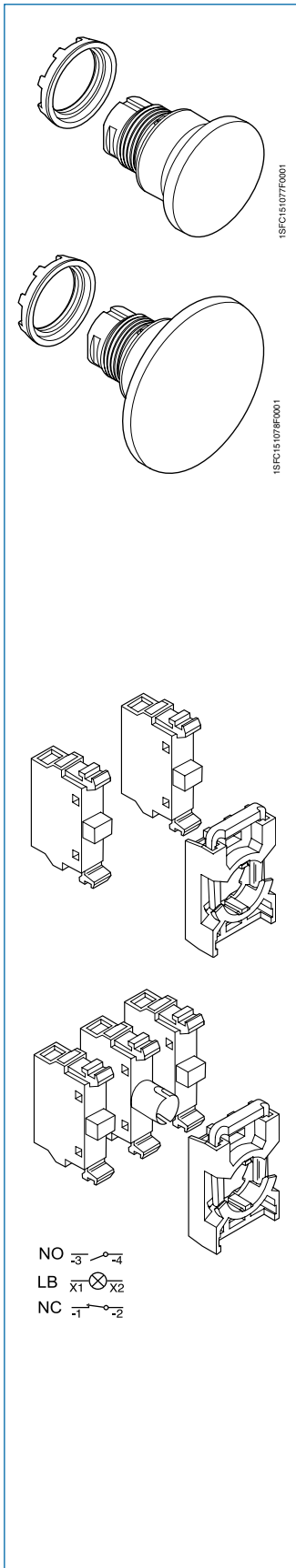
¹⁾ No contact block in the center position

²⁾ Lamp block MLB-1. Bulb not included. Other lamp block see Accessories, bulb max 2 W.

22 mm Pilot devices - Modular range

Mushroom pushbuttons, momentary

Non-illuminated and illuminated



Operator ...

Operator material	Button color	Black Plastic Bezel		Chrome Metal Bezel	
		Catalogue No.	List Price	Catalogue No.	List Price
non-illuminated					
Ø 40 mm					
Plastic	Red	MPM1-10R		MPM1-30R	
	Yellow	MPM1-10Y		MPM1-30Y	
	Black	MPM1-10B		MPM1-30B	
Ø 60 mm					
Plastic	Red	MPM2-10R		MPM2-30R	
	Yellow	MPM2-10Y		MPM2-30Y	
	Black	MPM2-10B		MPM2-30B	
illuminated ¹⁾					
Ø 40 mm					
Plastic	Red	MPM1-11R		MPM1-31R	
	Yellow	MPM1-11Y		MPM1-31Y	
Ø 60 mm					
Plastic	Red	MPM2-11R		MPM2-31R	
	Yellow	MPM2-11Y		MPM2-31Y	

Contact blocks, lamp block and holder ²⁾

Blocks	Catalogue No.	List Price
1 NO with holder	MCBH-10	
1 NC with holder	MCBH-01	
2 NO with holder	MCBH-20	
2 NC with holder	MCBH-02	
1 NO + 1 NC with holder	MCBH-11	
1 NO + 1 LB with holder	MCBH-101	
1 NC + 1 LB with holder	MCBH-011	
2 NO + 1 LB with holder	MCBH-201	
2 NC + 1 LB with holder	MCBH-021	
1 NO + 1 NC + 1 LB with holder	MCBH-111	
1 NO without holder	MCB-10	
1 NC without holder	MCB-01	
Lamp block for 2 W, max 230 V AC/DC bulb or LED	MLB-1	
Holder for 3 blocks	MCBH-00	

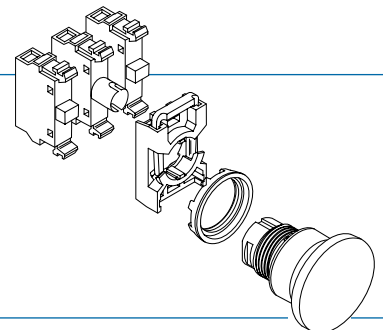
¹⁾ No contact block in the center position

²⁾ Lamp block MLB-1. Bulb not included. Other lamp block see Accessories, bulb max 2 W.

Ordering example – Mushroom Pushbutton

Requested: A modular mushroom pushbutton, Ø 40 mm, illuminated, red, with one NO + one NC contact and a standard lamp block

Order: 1 piece of MPM1-11R + 1 piece of MCBH-111
Bulb - see accessories



22 mm Pilot devices - Modular range

Emergency stop pushbuttons, Machine stop pushbutton

Non-illuminated and illuminated

Fulfills IEC 60947-5-5



Emergency stop pushbuttons

Operator function	Button color and material	Catalogue No.	List Price
Operator non-illuminated			
Ø 40 mm			
Twist release	Red, plastic	MPMT3-10R MPMP3-10R	
Pull release	Red, plastic		
Ø 60 mm			
Twist release	Red, plastic	MPMT4-10R MPMP4-10R	
Pull release	Red, plastic		
Operator, illuminated ¹⁾			
Ø 40 mm			
Twist release	Red, plastic	MPMT3-11R MPMP3-11R	
Pull release	Red, plastic		
Ø 60 mm			
Twist release	Red, plastic	MPMT4-11R MPMP4-11R	
Pull release	Red, plastic		

Machine stop pushbuttons

Operator function	Button color and material	Catalogue No.	List Price
Operator non-illuminated			
Ø 40 mm			
Twist release	Black, plastic	MPMT3-10B MPMP3-10B	
Pull release	Black, plastic		

Contact blocks, lamp block and holder ²⁾

Blocks	Catalogue No.	List Price
1 NO with holder	MCBH-10	
1 NC with holder	MCBH-01	
2 NO with holder	MCBH-20	
2 NC with holder	MCBH-02	
1 NO + 1 NC with holder	MCBH-11	
1 NO + 1 LB with holder	MCBH-101	
1 NC + 1 LB with holder	MCBH-011	
2 NO + 1 LB with holder	MCBH-201	
2 NC + 1 LB with holder	MCBH-021	
1 NO + 1 NC + 1 LB with holder	MCBH-111	
1 NO without holder	MCB-10	
1 NC without holder	MCB-01	
Lamp block for 2 W, max 230 V AC/DC bulb or LED	MLB-1	
Holder for 3 blocks	MCBH-00	

¹⁾ No contact in the center position

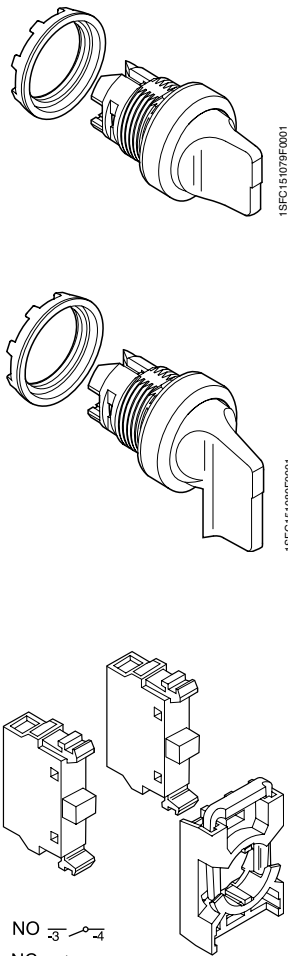
²⁾ Lamp block MLB-1. Bulb not included. Other lamp block see Accessories, bulb max 2 W.

To comply with the standard, IEC 60947-5-5, a number of tests have to be conducted:

Durability test	6 050 cycles. This is not a test of mechanical life. The product has a mechanical life of 100 000 manoeuvres.	Latching test	Impulse voltage test at 2 500 V
		Resetting test	Pulling force < 50 N Turning torque < 1 Nm
Robustness	The force 113 N applied in three axes	Shock	15 g shock
		Vibration	2 h at 50m/s ²
Conditioning	Heat and cold, moist atmosphere, and in 5 % NaCl	Contacts with positive opening operation	15 g shock

22 mm Pilot devices - Modular range

Two-position selector switches, Non-illuminated









NO $\frac{3}{-}$ $\frac{4}{-}$
NC $\frac{1}{-}$ $\frac{2}{-}$

Contact functions
Block positions as seen from operator front.

Handle position	Left block	Right block
A (B)	O	O
C	x	x

O = not actuated (normal state)
x = actuated (state changed)

Operator ...

Symbol	Handle color	Black Plastic Bezel		Chrome Metal Bezel	
		Catalogue No.	List Price	Catalogue No.	List Price
with short handle ¹⁾					
Maintained					
	Red	M2SS1-10R		M2SS1-30R	
	Black	M2SS1-10B		M2SS1-30B	
	Grey	M2SS1-10U		M2SS1-30U	
Maintained					
	Red	M2SS2-10R		M2SS2-30R	
	Black	M2SS2-10B		M2SS2-30B	
	Grey	M2SS2-10U		M2SS2-30U	
Momentary, spring return from C to B					
	Red	M2SS3-10R		M2SS3-30R	
	Black	M2SS3-10B		M2SS3-30B	
	Grey	M2SS3-10U		M2SS3-30U	
with long handle ¹⁾					
Maintained					
	Red	M2SS4-10R		M2SS4-30R	
	Black	M2SS4-10B		M2SS4-30B	
	Grey	M2SS4-10U		M2SS4-30U	
Maintained					
	Red	M2SS5-10R		M2SS5-30R	
	Black	M2SS5-10B		M2SS5-30B	
	Grey	M2SS5-10U		M2SS5-30U	
Momentary, spring return from C to B					
	Red	M2SS6-10R		M2SS6-30R	
	Black	M2SS6-10B		M2SS6-30B	
	Grey	M2SS6-10U		M2SS6-30U	

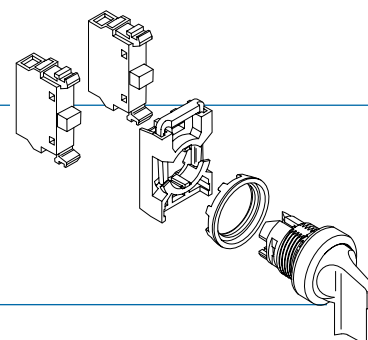
Contact blocks and holder

Blocks	Catalogue No.	List Price
1 NO with holder	MCBH-10	
1 NC with holder	MCBH-01	
2 NO with holder	MCBH-20	
2 NC with holder	MCBH-02	
1 NO + 1 NC with holder	MCBH-11	
1 NO without holder	MCB-10	
1 NC without holder	MCB-01	
Holder for 3 blocks	MCBH-00	

¹⁾No contact block in the center position

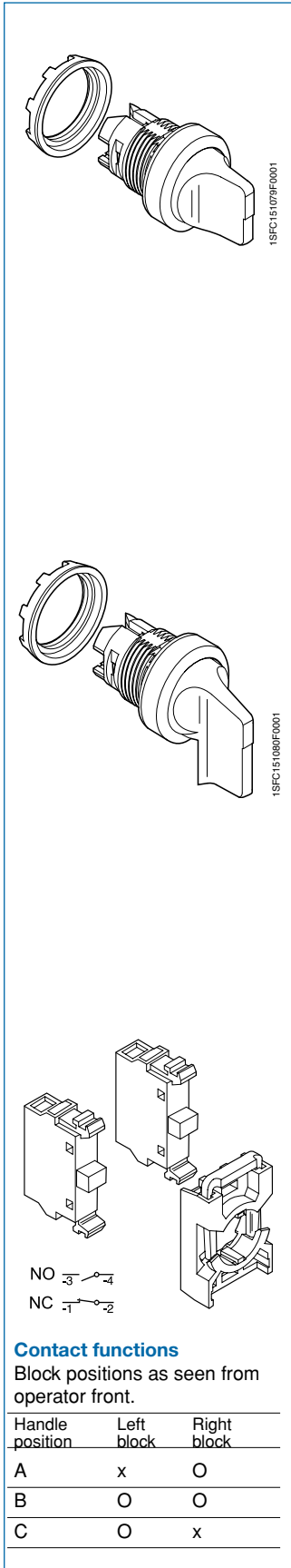
Ordering example

Requested: A non-illuminated modular selector switch. Black.
Maintained.
Handle positions: A and C
With 2 NC contacts
Order: 1 piece of M2SS2-10B + 1 piece of MCBH-02



22 mm Pilot devices - Modular range

Three-position selector switches, Non-illuminated



Operator ...

Symbol	Handle color	Black Plastic Bezel		Chrome Metal Bezel	
		Catalogue No.	List Price	Catalogue No.	List Price
with short handle ¹⁾					
Maintained					
	Red Black Grey	M3SS1-10R M3SS1-10B M3SS1-10U		M3SS1-30R M3SS1-30B M3SS1-30U	
Momentary, spring return from A to B and from C to B					
	Red Black Grey	M3SS2-10R M3SS2-10B M3SS2-10U		M3SS2-30R M3SS2-30B M3SS2-30U	
Momentary, spring return from C to B					
	Red Black Grey	M3SS3-10R M3SS3-10B M3SS3-10U		M3SS3-30R M3SS3-30B M3SS3-30U	
Momentary, spring return from A to B					
	Red Black Grey	M3SS7-10R M3SS7-10B M3SS7-10U		M3SS7-30R M3SS7-30B M3SS7-30U	
with long handle ¹⁾					
Maintained					
	Red Black Grey	M3SS4-10R M3SS4-10B M3SS4-10U		M3SS4-30R M3SS4-30B M3SS4-30U	
Momentary, spring return from A to B and from C to B					
	Red Black Grey	M3SS5-10R M3SS5-10B M3SS5-10U		M3SS5-30R M3SS5-30B M3SS5-30U	
Momentary, spring return from C to B					
	Red Black Grey	M3SS6-10R M3SS6-10B M3SS6-10U		M3SS6-30R M3SS6-30B M3SS6-30U	
Momentary, spring return from A to B					
	Red Black Grey	M3SS8-10R M3SS8-10B M3SS8-10U		M3SS8-30R M3SS8-30B M3SS8-30U	

Contact blocks and holder

Blocks	Catalogue No.	List Price
1 NO with holder	MCBH-10	
1 NC with holder	MCBH-01	
2 NO with holder	MCBH-20	
2 NC with holder	MCBH-02	
1 NO + 1 NC with holder	MCBH-11	
1 NO without holder	MCB-10	
1 NC without holder	MCB-01	
Holder for 3 blocks	MCBH-00	

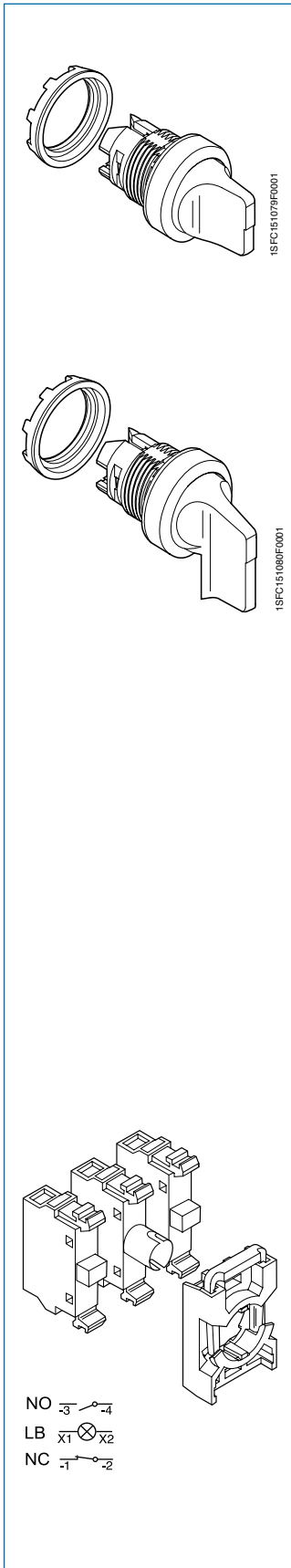
¹⁾ No contact block in center position

Contact functions
Block positions as seen from operator front.

Handle position	Left block	Right block
A	x	O
B	O	O
C	O	x

22 mm Pilot devices - Modular range

Two-position selector switches, Illuminated



Operator ...

Symbol	Handle color	Black Plastic Bezel		Chrome Metal Bezel	
		Catalogue No.	List Price	Catalogue No.	List Price
with short handle ¹⁾					
Maintained					
	Red	M2SS1-11R		M2SS1-31R	
	Green	M2SS1-11G		M2SS1-31G	
	Yellow	M2SS1-11Y		M2SS1-31Y	
	Blue	M2SS1-11L		M2SS1-31L	
	Clear	M2SS1-11C		M2SS1-31C	
Maintained					
	Red	M2SS2-11R		M2SS2-31R	
	Green	M2SS2-11G		M2SS2-31G	
	Yellow	M2SS2-11Y		M2SS2-31Y	
	Blue	M2SS2-11L		M2SS2-31L	
	Clear	M2SS2-11C		M2SS2-31C	
Momentary, spring return from C to B					
	Red	M2SS3-11R		M2SS3-31R	
	Green	M2SS3-11G		M2SS3-31G	
	Yellow	M2SS3-11Y		M2SS3-31Y	
	Blue	M2SS3-11L		M2SS3-31L	
	Clear	M2SS3-11C		M2SS3-31C	

with long handle ¹⁾

Maintained					
	Red	M2SS4-11R		M2SS4-31R	
	Green	M2SS4-11G		M2SS4-31G	
	Yellow	M2SS4-11Y		M2SS4-31Y	
	Blue	M2SS4-11L		M2SS4-31L	
	Clear	M2SS4-11C		M2SS4-31C	
Maintained					
	Red	M2SS5-11R		M2SS5-31R	
	Green	M2SS5-11G		M2SS5-31G	
	Yellow	M2SS5-11Y		M2SS5-31Y	
	Blue	M2SS5-11L		M2SS5-31L	
	Clear	M2SS5-11C		M2SS5-31C	
Momentary, spring return from C to B					
	Red	M2SS6-11R		M2SS6-31R	
	Green	M2SS6-11G		M2SS6-31G	
	Yellow	M2SS6-11Y		M2SS6-31Y	
	Blue	M2SS6-11L		M2SS6-31L	
	Clear	M2SS6-11C		M2SS6-31C	

Contact blocks, lamp block and holder ²⁾

Blocks	Catalogue No.	List Price
1 NO + 1 LB with holder	MCBH-101	
1 NC + 1 LB with holder	MCBH-011	
2 NO + 1 LB with holder	MCBH-201	
2 NC + 1 LB with holder	MCBH-021	
1 NO + 1 NC with holder	MCBH-111	
1 NO without holder	MCB-10	
1 NC without holder	MCB-01	
Lamp block for 2 W, max 230 V AC/DC bulb or LED	MLB-1	
Holder for 3 blocks	MCBH-00	

¹⁾ No contact block in the center position

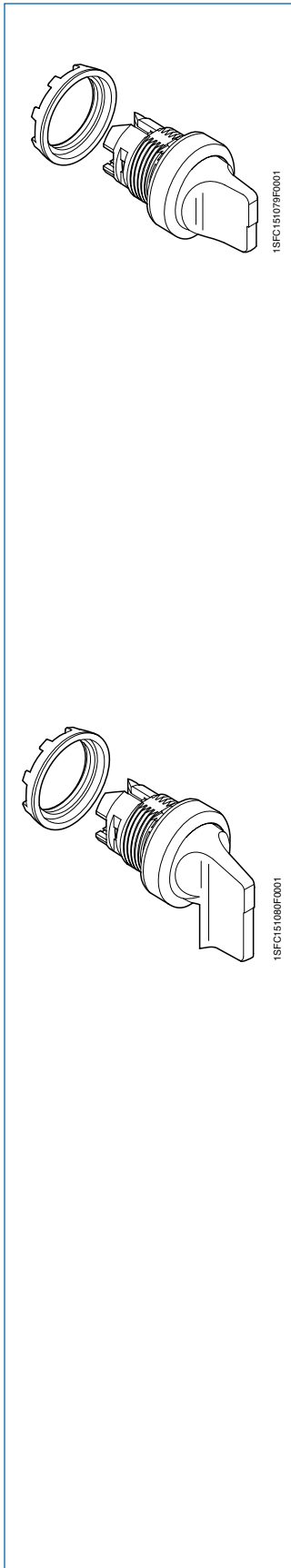
²⁾ Lamp block MLB-1. Bulb not included. Other lamp block see Accessories, bulb max 2 W.

Contact functions See Page 18

Ordering example See Page 18

22 mm Pilot devices - Modular range

Three-position selector switches, Illuminated



Operator ...

Symbol	Handle color	Black Plastic Bezel		Chrome Metal Bezel	
		Catalogue No.	List Price	Catalogue No.	List Price
with short handle ¹⁾					
Maintained					
	Red Green Yellow Blue Clear	M3SS1-11R M3SS1-11G M3SS1-11Y M3SS1-11L M3SS1-11C		M3SS1-31R M3SS1-31G M3SS1-31Y M3SS1-31L M3SS1-31C	
Momentary, spring return from A to B and from C to B					
	Red Green Yellow Blue Clear	M3SS2-11R M3SS2-11G M3SS2-11Y M3SS2-11L M3SS2-11C		M3SS2-31R M3SS2-31G M3SS2-31Y M3SS2-31L M3SS2-31C	
Momentary, spring return from C to B					
	Red Green Yellow Blue Clear	M3SS3-11R M3SS3-11G M3SS3-11Y M3SS3-11L M3SS3-11C		M3SS3-31R M3SS3-31G M3SS3-31Y M3SS3-31L M3SS3-31C	
Momentary, spring return from A to B					
	Red Green Yellow Blue Clear	M3SS7-11R M3SS7-11G M3SS7-11Y M3SS7-11L M3SS7-11C		M3SS7-31R M3SS7-31G M3SS7-31Y M3SS7-31L M3SS7-31C	
with long handle ¹⁾					
Maintained					
	Red Green Yellow Blue Clear	M3SS4-11R M3SS4-11G M3SS4-11Y M3SS4-11L M3SS4-11C		M3SS4-31R M3SS4-31G M3SS4-31Y M3SS4-31L M3SS4-31C	
Momentary, spring return from A to B and from C to B					
	Red Green Yellow Blue Clear	M3SS5-11R M3SS5-11G M3SS5-11Y M3SS5-11L M3SS5-11C		M3SS5-31R M3SS5-31G M3SS5-31Y M3SS5-31L M3SS5-31C	
Momentary, spring return from C to B					
	Red Green Yellow Blue Clear	M3SS6-11R M3SS6-11G M3SS6-11Y M3SS6-11L M3SS6-11C		M3SS6-31R M3SS6-31G M3SS6-31Y M3SS6-31L M3SS6-31C	
Momentary, spring return from A to B					
	Red Green Yellow Blue Clear	M3SS8-11R M3SS8-11G M3SS8-11Y M3SS8-11L M3SS8-11C		M3SS8-31R M3SS8-31G M3SS8-31Y M3SS8-31L M3SS8-31C	

¹⁾ No contact block in the center position

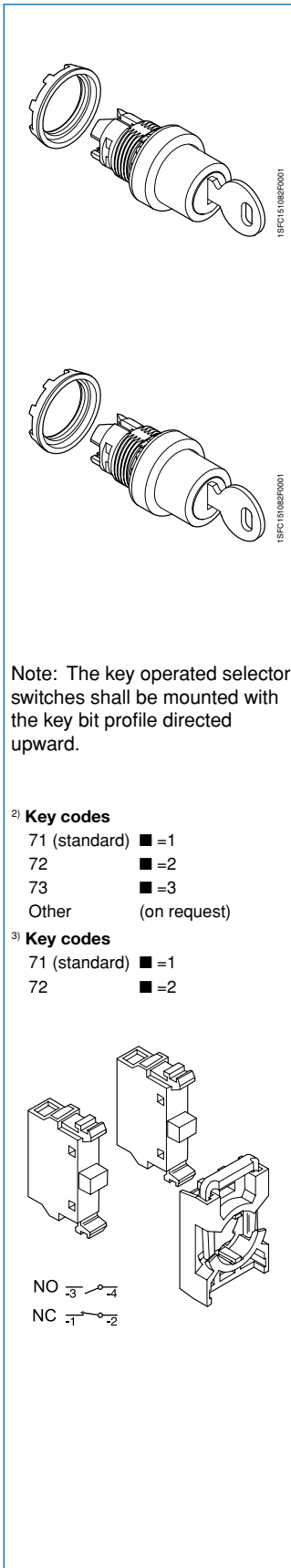
Contact blocks, lamp block and holder See Page 20

Contact functions See Page 19

Ordering example See Page 18

22 mm Pilot devices - Modular range

Key-operated selector switches, Two and three positions



Note: The key operated selector switches shall be mounted with the key bit profile directed upward.

- ²⁾ **Key codes**
 71 (standard) ■ =1
 72 ■ =2
 73 ■ =3
 Other (on request)
- ³⁾ **Key codes**
 71 (standard) ■ =1
 72 ■ =2

Operator ...

Symbol	The key can be removed in	Black Plastic Bezel		Chrome Metal Bezel	
		Catalogue No.	List Price	Catalogue No.	List Price
two positions ¹⁾					
Maintained					
	in both positions	M2SSK1-10 ■ ²⁾		M2SSK1-30 ■ ²⁾	
Maintained					
	in position B only	M2SSK2-10 ■ ²⁾		M2SSK2-30 ■ ²⁾	
Momentary, spring return from C to B					
	in position B only	M2SSK3-10 ■ ²⁾		M2SSK3-30 ■ ²⁾	
three positions ¹⁾					
Maintained					
	in all positions	M3SSK1-10 ■ ²⁾		M3SSK1-30 ■ ²⁾	
Maintained					
	in position B only	M3SSK2-10 ■ ²⁾		M3SSK2-30 ■ ²⁾	
Momentary, spring return from A to B and from C to B					
	in position B only	M3SSK3-10 ■ ²⁾		M3SSK3-30 ■ ²⁾	
Momentary, spring return from C to B					
	in position A only	M3SSK4-10 ■ ³⁾		M3SSK4-30 ■ ³⁾	
Momentary, spring return from C to B					
	in all positions	M3SSK5-10 ■ ²⁾		M3SSK5-30 ■ ²⁾	

¹⁾ No contact block in the center position

Contact blocks and holder

Blocks	Catalogue No.	List Price
1 NO with holder	MCBH-10	
1 NC with holder	MCBH-01	
2 NO with holder	MCBH-20	
2 NC with holder	MCBH-02	
1 NO + 1 NC with holder	MCBH-11	
1 NO without holder	MCB-10	
1 NC without holder	MCB-01	
Holder for 3 blocks	MCBH-00	

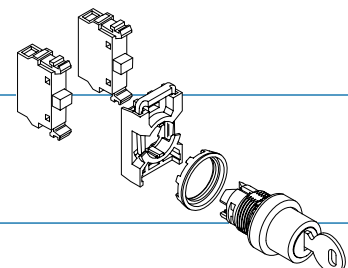
¹⁾ No contact block in the center position.

Contact functions

Two positions: See Page 18
 Three positions: See Page 19

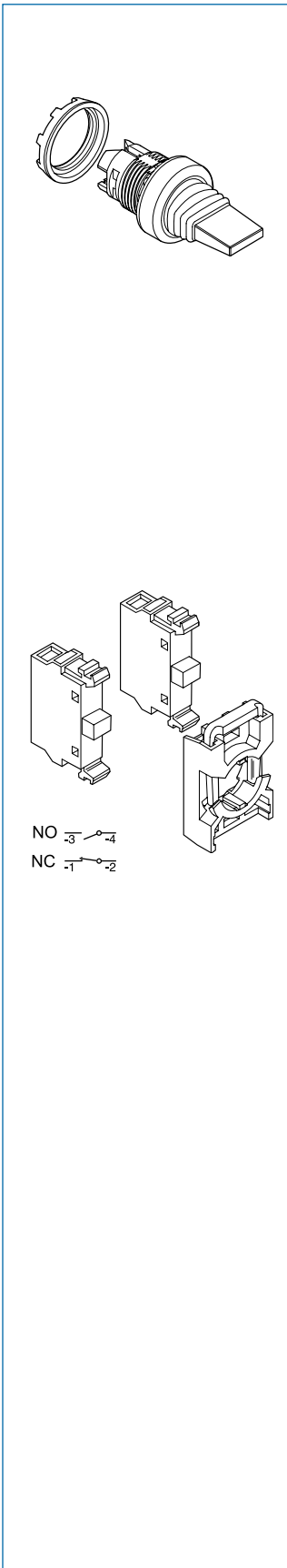
Ordering example

Requested: A key-operated selector switch. Three positions. Maintained. The key removeable in position B. Key code 72. With 2 NC contacts
 Order: 1 piece of M3SSK2-102 + 1 piece of MCBH-02



22 mm Pilot devices - Modular range

Toggle switches, two and three positions



Operator

Symbol	Black Plastic Bezel		Chrome Metal Bezel	
	Catalogue No.	List price	Catalogue No.	List price
Toggle switch with two positions				
Maintained				
	MTS1-10B		MTS1-30B	
Toggle switch with three positions				
Momentary, spring return from A to B and from C to B				
	MTS2-10B		MTS2-30B	
Maintained				
	MTS3-10B		MTS3-30B	

Contact blocks and holder

Blocks	Catalogue No.	List Price
1 NO with holder	MCBH-10	
1 NC with holder	MCBH-01	
2 NO with holder	MCBH-20	
2 NC with holder	MCBH-02	
1 NO + 1 NC with holder	MCBH-11	
1 NO without holder	MCB-10	
1 NC without holder	MCB-01	
Holder for 3 blocks	MCBH-00	

Contact block functions

Block positions as seen from operator front.

Two-position maintained switch			Three-position switch			
Handle position	Left block	Right block	Handle position	Left block	Middle block	Right block
A	O	O	A	O	x	x
C	x	x	B	O	O	O
			C	x	x	O

O = not actuated (normal state)
x = actuated (state changed)

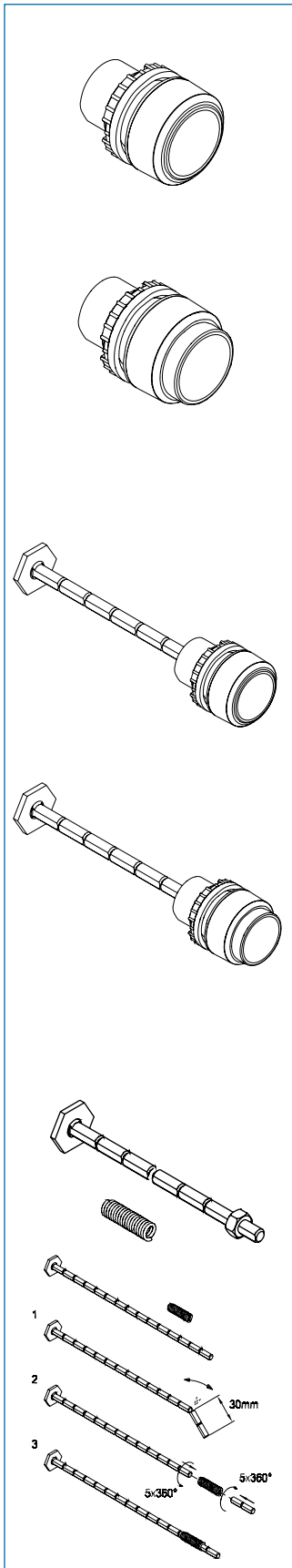
O = not actuated (normal state)
x = actuated (state changed)

Notes



22 mm Pilot devices - Modular range

Reset pushbuttons



Reset pushbutton without shaft

Lens Colour	Text	Black Plastic Bezel		Chrome Metal Bezel	
		Catalogue No.	List Price	Catalogue No.	List Price
With flush button					
Red	No text	KPR1-100R		KPR1-300R	
Green	No text	KPR1-100G		KPR1-300G	
	II	KPR1-103G		KPR1-303G	
Yellow	No text	KPR1-100Y		KPR1-300Y	
Blue	No text	KPR1-100L		KPR1-300L	
	R	KPR1-101L		KPR1-301L	
White	No text	KPR1-100W		KPR1-300W	
	R	KPR1-101W		KPR1-301W	
	I	KPR1-102W		KPR1-302W	
	II	KPR1-103W		KPR1-303W	
Black	No text	KPR1-100B		KPR1-300B	
	RESET	KPR1-104B		KPR1-304B	
With extended button					
Red	No text	KPR2-100R		KPR2-300R	
	O	KPR2-105R		KPR2-305R	
White	No text	KPR2-100W		KPR2-300W	
Black	No text	KPR2-100B		KPR2-300B	
	O	KPR2-105B		KPR2-305B	

Reset pushbutton with shaft

The shaft can be cut to desired length

Lens Colour	Text	Catalogue No.	List Price	Catalogue No.	List Price
With flush button					
Red	No text	KPR3-100R		KPR3-300R	
Green	No text	KPR3-100G		KPR3-300G	
	II	KPR3-103G		KPR3-303G	
Yellow	No text	KPR3-100Y		KPR3-300Y	
Blue	No text	KPR3-100L		KPR3-300L	
	R	KPR3-101L		KPR3-301L	
White	No text	KPR3-100W		KPR3-300W	
	R	KPR3-101W		KPR3-301W	
	I	KPR3-102W		KPR3-302W	
	II	KPR3-103W		KPR3-303W	
Black	No text	KPR3-100B		KPR3-300B	
	RESET	KPR3-104B		KPR3-304B	
With extended button					
Red	No text	KPR4-100R		KPR4-300R	
	O	KPR4-105R		KPR4-305R	
White	No text	KPR4-100W		KPR4-300W	
Black	No text	KPR4-100B		KPR4-300B	
	O	KPR4-105B		KPR4-305B	

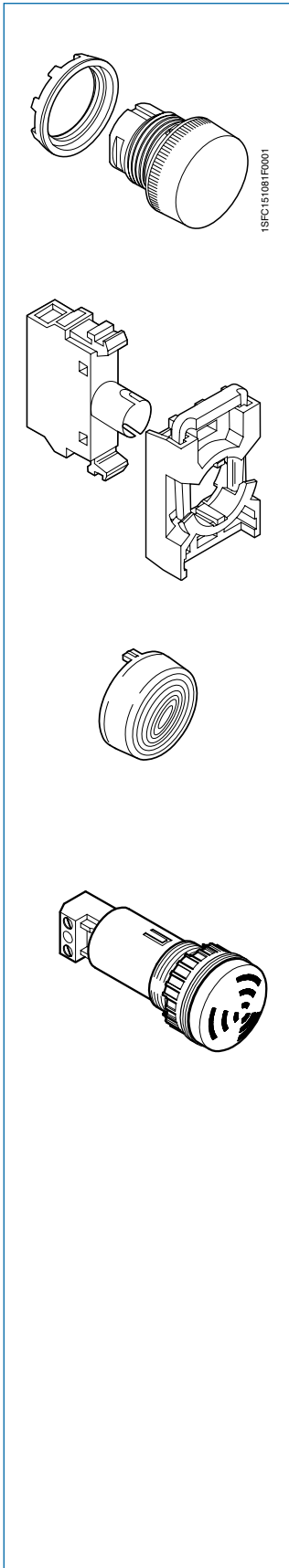
Accessories

In application with a long shaft, a flexible joint can be used to avoid damages caused by incautious handling of the shaft.

