

Contact us

ABB Canada Low Voltage Products Division

2117, 32e Avenue
Lachine, QC H8T 3J1
Tel: 514-420-3100
Toll free: 1-800-567-0283
Fax: 514-420-3137

Website:
www.abb.ca

Technical support:
lvp.support@ca.abb.com

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Catalog AC1400 - January 2013 - Rev. A, Prod ABB

Catalog AC1400 - 2013 - Pilot Devices: The Complete Range



Main Catalog

Pilot Devices the complete offering

News in this Catalog

- Lockable Shroud
- Touch Guard
- Joysticks
- Compact Mushrooms
- Compact Illuminated Pushbuttons
- Additional Legend Plate Holders
- 50 Ω Potentiometer
- Mounting Tool for Power Tool



Accessories



Contact Blocks and Holder



Micro Switch Blocks



LED Block with built in leakage current protection



Legend Plate Holders for Joystick



Legend Plate Holders



Legend Plate Holder for Double Pushbutton



Protective Cover



Mounting Tool



Mounting Tool for Power Tool

Enclosures



DIN-rail Adaptor

Description	Catalogue No.	List Price	Package Qty
Separate Holder			
Holders for three blocks	MCBH-00		10
Contact Blocks (see page 34)			
1 NO	MCB-10		10
1 NC	MCB-01		10
Micro Switch Blocks			
1 NO	MCBL-10		10
1 NC	MCBL-01		10
Contact Blocks with 3-Blocks Holder included (Contact Blocks - see page 34)			
1 NO	MCBH-10		1
1 NC	MCBH-01		1
2 NC	MCBH-02		1
2 NO	MCBH-20		1
1 NO + 1 NC	MCBH-11		1
2 NO + 1 NC	MCBH-21		1
LED Blocks (see page 32, 61)			
Colors ■: =R ■=G ■=Y ■=L ○=W			
Rated Voltage 24 V, AC/DC	MLBL-01■		10
Rated Voltage 110-130 V, AC	MLBL-04■		10
Rated Voltage 110-130 V, DC	MLBL-05■		10
Rated Voltage 220 V, DC	MLBL-06■		10
Rated Voltage 230 V, AC	MLBL-07■		10
Legend Plate Holders			
Legend Plate Holder (4-pos. Joystick)	MA1-8137		1
Legend Plate Holder (2-pos. Joystick)	MA1-8138		1
Legend Plate Holder (2-pos. Double)	MA1-8039		1
Legend Plate Holder (black)	KA1-8120		10
Inserts without text	KA1-8121		10
Legend Plate Holder for Plastic Enclosure	MA6-1060		10
Inserts without text for Plastic Enclosure	MA6-1061		10
Accessories (see page 34, 52, 63)			
Mounting Tool	MA1-8015		1
Mounting Tool for Power Tool	MA1-8149		1
Silicone Membrane for Flush Pushbutton	KA1-8052		1
Silicone Membrane for Extended Pushbutton	KA1-8002		1
Silicone Membrane for Double Pushbutton	MA1-8126		1
Locking Nut	MA1-8019		10
Light Diffusing Lens	KA1-8005		1
Protective Cover	KA1-8010		1
Spacer*	-		1
Spacer for Modular Emergency Stop*	KA1-8045		1
*Spacer is needed when Legend Plates are not used in Plastic Enclosures			
Description	Catalogue No.	Order Code	Package Qty
Empty Plastic Enclosures for Modular and Compact Range			
■ 1-seat	MEPY1-0		1
■ 1-seat	MEP1-0		1
■ 2-seat	MEP2-0		1
■ 3-seat	MEP3-0		1
■ 4-seat	MEP4-0		1
■ 6-seat	MEP6-0		1
Shroud			
■ Yellow	MA1-8053		1
■ Grey	MA1-8128		1
Empty Plastic Enclosures for Compact Range			
■ Yellow/Light grey	CEPY1-0		1
■ Dark grey/Light grey	CEP1-0		1
Shroud			
■ Yellow	CA1-8053		1
■ Grey	CA1-8054		1
DIN-rail Adaptor			
DIN-rail Adaptor	MA1-8131		1

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	Contact Blocks and Holder see the fold-out page at the end of the catalog
	Customer specific marking online. For more information see page 4 or go to: http://bolservices.it.abb.com/pilot-devices

When you think Pilot Devices – think ABB

Part of a comprehensive ABB program

ABB Pilot Devices are a part of the comprehensive ABB range of high quality Low Voltage Products and Systems for industrial control applications. ABB has a wide global network of external channel partners, such as distributors, system integrators and panel builders all around the world. Our products also meet all essential national and international products standards making us your perfect global business partner.

In combination of our wide range of Pilot Devices ABB also offers a broad product portfolio of Low Voltage Products such as Contactors, Softstarters, DOL starters, Electronic relays, Breakers, Terminal blocks, Switches, UMC etc.

ABB Pilot Devices

ABB offers a complete range of 22 mm Pushbuttons, Emergency Stops, Selector Switches and Signaling Units. These are complemented with Enclosures and a wide range of

Accessories. ABB offers high performing, robust and easy to install products, providing cost efficient solutions for our customers. ABB Pilot Devices are suitable for a wide variety of industrial environments, indoor as well as outdoor.

Made for Tough Industrial Environments

Our Pilot Device ranges feature a heavy-duty design, suitable for tough environments, and meet all major global industrial standards and approvals. Our entire Compact Range and selected parts of the Modular range features IP69K protection degree demanded in many industries such as cement and food & beverage. Whatever the application, you can feel confident that ABB Pilot Devices will do the job.

Worldwide Availability

ABB is represented in over 130 countries, giving our products world wide availability.





Pilot Devices Offering

ABB Pilot Devices offers both a Modular and Compact Range of Pushbuttons. Both feature the same front-of-panel design and appear consistent when combined.

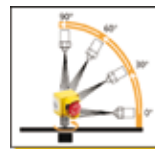
- The Modular Range, features a wide range of operators that can be combined with high flexibility. The unique snap-on design promotes simple and fast assembly.
- The Compact Range features an all-in-one construction and rugged design for added simplicity and ease of installation.

IP67 - IP69K

ABB's entire Compact Range, and selected devices from the Modular Range, are approved IP67 and IP69K. This means that the products are designed to withstand periodic submersion, as well as high pressure, high temperature spraydown.

Wiping Action

The Contact Blocks for both compact and modular devices feature self-cleaning contacts per a built-in wiping action. Upon operation, the moving contact rolls over and slides sideways when touching the fixed contact. This feature ensures a good, clean contact even in applications of seldom or periodic use.



IP69K: High pressure, high temperature spraydown at multiple angles and rotation.



IP67: Submersion to one meter for 30 minutes.



L-Mark - Makes customer-specific marking easy

A new system for custom marking our Pilot Devices is now available. In addition to engraving Legend Plates, ABB can now laser engrave our entire Pilot Device offering as well.

The customer will receive a reference number for their specified marking from the L-Mark web page, where it also will be saved, making reordering simple and ensuring that our customers receive their preferred marking every time they order.

It's now possible to create a customer-specific marking online using our five step marking tool:

Visit: <http://bolservices.it.abb.com/pilot-devices>

- Step 1 Find your product by typing the type or Order Code.
- Step 2 Choose between text or symbol marking.
- Step 3 Choose your preferred marking layout.
- Step 4 Type marking or choose any of our 3000 symbols including the ISO 7000 library.
- Step 5 Order the product by the Order Code + ref. code provided on the site. Example:
Order Code: 1SFA 611 130 L1101
(Order Code always with a L instead of a R)
Type code: MPD1-11R-L
Reference number: MUE979



Emergency Stops award winning design



ABB Emergency Stops

Choosing the right Emergency Stop device is vital in order to increase the safety for your personnel and equipment. ABB has a very wide range of Emergency Stops which all fulfill the IEC 60947-5-5 standard for Emergency Stop devices.

Best product award

Our Emergency Stop series was awarded "Best Product" by the well-known magazine P&A, in the category "Ex-shutz & sicherheit" voted by the magazine's readers.

Modular Range - see page 18

Includes operators, holders, Contact Blocks, LED Blocks and Accessories that can be combined with high flexibility.

Compact Range - see page 47

Features an all-in-one design.

Accessories:

- Emergency Stop Shroud
- Enclosures
- Legend Plates



Pilot Devices overview

Modular Range Pilot Devices, 22 mm



Pushbuttons
see page 11



Double Pushbuttons
see page 13



Mushroom Pushbuttons
see page 16



Selector Switches
see page 20



Key operated Selector Switches
see page 26



Pilot Lights
see page 29



Toggle Switches
see page 30



Joysticks
see page 31



Machine Stops - see page 19



Emergency Stops - see page 18



Enclosures and Stations

See page 57



Signal Towers and Signal Beacons

See page 77



Compact Range Pilot Devices, 22 mm



Pushbuttons
see page 45



Illuminated Pushbutton
see page 48



Pilot Lights with integrated LED
see page 50



Pilot Lights with BA 9s socket
see page 51



Selector Switches
see page 46



Machine Stops
see page 47



Emergency Stops
see page 47



Mushrooms
see page 49

Additional products



Extreme Duty Pushbuttons
see page 17



Buzzers
see page 27



Potentiometers
see page 27



Reset Pushbuttons
see page 28

Accessories

Modular Range – see page 32
Compact Range – see page 52
Legend Plates – see page 67



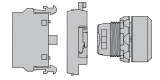
Pilot Devices, 30 mm

See page 36 (adaptors)



Pilot Devices, 22 mm modular range

Modular Range



The Modular Range is our widest range of Operators with solutions for almost every need and with market leading electrical ratings.

General construction

- Unique snap on Contact Blocks.
- Simple mounting without tools.
- One of the widest range of integrated LED Bulbs
- Same front design as Compact Range
- Up to 6 Contact Blocks (8 joystick)

Product features

- Suitable in the toughest environments IP 66, (67 & 69K).
- Wiping action gives high performance with low energies.
- cULus/NEMA Type 1,3R,4,4X,12,13
- Unique wide range of integrated LED Bulbs.
- Direct opening action of N.C. Contact.

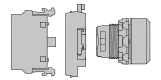
Operators

- Pushbuttons (illuminated & non illuminated).
- Emergency Stops (twist, pull & key release).
- Machine Stops (twist, pull & key release).
- Selector Switches (2 & 3 position).
- Key Switches.
- Mushrooms.
- Joysticks.
- Toggle Switches.
- Extreme Duty Pushbuttons.
- Double Pushbuttons.

Pilot Lights

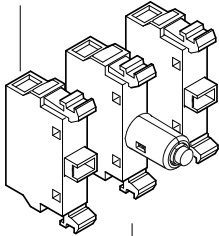
- Integrated LED (wide range of voltages).
- BA9s base for Filament Bulb or LED.

Modular Range mounting



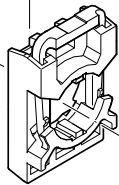
Contact Block

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.



Nut



Legend Plates

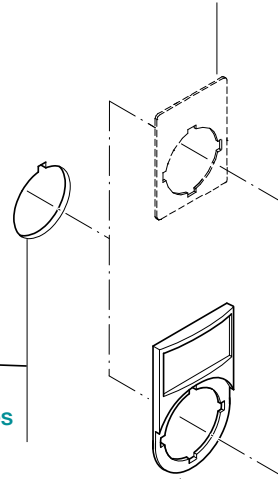
Of Aluminum with slots that guide the Legend Plate and the operator into the correct position. Please, see the chapter 'Legend Plates' for more information.

LED/Lamp Block

Illuminated Pushbuttons, illuminated Selector Switches and Pilot Lights have a Lamp Block in the center position of the holder.

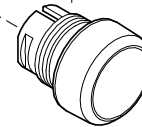
Round or notched holes

Same actuator can be used in notched holes as well as in round holes.



Operator

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



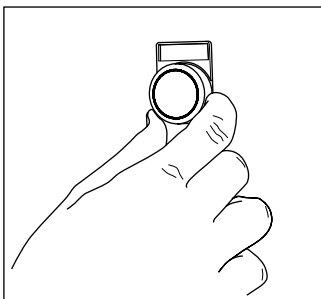
Legend Plate Holder

Of Black Plastic. Insert of brushed Aluminum. Please, see the chapter 'Legend Plates' for more information.

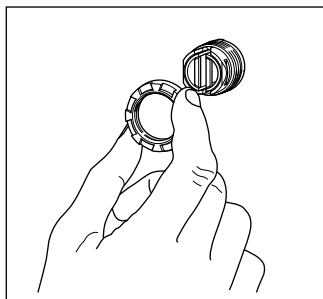
Bezels

Pushbuttons, Selector Switches and Toggle Switches with bezel in Black Plastic, chrome plastic or Chrome Metal are available.

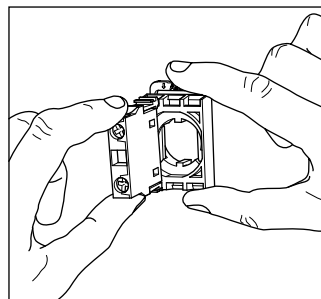
Easy to install



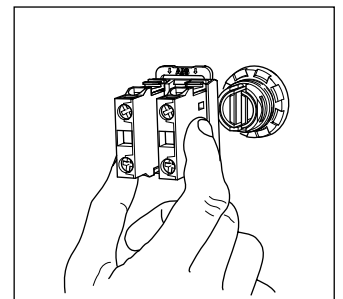
The operator is to be inserted from the front...



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

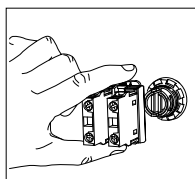
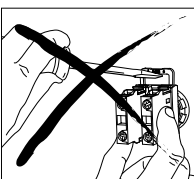


The Contact Blocks/Lamp Block are then snapped on to the holder...



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

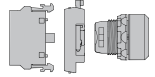
...and to remove



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

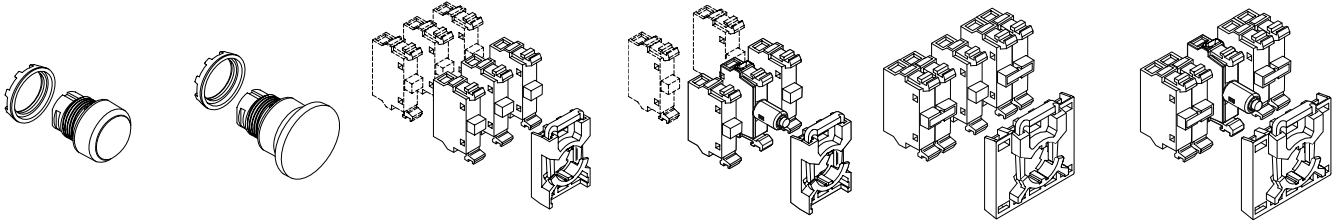
Modular Range contact block combinations

Modular Range

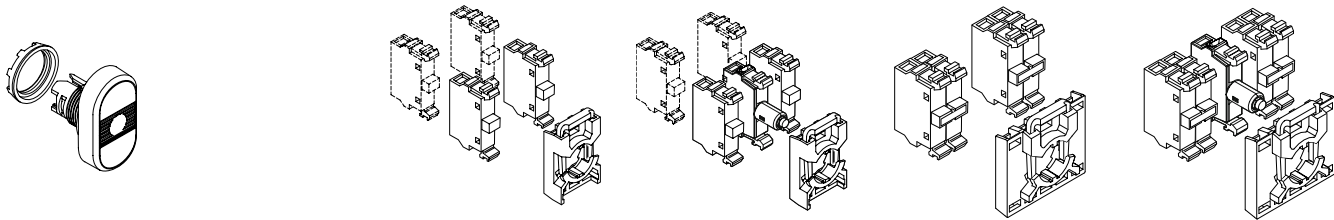


Pushbuttons

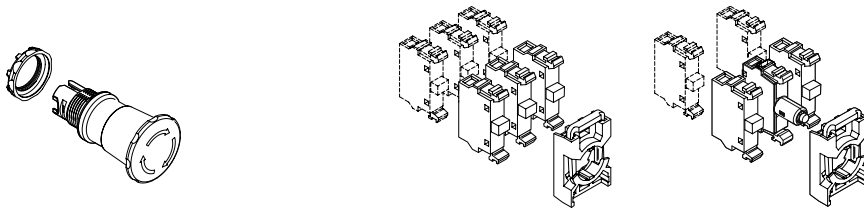
Mushroom Pushbuttons



Double Pushbuttons



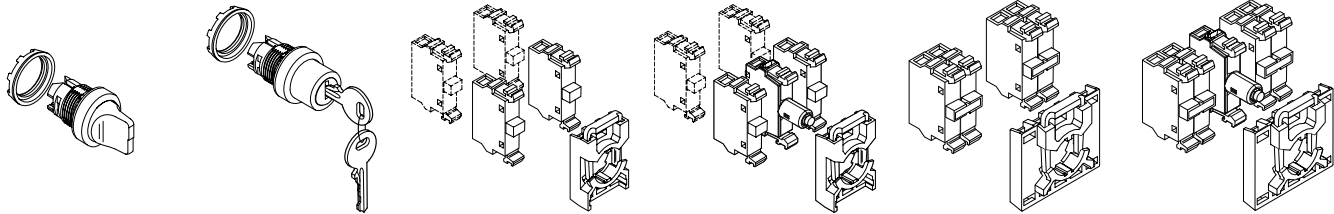
Emergency Stop Pushbuttons



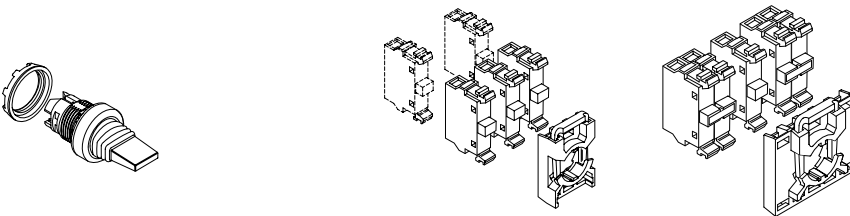
Selector Switches

Key-operated Selector Switches

Note: Selector Switches with operation of center position available on page 22



Toggle Switches

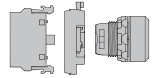


Pilot Lights



Flush and Extended Pushbuttons non-illuminated, momentary and maintained

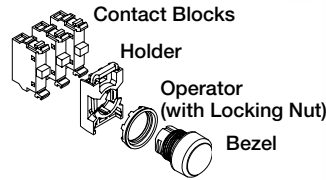
Modular Range



How to order:

Alt.1 • Operator
+ Holder
+ Contact Block(s)

Alt.2 • Operator
+ Holder with Contact Block(s)



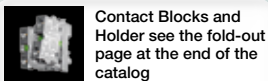
Non-illuminated Flush Pushbutton with Black Plastic Bezel



Non-illuminated Extended Pushbutton with Black Plastic Bezel

Operator: Pushbutton

Description	Black Plastic Bezel		Chrome Metal Bezel		Weight Kg
	Catalogue No.	List Price	Catalogue No.	List Price	
Flush Pushbutton					
Momentary					
● Red	MP1-10R		MP1-30R		0.016
● Green	MP1-10G		MP1-30G		0.016
● Yellow	MP1-10Y		MP1-30Y		0.016
● Blue	MP1-10L		MP1-30L		0.016
○ White	MP1-10W		MP1-30W		0.016
● Black	MP1-10B		MP1-30B		0.016
○ Clear	MP1-10C		MP1-30C		0.016
Set of 6 color caps	MP1-10M		MP1-30M		0,020
Maintained					
● Red	MP2-10R		MP2-30R		0.016
● Green	MP2-10G		MP2-30G		0.016
● Yellow	MP2-10Y		MP2-30Y		0.016
● Blue	MP2-10L		MP2-30L		0.016
○ White	MP2-10W		MP2-30W		0.016
● Black	MP2-10B		MP2-30B		0.016
○ Clear	MP2-10C		MP2-30C		0.016
Extended Pushbutton					
Momentary					
● Red	MP3-10R		MP3-30R		0.016
● Green	MP3-10G		MP3-30G		0.016
● Yellow	MP3-10Y		MP3-30Y		0.016
● Blue	MP3-10L		MP3-30L		0.016
○ White	MP3-10W		MP3-30W		0.016
● Black	MP3-10B		MP3-30B		0.016
○ Clear	MP3-10C		MP3-30C		0.016
Set of 6 color caps	MP3-10M		MP3-30M		0,020
Maintained					
● Red	MP4-10R		MP4-30R		0.016
● Green	MP4-10G		MP4-30G		0.016
● Yellow	MP4-10Y		MP4-30Y		0.016
● Blue	MP4-10L		MP4-30L		0.016
○ White	MP4-10W		MP4-30W		0.016
● Black	MP4-10B		MP4-30B		0.016
○ Clear	MP4-10C		MP4-30C		0.016



Contact Blocks and Holder see the fold-out page at the end of the catalog

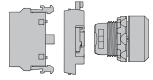


Customer specific marking online. For more information see page 4 or go to:

<http://bolservices.it.abb.com/pilot-devices>

Flush and Extended Pushbuttons illuminated, momentary and maintained

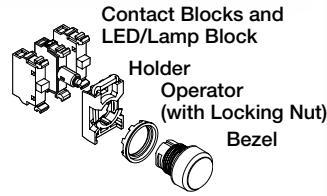
Modular Range



How to order:

- Alt.1**
- Operator
 - + Holder
 - + Contact Block(s)
 - + LED/Lamp Block

- Alt.2**
- Operator
 - + Holder with Contact Block(s) and Lamp Block



Illuminated Flush Pushbutton with Black Plastic Bezel



Illuminated Extended Pushbutton with Black Plastic Bezel

Operator: Pushbutton

Description	Black Plastic Bezel		Chrome Metal Bezel		Weight Kg
	Catalogue No.	List Price	Catalogue No.	List Price	
Flush Pushbutton (Light Bulb max 2 W, not included)					
Momentary					
● Red	MP1-11R		MP1-31R		0,016
● Green	MP1-11G		MP1-31G		0,016
● Yellow	MP1-11Y		MP1-31Y		0,016
● Blue	MP1-11L		MP1-31L		0,016
○ White	MP1-11W		MP1-31W		0,016
○ Clear	MP1-11C		MP1-31C		0,016
Set of 6 color caps	MP1-11M		MP1-31M		0,020
Maintained					
● Red	MP2-11R		MP2-31R		0,016
● Green	MP2-11G		MP2-31G		0,016
● Yellow	MP2-11Y		MP2-31Y		0,016
● Blue	MP2-11L		MP2-31L		0,016
○ White	MP2-11W		MP2-31W		0,016
○ Clear	MP2-11C		MP2-31C		0,016
Extended Pushbutton (Light Bulb max 2 W, not included)					
Momentary					
● Red	MP3-11R		MP3-31R		0,016
● Green	MP3-11G		MP3-31G		0,016
● Yellow	MP3-11Y		MP3-31Y		0,016
● Blue	MP3-11L		MP3-31L		0,016
○ White	MP3-11W		MP3-31W		0,016
○ Clear	MP3-11C		MP3-31C		0,016
Set of 6 color caps	MP3-11M		MP3-31M		0,020
Maintained					
● Red	MP4-11R		MP4-31R		0,016
● Green	MP4-11G		MP4-31G		0,016
● Yellow	MP4-11Y		MP4-31Y		0,016
● Blue	MP4-11L		MP4-31L		0,016
○ White	MP4-11W		MP4-31W		0,016
○ Clear	MP4-11C		MP4-31C		0,016



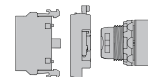
Contact Blocks and Holder see the fold-out page at the end of the catalog



Customer specific marking online. For more information see page 4 or go to:
<http://bolservices.it.abb.com/pilot-devices>

Double Pushbuttons non-illuminated

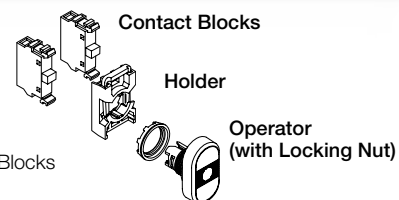
Modular Range



How to order:

Alt.1 • Operator
+ Holder
+ Contact Blocks

Alt.2 • Operator
+ Holder with Contact Blocks



Double Pushbutton,
non-illuminated



Double Pushbutton,
non-illuminated



Legend Plate Holder

Operator: Double Pushbutton

Upper Button	Lower Button	Catalogue No.	List Price	Weight Kg
Flush Pushbuttons				
● Green	● Red			
No text	No text	MPD1-11B		0.025
I	O	MPD2-11B		0.025
ON	OFF	MPD3-11B		0.025
START	STOP	MPD4-11B		0.025
○ White	● Black			
No text	No text	MPD5-11B		0.025
With customer selected text		MPD5-11B-L		0.025

Extended Lower Pushbutton

● Green	● Red			
No text	No text	MPD12-11B		0.025
I	O	MPD13-11B		0.025
ON	OFF	MPD14-11B		0.025
START	STOP	MPD15-11B		0.025
○ White	● Black			
No text	No text	MPD16-11B		0.025
With customer selected text		MPD16-11B-L		0.025

Legend Plate Holder

Legend Plate Holder	MA1-8139		0.003
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Contact Blocks and Holder see the fold-out page at the end of the catalog

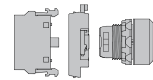


Customer specific marking online. For more information see page 4 or go to:

<http://bolservices.it.abb.com/pilot-devices>

Double Pushbuttons illuminated

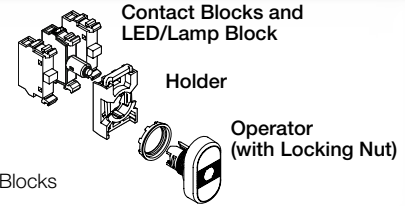
Modular Range



How to order:

- Alt.1** • Operator
+ Holder
+ Contact Blocks
+ LED/Lamp Block

- Alt.2** • Operator
+ Holder with Contact Blocks
and Lamp Block



Double Pushbutton,
illuminated



Double Pushbutton,
illuminated

Operator: Double Pushbutton

Upper Button	Lower Button	Catalogue No.	List Price	Weight Kg
Flush Pushbutton				
Red Indicator Light				
● Green	● Red			
No text	No text	MPD1-11R		0.025
I	O	MPD2-11R		0.025
ON	OFF	MPD3-11R		0.025
START	STOP	MPD4-11R		0.025
○ White	● Black			
No text	No text	MPD5-11R		0.025
With customer selected text		MPD5-11R-L		0.025
Green Indicator Light				
● Red				
No text	No text	MPD1-11G		0.025
I	O	MPD2-11G		0.025
ON	OFF	MPD3-11G		0.025
START	STOP	MPD4-11G		0.025
○ White	● Black			
No text	No text	MPD5-11G		0.025
With customer selected text		MPD5-11G-L		0.025
Yellow Indicator Light				
● Green	● Red			
No text	No text	MPD1-11Y		0.025
I	O	MPD2-11Y		0.025
ON	OFF	MPD3-11Y		0.025
START	STOP	MPD4-11Y		0.025
○ White	● Black			
No text	No text	MPD5-11Y		0.025
With customer selected text		MPD5-11Y-L		0.025
Clear Indicator Light				
● Green	● Red			
No text	No text	MPD1-11C		0.025
I	O	MPD2-11C		0.025
ON	OFF	MPD3-11C		0.025
START	STOP	MPD4-11C		0.025
○ White	● Black			
No text	No text	MPD5-11C		0.025
With customer selected text		MPD5-11C-L		0.025



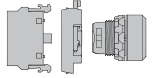
Contact Blocks and Holder see the fold-out page at the end of the catalog



Customer specific marking online. For more information see page 4 or go to:
<http://bolservices.it.abb.com/pilot-devices>

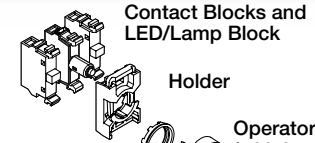
Double Pushbuttons illuminated

Modular Range

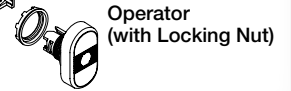


How to order:

- Alt.1**
- Operator
 - + Holder
 - + Contact Blocks
 - + LED/Lamp Block



- Alt.2**
- Operator
 - + Holder with Contact Blocks and Lamp Block



Double Pushbutton with Extended Lower Button, illuminated

Operator: Double Pushbutton

Upper Button	Lower Button	Catalogue No.	List Price	Weight Kg
Extended Lower Button				
Red Indicator Light				
● Green	● Red			
No text	No text	MPD12-11R		0.025
I	O	MPD13-11R		0.025
ON	OFF	MPD14-11R		0.025
START	STOP	MPD15-11R		0.025
○ White	● Black			
No text	No text	MPD16-11R		0.025
With customer selected text		MPD16-11R-L		0.025
Green Indicator Light				
● Green	● Red			
No text	No text	MPD12-11G		0.025
I	O	MPD13-11G		0.025
ON	OFF	MPD14-11G		0.025
START	STOP	MPD15-11G		0.025
○ White	● Black			
No text	No text	MPD16-11G		0.025
With customer selected text		MPD16-11G-L		0.025
Yellow Indicator Light				
● Green	● Red			
No text	No text	MPD12-11Y		0.025
I	O	MPD13-11Y		0.025
ON	OFF	MPD14-11Y		0.025
START	STOP	MPD15-11Y		0.025
○ White	● Black			
No text	No text	MPD16-11Y		0.025
With customer selected text		MPD16-11Y-L		0.025
Clear Indicator Light				
● Green	● Red			
No text	No text	MPD12-11C		0.025
I	O	MPD13-11C		0.025
ON	OFF	MPD14-11C		0.025
START	STOP	MPD15-11C		0.025
○ White	● Black			
No text	No text	MPD16-11C		0.025
With customer selected text		MPD16-11C-L		0.025



Contact Blocks and Holder see the fold-out page at the end of the catalog

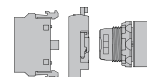


Customer specific marking online. For more information see page 4 or go to:

<http://bolservices.it.abb.com/pilot-devices>

Mushroom Pushbuttons non-illuminated and illuminated

Modular Range

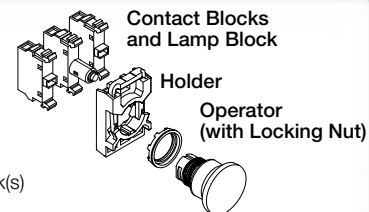


How to order non-illuminated:

- Alt.1** • Operator
+ Holder
+ Contact Block(s)
- Alt.2** • Operator
+ Holder with Contact Block(s)

How to order illuminated:

- Alt.1** • Operator
+ Holder
+ Contact Block(s)
+ LED/Lamp Block
- Alt.2** • Operator
+ Holder with Contact Block(s)
and Lamp Block



Mushroom Pushbuttons,
non-illuminated



Mushroom Pushbuttons,
illuminated

Operator: Mushroom Pushbutton

Description	Catalogue No.	List Price	Weight Kg
Non-illuminated			
Ø 40 mm			
● Red	MPM1-10R		0.018
● Green	MPM1-10G		0.018
● Yellow	MPM1-10Y		0.018
● Black	MPM1-10B		0.018
Ø 60 mm			
● Red	MPM2-10R		0.020
● Yellow	MPM2-10Y		0.020
● Black	MPM2-10B		0.020

Illuminated (Light Bulb max 2 W, not included)

Ø 40 mm			
● Red	MPM1-11R		0.018
● Green	MPM1-11G		0.018
● Yellow	MPM1-11Y		0.018
Ø 60 mm			
● Red	MPM2-11R		0.020
● Yellow	MPM2-11Y		0.020



Contact Blocks and Holder see the fold-out page at the end of the catalog

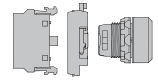


Customer specific marking online. For more information see page 4 or go to:

<http://bolservices.it.abb.com/pilot-devices>

Extreme Duty Pushbuttons for 30 mm mounting hole

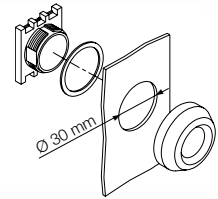
Modular Range



How to order

- Operator
- + Contact Block(s)

Mounting



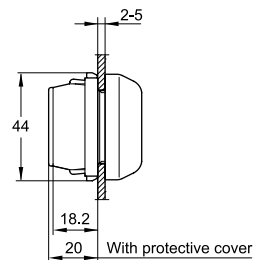
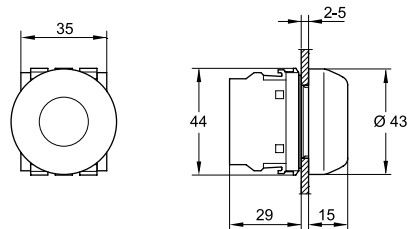
Operator: Extreme Duty Pushbutton

The Extreme Duty Pushbutton, for 30 mm hole, is a robust and compact Pushbutton for use in cold, hot, damp, oily and other tough environments. Suitable especially for hydraulic lifts, compact pendant controllers and Pushbutton stations.