Blocks	Catalogue No.	List Price
Shaft including fixing nut	KA1-8046	
Flexible joint	KA1-8047	

22 mm Pilot devices - Modular range


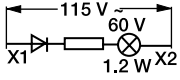
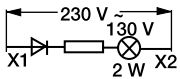
Pilot lights and Buzzers



Pilot light head ¹⁾

Lens color	Catalogue No.	List Price
Red	ML1-100R	
Green	ML1-100G	
Yellow	ML1-100Y	
Blue	ML1-100L	
White	ML1-100W	
Clear	ML1-100C	
With set of 6 color caps	ML1-100M	

Lamp blocks with holder ¹⁾

Supply voltage	Catalogue No.	List Price
For max. 2 W, 230 V AC and DC filament bulb or LED 230 V, 2 W 	MCBH-001	
115 V AC supply voltage. For 60 V filament bulb max. 1.2 W 	MCBH-002	
230 V AC supply voltage. For 130 V filament bulb max. 2 W 	MCBH-003	

¹⁾ Bulb not included

Light diffusing lens –

To improve illumination. Note: Cannot be used with text cap.

Description	Catalogue No.	List Price
The lens is used instead of text cap	KA1-8005	

Buzzers

Black. Frequency: Approx. 2400 Hz. Loudness: Min 80 dB (A)/10 cm
 Rated current: ≤ 8 mA. Service life: >5000 h

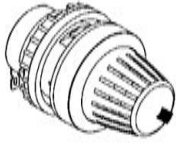
Supply voltage	Tone type	Catalogue No.	List Price
24 V AC/DC	Continuous	KB1-4010	
115 V AC/DC	Continuous	KB1-4030	
230 V AC	Continuous	KB1-4040	
24 V AC/DC	Pulsating	KB1-4110	
115 V AC/DC	Pulsating	KB1-4130	
230 V AC	Pulsating	KB1-4140	

Black, Sound output: Max. 100db. Service life > 5000h

Supply voltage	Tone type	Current consumption	Catalogue No.	List Price
24 V AC/DC	Adjustable 8 tones	80mA	KB3-4010	
115 V AC	Adjustable 8 tones	40mA	KB3-4030	

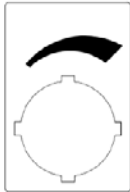
22 mm Pilot devices - Modular range

Potentiometers

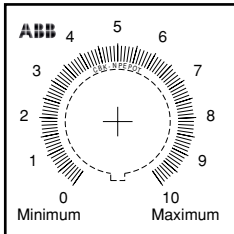


Resistor data

Element type	Cermet
Power rating	2 W
Mechanical angle	280°
Terminals	Solder lugs
Insulation voltage	900 V
Operating temperature	-1 – +70 °C



29.6 x 44.5 mm



Complete potentiometers

Black knob with integrated position indication and marking in white.

Description	Catalogue No.	List Price
- with resistor 5 kohm		
Black plastic	KT-105B	
Chrome Metal	KT-305B	
- with resistor 10 kohm		
Black plastic	KT-110B	
Chrome Metal	KT-310B	

Operating knob – without resistor

Black knob with integrated position indication and marking in white.

For shaft diameter 6 - 6.35 mm. min. shaft length 20 mm

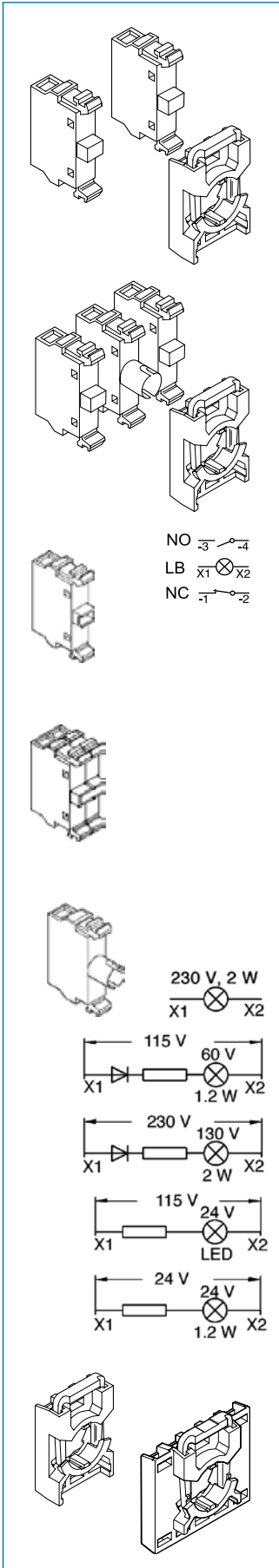
Description	Catalogue No.	List Price
Black plastic	KT-100B	
Chrome Metal	KT-300B	

Legend plates

Aluminum

Description	Catalogue No.	List Price
Symbol - see figure	SK615562-87	
Scale: 0 - 10	CBK-NPEPOT	

22 mm Pilot devices - Modular range Accessories



Contact blocks and lamp blocks with holder for front mounting

Max. number of blocks in holder	Included blocks	Catalogue No.	List Price		
For non-illuminated operators					
3	1 NC	MCBH-01 MCBH-10 MCBH-02 MCBH-20 MCBH-03 MCBH-30 MCBH-11 MCBH-12 MCBH-21			
3	1 NO				
3	2 NC				
3	2 NO				
3	3 NC				
3	3 NO				
3	1 NO + 1 NC				
3	1 NO + 2 NC				
3	2 NO + 1 NC				
For illuminated operators					
3	1 NC + 1 LB			MCBH-011 MCBH-101 MCBH-111 MCBH-021 MCBH-201	
3	1 NO + 1 LB				
3	1 NO + 1 NC + 1 LB				
3	2 NC + 1 LB				
3	2 NO + 1 LB				
3	2 NO + 1 LB				

Single contact blocks for front mounting

Included blocks	Catalogue No.	List Price
1 NO	MCB-10 MCB-01	
1 NC		
1 NO with gold plated contacts	MCB-10G MCB-01G MDB-2	
1 NC with gold plated contacts		
Dummy Block		

Double contact block for front mounting

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

Included blocks	Catalogue No.	List Price
2 NO	MCB-20 MCB-02 MCB-11	
2 NC		
1 NO + 1 NC		

Single lamp blocks for front mounting, Ba 9s base

Description	Catalogue No.	List Price
For max. 2 W, 230 V AC and DC filament bulb or LED	MLB-1 MLB-2 MLB-3 MLB-4 MLB-5	
115 V AC supply voltage.		
For 60 V filament bulb max. 1.2 W		
230 V AC supply voltage.		
For 130 V filament bulb max. 2 W		
115 V AC and DC supply voltage		
For 24 V LED	MLB-5	
24 V AC and DC supply voltage.		
With resistor. Intended for electronic circuits. The resistor limits the making current and protects against disturbances in the electronic circuit		
For 24 V filament bulb		

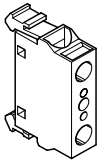
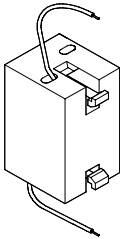
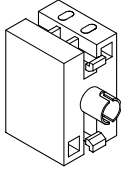
Holders

Description	Catalogue No.	List Price
Holders for front mounting	MCBH-00 MCBH5-00	
For three blocks		
For five blocks		

Contact blocks and lamp blocks for rear mounting See Page 49

22 mm Pilot devices - Modular range

Accessories



Transformer block

For 6 or 24 V filament bulb and 24 V LED. Rated power 1.5 W.

Primary voltage	Secondary voltage	Catalogue No.	List Price
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With lamp holder for front mounting, Ba 9s base

Intended to supply a 1.2 W filament bulb.

110 - 127 V AC	6 V AC	KTR1-1001	
220 - 250 V AC	6 V AC	KTR1-1002	
380 - 420 V AC	6 V AC	KTR1-1003	
440 - 480 V AC	6 V AC	KTR1-1004	
500 - 600 V AC	6 V AC	KTR1-1005	

110 - 127 V AC	24 V AC ¹⁾	KTR1-1011	
220 - 250 V AC	24 V AC ¹⁾	KTR1-1012	
380 - 420 V AC	24 V AC ¹⁾	KTR1-1013	
440 - 480 V AC	24 V AC ¹⁾	KTR1-1014	

For illuminated operators ²⁾

Intended to supply a 1.2 W filament bulb mounted in lamp block MLB-1 only.

110 - 127 V AC	6 V AC	KTR1-2001	
220 - 250 V AC	6 V AC	KTR1-2002	
380 - 420 V AC	6 V AC	KTR1-2003	
440 - 480 V AC	6 V AC	KTR1-2004	
500 - 600 V AC	6 V AC	KTR1-2005	

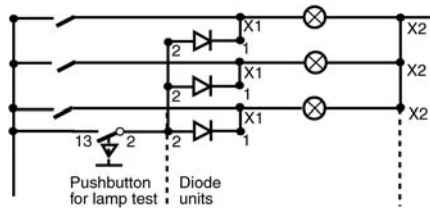
110 - 127 V AC	24 V AC ¹⁾	KTR1-2011	
220 - 250 V AC	24 V AC ¹⁾	KTR1-2012	
380 - 420 V AC	24 V AC ¹⁾	KTR1-2013	
440 - 480 V AC	24 V AC ¹⁾	KTR1-2014	

Diode block

To be used if several lamps are to be connected to a common lamp-test pushbutton. A diode must be connected in series with each lamp. The diode block snaps onto the lamp block or is placed at the side.

Description	Catalogue No.	List Price
Diode block	MDB-1001	

Diagram for lamp test with three diode block



¹⁾ Can be used with LED bulb

²⁾ To be used with directly supplied lamp blocks only.

22 mm Pilot devices - Modular range

Accessories



Filament bulbs Ba 9s base Type of current: AC/DC. A lamp changing tool is required for changing bulb.

Description					Catalogue No.	List Price
Rated voltage V	Rated current mA	Rated output W	Service life h	Luminance mcd		
6	200	1.2	10 000	350	5911086-11	
12	100	1.2	10 000	230	5911086-12	
24	50	1.2	10 000	280	5911086-13	
30	40	1.2	10 000	250	5911086-4	
48	42	2	6 000	500	5911086-5	
60	20	1.2	5 000	190	5911086-14	
110	18	2	7 500	250	5911086-7	
130	15	2	7 500	120	5911086-15	

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.

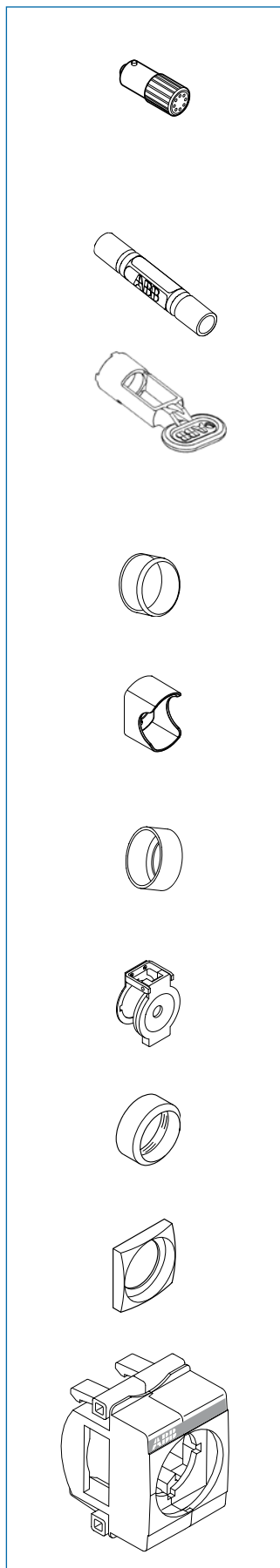
For white light use white LED with clear lamp cap. At DC the lamp base have to be connected to cathode (-) and the bottom contact to anode (+).

Description				Catalogue No.	List Price
Color	Rated current mA	Wave-length nm	Luminance mcd		
Rated voltage 12 V, DC Service life >50 000 h					
Red	15	630	250	KA2-2011	
Green	15	525	1000	KA2-2012	
Yellow	15	592	250	KA2-2013	
Blue	15	470	450	KA2-2014	
White	15	x=0.31 y=0.32	600	KA2-2015	
Rated voltage 24 V, (AC)/DC ¹⁾ Service life >50 000 h					
Red	15	630	250	KA2-2021	
Green	15	525	800	KA2-2022	
Yellow	15	592	250	KA2-2023	
Blue	15	470	400	KA2-2024	
White	15	x=0.31 y=0.32	500	KA2-2025	
Rated voltage 48 V, (AC)/DC ¹⁾ Service life >50 000 h					
Red	12	630	200	KA2-2041	
Green	12	525	1700	KA2-2042	
Yellow	12	592	240	KA2-2043	
Blue	12	470	720	KA2-2044	
White	12	x=0.31 y=0.32	1200	KA2-2045	
Rated voltage 60 V, (AC)/DC ¹⁾ Service life >50 000 h					
Red	10	630	160	KA2-2051	
Green	10	525	1400	KA2-2052	
Yellow	10	592	200	KA2-2053	
Blue	10	470	600	KA2-2054	
White	10	x=0.31 y=0.32	1000	KA2-2055	
Rated voltage 110-130 V, AC ¹⁾ Service life 25 000 h					
Red	4-6	630	60-100	KA2-2131	
Green	4-6	525	500-850	KA2-2132	
Yellow	4-6	592	70-120	KA2-2133	
Blue	4-6	470	220-350	KA2-2134	
White	4-6	x=0.31 y=0.32	350-600	KA2-2135	
Rated voltage 110-130 V, AC/DC ¹⁾ Service life 25 000 h					
Red	4-6	630	60-100	KA2-2141	
Green	4-6	525	500-850	KA2-2142	
Yellow	4-6	592	70-120	KA2-2143	
Blue	4-6	470	220-350	KA2-2144	
White	4-6	x=0.31 y=0.32	350-600	KA2-2145	
Rated voltage 230 V, AC ¹⁾ Service life 25 000 h					
Red	4	630	60	KA2-2221	
Green	4	525	500	KA2-2222	
Yellow	4	592	70	KA2-2223	
Blue	4	470	220	KA2-2224	
White	4	x=0.31 y=0.32	350	KA2-2225	

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

22 mm Pilot devices - Modular range

Accessories



Flashing LED

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 (+).

Description	Catalogue No.	List Price
Rated voltage 24 V, rated current 25 mA, DC		
	Wave length nm	Service life hours
Red	630	50 000
Green	565	50 000
Yellow	585	50 000

Lamp changing tool

Description	Catalogue No.	List Price
For LEDs and for bulbs	KA1-8072	

Mounting tool

Description	Catalogue No.	List Price
Used for tightening the sleeve	MA1-8015	

Membrane of rubber

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 operator with	Catalogue No.	List Price
Flush button	KA1-8052	
Extended button	KA1-8002	

Emergency stop shroud

For 40 mm Emergency Stop Pushbuttons. Not for use with plastic enclosure.

Color	Catalogue No.	List Price
To prevent inadvertant operation.		
Yellow	KA1-8053	

Protective ring

For flush and extended buttons

Description	Catalogue No.	List Price
To prevent inadvertant operation.		
Not together with legend plate holder.	SK615512-1	

Protective cover

For flush button.
To prevent inadvertant operation.
Not together with legend plate holder.

Description	Catalogue No.	List Price
	KA1-8010	

Bezel (Packing unit 10 pieces)

Description	Catalogue No.	List Price
For pushbutton		
Grey, plastic (Packing unit 10 pieces)	KA1-8079	
Black, plastic (Packing unit 10 pieces)	KA1-8022	
Metal (Packing unit 10 pieces)	KA1-8021	
For modular selector switch		
Grey, plastic (Packing unit 10 pieces)	KA1-8077	
Black, plastic (Packing unit 10 pieces)	KA1-8080	
Metal (Packing unit 10 pieces)	KA1-8024	

Square bezel

Black, plastic (Packing unit 10 pieces)	SK616016-2	
Grey, plastic (Packing unit 10 pieces)	MA1-8124	

Padlocking device

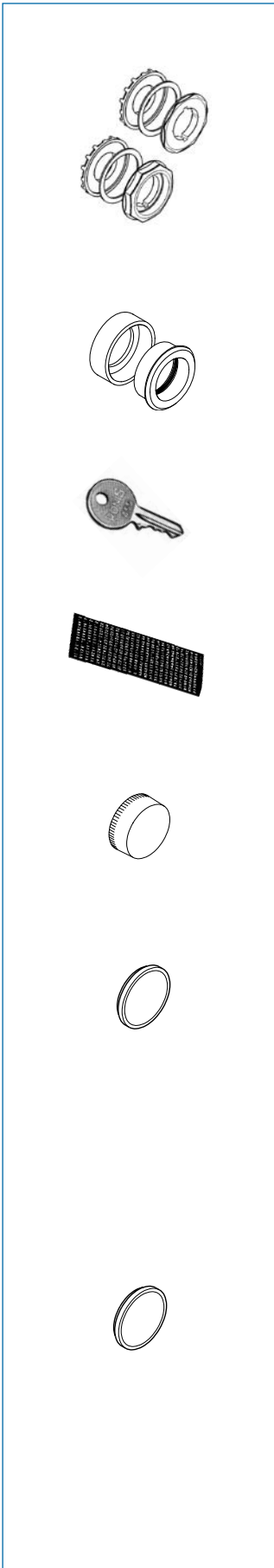
for pushbuttons	CBK-XPD	
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DIN-rail adaptor kit

for pushbuttons, selector switches and pilot lights	MA1-8001	
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22 mm Pilot devices - Modular range

Accessories



30 mm adaptors

For use when fitting the 22 mm pilot devices in 30 mm mounting holes. (1.5 – 4 mm panels)

Description	Catalogue No.	List Price
For use with emergency stop pushbuttons		
Black plastic.	KA1-8027	
Chrome Metal.	KA1-8028	
For use with pushbuttons, selector switches, pilot lights, potentiometers and buzzers		
Black plastic.	KA1-8029	
Chrome Metal.	KA1-8030	

Adaptors

Description	Catalogue No.	List Price
For flush mounted pushbuttons	KA1-8073	
For flush mounted selector switches	MA1-8074	

Extra key

Description	Catalogue No.	List Price
Ronis 455 (key code 71)	SK616021-71	
Ronis 421 (key code 72)	SK616021-72	
Ronis 3433-E (key code 73)	SK616021-73	

Label sheet

Description	Catalogue No.	List Price
For marking of contact blocks at two levels	29491725-1	

Lenses for pilot lights (Packing unit 10 pieces)

Description/Color	Catalogue No.	List Price
Red	KA1-8031	
Green	KA1-8032	
Yellow	KA1-8033	
Blue	KA1-8034	
White	KA1-8035	
Clear	KA1-8038	

Buttons for pushbuttons (Packing unit 10 pieces)

Description	Color	Catalogue No.	List Price
Flush, opaque	Red	KA1-8081	
	Green	KA1-8082	
	Yellow	KA1-8083	
	Blue	KA1-8084	
	White	KA1-8085	
	Black	KA1-8086	
	Grey	KA1-8087	
	Clear	KA1-8088	
Extended, opaque	Red	KA1-8091	
	Green	KA1-8092	
	Yellow	KA1-8093	
	Blue	KA1-8094	
	White	KA1-8095	
	Black	KA1-8096	
	Grey	KA1-8097	
	Clear	KA1-8098	
Flush, transparent	Red	KA1-8101	
	Green	KA1-8102	
	Yellow	KA1-8103	
	Blue	KA1-8104	
	White	KA1-8105	
	Clear	KA1-8108	
Extended, transparent	Red	KA1-8111	
	Green	KA1-8112	
	Yellow	KA1-8113	
	Blue	KA1-8114	
	White	KA1-8115	
	Clear	KA1-8118	

Pilot devices - Modular range

Technical data



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

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

Contact block and transformer block	IP 20
Enclosures	
Plastic enclosures	IP 66 Type 1, 3R, 4, 4X, 12, 13
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 high 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 - Modular range

Technical data

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
Exception: All pilot devices with 2 W continuously lit filament bulb	-25 to +40 °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 ² /AWG 20 max. 2 x 2.5 mm ² /2 x AWG14
Recommended torque	0.9 Nm

Tightening torque

Locking nut, M22	Min. 2 Nm Max. 2.3 Nm
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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		Q600	
	AC		DC	
Rated insulation voltage	600 V		600 V	
Rated thermal current	10 A		2.5 A	
Rated operational current	at 120 V	6 A	at 125 V	0.55 A
	240 V	3 A	250 V	0.27 A
	480 V	1.5 A	480 V	0.10 A
	600 V	1.2 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_o , 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_o , 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 ¹⁾

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	15 A ordinary 10 A delayed
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¹⁾ 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

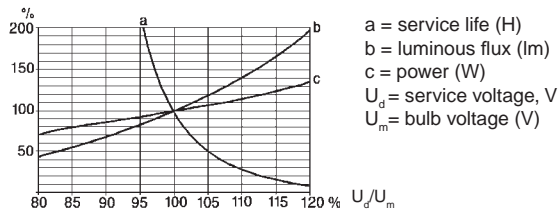
Ratings as per IEC 60 947-5-1

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.

Service life



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 29
Rated insulation voltage acc. to IEC 70 °C (DT)	Class E



The compact range is a new competitive choice for customers with high requirements of cost efficient, easy to use and reliable products.

General construction

- "All-in-one function"
- One order code = one complete function
- Easy mounting
- Less stock keeping
- Broad range of accessories
- Same front design as for the modular range.
- Robust actuators in clear colors with large text and push area

Technical advantages

- High degree of protection: IP 66, Nema 4x
- One or two built-in electrically separated contacts (1NO, 1NC, 2NO, 2NC or 1NC & 1NO)
- Contacts with wiping action
- Low built-in depth

Operators

- Pushbuttons, non-illuminated
- Emergency stop pushbuttons, non-illuminated, twist, pull or key release
- Selector switches, non-illuminated, 2 or 3 position

Pilot lights

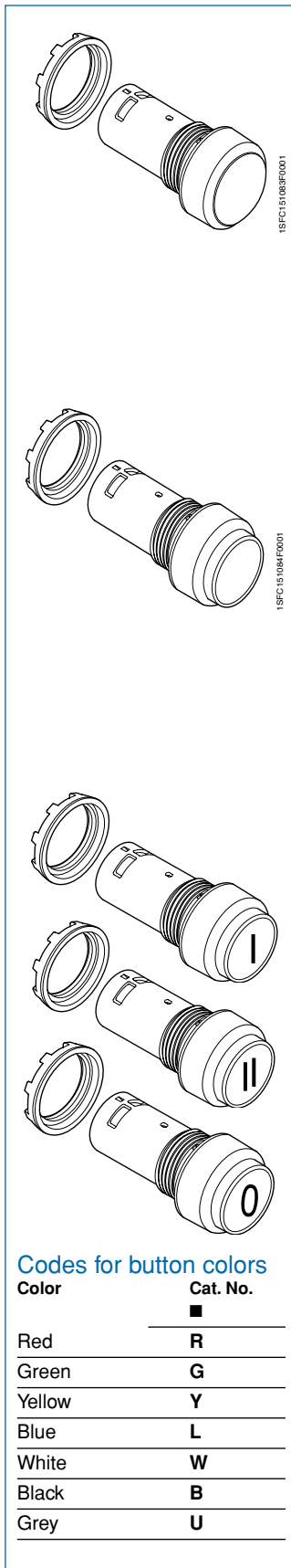
- Ba 9s base for bulbs (6-130 V) or LED (12-130 V DC, 24-230 V AC)
- Pilot light with integrated LED (12-220 VDC, 24-230 V AC)



22 mm Pilot devices - Compact range

Flush and extended pushbuttons, non-illuminated

Pushbutton with ...



Description	Black Plastic Bezel		Chrome Metal Bezel	
	Catalogue No.	List Price	Catalogue No.	List Price
Flush button				
Momentary				
<u>Contacts included:</u>				
1 NO	CP1-10■-10		CP1-30■-10	
2 NO	CP1-10■-20		CP1-30■-20	
1 NC	CP1-10■-01		CP1-30■-01	
2 NC	CP1-10■-02		CP1-30■-02	
1 NO +1 NC	CP1-10■-11		CP1-30■-11	
Maintained				
<u>Contacts included:</u>				
1 NO	CP2-10■-10		CP2-30■-10	
2 NO	CP2-10■-20		CP2-30■-20	
1 NC	CP2-10■-01		CP2-30■-01	
2 NC	CP2-10■-02		CP2-30■-02	
1 NO +1 NC	CP2-10■-11		CP2-30■-11	
Extended button				
Momentary				
<u>Contacts included:</u>				
1 NO	CP3-10■-10		CP3-30■-10	
2 NO	CP3-10■-20		CP3-30■-20	
1 NC	CP3-10■-01		CP3-30■-01	
2 NC	CP3-10■-02		CP3-30■-02	
1 NO +1 NC	CP3-10■-11		CP3-30■-11	
Maintained				
<u>Contacts included:</u>				
1 NO	CP4-10■-10		CP4-30■-10	
2 NO	CP4-10■-20		CP4-30■-20	
1 NC	CP4-10■-01		CP4-30■-01	
2 NC	CP4-10■-02		CP4-30■-02	
1 NO +1 NC	CP4-10■-11		CP4-30■-11	
Flush button				
Momentary				
<u>Contacts included:</u>				
White with black I, 1 NO	CP11-10W-10		CP11-30W-10	
Green with white START, 1 NO + 1 NC	CP9-1007		CP9-1007M	
Blue with white R, 1 NO	CP14-10L-10		CP14-30L-10	
White with black II, 1 NO	CP12-10W-10		CP12-30W-10	
Extended button				
Momentary				
<u>Contacts included:</u>				
Red with white STOP, 1 NO + 1 NC	CP9-1018		CP9-1018M	
Black with white O, 1NO	CP33-10B-01		CP33-30B-01	

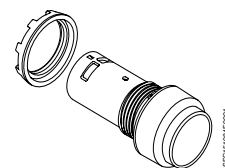
Codes for button colors

Color	Cat. No.
	■
Red	R
Green	G
Yellow	Y
Blue	L
White	W
Black	B
Grey	U

Ordering example – Compact pushbutton

Requested: A compact pushbutton, momentary, with red extended button and one NO contact.
 Order: 10 pieces of CP3-10R-10

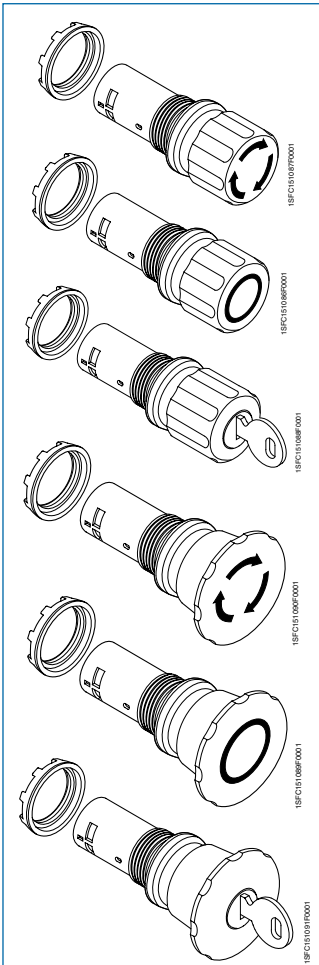
Minimum order quantity: 10 pieces
Packing: 10 pieces/plastic bag. 10 bags/box



22 mm Pilot devices - Compact range

Emergency stop pushbutton, non-illuminated

Fulfills IEC 60947-5-5



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



Operator of plastic

Description	Color	Catalogue No.	List Price
Ø 30 mm			
Twist release	Red		
<u>Contacts included:</u>			
1 NC		CE3T-10R-01	
2 NO		CE3T-10R-20	
2 NC		CE3T-10R-02	
1 NO +1 NC		CE3T-10R-11	
Pull release	Red		
<u>Contacts included:</u>			
2 NC		CE3P-10R-02	
1 NO +1 NC		CE3P-10R-11	
Key release (Key code 71, Ronis 455)	Red		
<u>Contacts included:</u>			
2 NC		CE3K1-10R-02	
1 NO +1 NC		CE3K1-10R-11	
Ø 40 mm			
Twist release	Red		
<u>Contacts included:</u>			
1 NC		CE4T-10R-01	
2 NO		CE4T-10R-20	
2 NC		CE4T-10R-02	
1 NO +1 NC		CE4T-10R-11	
Pull release	Red		
<u>Contacts included:</u>			
2 NC		CE4P-10R-02	
1 NO +1 NC		CE4P-10R-11	
Key release (Key code 71, Ronis 455)	Red		
<u>Contacts included:</u>			
2 NC		CE4K1-10R-02	
1 NO +1 NC		CE4K1-10R-11	

Compact Machine Stop Pushbutton

Description	Color	Catalogue No.	List Price
Operator of plastic			
<u>Contacts included:</u>			
1NO + 1NC			
Ø 30 mm			
Twist release	Black	CE3T-10B-11	
Pull release	Black	CE3P-10B-11	
Key release	Black	CE3K1-10B-11	
Ø 40 mm			
Twist release	Black	CE4T-10B-11	
Pull release	Black	CE4P-10B-11	
Key release	Black	CE4K1-10B-11	

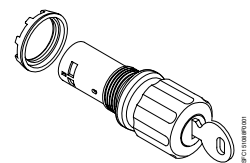
The Pushbuttons with key release are delivered with two keys
Key code 71, Ronis 455

Ordering example – Compact Emergency stop pushbutton

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

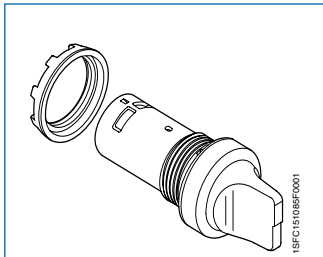
Order: 10 pieces of CE3K1-10R-02.

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



22 mm Pilot devices - Compact range

Two and three position selector switches, non-illuminated

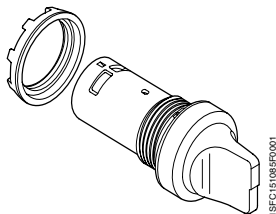


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Contacts actuated

Two position selector switch
Contacts included, actuated in position C

	NC	NO	NC	NO
1NO	-	1	-	-
2NO	-	1	-	1
1NC	1	-	-	-
2NC	1	-	1	-
1NO + 1NC	-	1	1	-



18FC11088F001

Contacts actuated

Three position selector switch
Contacts included, actuated in position: A C

	A		C	
	NC	NO	NC	NO
2NO	-	1	-	1
2NC	1	-	1	-
1NO + 1NC	1	-	-	1

Codes for handle colors

Color	Cat. No.
Red	R
Black	B
Grey	U

Selector switch with ...

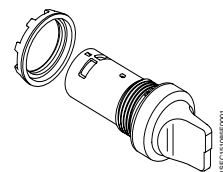
Description	Black Plastic Bezel		Chrome Metal Bezel	
	Catalogue No.	List Price	Catalogue No.	List Price
Short handle. Two positions				
Maintained				
Contacts included:				
1 NO	C2SS1-10■-10		C2SS1-30■-10	
2 NO	C2SS1-10■-20		C2SS1-30■-20	
1 NC	C2SS1-10■-01		C2SS1-30■-01	
2 NC	C2SS1-10■-02		C2SS1-30■-02	
1 NO + 1 NC	C2SS1-10■-11		C2SS1-30■-11	
Maintained				
Contacts included:				
1 NO	C2SS2-10■-10		C2SS2-30■-10	
2 NO	C2SS2-10■-20		C2SS2-30■-20	
1 NC	C2SS2-10■-01		C2SS2-30■-01	
2 NC	C2SS2-10■-02		C2SS2-30■-02	
1 NO + 1 NC	C2SS2-10■-11		C2SS2-30■-11	
Momentary				
Contacts included:				
1 NO	C2SS3-10■-10		C2SS3-30■-10	
2 NO	C2SS3-10■-20		C2SS3-30■-20	
1 NC	C2SS3-10■-01		C2SS3-30■-01	
2 NC	C2SS3-10■-02		C2SS3-30■-02	
1 NO + 1 NC	C2SS3-10■-11		C2SS3-30■-11	
Short handle. Three positions				
Maintained				
Contacts included:				
2 NO	C3SS1-10■-20		C3SS1-30■-20	
2 NC	C3SS1-10■-02		C3SS1-30■-02	
1 NO + 1 NC	C3SS1-10■-11		C3SS1-30■-11	
Momentary				
Contacts included:				
2 NO	C3SS2-10■-20		C3SS2-30■-20	
2 NC	C3SS2-10■-02		C3SS2-30■-02	
1 NO + 1 NC	C3SS2-10■-11		C3SS2-30■-11	
Momentary				
Contacts included:				
2 NO	C3SS3-10■-20		C3SS3-30■-20	
2 NC	C3SS3-10■-02		C3SS3-30■-02	
1 NO + 1 NC	C3SS3-10■-11		C3SS3-30■-11	
Momentary				
Contacts included:				
2 NO	C3SS7-10■-20		C3SS7-30■-20	
2 NC	C3SS7-10■-02		C3SS7-30■-02	
1 NO + 1 NC	C3SS7-10■-11		C3SS7-30■-11	

Ordering example – Compact selector switch

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

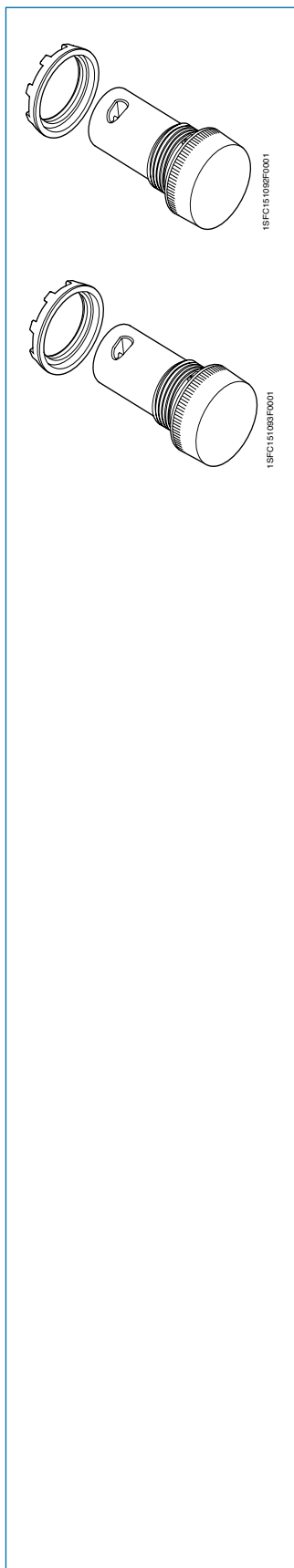
Minimum order quantity: 10 pieces
Packing: 10 pieces/plastic bag, 10 bags/box



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22 mm Pilot devices - Compact range

Pilot lights/Pilot lights with integrated LED



Pilot light Ba 9s base, bulb not included

Description	Catalogue No.	List Price
Color:		
Red	CL-100R	
Green	CL-100G	
Yellow	CL-100Y	
Blue	CL-100L	
White	CL-100W	
Clear	CL-100C	

Pilot light with integrated LED Service life >50 000 hours

Color	Rated current mA	Lumi-nance mcd	Wave-length nm	Catalogue No.	List Price
Rated voltage 12 V, DC ¹⁾					
Red	30	60	625	CL-501R	
Green	15	126	520	CL-501G	
Yellow	30	60	590	CL-501Y	
Blue	30	22	470	CL-501L	
White	30	88	²⁾	CL-501W	
Rated voltage 24 V, AC/DC					
Red	15	60	625	CL-502R	
Green	15	126	520	CL-502G	
Yellow	15	60	590	CL-502Y	
Blue	15	22	470	CL-502L	
White	15	88	²⁾	CL-502W	
Rated voltage 48 V, AC/DC					
Red	15	60	625	CL-504R	
Green	15	126	520	CL-504G	
Yellow	15	60	590	CL-504Y	
Blue	15	22	470	CL-504L	
White	15	88	²⁾	CL-504W	
Rated voltage 60 V, AC/DC					
Red	15	60	625	CL-505R	
Green	15	126	520	CL-505G	
Yellow	15	60	590	CL-505Y	
Blue	15	22	470	CL-505L	
White	15	88	²⁾	CL-505W	
Rated voltage 110-130 V, AC					
Red	15	60	625	CL-513R	
Green	15	126	520	CL-513G	
Yellow	15	60	590	CL-513Y	
Blue	15	22	470	CL-513L	
White	15	88	²⁾	CL-513W	
Rated voltage 110-130 V, DC ¹⁾					
Red	15	60	625	CL-515R	
Green	15	126	520	CL-515G	
Yellow	15	60	590	CL-515Y	
Blue	15	22	470	CL-515L	
White	15	88	²⁾	CL-515W	
Rated voltage 220 V, DC ¹⁾					
Red	15	60	625	CL-520R	
Green	15	126	520	CL-520G	
Yellow	15	60	590	CL-520Y	
Blue	15	22	470	CL-520L	
White	15	88	²⁾	CL-520W	
Rated voltage 230 V, AC					
Red	15	60	625	CL-523R	
Green	15	126	520	CL-523G	
Yellow	15	60	590	CL-523Y	
Blue	15	22	470	CL-523L	
White	15	88	²⁾	CL-523W	
Rated voltage 380 V, AC, 250 V, DC					
Red	15	60	625	CL-530R	
Green	15	126	520	CL-530G	
Yellow	15	60	590	CL-530Y	
Blue	15	22	470	CL-530L	
White	15	88	²⁾	CL-530W	
Rated voltage 415 V, AC					
Red	15	60	625	CL-541R	
Green	15	126	520	CL-541G	
Yellow	15	60	590	CL-541Y	
Blue	15	22	470	CL-541L	
White	15	88	²⁾	CL-541W	

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

²⁾ X=0.31, Y=0.32

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

22 mm Pilot devices - Compact range

Accessories



Filament bulbs Ba 9s base Type of current: AC/DC. A lamp changing tool is required for changing bulb.

Description					Catalogue No.	List Price
Rated voltage V	Rated current mA	Rated output W	Service life h	Luminance mcd		
6	200	1.2	10 000	350	5911086-11	
12	100	1.2	10 000	230	5911086-12	
24	50	1.2	10 000	280	5911086-13	
30	40	1.2	10 000	250	5911086-4	
48	42	2	6 000	500	5911086-5	
60	20	1.2	5 000	190	5911086-14	
110	18	2	7 500	250	5911086-7	
130	15	2	7 500	120	5911086-15	

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.

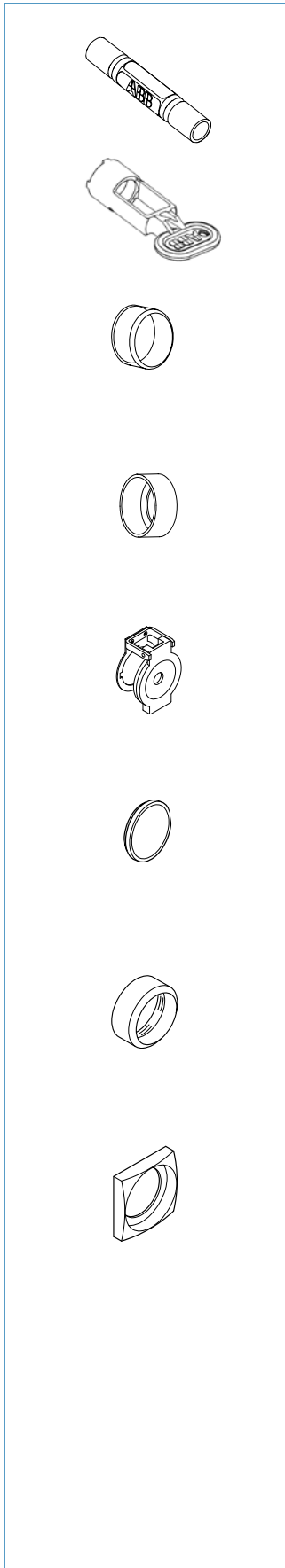
For white light use white LED with clear lamp cap. At DC the lamp base have to be connected to cathode (-) and the bottom contact to anode (+).

Color	Rated current mA	Wave-length nM	Luminance mcd	Catalogue No.	List Price
Rated voltage 12 V, DC Service life >50 000 h					
Red	15	630	250	KA2-2011	
Green	15	525	1000	KA2-2012	
Yellow	15	592	250	KA2-2013	
Blue	15	470	450	KA2-2014	
White	15	x=0.31 y=0.32	600	KA2-2015	
Rated voltage 24 V, (AC)/DC ¹⁾ Service life >50 000 h					
Red	15	630	250	KA2-2021	
Green	15	525	800	KA2-2022	
Yellow	15	592	250	KA2-2023	
Blue	15	470	400	KA2-2024	
White	15	x=0.31 y=0.32	500	KA2-2025	
Rated voltage 48 V, (AC)/DC ¹⁾ Service life >50 000 h					
Red	12	630	200	KA2-2041	
Green	12	525	1700	KA2-2042	
Yellow	12	592	240	KA2-2043	
Blue	12	470	720	KA2-2044	
White	12	x=0.31 y=0.32	1200	KA2-2045	
Rated voltage 60 V, (AC)/DC ¹⁾ Service life >50 000 h					
Red	10	630	160	KA2-2051	
Green	10	525	1400	KA2-2052	
Yellow	10	592	200	KA2-2053	
Blue	10	470	600	KA2-2054	
White	10	x=0.31 y=0.32	1000	KA2-2055	
Rated voltage 110-130 V, AC ¹⁾ Service life 25 000 h					
Red	4-6	630	60-100	KA2-2131	
Green	4-6	525	500-850	KA2-2132	
Yellow	4-6	592	70-120	KA2-2133	
Blue	4-6	470	220-350	KA2-2134	
White	4-6	x=0.31 y=0.32	350-600	KA2-2135	
Rated voltage 110-130 V, AC/DC ¹⁾ Service life 25 000 h					
Red	4-6	630	60-100	KA2-2141	
Green	4-6	525	500-850	KA2-2142	
Yellow	4-6	592	70-120	KA2-2143	
Blue	4-6	470	220-350	KA2-2144	
White	4-6	x=0.31 y=0.32	350-600	KA2-2145	
Rated voltage 230 V, AC ¹⁾ Service life 25 000 h					
Red	4	630	60	KA2-2221	
Green	4	525	500	KA2-2222	
Yellow	4	592	70	KA2-2223	
Blue	4	470	220	KA2-2224	
White	4	x=0.31 y=0.32	350	KA2-2225	

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

22 mm Pilot devices - Compact range

Accessories



Lamp changing tool

Description	Catalogue No.	List Price
For LEDs and for bulbs	KA1-8072	

Mounting tool

Description	Catalogue No.	List Price
Used for tightening the locking nut	MA1-8015	

Membrane of silicone

Of transparent, heat and cold resistant silicon rubber. Does not harden at low temperature. Gives IP 67 degree of protection. When membrane is used, remove the gasket.

For operator with	Catalogue No.	List Price
Flush button	KA1-8052	
Extended button	KA1-8002	
Double pushbutton	KA1-8126	

Protective ring

Description	Catalogue No.	List Price
For flush and extended pushbutton to prevent inadvertant operation. Not together with legend plate holder.	SK615512-1	

Protective cover

Description	Catalogue No.	List Price
For flush button. To prevent inadvertant operation. Not together with legend plate holder.	KA1-8010	

Button

Description	Catalogue No.	List Price
Grey, flush (Packing unit 10 pieces)	KA1-8087	
Grey, extended (Packing unit 10 pieces)	KA1-8097	

Bezel

Description	Catalogue No.	List Price
For pushbutton		
Grey (Packing unit 10 pieces)	KA1-8079	
Black (Packing unit 10 pieces)	KA1-8022	
Metal (Packing unit 10 pieces)	KA1-8021	

For selector switch

Grey (Packing unit 10 pieces)	CA1-8076	
Black (Packing unit 10 pieces)	CA1-8077	
Metal (Packing unit 10 pieces)	CA1-8078	

Square bezel

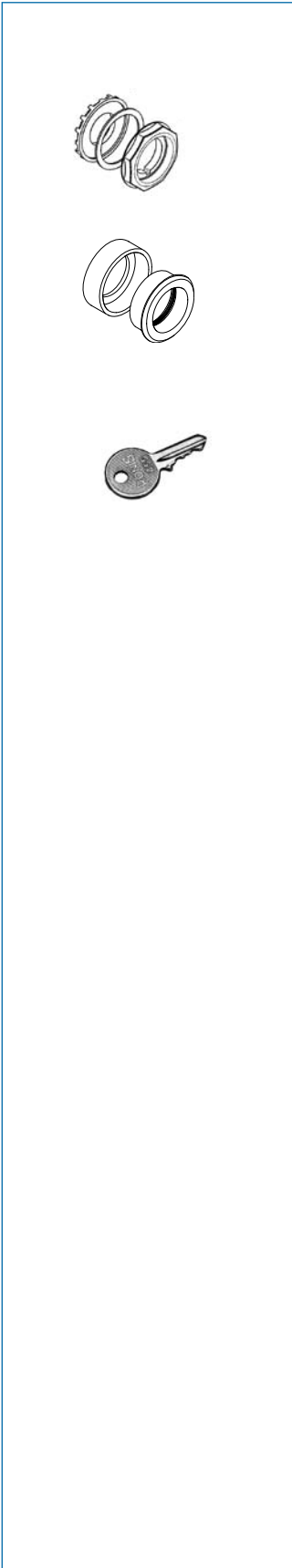
Black, plastic (Packing unit 10 pieces)	SK616016-2	
Grey, plastic (Packing unit 10 pieces)	MA1-8124	

Light diffusing lens

To improve illumination. <i>Note: Cannot be used with text caps.</i> The lens is used instead of text cap.	KA1-8005	
---	-----------------	--

22 mm Pilot devices - Compact range

Accessories



30 mm adaptors

For use when fitting the 22 mm pilot devices in 30 mm mounting holes. (1.5 – 4 mm panels)

Description	Catalogue No.	List Price
For use with pushbuttons, selector switches, emergency stop push-button and pilot lights		
Black plastic.	KA1-8029	
Chrome Metal.	KA1-8030	

Adaptors

For flush mounted pushbutton

KA1-8073

For flush mounted selector switches

CA1-8075

Extra key

Description	Catalogue No.	List Price
Ronis 455 (key code 71)	SK616021-71	

22 mm Pilot devices - Compact range

Technical data



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
Exception: All pilot devices with 2 W continuously lit filament bulb	-25 to +40 °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 AC	R300 DC
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
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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 ² /1 x AWG20 max. 2 x 1.5 mm ² /2 x AWG14
Compact pilot light	
Connectable area	min. 1 x 0.5 mm ² /1 x AWG20 max. 2 x 2.5 mm ² /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 high 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 - 22 mm

Color selection

Color selection according to IEC 60204-1

IEC 60204-1 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.

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.



22 mm Pilot devices

Assembled stations and enclosures



Assembled stations

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.

Plastic enclosures

Of polycarbonate.

Degree of protection: IP 66, CSA/UL Type 1, 3R, 4, 4X, 12, 13

Metallic enclosures

Of light-alloy.

Degree of protection:

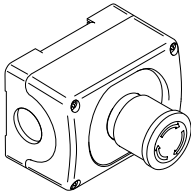
With sealing membrane IP 67

22 mm Pilot devices – Assembled stations

Plastic enclosures

Note! Included pilot devices are of modular type

Illuminated pushbutton:
LB = Lamp block type MLB-1
Bulb not included

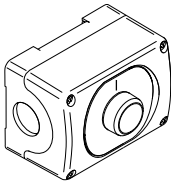


1-seat Plastic enclosures. Yellow top/light grey bottom

Description ¹⁾	Catalogue No.	List Price
Emergency stop pushbutton, 40 mm. Twist release. No legend plate		
Red 2 NC	MEPY1-1005	
Red 1 NO + 2 NC	MEPY1-1024	
Emergency stop pushbutton, 40 mm, illuminated Twist release. No legend plate		
Red 1 NO + 1 NC + 1 LB	MEPY1-1011	
Emergency stop pushbutton, 40 mm. Pull release. No legend plate		
Red 2 NC	MEPY1-1015	
Red 1 NC	MEPY1-1009	

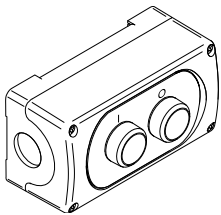
1-seat Plastic enclosures. Dark grey top/light grey bottom

Description ¹⁾	Catalogue No.	List Price
One flush pushbutton. Momentary		
White 1 NO I	MEP1-1002	
Green 1 NO I START	MEP1-1001 MEP1-1991	
Black 1 NC O	MEP1-1004	
Red 1 NC O STOP <-- OFF -->	MEP1-1003 MEP1-1993 MEP1-1994	



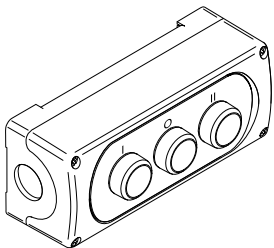
2-seat Plastic enclosure. Dark grey top/light grey bottom

Description ¹⁾	Catalogue No.	List Price
Two flush pushbuttons. Momentary.		
Left Right		
Red Green 1 NC 1 NO		
I O	MEP2-1001	
STOP START	MEP2-1991	



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

Description ¹⁾	Catalogue No.	List Price
Three flush pushbuttons. Momentary		
Left Center Right		
Green Red Green 1 NO 1 NC 1 NO		
I O II	MEP3-1004	
FWD STOP REV	MEP3-1994	



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

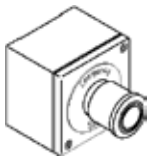
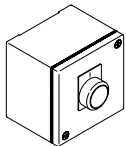
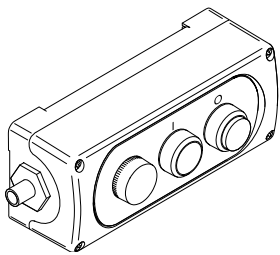
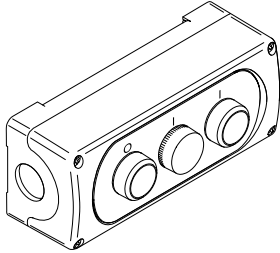
22 mm Pilot devices – Assembled stations

Plastic and metallic enclosures

Note! Included pilot devices are of modular type

Illuminated pushbutton:

LB = Lamp block type MLB-1
Bulb not included



3-seat Plastic enclosures. Dark grey top/light grey bottom

Description ¹⁾	Catalogue No.	List Price												
Two flush pushbuttons, pilot light in centre position. Momentary (Lamp block type MLB-1)	MEP3-1001													
<table border="1"> <thead> <tr> <th>Left</th> <th>Center</th> <th>Right</th> </tr> </thead> <tbody> <tr> <td>Red</td> <td>Clear</td> <td>Green</td> </tr> <tr> <td>1 NC</td> <td>1 LB</td> <td>1 NO</td> </tr> <tr> <td>O</td> <td>I</td> <td>I</td> </tr> </tbody> </table>			Left	Center	Right	Red	Clear	Green	1 NC	1 LB	1 NO	O	I	I
Left			Center	Right										
Red	Clear	Green												
1 NC	1 LB	1 NO												
O	I	I												
Two flush pushbuttons, pilot light in centre position. Momentary (Lamp block MLB-1)														
<table border="1"> <thead> <tr> <th>Left</th> <th>Center</th> <th>Right</th> </tr> </thead> <tbody> <tr> <td>Red</td> <td>Clear</td> <td>Green</td> </tr> <tr> <td>1 NC</td> <td>1 LB</td> <td>1 NO</td> </tr> <tr> <td>STOP</td> <td>ON</td> <td>START</td> </tr> </tbody> </table>	Left	Center	Right	Red	Clear	Green	1 NC	1 LB	1 NO	STOP	ON	START	MEP3-1991	
Left	Center	Right												
Red	Clear	Green												
1 NC	1 LB	1 NO												
STOP	ON	START												

Plastic enclosures with interface for ABB Field Bus Plug

Description ¹⁾	Catalogue No.	List Price										
1-seat Plastic enclosure. Yellow top/light grey bottom Emergency stop pushbutton, 40 mm Twist release. Red Emergency stop 1 NO	MEPN1-5001											
2-seat Plastic enclosure. Dark grey top/light grey bottom One flush, illuminated and one extended pushbutton (One LED for 24 V included)	MEPN2-5001											
<table border="1"> <thead> <tr> <th>Left</th> <th>Right</th> </tr> </thead> <tbody> <tr> <td>White</td> <td>Black (extended).</td> </tr> <tr> <td>1 NO</td> <td>1 NO</td> </tr> <tr> <td>1 LB</td> <td></td> </tr> <tr> <td>I</td> <td>O</td> </tr> </tbody> </table>			Left	Right	White	Black (extended).	1 NO	1 NO	1 LB		I	O
Left	Right											
White	Black (extended).											
1 NO	1 NO											
1 LB												
I	O											
3-seat Plastic enclosure. Dark grey top/light grey bottom Two pushbuttons Momentary (One LED for 24 V included)	MEPN3-5001											
<table border="1"> <thead> <tr> <th>Left</th> <th>Center</th> <th>Right</th> </tr> </thead> <tbody> <tr> <td>White</td> <td>White</td> <td>Black (extended).</td> </tr> <tr> <td>1 LB</td> <td>1 NO</td> <td>1 NO</td> </tr> <tr> <td></td> <td>I</td> <td>O</td> </tr> </tbody> </table>			Left	Center	Right	White	White	Black (extended).	1 LB	1 NO	1 NO	
Left	Center	Right										
White	White	Black (extended).										
1 LB	1 NO	1 NO										
	I	O										

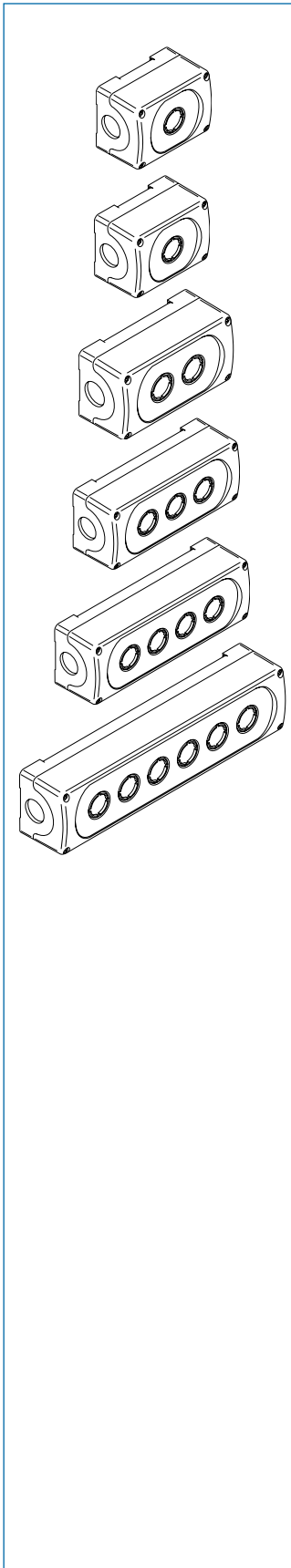
1-seat Metallic enclosure. Grey

Description ¹⁾	Catalogue No.	List Price
One flush pushbutton Momentary. Degree of protection IP 66 Green 1 NC I	MEM1-1001	
40 mm emergency stop button Maintained. Twist release. Degree of protection IP 66. Red 2 NC Emergency stop	MEM1-1016	
40 mm emergency stop button Maintained. Pull release. Degree of protection IP 66. Red 1 NC Emergency stop	MEM1-1018	

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

22 mm Pilot devices - Plastic enclosures

Degree of protection IP 66, Nema 4x

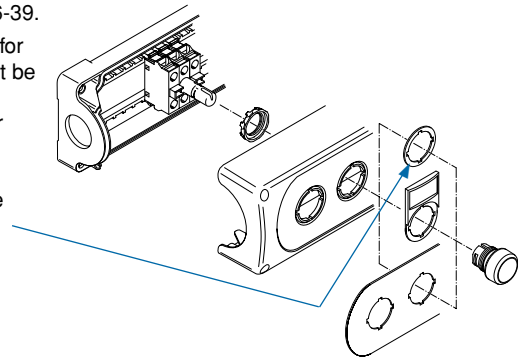


Empty plastic enclosures With stainless steel screws

Size	Color top/bottom	Catalogue No.	List Price
1-seat	Dark grey/Light grey	MEP1-0	
1-seat	Yellow/Light grey	MEPY1-0	
2-seat	Dark grey/Light grey	MEP2-0	
3-seat	Dark grey/Light grey	MEP3-0	
4-seat	Dark grey/Light grey	MEP4-0	
6-seat	Dark grey/Light grey	MEP6-0	

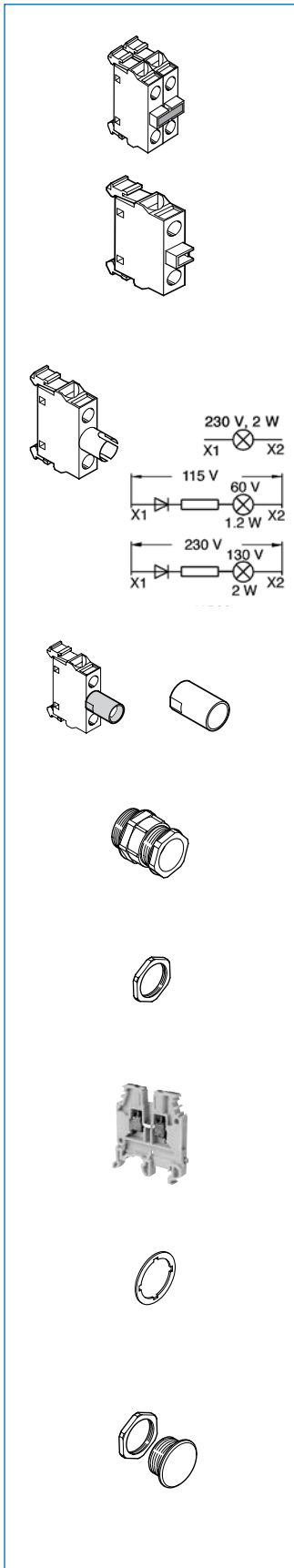
When ordering

- Select operators from page 10-26 and 36-39.
N.B. Selector switches with short handle for vertically mounted selector switches must be ordered from page 50-51
- Select contact blocks and lamp blocks for **rear** mounting, see page 49.
- Accessories, see page 49
N.B. **One spacer per operator** has to be ordered if legend plate is not used.
(for rear mounted pilot devices)



22 mm Pilot devices - Plastic enclosures

Accessories



Contact blocks for rear mounting

Description	Catalogue No.	List Price
Contact block		
1NO 1NC	MCB-10B MCB-01B	

Double contact block		
2NO 2NC 1NO+1NC	MCB-20B MCB-02B MCB-11B	

Contact block with gold plated contacts		
1NO 1NC	MCB-10BG MCB-01BG	

Lamp blocks		
For max. 2 W, 230 V AC and DC filament bulb or LED	MLB-1B	
115 V AC supply voltage.		
For 60 V filament bulb max. 1.2 W	MLB-2B	
230 V AC supply voltage.		
For 130 V filament bulb max. 2 W	MLB-3B	

Description	Catalogue No.	List Price
Protective sleeve		
To make a rear mounted lamp block screen protected. IP20	53960543-1	

Description	Catalogue No.	List Price
Cable gland		
Grey plastic. threaded outer sleeve Sealing ring included.		
M25	MA5-3001	
M20	MA5-3002	

Description	Catalogue No.	List Price
Nut		
Grey plastic. For cable gland above.		
M25	MA5-3003	
M20	MA5-3004	

Description	Catalogue No.	List Price
Earthing terminal		
For plastic enclosure.	MA5-3005	

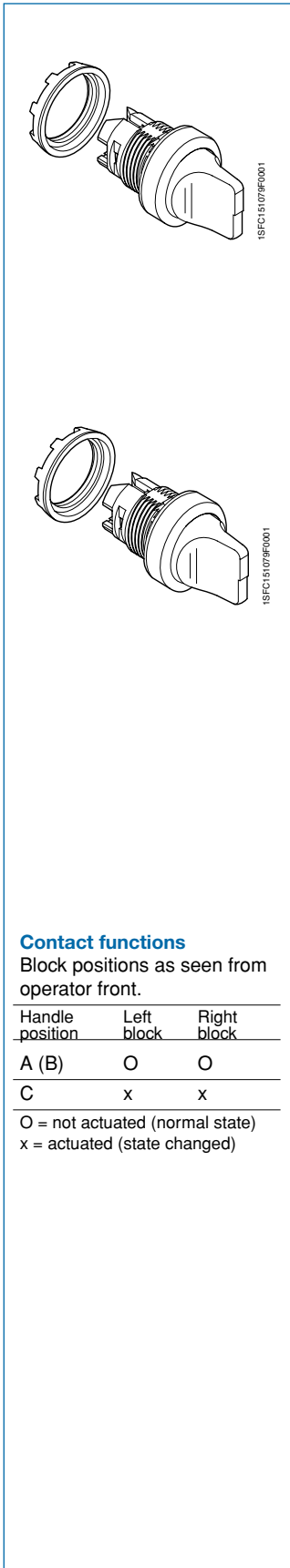
Description	Catalogue No.	List Price
Spacer		
1 mm thick. Needed when legend plates are not used in plastic enclosures.		
Spacer (Packing unit 10 pieces)	SK615516-1	
Spacer for Modular emergency stop pushbutton, page 48 (Packing unit 10 pieces)	KA1-8045	

Description	Catalogue No.	List Price
Blanking plug		
Black plastic	SK616502-B	



22 mm Pilot devices - Modular range

Two position selector switches for mounting in vertically mounted enclosures



Non-illuminated operator ... ¹⁾

Symbol	Handle color	Black Plastic Bezel		Chrome Metal Bezel	
		Catalogue No.	List Price	Catalogue No.	List Price
with short handle					
Maintained					
	Red	M2SSV1-10R M2SSV1-10B		M2SSV1-30R M2SSV1-30B	
	Black				
	Red	M2SSV2-10R M2SSV2-10B		M2SSV2-30R M2SSV2-30B	
	Black				
Momentary, spring return from C to B					
	Red	M2SSV3-10R M2SSV3-10B		M2SSV3-30R M2SSV3-30B	
	Black				

Illuminated operator ... ^{1) 2)}

Symbol	Handle color	Catalogue No.	List Price	Catalogue No.	List Price
with short handle					
Maintained					
	Red	M2SSV1-11R M2SSV1-11G M2SSV1-11Y		M2SSV1-31R M2SSV1-31G M2SSV1-31Y	
	Green				
	Yellow				
	Red	M2SSV2-11R M2SSV2-11G M2SSV2-11Y		M2SSV2-31R M2SSV2-31G M2SSV2-31Y	
	Green				
	Yellow				
Momentary, spring return from C to B					
	Red	M2SSV3-11R M2SSV3-11G M2SSV3-11Y		M2SSV3-31R M2SSV3-31G M2SSV3-31Y	
	Green				
	Yellow				

¹⁾ No contact in center position

²⁾ Lamp block for max 230 V AC/DC. Bulb not included. Other lamp block see Accessories

Contact functions

Block positions as seen from operator front.

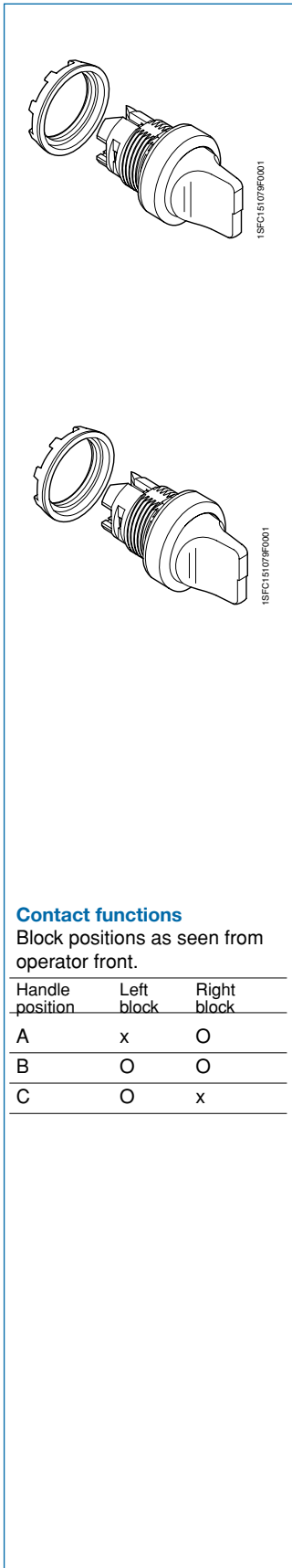
Handle position	Left block	Right block
A (B)	O	O
C	x	x

O = not actuated (normal state)
x = actuated (state changed)



22 mm Pilot devices - Modular range

Three position selector switches for mounting in vertically mounted enclosures



Non-illuminated operator ...¹⁾

Symbol	Handle color	Black Plastic Bezel		Chrome Metal Bezel	
		Catalogue No.	List Price	Catalogue No.	List Price
with short handle					
Maintained					
	Red	M3SSV1-10R		M3SSV1-30R	
	Black	M3SSV1-10B		M3SSV1-30B	
Momentary, spring return from A to B and from C to B					
	Red	M3SSV2-10R		M3SSV2-30R	
	Black	M3SSV2-10B		M3SSV2-30B	
Momentary, spring return from C to B					
	Red	M3SSV3-10R		M3SSV3-30R	
	Black	M3SSV3-10B		M3SSV3-30B	

Illuminated operator ...^{1) 2)}

Symbol	Handle color	Black Plastic Bezel		Chrome Metal Bezel	
		Catalogue No.	List Price	Catalogue No.	List Price
with short handle					
Maintained					
	Red	M3SSV1-11R		M3SSV1-31R	
	Green	M3SSV1-11G		M3SSV1-31G	
	Yellow	M3SSV1-11Y		M3SSV1-31Y	
Momentary, spring return from A to B and from C to B					
	Red	M3SSV2-11R		M3SSV2-31R	
	Green	M3SSV2-11G		M3SSV2-31G	
	Yellow	M3SSV2-11Y		M3SSV2-31Y	
Momentary, spring return from C to B					
	Red	M3SSV3-11R		M3SSV3-31R	
	Green	M3SSV3-11G		M3SSV3-31G	
	Yellow	M3SSV3-11Y		M3SSV3-31Y	

¹⁾ No contact in centre position

²⁾ Lamp block for max 230 V AC/DC. Bulb not included. Other lamp block see Accessories

Contact functions

Block positions as seen from operator front.