Description	Included Contact Blocks	Catalogue No.	List Price	Weight Kg
● Red	-	KP6-40R		0.022
● Green	-	KP6-40G		0.022
● Black	-	KP6-40B		0.022
● Black	1 NO + 1 NC	KP6-40B-11		0.048
● Black	1 NO	KP6-40B-10		0.035
● Black	1 NC	KP6-40B-01		0.035
● Black	2 NO	KP6-40B-20		0.048
● Black	2 NC	KP6-40B-02		0.048

Contact Blocks

1 NO	MCB-10		0.013
1 NC	MCB-01		0.013



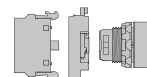
Extreme Duty Pushbuttons



Contact Blocks and Holder see the fold-out page at the end of the catalog

Emergency Stops non-illuminated and illuminated

Modular Range

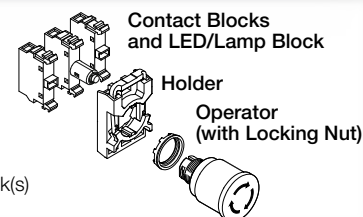


How to order non-illuminated:

- Alt.1** • Operator
+ Holder
+ Contact Block(s)
- Alt.2** • Operator
+ Holder with Contact Block(s)

How to order illuminated:

- Alt.1** • Operator
+ Holder
+ Contact Block(s)
+ LED/Lamp Block
- Alt.2** • Operator
+ Holder with Contact Block(s)
and LED/Lamp Block



Emergency Stop, pull release, non-illuminated, Ø 30 mm



Emergency Stop, key release, non-illuminated, Ø 40 mm



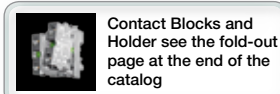
Emergency Stop, twist release illuminated, Ø 40 mm

Operator: Emergency Stop

Description	Catalogue No.	List Price	Weight Kg
Non-illuminated			
Ø 30 mm (UL508 category NISD)			
● Red Twist release	MPET3-10R		0.036
● Red Pull release	MPEP3-10R		0.036
● Red Key release code 71/Ronis 455	MPEK3-11R		0.065
● Red Key release code 72/Ronis 421	MPEK3-12R		0.065
● Red Key release code 73/Ronis 3433-E	MPEK3-13R		0.065
Ø 40 mm (UL508 category NISD)			
● Red Twist release	MPET4-10R		0.036
● Red Pull release	MPEP4-10R		0.036
● Red Key release code 71/Ronis 455	MPEK4-11R		0.065
● Red Key release code 72/Ronis 421	MPEK4-12R		0.065
● Red Key release code 73/Ronis 3433-E	MPEK4-13R		0.065
Ø 60 mm			
● Red Twist release	MPMT4-10R		0.036
● Red Pull release	MPMP4-10R		0.036
Illuminated (Bulb max 2 W, not included).			
Ø 40 mm			
● Red Twist release	MPMT3-11R		0.041
● Red Pull release	MPMP3-11R		0.041
Ø 60 mm			
● Red Twist release	MPMT4-11R		0.048
● Red Pull release	MPMP4-11R		0.048

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

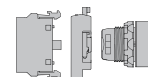
Durability test	6 050 cycles. This is not a test of mechanical life. The product has a mechanical life of 100 000 manoeuvres.	Latching test	Impulse voltage test at 2500 V
Robustness	The force 113 N applied in three axes	Resetting test	Pulling force < 50 N Turning torque < 1 Nm
Conditioning	Heat and cold, moist atmosphere, and in 5 % NaCl	Shock	15 g shock
Actuation force	Minimum 35N Maximum 80N	Vibration	2 h at 50m/s ²
		Contacts with positive opening operation	15 g shock



Contact Blocks and Holder see the fold-out page at the end of the catalog

Machine Stops non-illuminated

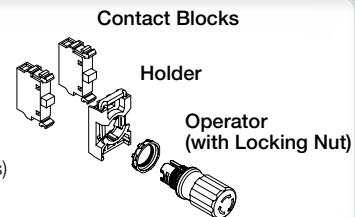
Modular Range



How to order:

Alt.1 • Operator
+ Holder
+ Contact Block(s)

Alt.2 • Operator
+ Holder with Contact Block(s)



Machine Stop,
pull release, Ø 30 mm



Machine Stop,
key release, Ø 30 mm



Machine Stop,
twist release, Ø 40 mm

Operator: Machine Stop

Description	Catalogue No.	List Price	Weight Kg
Non-illuminated			
Ø 30 mm			
● Black Twist release	MPET3-10B		0.036
● Black Pull release	MPEP3-10B		0.036
● Black Key release code 71/Ronis 455	MPEK3-11B		0.065
Ø 40 mm			
● Black Twist release	MPET4-10B		0.036
● Black Pull release	MPEP4-10B		0.036
● Black Key release code 71/Ronis 455	MPEK4-11B		0.065

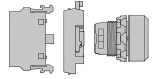


Contact Blocks and Holder see the fold-out page at the end of the catalog

Selector Switches

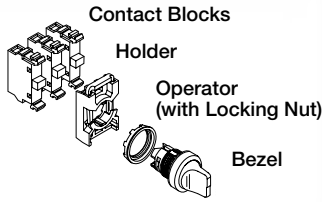
two-position, non-illuminated

Modular Range



How to order:

- Alt.1**
- Operator
 - + Holder
 - + Contact Block(s)
- Alt.2**
- Operator
 - + Holder with Contact Block(s)



Selector Switch, short handle



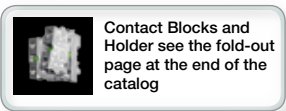
Selector Switch, long handle

Contacts actuated

	Right		
Left		Left block	Right block
Handle position			
	B	<input type="checkbox"/>	<input type="checkbox"/>
	A	<input type="checkbox"/>	<input type="checkbox"/>
	C	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	Not actuated		
<input checked="" type="checkbox"/>	Actuated		

Operator: Two-position Selector Switch

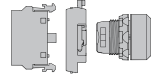
Description	Black Plastic Bezel		Chrome Metal Bezel		Weight Kg
	Catalogue No.	List Price	Catalogue No.	List Price	
Short handle					
Maintained					
	● Red	M2SS1-10R	M2SS1-30R		0.015
	● Black	M2SS1-10B	M2SS1-30B		0.015
	● Grey	M2SS1-10U	M2SS1-30U		0.015
Maintained					
	● Red	M2SS2-10R	M2SS2-30R		0.015
	● Black	M2SS2-10B	M2SS2-30B		0.015
	● Grey	M2SS2-10U	M2SS2-30U		0.015
Momentary, spring return from C to B					
	● Red	M2SS3-10R	M2SS3-30R		0.015
	● Black	M2SS3-10B	M2SS3-30B		0.015
	● Grey	M2SS3-10U	M2SS3-30U		0.015
Long handle					
Maintained					
	● Red	M2SS4-10R	M2SS4-30R		0.018
	● Black	M2SS4-10B	M2SS4-30B		0.018
	● Grey	M2SS4-10U	M2SS4-30U		0.018
Maintained					
	● Red	M2SS5-10R	M2SS5-30R		0.018
	● Black	M2SS5-10B	M2SS5-30B		0.018
	● Grey	M2SS5-10U	M2SS5-30U		0.018
Momentary, spring return from C to B					
	● Red	M2SS6-10R	M2SS6-30R		0.018
	● Black	M2SS6-10B	M2SS6-30B		0.018
	● Grey	M2SS6-10U	M2SS6-30U		0.018



Selector Switches

three-position, non-illuminated

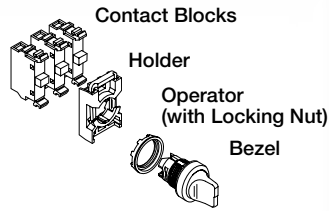
Modular Range



How to order:

Alt.1 • Operator
+ Holder
+ Contact Block(s)

Alt.2 • Operator
+ Holder with Contact Block(s)

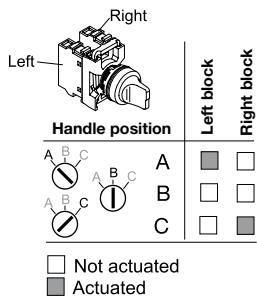


Selector Switch, short handle



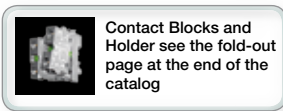
Selector Switch, long handle

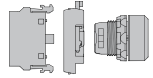
Contacts actuated



Operator: Three-position Selector Switch

Description	Black Plastic Bezel		Chrome Metal Bezel		Weight Kg
	Catalogue No.	List Price	Catalogue No.	List Price	
Short handle					
Maintained					
	● Red	M3SS1-10R		M3SS1-30R	0.015
	● Black	M3SS1-10B		M3SS1-30B	0.015
	● Grey	M3SS1-10U		M3SS1-30U	0.015
Momentary, spring return from A to B and from C to B					
	● Red	M3SS2-10R		M3SS2-30R	0.015
	● Black	M3SS2-10B		M3SS2-30B	0.015
	● Grey	M3SS2-10U		M3SS2-30U	0.015
Momentary, spring return from C to B					
	● Red	M3SS3-10R		M3SS3-30R	0.015
	● Black	M3SS3-10B		M3SS3-30B	0.015
	● Grey	M3SS3-10U		M3SS3-30U	0.015
Momentary, spring return from A to B					
	● Red	M3SS7-10R		M3SS7-30R	0.015
	● Black	M3SS7-10B		M3SS7-30B	0.015
	● Grey	M3SS7-10U		M3SS7-30U	0.015
Long handle					
Maintained					
	● Red	M3SS4-10R		M3SS4-30R	0.018
	● Black	M3SS4-10B		M3SS4-30B	0.018
	● Grey	M3SS4-10U		M3SS4-30U	0.018
Momentary, spring return from A to B and from C to B					
	● Red	M3SS5-10R		M3SS5-30R	0.018
	● Black	M3SS5-10B		M3SS5-30B	0.018
	● Grey	M3SS5-10U		M3SS5-30U	0.018
Momentary, spring return from C to B					
	● Red	M3SS6-10R		M3SS6-30R	0.018
	● Black	M3SS6-10B		M3SS6-30B	0.018
	● Grey	M3SS6-10U		M3SS6-30U	0.018
Momentary, spring return from A to B					
	● Red	M3SS8-10R		M3SS8-30R	0.018
	● Black	M3SS8-10B		M3SS8-30B	0.018
	● Grey	M3SS8-10U		M3SS8-30U	0.018



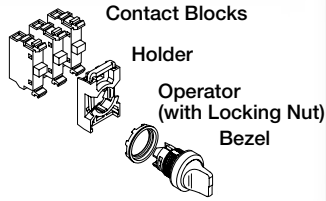


Selector Switches

three-position with operation of center position

How to order:

- Alt.1** • Operator
+ Holder
+ Contact Block(s)
- Alt.2** • Operator
+ Holder with Contact Block(s)



Selector Switch, short handle

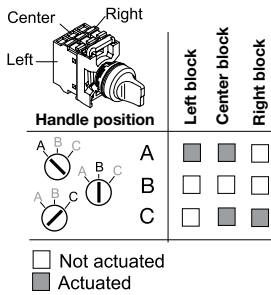


Selector Switch, long handle

Operator: Three-position Selector Switch with operation of center position

Description	Black Plastic Bezel		Chrome Metal Bezel		Weight Kg
	Catalogue No.	List Price	Catalogue No.	List Price	
Short handle					
● Black	M3SSC1-10B		M3SSC1-30B		0.015
● Black	M3SSC2-10B		M3SSC2-30B		0.015
● Black	M3SSC3-10B		M3SSC3-30B		0.015
● Black	M3SSC7-10B		M3SSC7-30B		0.015
Long handle					
● Black	M3SSC4-10B		M3SSC4-30B		0.018
● Black	M3SSC5-10B		M3SSC5-30B		0.018
● Black	M3SSC6-10B		M3SSC6-30B		0.018
● Black	M3SSC8-10B		M3SSC8-30B		0.018

Contacts actuated

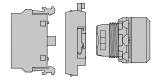


Contact Blocks and Holder see the fold-out page at the end of the catalog

Selector Switches

two-position, illuminated

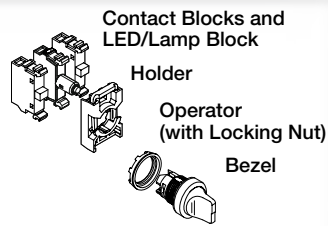
Modular Range



How to order:

- Alt.1**
- Operator
 - + Holder
 - + Contact Block(s)
 - + LED/Lamp Block

- Alt.2**
- Operator
 - + Holder with Contact Block(s) and LED/Lamp Block



Selector Switch, short handle



Selector Switch, long handle

Operator: Two-position Selector Switch (Light Bulb max 2W, not included)

Description	Black Plastic Bezel		Chrome Metal Bezel		Weight Kg
	Catalogue No.	List Price	Catalogue No.	List Price	
Short handle					
Maintained					
	● Red	M2SS1-11R	M2SS1-31R		0.015
	● Green	M2SS1-11G	M2SS1-31G		0.015
	● Yellow	M2SS1-11Y	M2SS1-31Y		0.015
	● Blue	M2SS1-11L	M2SS1-31L		0.015
	○ Clear	M2SS1-11C	M2SS1-31C		0.015
Maintained					
	● Red	M2SS2-11R	M2SS2-31R		0.015
	● Green	M2SS2-11G	M2SS2-31G		0.015
	● Yellow	M2SS2-11Y	M2SS2-31Y		0.015
	● Blue	M2SS2-11L	M2SS2-31L		0.015
	○ Clear	M2SS2-11C	M2SS2-31C		0.015
Momentary, spring return from C to B					
	● Red	M2SS3-11R	M2SS3-31R		0.015
	● Green	M2SS3-11G	M2SS3-31G		0.015
	● Yellow	M2SS3-11Y	M2SS3-31Y		0.015
	● Blue	M2SS3-11L	M2SS3-31L		0.015
	○ Clear	M2SS3-11C	M2SS3-31C		0.015
Long handle					
Maintained					
	● Red	M2SS4-11R	M2SS4-31R		0.018
	● Green	M2SS4-11G	M2SS4-31G		0.018
	● Yellow	M2SS4-11Y	M2SS4-31Y		0.018
	● Blue	M2SS4-11L	M2SS4-31L		0.018
	○ Clear	M2SS4-11C	M2SS4-31C		0.018
Maintained					
	● Red	M2SS5-11R	M2SS5-31R		0.018
	● Green	M2SS5-11G	M2SS5-31G		0.018
	● Yellow	M2SS5-11Y	M2SS5-31Y		0.018
	● Blue	M2SS5-11L	M2SS5-31L		0.018
	○ Clear	M2SS5-11C	M2SS5-31C		0.018
Momentary, spring return from C to B					
	● Red	M2SS6-11R	M2SS6-31R		0.018
	● Green	M2SS6-11G	M2SS6-31G		0.018
	● Yellow	M2SS6-11Y	M2SS6-31Y		0.018
	● Blue	M2SS6-11L	M2SS6-31L		0.018
	○ Clear	M2SS6-11C	M2SS6-31C		0.018

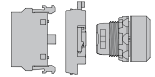


Contact Blocks and Holder see the fold-out page at the end of the catalog

Selector Switches

three-position, illuminated, short handle

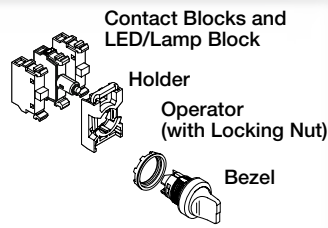
Modular Range



How to order:

Alt.1 • Operator
+ Holder
+ Contact Block(s)
+ LED/Lamp Block

Alt.2 • Operator
+ Holder with Contact Block(s)
and LED/Lamp Block

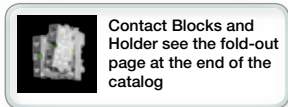
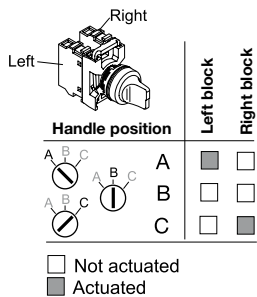


Selector Switch, short handle

Operator: Three-position Selector Switches (Light Bulb max 2W, not included)

Description	Black Plastic Bezel		Chrome Metal Bezel		Weight Kg
	Catalogue No.	List Price	Catalogue No.	List Price	
Short handle					
Maintained					
	● Red	M3SS1-11R		M3SS1-31R	0.015
	● Green	M3SS1-11G		M3SS1-31G	0.015
	● Yellow	M3SS1-11Y		M3SS1-31Y	0.015
	● Blue	M3SS1-11L		M3SS1-31L	0.015
	○ Clear	M3SS1-11C		M3SS1-31C	0.015
Momentary, spring return from A to B and from C to B					
	● Red	M3SS2-11R		M3SS2-31R	0.015
	● Green	M3SS2-11G		M3SS2-31G	0.015
	● Yellow	M3SS2-11Y		M3SS2-31Y	0.015
	● Blue	M3SS2-11L		M3SS2-31L	0.015
	○ Clear	M3SS2-11C		M3SS2-31C	0.015
Momentary, spring return from C to B					
	● Red	M3SS3-11R		M3SS3-31R	0.015
	● Green	M3SS3-11G		M3SS3-31G	0.015
	● Yellow	M3SS3-11Y		M3SS3-31Y	0.015
	● Blue	M3SS3-11L		M3SS3-31L	0.015
	○ Clear	M3SS3-11C		M3SS3-31C	0.015
Momentary, spring return from A to B					
	● Red	M3SS7-11R		M3SS7-31R	0.015
	● Green	M3SS7-11G		M3SS7-31G	0.015
	● Yellow	M3SS7-11Y		M3SS7-31Y	0.015
	● Blue	M3SS7-11L		M3SS7-31L	0.015
	○ Clear	M3SS7-11C		M3SS7-11C	0.015

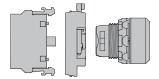
Contacts actuated



Selector Switches

three-position, illuminated, long handle

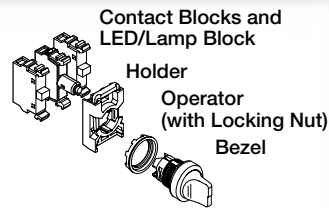
Modular Range



How to order:

- Alt.1**
- Operator
 - + Holder
 - + Contact Block(s)
 - + LED/Lamp Block

- Alt.2**
- Operator
 - + Holder with Contact Block(s) and LED/Lamp Block

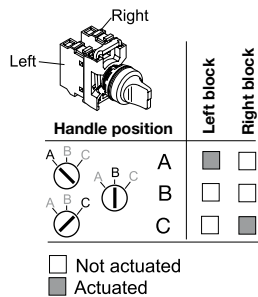


Selector Switch, long handle

Operator: Three-position Selector Switches (Light Bulb max 2W, not included)

Description	Black Plastic Bezel		Chrome Metal Bezel		Weight Kg
	Catalogue No.	List Price	Catalogue No.	List Price	
Long handle					
Maintained					
	● Red	M3SS4-11R		M3SS4-31R	0.018
	● Green	M3SS4-11G		M3SS4-31G	0.018
	● Yellow	M3SS4-11Y		M3SS4-31Y	0.018
	● Blue	M3SS4-11L		M3SS4-31L	0.018
	○ Clear	M3SS4-11C		M3SS4-31C	0.018
Momentary, spring return from A to B and from C to B					
	● Red	M3SS5-11R		M3SS5-31R	0.018
	● Green	M3SS5-11G		M3SS5-31G	0.018
	● Yellow	M3SS5-11Y		M3SS5-31Y	0.018
	● Blue	M3SS5-11L		M3SS5-31L	0.018
	○ Clear	M3SS5-11C		M3SS5-31C	0.018
Momentary, spring return from C to B					
	● Red	M3SS6-11R		M3SS6-31R	0.018
	● Green	M3SS6-11G		M3SS6-31G	0.018
	● Yellow	M3SS6-11Y		M3SS6-31Y	0.018
	● Blue	M3SS6-11L		M3SS6-31L	0.018
	○ Clear	M3SS6-11C		M3SS6-31C	0.018
Momentary, spring return from A to B					
	● Red	M3SS8-11R		M3SS8-31R	0.018
	● Green	M3SS8-11G		M3SS8-31G	0.018
	● Yellow	M3SS8-11Y		M3SS8-31Y	0.018
	● Blue	M3SS8-11L		M3SS8-31L	0.018
	○ Clear	M3SS8-11C		M3SS8-31C	0.018

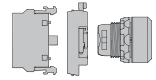
Contacts actuated



Contact Blocks and Holder see the fold-out page at the end of the catalog

Key-operated Selector Switches two and three positions

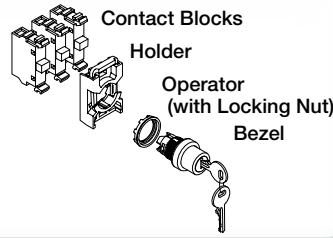
Modular Range



How to order:

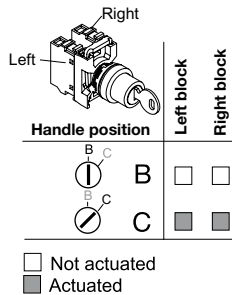
Alt.1 • Operator
+ Holder
+ Contact Block(s)

Alt.2 • Operator
+ Holder with Contact Block(s)

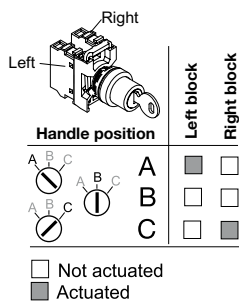


Key-operated Selector Switch

Contacts actuated



Contacts actuated



Contact Blocks and Holder see the fold-out page at the end of the catalog

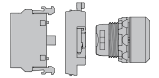
Operator: Key-operated Selector Switch

Description	Black Plastic Bezel		Chrome Metal Bezel		Weight Kg
	Catalogue No.	List Price	Catalogue No.	List Price	
Two positions					
Maintained (The key can be removed in both positions)					
Key release code 71/Ronis 455	M2SSK1-101		M2SSK1-301		0.045
Key release code 72/Ronis 421	M2SSK1-102		M2SSK1-302		0.045
Key release code 73/Ronis 3433-E	M2SSK1-103		M2SSK1-303		0.045
Random selection *)	M2SSK1-104		M2SSK1-304		0.045
Maintained (The key can be removed in position B only)					
Key release code 71/Ronis 455	M2SSK2-101		M2SSK2-301		0.045
Key release code 72/Ronis 421	M2SSK2-102		M2SSK2-302		0.045
Key release code 73/Ronis 3433-E	M2SSK2-103		M2SSK2-303		0.045
Random selection *)	M2SSK2-104		M2SSK2-304		0.045
Momentary, spring return from C to B (The key can be removed in position B only)					
Key release code 71/Ronis 455	M2SSK3-101		M2SSK3-301		0.045
Key release code 72/Ronis 421	M2SSK3-102		M2SSK3-302		0.045
Key release code 73/Ronis 3433-E	M2SSK3-103		M2SSK3-303		0.045
Random selection *)	M2SSK3-104		M2SSK3-304		0.045
Three positions					
Maintained (The key can be removed in all positions)					
Key release code 71/Ronis 455	M3SSK1-101		M3SSK1-301		0.045
Key release code 72/Ronis 421	M3SSK1-102		M3SSK1-302		0.045
Key release code 73/Ronis 3433-E	M3SSK1-103		M3SSK1-303		0.045
Random selection *)	M3SSK1-104		M3SSK1-304		0.045
Maintained (The key can be removed in position B only)					
Key release code 71/Ronis 455	M3SSK2-101		M3SSK2-301		0.045
Key release code 72/Ronis 421	M3SSK2-102		M3SSK2-302		0.045
Key release code 73/Ronis 3433-E	M3SSK2-103		M3SSK2-303		0.045
Random selection *)	M3SSK2-104		M3SSK2-304		0.045
Momentary, spring return from A to B and from C to B (The key can be removed in position B only)					
Key release code 71/Ronis 455	M3SSK3-101		M3SSK3-301		0.045
Key release code 72/Ronis 421	M3SSK3-102		M3SSK3-302		0.045
Key release code 73/Ronis 3433-E	M3SSK3-103		M3SSK3-303		0.045
Random selection *)	M3SSK3-104		M3SSK3-304		0.045
Momentary, spring return from C to B (The key can be removed in position A only)					
Key release code 71/Ronis 455	M3SSK4-101		M3SSK4-301		0.045
Key release code 72/Ronis 421	M3SSK4-102		M3SSK4-302		0.045
Momentary, spring return from C to B (The key can be removed in all positions)					
Key release code 71/Ronis 455	M3SSK5-101		M3SSK5-301		0.045
Key release code 72/Ronis 421	M3SSK5-102		M3SSK5-302		0.045
Key release code 73/Ronis 3433-E	M3SSK5-103		M3SSK5-303		0.045

*) 25 randomly picked unique key codes. (Key codes 71, 72 and 73 not included)

Potentiometers

Modular Range



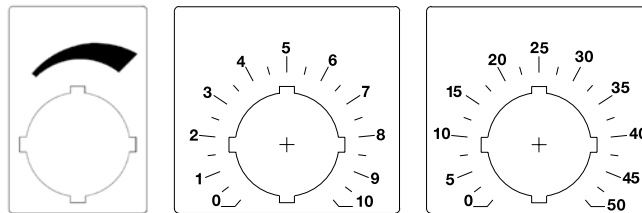
Potentiometer

Resistor Data	
Element type	Cermet
Power rating	2 W
Mechanical angle	280°
Terminals	Screw type
Insulation voltage	900 V
Operating temperature	-1 to +70 °C

Operator: Potentiometer

Description	Catalogue No.	List Price	Weight Kg
Complete Potentiometers			
Black knob with integrated position indication and marking in white			
With Resistor 5 kohm			
Black Plastic Bezel	MT-105B		0.040
Chrome Metal Bezel	MT-305B		0.048
With Resistor 10 kohm			
Black Plastic Bezel	MT-110B		0.040
Chrome Metal Bezel	MT-310B		0.048
With Resistor 50 kohm			
Black Plastic Bezel	MT-150B		0.040
Chrome Metal Bezel	MT-350B		0.048
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.			
Black Plastic Bezel	KT-100B		0.034
Chrome Metal Bezel	KT-300B		0.042
Legend Plates Aluminum			
Symbol: see fig. (29.6 x 44.5 mm)	SK 615 562-87		0.002
Scale: 0-10 (48.5 x 44.5 mm)	CBK-NPEPOT		0.002
Scale: 0-50 (48.5 x 44.5 mm)	1SFA 611 930 R1252		0.002

Legend Plates



Buzzers



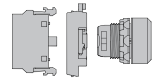
Buzzer

Operator: Buzzer

Description	Catalogue No.	List Price	Weight Kg
Buzzers			
Black. Frequency: Approx. 2400 Hz. Loudness: Min 80 dB (A)/10 cm Rated Current: < 8 mA. Service Life:>5000 h Suitable for both 50 and 60 Hz networks			
Supply Voltage	Tone Type		
24 V AC/DC	Continuous	KB1-4010	0.020
115 V AC/DC	Continuous	KB1-4030	0.020
230 V AC	Continuous	KB1-4040	0.020
24 V AC/DC	Pulsating	KB1-4110	0.020
115 V AC/DC	Pulsating	KB1-4130	0.020
230 V AC	Pulsating	KB1-4140	0.020

Reset Pushbuttons

Modular Range



How to order without shaft:

Alt.1 • Operator

How to order with shaft:

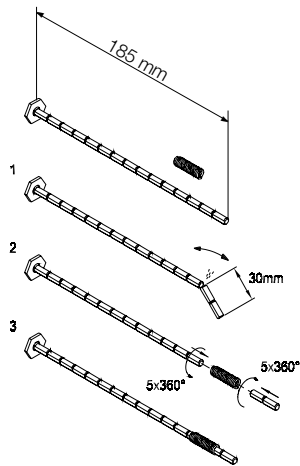
Alt.1 • Operator
+ shaft
+ flexible joint



Reset Pushbutton with shaft marked "R"

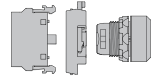
Operator: Reset Pushbutton

Description	Text	Catalogue No.	List Price	Weight Kg
Without Shaft				
Flush Pushbutton				
● Red	No text	KPR1-100R		0.020
● Green	No text	KPR1-100G		0.020
	II	KPR1-103G		0.020
● Yellow	No text	KPR1-100Y		0.020
● Blue	No text	KPR1-100L		0.020
	R	KPR1-101L		0.020
○ white	No text	KPR1-100W		0.020
	R	KPR1-101W		0.020
	I	KPR1-102W		0.020
	II	KPR1-103W		0.020
● Black	No text	KPR1-100B		0.020
	RESET	KPR1-104B		0.020
Extended Pushbutton				
● Red	No text	KPR2-100R		0.021
	O	KPR2-105R		0.021
○ white	No text	KPR2-100W		0.021
● Black	No text	KPR2-100B		0.021
	O	KPR2-105B		0.021
With Shaft				
Flush Pushbutton				
● Red	No text	KPR3-100R		0.027
● Green	No text	KPR3-100G		0.027
	II	KPR3-103G		0.027
● Yellow	No text	KPR3-100Y		0.027
● Blue	No text	KPR3-100L		0.027
	R	KPR3-101L		0.027
○ white	No text	KPR3-100W		0.027
	R	KPR3-101W		0.027
	I	KPR3-102W		0.027
	II	KPR3-103W		0.027
● Black	No text	KPR3-100B		0.027
	RESET	KPR3-104B		0.027
Extended Pushbutton				
● Red	No text	KPR4-100R		0.028
	O	KPR4-105R		0.028
○ white	No text	KPR4-100W		0.028
● Black	No text	KPR4-100B		0.028
	O	KPR4-105B		0.028
In applications with a long shaft, a flexible joint can be used to avoid damages.				
Shaft: (including fixing nut)		KA1-8046		0.007
240mm Metal Shaft: (including fixing nut and foot)		KA1-8046MR		0.010
Flexible Joint		KA1-8047		0.005



 Contact Blocks and Holder see the fold-out page at the end of the catalog

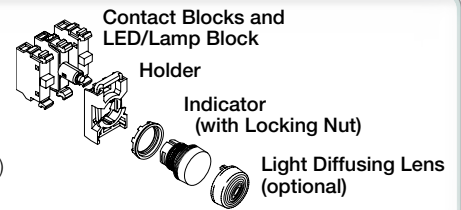
 L-Mark Customer specific marking online. For more information see page 4 or go to:
<http://bolsservices.it.abb.com/pilot-devices>



How to order:

Alt.1 • indicator
+ Holder
+ LED/Lamp Block

Alt.2 • indicator
+ Holder
+ LED/Lamp Block
+ lens: used together with LED to improve light diffusion (Cannot be used together with Text Cap)



Pilot Light

Indicator: Pilot Light

Description	Catalogue No.	List Price	Weight Kg
Pilot Lights			
● Red	ML1-100R		0,018
● Green	ML1-100G		0,018
● Yellow	ML1-100Y		0,018
● Blue	ML1-100L		0,018
○ White	ML1-100W		0,018
○ Clear	ML1-100C		0,016

Note: Light source not included. Bulbs and Lamp Blocks or LED Blocks – See Accessories

Accessories

Light Diffusing Lens	KA1-8005		0,001
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Note: Light Diffusing Lens is used to improve illumination of LED Bulbs. Cannot be used together with text cap.