Handle position	Left block	Right block
A	x	O
B	O	O
C	O	x

Contact blocks, lamp block and holder See Page 49

Ordering example See Page 38

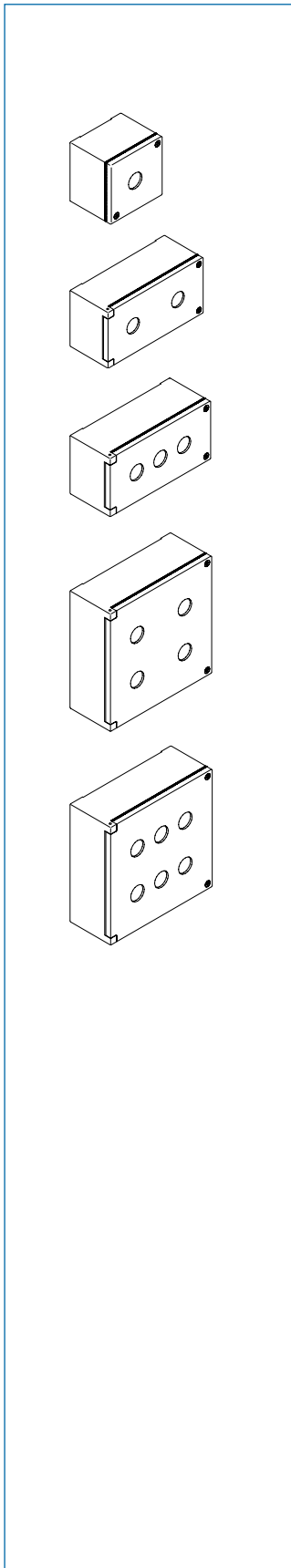
22 mm Pilot devices - Metallic enclosures

Degree of protection IP 67

Empty metallic enclosures

Size	Color top/bottom	Catalogue No.	List Price
1-seat	Grey	KEM1-0	
2-seat	Grey	KEM2-0	
3-seat	Grey	KEM3-0	
4-seat	Grey	KEM4-0¹⁾	
6-seat	Grey	KEM6-0¹⁾	

¹⁾ Flanges are not included



22 mm Pilot devices - Metallic enclosures

Accessories



Cable gland

Metal. Threaded outer sleeve. Sealing ring PR 22.5 (Pg16) included,

Pr	Pg	Sealing diameter, mm	Catalogue No.	List Price
22.5	16	8.5 - 11.5	SK1707685	
22.5	16	10.5 - 13.5	SK1707686	
22.5	16	12.5 - 15.0	SK1707687	

Hexagon nut.

Description	Catalogue No.	List Price
Metal, Pr 22.5, Pg 16	SK1750152	

Sealing ring

Description	Catalogue No.	List Price
Rubber, Pr 22.5, Pg 16	SK1700182	

Blanking plates

Without holes. Metal. Black For 4- and 6-seat enclosures. Note: Gasket not included

For flange opening	Suitable flange gasket Order Code	Catalogue No.	List Price
FL 13	SK 170 4536	SK172105-AA	

With holes. Metal. Black For 4- and 6-seat enclosures. Note: Gasket not included

For flange opening	Suitable flange gasket Order Code	Catalogue No.	List Price
Two threaded holes Pr 22.5 (Pg 16). Hole centre distance 50 mm	SK 170 4536	SK172105-AD	
Three threaded holes Pr 22.5 (Pg 16). Hole centre distance 38 mm	SK 170 4536	SK172105-AE	
Four threaded holes Pr 22.5 (Pg 16). Hole centre distance 30 mm	SK 170 4536	SK172105-AF	

Flange gasket

Description	Catalogue No.	List Price
FL 13	SK1704536	

Blanking plug

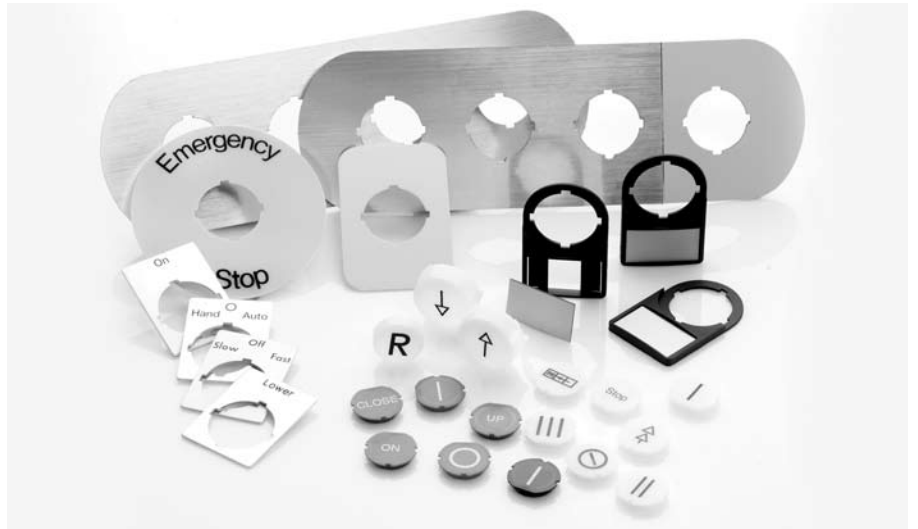
Applicable to cover a 22 mm-hole in an enclosure instead of an operator. Gasket and nut included.

Description	Catalogue No.	List Price
Black non-metallic	SK616502-B	

Sealing plug

Plastic. Black

For holes	Catalogue No.	List Price
Pr 22.5 Pg 16	SK175919-3	



Fixed legend plates

- Of silvergrey aluminium for:
 - pushbuttons
 - two-position selector switches
 - three-position selector switches
 - toggle switches
 - customer selected text
- Of black/white plastic. Text on one side or both sides:
 - with customer selected text

Special legend plates

- For emergency stop pushbuttons
- Legend plate with or without customer selected text
- Legend plate holders with inserts of brushed aluminium on black plastic. With or without text or symbol for:
 - pushbuttons
 - two-position selector switch
 - three position selector switch
 - customer selected text

For plastic enclosures:

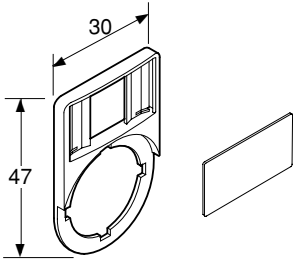
- Legend plate holders with inserts of brushed aluminium on black plastic. With or without text or symbol for push-buttons
- Legend plates of silvergrey aluminium For 1- 2-, 3- 4- or 6-seat plastic enclosures With or without text or symbol for:
 - pushbuttons

Text caps

- For illuminated pushbuttons (flush or extended) and pilot lights with or without text or symbol or with customer selected text

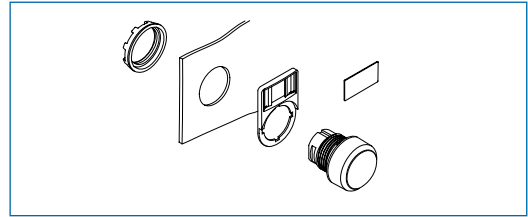
22 mm Pilot devices - Accessories

Special legend plates



Legend plate holders with inserts

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



Legend plate holder (black)

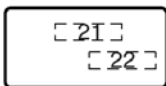
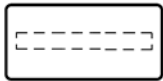
Description	Catalogue No.	List Price
Black	1SFA616920R8120	

Inserts

Description	Catalogue No.	List Price
Of brushed aluminum on black plastic Without text or symbol	1SFA616920R8121	

Inserts with text/symbol

Description	Catalogue No.	List Price
Of brushed aluminum on black plastic <u>With text or symbol</u>		
O	1SFA611930R1032	
I	1SFA611930R1033	
→	1SFA611930R1034	
→→	1SFA611930R1035	
Close	1SFA611930R1036	
Open	1SFA611930R1037	
On	1SFA611930R1038	
Off	1SFA611930R1039	
Fast	1SFA611930R1040	
Slow	1SFA611930R1041	
Down	1SFA611930R1042	
Up	1SFA611930R1043	
Start	1SFA611930R1044	
Stop	1SFA611930R1045	
Run	1SFA611930R1054	
Full	1SFA611930R1055	



For two-position selector switch

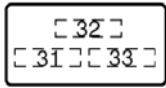
Inserts for two-position selector switches

Of brushed aluminum on black plastic. Text on both sides.

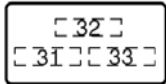
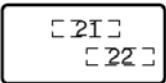
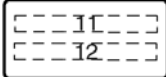
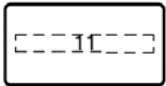
Description	Catalogue No.	List Price
<u>With text or symbol</u>		
Pos. 21 Pos. 22		
O I	1SFA611930R1070	
I II	1SFA611930R1071	
→ →→	1SFA611930R1072	
Off On	1SFA611930R1073	
Stop Start	1SFA611930R1074	
Low High	1SFA611930R1075	
Slow Fast	1SFA611930R1076	
Close Open	1SFA611930R1077	
Jog Run	1SFA611930R1078	
Hand Auto	1SFA611930R1079	

22 mm Pilot devices - Accessories

Special legend plates



For three-position selector switch



Inserts for three-position selector switches

Of brushed aluminum on black plastic. Text on both sides.

Description	Catalogue No.	List Price
With text or symbol		
Pos. 31 Pos. 32 Pos. 33		
← O →	1SFA611930R1080	
→ O →→	1SFA611930R1081	
I O II	1SFA611930R1082	
Hand O Auto	1SFA611930R1083	
Slow Off Fast	1SFA611930R1084	

Inserts with customer-selected text/symbols ¹⁾

Of brushed aluminium on black plastic

Description	Catalogue No.	List Price
With text	1SFA611930R1090	
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		

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

22 mm Pilot devices - Accessories

Special legend plates

Emergency stop legend plates

Description	Catalogue No.	List Price
Black text on a yellow aluminum plate. Emergency Stop ARRET D'URGENCE PARADA DE EMERGENCIA EMERGENCY STOP NOT AUS ARRET D'URGENCE	SK615546-2 SK615546-4 SK615546-6 SK615546-13 SK615546-8	
Without text	SK615546-8	
Black text on a yellow plastic plate. Can be used as yellow background. Emergency Stop	1SFA616915R1005	

Legend plates without or with customer-selected text

Of aluminum without text

Number of operations	Max. number of characters per line	Dimensions			Without text ¹⁾ Catalogue No.	List Price
		A	L	C		
1	7	-	29.6	23.6	SK615545-1	
2	20	30.5	60	54	SK615545-2	
2	24	40	70	64	SK615545-3	
3	33	30.5	90	84	SK615545-4	
3	42	40	110	104	SK615545-5	

¹⁾ Quantity per package: 10.

Of aluminum with customer-selected text

Number of operations	Max. number of characters per line	Dimensions			With text ²⁾ Catalogue No.	List Price
		A	L	C		
1	7	-	29.6	23.6	SK615998-1	
2	20	30.5	60	54	SK615998-2	
2	24	40	70	64	SK615998-3	
3	33	30.5	90	84	SK615998-4	
3	42	40	110	104	SK615998-5	

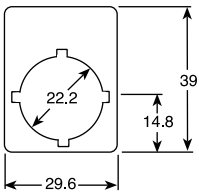
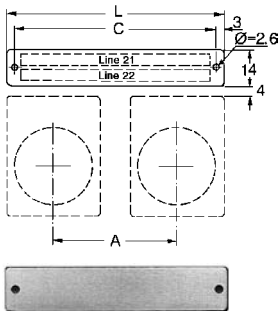
²⁾ When ordering, please state text and position (Line 21 and Line 22). Only the initial character is upper case unless other is stated. Quantity per package: 1.

Engraved fixed legend plates, with symbols ³⁾

Of silver grey aluminum

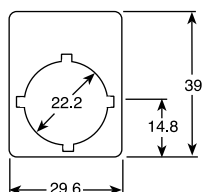
Symbol	Catalogue No.	List Price
O	CBK-NPE90	
I	CBK-NPE91	
II	CBK-NPE92	
←	CBK-NPE93	
→	CBK-NPE94	
→ →	CBK-NPE95	

³⁾ text height 3 mm



22 mm Pilot devices - Accessories

Legend plates for pushbuttons



Engraved fixed legend plates, with text ¹⁾

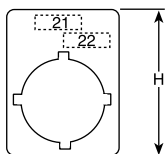
Of silvergrey aluminum

Text	Catalogue No.	List Price
English		
CLOSE	CBK-NPE1	
DOWN	CBK-NPE2	
EMERGENCY STOP	CBK-NPE3	
FAST	CBK-NPE4	
FORWARD	CBK-NPE5	
INCHING	CBK-NPE6	
IN	CBK-NPE7	
LEFT	CBK-NPE8	
LOWER	CBK-NPE9	
OFF	CBK-NPE10	
ON	CBK-NPE11	
OPEN	CBK-NPE12	
RAISE	CBK-NPE13	
RESET	CBK-NPE14	
REVERSE	CBK-NPE15	
RUN	CBK-NPE16	
RIGHT	CBK-NPE17	
SLOW	CBK-NPE18	
START	CBK-NPE19	
STOP	CBK-NPE20	
UP	CBK-NPE21	
FAULT	CBK-NPE34	
POWER ON	CBK-NPE35	
JOG	CBK-NPE40	
TEST	CBK-NPE41	
TRIP	CBK-NPE50	
French		
FERMETURE	CBK-NPF1	
DESCENTE	CBK-NPF2	
ARRÊT D'URGENCE	CBK-NPF3	
RAPIDE	CBK-NPF4	
AVANT	CBK-NPF5	
À COUPS	CBK-NPF6	
ENTRÉE	CBK-NPF7	
GAUCHE	CBK-NPF8	
BAS	CBK-NPF9	
HORS SERVICE	CBK-NPF10	
SOUS-TENSION	CBK-NPF11	
OUVERTURE	CBK-NPF12	
LEVER	CBK-NPF13	
REARMEMENT	CBK-NPF14	
ARRIÈRE	CBK-NPF15	
EN SERVICE	CBK-NPF16	
DROITE	CBK-NPF17	
LENT	CBK-NPF18	
MARCHE	CBK-NPF19	
ARRÊT	CBK-NPF20	
MONTÉE	CBK-NPF21	
FAUTE	CBK-NPF34	
EN CIRCUIT	CBK-NPF35	
ALARME	CBK-NPF36	
ALIMENTATION	CBK-NPF37	
DEPART	CBK-NPF38	
SILENCE	CBK-NPF39	
SURCHARGE	CBK-NPF40	

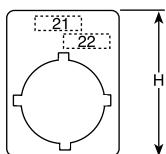
¹⁾ Text height 3 mm.

22 mm Pilot devices - Accessories

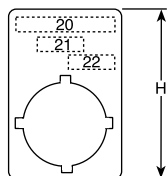
Legend plates for two-position selector switches



H = 39 mm



H = 39 mm



H = 44.5 mm

Engraved fixed legend plates, with symbols ¹⁾

Of silvergrey aluminum

Symbol/Text		Catalogue No.	List Price
Pos. 21	Pos. 22		
O	I	CBK-NPE96	
		CBK-NPE97	
→	→→	CBK-NPE98	

Engraved fixed legend plates, with text ¹⁾

Of silvergrey aluminum

Symbol/Text		Catalogue No.	List Price
Pos. 21	Pos. 22		
English			
HAND	AUTO	CBK-NPE22	
JOG	RUN	CBK-NPE23	
OFF	ON	CBK-NPE24	
STOP	START	CBK-NPE25	
FWD	REV	CBK-NPE32	
LOCAL	AUTO	CBK-NPE36	
OPEN	CLOSE	CBK-NPE37	
SLOW	FAST	CBK-NPE46	
French			
MAN	AUTO	CBK-NPF22	
À COUPS	MARCHE	CBK-NPF23	
HORS	EN	CBK-NPF24	
MARCHE	ARRÊT	CBK-NPF25	
ARRIÈRE	AVANT	CBK-NPF32	
HORS	TEST	CBK-NPF42	
LENT	RAPIDE	CBK-NPF46	

For symbol/text at position 31 and 33 add suffix A. ex.: CBK-NPE22A

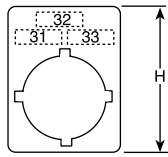
Fixed legend plates, with customer-selected text ¹⁾

Description	Catalogue No.	List Price
Without heading H= 39 mm Of silvergrey aluminum Of silvergrey laminated plastic When ordering state (in addition to Order Code) Text line: Pos. 21 - max 5 characters Pos. 22 - max 5 characters	SK615999-1 SK615999-21	
With heading H= 44.5 mm Of silvergrey aluminum Of silvergrey laminated plastic When ordering state (in addition to Order Code) Text line: Pos. 20 - max 11 characters Pos. 21 - max 5 characters Pos. 22 - max 5 characters	SK615999-2 SK615999-22	

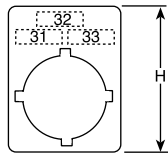
¹⁾Text height 3 mm. Only the initial character is upper case unless other is stated.

22 mm Pilot devices - Accessories

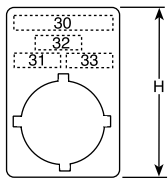
Legend plates for three-position selector switches



H = 39 mm



H = 39 mm



H = 44.5 mm

Engraved fixed legend plates, with symbols ¹⁾

Of silvergrey aluminum

Symbol/Text	Catalogue No.	List Price
Pos 31 Pos. 32 Pos. 33		
I O II	CBK-NPE99	
← O →	CBK-NPE100	
→ O →→	CBK-NPE101	

Engraved fixed legend plates, with text ¹⁾

Of silvergrey aluminum

Symbol/Text	Catalogue No.	List Price
Pos 31 Pos. 32 Pos. 33		
English		
HAND O AUTO	CBK-NPE26	
SLOW OFF FAST	CBK-NPE27	
LOW OFF HIGH	CBK-NPE31	
FWD OFF REV	CBK-NPE33	
OPEN AUTO CLOSE	CBK-NPE45	
French		
MAN HORS AUTO	CBK-NPF26	
LENT HORS RAPIDE	CBK-NPF27	
BAS HORS HAUT	CBK-NPF31	
AV HORS ARR	CBK-NPF33	
AUTO HORS TEST	CBK-NPF43	
EN HORS AUTO	CBK-NPF44	

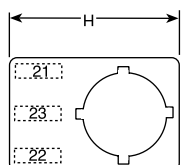
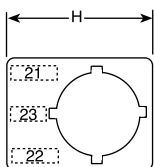
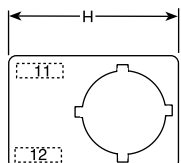
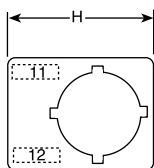
Fixed legend plates, with customer-selected text ¹⁾

Description	Catalogue No.	List Price
Without heading H= 39 mm		
Of silvergrey aluminum	SK615999-1	
Of silvergrey laminated plastic	SK615999-21	
When ordering state (in addition to Order Code)		
Text line: Pos. 31 - max 5 characters		
Pos. 32 - max 5 characters		
Pos. 33 - max 5 characters		
With heading H= 44.5 mm		
Of silvergrey aluminum	SK615999-2	
Of silvergrey laminated plastic	SK615999-22	
When ordering state (in addition to Order Code)		
Text line: Pos. 30 - max 11 characters		
Pos. 31 - max 5 characters		
Pos. 32 - max 5 characters		
Pos. 33 - max 5 characters		

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

22 mm Pilot devices - Accessories

Legend plates for toggle switches



Fixed legend plates with customer-selected text ¹⁾

Of silvergrey aluminum

Description	Catalogue No.	List Price
Toggle switch, two positions Two text lines. H = 39 mm When ordering state (in addition to Order Code) Text line: Pos. 11 - max 4 characters Pos. 12 - max 4 characters	SK615999-3	
Two text lines. H = 44.5 mm When ordering state (in addition to Order Code) Text line: Pos. 11 - max 6 characters Pos. 12 - max 6 characters	SK615999-4	

Fixed legend plates with customer-selected text ¹⁾

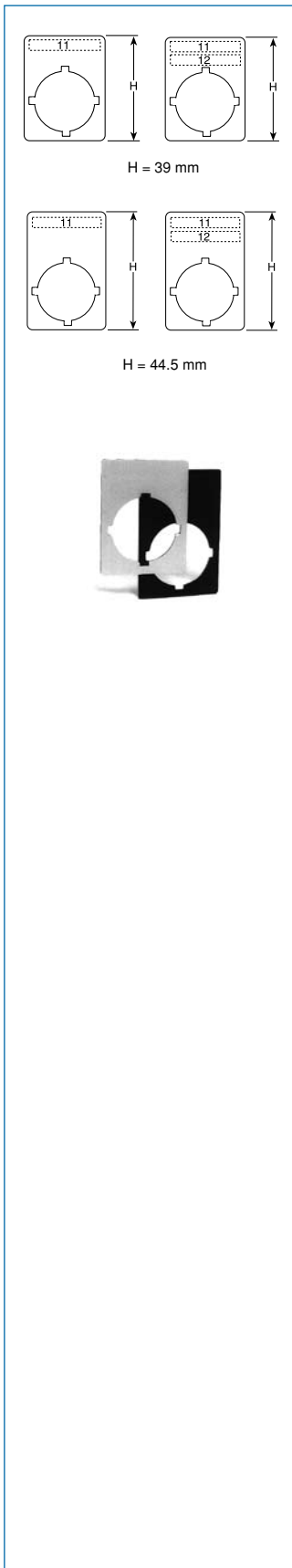
Of silvergrey aluminum

Description	Catalogue No.	List Price
Toggle switch, three positions Three text lines. H = 39 mm Of silvergrey aluminum Of silvergrey laminated plastic When ordering state (in addition to Order Code) Text line: Pos. 21 - max 4 characters Pos. 23 - max 3 characters Pos. 22 - max 4 characters	SK615999-3 SK615999-23	
Three text lines. H = 44.5 mm Of silvergrey aluminum Of silvergrey laminated plastic When ordering state (in addition to Order Code) Text line: Pos. 21 - max 6 characters Pos. 23 - max 5 characters Pos. 22 - max 6 characters	SK615999-4 SK615999-24	

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

22 mm Pilot devices - Accessories

Legend plates for toggle switches



Fixed legend plates without text (for pushbuttons, mushroom pushbuttons and pilot lights) ¹⁾

Of silvergrey aluminum

Description	Catalogue No.	List Price
For 1 - 2 text lines. H = 39 mm	SK615540-1	
For 2 - 3 text lines. H = 44.5 mm	SK615541-1	

Fixed legend plates with customer-selected text ¹⁾

Of silvergrey aluminum

Description	Catalogue No.	List Price
For 1 text line. H = 39 mm	SK615999-1	
For 2 text lines. H = 44.5 mm	SK615999-2	
Text line: Pos. 11 - max 11 characters Pos. 12 - max 11 characters		

Fixed legend plates

Of black/white plastic. One side black and the other white. Engraving will give either white or black text.

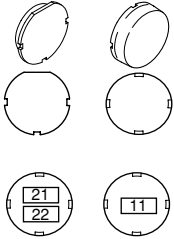
Description	Catalogue No.	List Price
For 1 - 2 text lines. H = 39 mm	SK616540-2	
For 2 - 3 text lines. H = 44.5 mm	SK616541-2	
Text line: Pos. 11 - max 11 characters Pos. 12 - max 11 characters		

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

22 mm Pilot devices - Accessories

Text caps

Flush or extended button

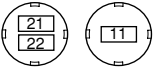


Can be turned 90° or 180°

Characters per line

1 text line (pos. 11): max. 6
2 text lines (pos. 21): max. 5
(pos. 22): max. 5

Pilot light



Characters per line

1 text line (pos. 11): max. 8
2 text lines (pos. 21): max. 8
(pos. 22): max. 8

Text caps for illuminated pushbuttons and pilot lights

Text/Symbol	Cap color ¹⁾	Flush button Catalogue No.	Extended button Catalogue No.	Pilot light Catalogue No.	List Price
Start	White	1SFA616901R2030	1SFA616902R2030	1SFA616903R2030	
START	White	1SFA616906R1042	-	-	
R	White	1SFA616901R9009	1SFA616902R9009	1SFA616903R9009	
	Black	1SFA616908R9009	1SFA616909R9009	-	
On	White	1SFA616901R1020	1SFA616902R1020	1SFA616903R1020	
ON	White	1SFA616901R1039	-	1SFA616903R1039	
	Green	1SFA616906R1039	-	-	
	Black	1SFA616908R1039	-	-	
Off	White	1SFA616901R1019	1SFA616902R1019	1SFA616903R1019	
OFF	White	-	1SFA616902R1040	-	
	Red	-	1SFA616905R1040	-	
	Black	-	1SFA616909R1040	-	
Stop	White	1SFA616901R1031	1SFA616902R1031	1SFA616903R1031	
STOP	Red	1SFA616904R1047	1SFA616905R1047	-	
Reset	White	1SFA616901R1025	1SFA616902R1025	1SFA616903R1025	
(Without text)	White	1SFA616901R9000	1SFA616902R9000	1SFA616903R9000	
(With customer selected text) ²⁾	White	1SFA616901R9001	1SFA616902R9001	1SFA616903R9001	

¹⁾ Use only white caps for illuminated pushbutton and pilot lights.

²⁾ When ordering, please state text and position:

1 text line (pos. 11) max. 6 characters for pushbuttons. Max. 8 characters for pilot lights.

2 text lines (pos. 21 and pos. 22) max. 5 characters for pushbuttons. Max. 8 characters for pilot lights.

Only initial character is upper case unless other is stated.

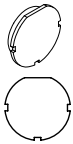
Recommended color combinations of text caps and actuators

Text cap color	Actuator	Lens color
White	Pilot light	All colors
White	Illuminated pushbutton	All colors
Green, Red, Black, White	Non-illuminated pushbutton	Clear

22 mm Pilot devices - Accessories

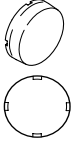
Text caps

Flush button



Can be turned 90° or 180°

Extended button



Pilot light



Text caps for illuminated pushbuttons and pilot lights

Text/Symbol	Cap color ¹⁾	Flush button Catalogue No.	Extended button Catalogue No.	Pilot light Catalogue No.	List Price
O	White	1SFA616901R9004	1SFA616902R9004	1SFA616903R9004	
	Red	1SFA616904R9004	1SFA616905R9004	-	
	Black	1SFA616908R9004	-	-	
I	White	1SFA616901R9002	1SFA616902R9002	1SFA616903R9002	
	Green	1SFA616906R9002	-	-	
	Black	1SFA616908R9002	-	-	
II	White	1SFA616901R9003	1SFA616902R9003	1SFA616903R9003	
	Green	1SFA616906R9003	-	-	
	Black	1SFA616908R9003	-	-	
III	White	1SFA616901R9028	1SFA616902R9028	-	
	Black	1SFA616908R9028	-	-	
+	White	1SFA616901R9011	1SFA616902R9011	-	
	Green	1SFA616906R9011	-	-	
	Black	1SFA616908R9011	-	-	
-	White	1SFA616901R9012	-	-	
	Red	1SFA616904R9012	-	-	
	Black	1SFA616908R9012	-	-	
↑	White	1SFA616901R9005	1SFA616902R9005	1SFA616903R9005	
	Black	1SFA616908R9005	-	-	
↗	White	1SFA616901R9014	1SFA616902R9014	-	
	Black	1SFA616908R9014	-	-	
↔	White	1SFA616901R9015	1SFA616902R9015	-	
	Black	1SFA616908R9015	-	-	
↔	White	1SFA616901R9016	1SFA616902R9016	-	
	Black	1SFA616908R9016	-	-	
→	White	1SFA616901R9017	1SFA616902R9017	-	
	Black	1SFA616908R9017	-	-	
→	White	1SFA616901R9006	1SFA616902R9006	1SFA616903R9006	
	Black	1SFA616908R9006	-	-	
⊕	White	1SFA616901R9018	1SFA616902R9018	-	
	Black	1SFA616908R9018	-	-	
●	White	1SFA616901R9019	1SFA616902R9019	-	
	Black	1SFA616908R9019	-	-	
⊙	White	1SFA616901R9020	1SFA616902R9020	-	
	Black	1SFA616908R9020	-	-	
✋	White	1SFA616901R9021	1SFA616902R9021	-	
	Black	1SFA616908R9021	-	-	
⚡	White	1SFA616901R9022	1SFA616902R9022	-	
	Black	1SFA616908R9022	-	-	
⚡	White	1SFA616901R9023	1SFA616902R9023	-	
	Black	1SFA616908R9023	-	-	
⚡	White	1SFA616901R9024	1SFA616902R9024	-	
	Black	1SFA616908R9024	-	-	
↑	White	1SFA616901R9025	1SFA616902R9025	-	
	Black	1SFA616908R9025	-	-	
↓	White	1SFA616901R9026	1SFA616902R9026	-	
	Black	1SFA616908R9026	-	-	
↙	White	1SFA616901R9027	1SFA616902R9027	-	
	Black	1SFA616908R9027	-	-	

¹⁾ Use only white caps for illuminated pushbutton and pilot lights.

22 mm Pilot devices - Accessories

Special legend plates for plastic enclosures

Legend plates for plastic enclosures

For 1-, 2-, 3-, 4 or 6-seat

Description	Catalogue No.	List Price
Of silvergrey aluminum.		
1-seat	1SFA611930R1000	
2-seat	1SFA611930R1002	
3-seat	1SFA611930R1003	
4-seat	1SFA611930R1004	
6-seat	1SFA611930R1005	

Of silvergrey aluminum.(Pos. 1 Yellow)

2-seat	1SFA611930R1006	
3-seat	1SFA611930R1007	
4-seat	1SFA611930R1008	
6-seat	1SFA611930R1009	

Symbol/Text
Pos _____

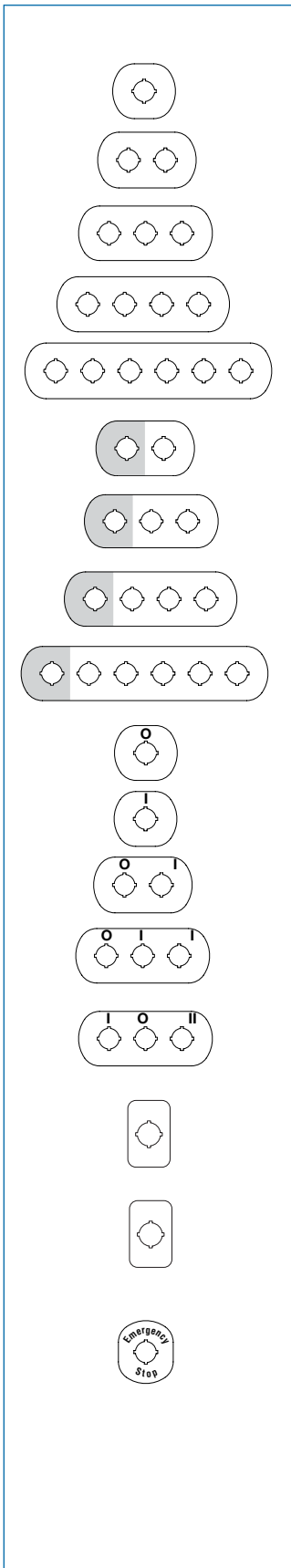
1	2	3	Catalogue No.	List Price
Of silvergrey aluminum.				
1-seat O			1SFA611930R1012	
1-seat I			1SFA611930R1013	
2-seat O I			1SFA611930R1014	
3-seat O I I			1SFA611930R1015	
3-seat I O II			1SFA611930R1016	

Emergency stop legend plate

Description/Text	Catalogue No.	List Price
Black text on an yellow aluminum plate.		
Legend plate without text	1SFA611930R1010	
Legend plate (1SFA611930R1010) with text: Emergency Stop	1SFA611930R1019	
ARRET D'URGENCE	1SFA611930R1020	
PARADA DE EMERGENCIA	1SFA611930R1022	
Black text on an yellow plastic plate.		
Legend plate without text	1SFA611930R1011	
Legend plate (1SFA611930R1011) with text: Emergency Stop	1SFA611930R1023	

Emergency stop legend plate for plastic enclosures

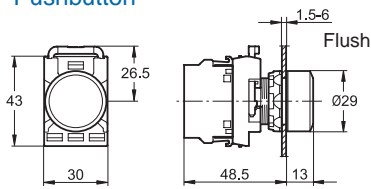
Description/Text	Catalogue No.	List Price
For horizontally mounted enclosures		
Of yellow plastic/black text: Emergency Stop	1SFA611930R1026	
ARRET D'URGENCE	1SFA611930R1028	
For vertically mounted enclosures		
Of yellow plastic/black text: Emergency Stop	1SFA611930R1101	
ARRET D'URGENCE	1SFA611930R1103	
Of yellow plastic/without text:	1SFA611930R1024	



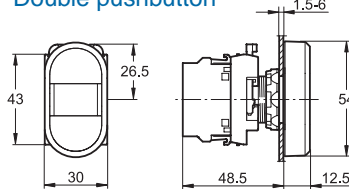
22 mm Pilot devices - Modular range

Dimensions

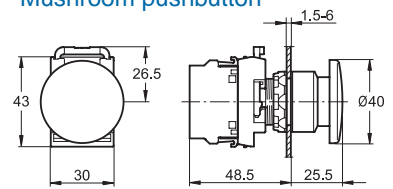
Pushbutton



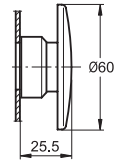
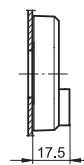
Double pushbutton



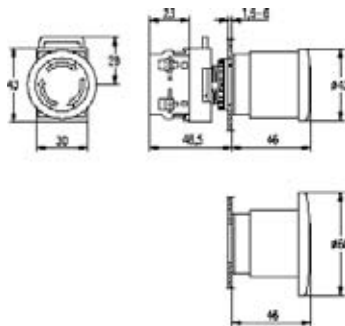
Mushroom pushbutton



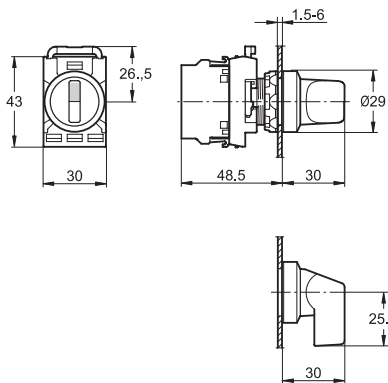
Extended



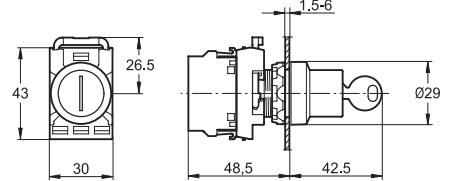
Emergency stop pushbutton



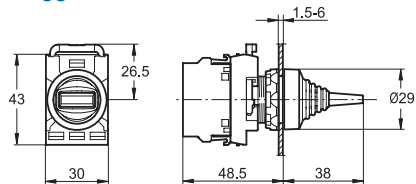
Selector switch



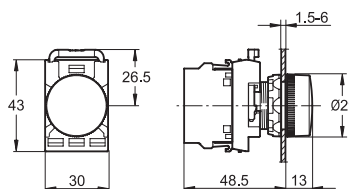
Key-operated selector switch



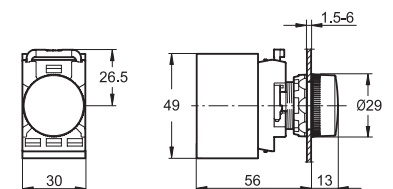
Toggle switch



Pilot light



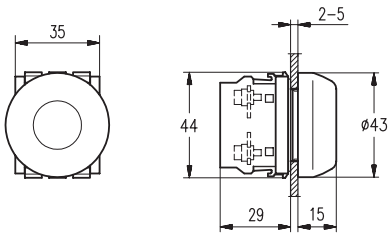
Pilot light with transformer



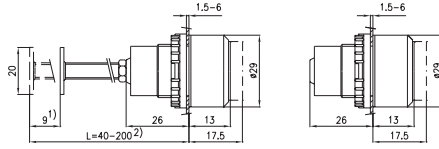
22 mm Pilot devices - Miscellaneous

Dimensions and drilling plans

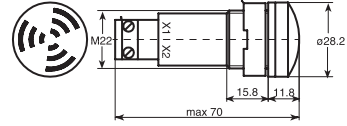
Definite purpose pushbutton



Reset pushbutton

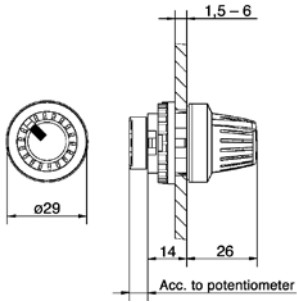


Buzzer

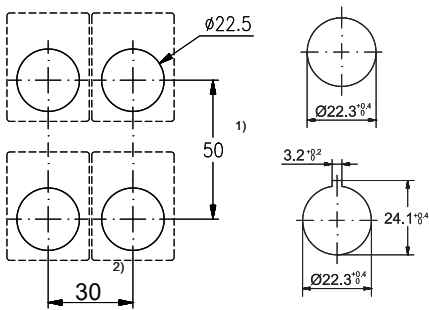


- 1) Length of stroke.
- 2) Can be cut to desired length.

Potentiometer

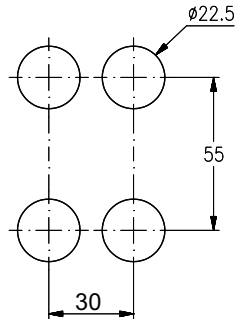


Drilling plans for pushbuttons, switches and pilot lights

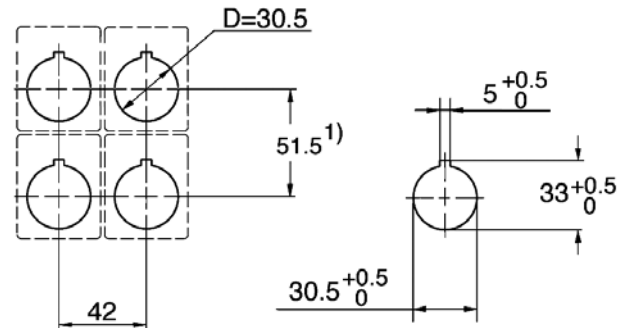


- 1) 55 mm when legend plate H= 44.5 mm is used.
61 mm for mushroom pushbutton with D=60 mm
- 2) 37 mm when legend plate with insert is used,

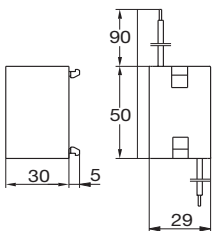
Drilling plan for double pushbutton



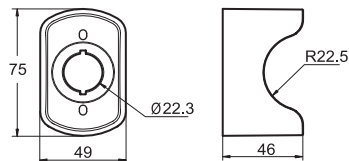
Drilling plan for 30 mm adaptor



Transformer block



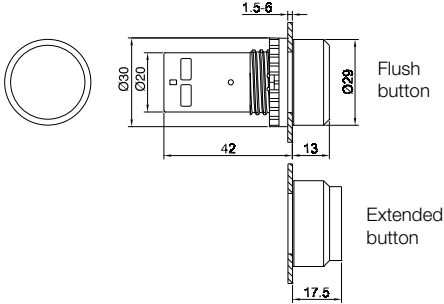
Emergency stop shroud



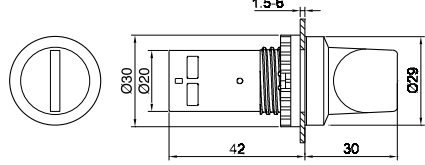
22 mm Pilot devices - Compact range

Dimensions

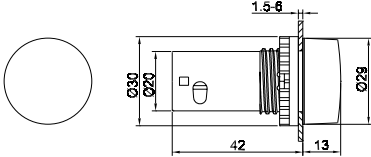
Pushbutton



Selector switch

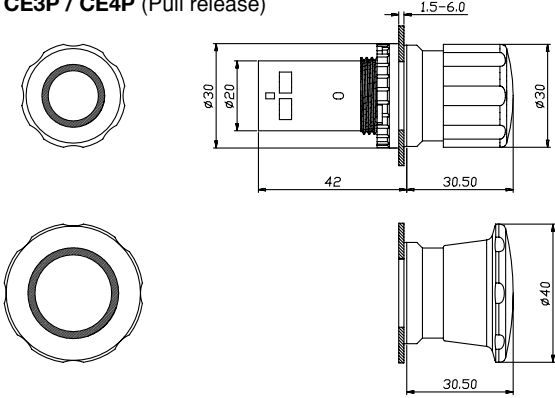


Pilot light

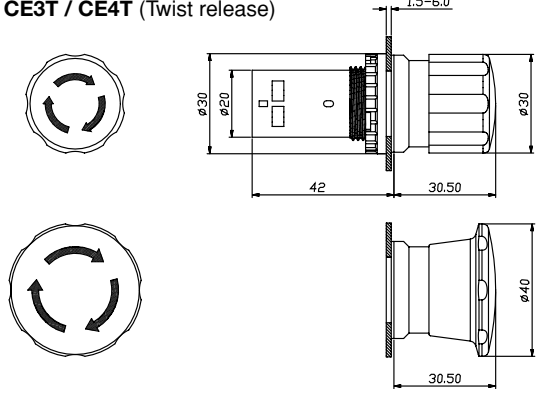


Emergency stop pushbuttons

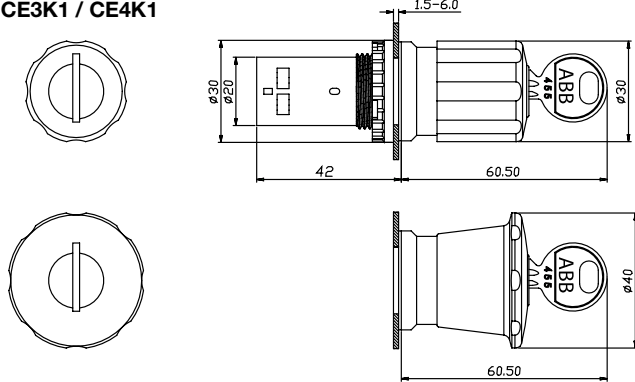
CE3P / CE4P (Pull release)



CE3T / CE4T (Twist release)



CE3K1 / CE4K1



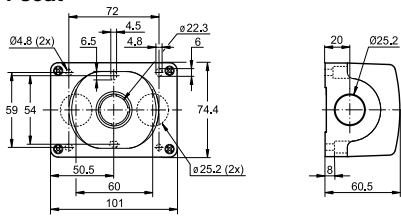
Drilling plans for compact pushbuttons, selector switches, pilot lights and emergency stop pushbuttons
See page 68

22 mm Pilot devices - Enclosures

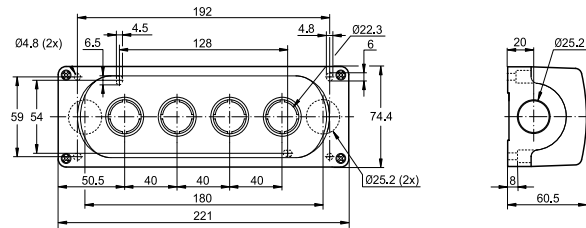
Dimensions

Plastic enclosures

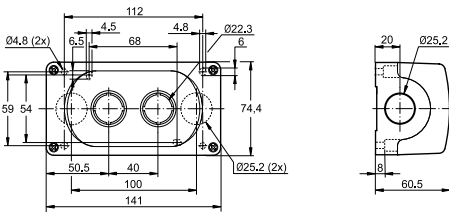
1 seat



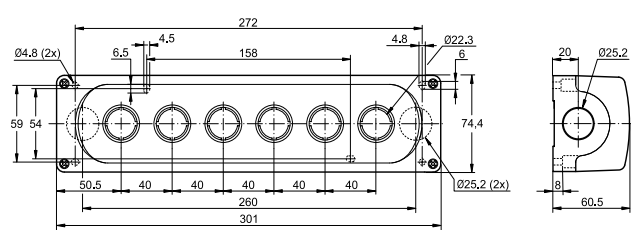
4 seats



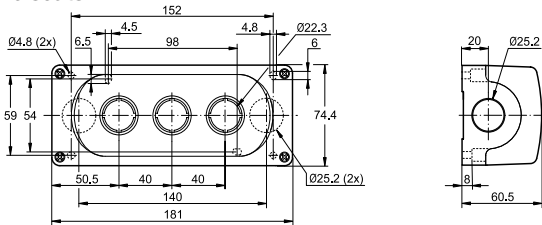
2 seats



6 seats

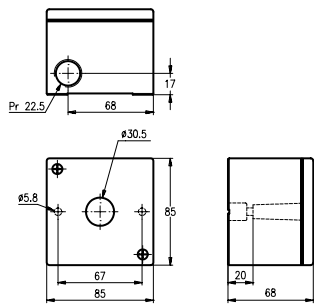


3 seats

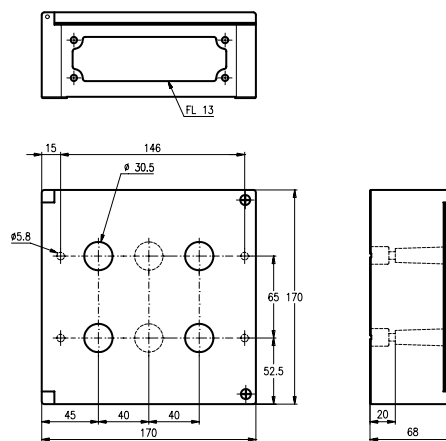


Metallic enclosures

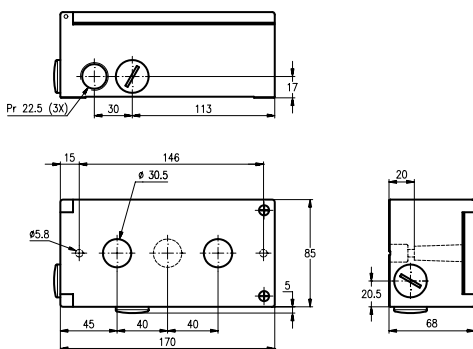
1 seat



4 or 6 seats



2 or 3 seats



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
 TS Toggle Switch

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

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 = M, Modular range 22 mm

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

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

General construction

- Snap-on feature reduces installation time
- Bezels: Black plastic, chrome metal.
- Contact block holder features rear mounting with quick-release locking mechanism for high security
- Buttons available in several colors
- Engraved text caps available
- Custom-specific markings on request

Operators

- Pushbuttons, illuminated and non-illuminated
- Mushroom pushbuttons, illuminated and non-illuminated, Ø 40 mm and Ø 60 mm
- Emergency stop pushbuttons, illuminated and non-illuminated, twist or pull release
- Selector switches, illuminated and non-illuminated, 2 or 3 position, short or long handle
- Key operated selector switches, 2 or 3 position
- Toggle switches, 2 or 3 position

Pilot lights

- Full voltage, resistor and transformer types
- LED & filament bulbs available for illuminated pushbuttons and pilot lights

Contact blocks

- Quick-mount, quick-release contact block holder for fast and easy assembly
- NO & NC contact blocks are color coded for easy identification: Green = NO, Red = NC
- Silver tipped contacts
- Wiping action for high reliability
- Low energy gold plated contact blocks
- Base mounted contact blocks which snap onto a 35 mm DIN rail or into a plastic enclosure
- Contact block holder for three or five blocks in a single row

Additional products

- Buzzer, continuous and pulsating
- 5 kΩ and 10 kΩ potentiometers
- Definite purpose pushbuttons
- Reset pushbuttons
- Broad range of accessories

30 mm Pilot devices - Modular range

Mounting

Exploded view

Contact block

Single pole with making or breaking contact

Holder

Available either for three or five blocks in one single row. Additional blocks can be stacked on holders for three blocks.

Legend plates

Of aluminium with slots that guide the legend plate and the operator into the correct position. Please, see the chapter 'legend plates' for more information.

Lamp block

Illuminated pushbuttons, illuminated selector switches and pilot lights have a lamp block in the center position of the holder.

Nut

Operator

Buttons, lenses and handles in several colors. Illuminated or non-illuminated.

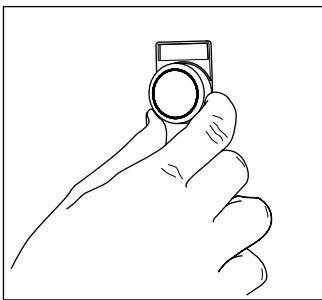
Legend plate holder

Of black plastic. Insert of brushed aluminium. Please, see the chapter 'legend plates' for more information.

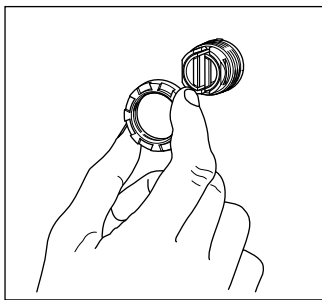
Bezels

Pushbuttons, selector switches and toggle switches with bezel in black plastic, chrome plastic or metal are available.

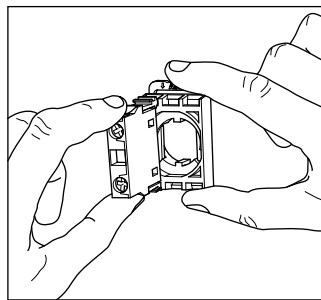
Easy to mount



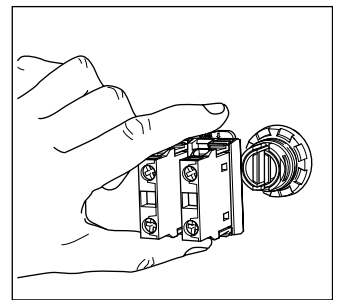
The operator is to be inserted from the front.....



...and secured at the back with a nut.

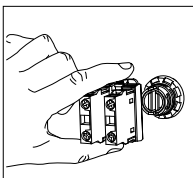
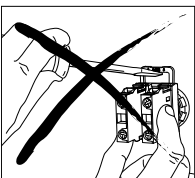


The contact blocks/lamp block are then snapped on to the holder...



...and the holder snaps on to the operator.

...and to demount

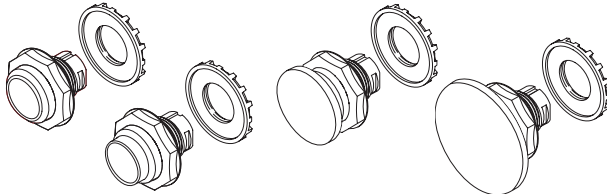


Press down the spring on the holder and pull the holder from the actuator.

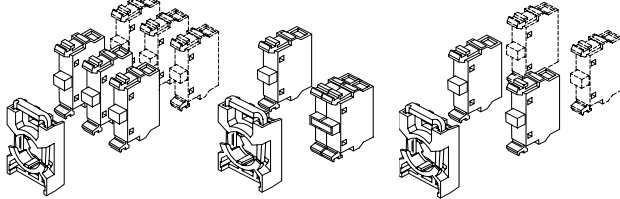
30 mm Pilot devices - Modular range

Selection Guide

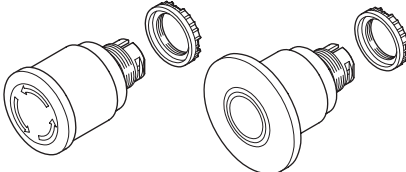
Pushbuttons and Mushroom pushbuttons



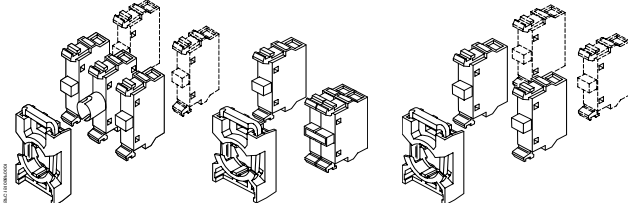
Contact block/lamp block combinations



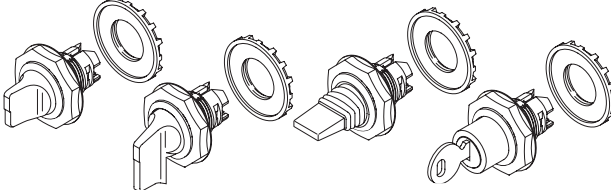
Emergency stop pushbuttons



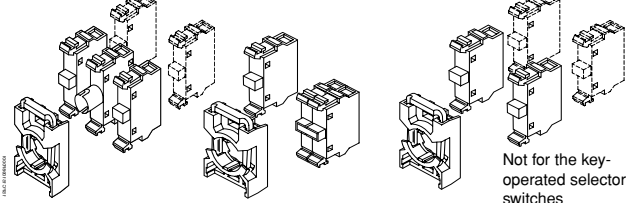
Contact block/lamp block combinations



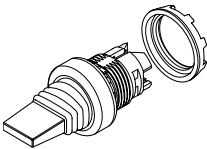
Selector switches



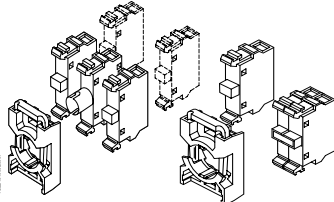
Contact block/lamp block combinations



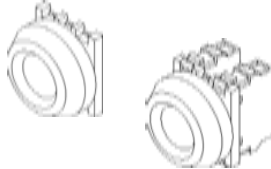
Toggle switches



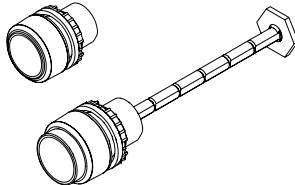
Contact block combinations



Definite purpose push-buttons

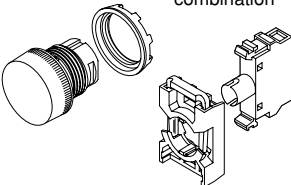


Reset pushbuttons

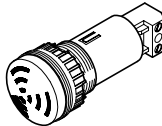


Pilot lights

Lamp block combination



Buzzers



Potentiometers



30 mm Pilot devices - Modular range

Flush and extended pushbuttons, non-illuminated

Momentary and maintained

Operator ...

Description	Black Plastic Bezel		Chrome Metal Bezel	
	Catalogue No.	List price	Catalogue No.	List price
with flush button				
Momentary				
Red	GMP1-10R		GMP1-30R	
Green	GMP1-10G		GMP1-30G	
Yellow	GMP1-10Y		GMP1-30Y	
Blue	GMP1-10L		GMP1-30L	
White	GMP1-10W		GMP1-30W	
Black	GMP1-10B		GMP1-30B	
Clear	GMP1-10C		GMP1-30C	
Set of 7 color caps	GMP1-10M		GMP1-30M	
Maintained ¹⁾				
Red	GMP2-10R		GMP2-30R	
Green	GMP2-10G		GMP2-30G	
Yellow	GMP2-10Y		GMP2-30Y	
Blue	GMP2-10L		GMP2-30L	
White	GMP2-10W		GMP2-30W	
Black	GMP2-10B		GMP2-30B	
Clear	GMP2-10C		GMP2-30C	
with extended button				
Momentary				
Red	GMP3-10R		GMP3-30R	
Green	GMP3-10G		GMP3-30G	
Yellow	GMP3-10Y		GMP3-30Y	
Blue	GMP3-10L		GMP3-30L	
White	GMP3-10W		GMP3-30W	
Black	GMP3-10B		GMP3-30B	
Clear	GMP3-10C		GMP3-30C	
Set of 7 color caps	GMP3-10M		GMP3-30M	
Maintained ¹⁾				
Red	GMP4-10R		GMP4-31R	
Green	GMP4-10G		GMP4-31G	
Yellow	GMP4-10Y		GMP4-31Y	
Blue	GMP4-10L		GMP4-31L	
White	GMP4-10W		GMP4-31W	
Black	GMP4-10B		GMP4-31B	
Clear	GMP4-10C		GMP4-31C	

Contact blocks, and holder

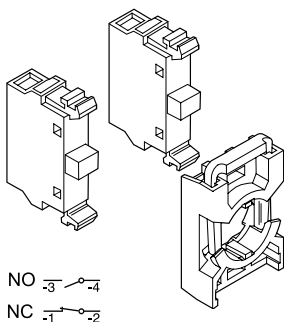
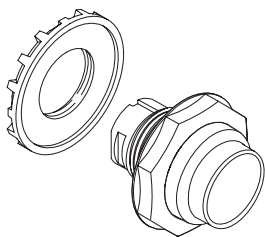
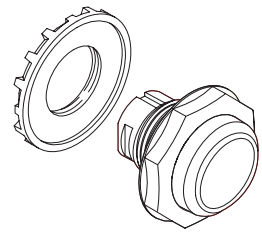
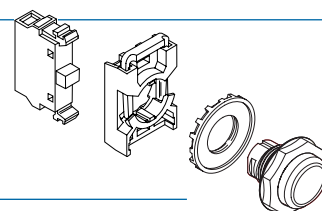
Blocks	Catalogue No.	List price
1 NO with holder	MCBH-10	
1 NC with holder	MCBH-01	
2 NO with holder	MCBH-20	
2 NC with holder	MCBH-02	
1 NO + 1 NC with holder	MCBH-11	
1 NO without holder	MCB-10	
1 NC without holder	MCB-01	
Holder for 3 blocks	MCBH-00	

¹⁾ No contact block in the center position

Ordering example

Requested: A modular pushbutton, momentary, with red flush button and one NO contact.

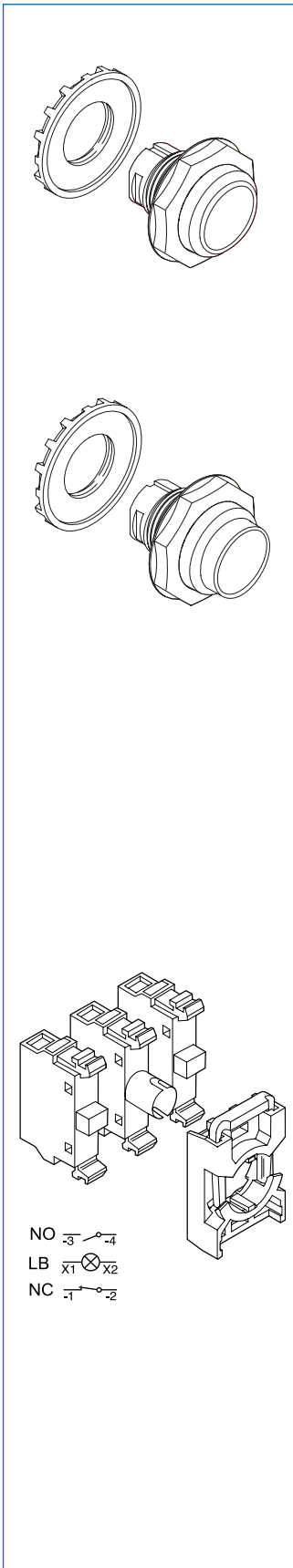
Order: 1 piece of GMP1-10R + 1 piece of MCBH-10



30 mm Pilot devices - Modular range

Flush and extended pushbuttons, illuminated

Momentary and maintained



Operator ...

Description	Black Plastic Bezel		Chrome Metal Bezel	
	Catalogue No.	List price	Catalogue No.	List price
with flush button				
Momentary ¹⁾				
Red	GMP1-11R		GMP1-31R	
Green	GMP1-11G		GMP1-31G	
Yellow	GMP1-11Y		GMP1-31Y	
Blue	GMP1-11L		GMP1-31L	
White	GMP1-11W		GMP1-31W	
Clear	GMP1-11C		GMP1-31C	
Set of 6 color caps	GMP1-11M		GMP1-31M	
Maintained ^{1) 3)}				
Red	GMP2-11R		GMP2-31R	
Green	GMP2-11G		GMP2-31G	
Yellow	GMP2-11Y		GMP2-31Y	
Blue	GMP2-11L		GMP2-31L	
White	GMP2-11W		GMP2-31W	
Clear	GMP2-11C		GMP2-31C	
with extended button				
Momentary ¹⁾				
Red	GMP3-11R		GMP3-31R	
Green	GMP3-11G		GMP3-31G	
Yellow	GMP3-11Y		GMP3-31Y	
Blue	GMP3-11L		GMP3-31L	
White	GMP3-11W		GMP3-31W	
Clear	GMP3-11C		GMP3-31C	
Set of 6 color caps	GMP3-11M		GMP3-31M	
Maintained ^{1) 3)}				
Red	GMP4-11R		GMP4-31R	
Green	GMP4-11G		GMP4-31G	
Yellow	GMP4-11Y		GMP4-31Y	
Blue	GMP4-11L		GMP4-31L	
White	GMP4-11W		GMP4-31W	
Clear	GMP4-11C		GMP4-31C	

Contact blocks, lamp block and holder ²⁾

Blocks	Catalogue No.	List price
1 NO + 1 LB with holder	MCBH-101	
1 NC + 1 LB with holder	MCBH-011	
2 NO + 1 LB with holder	MCBH-201	
2 NC + 1 LB with holder	MCBH-021	
1 NO + 1 NC + 1 LB with holder	MCBH-111	
1 NO without holder	MCB-10	
1 NC without holder	MCB-01	
Lamp block for 2 W, max 230 V AC/DC bulb or LED	MLB-1	
Holder for 3 blocks	MCBH-00	

¹⁾ No contact block in the center position

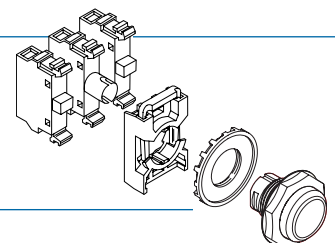
²⁾ Lamp block MLB-1. Bulb not included. For other lamp blocks see Accessories.

³⁾ Bulb max 1.2 W, not included.

Ordering example

Requested: A modular pushbutton, maintained and illuminated with green flush button and one NO + one NC contact.

Order: 1 piece of GMP2-11G + 1 piece of MCBH-111
Bulb - see accessories



30 mm Pilot devices - Modular range

Mushroom pushbuttons, momentary

Non-illuminated and illuminated

Operator ...

Operator material	Button color	Black Plastic Bezel		Chrome Metal Bezel	
		Catalogue No.	List Price	Catalogue No.	List Price
non-illuminated					
Ø 40 mm					
Plastic	Red	GMPM1-10R		GMPM1-30R	
	Yellow	GMPM1-10Y		GMPM1-30Y	
	Black	GMPM1-10B		GMPM1-30B	
Ø 60 mm					
Plastic	Red	GMPM2-10R		GMPM2-30R	
	Yellow	GMPM2-10Y		GMPM2-30Y	
	Black	GMPM2-10B		GMPM2-30B	
illuminated ¹⁾					
Ø 40 mm					
Plastic	Red	GMPM1-11R		GMPM1-31R	
	Yellow	GMPM1-11Y		GMPM1-31Y	
Ø 60 mm					
Plastic	Red	GMPM2-11R		GMPM2-31R	
	Yellow	GMPM2-11Y		GMPM2-31Y	

Contact blocks, lamp block and holder ²⁾

Blocks	Catalogue No.	List Price
1 NO with holder	MCBH-10	
1 NC with holder	MCBH-01	
2 NO with holder	MCBH-20	
2 NC with holder	MCBH-02	
1 NO + 1 NC with holder	MCBH-11	
1 NO + 1 LB with holder	MCBH-101	
1 NC + 1 LB with holder	MCBH-011	
2 NO + 1 LB with holder ¹⁾	MCBH-201	
2 NC + 1 LB with holder	MCBH-021	
1 NO + 1 NC + 1 LB with holder	MCBH-111	
1 NO without holder	MCB-10	
1 NC without holder	MCB-01	
Lamp block for 2 W, max 230 V AC/DC bulb or LED	MLB-1	
Holder for 3 blocks	MCBH-00	

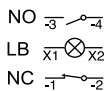
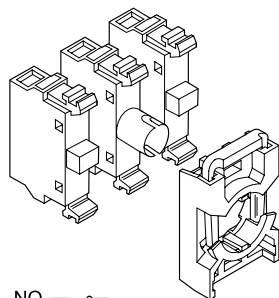
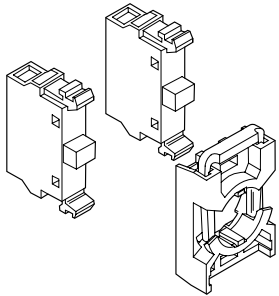
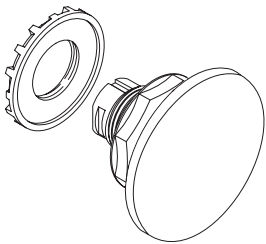
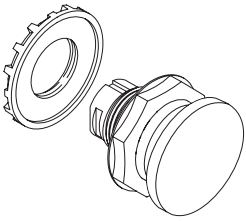
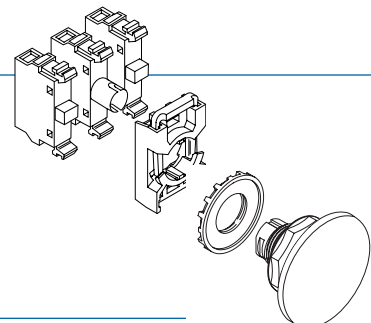
¹⁾ No contact block in the center position

²⁾ Lamp block MLB-1. Bulb not included. Other lamp block see Accessories, bulb max 1.2 W.