Contact Blocks and Holder see the fold-out page at the end of the catalog

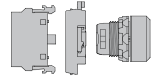


Customer specific marking online. For more information see page 4 or go to:

<http://bolservices.it.abb.com/pilot-devices>

Toggle Switches two and three positions

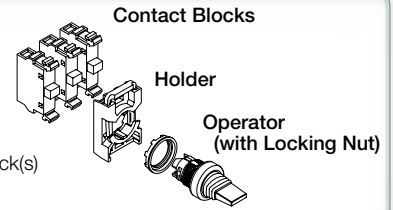
Modular Range



How to order:

- Alt.1**
- Operator
 - + Holder
 - + Contact Block(s)

- Alt.2**
- Operator
 - + Holder with Contact Block(s)



Toggle Switch

Operator: Toggle Switch

Description	Bezel	Catalogue No.	List Price	Weight Kg
Two positions				
Maintained				
	Black Plastic	MTS1-10B		0.021
	Chrome metal	MTS1-30B		0.021
Three positions				
Momentary, spring return from A to B and from C to B				
	Black Plastic	MTS2-10B		0.021
	Chrome metal	MTS2-30B		0.021
Maintained				
	Black Plastic	MTS3-10B		0.021
	Chrome metal	MTS3-30B		0.021

Contacts actuated

Handle position	Left block	Center block	Right block
 A	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
 C	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Not actuated
 Actuated

Contacts actuated

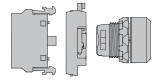
Handle position	Left block	Center block	Right block
 A	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
 B	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 C	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Not actuated
 Actuated

Contact Blocks and Holder see the fold-out page at the end of the catalog

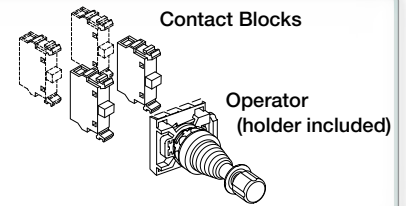
Joysticks IP67 and IP69K

Modular Range

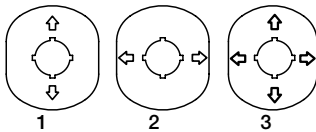


How to order:

- Operator Holder included
- + Contact Blocks



Joystick with latching function



Legend Plates



Legend Plate Holders

Operator: Joystick

Description	Catalogue No.	List Price	Weight Kg
Joystick			
2-position Maintained	MJS1-60B		0.062
2-position Momentary	MJS2-60B		0.062
4-position Maintained	MJS5-60B		0.088
4-position Momentary	MJS6-60B		0.088

Joystick with latching function

2-position Maintained	MJS7-60B		0.062
2-position Momentary	MJS8-60B		0.062
4-position Maintained	MJS11-60B		0.088
4-position Momentary	MJS12-60B		0.088

Micro Switch Blocks

1 NO	MCBL-10		0.010
1 NC	MCBL-01		0.010

Legend Plates

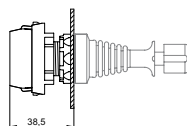
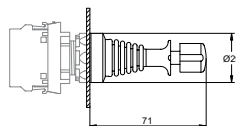
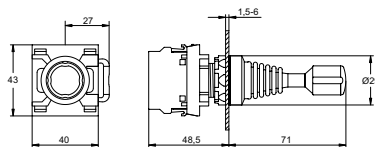
2-position (1) (up - down)	MA6-1240		0.004
2-position (2) (right - left)	MA6-1241		0.004
4-position (3)	MA6-1242		0.004

Legend Plate Holders

4-position	MA1-8137		0.004
2-position	MA1-8138		0.003

Insert with symbol

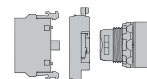
↑	MA6-1065		0.001
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Contact Blocks and Holder see the fold-out page at the end of the catalog

Accessories for Modular Range LED Blocks, front mounting

Modular Range



LED Block with built in leakage current protection

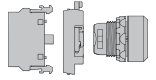
Description	Rated Current mA	Wavelength nm	Luminance mcd	Catalogue No.	List Price	Weight Kg
LED-blocks						
Rated Voltage 12 V, DC						
● Red	12.0	620	320	MLBL-00R		0.012
● Green	9.3	520	1500	MLBL-00G		0.012
● Yellow	12.0	588	380	MLBL-00Y		0.012
● Blue	9.5	468	450	MLBL-00L		0.012
○ White	9.3	²⁾	600	MLBL-00W		0.012
Rated Voltage 24 V, AC/DC						
● Red	9.9	620	250	MLBL-01R		0.012
● Green	9.2	520	1500	MLBL-01G		0.012
● Yellow	9.9	588	250	MLBL-01Y		0.012
● Blue	9.3	468	450	MLBL-01L		0.012
○ White	9.2	²⁾	600	MLBL-01W		0.012
Rated Voltage 48 V, AC/DC						
● Red	10.0	620	260	MLBL-02R		0.012
● Green	9.7	520	1500	MLBL-02G		0.012
● Yellow	10.0	588	300	MLBL-02Y		0.012
● Blue	9.7	468	450	MLBL-02L		0.012
○ White	9.7	¹⁾	600	MLBL-02W		0.012
Rated Voltage 60 V, AC/DC						
● Red	13.0	620	350	MLBL-03R		0.012
● Green	12.7	520	2000	MLBL-03G		0.012
● Yellow	13.0	588	400	MLBL-03Y		0.012
● Blue	12.7	468	550	MLBL-03L		0.012
○ White	12.7	¹⁾	750	MLBL-03W		0.012
Rated Voltage 110-130 V, AC						
● Red	8.6	620	200	MLBL-04R		0.012
● Green	8.5	520	1200	MLBL-04G		0.012
● Yellow	8.6	588	250	MLBL-04Y		0.012
● Blue	7.0	468	400	MLBL-04L		0.012
○ White	7.0	¹⁾	500	MLBL-04W		0.012
Rated Voltage 110-130 V, DC						
● Red	9.9	620	250	MLBL-05R		0.012
● Green	9.8	520	1500	MLBL-05G		0.012
● Yellow	9.9	588	300	MLBL-05Y		0.012
● Blue	9.8	468	450	MLBL-05L		0.012
○ White	9.8	¹⁾	600	MLBL-05W		0.012
Rated Voltage 220 V, DC						
● Red	8.0	620	180	MLBL-06R		0.012
● Green	8.0	520	110	MLBL-06G		0.012
● Yellow	8.0	588	200	MLBL-06Y		0.012
● Blue	8.0	468	450	MLBL-06L		0.012
○ White	8.0	¹⁾	600	MLBL-06W		0.012
Rated Voltage 230 V, AC						
● Red	9.5	620	250	MLBL-07R		0.012
● Green	9.4	520	1500	MLBL-07G		0.012
● Yellow	9.5	588	300	MLBL-07Y		0.012
● Blue	8.2	468	450	MLBL-07L		0.012
○ White	8.2	¹⁾	600	MLBL-07W		0.012

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

¹⁾ X=0.31, Y=0.32 according to the ICI Chromaticity Diagram.

Accessories for Modular Range LED Blocks, front mounting

Modular Range



LED Block with built in leakage current protection

Description	Rated Current mA	Wavelength nm	Luminance mcd	Catalogue No.	List Price	Weight Kg
LED Blocks continued						
Rated Voltage 380 V, AC						
● Red	10.2	620	250	MLBL-08R		0.012
● Green	10.2	520	1500	MLBL-08G		0.012
● Yellow	10.2	582	300	MLBL-08Y		0.012
● Blue	9.1	468	450	MLBL-08L		0.012
○ White	9,1	¹⁾	600	MLBL-08W		0.012
Rated Voltage 415 V, AC						
● Red	11.2	620	280	MLBL-09R		0.012
● Green	11.2	520	1800	MLBL-09G		0.012
● Yellow	11.2	588	350	MLBL-09Y		0.012
● Blue	9.9	468	500	MLBL-09L		0.012
○ White	9,9	¹⁾	650	MLBL-09W		0.012

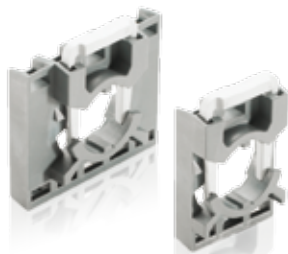
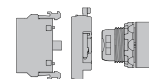
Note: Care should be taken for DC supply where + and - must be correctly connected. This is marked X1 (+) and X2 (-) on the product.

¹⁾ X=0.31, Y=0.32 according to the ICI Chromaticity Diagram.

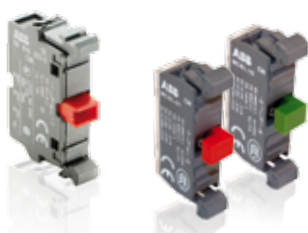
Rear mounted LED Blocks can be found on page 61 and 62.

Accessories for Modular Range contact blocks and holders

Modular Range



Holders for Contact Block



Contact Block Micro Switch Blocks



Double Contact Blocks

Description	Catalogue No.	List Price	Weight Kg
Holders			
Holders for three positions	MCBH-00		0.006
Holders for five positions*	MCBH5-00		0.008

* Note: Double Contact Blocks are required on side positions

Single Contact Blocks for front mounting			
1 NO	MCB-10		0.013
1 NO	MCB-10		0.013
1 NC	MCB-01		0.013
1 NC	MCB-01		0.013
1 NO with gold plated contacts	MCB-10G		0.013
1 NC with gold plated contacts	MCB-01G		0.013

Micro Switch Blocks			
1 NO	MCBL-10		0.010
1 NC	MCBL-01		0.010

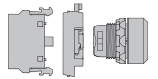
Double Contact Block for front mounting			
2 NO	MCB-20		0.026
2 NC	MCB-02		0.026
1 NO + 1 NC	MCB-11		0.026

Note: 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

Contact Blocks with Holder for front mounting			
For non-illuminated Operators			
1 NC	MCBH-01		0.019
1 NO	MCBH-10		0.019
2 NC	MCBH-02		0.032
2 NO	MCBH-20		0.032
1 NO + 1 NC	MCBH-11		0.032

Accessories for Modular Range transformer and lamp blocks

Modular Range



Transformer Block for Pilot Lights



Transformer Block for illuminated Operators

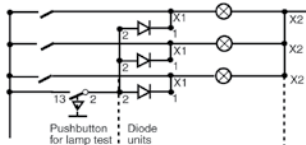


Diagram for lamp test with three Diode Blocks (not intended for integrated LED Bulbs)



Lamp Block

Description	Catalogue No.	List Price	Weight Kg
Transformer Blocks for Pilot Lights			
For 6 or 24 V Filament Bulb and 24 V LED. Max 1.2 W Filament Bulb Lamp Block included in the transformer, BA 9s base			
Primary Voltage	Secondary Voltage		
110-127 V AC	6 V AC	KTR1-1001	0.095
220-250 V AC	6 V AC	KTR1-1002	0.095
380-420 V AC	6 V AC	KTR1-1003	0.095
440-480 V AC	6 V AC	KTR1-1004	0.095
500-600 V AC	6 V AC	KTR1-1005	0.095
110-127 V AC	24 V AC ¹⁾	KTR1-1011	0.095
220-250 V AC	24 V AC ¹⁾	KTR1-1012	0.095
380-420 V AC	24 V AC ¹⁾	KTR1-1013	0.095
440-480 V AC	24 V AC ¹⁾	KTR1-1014	0.095

Transformer Blocks for illuminated Operators			
110-127 V AC	6 V AC	KTR1-2001	0.095
220-250 V AC	6 V AC	KTR1-2002	0.095
380-420 V AC	6 V AC	KTR1-2003	0.095
440-480 V AC	6 V AC	KTR1-2004	0.095
500-600 V AC	6 V AC	KTR1-2005	0.095
110-127 V AC	24 V AC ¹⁾	KTR1-2011	0.095
220-250 V AC	24 V AC ¹⁾	KTR1-2012	0.095
380-420 V AC	24 V AC ¹⁾	KTR1-2013	0.095
440-480 V AC	24 V AC ¹⁾	KTR1-2014	0.095

¹⁾ Can be used with LED Bulb

Diode Block			
Diode Block	MDB-1001		0.015

Note: 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

Single Lamp Blocks for front mounting, BA 9s base			
230 V, 2 W X1 X2	For max. 2 W, 230 V AC and DC Filament Bulb or LED	MLB-1	0.015
115 V X1 X2 60 V 1.2 W	115 V AC supply voltage. For 60 V Filament Bulb 1.2 W	MLB-2	0.017
230 V X1 X2 130 V 2 W	230 V AC supply voltage. For 130 V Filament Bulb 2 W	MLB-3	0.020
115 V X1 X2 24 V LED	115 V AC and DC supply voltage For 24 V LED only	MLB-4	0.017
LED X1 X2 24-230V	LED Block designed to prevent glowing from leakage current.	MLB-8	0.015



DIN-rail Adaptor



Dummy Block



Adaptor



Lamp Changing Tool



Mounting Tool



Mounting Tool for Power Tool



Blanking Plugs

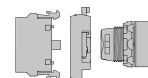


Square Bezels

Description	Catalogue No.	List Price	Weight Kg
DIN-rail Adaptor (for use with rear-mount contact and lamp blocks only)			
DIN-rail Adaptor	MA1-8131		0.020
DIN-rail (adaptor) kit with one Dummy Block	MA1-8001		0.028
Dummy Block			
Dummy Block	MDB-2		0.003
Dummy Blocks are used when only one contact block or a compact device is used together with the DIN-Rail Adaptor			
30 mm Adaptors for 22 mm Operator (1.5-4 mm panels)			
For Emergency Stop Pushbutton			
Black Plastic	KA1-8027		0.007
Metal	KA1-8028		0.021
For Pushbuttons, Selector Switches, Pilot Lights, Potentiometers and Buzzers:			
Black Plastic	KA1-8029		0.010
Metal	KA1-8030		0.035
Flush Mounted Adaptors (metal)			
For Pushbuttons	KA1-8073		0.050
For Selector Swiches	MA1-8074		0.050
Lamp Changing Tool			
For LED Bulbs and for bulbs	KA1-8072		0.002
Mounting Tool for operator			
Mounting Tool for tightening the Locking Nut	MA1-8015		0.021
Mounting Tool for Power Tool	MA1-8149		0.155
Extra key			
Ronis 455 (key code 71)	SK 616 021-71		0.007
Ronis 421 (key code 72)	SK 616 021-72		0.007
Ronis 3433-E (key code 73)	SK 616 021-73		0.007
Locking Nut			
Locking Nut	MA1-8019		0.001
The Locking nut can also be used with Compact Devices.			
Blanking Plug			
Grey	MA1-8129		0.005
Black	MA1-8130		0.005
Light grey	MA1-8136		0.005
Square Bezel			
Black, plastic	SK 616 016-2		0.001
Grey, plastic	MA1-8124		0.001

Accessories for Modular Range

Modular Range



Protective Membrane

Description	Catalogue No.	List Price	Weight Kg
Protective Membrane			
For Flush Button	KA1-8052		0.002
For Extended Button	KA1-8002		0.002
For Double Pushbutton	MA1-8126		0.002



Protective Ring



Protective Cover

Protective Ring			
Operator for Protective Ring	SK 615 512-1		0.002
Note: For flush and Extended Pushbuttons. To prevent accidental operation. Cannot be used together with Legend Plate Holder			



Bezel

Protective Cover			
Protective Cover	KA1-8010		0.008
Note: For Flush Pushbutton. To prevent accidental operation. Cannot be used together with Legend Plate Holder.			



Emergency Stop Shroud



Bezel			
For Pushbutton			
Gray plastic	KA1-8079		0.002
Black Plastic	KA1-8022		0.002
Chrome metal	KA1-8021		0.015
For Selector Switch			
Gray plastic	KA1-8077		0.001
Black Plastic	KA1-8080		0.001
Chrome metal	KA1-8024		0.010
For Reset button			
Black Plastic	KA1-8122		0.001
Chrome metal	KA1-8123		0.010



Touch Guard

Shroud for Emergency Stop			
●	Yellow	MA1-8053	0.020
●	Grey	MA1-8128	0.020



Lockable Shroud

Touch Guard (to prevent inadvertent operation)			
●	Grey	MA1-8152	0.002

Lockable Shroud			
Clear, durable plastic	MA1-8153		0.002

Accessories for Modular Range LEDS

Modular Range



LED Bulbs

Description	Wavelength nm	Luminance mcd	Catalogue No.	List Price	Weight Kg
LED Bulbs					
Rated Voltage 12 V, DC, Rated Current 15 mA, Service Life >50 000 h					
● Red	630	250	KA2-2011		0.005
● Green	525	1000	KA2-2012		0.005
● Yellow	592	250	KA2-2013		0.005
● Blue	470	450	KA2-2014		0.005
○ White	¹⁾	600	KA2-2015		0.005
Rated Voltage 24 V, (AC)/DC, Rated Current 15 mA, Service Life >50 000 h					
● Red	630	250	KA2-2021		0.005
● Green	525	800	KA2-2022		0.005
● Yellow	592	250	KA2-2023		0.005
● Blue	470	400	KA2-2024		0.005
○ White	¹⁾	500	KA2-2025		0.005
Rated Voltage 36 V, (AC)/DC, Rated Current 12 mA, Service Life >50 000 h					
● Red	630	200	KA2-2031		0.005
● Green	525	2000	KA2-2032		0.005
● Yellow	592	200	KA2-2033		0.005
● Blue	470	750	KA2-2034		0.005
○ White	¹⁾	1400	KA2-2035		0.005
Rated Voltage 48 V, (AC)/DC, Rated Current 12 mA, Service Life >50 000 h					
● Red	630	200	KA2-2041		0.005
● Green	525	1700	KA2-2042		0.005
● Yellow	592	240	KA2-2043		0.005
● Blue	470	720	KA2-2044		0.005
○ White	¹⁾	1200	KA2-2045		0.005
Rated Voltage 60 V, (AC)/DC, Rated Current 10 mA, Service Life >50 000 h					
● Red	630	160	KA2-2051		0.005
● Green	525	1400	KA2-2052		0.005
● Yellow	592	200	KA2-2053		0.005
● Blue	470	600	KA2-2054		0.005
○ White	¹⁾	1000	KA2-2055		0.005
Rated Voltage 110-130 V, AC, Rated Current 4-6 mA, Service Life 25 000 h					
● Red	630	60-100	KA2-2131		0.005
● Green	525	500-850	KA2-2132		0.005
● Yellow	592	70-120	KA2-2133		0.005
● Blue	470	220-350	KA2-2134		0.005
○ White	¹⁾	350-600	KA2-2135		0.005
Rated Voltage 110-130 V, AC/DC, Rated Current 4-6 mA, Service Life 25 000 h					
● Red	630	60	KA2-2141		0.005
● Green	525	500	KA2-2142		0.005
● Yellow	592	70	KA2-2143		0.005
● Blue	470	220	KA2-2144		0.005
○ White	¹⁾	350	KA2-2145		0.005
Rated Voltage 230 V, AC, Rated Current 4 mA, Service Life 25 000 h					
● Red	630	60	KA2-2221		0.005
● Green	525	500	KA2-2222		0.005
● Yellow	592	70	KA2-2223		0.005
● Blue	470	220	KA2-2224		0.005
○ White	¹⁾	350	KA2-2225		0.005

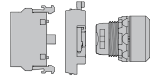
Note: Care should be taken for DC supply where + and - must be correctly connected. This is marked X1 (+) and X2 (-) on the product.

Choose the same color on the LED as on the lamp cap.

¹⁾ X=0.31, Y=0.32 according to the ICI Chromaticity Diagram.

Accessories for Modular Range LEDS and filament bulbs

Modular Range



LED Bulbs

Description	Wavelength nm	Luminance mcd	Catalogue No.	List Price	Weight Kg
LED Bulbs continued					
Rated Voltage 230 V, AC/DC, Rated Current 4 mA, Service Life 25 000 h					
● Red	630	60	KA2-2231		0.005
● Green	525	500	KA2-2232		0.005
● Yellow	592	70	KA2-2233		0.005
● Blue	470	220	KA2-2234		0.005
○ White	¹⁾	350	KA2-2235		0.005

Note: Care should be taken for DC supply where + and - must be correctly connected. This is marked X1 (+) and X2 (-) on the product.
Choose the same color on the LED as on the lamp cap.

¹⁾ X=0.31, Y=0.32 according to the ICI Chromaticity Diagram.

Flashing LED Bulbs

Rated Voltage 24 V, Rated Current 25 mA, DC

Description	Wavelength nm	Service Life hours	Catalogue No.	List Price	Weight Kg
● Red	630	50 000	4950 512-1		0.005
● Green	565	50 000	4950 512-2		0.005
● Yellow	585	50 000	4950 512-3		0.005

Note: Care should be taken for DC supply where + and - must be correctly connected. This is marked X1 (+) and X2 (-) on the product.
Choose the same color on the LED as on the lamp cap.



Filament Bulbs

Filament Bulbs BA 9s base

Rated Voltage V AC/DC	Rated Current mA	Rated Output W	Service Life h	Luminance mcd	Catalogue No.	List Price	Weight Kg
6	200	1.2	10 000	350	5911 086-11		0.002
12	100	1.2	10 000	203	5911 086-12		0.002
24	50	1.2	10 000	280	5911 086-13EA		0.002
30	40	1.2	10 000	250	5911 086-4		0.002
48	42	2	6 000	500	5911 086-5		0.002
60	20	1.2	5 000	190	5911 086-14		0.002
110	18	2	7 500	250	5911 086-7		0.002
130	15	2	7 500	120	5911 086-15		0.002

A Lamp Changing Tool is required for changing bulb.



Lamp Changing Tool

Lamp Changing Tool

For LED Bulbs and for bulbs	KA1-8072		0.002
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A Lamp Changing Tool is required for changing bulb.

Accessories for Modular Range lenses

Modular Range



Lens for Pilot Light

Description	Catalogue No.	List Price	Weight Kg
Lenses for Pilot Lights			
● Red	KA1-8031		0.02
● Green	KA1-8032		0.02
● Yellow	KA1-8033		0.02
● Blue	KA1-8034		0.02
○ White	KA1-8035		0.02
○ Clear	KA1-8038		0.02



Flush Lens

Lenses for non-Illuminated Pushbuttons			
Flush			
● Red	KA1-8081		0.015
● Green	KA1-8082		0.015
● Yellow	KA1-8083		0.015
● Blue	KA1-8084		0.015
○ White	KA1-8085		0.015
● Black	KA1-8086		0.015
● Grey	KA1-8087		0.015
○ Clear	KA1-8088		0.015



Extended Lens

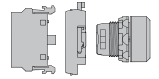
Extended			
● Red	KA1-8091		0.025
● Green	KA1-8092		0.025
● Yellow	KA1-8093		0.025
● Blue	KA1-8094		0.025
○ White	KA1-8095		0.025
● Black	KA1-8096		0.025
● Grey	KA1-8097		0.025
○ Clear	KA1-8098		0.025

Lenses for Illuminated Pushbuttons			
Flush			
● Red	KA1-8101		0.015
● Green	KA1-8102		0.015
● Yellow	KA1-8103		0.015
● Blue	KA1-8104		0.015
○ White	KA1-8105		0.015
○ Clear	KA1-8108		0.015
Extended			
● Red	KA1-8111		0.025
● Green	KA1-8112		0.025
● Yellow	KA1-8113		0.025
● Blue	KA1-8114		0.025
○ White	KA1-8115		0.025
○ Clear	KA1-8118		0.025

Technical Data

modular range

Modular Range



Standards and Approvals	
IEC / EN 60947-1	Low-Voltage Switchgear and Controlgear - Part 1: General rules
IEC / EN 60947-5-1	Low-Voltage Switchgear and Controlgear - Part 5-1: Control circuit devices and switching elements - Electromechanical control circuit devices
IEC / 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
IEC / EN 60073	Basic and safety principles for man-machine interface, marking and identification - Coding principles for indicators and actuators
IEC / 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
DIN 40050-9	Road vehicles; Degrees of Protection (IP-code); protection against foreign objects; water and contact; electrical equipment
UL 508	Industrial Control Equipment
CSA C22.2 No 14	Industrial Control Equipment

Environmental Data		
Degrees of Protection		
Operators	IEC/EN DIN	UL/CSA
Pushbutton: MP *	IP66	Type 1, 3R, 4, 4X, 12, 13
Double Pushbutton: MPD *	IP66	Type 1, 3R, 4, 4X, 12, 13
Mushroom Pushbutton: MPM *	IP66	Type 1, 3R, 4, 4X, 12, 13
Emergency Stop: MPMT/P *	IP66	Type 1, 3R, 4, 4X, 12, 13
Selector Switch: M2SS/M3SS *	IP66	Type 1, 3R, 4, 4X, 12, 13
Key-operated Selector Switch: M2SSK/M3SSK *	IP66	Type 1, 3R, 4, 4X, 12
Toggle Switch: MTS2/MTS3 *	IP66	Type 1, 3R, 4, 4X, 12, 13
Extreme Duty Pushbutton: KP6	-	Type 1, 3R, 4, 4X
Reset Pushbutton: KPR *	IP 66	Type 1, 3R, 4, 4X, 12, 13
Joystick: MJS	IP66, 67, 69K	Type 1, 4X (indoor), 12, 13
Pilot Lights: ML	IP66	Type 1, 3R, 4, 4X, 12, 13
Buzzer: KB	IP65	Type 4X
Potentiometer: KT *	IP66	Type 1, 3R, 4, 4X, 12, 13
Contact Block and Transformer Block	IP20	-
Plastic Enclosures	IP66	Type 1, 3R, 4, 4X, 12, 13
Temperature		
Ambient temperature during operation	-25 to +70 °C	
Storage temperature	-40 to +85 °C	

* With Chrome Plastic Bezel IP66 Type 1, 12, 13

Please note that specified degree of protection is for operator mounted on panel. If other items are mounted in between, please make sure that they are correctly sealed.

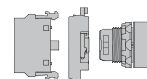
Technical Data	
Terminals	
Plus-minus Pozidriv No.2 screw with DIN-washer.	
Connectable Area	min. 1 x 0.5 mm ² /AWG 20 max. 2 x 2.5 mm ² /2 x AWG14
Tightening Torque	
Operators Locking Nut	Min. 2 Nm / Max. 2.3 Nm
Cable Terminals	0.9 Nm
Material	
No ozone depleting substances in the products. All front of panel plastic components are made of polycarbonate	
PC Polycarbonate	High impact strength, good outdoor resistance. Chemical resistance (see table below)
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.

Chemical Resistance for Polycarbonate	
Chemical Class	Effects
Acids	No significant effect under most typical conditions of concentration and temperature
Alcohols and Alkalis	Generally compatible at low concentration and room temperature. Higher concentrations and elevated temperatures can result in etching and attack evidenced by decomposition.
Aliphatic Hydrocarbons	Generally compatible
Amines	Surface crystallization and chemical attack. Avoid.
Aromatic Hydrocarbons	Partial solvents and severe stress cracking agents (i.e., xylene, toluene). Avoid.
Detergents and Cleaners	Mild soap solutions are generally compatible. Strong alkaline materials should be avoided.
Esters	Cause severe crystallization. Partial solvents. Avoid.
Greases and Oils	Pure petroleum types generally compatible. Many additives used with them are not.
Halogenated Hydrocarbons	Solvents. Avoid.
Ketones	Cause severe crystallization and stress cracking. Partial solvents. Avoid.
Silicone Oil and Greases	Generally compatible up to 85 °C.

Technical Data

modular range

Modular Range



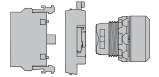
Electrical Data			
Standard Contact Blocks			
Self cleaning silver contacts, NC contact with positive opening. At voltages and currents below 24 V and 5.6 mA we recommend our Micro Switch Blocks.			
Ratings as per IEC 60947-5-1			
Rated Insulation Voltage, U_i		690 V	
Rated Thermal Current, I_{th}		10 A	
Rated Operational Current, I_o Utilization category AC 15,	at: 120 V at: 230 V at: 400 V at: 690 V	8 A 6 A 4 A 2 A	
Rated Operational Current, I_o utilisation category DC 13,	at: 24 V at: 125 V at: 250 V	5 A 1.1 A 0.55 A	
Ratings as per UL, CSA, NEMA		A600 AC	Q600 DC
Rated Insulation Voltage		600 V	600 V
Rated Thermal Current		10 A	2.5 A
Rated Operational Current	at: 120 V at: 240 V at: 480 V at: 600 V	6 A 3 A 1.5 A 1.2 A	at: 125 V 0.55 A at: 250 V 0.27 A at: 480 V 0.10 A at: 600 V 0.10 A
Contact Resistance	< 25 mΩ		
Compulsory Function Test	at: 5V, 16 mA		
Max. number of Contact Blocks per Operator			
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.			
Pushbutton, Toggle Switch, Mushroom Pushbutton, Double Pushbutton, Selector Switch, Key-operated Selector Switch and Emergency Stop Operator			6
Joystick			8
Short Circuit Protection			
Max. fuse at 1 kA			10 A
Diagram for Make-and-Break Contact			
NC -1 - 2			
NO -3 - 4			
	■ = Closed contact		
Micro Switch Block / Ratings as per IEC 60947-5-1			
Rated Insulation Voltage, U_i		125 V	
Rated Thermal Current, I_{th}		3 A	
Rated Operational Current, I_o utilisation category AC 14,	at: 125 V	0.5 A	
Rated Operational Current, I_o utilisation category DC 13,	at: 24 V	0.3 A	
Rated Operational Current, I_o utilisation category DC 12,	at: 24 V	0.1 A	
Minimum Switching Capacity			
Standard Contact Blocks	24 V DC	5.6 mA	
Gold plated Contact Blocks	5 V DC	12 mA	
	12 V DC	1 mA	
Micro Switch Blocks	3 V DC	1 mA	
Ratings as per UL 508	125 V AC	3 A	
CSA C22.2 No 14	60 V DC	0.2 A	
	48 V DC	0.1 A	

Mechanical Data		
Mechanical Life		
Standard Contact Blocks		10 million operations
Pushbuttons, Momentary Mushroom Pushbutton		2 million operations
Selector Switches		500 000 operations
Present standard (no operation of center contact)		
With operation of center contact		250 000 operations
		150 000 operations
Maintained Mushroom Pushbutton, Key-operated Selector Switch and Double Pushbutton		500 000 operations
Emergency Stop		100 000 operations
Toggle Switch		1 million operations
Joystick		500 000 operations
		400 000 operations
		300 000 operations

Technical Data

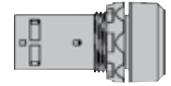
modular range

Modular Range



Lamp Block ratings as per IEC 60 947-5-1	
Rated Insulation Voltage	230 V
Base	BA 9s
Permissible power, up to	2 W
Transformer Block	
Suitable for Filament Bulb 6 or 24 V AC, 1.2 W and LED 24 V.	
Rated Power	1.5 W
Rated Insulation Voltage acc. to IEC 70 °C (DT)	Class E

LED Bulbs	
Service Life for LED Bulbs means number of service hours until the brightness has been reduced down 50 %. Service Life 50 000 h	
Color of white LED	x=0.31 Y=0.32 means the position of color in the ICI Chromaticity Diagram
Voltage Tolerance on LED Bulbs	-30 to +10 % voltage is acceptable without affecting the Service Life
Voltage Peaks on LED Bulbs	Voltage Peaks up to 1000 V Current Peaks up to 500 mA during a few msec
Glowing Light	All integrated LED Bulbs have a function built in to cut leakage currents.



The Compact Range is designed to be our most efficient solution when it comes to assembly and cost, suitable for the most demanding environments. It can also be combined with the Modular Range to cover the needs of additional flexibility.

General Construction

- "All-in-one design"
- Same front as modular
- 42 mm built in depth
- Up to 2 electrical separated contacts.
- Metal or Black Plastic look.

Product Features

- Suitable in the toughest environments IP 66, 67 & 69K.
- Wiping Action gives high performance with low energies.
- cULus/NEMA Type 1,3R,4,4X,12,13.

Operators

- Pushbuttons (illuminated & non illuminated).
- Emergency Stops (twist, pull & key release).
- Machine Stops (twist, pull & key release).
- Selector Switches (2 & 3 position).
- Mushrooms.

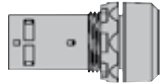
Pilot Lights

- Integrated LED (wide range of voltages).
- BA9s base for Filament Bulb or LED.