Ordering example – Mushroom Pushbutton

Requested: A modular mushroom pushbutton, Ø 40 mm, illuminated, red, with one NO + one NC contact and a standard lamp block

Order: 1 piece of GMPM1-11R + 1 piece of MCBH-111
Bulb - see accessories

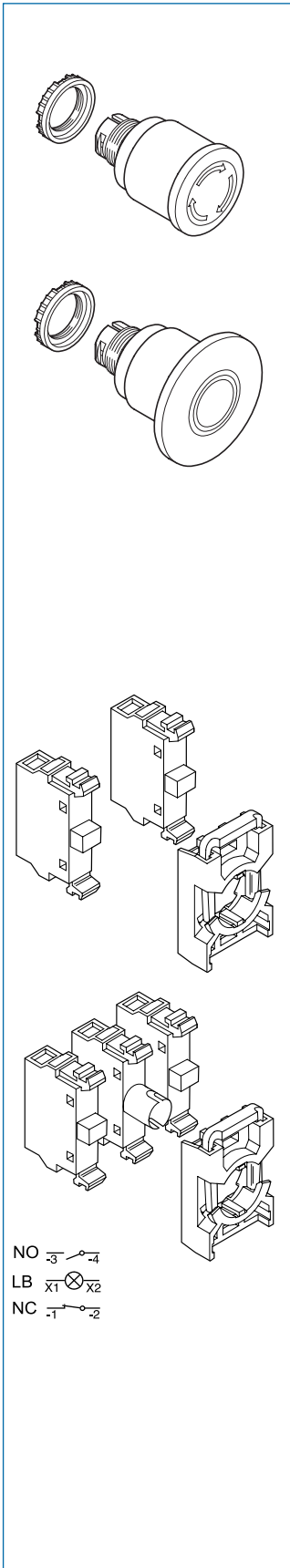


30 mm Pilot devices - Modular range

Emergency stop pushbuttons

Non-illuminated and illuminated

Fulfills IEC 60947-5-5



Operator ...

Operator function	Button color	Black Plastic Bezel		Chrome Metal Bezel	
		Catalogue No.	List Price	Catalogue No.	List Price
non-illuminated					
Ø 40 mm					
Twist release	Red	GMPMT3-10R		GMPMT3-30R	
Pull release	Red	GMPMP3-10R		GMPMP3-30R	
Ø 60 mm					
Twist release	Red	GMPMT4-10R		GMPMT4-30R	
Pull release	Red	GMPMP4-10R		GMPMP4-30R	
illuminated ¹⁾					
Ø 40 mm					
Twist release	Red	GMPMT3-11R		GMPMT3-31R	
Pull release	Red	GMPMP3-11R		GMPMP3-31R	
Ø 60 mm					
Twist release	Red	GMPMT4-11R		GMPMT4-31R	
Pull release	Red	GMPMP4-11R		GMPMP4-31R	

Contact blocks, lamp block and holder ²⁾

Blocks	Catalogue No.	List Price
1 NO with holder	MCBH-10	
1 NC with holder	MCBH-01	
2 NO with holder	MCBH-20	
2 NC with holder	MCBH-02	
1 NO + 1 NC with holder	MCBH-11	
1 NO + 1 LB with holder	MCBH-101	
1 NC + 1 LB with holder	MCBH-011	
2 NO + 1 LB with holder	MCBH-201	
2 NC + 1 LB with holder	MCBH-021	
1 NO + 1 NC + 1 LB with holder	MCBH-111	
1 NO without holder	MCB-10	
1 NC without holder	MCB-01	
Lamp block for 2 W, max 230 V AC/DC bulb or LED	MLB-1	
Holder for 3 blocks	MCBH-00	

¹⁾ No contact in the center position

²⁾ Lamp block MLB-1. Bulb not included. Other lamp block see Accessories, bulb max 2 W.

To comply with the standard, IEC 60947-5-5, a number of tests have to be conducted:

Durability test	6 050 cycles. This is not a test of mechanical life. The product has a mechanical life of 100 000 manoeuvres.	Latching test	Impulse voltage test at 2 500 V
Robustness	The force 113 N applied in three axes	Resetting test	Pulling force < 50 N Turning torque < 1 Nm
Conditioning	Heat and cold, moist atmosphere, and in 5 % NaCl	Shock	15 g shock
		Vibration	2 h at 50m/s ²
		Contacts with positive opening operation	15 g shock

30 mm Pilot devices - Modular range

Two-position selector switches, Non-illuminated

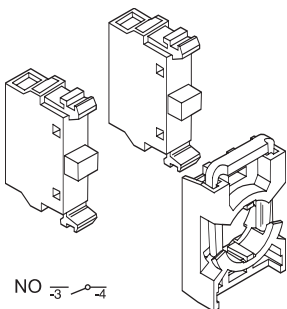
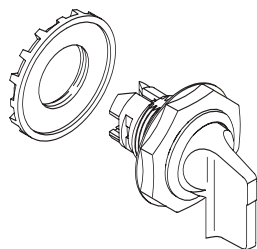
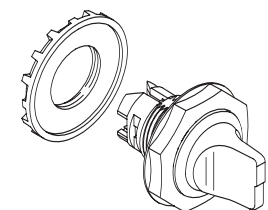
Operator ...

Symbol	Handle color	Black Plastic Bezel		Chrome Metal Bezel	
		Catalogue No.	List Price	Catalogue No.	List Price
with short handle ¹⁾					
Maintained					
	Red Black Grey	GM2SS1-10R GM2SS1-10B GM2SS1-10U		GM2SS1-30R GM2SS1-30B GM2SS1-30U	
Maintained					
	Red Black Grey	GM2SS2-10R GM2SS2-10B GM2SS2-10U		GM2SS2-30R GM2SS2-30B GM2SS2-30U	
Momentary, spring return from C to B					
	Red Black Grey	GM2SS3-10R GM2SS3-10B GM2SS3-10U		GM2SS3-30R GM2SS3-30B GM2SS3-30U	
with long handle ¹⁾					
Maintained					
	Red Black Grey	GM2SS4-10R GM2SS4-10B GM2SS4-10U		GM2SS4-30R GM2SS4-30B GM2SS4-30U	
Maintained					
	Red Black Grey	GM2SS5-10R GM2SS5-10B GM2SS5-10U		GM2SS5-30R GM2SS5-30B GM2SS5-30U	
Momentary, spring return from C to B					
	Red Black Grey	GM2SS6-10R GM2SS6-10B GM2SS6-10U		GM2SS6-30R GM2SS6-30B GM2SS6-30U	

Contact blocks and holder

Blocks	Catalogue No.	List Price
1 NO with holder	MCBH-10 MCBH-01 MCBH-20 MCBH-02 MCBH-11	
1 NC with holder		
2 NO with holder		
2 NC with holder		
1 NO + 1 NC with holder		
1 NO without holder	MCB-10 MCB-01	
1 NC without holder		
Holder for 3 blocks	MCBH-00	

¹⁾ No contact block in the center position



NO

NC

Contact functions

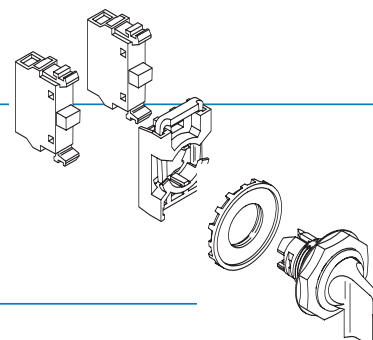
Block positions as seen from operator front.

Handle position	Left block	Right block
A (B)	O	O
C	x	x

O = not actuated (normal state)
x = actuated (state changed)

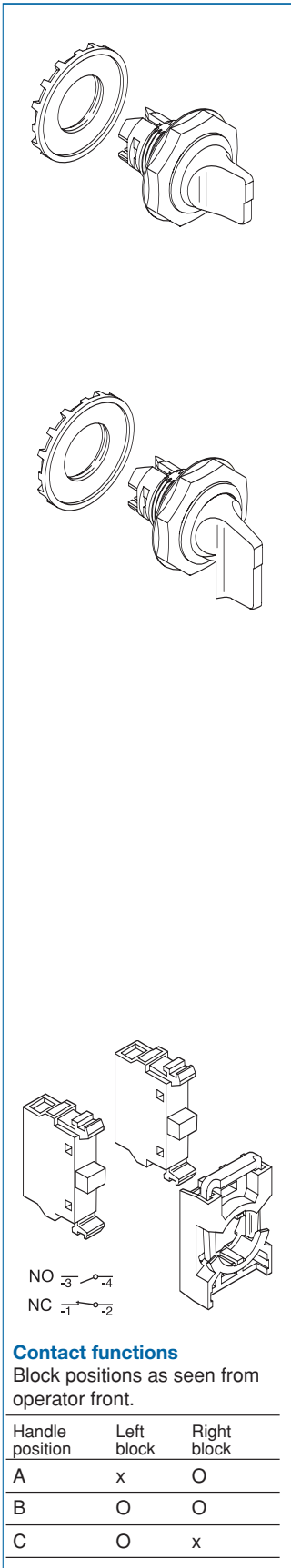
Ordering example

Requested: A non-illuminated modular selector switch. Black. Maintained.
Handle positions: A and C
With 2 NC contacts
Order: 1 piece of GM2SS2-10B + 1 piece of MCBH-02



30 mm Pilot devices - Modular range

Three-position selector switches, Non-illuminated



Contact functions

Block positions as seen from operator front.

Handle position	Left block	Right block
A	x	O
B	O	O
C	O	x

Operator ...

Symbol	Handle color	Black Plastic Bezel		Chrome Metal Bezel	
		Catalogue No.	List Price	Catalogue No.	List Price
with short handle ¹⁾					
Maintained					
	Red Black Grey	GM3SS1-10R GM3SS1-10B GM3SS1-10U		GM3SS1-30R GM3SS1-30B GM3SS1-30U	
Momentary, spring return from A to B and from C to B					
	Red Black Grey	GM3SS2-10R GM3SS2-10B GM3SS2-10U		GM3SS2-30R GM3SS2-30B GM3SS2-30U	
Momentary, spring return from C to B					
	Red Black Grey	GM3SS3-10R GM3SS3-10B GM3SS3-10U		GM3SS3-30R GM3SS3-30B GM3SS3-30U	
Momentary, spring return from A to B					
	Red Black Grey	GM3SS7-10R GM3SS7-10B GM3SS7-10U		GM3SS7-30R GM3SS7-30B GM3SS7-30U	
with long handle ¹⁾					
Maintained					
	Red Black Grey	GM3SS4-10R GM3SS4-10B GM3SS4-10U		GM3SS4-30R GM3SS4-30B GM3SS4-30U	
Momentary, spring return from A to B and from C to B					
	Red Black Grey	GM3SS5-10R GM3SS5-10B GM3SS5-10U		GM3SS5-30R GM3SS5-30B GM3SS5-30U	
Momentary, spring return from C to B					
	Red Black Grey	GM3SS6-10R GM3SS6-10B GM3SS6-10U		GM3SS6-30R GM3SS6-30B GM3SS6-30U	
Momentary, spring return from A to B					
	Red Black Grey	GM3SS8-10R GM3SS8-10B GM3SS8-10U		GM3SS8-30R GM3SS8-30B GM3SS8-30U	

Contact blocks and holder

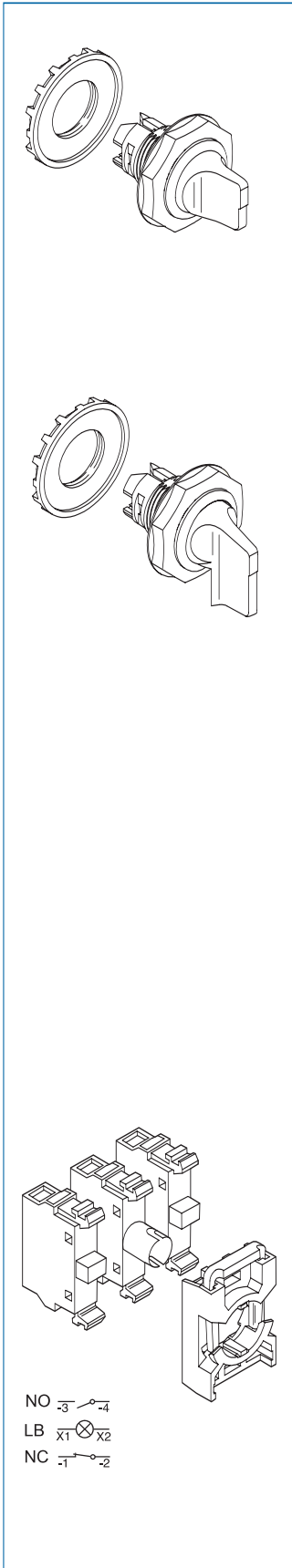
Blocks	Catalogue No.	List Price
1 NO with holder	MCBH-10 MCBH-01 MCBH-20 MCBH-02 MCBH-11	
1 NC with holder		
2 NO with holder		
2 NC with holder		
1 NO + 1 NC with holder		
1 NO without holder	MCB-10 MCB-01	
1 NC without holder		
Holder for 3 blocks	MCBH-00	

¹⁾ No contact block in center position

30 mm Pilot devices - Modular range

Two-position selector switches, Illuminated

Operator ...



Symbol	Handle color	Black Plastic Bezel		Chrome Metal Bezel	
		Catalogue No.	List Price	Catalogue No.	List Price
with short handle ¹⁾					
Maintained					
	Red Green Yellow Blue Clear	GM2SS1-11R GM2SS1-11G GM2SS1-11Y GM2SS1-11L GM2SS1-11C		GM2SS1-31R GM2SS1-31G GM2SS1-31Y GM2SS1-31L GM2SS1-31C	
Maintained					
	Red Green Yellow Blue Clear	GM2SS2-11R GM2SS2-11G GM2SS2-11Y GM2SS2-11L GM2SS2-11C		GM2SS2-31R GM2SS2-31G GM2SS2-31Y GM2SS2-31L GM2SS2-31C	
Momentary, spring return from C to B					
	Red Green Yellow Blue Clear	GM2SS3-11R GM2SS3-11G GM2SS3-11Y GM2SS3-11L GM2SS3-11C		GM2SS3-31R GM2SS3-31G GM2SS3-31Y GM2SS3-31L GM2SS3-31C	

with long handle ¹⁾					
Maintained					
	Red Green Yellow Blue Clear	GM2SS4-11R GM2SS4-11G GM2SS4-11Y GM2SS4-11L GM2SS4-11C		GM2SS4-31R GM2SS4-31G GM2SS4-31Y GM2SS4-31L GM2SS4-31C	
Maintained					
	Red Green Yellow Blue Clear	GM2SS5-11R GM2SS5-11G GM2SS5-11Y GM2SS5-11L GM2SS5-11C		GM2SS5-31R GM2SS5-31G GM2SS5-31Y GM2SS5-31L GM2SS5-31C	
Momentary, spring return from C to B					
	Red Green Yellow Blue Clear	GM2SS6-11R GM2SS6-11G GM2SS6-11Y GM2SS6-11L GM2SS6-11C		GM2SS6-31R GM2SS6-31G GM2SS6-31Y GM2SS6-31L GM2SS6-31C	

Contact blocks, lamp block and holder ²⁾

Blocks	Catalogue No.	List Price
1 NO + 1 LB with holder	MCBH-101	
1 NC + 1 LB with holder	MCBH-011	
2 NO + 1 LB with holder	MCBH-201	
2 NC + 1 LB with holder	MCBH-021	
1 NO + 1 NC with holder	MCBH-111	
1 NO without holder	MCB-10	
1 NC without holder	MCB-01	
Lamp block for 2 W, max 230 V AC/DC bulb or LED	MLB-1	
Holder for 3 blocks	MCBH-00	

¹⁾ No contact block in the center position

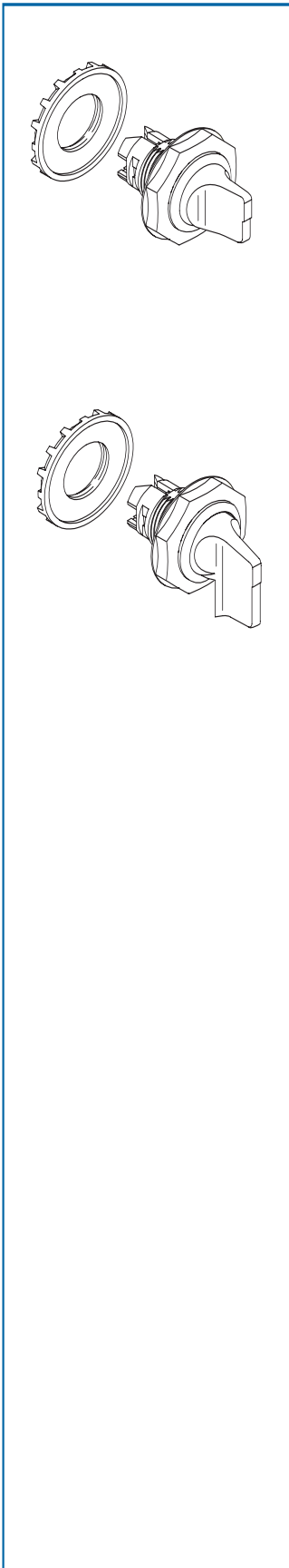
²⁾ Lamp block MLB-1. Bulb not included. Other lamp block see Accessories, bulb max 1.2 W.

Contact functions See Page 82

Ordering example See Page 82

30 mm Pilot devices - Modular range

Three-position selector switches, Illuminated



Operator ...

Symbol	Handle color	Black Plastic Bezel		Chrome Metal Bezel	
		Catalogue No.	List Price	Catalogue No.	List Price
with short handle ¹⁾					
Maintained					
	Red	GM3SS1-11R		GM3SS1-31R	
	Green	GM3SS1-11G		GM3SS1-31G	
	Yellow	GM3SS1-11Y		GM3SS1-31Y	
	Blue	GM3SS1-11L		GM3SS1-31L	
	Clear	GM3SS1-11C		GM3SS1-31C	
Momentary, spring return from A to B and from C to B					
	Red	GM3SS2-11R		GM3SS2-31R	
	Green	GM3SS2-11G		GM3SS2-31G	
	Yellow	GM3SS2-11Y		GM3SS2-31Y	
	Blue	GM3SS2-11L		GM3SS2-31L	
	Clear	GM3SS2-11C		GM3SS2-31C	
Momentary, spring return from C to B					
	Red	GM3SS3-11R		GM3SS3-31R	
	Green	GM3SS3-11G		GM3SS3-31G	
	Yellow	GM3SS3-11Y		GM3SS3-31Y	
	Blue	GM3SS3-11L		GM3SS3-31L	
	Clear	GM3SS3-11C		GM3SS3-31C	
Momentary, spring return from A to B					
	Red	GM3SS7-11R		GM3SS7-31R	
	Green	GM3SS7-11G		GM3SS7-31G	
	Yellow	GM3SS7-11Y		GM3SS7-31Y	
	Blue	GM3SS7-11L		GM3SS7-31L	
	Clear	GM3SS7-11C		GM3SS7-31C	
with long handle ¹⁾					
Maintained					
	Red	GM3SS4-11R		GM3SS4-31R	
	Green	GM3SS4-11G		GM3SS4-31G	
	Yellow	GM3SS4-11Y		GM3SS4-31Y	
	Blue	GM3SS4-11L		GM3SS4-31L	
	Clear	GM3SS4-11C		GM3SS4-31C	
Momentary, spring return from A to B and from C to B					
	Red	GM3SS5-11R		GM3SS5-31R	
	Green	GM3SS5-11G		GM3SS5-31G	
	Yellow	GM3SS5-11Y		GM3SS5-31Y	
	Blue	GM3SS5-11L		GM3SS5-31L	
	Clear	GM3SS5-11C		GM3SS5-31C	
Momentary, spring return from C to B					
	Red	GM3SS6-11R		GM3SS6-31R	
	Green	GM3SS6-11G		GM3SS6-31G	
	Yellow	GM3SS6-11Y		GM3SS6-31Y	
	Blue	GM3SS6-11L		GM3SS6-31L	
	Clear	GM3SS6-11C		GM3SS6-31C	
Momentary, spring return from A to B					
	Red	GM3SS8-11R		GM3SS8-31R	
	Green	GM3SS8-11G		GM3SS8-31G	
	Yellow	GM3SS8-11Y		GM3SS8-31Y	
	Blue	GM3SS8-11L		GM3SS8-31L	
	Clear	GM3SS8-11C		GM3SS8-31C	

¹⁾ No contact block in the center position

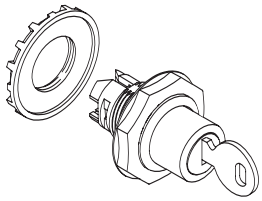
Contact blocks, lamp block and holder See Page 84

Contact functions See Page 83

Ordering example See Page 82

30 mm Pilot devices - Modular range

Key-operated selector switches, Two and three positions



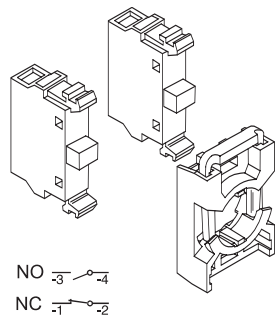
Operator ...

Symbol	The key can be removed in	Black Plastic Bezel		Chrome Metal Bezel	
		Catalogue No.	List Price	Catalogue No.	List Price
two positions ¹⁾					
	Maintained in both positions	GM2SSK1-10 ■ ²⁾		GM2SSK1-30 ■ ²⁾	
	Maintained in position B only	GM2SSK2-10 ■ ²⁾		GM2SSK2-30 ■ ²⁾	
	Momentary, spring return from C to B in position B only	GM2SSK3-10 ■ ²⁾		GM2SSK3-30 ■ ²⁾	
three positions ¹⁾					
	Maintained in all positions	GM3SSK1-10 ■ ²⁾		GM3SSK1-30 ■ ²⁾	
	Maintained in position B only	GM3SSK2-10 ■ ²⁾		GM3SSK2-30 ■ ²⁾	
	Momentary, spring return from A to B and from C to B in position B only	GM3SSK3-10 ■ ²⁾		GM3SSK3-30 ■ ²⁾	
	Momentary, spring return from C to B in position A only	GM3SSK4-10 ■ ³⁾		GM3SSK4-30 ■ ²⁾	
	Momentary, spring return from C to B in all positions	GM3SSK5-10 ■ ²⁾		GM3SSK5-30 ■ ²⁾	

²⁾ Key codes
71 (standard) ■ =1
72 ■ =2
73 ■ =3
Other (on request)

³⁾ Key codes
71 (standard) ■ =1
72 ■ =2

¹⁾ No contact block in the center position



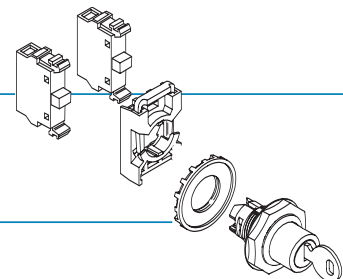
Contact blocks and holder

Blocks	Catalogue No.	List Price
1 NO + 1 LB with holder	MCBH-10	
1 NC + 1 LB with holder	MCBH-01	
2 NO with holder	MCBH-20	
2 NC with holder	MCBH-02	
1 NO + 1 NC with holder	MCBH-11	
1 NO without holder	MCB-10	
1 NC without holder	MCB-01	
Holder for 3 blocks	MCBH-00	

Ordering example

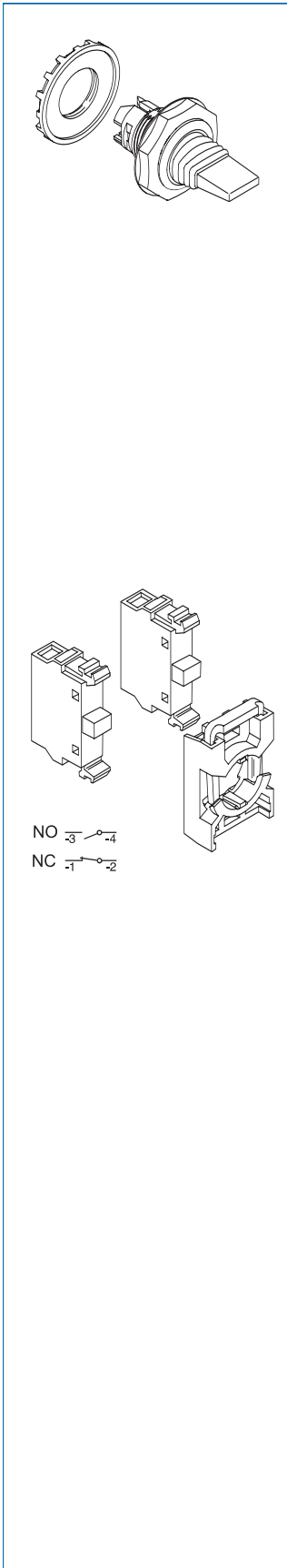
Requested: A key-operated selector switch. Three positions. Maintained. The key removeable in position B. Key code 72. With 2 NC contacts

Order: 1 piece of GM3SSK2-102 + 1 piece of MCBH-02



30 mm Pilot devices - Modular range

Toggle switches, two and three positions



Operator

Symbol	Black Plastic Bezel		ChromeMetal Bezel	
	Catalogue No.	List price	Catalogue No.	List price
Toggle switch with two positions				
Maintained				
	GMTS1-10B		GMTS1-30B	
Toggle switch with three positions				
Momentary, spring return from A to B and from C to B				
	GMTS2-10B		GMTS2-30B	
Maintained				
	GMTS3-10B		GMTS3-30B	

Contact blocks and holder

Blocks	Catalogue No.	List Price
1 NO with holder	MCBH-10	
1 NC with holder	MCBH-01	
2 NO with holder	MCBH-20	
2 NC with holder	MCBH-02	
1 NO + 1 NC with holder	MCBH-11	
1 NO without holder	MCB-10	
1 NC without holder	MCB-01	
Holder for 3 blocks	MCBH-00	

Contact block functions

Block positions as seen from operator front.

Two-position maintained switch			Three-position switch			
Handle position	Left block	Right block	Handle position	Left block	Middle block	Right block
A	O	O	A	O	x	x
C	x	x	B	O	O	O
			C	x	x	O

O = not actuated (normal state)
x = actuated (state changed)

O = not actuated (normal state)
x = actuated (state changed)

30 mm Pilot devices - Modular range

Definite purpose pushbutton

Definite purpose pushbutton

The definite purpose pushbutton, 30 mm, is a robust and compact pushbutton for use in cold, hot, damped, oily and other tough environments.

Suitable especially for hydraulic lifts, compact pendant controllers and pushbutton stations.

Membrane color

Red

Green

Black

Catalogue No.

KP6-40R

KP6-40G

KP6-40B

List Price

Contact block

Description

1 NO

1 NC

Catalogue No.

MCB-10

MCB-01

List Price

Accessories

Description

Guide washer for positioning and anti rotation

Catalogue No.

2154373-1

List Price

Technical data

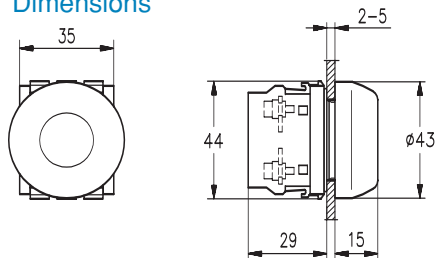
Degree of protection

IP66

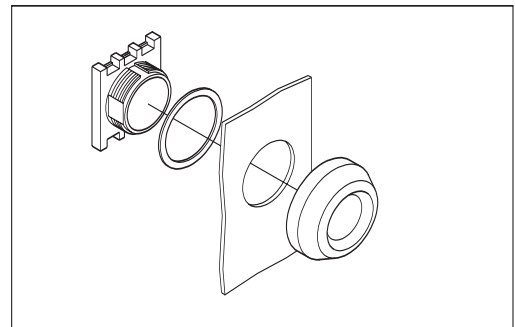
Ambient temperature

-30° ...+70°

Dimensions



Mounting



30 mm Pilot devices - Modular range

Reset pushbuttons

Reset pushbutton without shaft

Lens Colour	Text	Black Plastic Bezel		Chrome Metal Bezel	
		Catalogue No.	List Price	Catalogue No.	List Price
With flush button					
Red	No text	GKPR1-100R		GKPR1-300R	
Green	No text	GKPR1-100G		GKPR1-300G	
	II	GKPR1-103G		GKPR1-303G	
Yellow	No text	GKPR1-100Y		GKPR1-300Y	
Blue	No text	GKPR1-100L		GKPR1-300L	
	R	GKPR1-101L		GKPR1-301L	
White	No text	GKPR1-100W		GKPR1-300W	
	R	GKPR1-101W		GKPR1-301W	
	I	GKPR1-102W		GKPR1-302W	
	II	GKPR1-103W		GKPR1-303W	
Black	No text	GKPR1-100B		GKPR1-300B	
	RESET	GKPR1-104B		GKPR1-304B	
With extended button					
Red	No text	GKPR2-100R		GKPR2-300R	
	O	GKPR2-105R		GKPR2-305R	
White	No text	GKPR2-100W		GKPR2-300W	
Black	No text	GKPR2-100B		GKPR2-300B	
	O	GKPR2-105B		GKPR2-305B	

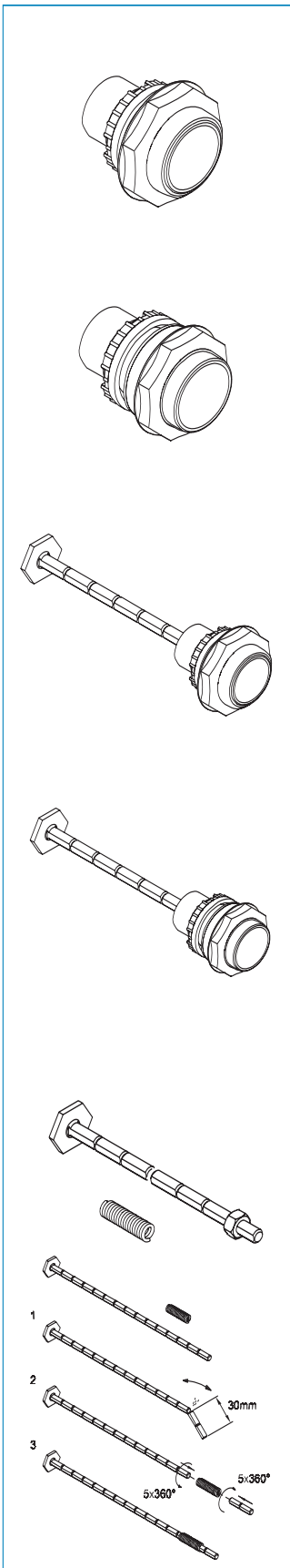
Reset pushbutton with shaft The shaft can be cut to desired length

Lens Colour	Text	Catalogue No.	List Price	Catalogue No.	List Price
With flush button					
Red	No text	GKPR3-100R		GKPR3-300R	
Green	No text	GKPR3-100G		GKPR3-300G	
	II	GKPR3-103G		GKPR3-303G	
Yellow	No text	GKPR3-100Y		GKPR3-300Y	
Blue	No text	GKPR3-100L		GKPR3-300L	
	R	GKPR3-101L		GKPR3-301L	
White	No text	GKPR3-100W		GKPR3-300W	
	R	GKPR3-101W		GKPR3-301W	
	I	GKPR3-102W		GKPR3-302W	
	II	GKPR3-103W		GKPR3-303W	
Black	No text	GKPR3-100B		GKPR3-300B	
	RESET	GKPR3-104B		GKPR3-304B	
With extended button					
Red	No text	GKPR4-100R		GKPR4-300R	
	O	GKPR4-105R		GKPR4-305R	
White	No text	GKPR4-100W		GKPR4-300W	
Black	No text	GKPR4-100B		GKPR4-300B	
	O	GKPR4-105B		GKPR4-305B	

Accessories

In application with a long shaft, a flexible joint can be used to avoid damages caused by incautious handling of the shaft.

Blocks	Catalogue No.	List Price
Shaft including fixing nut	KA1-8046	
Flexible joint	KA1-8047	




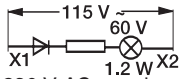
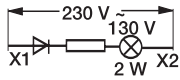
30 mm Pilot devices - Modular range

Pilot lights and Buzzers

Pilot light head ¹⁾

Lens color	Black Plastic Bezel		Chrome Metal Bezel	
	Catalogue No.	List Price	Catalogue No.	List Price
Red	GML1-100R		GML1-300R	
Green	GML1-100G		GML1-300G	
Yellow	GML1-100Y		GML1-300Y	
Blue	GML1-100L		GML1-300L	
White	GML1-100W		GML1-300W	
Clear	GML1-100C		GML1-300C	
Set of 6 color caps	GML1-100M		GML1-300M	

Lamp blocks with holder ¹⁾

Supply voltage	Catalogue No.	List Price
For max. 2 W, 230 V AC and DC filament bulb or LED 230 V, 2 W  115 V AC supply voltage.	MCBH-001	
For 60 V filament bulb max. 1.2 W  230 V AC supply voltage.	MCBH-002	
For 130 V filament bulb max. 2 W 	MCBH-003	

Light diffusing lens –

To improve illumination. *Note: Cannot be used with text cap.*

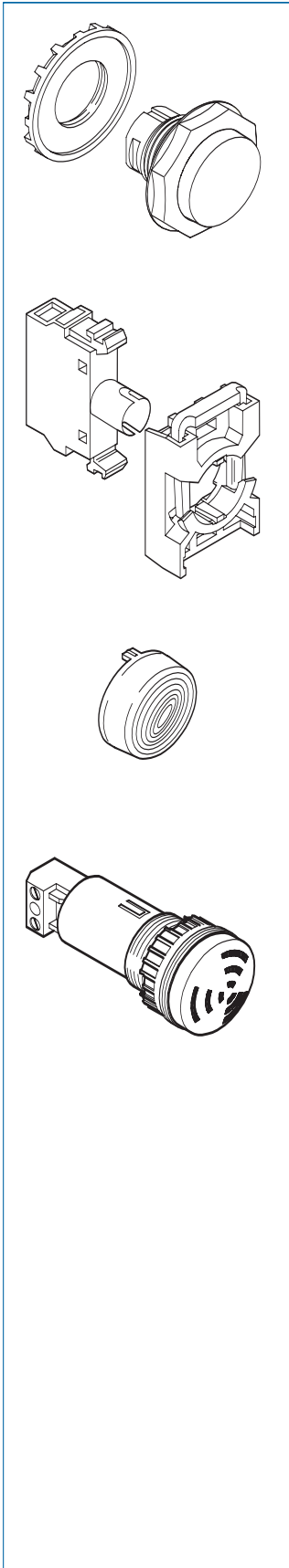
Description	Catalogue No.	List Price
The lens is used instead of text cap	KA1-8005	

Buzzers

Black. Frequency: Approx. 2400 Hz. Loudness: Min 80 dB (A)/10 cm
 Rated current: ≤ 8 mA. Service life: >5000 h

Supply voltage	Tone type	Black Plastic Bezel		Chrome Metal Bezel	
		Catalogue No.	List Price	Catalogue No.	List Price
24 V AC/DC	Continuous	GKB1-4010		GKB1-5010	
115 V AC/DC	Continuous	GKB1-4030		GKB1-5030	
230 V AC	Continuous	GKB1-4040		GKB1-5040	
24 V AC/DC	Pulsating	GKB1-4110		GKB1-5110	
115 V AC/DC	Pulsating	GKB1-4130		GKB1-5130	
230 V AC	Pulsating	GKB1-4140		GKB1-5140	

¹⁾ Bulb not included



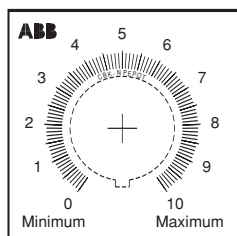
30 mm Pilot devices - Modular range

Potentiometers



Resistor data

Element type	Cermet
Power rating	2 W
Mechanical angle	280°
Terminals	Solder lugs
Insulation voltage	900 V
Operating temperature	-1 – +70 °C



Complete potentiometers

Black knob with integrated position indication and marking in white.

Description	Catalogue No.	List Price
- with resistor 5 kohm		
Black plastic	GKT-105B	
Chrome Metal	GKT-305B	
- with resistor 10 kohm		
Black plastic	GKT-110B	
Chrome Metal	GKT-310B	

Operating knob – without resistor

Black knob with integrated position indication and marking in white.

For shaft diameter 6 - 6.35 mm.
min. shaft length 20 mm

Description	Catalogue No.	List Price
Black plastic	GKT-100B	
Chrome Metal	GKT-300B	

Legend plates

Aluminum

Description	Catalogue No.	List Price
Scale: 0 - 10	CBG-NPEPOT	

30 mm Pilot devices - Modular range Accessories

Contact blocks and lamp blocks with holder for front mounting

Max. number of blocks in holder	Included blocks	Catalogue No.	List Price
---------------------------------	-----------------	---------------	------------

For non-illuminated operators

3	1 NC	MCBH-01 MCBH-10 MCBH-02 MCBH-20 MCBH-03 MCBH-30 MCBH-11 MCBH-12 MCBH-21	
3	1 NO		
3	2 NC		
3	2 NO		
3	3 NC		
3	3 NO		
3	1 NO + 1 NC		
3	1 NO + 2 NC		
3	2 NO + 1 NC		

For illuminated operators

3	1 NC + 1 LB	MCBH-011 MCBH-101 MCBH-111 MCBH-021 MCBH-201	
3	1 NO + 1 LB		
3	1 NO + 1 NC + 1 LB		
3	2 NC + 1 LB		
3	2 NO + 1 LB		

Single contact blocks for front mounting

Included blocks	Catalogue No.	List Price
1 NO	MCB-10 MCB-01 MCB-10G MCB-01G	
1 NC		
1 NO with gold plated contacts		
1 NC with gold plated contacts		

Double contact block for front mounting

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

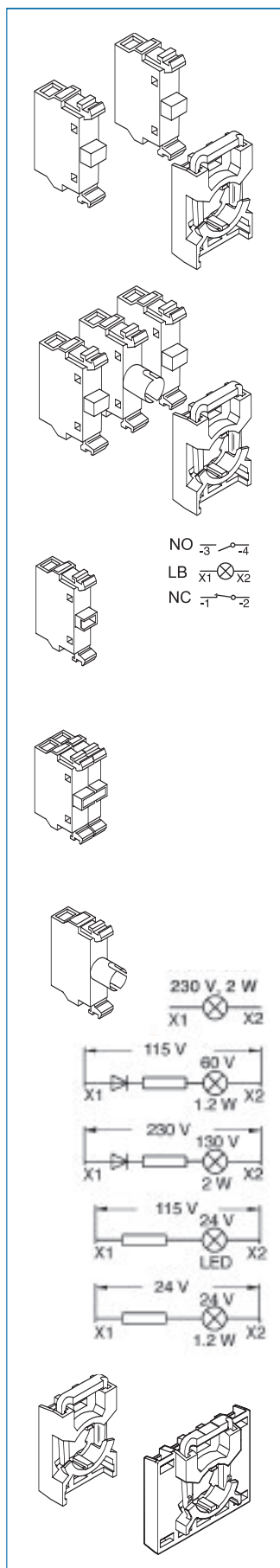
Included blocks	Catalogue No.	List Price
2 NO	MCB-20 MCB-02 MCB-11	
2 NC		
1 NO + 1 NC		

Single lamp blocks for front mounting, Ba 9s base

Description	Catalogue No.	List Price
For max. 2 W, 230 V AC and DC filament bulb or LED 115 V AC supply voltage.	MLB-1 MLB-2 MLB-3 MLB-4 MLB-5	
For 60 V filament bulb max. 1.2 W 230 V AC supply voltage.		
For 130 V filament bulb max. 2 W 115 V AC and DC supply voltage		
For 24 V LED 24 V AC and DC supply voltage. With resistor. Intended for electronic circuits. The resistor limits the making current and protects against disturbances in the electronic circuit		
For 24 V filament bulb		

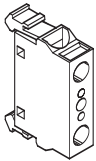
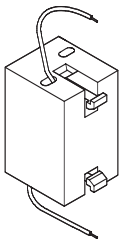
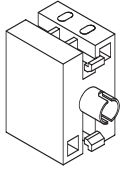
Holders

Description	Catalogue No.	List Price
Holders for front mounting	MCBH-00 MCBH5-00	
For three blocks		
For five blocks		



30 mm Pilot devices - Modular range

Accessories



Transformer block

For 6 or 24 V filament bulb and 24 V LED. Rated power 1.5 W.

Primary voltage	Secondary voltage	Catalogue No.	List Price
-----------------	-------------------	---------------	------------

With lamp holder for front mounting, Ba 9s base

Intended to supply a 1.2 W filament bulb.

110 - 127V AC	6 V AC	KTR1-1001	
220 - 250 V AC	6 V AC	KTR1-1002	
380 - 420 V AC	6 V AC	KTR1-1003	
440 - 480 V AC	6 V AC	KTR1-1004	
500 - 600 V AC	6 V AC	KTR1-1005	

110 - 127 V AC	24 V AC ¹⁾	KTR1-1011	
220 - 250 V AC	24 V AC ¹⁾	KTR1-1012	
380 - 420 V AC	24 V AC ¹⁾	KTR1-1013	
440 - 480 V AC	24 V AC ¹⁾	KTR1-1014	

For illuminated operators ²⁾

Intended to supply a 1.2 W filament bulb mounted in lamp block MLB-1 only.

110 - 127V AC	6 V AC	KTR1-2001	
220 - 250 V AC	6 V AC	KTR1-2002	
380 - 420 V AC	6 V AC	KTR1-2003	
440 - 480 V AC	6 V AC	KTR1-2004	
500 - 600 V AC	6 V AC	KTR1-2005	

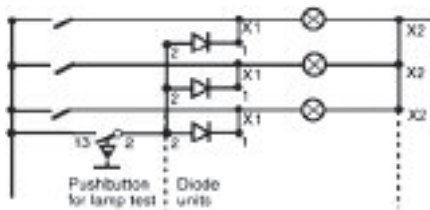
110 - 127 V AC	24 V AC ¹⁾	KTR1-2011	
220 - 250 V AC	24 V AC ¹⁾	KTR1-2012	
380 - 420 V AC	24 V AC ¹⁾	KTR1-2013	
440 - 480 V AC	24 V AC ¹⁾	KTR1-2014	

Diode block

To be used if several lamps are to be connected to a common lamp-test pushbutton. A diode must be connected in series with each lamp. The diode block snaps onto the lamp block or is placed at the side.

Description	Catalogue No.	List Price
Diode block	MDB-1001	

Diagram for lamp test with three diode block



¹⁾ Can be used with LED bulb

²⁾ To be used with directly supplied lamp blocks only.

30 mm Pilot devices - Modular range

Accessories



Filament bulbs Ba 9s base Type of current: AC/DC. A lamp changing tool is required for changing bulb.

Description					Catalogue No.	List Price
Rated voltage V	Rated current mA	Rated output W	Service life h	Luminance mcd		
6	200	1.2	10 000	350	5911086-11	
12	100	1.2	10 000	230	5911086-12	
24	50	1.2	10 000	280	5911086-13	
30	40	1.2	10 000	250	5911086-4	
48	42	2	6 000	500	5911086-5	
60	20	1.2	5 000	190	5911086-14	
110	18	2	7 500	250	5911086-7	
130	15	2	7 500	120	5911086-15	

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 (+).

Description				Catalogue No.	List Price
Color	Rated current mA	Wave-length nm	Luminance mcd		
Rated voltage 12 V, DC Service life >50 000 h					
Red	15	630	250	KA2-2011	
Green	15	525	1000	KA2-2012	
Yellow	15	592	250	KA2-2013	
Blue	15	470	450	KA2-2014	
White	15	x=0.31 y=0.32	600	KA2-2015	
Rated voltage 24 V, (AC)/DC ¹⁾ Service life >50 000 h					
Red	15	630	250	KA2-2021	
Green	15	525	800	KA2-2022	
Yellow	15	592	250	KA2-2023	
Blue	15	470	400	KA2-2024	
White	15	x=0.31 y=0.32	500	KA2-2025	
Rated voltage 48 V, (AC)/DC ¹⁾ Service life >50 000 h					
Red	12	630	200	KA2-2041	
Green	12	525	1700	KA2-2042	
Yellow	12	592	240	KA2-2043	
Blue	12	470	720	KA2-2044	
White	12	x=0.31 y=0.32	1200	KA2-2045	
Rated voltage 60 V, (AC)/DC ¹⁾ Service life >50 000 h					
Red	10	630	160	KA2-2051	
Green	10	525	1400	KA2-2052	
Yellow	10	592	200	KA2-2053	
Blue	10	470	600	KA2-2054	
White	10	x=0.31 y=0.32	1000	KA2-2055	
Rated voltage 110-130 V, AC ¹⁾ Service life 25 000 h					
Red	4-6	630	60-100	KA2-2131	
Green	4-6	525	500-850	KA2-2132	
Yellow	4-6	592	70-120	KA2-2133	
Blue	4-6	470	220-350	KA2-2134	
White	4-6	x=0.31 y=0.32	350-600	KA2-2135	
Rated voltage 110-130 V, AC/DC ¹⁾ Service life 25 000 h					
Red	4-6	630	60-100	KA2-2141	
Green	4-6	525	500-850	KA2-2142	
Yellow	4-6	592	70-120	KA2-2143	
Blue	4-6	470	220-350	KA2-2144	
White	4-6	x=0.31 y=0.32	350-600	KA2-2145	
Rated voltage 230 V, AC ¹⁾ Service life 25 000 h					
Red	4	630	60	KA2-2221	
Green	4	525	500	KA2-2222	
Yellow	4	592	70	KA2-2223	
Blue	4	470	220	KA2-2224	
White	4	x=0.31 y=0.32	350	KA2-2225	

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

30 mm Pilot devices - Modular range

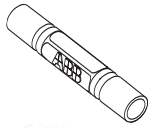
Accessories



Flashing LED

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 (+).

Description	Catalogue No.	List Price
Rated voltage 24 V, rated current 25 mA, DC		
	Wave length nm	Service life hours
Color		
Red	630	50 000
Green	565	50 000
Yellow	585	50 000
	4950512-1	
	4950512-2	
	4950512-3	



Lamp changing tool

Description	Catalogue No.	List Price
For LEDs and for bulbs	KA1-8072	



Mounting tool

Description	Catalogue No.	List Price
Used for tightening the sleeve	MA1-8015	



Bezel (Packing unit 10 pieces)

Description	Catalogue No.	List Price
For pushbutton		
Grey, plastic	KA1-8079	
Black, plastic	KA1-8022	
Metal	KA1-8021	
For selector switch		
Grey, plastic	KA1-8077	
Black, plastic	KA1-8080	
Metal	KA1-8024	



Extra key

Description	Catalogue No.	List Price
Ronis 455 (key code 71)	SK616021-71	
Ronis 421 (key code 72)	SK616021-72	
Ronis 3433-E (key code 73)	SK616021-73	



Label sheet

Description	Catalogue No.	List Price
For marking of contact blocks at two levels	29491725-1	



Blanking plug

Applicable to cover a 30 mm-hole in an enclosure instead of an operator. Gasket and nut included.

Description	Catalogue No.	List Price
Black non-metallic	SK616602-B	

30 mm Pilot devices - Modul range

Accessories

Lenses for pilot lights (Packing unit 10 pieces)

Description/Color	Catalogue No.	List Price
Red	KA1-8031	
Green	KA1-8032	
Yellow	KA1-8033	
Blue	KA1-8034	
White	KA1-8035	

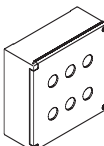
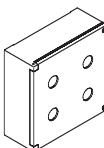
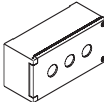
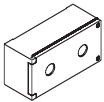
Buttons for pushbuttons (Packing unit 10 pieces)

Description	Color	Catalogue No.	List Price
Flush, opaque	Red	KA1-8081	
	Green	KA1-8082	
	Yellow	KA1-8083	
	Blue	KA1-8084	
	White	KA1-8085	
	Black	KA1-8086	
	Grey	KA1-8087	
	Clear	KA1-8088	
Extended, opaque	Red	KA1-8091	
	Green	KA1-8092	
	Yellow	KA1-8093	
	Blue	KA1-8094	
	White	KA1-8095	
	Black	KA1-8096	
	Grey	KA1-8097	
	Clear	KA1-8098	
Flush, transparent	Red	KA1-8101	
	Green	KA1-8102	
	Yellow	KA1-8103	
	Blue	KA1-8104	
	White	KA1-8105	
	Clear	KA1-8108	
Extended, transparent	Red	KA1-8111	
	Green	KA1-8112	
	Yellow	KA1-8113	
	Blue	KA1-8114	
	White	KA1-8115	
	Clear	KA1-8118	

Empty metallic enclosures, IP 67

Size	Color top/bottom	Catalogue No.	List Price
1-seat	Grey	GKEM1-0	
2-seat	Grey	GKEM2-0	
3-seat	Grey	GKEM3-0	
4-seat	Grey	GKEM4-0 ¹⁾	
6-seat	Grey	GKEM6-0 ¹⁾	

¹⁾ Flanges are not included



30 mm Pilot devices - Metallic enclosures

Accessories



Cable gland

Metal. Threaded outer sleeve. Sealing ring PR 22.5 (Pg16) included,

Pr	Pg	Sealing diameter, mm	Catalogue No.	List Price
22.5	16	8.5 - 11.5	SK1707685	
22.5	16	10.5 - 13.5	SK1707686	
22.5	16	12.5 - 15.0	SK1707687	



Hexagon nut.

Description	Catalogue No.	List Price
Metal, Pr 22.5, Pg 16	SK1750152	



Sealing ring

Description	Catalogue No.	List Price
Rubber, Pr 22.5, Pg 16	SK1700182	



Blanking plates

Without holes. Metal. Black For 4- and 6-seat enclosures. *Note: Gasket not included*

For flange opening	Suitable flange gasket Order Code	Catalogue No.	List Price
FL 13	SK 170 4536	SK172105-AA	



With holes. Metal. Black For 4- and 6-seat enclosures. *Note: Gasket not included*

For flange opening	Suitable flange gasket Order Code	Catalogue No.	List Price
Two threaded holes Pr 22.5 (Pg 16). Hole centre distance 50 mm		SK172105-AD	
FL 13	SK 170 4536		
Three threaded holes Pr 22.5 (Pg 16). Hole centre distance 38 mm		SK172105-AE	
FL 13	SK 170 4536		
Four threaded holes Pr 22.5 (Pg 16). Hole centre distance 30 mm		SK172105-AF	
FL 13	SK 170 4536		

Flange gasket

Description	Catalogue No.	List Price
FL 13	SK1704536	

Blanking plug

Applicable to cover a 30 mm-hole in an enclosure instead of an operator. Gasket and nut included.

Description	Catalogue No.	List Price
Black non-metallic	SK616602-B	



Sealing plug

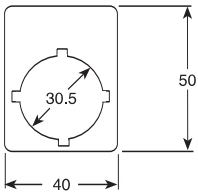
Plastic. Black

For holes	Catalogue No.	List Price
Pr 22.5 Pg 16	SK175919-3	



30 mm Pilot devices - Accessories

Special legend plates



Emergency stop legend plates

Description	Catalogue No.	List Price
Black text on a yellow aluminum plate. EMERGENCY STOP ARRET D'URGENCE	CBG-NPE30 CBG-NPF30	

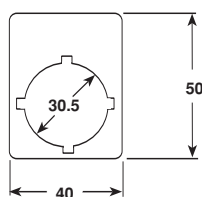
Engraved fixed legend plates, with symbols ¹⁾

Of silvergrey aluminum

Symbol	Catalogue No.	List Price
O	CBG-NPE90	
I	CBG-NPE91	
II	CBG-NPE92	
←	CBG-NPE93	
→	CBG-NPE94	
→→	CBG-NPE95	

30 mm Pilot devices - Accessories

Legend plates for pushbuttons



Engraved fixed legend plates, with text ¹⁾

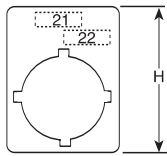
Of silvergrey aluminum

Text	Catalogue No.	List Price
English		
CLOSE	CBG-NPE1	
DOWN	CBG-NPE2	
EMERGENCY STOP	CBG-NPE3	
FAST	CBG-NPE4	
FORWARD	CBG-NPE5	
INCHING	CBG-NPE6	
IN	CBG-NPE7	
LEFT	CBG-NPE8	
LOWER	CBG-NPE9	
OFF	CBG-NPE10	
ON	CBG-NPE11	
OPEN	CBG-NPE12	
RAISE	CBG-NPE13	
RESET	CBG-NPE14	
REVERSE	CBG-NPE15	
RUN	CBG-NPE16	
RIGHT	CBG-NPE17	
SLOW	CBG-NPE18	
START	CBG-NPE19	
STOP	CBG-NPE20	
UP	CBG-NPE21	
FAULT	CBG-NPE34	
POWER ON	CBG-NPE35	
JOG	CBG-NPE40	
TEST	CBG-NPE41	
French		
FERMETURE	CBG-NPF1	
DESCENTE	CBG-NPF2	
ARRÊT D'URGENCE	CBG-NPF3	
RAPIDE	CBG-NPF4	
AVANT	CBG-NPF5	
À COUPS	CBG-NPF6	
ENTRÉE	CBG-NPF7	
GAUCHE	CBG-NPF8	
BAS	CBG-NPF9	
HORS SERVICE	CBG-NPF10	
SOUS-TENSION	CBG-NPF11	
OUVERTURE	CBG-NPF12	
LEVER	CBG-NPF13	
REARMEMENT	CBG-NPF14	
ARRIÈRE	CBG-NPF15	
EN SERVICE	CBG-NPF16	
DROITE	CBG-NPF17	
LENT	CBG-NPF18	
MARCHE	CBG-NPF19	
ARRÊT	CBG-NPF20	
MONTÉE	CBG-NPF21	
FAUTE	CBG-NPF34	
EN CIRCUIT	CBG-NPF35	
ALARME	CBG-NPF36	
ALIMENTATION	CBG-NPF37	
DÉPART	CBG-NPF38	
SILENCE	CBG-NPF39	
SURCHARGE	CBG-NPF40	

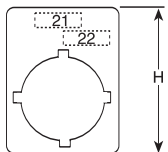
¹⁾ Text height 3 mm.

30 mm Pilot devices - Accessories

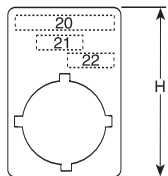
Legend plates for two-position selector switches



H = 50 mm



H = 50 mm



H = 56 mm

Engraved fixed legend plates, with symbols ¹⁾

Of silvergrey aluminum

Symbol/Text		Catalogue No.	List Price
Pos. 21	Pos. 22		
O	I	CBG-NPE96	
I	II	CBG-NPE97	
→	→→	CBG-NPE98	

Engraved fixed legend plates, with text ¹⁾

Of silvergrey aluminum

Symbol/Text		Catalogue No.	List Price
Pos. 21	Pos. 22		
English			
HAND	AUTO	CBG-NPE22	
JOG	RUN	CBG-NPE23	
OFF	ON	CBG-NPE24	
STOP	START	CBG-NPE25	
FWD	REV	CBG-NPE32	
LOCAL	AUTO	CBG-NPE36	
OPEN	CLOSE	CBG-NPE37	
SLOW	FAST	CBG-NPE46	
FRENCH			
MAN	AUTO	CBG-NPF22	
À COUPS	MARCHE	CBG-NPF23	
HORS	EN	CBG-NPF24	
MARCHE	ARRÊT	CBG-NPF25	
ARRIÈRE	AVANT	CBG-NPF32	
HORS	TEST	CBG-NPF42	
LENT	RAPIDE	CBG-NPF46	

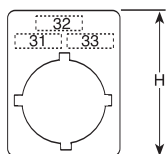
Fixed legend plates, with customer-selected text ¹⁾

Description	Catalogue No.	List Price
Without heading H= 50 mm		
Of silvergrey aluminum	GSK615999-1	
Of silvergrey laminated plastic	GSK615999-21	
When ordering state (in addition to Order Code)		
Text line: Pos. 21 - max 8 characters		
Pos. 22 - max 8 characters		
With heading H= 56 mm		
Of silvergrey aluminum	GSK615999-2	
Of silvergrey laminated plastic	GSK615999-22	
When ordering state (in addition to Order Code)		
Text line: Pos. 20 - max 16 characters		
Pos. 21 - max 8 characters		
Pos. 22 - max 8 characters		

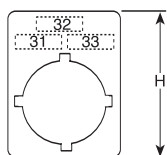
¹⁾ Text height 3 mm. Only the initial character is upper case unless other is stated.

30 mm Pilot devices - Accessories

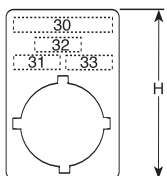
Legend plates for three-position selector switches



H = 50 mm



H = 50 mm



H = 56 mm

Engraved fixed legend plates, with symbols ¹⁾

Of silvergrey aluminum

Symbol/Text	Catalogue No.	List Price
Pos 31 Pos. 32 Pos. 33		
I O II	CBG-NPE99	
← O →	CBG-NPE100	
→ O →→	CBG-NPE101	

Engraved fixed legend plates, with text ¹⁾

Of silvergrey aluminum

Symbol/Text	Catalogue No.	List Price
Pos 31 Pos. 32 Pos. 33		
English		
HAND O AUTO	CBG-NPE26	
SLOW OFF FAST	CBG-NPE27	
LOW OFF HIGH	CBG-NPE31	
FWD OFF REV	CBG-NPE33	
OPEN AUTO CLOSE	CBG-NPE45	
French		
MAN HORS AUTO	CBG-NPF26	
LENT HORS RAPIDE	CBG-NPF27	
BAS HORS HAUT	CBG-NPF31	
AV HORS ARR	CBG-NPF33	
AUTO HORS TEST	CBG-NPF43	
EN HORS AUTO	CBG-NPF44	

Fixed legend plates, with customer-selected text ¹⁾

Description	Catalogue No.	List Price
Without heading H= 50 mm		
Of silvergrey aluminum	GSK615999-1	
Of silvergrey laminated plastic	GSK615999-21	
When ordering state (in addition to Order Code)		
Text line: Pos. 31 - max 8 characters		
Pos. 32 - max 8 characters		
Pos. 33 - max 8 characters		
With heading H= 56 mm		
Of silvergrey aluminum	GSK615999-2	
Of silvergrey laminated plastic	GSK615999-22	
When ordering state (in addition to Order Code)		
Text line: Pos. 30 - max 16 characters		
Pos. 31 - max 8 characters		
Pos. 32 - max 8 characters		
Pos. 33 - max 8 characters		

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

30 mm Pilot devices - Accessories

Legend plates for toggle switches

Fixed legend plates with customer-selected text ¹⁾

Of silvergrey aluminum

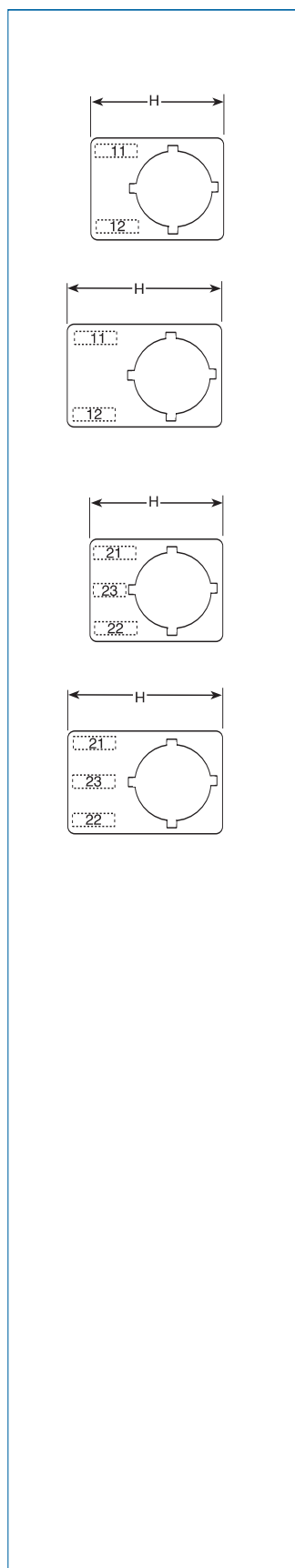
Description	Catalogue No.	List Price
Toggle switch, two positions Two text lines. H = 50 mm When ordering state (in addition to Order Code) Text line: Pos. 11 - max 5 characters Pos. 12 - max 5 characters	GSK615999-3	
Two text lines. H = 56 mm When ordering state (in addition to Order Code) Text line: Pos. 11 - max 6 characters Pos. 12 - max 6 characters	GSK615999-4	

Fixed legend plates with customer-selected text ¹⁾

Of silvergrey aluminum

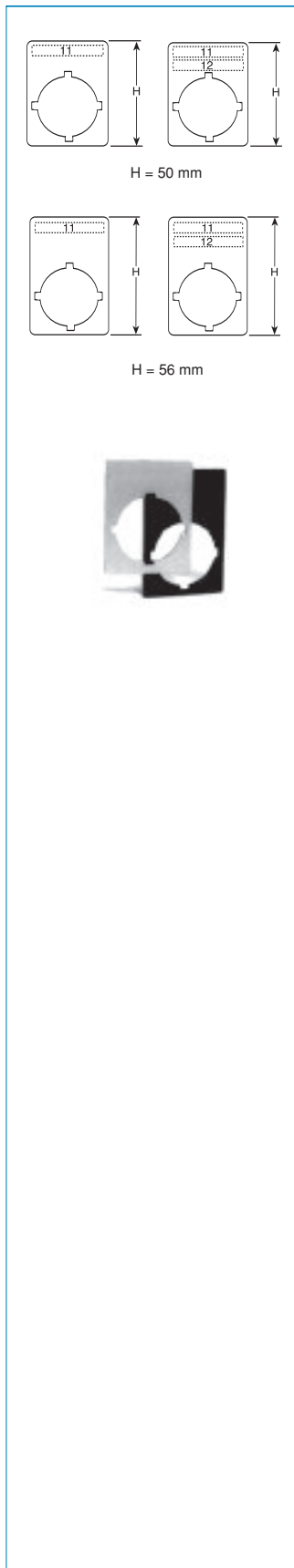
Description	Catalogue No.	List Price
Toggle switch, three positions Three text lines. H = 50 mm Of silvergrey aluminum Of silvergrey laminated plastic When ordering state (in addition to Order Code) Text line: Pos. 21 - max 5 characters Pos. 23 - max 5 characters Pos. 22 - max 5 characters	GSK615999-3 GSK615999-23	
Three text lines. H = 56 mm Of silvergrey aluminum Of silvergrey laminated plastic When ordering state (in addition to Order Code) Text line: Pos. 21 - max 6 characters Pos. 23 - max 6 characters Pos. 22 - max 6 characters	GSK615999-4 GSK615999-24	

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



30 mm Pilot devices - Accessories

Legend plates for toggle switches



Fixed legend plates without text (for pushbuttons, mushroom pushbuttons and pilot lights) ¹⁾

Of silvergrey aluminum

Description	Catalogue No.	List Price
For 1 - 2 text lines. H = 50 mm	GSK615540-1	
For 2 - 3 text lines. H = 56 mm	GSK615541-1	

Fixed legend plates with customer-selected text ¹⁾

Of silvergrey aluminum

Description	Catalogue No.	List Price
For 1 text line. H = 50 mm	GSK615999-1	
For 2 text lines. H = 56 mm	GSK615999-2	
<i>Text line: Pos. 11 - max 16 characters</i>		
<i>Pos. 12 - max 16 characters</i>		

Fixed legend plates

Of black/white plastic. One side black and the other white. Engraving will give either white or black text.

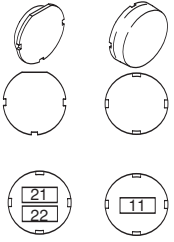
Description	Catalogue No.	List Price
For 1 - 2 text lines. H = 50 mm	GSK616540-2	
For 2 - 3 text lines. H = 56 mm	GSK616541-2	
<i>Text line: Pos. 11 - max 16 characters</i>		
<i>Pos. 12 - max 16 characters</i>		

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

30 mm Pilot devices - Accessories

Text caps

Flush or extended button

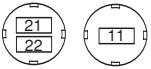


Can be turned 90° or 180°

Characters per line

1 text line (pos. 11): max. 6
2 text lines (pos. 21): max. 5
(pos. 22) : max. 5

Pilot light



Characters per line

1 text line (pos. 11): max. 8
2 text lines (pos. 21): max. 8
(pos. 22) : max. 8

Text caps for illuminated pushbuttons and pilot lights

Text/Symbol	Cap color ¹⁾	Flush button Catalogue No.	Extended button Catalogue No.	Pilot light Catalogue No.	List Price
Start	White	1SFA616901R2030	1SFA616902R2030	1SFA616903R2030	
START	White	1SFA616906R1042	-	-	
R	White	1SFA616901R9009	1SFA616902R9009	1SFA616903R9009	
	Black	1SFA616908R9009	1SFA616909R9009	-	
On	White	1SFA616901R1020	1SFA616902R1020	1SFA616903R1020	
ON	White	1SFA616901R1039	-	1SFA616903R1039	
	Green	1SFA616906R1039	-	-	
	Black	1SFA616908R1039	-	-	
Off	White	1SFA616901R1019	1SFA616902R1019	1SFA616903R1019	
OFF	White	-	1SFA616902R1040	-	
	Red	-	1SFA616905R1040	-	
	Black	-	1SFA616909R1040	-	
Stop	White	1SFA616901R1031	1SFA616902R1031	1SFA616903R1031	
STOP	Red	1SFA616904R1047	1SFA616905R1047	-	
Reset	White	1SFA616901R1025	1SFA616902R1025	1SFA616903R1025	
(Without text)	White	1SFA616901R9000	1SFA616902R9000	1SFA616903R9000	
(With customer selected text) ²⁾	White	1SFA 616 901 R9001	1SFA 616 902 R9001	1SFA616903R9001	

¹⁾ Use only white caps for illuminated pushbutton and pilot lights.

²⁾ When ordering, please state text and position:

1 text line (pos. 11) max. 6 characters for pushbuttons. Max. 8 characters for pilot lights.

2 text lines (pos. 21 and pos. 22) max. 5 characters for pushbuttons. Max. 8 characters for pilot lights.

Only initial character is upper case unless other is stated.