Pushbuttons

flush and extended, non-illuminated

Compact Range



Color codes for Pushbuttons

	Red ●	Green ●	Yellow ●	Blue ●	White ○	Black ●	Grey ●
■	R	G	Y	L	W	B	U



Flush Pushbutton



Extended Pushbutton



Flush Pushbutton with marking

Operator: Flush and Extended Pushbutton

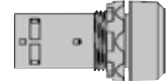
Description	Black Plastic Bezel		Chrome Metal Bezel		Weight Kg
	Catalogue No.	List Price	Catalogue No.	List Price	
Flush Pushbutton					
Momentary					
1 NO	CP1-10■-10		CP1-30■-10		0.018
2 NO	CP1-10■-20		CP1-30■-20		0.022
1 NC	CP1-10■-01		CP1-30■-01		0.018
2 NC	CP1-10■-02		CP1-30■-02		0.022
1 NO +1 NC	CP1-10■-11		CP1-30■-11		0.022
Maintained					
1 NO	CP2-10■-10		CP2-30■-10		0.018
2 NO	CP2-10■-20		CP2-30■-20		0.022
1 NC	CP2-10■-01		CP2-30■-01		0.018
2 NC	CP2-10■-02		CP2-30■-02		0.022
1 NO +1 NC	CP2-10■-11		CP2-30■-11		0.022
Extended Pushbutton					
Momentary					
1 NO	CP3-10■-10		CP3-30■-10		0.019
2 NO	CP3-10■-20		CP3-30■-20		0.022
1 NC	CP3-10■-01		CP3-30■-01		0.019
2 NC	CP3-10■-02		CP3-30■-02		0.022
1 NO +1 NC	CP3-10■-11		CP3-30■-11		0.022
Maintained					
1 NO	CP4-10■-10		CP4-30■-10		0.019
2 NO	CP4-10■-20		CP4-30■-20		0.022
1 NC	CP4-10■-01		CP4-30■-01		0.019
2 NC	CP4-10■-02		CP4-30■-02		0.022
1 NO +1 NC	CP4-10■-11		CP4-30■-11		0.022
Flush Pushbutton					
Momentary, white button with black I					
1 NO	CP11-10W-10		CP11-30W-10		0.018
Momentary, white button with black II					
1 NO	CP12-10W-10		CP12-30W-10		0.018
Extended Pushbutton					
Momentary, black button with white O					
1 NC	CP33-10B-01		CP33-30B-01		0.018

L-Mark Customer specific marking online. For more information see page 4 or go to: <http://bolservices.it.abb.com/pilot-devices>

Selector Switches

two- and three-position, non-illuminated

Compact Range



Color Codes for Switches

	Red ●	Black ●	Grey ●
■	R	B	U



Selector Switch

Operator: Selector Switches

Description	Black Plastic Bezel		Chrome Metal Bezel		Weight Kg
	Catalogue No.	List Price	Catalogue No.	List Price	
Two-position					
Maintained					
	1 NO	C2SS1-10■-10	C2SS1-30■-10		0.020
	2 NO	C2SS1-10■-20	C2SS1-30■-20		0.024
	1 NC	C2SS1-10■-01	C2SS1-30■-01		0.020
	2 NC	C2SS1-10■-02	C2SS1-30■-02		0.024
	1 NO +1 NC	C2SS1-10■-11	C2SS1-30■-11		0.024
Maintained					
	1 NO	C2SS2-10■-10	C2SS2-30■-10		0.020
	2 NO	C2SS2-10■-20	C2SS2-30■-20		0.024
	1 NC	C2SS2-10■-01	C2SS2-30■-01		0.020
	2 NC	C2SS2-10■-02	C2SS2-30■-02		0.024
	1 NO +1 NC	C2SS2-10■-11	C2SS2-30■-11		0.024
Momentary					
	1 NO	C2SS3-10■-10	C2SS3-30■-10		0.020
	2 NO	C2SS3-10■-20	C2SS3-30■-20		0.024
	1 NC	C2SS3-10■-01	C2SS3-30■-01		0.020
	2 NC	C2SS3-10■-02	C2SS3-30■-02		0.024
	1 NO +1 NC	C2SS3-10■-11	C2SS3-30■-11		0.024
Three-position					
Maintained					
	2 NO	C3SS1-10■-20	C3SS1-30■-20		0.024
	2 NC	C3SS1-10■-02	C3SS1-30■-02		0.024
	1 NO +1 NC	C3SS1-10■-11	C3SS1-30■-11		0.024
Momentary					
	2 NO	C3SS2-10■-20	C3SS2-30■-20		0.024
	2 NC	C3SS2-10■-02	C3SS2-30■-02		0.024
	1 NO +1 NC	C3SS2-10■-11	C3SS2-30■-11		0.024
Momentary					
	2 NO	C3SS3-10■-20	C3SS3-30■-20		0.024
	2 NC	C3SS3-10■-02	C3SS3-30■-02		0.024
	1 NO +1 NC	C3SS3-10■-11	C3SS3-30■-11		0.024
Momentary					
	2 NO	C3SS7-10■-20	C3SS7-30■-20		0.024
	2 NC	C3SS7-10■-02	C3SS7-30■-02		0.024
	1 NO +1 NC	C3SS7-10■-11	C3SS7-30■-11		0.024

Contacts actuated

Two position Selector Switch Contacts included,

actuated in position C

	NC	NO	NC	NO
	1	13	21	23
	12	14	22	24
1NO	-	1	-	-
2NO	-	1	-	1
1NC	1	-	-	-
2NC	1	-	1	-
1NO + 1NC	-	1	1	-

Three position Selector Switch Contacts included,

actuated in position:

	A		C	
	NC	NO	NC	NO
	21	23	11	13
	22	24	12	14
2NO	-	1	-	1
2NC	1	-	1	-
1NO + 1NC	1	-	-	1

Emergency Stop non-illuminated

Compact Range



Emergency Stop Pushbutton
twist release, 30 mm



Emergency Stop Pushbutton
pull release, 40 mm

Operator: Emergency Stop Pushbutton

Description	Catalogue No.	List Price	Weight Kg
Emergency Stop Pushbutton			
Twist release, Ø 30 mm			
1 NC	CE3T-10R-01		0.032
2 NC	CE3T-10R-02		0.032
1 NO + 1 NC	CE3T-10R-11		0.032
Pull release Ø 30 mm			
2 NC	CE3P-10R-02		0.032
1 NO + 1NC	CE3P-10R-11		0.032
Key release Ø 30 mm: Ronis 455, Key code 71			
2 NC	CE3K1-10R-02		0.060
1 NO +1 NC	CE3K1-10R-11		0.060
Twist release Ø 40 mm			
1 NC	CE4T-10R-01		0.036
2 NC	CE4T-10R-02		0.036
1 NO + NC	CE4T-10R-11		0.036
Pull release Ø 40 mm			
2 NC	CE4P-10R-02		0.036
1 NO + 1 NC	CE4P-10R-11		0.036
Key release Ø 40 mm: Key code 71 = Ronis 455			
2 NC	CE4K1-10R-02		0.064
1 NO +1 NC	CE4K1-10R-11		0.064

Machine Stop non-illuminated



Machine Stop Pushbutton
twist release 30 mm

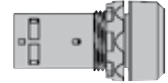
Operator: Machine Stop Pushbutton

Description	Catalogue No.	List Price	Weight Kg
Machine Stop Pushbutton			
Twist release Ø 30 mm			
1 NO +1 NC	CE3T-10B-11		0.032
Pull release Ø 30 mm			
1 NO +1 NC	CE3P-10B-11		0.032
Key release Ø 30 mm: Key code 71 = Ronis 455			
1 NO +1 NC	CE3K1-10B-11		0.060
Twist release Ø 40 mm			
1 NO +1 NC	CE4T-10B-11		0.032
Pull release Ø 40 mm			
1 NO +1 NC	CE4P-10B-11		0.032
Key release Ø 40 mm: Key code 71 = Ronis 455			
1 NO +1 NC	CE4K1-10B-11		0.064



Illuminated Pushbutton

Compact Range



Illuminated Pushbutton



Illuminated Pushbutton
Extended

Operator: Illuminated Pushbutton With Integrated LED

Description	Catalogue No.	List Price	Weight Kg
Flush Pushbutton 24V AC/DC			
Momentary			
● Red	1 NC	CP1-11R-01	0.025
● Red	1 NO	CP1-11R-10	0.025
● Green	1 NO	CP1-11G-10	0.025
● Yellow	1 NO	CP1-11Y-10	0.025
Maintained			
● Red	1 NC	CP2-11R-01	0.025
● Red	1 NO	CP2-11R-10	0.025
● Green	1 NO	CP2-11G-10	0.025
● Yellow	1 NO	CP2-11Y-10	0.025
Extended Pushbutton 24V AC/DC			
Momentary			
● Red	1 NC	CP3-11R-01	0.025
● Red	1 NO	CP3-11R-10	0.025
● Green	1 NO	CP3-11G-10	0.025
● Yellow	1 NO	CP3-11Y-10	0.025
Maintained			
● Red	1 NC	CP4-11R-01	0.025
● Red	1 NO	CP4-11R-10	0.025
● Green	1 NO	CP4-11G-10	0.025
● Yellow	1 NO	CP4-11Y-10	0.025

Flush Pushbutton 110-130V AC/DC

Momentary			
● Red	1 NC	CP1-12R-01	0.025
● Red	1 NO	CP1-12R-10	0.025
● Green	1 NO	CP1-12G-10	0.025
● Yellow	1 NO	CP1-12Y-10	0.025
Maintained			
● Red	1 NC	CP2-12R-01	0.025
● Red	1 NO	CP2-12R-10	0.025
● Green	1 NO	CP2-12G-10	0.025
● Yellow	1 NO	CP2-12Y-10	0.025
Extended Pushbutton 110-130V AC/DC			
Momentary			
● Red	1 NC	CP3-12R-01	0.025
● Red	1 NO	CP3-12R-10	0.025
● Green	1 NO	CP3-12G-10	0.025
● Yellow	1 NO	CP3-12Y-10	0.025

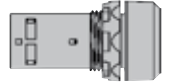


Customer specific marking online. For more information see page 4 or go to:

<http://bolsservices.it.abb.com/pilot-devices>

Illuminated Pushbutton and compact mushroom

Compact Range



Illuminated Pushbutton

Operator: Illuminated Pushbutton With Integrated LED

Description	Catalogue No.	List Price	Weight Kg
Extended Pushbutton 110-130V AC/DC			
Maintained			
● Red	1 NC	CP4-12R-01	0.025
● Red	1 NO	CP4-12R-10	0.025
● Green	1 NO	CP4-12G-10	0.025
● Yellow	1 NO	CP4-12Y-10	0.025



Illuminated Pushbutton
Extended

Flush Pushbutton 220V AC/DC

Description	Catalogue No.	List Price	Weight Kg
Momentary			
● Red	1 NC	CP1-13R-01	0.025
● Red	1 NO	CP1-13R-10	0.025
● Green	1 NO	CP1-13G-10	0.025
● Yellow	1 NO	CP1-13Y-10	0.025
Maintained			
● Red	1 NC	CP2-13R-01	0.025
● Red	1 NO	CP2-13R-10	0.025
● Green	1 NO	CP2-13G-10	0.025
● Yellow	1 NO	CP2-13Y-10	0.025
Extended Pushbutton 220V AC/DC			
Momentary			
● Red	1 NC	CP3-13R-01	0.025
● Red	1 NO	CP3-13R-10	0.025
● Green	1 NO	CP3-13G-10	0.025
● Yellow	1 NO	CP3-13Y-10	0.025
Maintained			
● Red	1 NC	CP4-13R-01	0.025
● Red	1 NO	CP4-13R-10	0.025
● Green	1 NO	CP4-13G-10	0.025
● Yellow	1 NO	CP4-13Y-10	0.025

Compact Mushroom



Compact Mushroom

Operator: Momentary Compact Mushroom

Description	Catalogue No.	List Price	Weight Kg
● Red	1 NO + 1 NC	CPM3-10R-11	0.36
● Green	1 NO + 1 NC	CPM3-10G-11	0.36
● Yellow	1 NO + 1 NC	CPM3-10Y-11	0.36
● Black	1 NO + 1 NC	CPM3-10B-11	0.36
● Blue	1 NO + 1 NC	CPM3-10L-11	0.36



Customer specific marking online. For more information see page 4 or go to:

<http://bol.services.it.abb.com/pilot-devices>

Pilot Lights with Integrated LED

Compact Range



Pilot Light with integrated LED,
with leakage current protection

Operator: Pilot Light with integrated LED

Description	Rated Current mA	Wave-length nm	Lumi-nance mcd	Catalogue No.	List Price	Weight Kg
Pilot Light with integrated LED Service Life >50 000 hours						
Rated Voltage 12 V, DC ¹⁾						
● Red	30	625	60	CL-501R		0.023
● Green	15	520	126	CL-501G		0.023
● Yellow	30	590	60	CL-501Y		0.023
● Blue	30	470	22	CL-501L		0.023
○ White	30	²⁾	88	CL-501W		0.023
Rated Voltage 24 V, AC/DC						
● Red	15	625	60	CL-502R		0.023
● Green	15	520	126	CL-502G		0.023
● Yellow	15	590	60	CL-502Y		0.023
● Blue	15	470	22	CL-502L		0.023
○ White	15	²⁾	88	CL-502W		0.023
Rated Voltage 48 V, AC/DC						
● Red	15	625	60	CL-504R		0.023
● Green	15	520	126	CL-504G		0.023
● Yellow	15	590	60	CL-504Y		0.023
● Blue	15	470	22	CL-504L		0.023
○ White	15	²⁾	88	CL-504W		0.023
Rated Voltage 60 V, AC/DC						
● Red	15	625	60	CL-505R		0.023
● Green	15	520	126	CL-505G		0.023
● Yellow	15	590	60	CL-505Y		0.023
● Blue	15	470	22	CL-505L		0.023
○ White	15	²⁾	88	CL-505W		0.023
Rated Voltage 110-130 V, AC						
● Red	15	625	60	CL-513R		0.023
● Green	15	520	126	CL-513G		0.023
● Yellow	15	590	60	CL-513Y		0.023
● Blue	15	470	22	CL-513L		0.023
○ White	15	²⁾	88	CL-513W		0.023
Rated Voltage 110-130 V, DC ¹⁾						
● Red	15	625	60	CL-515R		0.023
● Green	15	520	126	CL-515G		0.023
● Yellow	15	590	60	CL-515Y		0.023
● Blue	15	470	22	CL-515L		0.023
○ White	15	²⁾	88	CL-515W		0.023
Rated Voltage 220 V, DC ¹⁾						
● Red	15	625	60	CL-520R		0.023
● Green	15	520	126	CL-520G		0.023
● Yellow	15	590	60	CL-520Y		0.023
● Blue	15	470	22	CL-520L		0.023
○ White	15	²⁾	88	CL-520W		0.023

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

²⁾ X=0.31, Y=0.32 according to the ICI Chromaticity Diagram.



Customer specific marking online. For more information see page 4 or go to:

<http://bolservices.it.abb.com/pilot-devices>

Pilot Lights

Compact Range



Pilot Light with integrated LED, with leakage current protection

Operator: Pilot Light with integrated LED

Description	Rated Current mA	Wave-length nm	Lumi-nance mcd	Catalogue No.	List Price	Weight Kg
Rated Voltage 230 V, AC						
● Red	15	625	60	CL-523R		0.023
● Green	15	520	126	CL-523G		0.023
● Yellow	15	590	60	CL-523Y		0.023
● Blue	15	470	22	CL-523L		0.023
○ White	15	²⁾	88	CL-523W		0.023
Rated Voltage 380 V, AC						
● Red	15	625	60	CL-530R		0.023
● Green	15	520	126	CL-530G		0.023
● Yellow	15	590	60	CL-530Y		0.023
● Blue	15	470	22	CL-530L		0.023
○ White	15	²⁾	88	CL-530W		0.023
Rated Voltage 415 V, AC						
● Red	15	625	60	CL-541R		0.023
● Green	15	520	126	CL-541G		0.023
● Yellow	15	590	60	CL-541Y		0.023
● Blue	15	470	22	CL-541L		0.023
○ White	15	²⁾	88	CL-541W		0.023

Note: ²⁾ X=0.31, Y=0.32 according to the ICI Chromaticity Diagram.

Pilot Lights



Pilot Light

Operator: Pilot Light

Description	Catalogue No.	List Price	Weight Kg
Pilot Light BA 9s base, Bulb not included			
● Red	CL-100R		0.018
● Green	CL-100G		0.018
● Yellow	CL-100Y		0.018
● Blue	CL-100L		0.018
○ White	CL-100W		0.018
○ Clear	CL-100C		0.018

Customer specific marking online. For more information see page 4 or go to:
<http://bolservices.it.abb.com/pilot-devices>

Accessories for Compact Range

LEDS for pilot lights

Compact Range



LED Bulbs

Description	Rated Current mA	Wave-length nm	Lumi-nance mcd	Catalogue No.	List Price	Weight Kg
LED Bulbs						
Rated Voltage 12 V, AC Service Life >50 000 h						
● Red	15	630	250	KA2-2011		0.005
● Green	15	525	1000	KA2-2012		0.005
● Yellow	15	592	250	KA2-2013		0.005
● Blue	15	470	450	KA2-2014		0.005
○ White	15	¹⁾ 600	600	KA2-2015		0.005
Rated Voltage 24 V, (AC)/DC Service Life >50 000 h						
● Red	15	630	250	KA2-2021		0.005
● Green	15	525	800	KA2-2022		0.005
● Yellow	15	592	250	KA2-2023		0.005
● Blue	15	470	400	KA2-2024		0.005
○ White	15	¹⁾	500	KA2-2025		0.005
Rated Voltage 36 V, (AC)/DC Service Life >50 000 h						
● Red	12	630	200	KA2-2031		0.005
● Green	12	525	2000	KA2-2032		0.005
● Yellow	12	592	200	KA2-2033		0.005
● Blue	12	470	750	KA2-2034		0.005
○ White	12	¹⁾	1400	KA2-2035		0.005
Rated Voltage 48 V, (AC)/DC Service Life >50 000 h						
● Red	12	630	200	KA2-2041		0.005
● Green	12	525	1700	KA2-2042		0.005
● Yellow	12	592	240	KA2-2043		0.005
● Blue	12	470	720	KA2-2044		0.005
○ White	12	¹⁾	1200	KA2-2045		0.005
Rated Voltage 60 V, (AC)/DC Service Life >50 000 h						
● Red	10	630	160	KA2-2051		0.005
● Green	10	525	1400	KA2-2052		0.005
● Yellow	10	592	200	KA2-2053		0.005
● Blue	10	470	600	KA2-2054		0.005
○ White	10	¹⁾	1000	KA2-2055		0.005
Rated Voltage 110-130 V, AC Service Life 25 000 h						
● Red	4-6	630	60-100	KA2-2131		0.005
● Green	4-6	525	500-850	KA2-2132		0.005
● Yellow	4-6	592	70-120	KA2-2133		0.005
● Blue	4-6	470	220-350	KA2-2134		0.005
○ White	4-6	¹⁾	350-600	KA2-2135		0.005
Rated Voltage 110-130 V, AC/DC Service Life 25 000 h						
● Red	4-6	630	60	KA2-2141		0.005
● Green	4-6	525	500	KA2-2142		0.005
● Yellow	4-6	592	70	KA2-2143		0.005
● Blue	4-6	470	220	KA2-2144		0.005
○ White	4-6	¹⁾	350	KA2-2145		0.005
Rated Voltage 230 V, AC Service Life 25 000 h						
● Red	4	630	60	KA2-2221		0.005
● Green	4	525	500	KA2-2222		0.005
● Yellow	4	592	70	KA2-2223		0.005
● Blue	4	470	220	KA2-2224		0.005
○ White	4	¹⁾	350	KA2-2225		0.005

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

Choose the same color on the LED as on the lamp cap.

¹⁾X=0.31, Y=0.32 according to the ICI Chromaticity Diagram.

Accessories for Compact Range LEDs, filament bulbs and accessories

Compact Range



LED Bulbs

Description	Rated Current mA	Wavelength nm	Luminance mcd	Catalogue No.	List Price	Weight Kg
LED Bulbs continued						
Rated Voltage 230 V, AC/DC Service Life 25 000 h						
● Red	4	630	60	KA2-2231		0.005
● Green	4	525	500	KA2-2232		0.005
● Yellow	4	592	70	KA2-2233		0.005
● Blue	4	470	220	KA2-2234		0.005
○ White	4	¹⁾	350	KA2-2235		0.005

Note: Care should be taken for DC supply where + and - must be correctly connected. This is marked X1 (+) and X2 (-) on the product. Choose the same color on the LED as on the lamp cap.

¹⁾X=0.31, Y=0.32 according to the ICI Chromaticity Diagram.



Filament Bulb

Rated Voltage V	Rated Current mA	Rated Output W	Service Life h	Luminance mcd	Catalogue No.	List Price	Weight Kg
Filament Bulbs BA 9s base							
6	200	1.2	10 000	350	5911 086-11		0.002
12	100	1.2	10 000	230	5911 086-12		0.002
24	50	1.2	10 000	280	5911 086-13EA		0.002
30	40	1.2	10 000	250	5911 086-4		0.002
48	42	2	6 000	500	5911 086-5		0.002
60	20	1.2	5 000	190	5911 086-14		0.002
110	18	2	7 500	250	5911 086-7		0.002
130	15	2	7 500	120	5911 086-15		0.002

Note: Type of current: AC/DC. A Lamp Changing Tool is required for changing Bulb.



Lamp Changing Tool

Lamp Changing Tool						
For LED and Filament Bulbs				KA1-8072		0.002



Touch Guard

Touch Guard (to prevent inadvertent operation)						
●	Grey		MA1-8152			0.002



Lockable Shroud

Lockable Shroud						
Clear, durable plastic				MA1-8153		0.002

Accessories for Compact Range

Compact Range



DIN-rail Adaptor with Pushbutton



Lamp Changing Tool



Mounting Tool



Mounting Tool for Power Tool



Protective Cover



Bezels



Square Bezels



Blanking Plugs



Adaptor



Description	Catalogue No.	List Price	Weight Kg
DIN-rail Adaptor			
DIN-rail Adaptor	CA1-8080		0.028
Dummy Block	MDB-2		0.003
Note: Two Dummy blocks are included with the DIN-rail Adaptor to make it possible to mount any Compact Device			
Lamp Changing Tool			
For LED Bulbs and for bulbs	KA1-8072		0.002
Mounting Tool			
Used for tightening the Locking Nut	MA1-8015		0.021
Mounting Tool for Power Tool	MA1-8149		0.155
Membrane			
Flush Button	KA1-8052		0.002
Extended Button	KA1-8002		0.002
Note: Made of transparent, heat and cold resistant silicon rubber. Does not harden at low temperature. Remove the gasket when using membrane.			
Protective Ring			
Protective Ring	SK 615 512-1		0.002
Note: For flush and Extended Pushbutton to prevent inadvertent operation. Cannot be used together with Legend Plate Holder.			
Protective Cover			
Protective cover	KA1-8010		0.008
Note: For Flush Pushbutton. To prevent accidental operation. Cannot be used together with Legend Plate Holder.			
Button			
Grey, flush	KA1-8087		0.001
Grey, extended	KA1-8097		0.001
Bezel			
For Pushbutton			
Black	KA1-8022		0.002
Metal	KA1-8021		0.015
For Selector Switch			
Black	CA1-8077		0.001
Metal	CA1-8078		0.010
Square Bezel			
Black, plastic	SK 616 016-2		0.001
Grey, plastic	MA1-8124		0.001
Light Diffusing Lens			
Light Diffusing Lens	KA1-8005		0.001
Note: To improve illumination. Cannot be used with text cap. The lens is used instead of text cap			
Blanking Plug			
Light Grey	MA1-8136		0.005
Grey	MA1-8129		0.005
Black	MA1-8130		0.005
Adaptors 30 mm			
Black Plastic	KA1-8029		0.010
Metal	KA1-8030		0.035
Note: For use when fitting the 22 mm Pilot Devices in 30 mm mounting holes (1.5 - 4 mm panels). For use with Pushbuttons, Selector Switches, Emergency Stop Pushbutton and Pilot Lights.			
Adaptors			
For flush mounted Pushbutton	KA1-8073		0.050
For flush mounted Selector Switches	CA1-8075		0.046
Extra key			
Key code 71=Ronis 455	SK 616 021-71		0.007

Technical Data

compact range

Compact Range



Standards and Approvals	
IEC / EN 60947-1	Low-Voltage Switchgear and Controlgear - Part 1: General rules
IEC / EN 60947-5-1	Low-Voltage Switchgear and Controlgear - Part 5-1: Control circuit devices and switching elements - Electro-mechanical control circuit devices
IEC / 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
IEC / EN 60073	Basic and safety principles for man-machine interface, marking and identification - Coding principles for indicators and actuators
IEC / 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
DIN 40050-9	Road vehicles; Degrees of Protection (IP-code); protection against foreign objects; water and contact; electrical equipment
UL 508	Industrial Control Equipment
CSA C22.2 No 14	Industrial Control Equipment

Environmental Data		
Degrees of Protection		
Pilot device:	IEC/EN DIN	UL/CSA
Pushbuttons	IP66, IP67 and IP69K	Type 1, 3R, 4, 4X, 12, 13
Selector Switches	IP66, IP67 and IP69K	Type 1, 3R, 4, 4X, 12, 13
Pilot Lights	IP66, IP67 and IP69K	Type 1, 3R, 4, 4X, 12, 13
Emergency Stops	IP66, IP67 and IP69K	Type 1, 3R, 4, 4X, 12, 13
Terminals	IP20	
Temperature		
Ambient temperature during operation	-25 to +70 °C	
Storage temperature	-40 to +85 °C	

Technical Data	
Cable Connections	
Operator	Cable Terminal
Pushbutton Selector Switch Emergency Stop	Plus-minus Pozidriv No. 2 Connectable area: min. 1 x 0.5 mm ² / 1 x AWG22 max. 2 x 1.5 mm ² / 2 x AWG14
Pilot Light	Connectable area: min. 1 x 0.5 mm ² / 1 x AWG20 max. 2 x 2.5 mm ² / 2 x AWG14

Tightening Torque	
Operators Locking Nut	Min. 2 Nm / Max. 2.3 Nm
Cable Terminals M3	0.8 Nm
Cable Terminals M3.5	0.9 Nm

Short Circuit Protection	
Max. fuse at 1 kA	10 A

Mechanical Life	
Pushbuttons, Selector Switches	500 000 operations
Emergency Stop Pushbutton	50 000 operations

Material	
No ozone depleting substances in the products. All front of panel plastic components are made of polycarbonate	
PC Polycarbonate	High impact strength, good outdoor resistance. Chemical resistance (see table below)
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.

Chemical Resistance for Polycarbonate	
Chemical Class	Effects
Acids	No significant effect under most typical conditions of concentration and temperature
Alcohols and Alkalis	Generally compatible at low concentration and room temperature. Higher concentrations and elevated temperatures can result in etching and attack evidenced by decomposition.
Aliphatic Hydrocarbons	Generally compatible
Amines	Surface crystallization and chemical attack. Avoid.
Aromatic Hydrocarbons	Partial solvents and severe stress cracking agents (i.e., xylene, toluene). Avoid.
Detergents and Cleaners	Mild soap solutions are generally compatible. Strong alkaline materials should be avoided.
Esters	Cause severe crystallization. Partial solvents. Avoid.
Greases and Oils	Pure petroleum types generally compatible. Many additives used with them are not.
Halogenated Hydrocarbons	Solvents. Avoid.
Ketones	Cause severe crystallization and stress cracking. Partial solvents. Avoid.
Silicone Oil and Greases	Generally compatible up to 85 °C.

Please note that specified degree of protection is for operator mounted on panel. If other items are mounted in between, please make sure that they are correctly sealed.

Technical Data

compact range

Compact Range



Electrical Data			
Contacts			
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_o Utilization category AC-15	at: 240 V	1 A	
Rated Operational Current, I_o Utilization category DC-13,	at: 24 V at: 125 V	0.3 A 0.2 A	
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 at: 125 V at: 240 V at: 250 V	1.5 A 0.75 A	0.22 A 0.11 A
Short Circuit Protection			
Max. fuse at 1 kA		10 A	
Minimum Switching Capacity			
5 V DC		1 mA	
Make-and-break Contacts			
Pushbutton	Emergency Stop Pushbutton		
<p>NC -1 -2</p> <p>NO -3 -4</p> <p>■ = Closed contact</p>	<p>NC -1 -2</p> <p>NO -3 -4</p> <p>■ = Closed contact</p>		

LED Bulbs	
Service Life for LED Bulbs means number of service hours until the brightness has been reduced down 50 %. Service Life 50 000 h	
Color of white LED	x=0.31 Y=0.32 means the position of color in the ICI Chromaticity Diagram
Voltage Tolerance on LED Bulbs	-30 to +10 % Voltage is acceptable without affecting the Service Life
Voltage Peaks on LED Bulbs	Voltage peaks up to 1000 V Current peaks up to 500 mA during a few msec
Gloaming Light	All integrated LED Bulbs have a function built in to cut leakage currents

Pilot Devices enclosures and assembled stations



Large Plastic Enclosure (Modular & Compact)

This enclosure can fit both Modular and Compact Operators with the unique possibility to mount up to 5 Contact Blocks assigned to one Operator.

Protection Degree:

IP 66

cULus/NEMA Type 1, 3R, 4, 4X, 12, 13

Compact Plastic Enclosure

The Compact enclosure is one of the smallest on the market intended for compact operators.

Protection Degree:

IP 66, 67, 69K

cULus/NEMA Type 1, 3R, 4, 4X, 12, 13

Metallic Enclosure

Our Metallic line is made in addition to our plastic lines when plastic is not accepted. Featuring a high Protection Degree and large installation space.

Protection Degree:

NEMA 12 or 4X

Assembled Stations

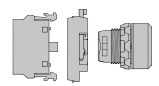
We can also offer some of the most common Assembled Stations as a standard with combination from both Modular and Compact Range.

Plastic Enclosures for modular & compact range

Compact Range



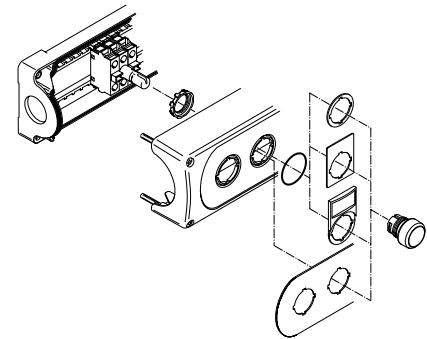
Modular Range



Description	Catalogue No.	List Price	Weight Kg
Empty Plastic Enclosures with stainless steel screws			
1-seat Dark grey/Light grey	MEP1-0		0.15
1-seat Yellow/Light grey	MEPY1-0		0.15
2-seat Dark grey/Light grey	MEP2-0		0.17
3-seat Dark grey/Light grey	MEP3-0		0.20
4-seat Dark grey/Light grey	MEP4-0		0.23
6-seat Dark grey/Light grey	MEP6-0		0.30

When ordering

- Select Operators
- Note: Select Contact Blocks and Lamp Blocks for rear mounting
- Accessories
N.B. One spacer per operator has to be ordered if Legend Plate is not used. (for rear mounted Pilot Devices)
- Holes for Cable Glands
1-seat to 3-seat enclosures: M20 and Pg 13.5/Pg16 and (M20)
4-seat and 6-seat enclosures: M25/Pg 16 and (M20)



cULus-listed Applications: For end of line use only.

Enclosures for Compact Range



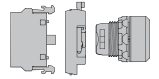
1-seat Plastic Enclosure for Emergency Stop Pushbutton (yellow) and Machine Stops (Grey)

Description	Catalogue No.	List Price	Weight Kg
Enclosure for Emergency Stop Pushbutton			
Yellow/Light grey	CEPY1-0		0.072
Shroud			
Yellow	CA1-8053		0.016
Enclosure for Machine Stop Pushbutton			
Dark grey/Light grey	CEP1-0		0.072
Shroud			
Grey	CA1-8054		0.016

Assembled Stations - see page 65.