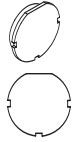
Recommended color combinations of text caps and actuators

Text cap color	Actuator	Lens color
White	Pilot light	All colors
White	Illuminated pushbutton	All colors
Green, Red, Black, White	Non-illuminated pushbutton	Clear

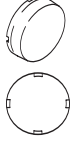
30 mm Pilot devices - Accessories

Text caps

Flush button

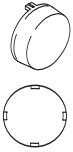


Extended button



Can be turned 90° or 180°

Pilot light



Text caps for illuminated pushbuttons and pilot lights

Text/Symbol	Cap color ¹⁾	Flush button Catalogue No.	Extended button Catalogue No.	Pilot light Catalogue No.	List Price
O	White	1SFA616901R9004	1SFA616902R9004	1SFA616903R9004	
	Red	1SFA616904R9004	1SFA616905R9004	-	
	Black	1SFA616908R9004	-	-	
I	White	1SFA616901R9002	1SFA616902R9002	1SFA616903R9002	
	Green	1SFA616906R9002	-	-	
	Black	1SFA616908R9002	-	-	
II	White	1SFA616901R9003	1SFA616902R9003	1SFA616903R9003	
	Green	1SFA616906R9003	-	-	
	Black	1SFA616908R9003	-	-	
III	White	1SFA616901R9028	1SFA616902R9028	-	
	Black	1SFA616908R9028	-	-	
+	White	1SFA616901R9011	1SFA616902R9011	-	
	Green	1SFA616906R9011	-	-	
	Black	1SFA616908R9011	-	-	
-	White	1SFA616901R9012	-	-	
	Red	1SFA616904R9012	-	-	
	Black	1SFA616908R9012	-	-	
↑	White	1SFA616901R9005	1SFA616902R9005	1SFA616903R9005	
	Black	1SFA616908R9005	-	-	
↗	White	1SFA616901R9014	1SFA616902R9014	-	
	Black	1SFA616908R9014	-	-	
⚡	White	1SFA616901R9015	1SFA616902R9015	-	
	Black	1SFA616908R9015	-	-	
↔	White	1SFA616901R9016	1SFA616902R9016	-	
	Black	1SFA616908R9016	-	-	
→	White	1SFA616901R9017	1SFA616902R9017	-	
	Black	1SFA616908R9017	-	-	
↘	White	1SFA616901R9006	1SFA616902R9006	1SFA616903R9006	
	Black	1SFA616908R9006	-	-	
⊕	White	1SFA616901R9018	1SFA616902R9018	-	
	Black	1SFA616908R9018	-	-	
●	White	1SFA616901R9019	1SFA616902R9019	-	
	Black	1SFA616908R9019	-	-	
⊙	White	1SFA616901R9020	1SFA616902R9020	-	
	Black	1SFA616908R9020	-	-	
✋	White	1SFA616901R9021	1SFA616902R9021	-	
	Black	1SFA616908R9021	-	-	
⚡	White	1SFA616901R9022	1SFA616902R9022	-	
	Black	1SFA616908R9022	-	-	
⚡	White	1SFA616901R9023	1SFA616902R9023	-	
	Black	1SFA616908R9023	-	-	
⚡	White	1SFA616901R9024	1SFA616902R9024	-	
	Black	1SFA616908R9024	-	-	
⚡	White	1SFA616901R9025	1SFA616902R9025	-	
	Black	1SFA616908R9025	-	-	
⚡	White	1SFA616901R9026	1SFA616902R9026	-	
	Black	1SFA616908R9026	-	-	
⚡	White	1SFA616901R9027	1SFA616902R9027	-	
	Black	1SFA616908R9027	-	-	

¹⁾ Use only white caps for illuminated pushbutton and pilot lights.

30 mm Pilot devices - Modular range

Technical data



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

Operators	IP	UL/CSA
Pushbutton with flush or extended button, GMP	IP 66	Type 1, 3R, 4, 4X, 12, 13
Double pushbutton, GMPD	IP 66	Type 1, 3R, 4, 4X, 12, 13
Mushroom pushbutton, momentary, GMPM	IP 66	Type 1, 3R, 4, 4X, 12, 13
Emergency stop pushbutton, GMPMT/P	IP 66	Type 1, 3R, 4, 4X, 12, 13
Selector switch, GM2SS/GM3SS	IP 66	Type 1, 3R, 4, 4X, 12, 13
Key operated selector switch, GM2SSK/GM3SSK	IP 66	Type 1, 3R, 4, 4X, 12
Toggle switch, GMTS2/GMTS3	IP 66	Type 1, 3R, 4, 4X, 12, 13
Definite purpose pushbutton, 30 mm, KP6	IP 66	–
Reset button, GKPR	IP 66	Type 1, 3R, 4, 4X, 12, 13
Pilot lights, GML	IP 66	Type 1, 3R, 4, 4X, 12, 13
Buzzer, GKB	IP 65	Type 4X
Potentiometer, GKT	IP 66	Type 1, 3R, 4, 4X, 12, 13
Contact block and transformer block	IP 20	
Enclosures		
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 high 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

30 mm Pilot devices - Modular range

Technical data

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
<i>Exception: All pilot devices with 2 W continuously lit filament bulb</i>	
	-25 to +40 °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 ² /AWG 20 max. 2 x 2.5 mm ² /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		Q600	
	AC		DC	
Rated insulation voltage	600 V		600 V	
Rated thermal current	10 A		2.5 A	
Rated operational current	at 120 V	6 A	at 125 V	0.55 A
	240 V	3 A	250 V	0.27 A
	480 V	1.5 A	480 V	0.10 A
	600 V	1.2 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_b 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_b 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 ¹⁾

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	15 A ordinary 10 A delayed
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¹⁾ 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

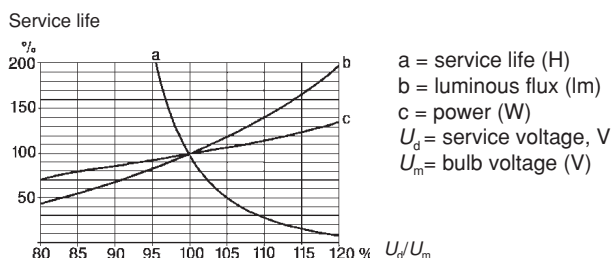
Ratings as per IEC 60 947-5-1

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

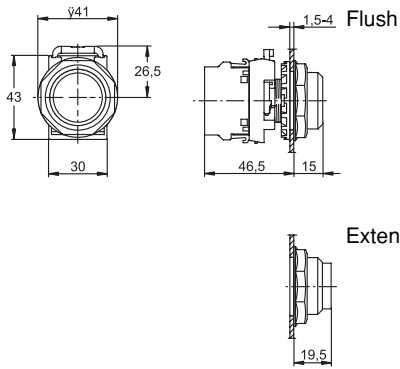
Suitable for filament bulb 6 or 24 V AC and 1.2 W and LED 24 V.

Rated power	1.5 W
Rated voltage	Ratio, see Accessories page 93
Rated insulation voltage acc. to IEC 70 °C (DT)	Class E

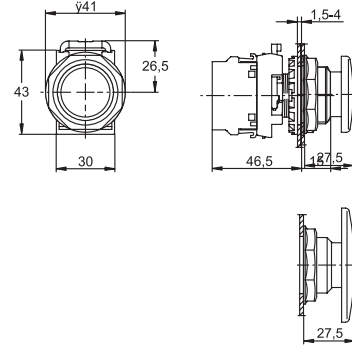
30 mm Pilot devices - Modular range

Dimensions

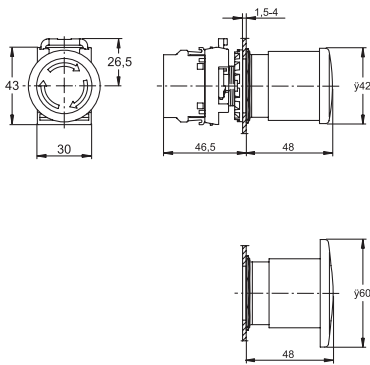
Pushbutton



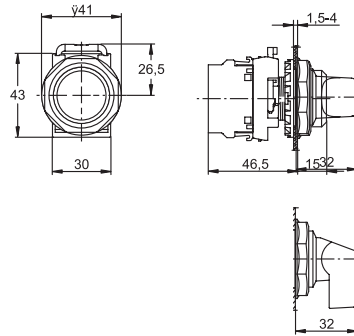
Mushroom pushbutton



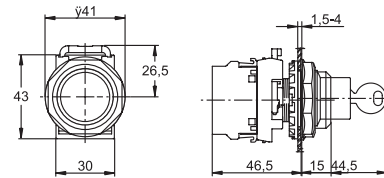
Emergency stop pushbutton



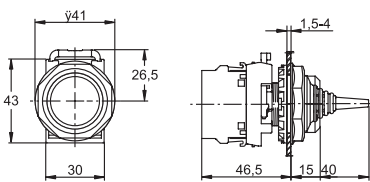
Selector switch



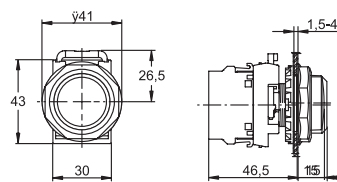
Key-operated selector switch



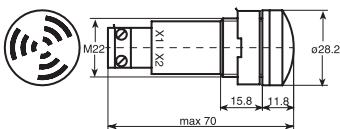
Toggle switch



Pilot light



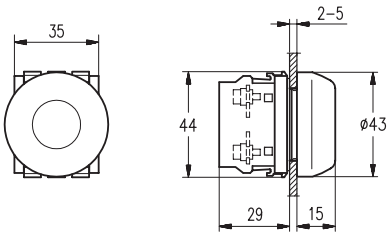
Buzzer



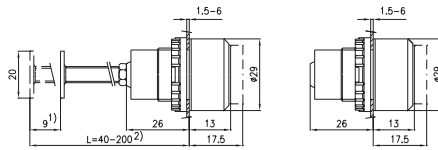
30 mm Pilot devices - Miscellaneous

Dimensions and drilling plans

Definite purpose pushbutton

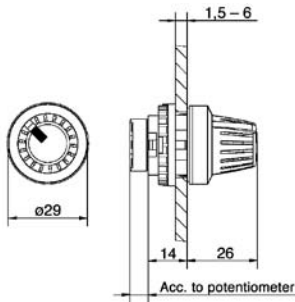


Reset pushbutton

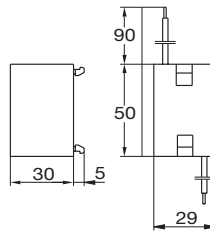


- 1) Length of stroke.
- 2) Can be cut to desired length.

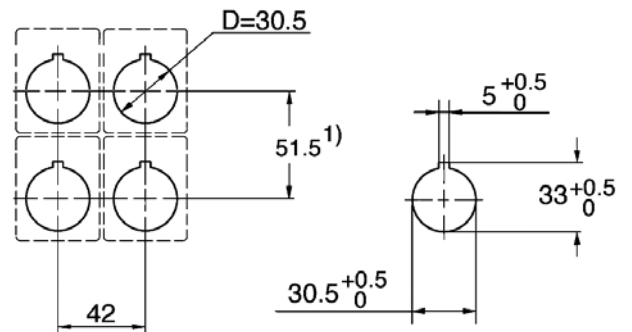
Potentiometer



Transformer block

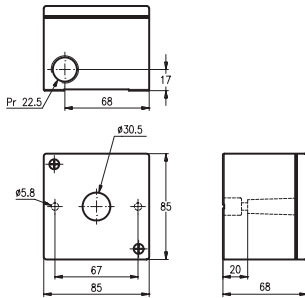


Drilling plan for 30 mm

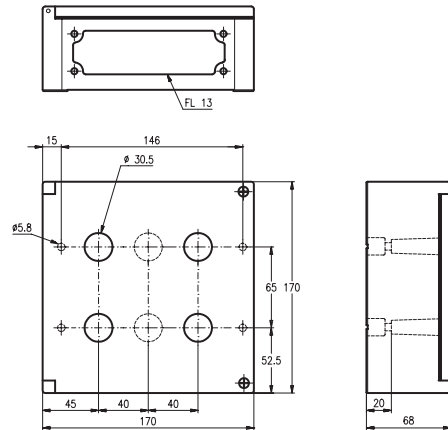


Metallic enclosures

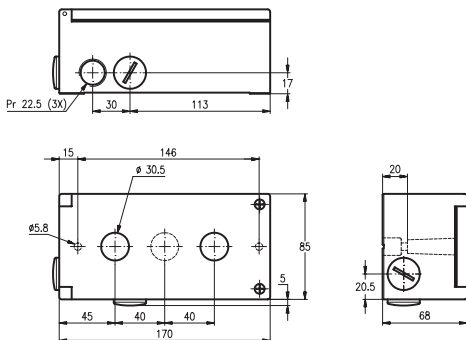
1 seat



4 or 6 seats



2 or 3 seats



Pilot devices - 30 mm

Explanation of type codes

Explanation of type code

Modular Pilot Devices

Pilot light

Example 1: Type **GML1-100R**

L1 Pilot Light Head

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

Operators

Example 2: Type **GMP1-10Y**

P Pushbutton
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
TS Toggle Switch

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 **GM2SSK1-101**

2SSK 2-pos. Selector Switch, Key-lockable
3SSK 3-pos. Selector Switch, Key-lockable

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

Buzzer, contact blocks, lamp block

Example 4: Type **GMCBH-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 NO
20 2 NC

GM= "Generation" GM, Modular range 30 mm



Signal Towers K70 and Signal Beacons KSB offers the customer a wide range of signal elements in all voltages and a solution for every signalling field.

- Permanent light
- Strobe light
- Flashing light
- Audible
- LED Permanent light
- LED Flashing light
- LED Rotating light

Signal Towers K70

- Fast mounting of signal elements using bayonet fixing.
- Easy changing of bulbs for each module without tools.
- Flexibility of signal element combination.
- Up to 5 elements possible/up to 10 elements with bracket for 2-sided mounting.
- Flashing light elements can be mounted in each module.
- Up to 5 flashing light elements possible.
- High protection rating optical and audible signal elements with IP 54, Nema 2,5.
- LED elements for long life.

Signal Beacons KSB

- Vandal-proof design withstands every mechanical and natural challenge both indoors and outdoors.
- High protection rating IP 65, Nema 4x.
- Cap consists of high impact polycarbonate (up to 20 J).
- Bulb change via inside of control box.

Signal Towers K70

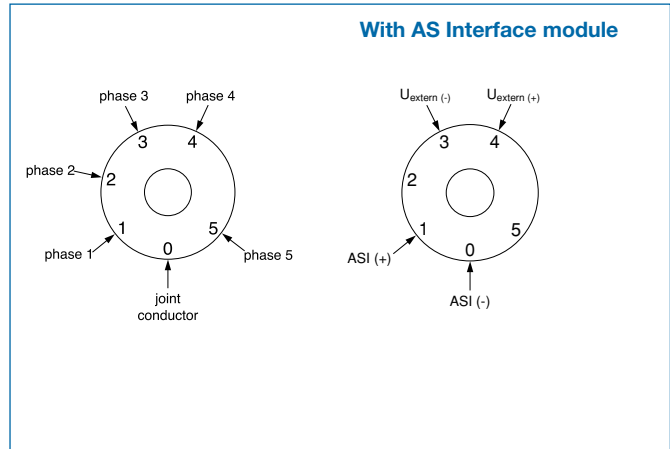
Description

Simple fitting with quick fix system

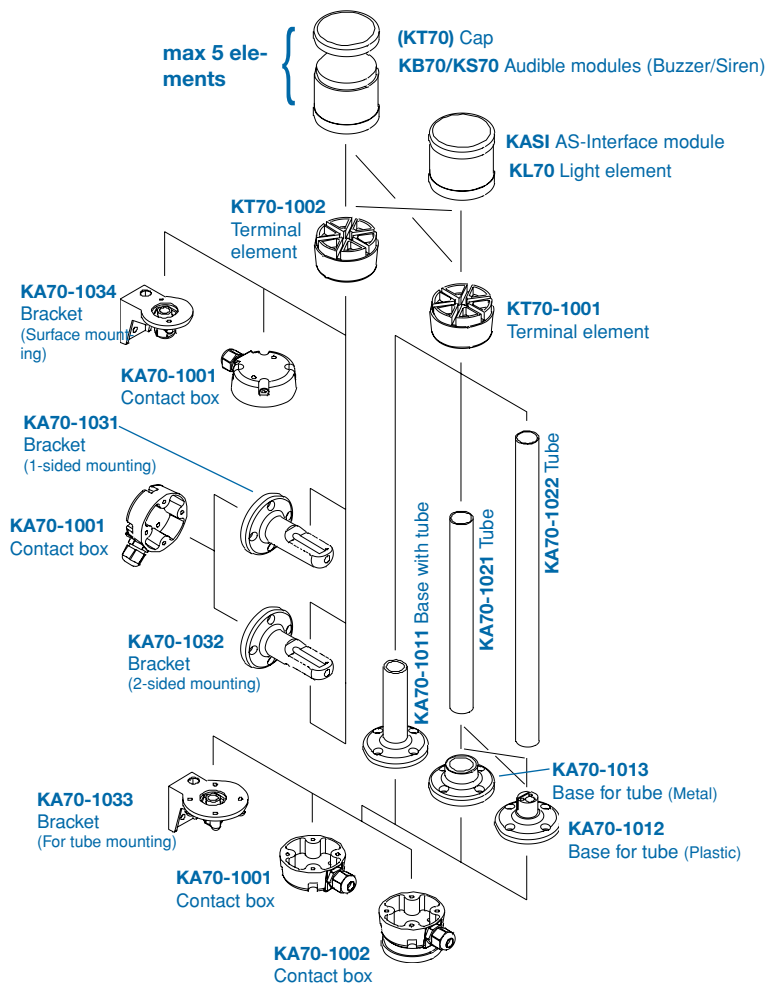
Each K 70 module is equipped with a bayonet fixing with integral contact system. The modules are fastened together by aligning the corresponding white marks then with a gentle twist they are locked into place (see the figures).



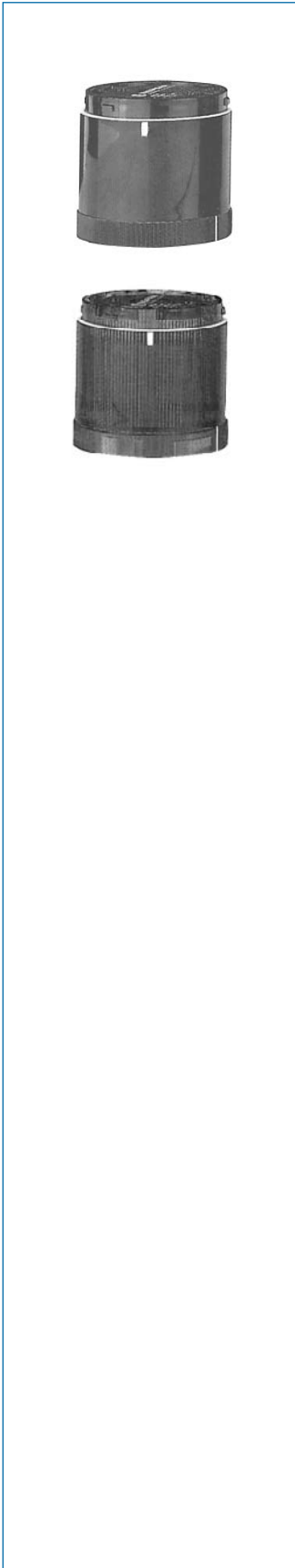
Connection plans



Combination possibilities



Signal Towers K70



Optical modules

Description	Catalogue No.	List price
Light element		
Permanent light , 12-240 V AC/DC. For bulb BA15d. Bulb not included.		
Red	KL70-401R	
Green	KL70-401G	
Yellow	KL70-401Y	
Blue	KL70-401L	
Clear	KL70-401C	
Flashing light , 24 V AC/DC. For bulb BA15d. Bulb not included.		
Red	KL70-302R	
Green	KL70-302G	
Yellow	KL70-302Y	
Blue	KL70-302L	
Clear	KL70-302C	
Strobe light , 24 V DC. Xenon tube included. Not changeable.		
Red	KL70-203R	
Green	KL70-203G	
Yellow	KL70-203Y	
Blue	KL70-203L	
Clear	KL70-203C	
Flashing light , 115 V AC/DC. For bulb BA15d. Bulb not included.		
Red	KL70-312R	
Green	KL70-312G	
Yellow	KL70-312Y	
Blue	KL70-312L	
Clear	KL70-312C	
Strobe light , 115 V AC. Xenon tube included. Not changeable.		
Red	KL70-113R	
Green	KL70-113G	
Yellow	KL70-113Y	
Blue	KL70-113L	
Clear	KL70-113C	
Flashing light , 230 V AC/DC. For bulb BA15d. Bulb not included.		
Red	KL70-322R	
Green	KL70-322G	
Yellow	KL70-322Y	
Blue	KL70-322L	
Clear	KL70-322C	
Strobe light , 230 V AC. Xenon tube included. Not changeable.		
Red	KL70-123R	
Green	KL70-123G	
Yellow	KL70-123Y	
Blue	KL70-123L	
Clear	KL70-123C	
LED Permanent light , 115 V AC. LED included. Not changeable.		
Red	KL70-315R	
Green	KL70-315G	
Yellow	KL70-315Y	
Blue	KL70-315L	
Clear	KL70-315C	
LED Permanent light , 230 V AC. LED included. Not changeable.		
Red	KL70-316R	
Green	KL70-316G	
Yellow	KL70-316Y	
Blue	KL70-316L	
Clear	KL70-316C	

Signal Towers K70



Description	Catalogue No.	List Price
LED Permanent light , 24 V AC/DC. LED included. Not changeable.		
Red	KL70-305R	
Green	KL70-305G	
Yellow	KL70-305Y	
Blue	KL70-305L	
White	KL70-305C	
LED Flashing light , 24 V AC/DC. LED included. Not changeable.		
Red	KL70-306R	
Green	KL70-306G	
Yellow	KL70-306Y	
Blue	KL70-306L	
White	KL70-306C	
LED Rotating light , 24 V AC/DC. LED included. Not changeable.		
Red	KL70-307R	
Green	KL70-307G	
Yellow	KL70-307Y	
Blue	KL70-307L	
White	KL70-307C	
Bulbs for Signal Tower K70 Bulb Ba 15d, 42 mm, Max 7 W For permanent or flashing light.		
24 V, 5 W, AC/DC	KA4-1028	
115 V, 5 W, AC/DC	KA4-1118	
230 V, 5 W, AC/DC	KA4-1148	
LED bulbs for Signal Tower K70 Ba 15d. For 24 V AC/DC, 40 mA		
<u>Colour:</u>		
Red	KA4-1021	
Green	KA4-1022	
Yellow	KA4-1023	
Blue	KA4-1024	
White	KA4-1025	
LED bulbs for Signal Tower K70 Ba 15d. For 115 V AC		
<u>Colour:</u>		
Red	KA4-1131	
Green	KA4-1132	
Yellow	KA4-1133	
Blue	KA4-1134	
White	KA4-1135	
LED bulbs for Signal Tower K70 Ba 15d. For 230 V AC		
<u>Colour:</u>		
Red	KA4-1221	
Green	KA4-1222	
Yellow	KA4-1223	
Blue	KA4-1224	
White	KA4-1225	

Signal Towers K70

Accessories



Description	Catalogue No.	List Price
Audible modules		
Buzzer element		
85 dB, continuous or pulsating tone, adjustable		
24 V AC/DC	KB70-3001	
115 V AC/DC	KB70-3101	
230 V AC	KB70-1201	
Siren element		
Multi function, 8 diff. tones adjustable, volume adjustable 100 dB, 115 V AC	KS70-1104	
Multi function, 8 diff. tones adjustable, volume adjustable 100 dB, 230 V AC	KS70-1204	
Multi function, 7 diff. tones adjustable, volume adjustable, remote control 100 dB, 24 V DC	KS70-2004	
Multi function, 8 diff. tones adjustable, volume adjustable, 100 dB, 24 V AC/DC	KS70-3004	
Continuous tone alternating 108 dB, 24 V DC	KS70-2002	
AS-Interface Module		
18,5-31,6 V AC/DC	KASI-4101	
for external voltage		
18,5-31,6 V AC/DC	KASI-4102	
Terminal elements		
For tube mounting, including cap	KT70-1001	
For bracket or base, including cap	KT70-1002	
Special parts		
Contact box		
Cable exit at side	KA70-1001	
Magnetic base	KA70-1002	
Base with tube		
D=25 mm L=110 mm	KA70-1011	
Base for tube		
D=25 mm, Plastic	KA70-1012	
D=25 mm, Metal	KA70-1013	
Tube, anodized aluminium		
D=25 mm L=250 mm	KA70-1021	
D=25 mm L=400 mm	KA70-1022	
D=25 mm L=800 mm	KA70-1023	
Bracket		
1-sided mounting	KA70-1031	
2-sided mounting	KA70-1032	
For tube mounting	KA70-1033	
For surface mounting	KA70-1034	
Adaptor 25mm to 1/2"	97584002	

Combinations of accessories see page 114

Signal Beacons KSB



Signal Beacons KSB

Description	Catalogue No.	List Price
LED Permanent light , 12-240 V AC/DC. For bulb BA15d. Bulb not included.		
Red	KSB-401R	
Green	KSB-401G	
Yellow	KSB-401Y	
Blue	KSB-401L	
Clear	KSB-401C	
LED Permanent light , 115 vac, LED included. Not changeable		
Red	KSB-115R	
Green	KSB-115G	
Yellow	KSB-115Y	
Blue	KSB-115L	
Clear	KSB-115C	
Flashing light , 24 V DC. Xenon tube included. Not changeable.		
Red	KSB-203R	
Green	KSB-203G	
Yellow	KSB-203Y	
Blue	KSB-203L	
Clear	KSB-203C	
Flashing light , 115 V AC. Xenon tube included. Not changeable.		
Red	KSB-113R	
Green	KSB-113G	
Yellow	KSB-113Y	
Blue	KSB-113L	
Clear	KSB-113C	
Flashing light , 230 V AC. Xenon tube included. Not changeable.		
Red	KSB-123R	
Green	KSB-123G	
Yellow	KSB-123Y	
Blue	KSB-123L	
Clear	KSB-123C	
LED Permanent light , 24 V AC/DC. LED included. Not changeable.		
Red	KSB-305R	
Green	KSB-305G	
Yellow	KSB-305Y	
LED Blinking light , 24 V AC/DC. LED included. Not changeable.		
Red	KSB-306R	
Green	KSB-306G	
Yellow	KSB-306Y	
LED Rotating light , 24 V AC/DC. LED included. Not changeable.		
Red	KSB-307R	
Green	KSB-307G	
Yellow	KSB-307Y	
LED Blinking light , 12 V DC. LED included. Not changeable.		
Red	KSB-301R	
Green	KSB-301G	
Yellow	KSB-301Y	
Special parts		
Anti-twist device	KASB-100	
Tube adaptor	KASB-101	
Bulbs for Signal Beacons Max 10 W. For permanent light.		
Bulb Ba15d, 52 mm:		
12 V, 7 W, AC/DC	KA3-1018	
24 V, 7 W, AC/DC	KA3-1028	
115 V, 7 W, AC/DC	KA3-1118	
220-260 V, 7-10 W, AC/DC	KA3-1148	



Signal Towers K70, Signal Beacons KSB

Technical data

Signal Towers K70

Approvals



Technical specifications

Housing and accessories	Polyamide, high impact, black
Dome	Polycarbonate, transparent
Fixing	Base mounting Tube mounting, for tube ø 25 mm Bracket mounting
Socket	B 15 d, for bulb max. 7W
Connection	Screwable connection up to 2.5 mm ²
Number of modules possible	max. 5
-2-sided bracket	max. 10 elements

Degrees of protection

Light elements	IP 54	UL Type 5
Audible elements	IP 54	UL Type 5

Electrical data

Permanent light element	12 - 240 V AC/DC
Bulb socket B 15 d, max 7 W	Bulb not included
Blinking light element	24 V 115 V 230 V AC/DC AC/DC AC/DC
	Bulb not included
Starting current	< 0.5 A
Flashing light element	24 V 115 V 230 V DC AC AC
Flash frequency	1 Hz 1 Hz 1 Hz
Flash energy	2 Ws 2 Ws 2 Ws
Life duration	4 x 10 ⁶ flashes
Current consumption	125 mA 20 mA 35 mA
reduced for AS-Interface	80 mA
Starting current	< 0.5 A at 24 V
LED Permanent light element	24 V 115 V 230 V AC/DC AC AC
Current consumption	45 mA 25 mA 25 mA
Starting current	< 0.5 A at 24 V
LED Blinking light element	24 V 115 V 230 V AC/DC AC AC
Current consumption	25 mA 25 mA 25 mA
Starting current	< 0.5 A at 24 V
Blink frequency	c. 1 Hz c. 1Hz c. 1 Hz
LED Rotating light element	24 V, AC/DC
Current consumption	70 mA
Starting current	< 0.5 A at 24 V
Rotation frequency	c. 120 r.p.m.
Temperature	
Ambient temperature during operations	-20 to +50 °C

Signal Beacons KSB

Approvals



Technical specifications

Housing and accessories	PC/ABS-Blend, high impact, black
Dome	Polycarbonate, transparent
Fixing	Installation mounting for ø 37 mm (PG 29)
Bulb socket	B 15 d, max. 10 W
Bulb change	via rear access with bayonet mechanism (Bulb not included)
Connection	Screwable connection max. 2.5 mm ²

Degrees of protection	IP 65	UL Type 4x
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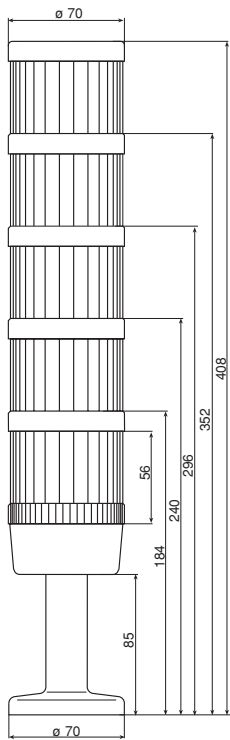
Electrical data

Permanent light element	
Operating voltage	max. 250 V
Bulb socket B 15 d, max 10 W	Bulb not included
LED version:	
Permanent light	24 V, AC/DC
Current consumption	45 mA
Blinking light element	24 V, AC/DC
Current consumption	25 mA
Rotating light element	24 V, AC/DC
Current consumption	70 mA
Starting current	< 0.5 A
Flashing light element	
Operating voltage	24 V 115 V 230 V AC/DC AC AC
Flash frequency	1 Hz 1 Hz 1 Hz
Flash energy	2 Ws 2 Ws 2 Ws
Life duration	4 x 10 ⁶ flashes
Current consumption	125 mA 20 mA 35 mA
Starting current	< 0.5 A < 0.5 A < 0.25 A
Temperature	
Ambient temperature during operations	-20 to +50 °C

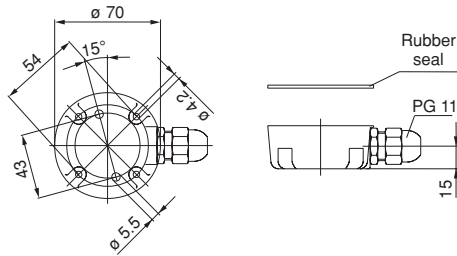
Pilot devices - Signal Towers/Signal Beacons

Dimensions and drilling plans

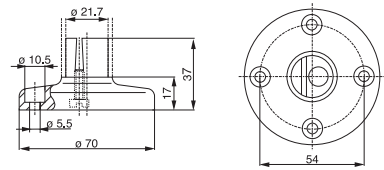
Signal Towers K 70



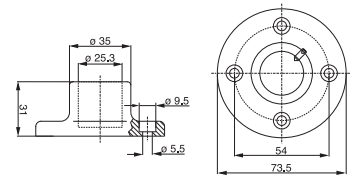
Contact box for cable exit at side



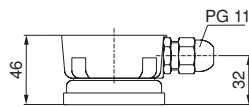
Base for tube, plastic



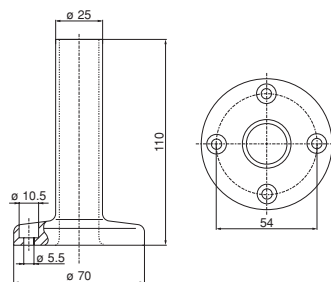
Base for tube, metal



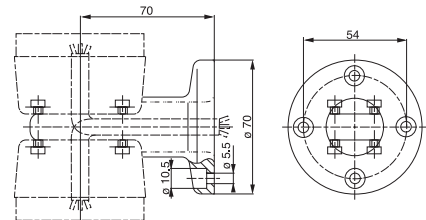
Contact box with magnetic base



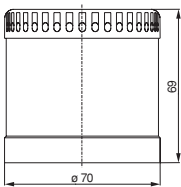
Base with integrated tube



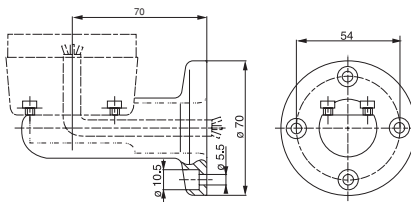
Bracket 2-sided mounting



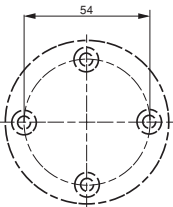
Audible module



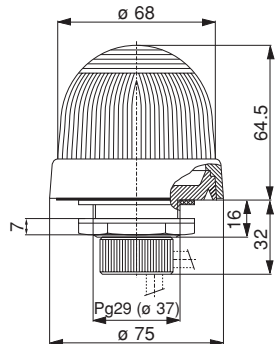
Bracket 1-sided mounting



Drilling plan for Signal Towers K 70



Signal Beacons K SB



Drilling plan for Signal Beacons KSB