Two Position Selector Switches for vertically mounted enclosures

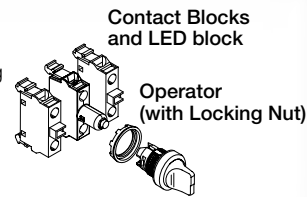
Modular Range



How to order:

Alt.1 • Operator
+ Contact Blocks for rear mounting

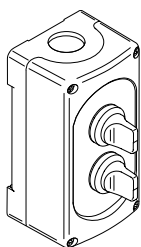
Alt.2 • Operator
+ Contact Blocks and Lamp Block for rear mounting



Two-position Selector Switch non-illuminated



Two-position Selector Switch illuminated



Enclosure with Selector Switches



Contact Blocks and Holder see the fold-out page at the end of the catalog

Operator: Two-position Selector Switch

Description	Catalogue No.	List Price	Weight Kg
Short Handle, non-illuminated			
Maintained			
	● Red	M2SSV1-10R	0.015
	● Black	M2SSV1-10B	0.015
Maintained			
	● Red	M2SSV2-10R	0.015
	● Black	M2SSV2-10B	0.015
Momentary, spring return from C to B			
	● Red	M2SSV3-10R	0.015
	● Black	M2SSV3-10B	0.015
Short Handle, illuminated			
Maintained			
	● Red	M2SSV1-11R	0.015
	● Green	M2SSV1-11G	0.015
	● Yellow	M2SSV1-11Y	0.015
Maintained			
	● Red	M2SSV2-11R	0.015
	● Green	M2SSV2-11G	0.015
	● Yellow	M2SSV2-11Y	0.015
Momentary, spring return from C to B			
	● Red	M2SSV3-11R	0.015
	● Green	M2SSV3-11G	0.015
	● Yellow	M2SSV3-11Y	0.015

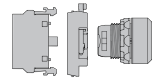
Contacts actuated

Handle position	Contacts	
	Left block	Right block
	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>
	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Not actuated
 Actuated

Three Position Selector Switches for vertically mounted enclosures

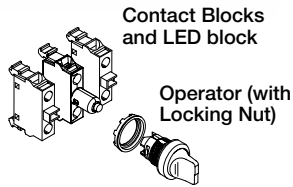
Modular Range



How to order:

Alt.1 • Operator
+ Contact Blocks for rear mounting

Alt.2 • Operator
+ Contact Blocks and Lamp Block for rear mounting



Three-position Selector Switch non-illuminated



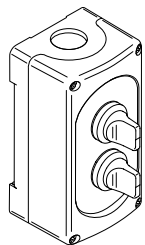
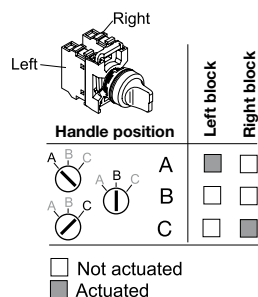
Three-position Selector Switch illuminated

Operator: Three-position Selector Switch

Description	Catalogue No.	List Price	Weight Kg
Short Handle, non-illuminated			
Maintained			
	● Red	M3SSV1-10R	0.015
	● Black	M3SSV1-10B	0.015
Momentary, spring return from A to B and from C to B			
	● Red	M3SSV2-10R	0.015
	● Black	M3SSV2-10B	0.015
Momentary, spring return from C to B			
	● Red	M3SSV3-10R	0.015
	● Black	M3SSV3-10B	0.015
Short Handle, illuminated			
Maintained			
	● Red	M3SSV1-11R	0.015
	● Green	M3SSV1-11G	0.015
	● Yellow	M3SSV1-11Y	0.015
Momentary, spring return from A to B and from C to B			
	● Red	M3SSV2-11R	0.015
	● Green	M3SSV2-11G	0.015
	● Yellow	M3SSV2-11Y	0.015
Momentary, spring return from C to B			
	● Red	M3SSV3-11R	0.015
	● Green	M3SSV3-11G	0.015
	● Yellow	M3SSV3-11Y	0.015

Note: No contact in centre position. Lamp Block for max 230 V AC/DC. Bulb not included. Other Lamp Block see accessories

Contacts actuated



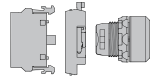
Enclosure with Selector Switches



Contact Blocks and Holder see the fold-out page at the end of the catalog

LED Blocks for rear mounting

Modular Range



LED Block with built in leakage current protection

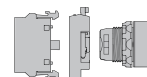
Description	Rated Current mA	Wave-length nm	Lumi-nance mcd	Catalogue No.	List Price	Weight Kg
LED Blocks						
Rated Voltage 12 V, DC ¹⁾						
● Red	12.0	620	320	MLBL-00BR		0.012
● Green	9.3	520	1500	MLBL-00BG		0.012
● Yellow	12.0	588	380	MLBL-00BY		0.012
● Blue	9.5	468	450	MLBL-00BL		0.012
○ White	9.3	²⁾	600	MLBL-00BW		0.012
Rated Voltage 24 V, AC/DC ¹⁾						
● Red	9.9	620	250	MLBL-01BR		0.012
● Green	9.2	520	1500	MLBL-01BG		0.012
● Yellow	9.9	588	250	MLBL-01BY		0.012
● Blue	9.3	468	450	MLBL-01BL		0.012
○ White	9.2	²⁾	600	MLBL-01BW		0.012
Rated Voltage 48 V, AC/DC ¹⁾						
● Red	10.0	620	260	MLBL-02BR		0.012
● Green	9.7	520	1500	MLBL-02BG		0.012
● Yellow	10.0	588	300	MLBL-02BY		0.012
● Blue	9.7	468	450	MLBL-02BL		0.012
○ White	9.7	²⁾	600	MLBL-02BW		0.012
Rated Voltage 60 V, AC/DC ¹⁾						
● Red	13.0	620	350	MLBL-03BR		0.012
● Green	12.7	520	2000	MLBL-03BG		0.012
● Yellow	13.0	588	400	MLBL-03BY		0.012
● Blue	12.7	468	550	MLBL-03BL		0.012
○ White	12.7	²⁾	750	MLBL-03BW		0.012
Rated Voltage 110-130 V, AC						
● Red	8.6	620	200	MLBL-04BR		0.012
● Green	8.5	520	1200	MLBL-04BG		0.012
● Yellow	8.6	588	250	MLBL-04BY		0.012
● Blue	7.0	468	400	MLBL-04BL		0.012
○ White	7.0	²⁾	500	MLBL-04BW		0.012
Rated Voltage 110-130 V, DC ¹⁾						
● Red	9.9	620	250	MLBL-05BR		0.012
● Green	9.8	520	1500	MLBL-05BG		0.012
● Yellow	9.9	588	300	MLBL-05BY		0.012
● Blue	9.8	468	450	MLBL-05BL		0.012
○ White	9.8	²⁾	600	MLBL-05BW		0.012
Rated Voltage 220 V, DC ¹⁾						
● Red	8.0	620	180	MLBL-06BR		0.012
● Green	8.0	520	110	MLBL-06BG		0.012
● Yellow	8.0	588	200	MLBL-06BY		0.012
● Blue	8.0	468	450	MLBL-06BL		0.012
○ White	8.0	²⁾	600	MLBL-06BW		0.012
Rated Voltage 230 V, AC						
● Red	9.5	620	250	MLBL-07BR		0.012
● Green	9.4	520	1500	MLBL-07BG		0.012
● Yellow	9.5	588	300	MLBL-07BY		0.012
● Blue	8.2	468	450	MLBL-07BL		0.012
○ White	8.2	²⁾	600	MLBL-07BW		0.012

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

²⁾ X=0.31, Y=0.32 according to the ICI Chromaticity Diagram.

LED Blocks for rear mounting

Modular Range



LED Block with built in leakage current protection

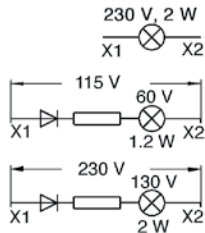
Description	Rated Current mA	Wave-length nm	Lumi-nance mcd	Catalogue No.	List Price	Weight Kg
Cont. LED Blocks						
Rated Voltage 380 V, AC						
● Red	10.2	620	250	MLBL-08BR		0.012
● Green	10.2	520	1500	MLBL-08BG		0.012
● Yellow	10.2	582	300	MLBL-08BY		0.012
● Blue	9.1	468	450	MLBL-08BL		0.012
○ White	9.1	²⁾	600	MLBL-08BW		0.012
Rated Voltage 415 V, AC						
● Red	11.2	620	280	MLBL-09BR		0.012
● Green	11.2	520	1800	MLBL-09BG		0.012
● Yellow	11.2	588	350	MLBL-09BY		0.012
● Blue	9.9	468	500	MLBL-09BL		0.012
○ White	9.9	²⁾	650	MLBL-09BW		0.012

²⁾ X=0.31, Y=0.32 according to the ICI Chromaticity Diagram.

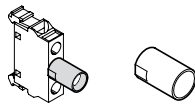
Accessories For Plastic Enclosures



Contact Block Double Contact Block



Lamp Blocks



Protective Sleeve



Cable Gland



Sealing Ring



Blanking Plugs

Description	Catalogue No.	List Price	Weight Kg
Contact Block for rear mounting			
1NO	MCB-10B		0.013
1NC	MCB-01B		0.013
Double Contact Block			
2NO	MCB-20B		0.026
2NC	MCB-02B		0.026
1NO+1NC	MCB-11B		0.026
Contact Block with gold plated contacts			
1NO	MCB-10BG		0.013
1NC	MCB-01BG		0.013
Lamp Block for rear mounting			
For max. 2 W, 230 V AC and DC Filament Bulb or LED	MLB-1B		0.015
115 V AC supply voltage. For 60 V Filament Bulb 1.2 W	MLB-2B		0.017
230 V AC supply voltage. For 130 V Filament Bulb 2 W	MLB-3B		0.020
Protective Sleeve			
Protective Sleeve	5396 0543-1		0.002
Note: To make a rear mounted Lamp Block screen protected. IP20 (Not together with illuminated Selector Switch)			
Cable Gland			
Grey plastic. threaded outer sleeve Sealing Ring included.			
M25	MA5-3001		0.015
M20	MA5-3002		0.015
PG 13.5	MA5-3006		0.010
PG 16	MA5-3007		0.015
Nut			
Grey plastic. For Cable Gland above.			
M25	MA5-3003		0.005
M20	MA5-3004		0.005
PG 13.5	MA5-3008		0.001
PG 16	MA5-3009		0.001
Earthing Terminal			
For Plastic Enclosure.	MA5-3005		0.005
Sealing Ring			
For Plastic Enclosure.	MA1-8150		0.001
Spacer			
1 mm thick. Needed when Legend Plates are not used in Plastic Enclosures.			
Spacer	SK 615 516-1		0.002
Spacer for Modular Emergency Stop Pushbutton	KA1-8045		0.004
Blanking Plug			
Grey	MA1-8129		0.005
Black	MA1-8130		0.005
Light Grey	MA1-8136		0.005
Adaptor			
PG 16/M20	MA5-3010		0.010

Metallic Enclosures and Accessories



Empty Metallic Enclosures

Description	H	W	D	Catalogue No.	List Price	Weight Kg
Empty Metallic Enclosures, NEMA 12, ANSI / ASA61 grey						
1-seat <input type="checkbox"/> Grey	3.50	3.25	2.75	MEM121-0		
2-seat <input type="checkbox"/> Grey	5.75	3.25	2.75	MEM122-0		
3-seat <input type="checkbox"/> Grey	8.00	3.25	2.75	MEM123-0		
4-seat <input type="checkbox"/> Grey	10.25	3.25	2.75	MEM124-0		
6-seat <input type="checkbox"/> Grey	9.50	6.25	3.00	MEM126-0		

Empty Metallic Enclosures, NEMA 4X Stainless Steel						
1-seat <input type="checkbox"/> Stainless Steel	3.50	3.25	2.75	MEMX1-0		
2-seat <input type="checkbox"/> Stainless Steel	5.75	3.25	2.75	MEMX2-0		
3-seat <input type="checkbox"/> Stainless Steel	8.00	3.25	2.75	MEMX3-0		
4-seat <input type="checkbox"/> Stainless Steel	10.25	3.25	2.75	MEMX4-0		
6-seat <input type="checkbox"/> Stainless Steel	9.50	6.25	3.00	MEMX6-0		



Blanking Plugs

Blanking plug						
Applicable to cover a 22 mm-hole in an enclosure instead of an operator. Gasket and nut included.						
Grey				MA1-8129		
Black				MA1-8130		

Description	Type 12 Catalogue No.	List Price	Type 4X Catalogue No.	List Price
Assemble mettalic stations				
1-seat, Emergency Stop, 2 NC	MEM121-ES		MEMX1-ES	
1-seat, Illum. Emergency Stop, 2 NC 120V LED	MEM121-IES		MEMX1-IES	
2-seat, Start-Stop, 1 NO + 1 NC	MEM122-SS		MEMX2-SS	
2-seat, H-O-A + Run, 2 NO + 120V LED	MEM122-1HOARL		MEMX2- 2HOARL	



Cable Gland

Description	Catalogue No.	List Price	Weight Kg
Accessories for Metallic Enclosures			
Cable Gland. Metal. Threaded outer sleeve.			
Pr Pg diameter, mm			
22.5 16 8.5 - 11.5	SK 170 7685		0.040
22.5 16 10.5 - 13.5	SK 170 7686		0.045
22.5 16 12.5 - 15.0	SK 170 7687		0.050



Hexagon Nut



Sealing Ring

Hexagon Nut			
Metal, Pr 22.5, Pg 16	SK 175 0152		0.010
Sealing Ring			
Rubber, Pr 22.5, Pg 16	SK 170 0182		0.010

Assembled Stations plastic enclosures



Emergency Stop Enclosure



Emergency Stop Enclosure with Shroud



2-seat Plastic Enclosure

Description	Catalogue No.	List Price	Weight Kg
1-seat Plastic Enclosures			
Emergency Stop Pushbutton, 40 mm. Twist release. No Legend Plate. Yellow top / light grey bottom			
● Red 2 NC	MEPY1-1005		0.234
● Red 1 NO + 2 NC	MEPY1-1024		0.250
● Red 1 NC	MEPY1-1010		0.218
1-seat Plastic Enclosures			
Emergency Stop Pushbutton, 40 mm. Twist release. Legend Plate: "Emergency Stop" Yellow top/light grey bottom			
● Red 2 NC	MEPY1-1026		0.240
1-seat Plastic Enclosure			
☐ Yellow/Light grey Twist release. Red button 2 NC	CEPY1-1001		0.108
☐ Yellow/Light grey Pull release. Red button 2 NC	CEPY1-1002		0.108
☐ Yellow/Light grey Key release. Red button 2 NC	CEPY1-1006		0.105
1-seat Plastic Enclosure with Shroud			
☐ Yellow/Light grey Twist release. Red button 2 NC	CEPY1-2002		0.124
☐ Yellow/Light grey Pull release. Red button 2 NC	CEPY1-2001		0.124
1-seat Plastic Enclosure with Black Mushroom Pushbutton			
☐ Dark grey/Light grey Twist release. Black button 1 NO + 1 NC	CEP1-1001		0.108
☐ Dark grey/Light grey Pull release. Black button 1 NO + 1 NC	CEP1-1002		0.108
1-seat Plastic Enclosure with Black Mushroom Pushbutton and Shroud			
☐ Dark grey/Light grey Twist release. Black button 1 NO + 1 NC	CEP1-2001		0.124
☐ Dark grey/Light grey Pull release. Black button 1 NO + 1 NC	CEP1-2002		0.124
1-seat Plastic Enclosure			
Dark grey top / light grey bottom Selector Switch 3 position, maintained. Legend Plate ← off →			
● Black 2 NO	MP1-1994		0.240
2-seat Plastic Enclosure			
Dark grey top / light grey bottom Two Flush Pushbuttons. Momentary.			
Left	Right		
● Green 1 NO I Start	● Red 1 NC O Stop		
		MEP2-1001	0.280
		MEP2-1991	0.280
3-seat Plastic Enclosure			
Dark grey top / light grey bottom Two flush pushbuttons, pilot light in center position			
Left	Center	Right	
● Red 1 NO Stop	○ Clear 1 NC ON	● Green 1 NC Start	
			MEP3-1991 0.320
Three flush pushbuttons, momentary			
● Green 1 NO FWD	● Green 1 NC Stop	● Green 1 NC Rev	
			MEP3-1994 0.320

Legend Plates



ABB offers a wide range of alternatives to label our products. It's also possible in a large number of markets to get these engraved from factory with our L-Mark system - <http://bolservices.it.abb.com/pilot-devices>.

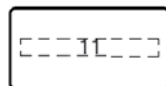
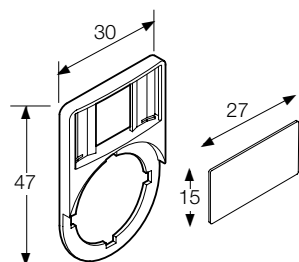
Products:

- Legend Plates for Emergency Stops.
- Inserts and Holders.
- Fixed Legend Plates in aluminum.
- Text Caps.
- Legend Plates for Enclosures.

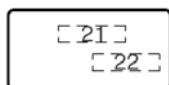
Legend Plate Holder with inserts



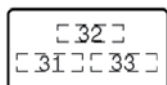
Legend Plate Holders



Insert



Insert for two-pos.
Selector Switch



Insert for three-pos.
Selector Switch



Customer specific
marking online. For
more information
see page 4 or go to:

<http://bolservices.it.abb.com/pilot-devices>

Description	Catalogue No.	List Price	Weight Kg
Legend Plate Holders with Inserts			
- Holder of Black Plastic			
- Insert of brushed Aluminum look on Black Plastic.			
Legend Plate Holder			
Black	KA1-8120		0.002
Inserts			
Without text or symbol	KA1-8121		0.001
Custom name plate (L-Mark)	MA6-1090-L		0.001
Inserts with text/symbol engraved with L-Mark			
O	MA6-1032		0.001
I	MA6-1033		0.001
→	MA6-1034		0.001
→→	MA6-1035		0.001
Close	MA6-1036		0.001
Open	MA6-1037		0.001
On	MA6-1038		0.001
Off	MA6-1039		0.001
Fast	MA6-1040		0.001
Slow	MA6-1041		0.001
Down	MA6-1042		0.001
Up	MA6-1043		0.001
Start	MA6-1044		0.001
Stop	MA6-1045		0.001
Run	MA6-1054		0.001
Full	MA6-1055		0.001

Inserts for two-position Selector Switches

With text or symbol:
Pos. 21 Pos. 22

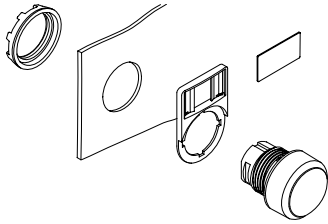
O	I	MA6-1070		0.001
I	II	MA6-1071		0.001
→	→→	MA6-1072		0.001
Off	On	MA6-1073		0.001
Stop	Start	MA6-1074		0.001
Low	High	MA6-1075		0.001
Slow	Fast	MA6-1076		0.001
Close	Open	MA6-1077		0.001
Jog	Run	MA6-1078		0.001
Hand	Auto	MA6-1079		0.001

Inserts for three-position Selector Switches

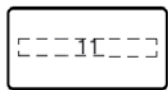
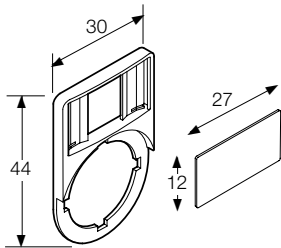
With text or symbol:
Pos. 31 Pos. 32 Pos. 33

←	O	→	MA6-1080		0.001
→	O	→→	MA6-1081		0.001
I	O	II	MA6-1082		0.001
Hand	O	Auto	MA6-1083		0.001
Slow	Off	Fast	MA6-1084		0.001

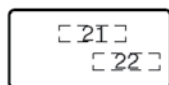
Legend Plate Holder with inserts for plastic enclosures



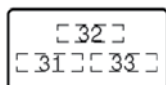
Legend Plate Holders



Insert



Insert for two-pos.
Selector Switch



Insert for three-pos.
Selector Switch



Description	Catalogue No.	List Price	Weight Kg
Legend Plate Holder For Plastic Enclosures			
Grey	MA6-1060		0.002

Inserts: Packing			
Without text or symbol	MA6-1061		0.001
Custom name plate (L-Mark)	MA6-1091-L		0.001

Inserts with text/symbol engraved with L-Mark			
O	MA6-1062		0.001
I	MA6-1063		0.001
II	MA6-1064		0.001
→	MA6-1130		0.001
→→	MA6-1131		0.001
Close	MA6-1132		0.001
Open	MA6-1133		0.001
On	MA6-1134		0.001
Off	MA6-1135		0.001
Fast	MA6-1136		0.001
Slow	MA6-1137		0.001
Down	MA6-1138		0.001
Up	MA6-1139		0.001
Start	MA6-1140		0.001
Stop	MA6-1141		0.001

Inserts for two-position Selector Switches

With text or symbol: Pos. 21 Pos. 22			
O I	MA6-1170		0.001
I II	MA6-1171		0.001
→ →→	MA6-1172		0.001
Off On	MA6-1173		0.001
Stop Start	MA6-1174		0.001
Low High	MA6-1175		0.001
Slow Fast	MA6-1176		0.001
Close Open	MA6-1177		0.001
Jog Run	MA6-1178		0.001
Hand Auto	MA6-1179		0.001

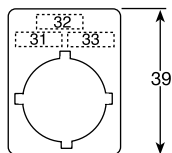
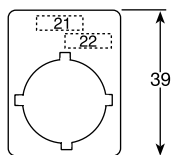
Inserts for three-position Selector Switches

With text or symbol Pos. 31 Pos. 32 Pos. 33			
← O →	MA6-1190		0.001
→ O →→	MA6-1191		0.001
I O II	MA6-1192		0.001
Hand O Auto	MA6-1193		0.001
Slow Off Fast	MA6-1194		0.001

Legend Plates for emergency stop and pushbuttons



Emergency Stop Legend Plate



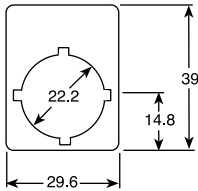
Description	Catalogue No.	List Price	Weight Kg
Emergency Stop Legend Plates			
Black text on a yellow plastic plate. Can be used as yellow background			
Emergency Stop	1SFA616915R1005		0.003
Black text on a Yellow Aluminum Plate			
Emergency Stop	SK 615 546-2		0.010
Not Aus	SK 615 546-3		0.010
ARRET D'URGENCE	SK 615 546-4		0.010
Without text	SK 615 546-8		0.010
Emergency stop - Not aus - ARRET D'URGENCE	SK 615 546-13		0.010
Text / symbol	Catalogue No.	List Price	Weight Kg
Fixed Legend Plates without text (for Pushbuttons, Mushroom Pushbuttons and Pilot Lights) Made of Silver-grey Aluminum			
H = 39 mm	MA16-1000		0.002
H = 44 mm	MA16-1001		0.002
Fixed Legend Plates with customer selected text (for Pushbuttons, Mushroom Pushbuttons and Pilot Lights) Made of Silver-grey Aluminum			
H = 39 mm ¹⁾	SK615999-1		0.002
H = 44 mm ¹⁾	SK615999-2		0.002
Engraved Fixed Legend Plates. Text height 3 mm Of silvergrey aluminum			
For Pushbuttons – with symbols			
O	CBK-NPE90		0.002
I	CBK-NPE91		0.002
II	CBK-NPE92		0.002
←	CBK-NPE93		0.002
→	CBK-NPE94		0.002
→→	CBK-NPE95		0.002
For two-position Selector Switches – with symbols (Description/Symbol/Text Pos 21 Pos 22)			
O I	CBK-NPE96		0.002
I II	CBK-NPE97		0.002
→ →→	CBK-NPE98		0.002
For three-position Selector Switches – with symbols (Description/Symbol/Text Pos 31 Pos 32 Pos 33)			
I O II	CBK-NPE99		0.002
← O →	CBK-NPE100		0.002
→ O →→	CBK-NPE101		0.002

Note 1): Please complete and send in the form on page 76 otherwise your order will not be processed.

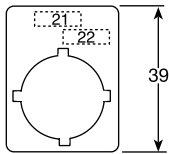
Legend Plates for pushbuttons



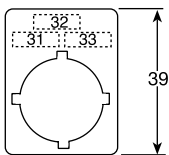
Legend Plates



For two-position Selector Switch



For three-position Selector Switch



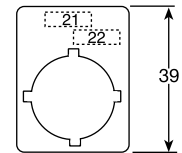
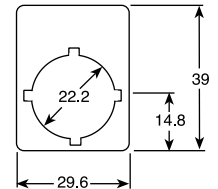
Text	Catalogue No.	List Price	Weight Kg.
Engraved Fixed Legend Plates, with text¹. Of silvergrey aluminum			
For Pushbuttons – with text in English			
CLOSE	CBK-NPE1		0.002
DOWN	CBK-NPE2		0.002
EMERGENCY STOP	CBK-NPE3		0.002
FAST	CBK-NPE4		0.002
FORWARD	CBK-NPE5		0.002
INCHING	CBK-NPE6		0.002
IN	CBK-NPE7		0.002
LEFT	CBK-NPE8		0.002
LOWER	CBK-NPE9		0.002
OFF	CBK-NPE10		0.002
ON	CBK-NPE11		0.002
OPEN	CBK-NPE12		0.002
RAISE	CBK-NPE13		0.002
RESET	CBK-NPE14		0.002
REVERSE	CBK-NPE15		0.002
RUN	CBK-NPE16		0.002
RIGHT	CBK-NPE17		0.002
SLOW	CBK-NPE18		0.002
START	CBK-NPE19		0.002
STOP	CBK-NPE20		0.002
UP	CBK-NPE21		0.002
FAULT	CBK-NPE34		0.002
POWER ON	CBK-NPE35		0.002
JOG	CBK-NPE40		0.002
TEST	CBK-NPE41		0.002
TRIP	CBK-NPE50		0.002
For two-position Selector Switches– with text in English (Text Pos 21 Pos 22)			
HAND AUTO	CBK-NPE22		0.002
JOG RUN	CBK-NPE23		0.002
OFF ON	CBK-NPE24		0.002
STOP START	CBK-NPE25		0.002
FWD REV	CBK-NPE32		0.002
LOCAL AUTO	CBK-NPE36		0.002
OPEN CLOSE	CBK-NPE37		0.002
SLOW FAST	CBK-NPE46		0.002
For three-position Selector Switches – with text in English (Text Pos 31 Pos 32 Pos 33)			
Hand O Auto	CBK-NPE26		0.002
Slow Off Fast	CBK-NPE27		0.002
Low Off High	CBK-NPE31		0.002
FWD Off Rev	CBK-NPE33		0.002
Open Auto Close	CBK-NPE45		0.002



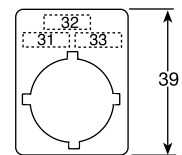
Text	Catalogue No.	List Price	Weight Kg.	
Engraved Fixed Legend Plates, with text¹. Of silvergrey aluminum				
For Pushbuttons – with text in French				
FERMETURE	CBK-NPF1		0,002	
DESCENTE	CBK-NPF2		0,002	
ARRÊT D'URGENCE	CBK-NPF3		0,002	
RAPIDE	CBK-NPF4		0,002	
AVANT	CBK-NPF5		0,002	
À COUPS	CBK-NPF6		0,002	
ENTRÉE	CBK-NPF7		0,002	
GAUCHE	CBK-NPF8		0,002	
BAS	CBK-NPF9		0,002	
HORS SERVICE	CBK-NPF10		0,002	
SOUS-TENSION	CBK-NPF11		0,002	
OUVERTURE	CBK-NPF12		0,002	
LEVER	CBK-NPF13		0,002	
RÉARMEMENT	CBK-NPF14		0,002	
ARRIÈRE	CBK-NPF15		0,002	
EN SERVICE	CBK-NPF16		0,002	
DROITE	CBK-NPF17		0,002	
LENT	CBK-NPF18		0,002	
MARCHE	CBK-NPF19		0,002	
ARRÊT	CBK-NPF20		0,002	
MONTÉE	CBK-NPF21		0,002	
FAUTE	CBK-NPF34		0,002	
EN CIRCUIT	CBK-NPF35		0,002	
ALARME	CBK-NPF36		0,002	
ALIMENTATION	CBK-NPF37		0,002	
DEPART	CBK-NPF38		0,002	
SILENCE	CBK-NPF39		0,002	
SURCHARGE	CBK-NPF40		0,002	
For two-position Selector Switches– with text in French (Text Pos 21 Pos 22)				
MAN	AUTO	CBK-NPF22	0.002	
À COUPS	MARCHE	CBK-NPF23	0.002	
HORS	EN	CBK-NPF24	0.002	
MARCHE	ARRÊT	CBK-NPF25	0.002	
ARRIÈRE	AVANT	CBK-NPF32	0.002	
HORS	TEST	CBK-NPF42	0.002	
LENT	RAPIDE	CBK-NPF46	0.002	
For three-position Selector Switches – with text in French (Text Pos 31 Pos 32 Pos 33)				
MAN	HORS	AUTO	CBK-NPF26	0.002
LENT	HORS	RAPIDE	CBK-NPF27	0.002
BAS	HORS	HAUT	CBK-NPF31	0.002
AV	HORS	ARR	CBK-NPF33	0.002
AUTO	HORS	TEST	CBK-NPF45	0.002



Legend Plates

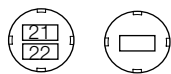
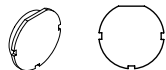


For two-position Selector Switch

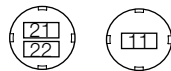


For three-position Selector Switch

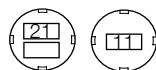
Text Caps for illuminated pushbuttons and pilot lights



Flush Button
(Can be turned 90° or 180°)



Extended Button
(Can be turned 90° or 180°)



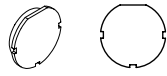
Pilot Light

Text / symbol	Cap color ¹⁾	Catalogue No.	List Price	Weight Kg
Text Caps for Illuminated Pushbuttons and Pilot Lights				
Flush Button				
START	White	KTC6-1042		0.001
R	White	KTC1-9009		0.001
	Black	KTC8-9009		0.001
On	White	KTC1-1020		0.001
ON	White	KTC1-1039		0.001
	Green	KTC6-1039		0.001
	Black	KTC8-1039		0.001
Off	White	KTC1-1019		0.001
Stop	White	KTC1-1031		0.001
STOP	Red	KTC4-1047		0.001
Reset	White	KTC1-1025		0.001
(Without text)	White	KTC1-9000		0.001
(Customer specific marking)	White	KTC1-9000-L		0.001
Extended Button				
R	White	KTC2-9009		0.001
	Black	KTC9-9009		0.001
On	White	KTC2-1020		0.001
Off	White	KTC2-1019		0.001
OFF	White	KTC2-1040		0.001
	Red	KTC5-1040		0.001
	Black	KTC9-1040		0.001
Stop	White	KTC2-1031		0.001
STOP	Red	KTC5-1047		0.001
Reset	White	KTC2-1025		0.001
(Without text)	White	KTC2-9000		0.001
(Customer specific marking)	White	KTC2-9000-L		0.001
Pilot Light				
R	White	KTC3-9009		0.001
On	White	KTC3-1020		0.001
ON	White	KTC3-1039		0.001
Off	White	KTC3-1019		0.001
Stop	White	KTC3-1031		0.001
Reset	White	KTC3-1025		0.001
(Without text)	White	KTC3-9000		0.001
(Customer specific marking)	White	KTC3-9000-L		0.001

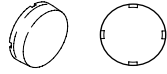
¹⁾ Use only white caps for illuminated Pushbutton and Pilot Lights.



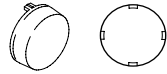
Text Caps for illuminated pushbuttons and pilot lights



Flush Button
(Can be turned 90° or 180°)



Extended Button
(Can be turned 90° or 180°)

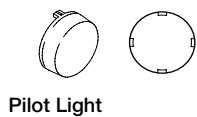
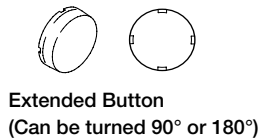
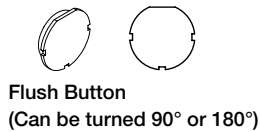


Pilot Light

Text / symbol	Cap Color ¹⁾	Catalogue No.	List Price	Weight Kg
Text Caps for Illuminated Pushbuttons and Pilot Lights				
Flush Button				
○	White	KTC1-9004		0.001
	Red	KTC4-9004		0.001
	Black	KTC8-9004		0.001
I	White	KTC1-9002		0.001
	Green	KTC6-9002		0.001
	Black	KTC8-9002		0.001
II	White	KTC1-9003		0.001
	Green	KTC6-9003		0.001
	Black	KTC8-9003		0.001
III	White	KTC1-9028		0.001
	Black	KTC8-9028		0.001
+	White	KTC1-9011		0.001
	Green	KTC6-9011		0.001
	Black	KTC8-9011		0.001
-	White	KTC1-9012		0.001
	Red	KTC4-9012		0.001
	Black	KTC8-9012		0.001
↑	White	KTC1-9005		0.001
	Black	KTC8-9005		0.001
↗	White	KTC1-9014		0.001
	Black	KTC8-9014		0.001
↔	White	KTC1-9015		0.001
	Black	KTC8-9015		0.001
↔↔	White	KTC1-9016		0.001
	Black	KTC8-9016		0.001
→	White	KTC1-9017		0.001
	Black	KTC8-9017		0.001
Extended Button				
○	White	KTC2-9004		0.001
	Red	KTC5-9004		0.001
I	White	KTC2-9002		0.001
II	White	KTC2-9003		0.001
III	White	KTC2-9028		0.001
+	White	KTC2-9011		0.001
↑	White	KTC2-9005		0.001
↗	White	KTC2-9014		0.001
↔	White	KTC2-9015		0.001
↔↔	White	KTC2-9016		0.001
→	White	KTC2-9017		0.001
Pilot Light				
○	White	KTC3-9004		0.001
I	White	KTC3-9002		0.001
II	White	KTC3-9003		0.001
↑	White	KTC3-9005		0.001

¹⁾ Use only white caps for illuminated Pushbutton and Pilot Lights. Cont. next page



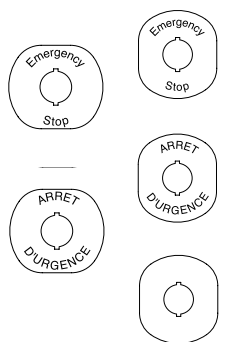


Text / symbol	Cap Color ¹⁾	Catalogue No.	List Price	Weight Kg
Text Caps for Illuminated Pushbuttons and Pilot Lights				
Flush Button				
→→	White	KTC1-9006		0.001
⊕	White	KTC1-9018		0.001
	Black	KTC8-9018		0.001
●	White	KTC1-9019		0.001
	Black	KTC8-9019		0.001
⊙	White	KTC1-9020		0.001
	Black	KTC8-9020		0.001
☞	White	KTC1-9021		0.001
	Black	KTC8-9021		0.001
∞	White	KTC1-9022		0.001
	Black	KTC8-9022		0.001
⚡	White	KTC1-9023		0.001
	Black	KTC8-9023		0.001
⚓	White	KTC1-9024		0.001
	Black	KTC8-9024		0.001
↑	White	KTC1-9025		0.001
	Black	KTC8-9025		0.001
↓	White	KTC1-9026		0.001
	Black	KTC8-9026		0.001
◀	White	KTC1-9027		0.001
	Black	KTC8-9027		0.001
Extended Button				
→→	White	KTC2-9006		0.001
⊕	White	KTC2-9018		0.001
●	White	KTC2-9019		0.001
⊙	White	KTC2-9020		0.001
☞	White	KTC2-9021		0.001
∞	White	KTC2-9022		0.001
⚡	White	KTC2-9023		0.001
⚓	White	KTC2-9024		0.001
↑	White	KTC2-9025		0.001
↓	White	KTC2-9026		0.001
◀	White	KTC2-9027		0.001
Pilot Light				
→→	White	KTC3-9006		0.001

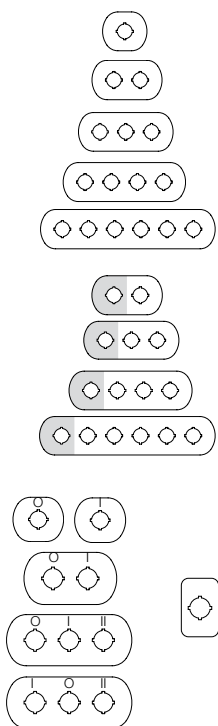
¹⁾ Use only white caps for illuminated Pushbutton and Pilot Lights.



Special Legend Plates for plastic enclosures



Emergency Stop Legend Plate



Description	Catalogue No.	List Price	Weight Kg
Emergency Stop Legend Plates For Plastic Enclosures			
For Horizontally Mounted Enclosures. Yellow Plastic with black text:			
Emergency Stop	MA6-1026		0.004
ARRET D'URGENCE	MA6-1028		0.004
For Vertically Mounted Enclosures. Yellow Plastic with black text			
Emergency Stop	MA6-1101		0.004
ARRET D'URGENCE	MA6-1103		0.004
Yellow Plastic			
Without text	MA6-1024		0.004
With customer-selected marking	MA6-1024-L		0.004

Emergency Stop Legend Plates for compact enclosure			
Black text on yellow Aluminum plate			
Emergency Stop	CA6-1026		0.004

Description	Catalogue No.	List Price	Weight Kg
Legend Plates For Plastic Enclosures			
Silver-grey Aluminum on plastic			
1-seat without text	MA6-1000		0.004
2-seat without text	MA6-1002		0.006
3-seat without text	MA6-1003		0.008
4-seat without text	MA6-1004		0.010
6-seat without text	MA6-1005		0.012
Silver-grey Aluminum on plastic (Pos. 1 Yellow)			
2-seat without text	MA6-1006		0.006
3-seat without text	MA6-1007		0.008
4-seat without text	MA6-1008		0.010
6-seat without text	MA6-1009		0.012
Silver-grey Aluminum on plastic			
Symbol/Text Pos			
1-seat O	MA6-1012		0.004
1-seat I	MA6-1013		0.004
2-seat O I	MA6-1014		0.006
3-seat O I II	MA6-1015		0.008
3-seat I O II	MA6-1016		0.008

Emergency Stop Legend Plate			
Black text on an Yellow Aluminum Plate			
Without text	MA6-1010		0.005
Emergency Stop	MA6-1019		0.005
ARRET D'URGENCE	MA6-1020		0.005
Black text on an Yellow Plastic Plate			
Without text	MA6-1011		0.002
Emergency Stop	MA6-1023		0.002

Custom Name Plate For Push Buttons 22.5 mm

Type SK615999-1, SK615999-2

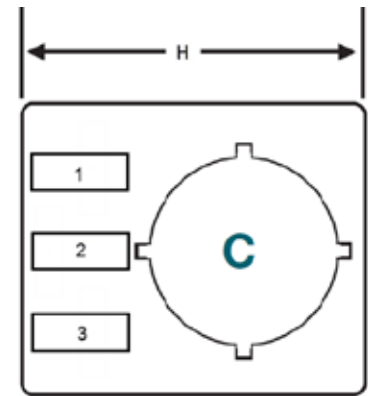
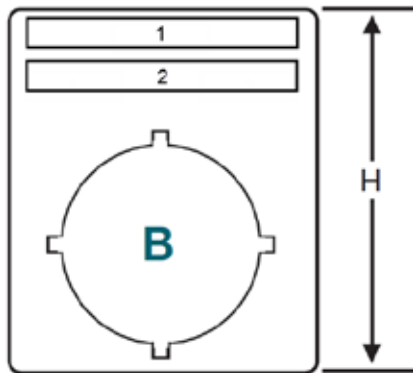
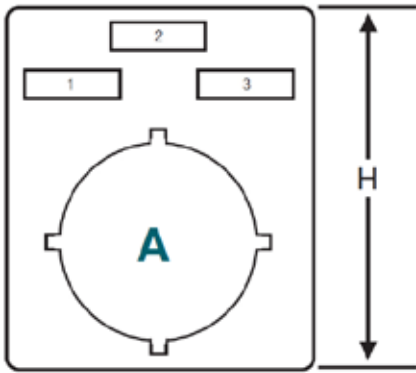
Please complete this form and fax or email it to ABB along with your order

Name: _____ Date: _____

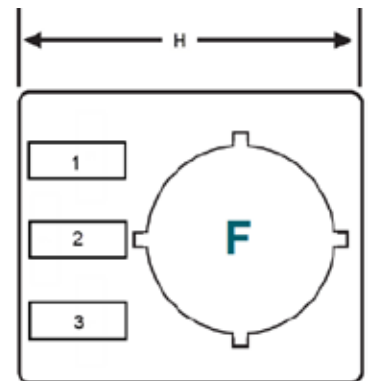
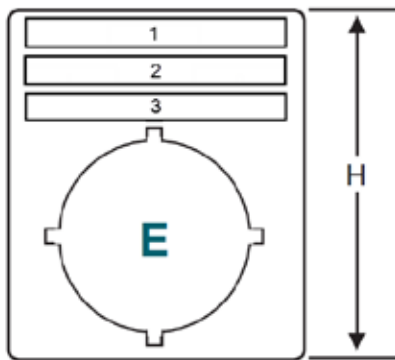
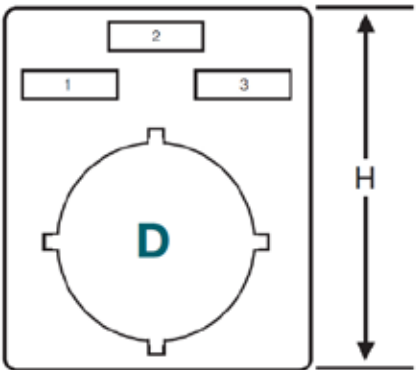
PO: _____ QTY: _____

Legend plate style number: _____

SK615999-1, H = 39 mm



SK615999-2, H = 44 mm



Number of Characters Allowed

Style number	Position 1	Position 2	Position 3
A	5	5	5
B	11	11	
C	4	4	4
D	5	5	5
E	11	11	11
F	5	5	5

Text Required

1	
2	
3	

Pilot Devices

signal towers K70 and signal beacons KSB



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.

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
- High protection rating optical and audible signal elements with IP 54
- 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
- Cap consists of high impact polycarbonate (up to 20 J)
- Bulb change via inside of control box

Signal Towers and Beacons

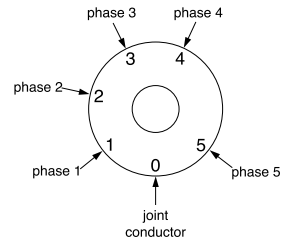
- Permanent Light
- Blinking Light
- Flashing Light
- Audible
- LED Permanent Light
- LED Blinking Light
- LED Rotating Light

Simple fitting with quick fix system

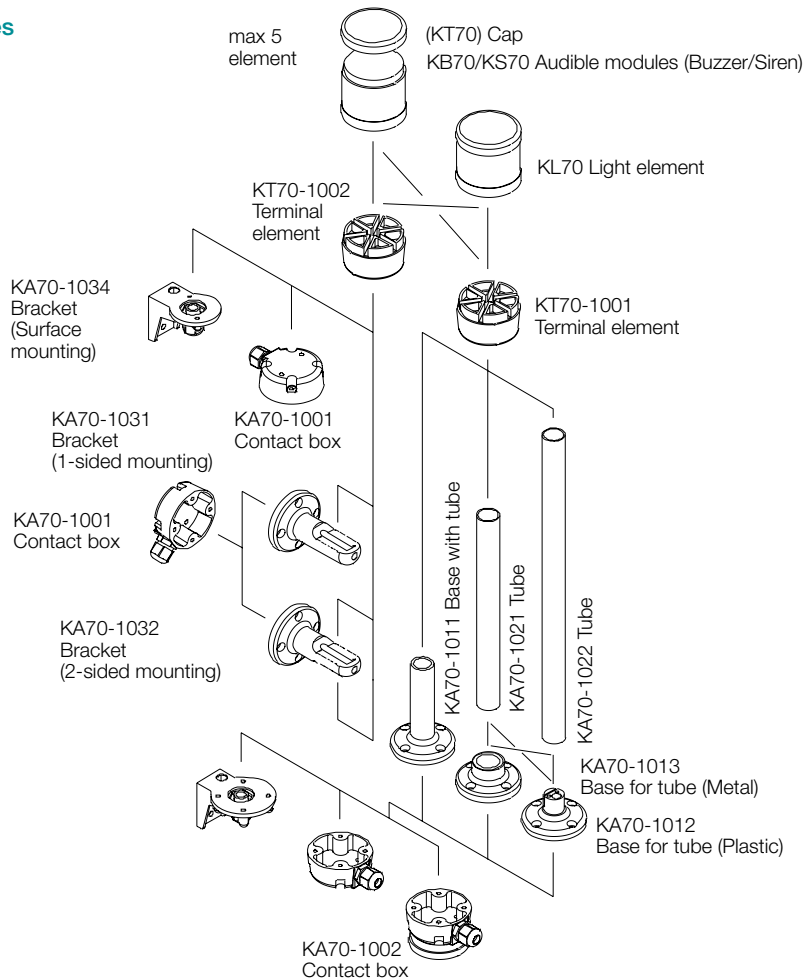
Each K 70 module is equipped with a bayonet fixing with integral contact system. The modules are fastened together by aligning the corresponding white marks then with a gentle twist they are locked into place (see the figures).



Connection Plans



Combination Possibilities



Optical Modules for signal towers K70



Description	Catalogue No.	List Price	Weight Kg
Light Element			
Permanent Light, 12-240 V AC/DC. For bulb BA 15d. Bulb not included			
● Red	KL70-401R		0.09
● Green	KL70-401G		0.09
● Yellow	KL70-401Y		0.09
● Blue	KL70-401L		0.09
○ Clear	KL40-401C		0.09
Blinking Light, 24 V AC/DC. With Integrated LED			
● Red	KL70-306R		0.10
● Green	KL70-306G		0.10
● Yellow	KL70-306Y		0.10
● Blue	KL70-306L		0.10
○ Clear	KL70-306C		0.10
Flashing Light, 24 V AC/DC. With Integrated Xenon Tube			
● Red	KL70-203R		0.12
● Green	KL70-203G		0.12
● Yellow	KL70-203Y		0.12
● Blue	KL70-203L		0.12
○ Clear	KL70-203C		0.12
Blinking Light, 115 V AC. With Integrated LED			
● Red	KL70-342R		0.10
● Green	KL70-342G		0.10
● Yellow	KL70-342Y		0.10
● Blue	KL70-342L		0.10
○ Clear	KL70-342C		0.10
Flashing Light, 115 V AC. With Integrated Xenon Tube			
● Red	KL70-113R		0.11
● Green	KL70-113G		0.11
● Yellow	KL70-113Y		0.11
● Blue	KL70-113L		0.11
○ Clear	KL70-113C		0.11
Blinking Light, 230 V AC. With Integrated LED			
● Red	KL70-352R		0.10
● Green	KL70-352G		0.10
● Yellow	KL70-352Y		0.10
● Blue	KL70-352L		0.10
○ Clear	KL70-352C		0.10
LED Permanent Light, 115 V AC. With Integrated LED			
● Red	KL70-315R		0.10
● Green	KL70-315G		0.10
● Yellow	KL70-315Y		0.10
● Blue	KL70-315L		0.10
○ Clear	KL70-315C		0.10
LED Permanent Light, 24 V AC/DC. With Integrated LED			
● Red	KL70-305R		0.10
● Green	KL70-305G		0.10
● Yellow	KL70-305Y		0.10
● Blue	KL70-305L		0.10
○ Clear	KL70-305C		0.10
LED Rotating Light, 24 V AC/DC. With Integrated LED			
● Red	KL70-307R		0.10
● Green	KL70-307G		0.10
● Yellow	KL70-307Y		0.10
● Blue	KL70-307L		0.10
○ Clear	KL70-307C		0.10

Signal Towers K70



LED Bulb

Description	Catalogue No.	List Price	Weight Kg
Bulbs for Signal Tower K70 Bulb Ba 15d, 42mm, Max 7 W For permanent or blinking light			
24 V, 5 W, AC/DC	KA4-1028		0.009
115 V, 5 W, AC/DC	KA4-1118		0.009
230 V, 5 W, AC/DC	KA4-1148		0.009

LED Bulbs for Signal Tower K70 Ba 15d. For 24 V AC/DC, 40mA			
● Red	KA4-1021		0.009
● Green	KA4-1022		0.009
● Yellow	KA4-1023		0.009
● Blue	KA4-1024		0.009
○ White	KA4-1025		0.009

Audible Modules. Buzzer Element. 85 dB at 1m, continuous or pulsating tone, adjustable			
24 V AC/DC	KB70-3001		0.11
115 V AC/DC	KB70-3101		0.11
230 V AC/DC	KB70-1201		0.12



Terminal Element

Siren Element			
Multi function, 8 diff. Tones adjustable, volume adjustable 100 dB at 1m, 115 V AC	KS70-1104		0.13
Multi function, 8 diff. Tones adjustable, volume adjustable 100 dB at 1m, 230 V AC	KS70-1204		0.12
Multi function, 7 diff. Tones adjustable, volume adjustable, remote control, 100 dB at 1m, 24 V DC	KS70-2004		0.12
Multi function, 8 diff. Tones adjustable, volume adjustable 100 dB at 1m, 24 V AC/DC	KS70-3004		0.12
Continuous tone alternating 108 dB at 1m, 24 V DC	KS70-2002		0.15

Terminal Elements			
For tube mounting, including cap	KT70-1001		0.15
For bracket or base, including cap	KT70-1002		0.15



Contact Box

Special Parts			
Contact Box			
Cable exit at side	KA70-1001		0.07
Magnetic base	KA70-1002		0.07

Base with tube			
D=25 mm L=110 mm	KA70-1011		0.06

Base for tube			
D=25 mm, Plastic	KA70-1012		0.03
D=25 mm, Metal	KA70-1013		0.32

Tube, anodized Aluminum			
D=25 mm L=250 mm	KA70-1021		0.08
D=25 mm L=400 mm	KA70-1022		0.12
D=25 mm L=800 mm	KA70-1023		0.24
Adaptor 25 mm to 1/2"	975 840 02		0.20



Bracket

Bracket			
1-sided mounting	KA70-1031		0.07
2-sided mounting	KA70-1032		0.07
For tube mounting	KA70-1033		0.07
For surface mounting	KA70-1034		0.07

Signal Beacons KSB



Light element



Description	Catalogue No.	List Price	Weight Kg
Light Element			
Permanent Light, 12-240 V AC/DC. For Bulb BA 15d. Bulb not included			
● Red	KSB-401R		0.13
● Green	KSB-401G		0.13
● Yellow	KSB-401Y		0.13
● Blue	KSB-401L		0.13
○ Clear	KSB-401C		0.13
Flashing Light, 24 V DC. With Integrated Xenon Tube			
● Red	KSB-203R		0.14
● Green	KSB-203G		0.14
● Yellow	KSB-203Y		0.14
● Blue	KSB-203L		0.14
○ Clear	KSB-203C		0.14
Flashing Light, 115 V AC. With Integrated Xenon Tube			
● Red	KSB-113R		0.14
● Green	KSB-113G		0.14
● Yellow	KSB-113Y		0.14
● Blue	KSB-113L		0.14
○ Clear	KSB-113C		0.14
LED Permanent Light, 115 V AC. With Integrated LED			
● Red	KSB-315R		0.14
● Green	KSB-315G		0.14
● Yellow	KSB-315Y		0.14
● Blue	KSB-315L		0.14
○ Clear	KSB-315C		0.14
LED Permanent Light, 24 V AC/DC. With Integrated LED			
● Red	KSB-305R		0.14
● Green	KSB-305G		0.14
● Yellow	KSB-305Y		0.14
LED Blinking Light, 24 V AC/DC. With Integrated LED			
● Red	KSB-306R		0.14
● Green	KSB-306G		0.14
● Yellow	KSB-306Y		0.14
LED Rotation Light, 24 V AC/DC. With Integrated LED			
● Red	KSB-307R		0.14
● Green	KSB-307G		0.14
● Yellow	KSB-307Y		0.14
Special Parts			
Anti-twist Device	KASB-100		0.005
Tube Adaptor	KASB-101		0.10
Bulbs for Signal Beacons Max 10 W. For Permanent Light. Bulb Ba 15d, 52mm.			
12 V, 7 W, AC/DC	KA3-1018		0.011
24 V, 7 W, AC/DC	KA3-1028		0.011
115 V, 7 W, AC/DC	KA3-1118		0.011
220-260 V, 7-10 W, AC/DC	KA3-1148		0.011





Anti-twist Device

Technical Data

signal towers K70 and signal beacons KSB

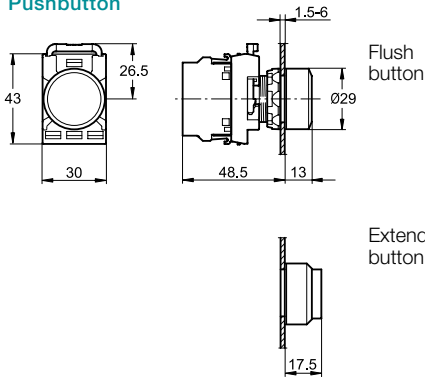
Signal Towers K70			
Approvals			
		E 175 441 	
Technical Specifications			
Housing and Accessories	Polyamide, high impact, black		
Dome	Polycarbonate, transparent		
Fixing	Base mounting, tube Ø 25mm, bracket mounting		
Socket	B 15 d, for bulb max. 7W		
Connection	Screw connection up to 2.5 mm ²		
Number of modules possible -2-sided bracket	max. 5 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		
Flashing Light Element			
	24 V DC	115 V AC	230 V 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 reduced for AS-Interface	125 mA 80 mA	20mA	35 mA
Starting Current	< 0.5 A at 24 V		
LED Permanent Light Element			
	24 V AC/DC	115 V AC	230 V AC
Life Duration	100 000 hours		
Current Consumption	45 mA	25mA	25mA
Starting Current	< 0.5 A at 24 V		
LED Blinking Light Element			
	24 V AC/DC	115 V AC	230 V AC
Life Duration	100 000 hours		
Current Consumption	25 mA	25mA	25mA
Starting Current	< 0.5 A at 24 V		
Blink Frequency	c. 1 Hz	c. 1 Hz	c. 1 Hz
LED Rotation Light Element			
	24 V, AC/DC		
Life Duration	100 000 hours		
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			
		E 175 441 	
Technical Specifications			
Housing and Accessories	PC/ABS-Blend, high impact, black		
Dome	Polycarbonate, transparent		
Fixing	Installation mounting for Ø 37mm, (PG 29)		
Bulb Socket	B 15 d, for bulb max. 10W		
Bulb Change	Via rear access with bayonet mechanism (Bulb not included)		
Connection	Screw connection max 2.5 mm ²		
Degrees of Protection	IP 65, UL Type 4X		
Electrical Data			
Permanent Light Element Operating Voltage	max. 250 V		
Life Duration	100 000 hours		
Bulb socket B 15 d, max 10 W	Bulb not included		
LED version: permanent light			
	24 V, AC/DC		
Life Duration	100 000 hours		
Current Consumption	45 mA		
Blinking Light Element			
	24 V, AC/DC		
Life Duration	100 000 hours		
Current Consumption	25 mA		
Rotation Light Element			
	24 V, AC/DC		
Life Duration	100 000 hours		
Current Consumption	70 mA		
Starting Current	< 0.5 A		
Flashing Light Element			
Operating Voltage	24 V AC/DC	115 V AC	230 V 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	20mA	35 mA
Starting Current	< 0.5 A	< 0.5 A	< 0.5 A
Temperature			
Ambient Temperature during operations	-20 to +50 °C		

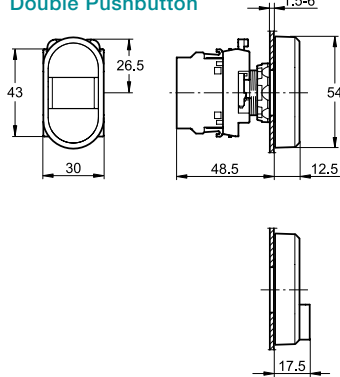
Dimensions modular range

3D drawings can be found in ABB Library.

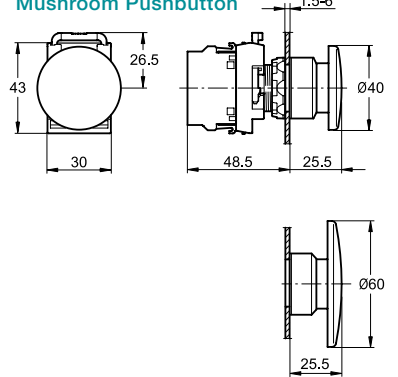
Pushbutton



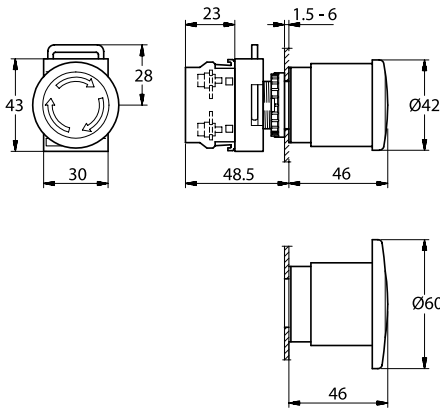
Double Pushbutton



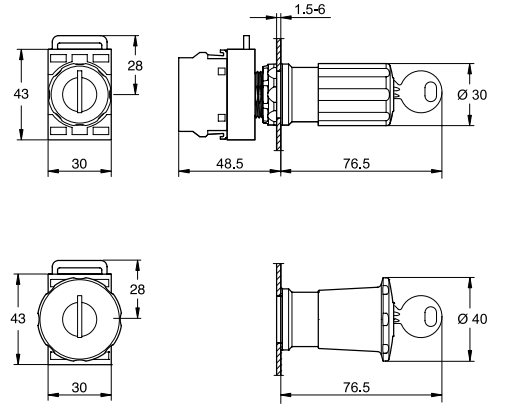
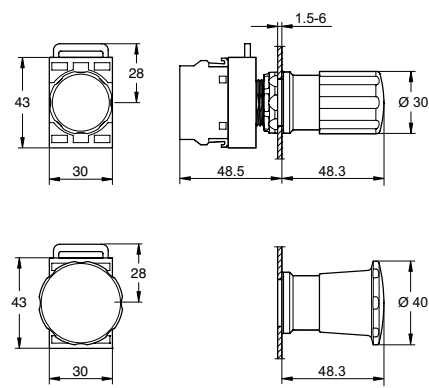
Mushroom Pushbutton



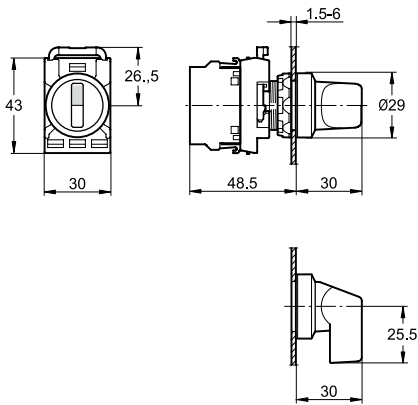
Emergency Stop Pushbutton type MPM



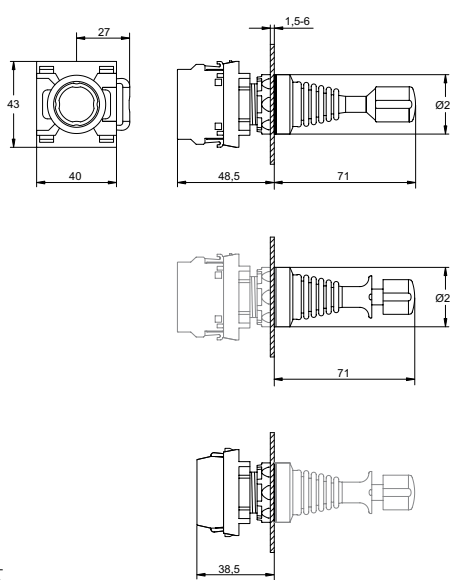
Emergency Stop Pushbutton type MPE



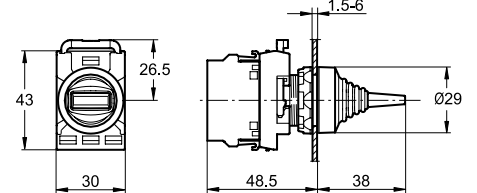
Selector Switch



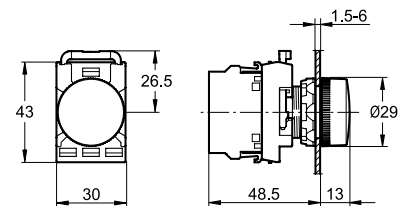
Joystick



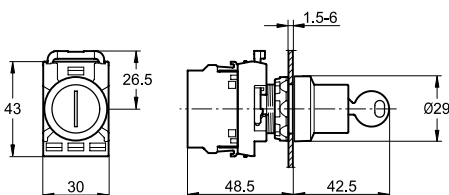
Toggle Switch



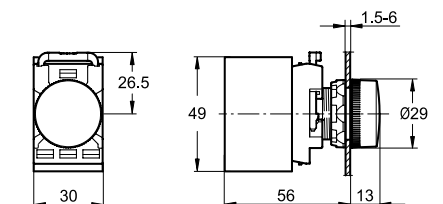
Pilot Light



Key-operated Selector Switch

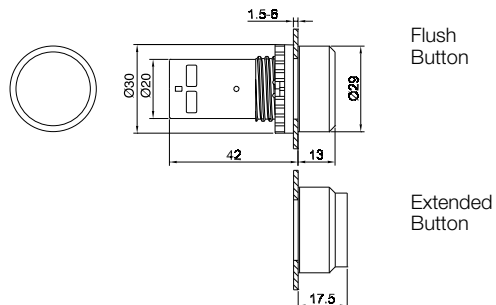


Pilot Light with transformer

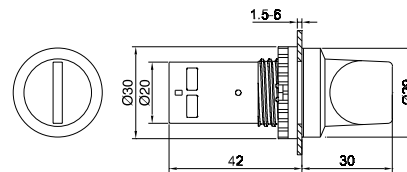


Dimensions compact range

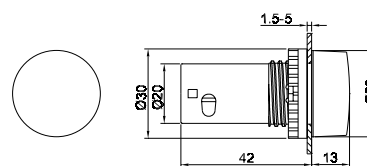
Pushbutton



Selector Switch

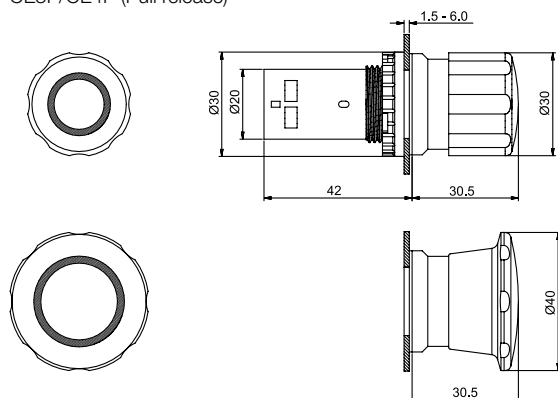


Pilot Light

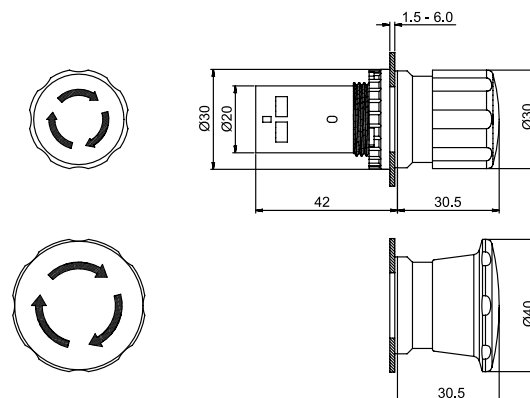


Emergency Stop Pushbuttons

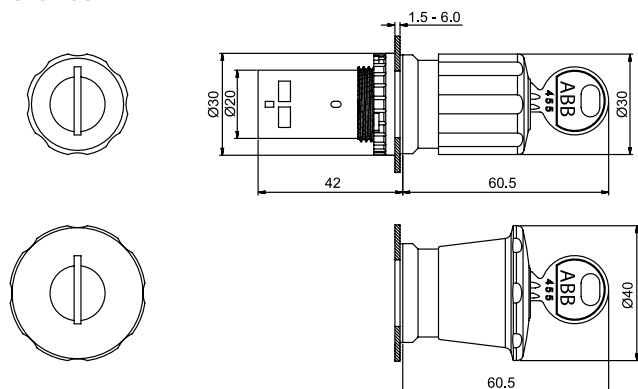
CE3P/CE4P (Pull release)



CE3T/CE4T (Twist release)

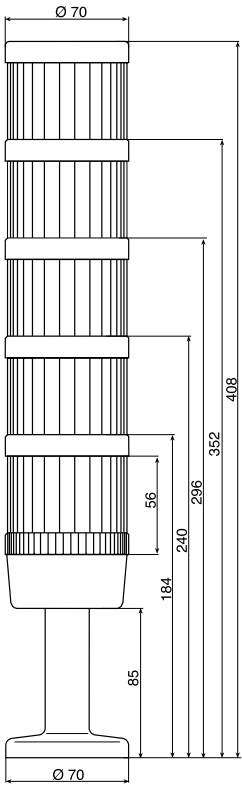


CE3K1/CE4K1

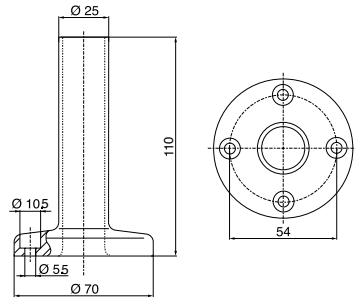


Dimensions and Drilling Plans signal towers

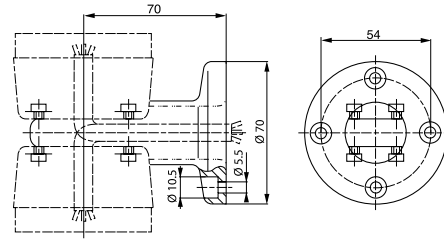
Signal Towers K 70



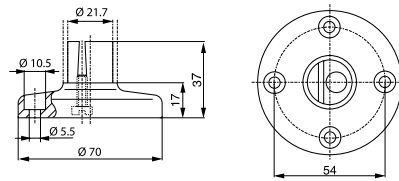
Base with Integrated Tube



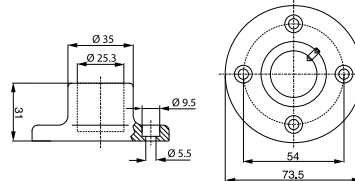
Bracket 2-sided mounting



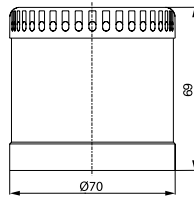
Base for Tube, Plastic



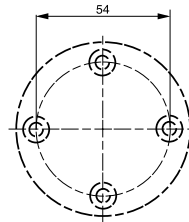
Base for Tube, Metal



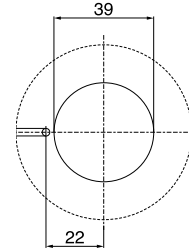
Audible Module



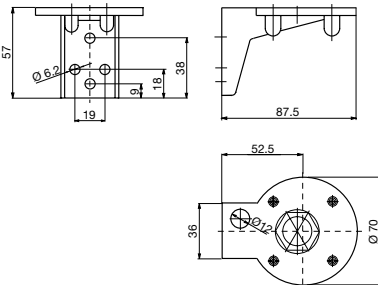
Drilling Plan for Signal Towers K 70



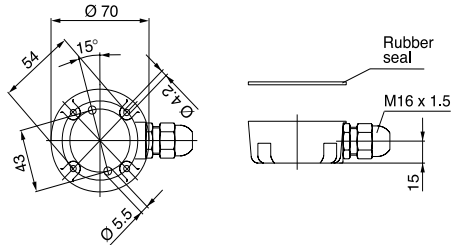
Drilling Plan for Signal Beacons KSB



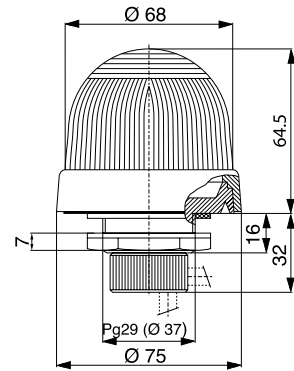
Bracket for tube mounting



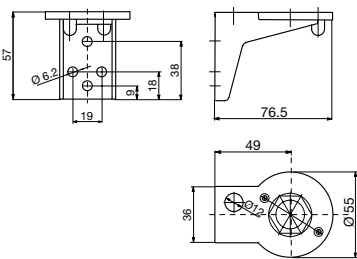
Contact Box for cable exit at side



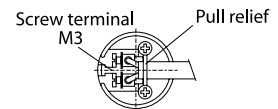
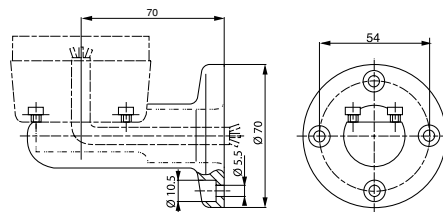
Signal Beacons K SB



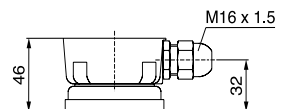
Bracket for surface mounting



Bracket 1-sided mounting



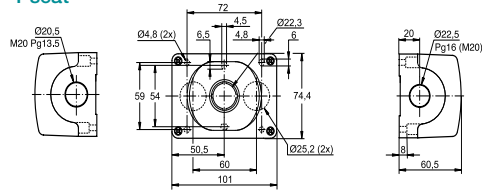
Contact box with magnetic base



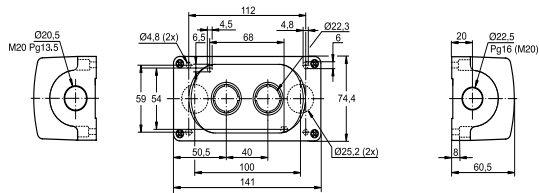
Dimensions enclosures

Plastic Enclosures

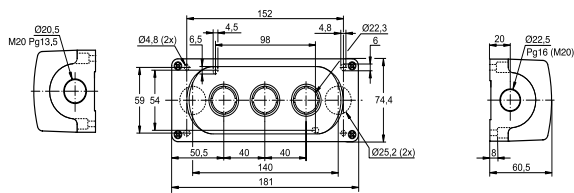
1 seat



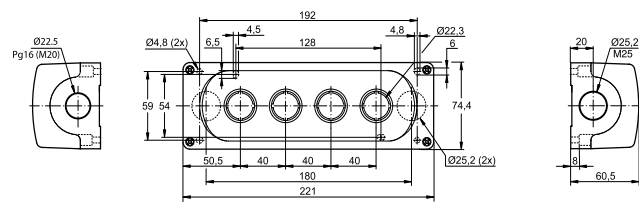
2 seats



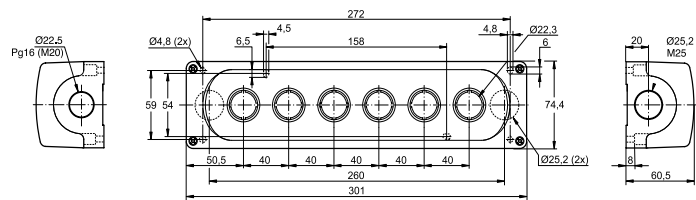
3 seats



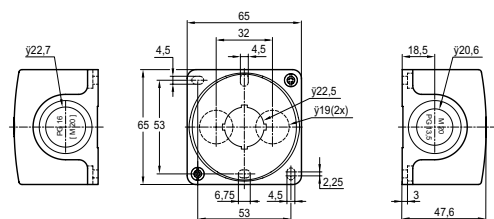
4 seats



6 seats



Plastic Enclosure for Compact Range



Color Selection

Color selection according to IEC 60 073

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

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 / STOP or ON / 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.

Degrees of Protection

General

In an installation, the degree of protection required for electrical equipment depends on the environmental characteristics. The degree of protection, ensured by the enclosure of equipment or by the cubicle containing the equipment is expressed by the IP code which gives the level of protection against access to hazardous parts, the ingress of foreign bodies and/or the ingress of water, in compliance with IEC 60529, IEC 60947-1.

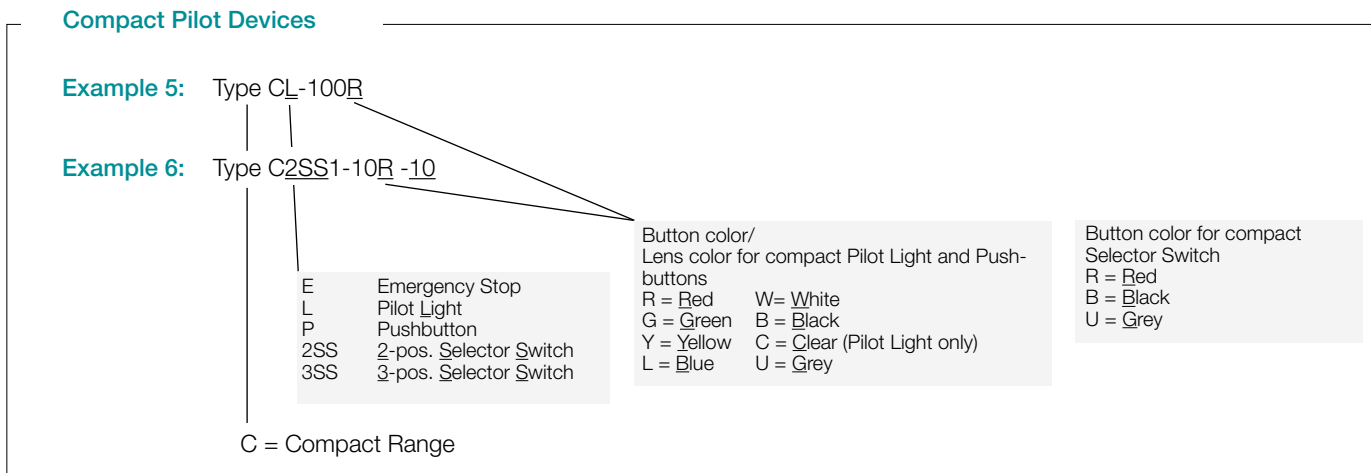
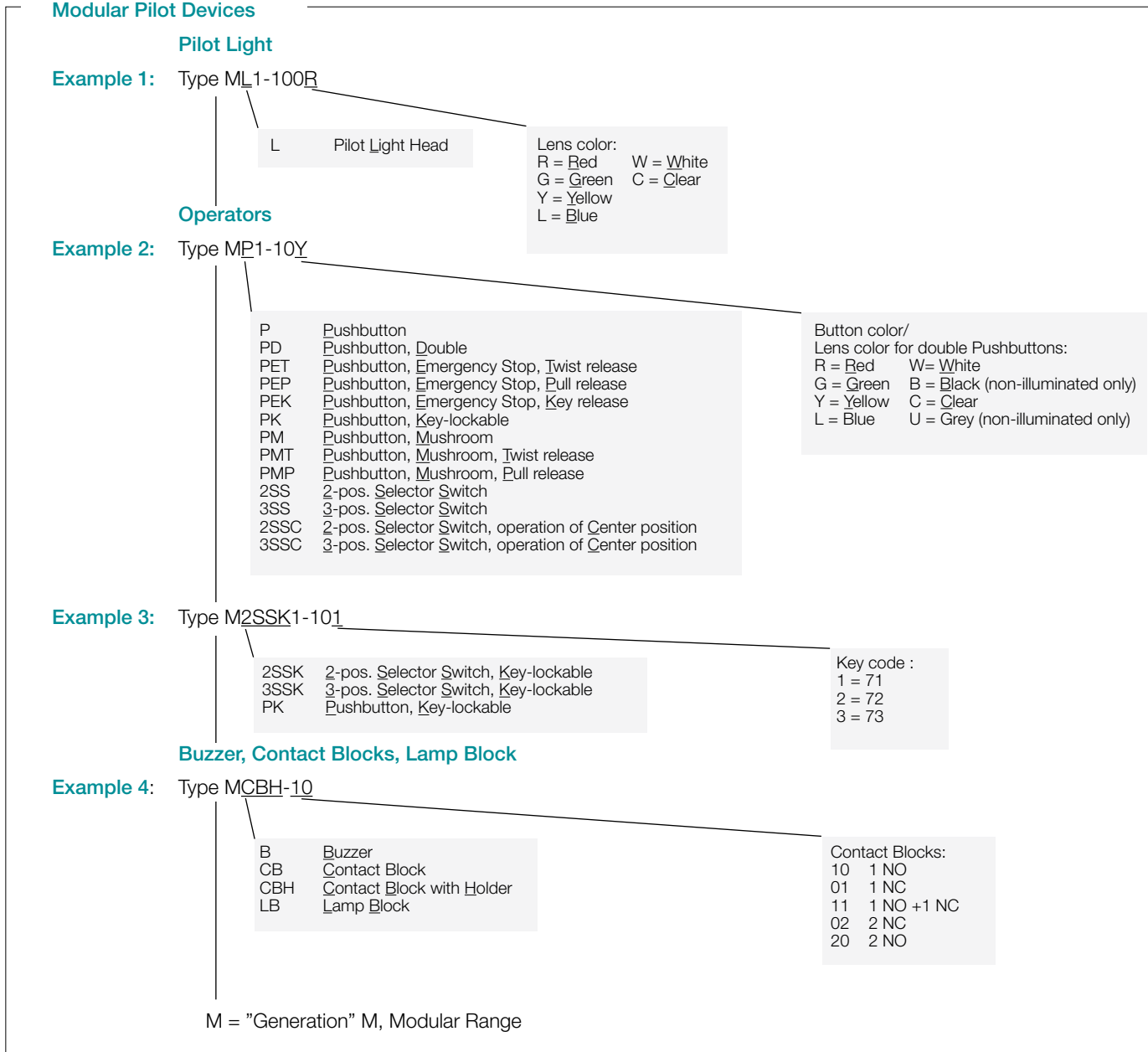
Besides the IP symbol, the complete code has two figures followed (optionally) by two additional letters. A short description of the elements used in IP coding is given below.

IP.. code	Figures or Letters	Specifications for installation protection	Protection of Persons
First Figure		Against ingress of foreign bodies	Against access to hazardous parts with:
	0	No protection	No protection
	1	Diameter > 50 mm	Back of hand
	2	Diameter > 12.5 mm	Finger
	3	Diameter > 2.5 mm	Tool
	4	Diameter > 1 mm	Wire
	5	Limited protection against dust	Wire
	6	Total protection against dust	Wire
Second Figure		Against entrance of water having a harmful effect	
	0	No protection	
	1	Vertical dripping	
	2	Dripping at a vertical angle of < 15°	
	3	Rain at a vertical angle of < 60°	
	4	Splashing	
	5	Low pressure water jet	
	6	Powerful water jets	
	7	Temporary immersion	
	8	Permanent immersion	
	9K*	High Pressure, High Temperature washdown	

Note: The type of enclosure or cubicle in which the equipment must be installed prevails with respect to the degree of protection.

*) According to DIN 400 50-9

Explanation of Type Codes



Pilot Devices, 30 mm modular range

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.

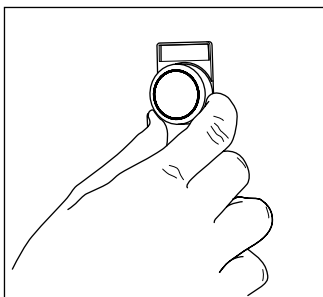
Legend plate holder

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

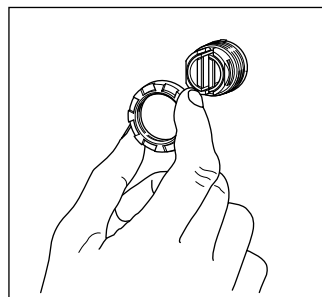
Bezels

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

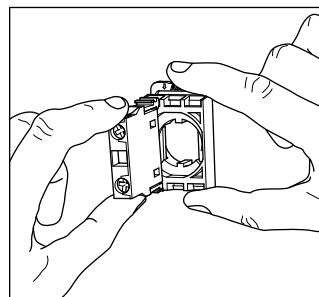
Easy to mount



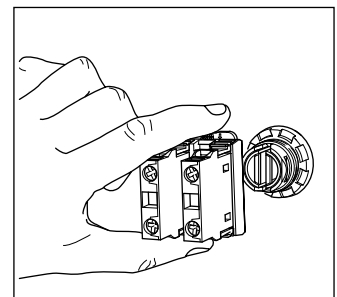
The operator is to be inserted from the front.....



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

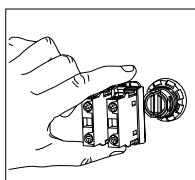
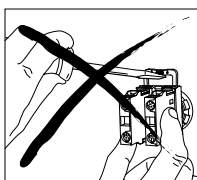


The contact blocks/lamp block are then snapped on to the holder...



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

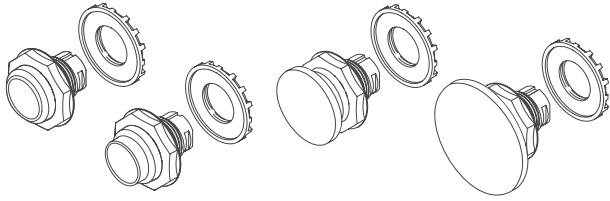
...and to demount



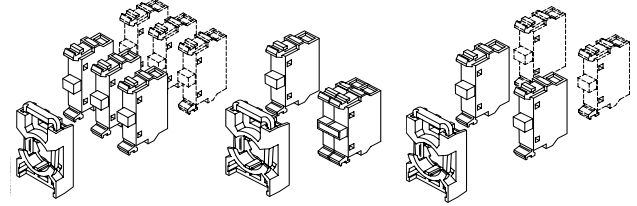
Press down the spring on the holder and pull the holder from the actuator.

30 mm Pilot Devices - Modular Range selection guide

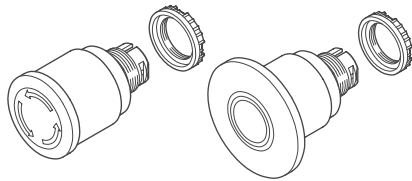
Pushbuttons and Mushroom pushbuttons



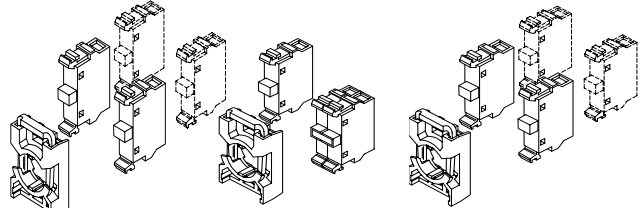
Contact block/lamp block combinations



Emergency stop pushbuttons

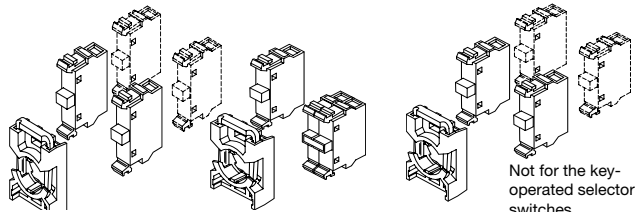
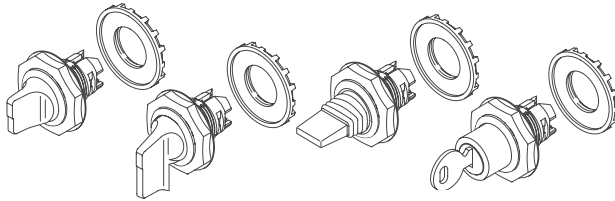


Contact block/lamp block combinations



Selector switches

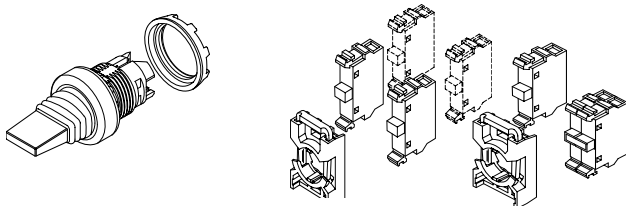
Contact block/lamp block combinations



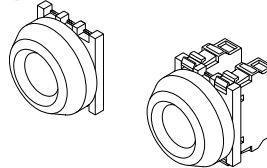
Not for the key-operated selector switches

Toggle switches

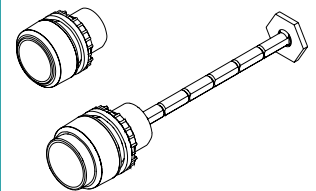
Contact block combinations



Definite purpose pushbuttons

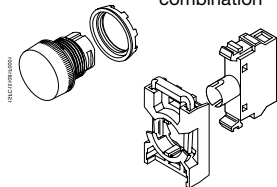


Reset pushbuttons

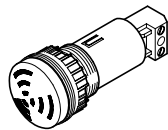


Pilot lights

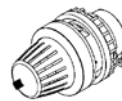
Lamp block combination



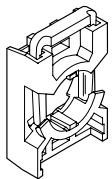
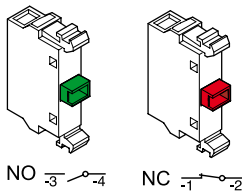
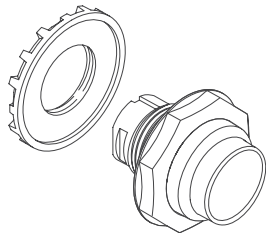
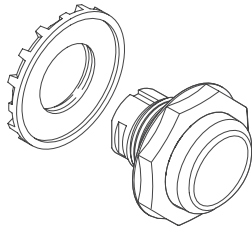
Buzzers



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	
Maintained¹				
● 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	
Maintained¹				
● Red	GMP4-10R		GMP4-30R	
● Green	GMP4-10G		GMP4-30G	
● Yellow	GMP4-10Y		GMP4-30Y	
● Blue	GMP4-10L		GMP4-30L	
○ White	GMP4-10W		GMP4-30W	
● Black	GMP4-10B		GMP4-30B	
○ Clear	GMP4-10C		GMP4-30C	

Contact blocks, and holder

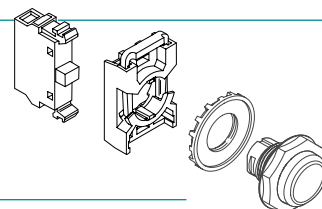
Blocks	Catalogue No.	List Price
1 NO with holder	MCBH-10	
1 NC with holder	MCBH-01	
2 NO with holder	MCBH-20	
2 NC with holder	MCBH-02	
1 NO + 1 NC with holder	MCBH-11	
1 NO without holder	MCB-10	
1 NC without holder	MCB-01	
Holder for 3 blocks	MCBH-00	

¹) No contact block in the center position

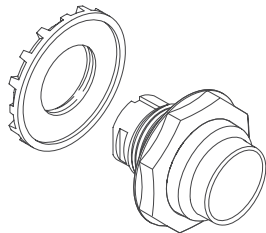
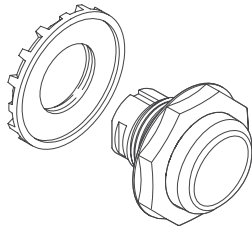
Ordering example

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

Order: 1 piece of 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				
Momentary¹				
● 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				
Momentary¹				
● 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 holder²

Blocks	Catalogue No.	List Price
1 NO + 1 LB with holder	MCBH-101	
1 NC + 1 LBwith holder	MCBH-011	
2 NO + 1 LBwith holder	MCBH-201	
2 NC + 1 LBwith 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.

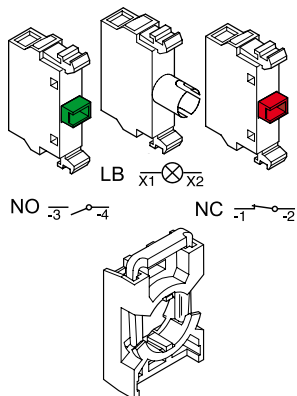
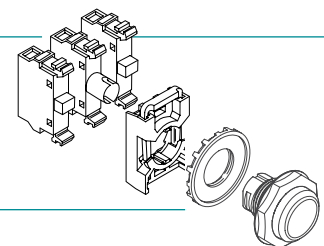
² Lamp block MLB-1. Bulb not included. For other lamp blocks see Accessories.

³ Bulb max 1.2 W, not included

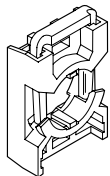
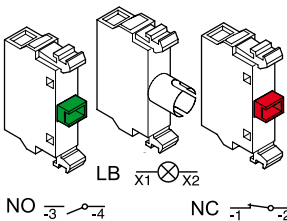
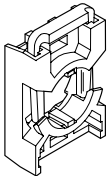
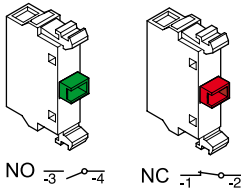
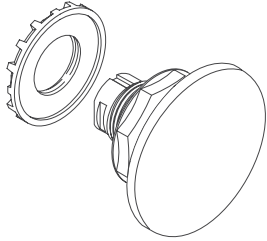
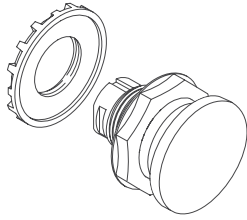
Ordering example

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	GMPM2-11R		GMPM2-31R	
	● Yellow	GMPM2-11Y		GMPM2-31Y	
	● Black	GMPM2-11B		GMPM2-31B	
Illuminated¹					
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 holder²

Blocks	Catalogue No.	List Price
1 NO with holder	MCBH-10	
1 NC with holder	MCBH-01	
1 NO with holder	MCBH-20	
1 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	

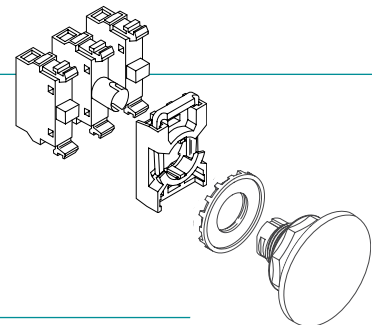
¹ No contact block in the center position.

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

Ordering example – Mushroom Pushbutton

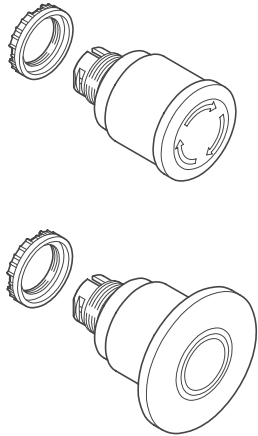
Requested: A modular mushroom pushbutton, Ø 40 mm, illuminated, red, with one NO + one NC contact and a standard lamp block

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



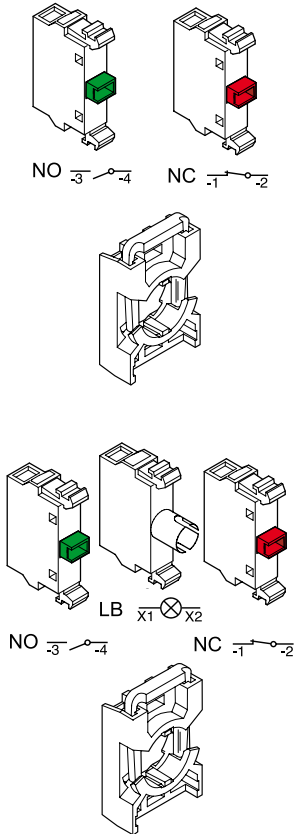
30 mm Pilot Devices - Modular Range emergency stop pushbuttons non-illuminated and illuminated

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	GMPET4-10R		GMPET4-30R	
Pull release	● Red	GMPEP4-10R		GMPEP4-30R	
Ø 60 mm					
Twist release	● Red	GMPMT4-10R		GMPMT4-30R	
Pull release	● Red	GMPMP4-10R		GMPMP4-30R	
Illuminated¹					
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 holder²

Blocks	Catalogue No.	List Price
1 NO with holder	MCBH-10	
1 NC with holder	MCBH-01	
1 NO with holder	MCBH-20	
1 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.

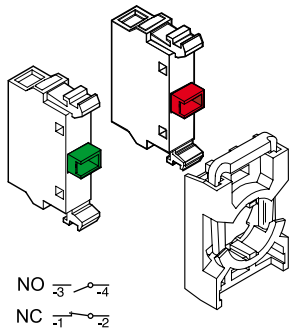
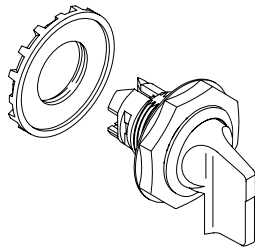
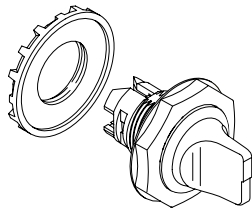
² Lamp block MLB-1. Bulb not included. For other lamp blocks see Accessories.

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 2500 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
Actuation force	Minimum 35N Maximum 80N	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



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 handle¹					
Maintained					
	● Red	GM2SS1-10R		GM2SS1-30R	
	● Black	GM2SS1-10B		GM2SS1-30B	
	● Grey	GM2SS1-10U		GM2SS1-30U	
Maintained					
	● Red	GM2SS2-10R		GM2SS2-30R	
	● Black	GM2SS2-10B		GM2SS2-30B	
	● Grey	GM2SS2-10U		GM2SS2-30U	
Momentary, spring return from C to B					
	● Red	GM2SS3-10R		GM2SS3-30R	
	● Black	GM2SS3-10B		GM2SS3-30B	
	● Grey	GM2SS3-10U		GM2SS3-30U	
With long handle¹					
Maintained					
	● Red	GM2SS4-10R		GM2SS4-30R	
	● Black	GM2SS4-10B		GM2SS4-30B	
	● Grey	GM2SS4-10U		GM2SS4-30U	
Maintained					
	● Red	GM2SS5-10R		GM2SS5-30R	
	● Black	GM2SS5-10B		GM2SS5-30B	
	● Grey	GM2SS5-10U		GM2SS5-30U	
Momentary, spring return from C to B					
	● Red	GM2SS6-10R		GM2SS6-30R	
	● Black	GM2SS6-10B		GM2SS6-30B	
	● Grey	GM2SS6-10U		GM2SS6-30U	

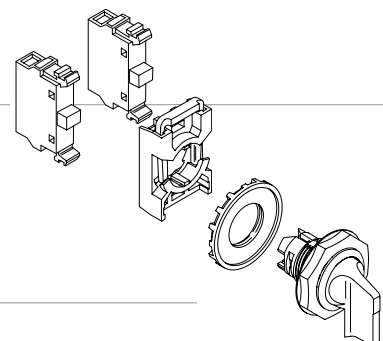
Contact blocks and holder

Blocks	Catalogue No.	List Price
1 NO with holder	MCBH-10	
1 NC with holder	MCBH-01	
1 NO with holder	MCBH-20	
1 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	

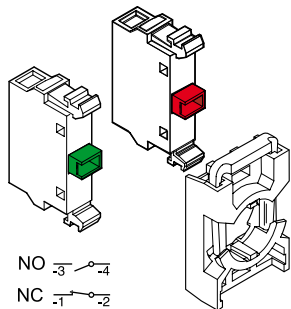
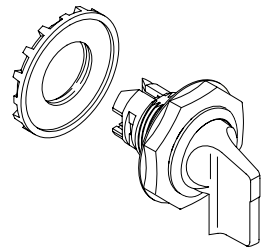
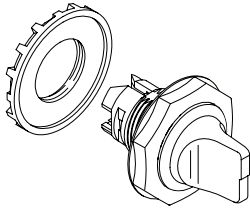
¹ No contact block in the center position.

Ordering example

Requested: A non-illuminated modular selector switch. Black.
Maintained.
Handle positions: A and C
With 2 NC contacts
Order: 1 piece of 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 handle¹					
Maintained					
	● Red	GM3SS1-10R		GM3SS1-30R	
	● Black	GM3SS1-10B		GM3SS1-30B	
	● Grey	GM3SS1-10U		GM3SS1-30U	
Momentary, spring return from A to B and from C to B					
	● Red	GM3SS2-10R		GM3SS2-30R	
	● Black	GM3SS2-10B		GM3SS2-30B	
	● Grey	GM3SS2-10U		GM3SS2-30U	
Momentary, spring return from C to B					
	● Red	GM3SS3-10R		GM3SS3-30R	
	● Black	GM3SS3-10B		GM3SS3-30B	
	● Grey	GM3SS3-10U		GM3SS3-30U	
Momentary, spring return from A to B					
	● Red	GM3SS7-10R		GM3SS7-30R	
	● Black	GM3SS7-10B		GM3SS7-30B	
	● Grey	GM3SS7-10U		GM3SS7-30U	
With long handle¹					
Maintained					
	● Red	GM3SS4-10R		GM3SS4-30R	
	● Black	GM3SS4-10B		GM3SS4-30B	
	● Grey	GM3SS4-10U		GM3SS4-30U	
Momentary, spring return from A to B and from C to B					
	● Red	GM3SS5-10R		GM3SS5-30R	
	● Black	GM3SS5-10B		GM3SS5-30B	
	● Grey	GM3SS5-10U		GM3SS5-30U	
Momentary, spring return from C to B					
	● Red	GM3SS6-10R		GM3SS6-30R	
	● Black	GM3SS6-10B		GM3SS6-30B	
	● Grey	GM3SS6-10U		GM3SS6-30U	
Momentary, spring return from A to B					
	● Red	GM3SS8-10R		GM3SS8-30R	
	● Black	GM3SS8-10B		GM3SS8-30B	
	● Grey	GM3SS8-10U		GM3SS8-30U	

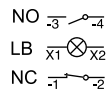
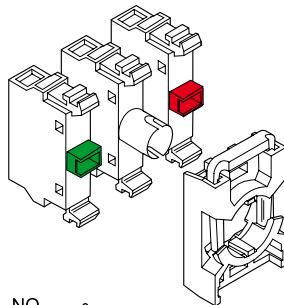
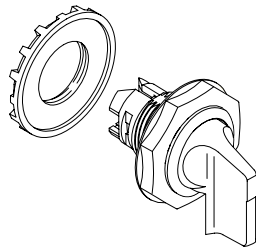
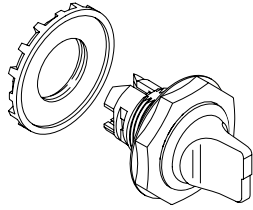
Contact blocks and holder

Blocks	Catalogue No.	List Price
1 NO with holder	MCBH-10	
1 NC with holder	MCBH-01	
1 NO with holder	MCBH-20	
1 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.

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 handle¹					
Maintained					
		Red	GM2SS1-11R		GM2SS1-31R
		Green	GM2SS1-11G		GM2SS1-31G
		Yellow	GM2SS1-11Y		GM2SS1-31Y
		Blue	GM2SS1-11L		GM2SS1-31L
		Clear	GM2SS1-11C		GM2SS1-31C
Maintained					
		Red	GM2SS2-11R		GM2SS2-31R
		Green	GM2SS2-11G		GM2SS2-31G
		Yellow	GM2SS2-11Y		GM2SS2-31Y
		Blue	GM2SS2-11L		GM2SS2-31L
		White	GM2SS2-11C		GM2SS2-31C
Momentary, spring return from C to B					
		Red	GM2SS3-11R		GM2SS3-31R
		Green	GM2SS3-11G		GM2SS3-31G
		Yellow	GM2SS3-11Y		GM2SS3-31Y
		Blue	GM2SS3-11L		GM2SS3-31L
		White	GM2SS3-10U		GM2SS3-30U
With long handle¹					
Maintained					
		Red	GM2SS4-11R		GM2SS4-31R
		Green	GM2SS4-11G		GM2SS4-31G
		Yellow	GM2SS4-11Y		GM2SS4-31Y
		Blue	GM2SS4-11L		GM2SS4-31L
		Clear	GM2SS4-10U		GM2SS4-30U
Maintained					
		Red	GM2SS5-11R		GM2SS5-31R
		Green	GM2SS5-11G		GM2SS5-31G
		Yellow	GM2SS5-11Y		GM2SS5-31Y
		Blue	GM2SS5-11L		GM2SS5-31L
		White	GM2SS5-11U		GM2SS5-31U
Momentary, spring return from C to B					
		Red	GM2SS6-11R		GM2SS6-31R
		Green	GM2SS6-11G		GM2SS6-31G
		Yellow	GM2SS6-11Y		GM2SS6-31Y
		Blue	GM2SS6-11L		GM2SS6-31L
		White	GM2SS6-10U		GM2SS6-30U

Contact blocks, lamp block and holder²

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	

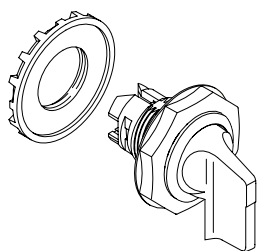
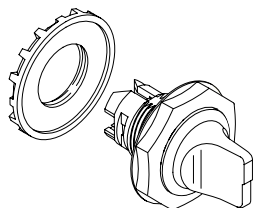
¹ No contact block in the center position.

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

Contact functions See Page 98

Ordering example See Page 98

30 mm Pilot Devices - Modular Range three-position selector switches, illuminated



Operator ...

		Black Plastic Bezel		Chrome Metal Bezel	
Symbol	Handle Color	Catalogue No.	List Price	Catalogue No.	List Price
With short handle¹					
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 handle¹					
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	

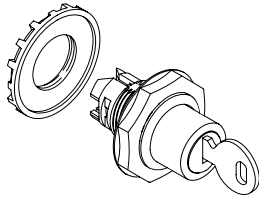
¹ No contact block in the center position

Contact blocks, lamp block and holder See Page 100

Contact functions See Page 98

Ordering example See Page 98

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 positions¹					
Maintained					
	in both position	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 positions¹					
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	

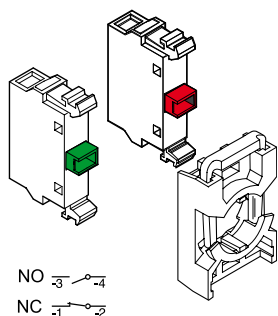
¹ No contact block in the center position

² Key codes

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

³ Key codes

- 71 (standard) ■ =1
- 72 ■ =2

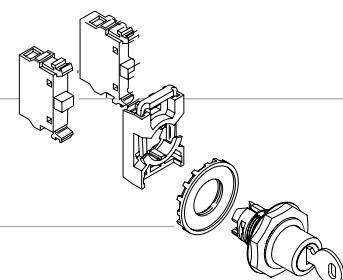


Contact blocks and holder

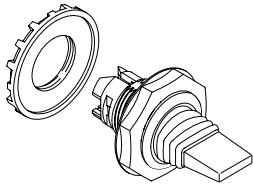
Blocks	Catalogue No.	List Price
1 NO with holder	MCBH-10	
1 NC with holder	MCBH-01	
1 NO with holder	MCBH-20	
1 NC with holder	MCBH-02	
1 NO + 1 NC with holder	MCBH-11	
1 NO without holder	MCB-10	
1 NC without holder	MCB-01	
Holder for 3 blocks	MCBH-00	

Ordering example

Requested: A key-operated selector switch. Three positions. Maintained. The key removable in position B. Key code 72. With 2 NC contacts
Order: 1 piece of GM3SSK2-102 + 1 piece of MCBH-02

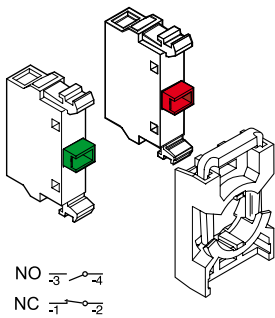


30 mm Pilot Devices - Modular Range toggle switches, two and three positions



Operator ...

Symbol	Black Plastic Bezel		Chrome Metal 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	
1 NO with holder	MCBH-20	
1 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

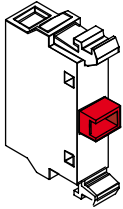
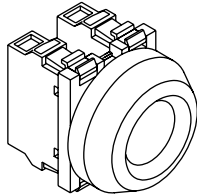
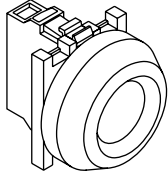
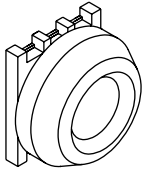
Block positions as seen from operator front.

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	Catalogue No.	List Price
● Red	KP6-40R	
● Green	KP6-40G	
● Black	KP6-40B	

Contact Block

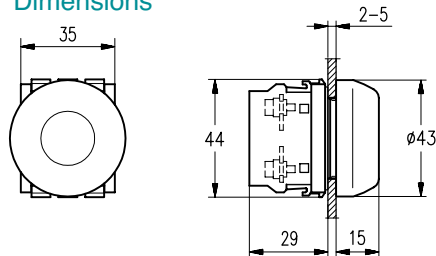
Description	Catalogue No.	List Price
1 NO	MCB-10	
1 NC	MCB-01	

Technical data

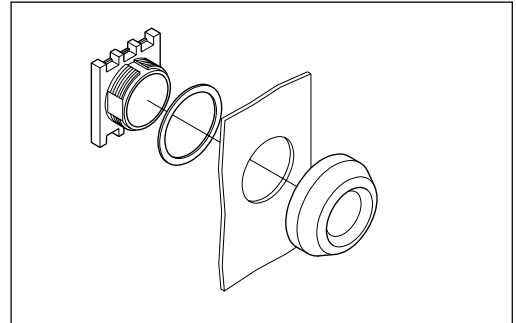
Degree of protection CSA/UL Type I, 3R, 4, 4X
IP66

Ambient temperature -30° ...+70°

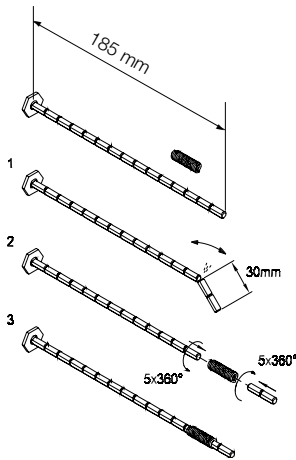
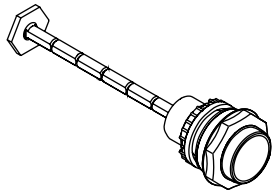
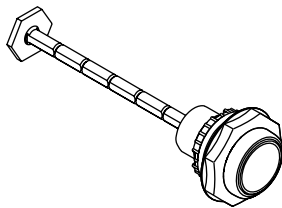
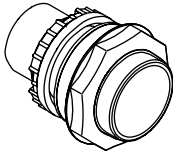
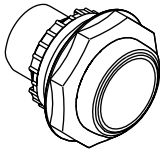
Dimensions



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	

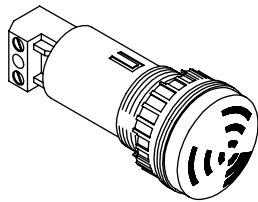
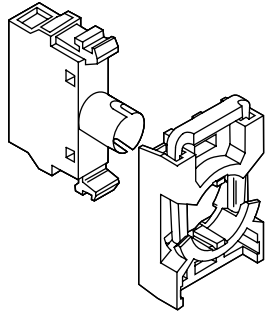
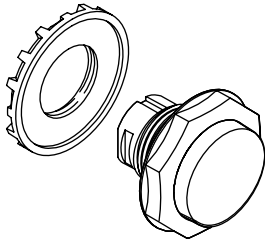
Reset pushbutton with shaft The shaft can be cut to desired length

Lens Colour	Text	Black Plastic Bezel		Chrome Metal Bezel	
		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	

In applications with a long shaft, a flexible joint can be used to avoid damages.

Accessories	Catalogue No.	List Price
Shaft: Including fixing nut	KA1-8046	
240mm Metal Shaft: (including fixing nut and foot)	KA1-8046MR	
Flexible joint	KA1-8047	

30 mm Pilot Devices - Modular Range pilot lights and buzzers



Pilot light head¹

Lens color	Black Plastic Bezel		Chrome Metal Bezel	
	Catalogue No.	List Price	Catalogue No.	List Price
With flush button				
Momentary				
● 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 holder¹

Supply voltage			
$230\text{ V}, 2\text{ W}$	For max. 2 W, 230 V AC and DC filament bulb or LED	MCBH-001	
	115 V AC supply voltage. For 60 V filament bulb max. 1.2 W	MCBH-002	
	230 V AC supply voltage. For 60 V filament bulb max. 1.2 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	

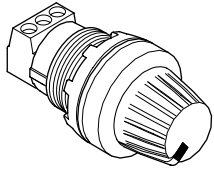
Buzzers

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

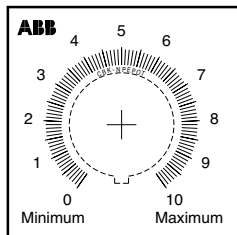
Supply voltage	Tone Type	Black Plastic Bezel		Chrome Metal Bezel	
		Catalogue No.	List Price	Catalogue No.	List Price
24 V AC/DC	Continuous	GKB1-4010		GKB1-5010	
115 V AC/DC	Continuous	GKB1-4030		GKB1-5030	
230 V AC	Continuous	GKB1-4040		GKB1-5040	
24 V AC/DC	Pulsating	GKB1-4110		GKB1-5110	
115 V AC/DC	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	Screw type
Insulation voltage	900 V
Operating temperature	-1 to +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	GMT-105B	
Chrome Metal	GMT-305B	
- with resistor 10 kohm		
Black plastic	GMT-110B	
Chrome Metal	GMT-310B	

Operating knob - without resistor

Black knob with integrated position indication and marking in white.

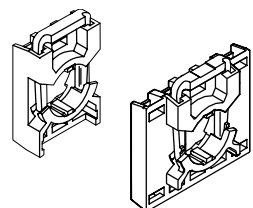
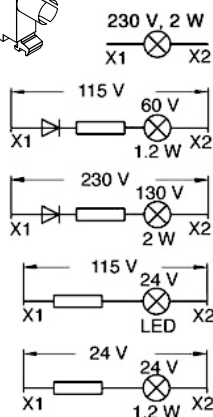
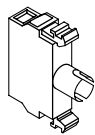
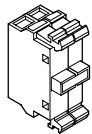
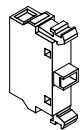
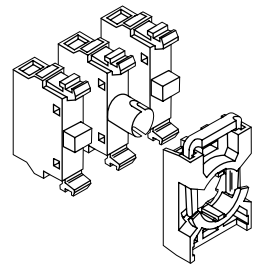
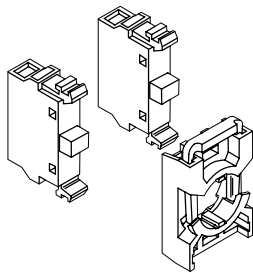
For shaft diameter 6 - 6.35 mm.
min. shaft length 20 mm

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

Legend plates

Description	Catalogue No.	List Price
Aluminum		
Description		
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	
3	1 NO	MCBH-10	
3	2 NC	MCBH-02	
3	2 NO	MCBH-20	
3	3 NC	MCBH-03	
3	3 NO	MCBH-30	
3	1 NO + 1 NC	MCBH-11	
3	1 NO + 2 NC	MCBH-12	
3	2 NO + 1 NC	MCBH-21	
For illuminated operators			
3	1 NC + 1 LB	MCBH-011	
3	1 NO + 1 LB	MCBH-101	
3	1 NO + 1 NC + 1 LB	MCBH-111	
3	2 NC + 1 LB	MCBH-021	
3	2 NO + 1 LB	MCBH-201	

Single contact blocks for front mounting

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

Double contact blocks 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	
2 NC	MCB-02	
1 NO + 1 NC	MCB-11	

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	
115 V AC supply voltage. For 60 V filament bulb max. 1.2 W	MLB-2	
230 V AC supply voltage. For 130 V filament bulb max. 2 W	MLB-3	
115 V AC and DC supply voltage For 24 V LED	MLB-4	
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	MLB-5	

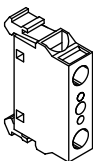
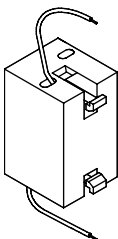
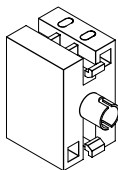
Holders

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

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 - 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	
For illuminated operators²			
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 ¹	24 V AC ¹	KTR1-2011	
220 - 250 V AC ¹	24 V AC ¹	KTR1-2012	
380 - 420 V AC ¹	24 V AC ¹	KTR1-2013	
440 - 480 V AC ¹	24 V AC ¹	KTR1-2014	

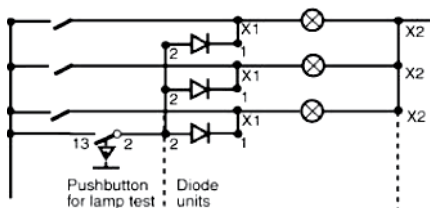
Diode block

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	Luminance mcd		
6	200	1.2	350	5911086-11	
12	100	1.2	230	5911086-12	
24	50	1.2	280	5911086-13EA	
30	40	1.2	250	5911086-4	
48	42	2	500	5911086-5	
60	20	1.2	190	5911086-14	
110	18	2	250	5911086-7	
130	15	2	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)/DC¹ 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 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 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 60 V, (AC)/DC Service life >50 000 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 60 V, (AC)/DC Service life >50 000 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 60 V, (AC)/DC Service life >50 000 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

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	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



30 mm Pilot Devices - Metallic Enclosures



Empty metallic enclosures, NEMA 12, ANSI / ASA61 grey

Size	Color top/bottom	H	W	D	Catalogue No.	List Price
1-seat	● Grey	3.50	3.25	2.75	GMEM121-0	
2-seat	● Grey	5.75	3.25	2.75	GMEM122-0	
3-seat	● Grey	8.00	3.25	2.75	GMEM123-0	
4-seat	● Grey	10.25	3.25	2.75	GMEM124-0	
6-seat	● Grey	9.50	6.25	3.00	GMEM126-0	

Empty metallic enclosures, NEMA 4X

Size	Color top/bottom	H	W	D	Catalogue No.	List Price
1-seat	Stainless Steel	3.50	3.25	2.75	GMEMX1-0	
2-seat	Stainless Steel	5.75	3.25	2.75	GMEMX2-0	
3-seat	Stainless Steel	8.00	3.25	2.75	GMEMX3-0	
4-seat	Stainless Steel	10.25	3.25	2.75	GMEMX4-0	
6-seat	Stainless Steel	9.50	6.25	3.00	GMEMX6-0	



Blanking plug

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

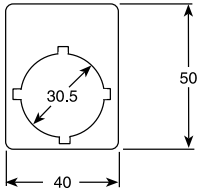
Description	Catalogue No.	List Price
Black non-metallic	SK616602-B	

Metallic enclosures



Description	Type 12 Catalogue No.	List Price	Catalogue No.	List Price
1-seat, Emergency Stop, 2 NC	GMEM121-ES		GMEMX1-ES	
1-seat, Illum. Emergency Stop, 2 NC 120V LED	GMEM121-IES		GMEMX1-IES	
2-seat, Start-Stop, 1 NO + 1 NC	GMEM122-SS		GMEMX2-SS	
2-seat, H-O-A + Run, 2 NO + 120V LED	GMEM122-1HOARL		GMEMX2-2HOARL	

30 mm Pilot Devices - Accessories special legend plates



Emergency stop legend plates

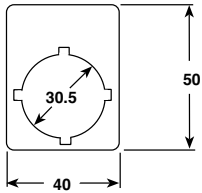
Description	Catalogue No.	List Price
Black text on a yellow aluminum plate.		
EMERGENCY STOP	CBG-NPE30	
ARRET D'URGENCE	CBG-NPF30	

Emergency stop legend plates

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 text¹

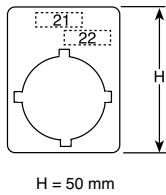
Of silvergrey aluminum

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	
RÉARMEMENT	CBG-NPF14	
ARRIÈRE	CBG-NPF15	
EN SERVICE	CBG-NPF16	
DROITE	CBG-NPF17	
LENT	CBG-NPF18	
MARCHE	CBG-NPF19	
ARRÊT	CBG-NPF20	
MONTEE	CBG-NPF21	
FAUTE	CBG-NPF34	
EN CIRCUIT	CBG-NPF35	
ALARME	CBG-NPF36	
ALIMENTATION	CBG-NPF37	
DÉPART	CBG-NPF38	
SILENCE	CBG-NPF39	
SURCHARGE	CBG-NPF40	

¹Text height 3 mm.

30 mm Pilot Devices - Accessories

legend plates for two-position selector switches



Engraved fixed legend plates, with symbols¹

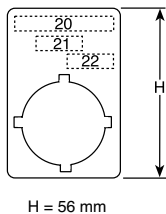
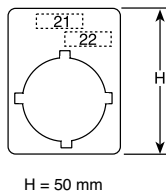
Of silvergrey aluminum

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 text¹

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-NPE24AC	
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	



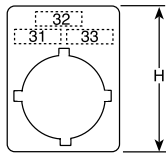
Fixed legend plates, with customer-selected text¹

Description	Catalogue No.	List Price
Without heading H= 50 mm		
Of silvergrey aluminum	GSK615999-1	
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	
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		

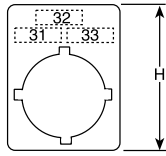
¹Text height 3 mm. Only the initial character is upper case unless other is stated.

30 mm Pilot Devices - Accessories

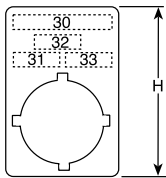
legend plates for three-position selector switches



H = 50 mm



H = 50 mm



H = 56 mm

Engraved fixed legend plates, with symbols¹

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 text¹

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 text¹

Description	Catalogue No.	List Price
Without heading H= 50 mm		
Of silvergrey aluminum	GSK615999-1	
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	
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		

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

30 mm Pilot Devices - Modular Range accessories



Flashing LED

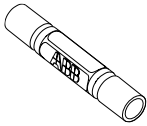
A lamp changing tool is required for changing bulb.

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	MA1-8133	



Description	Catalogue No.	List Price
Shroud for Emergency Stop		
● Yellow	MKA1-8053	
● Grey	MKA1-8128	

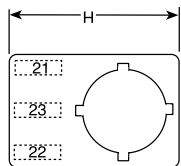
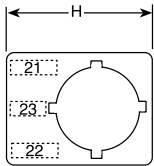
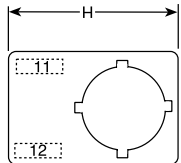
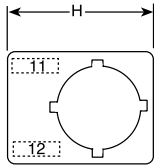
Note: For 40 mm Emergency Stop Pushbuttons and Machine Stop Pushbuttons. To prevent accidental operation. With anti rotation tabs and slot for pad-lock and with water drainage.



Shroud for Emergency Stop

30 mm Pilot Devices - Accessories

legend plates for toggle switches



Fixed legend plates, with customer-selected text¹

Of silvergrey aluminum

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

Fixed legend plates, with customer-selected text¹

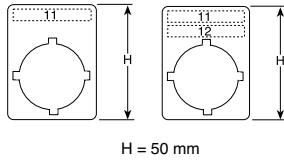
Of silvergrey aluminum

Description	Catalogue No.	List Price
Toggle switch, three positions		
Three text lines. H= 50 mm		
Of silvergrey aluminum	GSK615999-3	
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		
Three text lines. H= 56 mm		
Of silvergrey aluminum	GSK615999-4	
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		

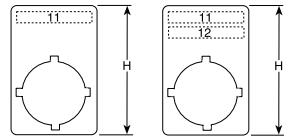
¹Text height 3 mm. Only the initial character is upper case unless other is stated.

30 mm Pilot Devices - Accessories

legend plates for toggle switches



H = 50 mm



H = 56 mm

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 text¹

Of silvergrey aluminum

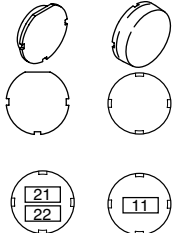
Description	Catalogue No.	List Price
For 1 text lines. H = 50 mm	GSK615999-1	
For 2 text lines. H = 56 mm	GSK615999-2	
<i>Text line: Pos. 11 - max 16 characters</i>		
<i>Pos. 12 - max 16 characters</i>		

¹Text 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

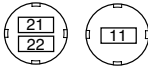


Can be turned 90° or 180°

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

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 pilots lights

Text/Symbol	Cap color ¹	Flush button Catalogue No.	Extended button Catalogue No.	Pilot light Catalogue No.	List Price
Start	○ White	KTC1-2030	KTC2-2030	KTC3-2030	
START	○ White	KTC6-1042	—	—	
R	○ White	KTC1-9009	KTC2-9009	KTC3-9009	
	● Black	KTC8-9009	KTC9-9009	—	
On	○ White	KTC1-1020	KTC2-1020	KTC3-1020	
ON	○ White	KTC1-1039	—	KTC3-1039	
	● Green	KTC6-1039	—	—	
	● Black	KTC8-1039	—	—	
Off	○ White	KTC1-1019	KTC2-1019	KTC3-1019	
OFF	○ White	—	KTC2-1040	—	
	● Red	—	KTC5-1040	—	
	● Black	—	KTC9-1040	—	
Stop	○ White	KTC1-1031	KTC2-1031	KTC3-1031	
STOP	● Red	KTC4-1047	KTC5-1047	—	
Reset	○ White	KTC1-1025	KTC2-1025	KTC3-1025	
(Without text)	○ White	KTC1-9000	KTC2-9000	KTC3-9000	
(With customer selected text) ²	○ White	KTC1-9000-L	KTC2-9000-L	KTC3-9000-L	

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

²When 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.

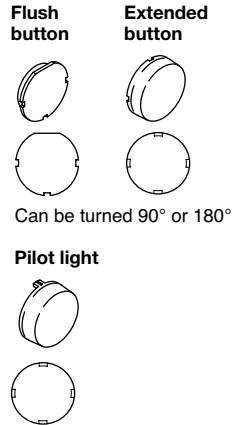
Only initial character is upper case unless other is stated.

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



Text caps for illuminated pushbuttons and pilots lights

Text/Symbol	Cap color ¹	Flush button Catalogue No.	Extended button Catalogue No.	Pilot light Catalogue No.	List Price
O	○ White	KTC1-9004	KTC2-9004	KTC3-9004	
	● Red	KTC4-9004	KTC5-9004	—	
	● Black	KTC8-9004	—	—	
I	○ White	KTC1-9002	KTC2-9002	KTC3-9002	
	● Green	KTC6-9002	—	—	
	● Black	KTC8-9002	—	—	
II	○ White	KTC1-R9003	KTC2-9003	KTC3-9003	
	● Green	KTC6-R9003	—	—	
	● Black	KTC8-9003	—	—	
III	○ White	KTC1-9028	KTC2-9028	—	
	● Black	KTC8-9028	—	—	
+	○ White	KTC1-9011	KTC2-9011	—	
	● Green	KTC6-9011	—	—	
	● Black	KTC8-9011	—	—	
-	○ White	KTC1-9012	—	—	
	● Red	KTC4-9012	—	—	
	● Black	KTC8-9012	—	—	
↑	○ White	KTC1-9005	KTC2-9005	KTC3-9005	
	● Black	KTC8-9005	—	—	
↗	○ White	KTC1-9014	KTC2-9014	—	
	● Black	KTC8-9014	—	—	
↔	○ White	KTC1-9015	KTC2-9015	—	
	● Black	KTC8-9015	—	—	
↔	○ White	KTC1-9016	KTC2-9016	—	
	● Black	KTC8-9016	—	—	
→	○ White	KTC1-9017	KTC2-9017	—	
	● Black	KTC8-9017	—	—	
→	○ White	KTC1-9006	KTC2-9006	KTC3-9006	
	○ White	KTC1-9018	KTC2-9018	—	
⊕	● Black	KTC8-9018	—	—	
	○ White	KTC1-9019	KTC2-9019	—	
●	● Black	KTC8-9019	—	—	
	○ White	KTC1-9020	KTC2-9020	—	
⊙	● Black	KTC8-9020	—	—	
	○ White	KTC1-9021	KTC2-9021	—	
✋	● Black	KTC8-9021	—	—	
	○ White	KTC1-9022	KTC2-9022	—	
⚡	● Black	KTC8-9022	—	—	
	○ White	KTC1-9023	KTC2-9023	—	
⚡	● Black	KTC8-9023	—	—	
	○ White	KTC1-9024	KTC2-9024	—	
⚡	● Black	KTC8-9024	—	—	
	○ White	KTC1-9025	KTC2-9025	—	
↑	● Black	KTC8-9025	—	—	
	○ White	KTC1-9026	KTC2-9026	—	
↓	● Black	KTC8-9026	—	—	
	○ White	KTC1-9027	KTC2-9027	—	
⚡	● Black	KTC8-9027	—	—	

¹Use 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 Type 4X, 12



Material

No ozone depleting substances in the products.

All front parts are made of polycarbonate

Material

Material	Material	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
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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_e utilisation category AC 15,	at 120 V	8 A
	230 V	6 A
	400 V	4 A
	690 V	2 A
Rated operational current, I_e utilisation category DC 13,	at 24 V	5 A
	125 V	1.1 A
	250 V	0.55 A

Contact resistance	< 25 mΩ
---------------------------	---------

Compulsory function test	at 5V, 16 mA
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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

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

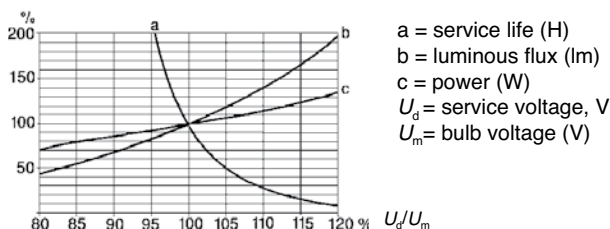
Ratings as per IEC 60 947-5-1

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 +

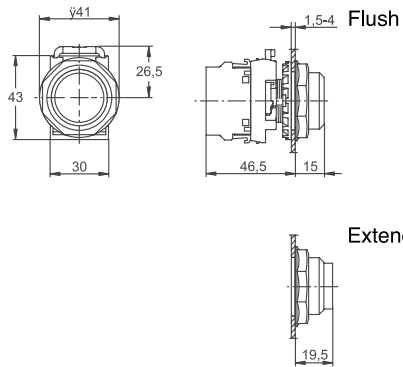
Transformer block

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

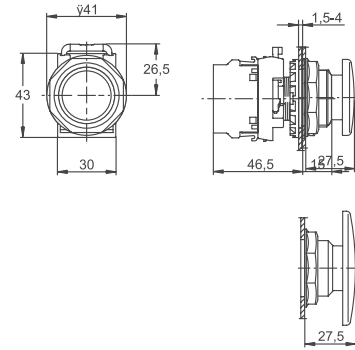
Rated power	1.5 W
Rated voltage	Ratio, see Accessories page 93
Rated insulation voltage acc. to IEC 70 °C (DT)	Class E

30 mm Pilot Devices - Modular Range dimensions

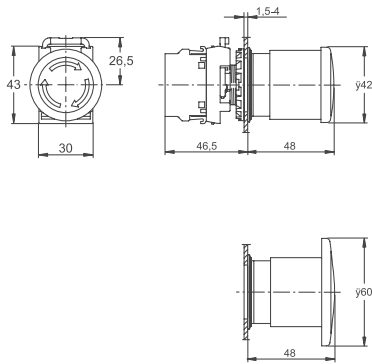
Pushbutton



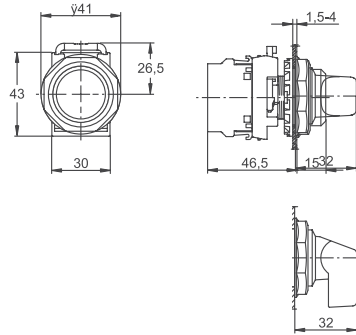
Mushroom pushbutton



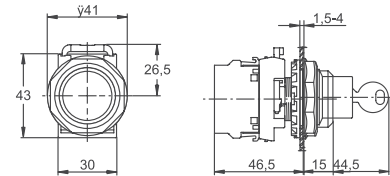
Emergency stop pushbutton



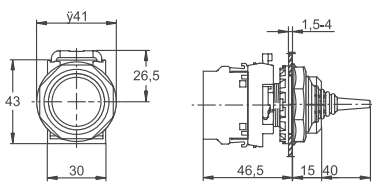
Selector switch



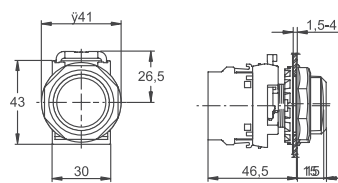
Key-operated selector switch



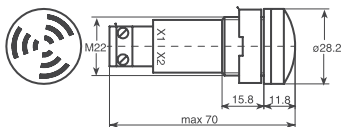
Toggle switch



Pilot light

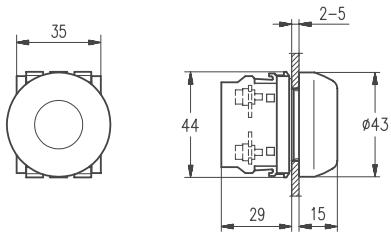


Buzzer

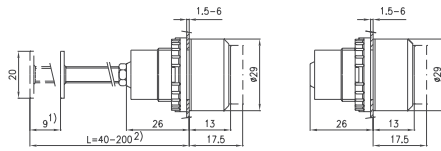


30 mm Pilot Devices - Miscellaneous dimensions and drilling plans

Definite purpose pushbutton

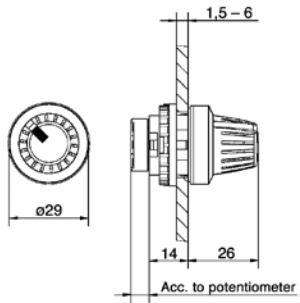


Reset pushbutton

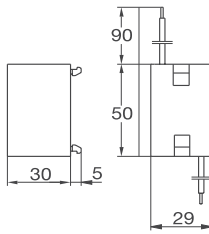


- 1) Length of stroke.
- 2) Can be cut to desired length.

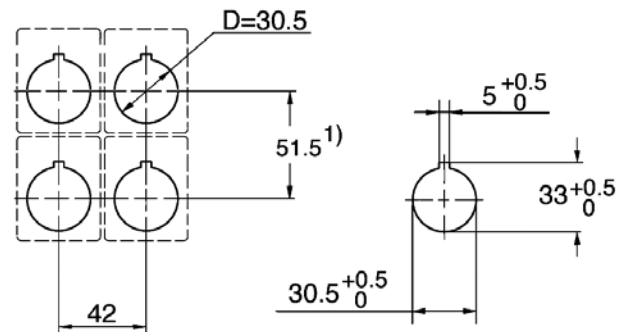
Potentiometer



Transformer block



Drilling plan for 30 mm



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