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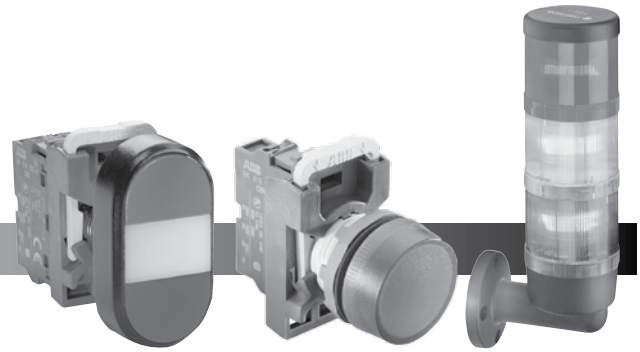
Pilot devices
Index



7 - Pilot devices

7

Modular Range, 22mm .....7.1 - 7.38

General information
- Features.....7.1
- Mounting.....7.2
- Contact block combinations.....7.3
- Catalog number explanation.....7.4

Ordering details
- Flush and extended pushbuttons.....7.5 - 7.6
- Double pushbuttons.....7.7 - 7.9
- Mushroom pushbuttons.....7.10
- Emergency stops.....7.11
- Twist, pull or key release operators.....7.12
- Selector switches.....7.13 - 7.18
- Key-operated selector switches.....7.19
- Potentiometers.....7.20
- Reset pushbuttons.....7.21
- Pilot lights.....7.22
- Toggle switches.....7.23
- Joysticks.....7.24

Accessories
- Transformer and lamp blocks.....7.25
- Contact blocks and holders.....7.26
- LED bulbs.....7.27
- LED and filament bulbs.....7.28
- LED blocks, front mounting.....7.29 - 7.30
- DIN rail adaptor.....7.31
- Dummy block.....7.31
- 30mm adaptor for 22mm operator.....7.31
- 30mm gasket.....7.31
- Lamp changing text.....7.31
- Mounting tool for operator.....7.31
- Extra key.....7.31
- Locking nut.....7.31
- Blanking plug.....7.31
- Square bezel.....7.31
- Protective membrane.....7.32
- Protective ring.....7.32
- Bezel.....7.32
- Shroud for emergency stop.....7.32
- Shroud for pilot devices.....7.32
- Touch guard for pushbuttons.....7.32
- Lenses.....7.33
- Text cap inserts.....7.34 - 7.35

Technical data.....7.36 - 7.38

Modular Range, 30mm .....7.39 - 7.66

General information
- Features.....7.39
- Mounting.....7.40
- Ordering details guide.....7.41

Ordering details
- Flush and extended pushbuttons.....7.42
- Mushroom pushbuttons.....7.43
- Emergency stop pushbuttons.....7.44
- Twist or pull release operators.....7.45
- Two position selector switches.....7.46 - 7.47
- Three position selector switches.....7.48 - 7.49
- Key-operated selector switches.....7.50
- Toggle switches.....7.51
- Extreme duty pushbuttons.....7.52
- Pilot lights.....7.53

Accessories
- Transformer and lamp blocks.....7.54
- Contact blocks and holders.....7.55
- LED bulbs.....7.56
- LED and filament bulbs.....7.57
- LED blocks, front mounting.....7.58 - 7.59
- DIN rail adaptor.....7.60
- Dummy block.....7.60
- 30mm adaptors for 22mm operator.....7.60
- 30mm gasket.....7.60
- Lamp changing tool.....7.60
- Mounting tool for operator.....7.60
- Extra key.....7.60
- Locking nut.....7.60
- Blanking plug.....7.60
- Square bezel.....7.60
- Protective membrane.....7.61
- Protective ring.....7.61
- Protective cover.....7.61
- Bezel.....7.61
- Shroud for emergency stop.....7.61
- Shroud for pilot devices.....7.61
- Touch guard for pushbuttons.....7.61
- Lenses.....7.62
- Text cap inserts.....7.63

Technical data.....7.64 -7.65

Assembled Modular Range, 22 & 30mm .....7.67 - 7.88

General information
- Features.....7.67
- Mounting.....7.68
- Ordering details guide.....7.69
- Catalog number and list price explanation.....7.70

Ordering details
- Pushbuttons.....7.71 - 7.72
- Mushroom pushbuttons.....7.73 - 7.74
- Double pushbuttons.....7.75 - 7.78
- Emergency stops & twist, pull release operators.....7.79 - 7.80
- Selector switches.....7.81 - 7.84
- Key operated selector switches.....7.85
- Toggle switches.....7.86
- Pilot lights.....7.87
- Press to test pilot lights.....7.88

Continued next page

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Spec Tech Industrial Electric www.spectechind.com 888-773-2832

Index

Compact Range, 22mm....7.89 - 7.102

General information
- Features....7.89

Ordering details
- Pushbuttons....7.90 - 7.91
- Compact mushrooms....7.92
- Emergency stop and twist, pull or key release operators....7.93
- Selector switches....7.94
- Pilot lights with integrated LED....7.95 - 7.96
- Buzzers....7.97

Accessories
- LED bulbs....7.98
- LED and filament bulbs....7.99
- DIN rail adaptor....7.100
- Lamp changing tool....7.100
- Mounting tool....7.100
- Membrane....7.100
- Protective ring....7.100
- Protective cover....7.100
- Button....7.100
- Bezel....7.100
- Square bezel....7.100
- Light diffusing lens....7.100
- Blanking plug....7.100
- Adaptors 30mm....7.100
- Adaptors....7.100
- Extra key....7.100

Enclosures and assembled stations....7.103 - 7.116

Features....7.103

Selection
- Plastic enclosures, Modular Range, 22mm....7.104
- Plastic enclosures, 1, 2, 3 & 4 seat....7.105 - 7.106
- Plastic enclosures, Compact Range E-Stop....7.107
- Plastic assembled stations....7.108
- Steel enclosures, empty, 22mm....7.109
- Steel enclosures, assembled stations, 22mm....7.110
- Two position selector switches....7.111
- Three position selector switches....7.112
- LED blocks....7.113 - 7.114

Accessories
- Contact blocks....7.115
- Lamp block for rear mounting....7.115
- Protective sleeve....7.115
- Cable gland....7.115
- Nut....7.115
- Earthing terminal....7.115
- Sealing ring....7.115
- Spacer....7.115
- Blanking plug....7.115
- Adaptor....7.115

Legend plates....7.117 - 7.142

22mm

Features....7.117

Ordering details
- Special legend plates....7.118 - 7.120
- Legend plates for pushbuttons....7.121
- Engraved legend plate form, special legend plates, 22mm....7.122
- Legend plates for two position selector switches, 22mm....7.123
- Legend plates for three position selector switches, 22mm....7.124
- Custom engraved inserts for legend plate holders, 22mm....7.125
- Engraved legend plate form, custom engraved nameplates, 22mm....7.126
- Custom engraved nameplates, 22mm....7.127
- Engraved legend plate form, custom engraved nameplates, 22mm....7.128 - 7.129
- Special legend plates....7.130
- Engraved legend plate form, custom engraved nameplates....7.131 - 7.136

30mm

Ordering details
- Legend plates for pushbuttons....7.138
- Legend plates for selector switches....7.139
- Custom engraved legend plates....7.140
- Engraved legend plate form....7.141 - 1.142

Signal towers and beacons....7.143 - 7.148

Features....7.143 - 1.44

Ordering details
- Optical modules for signal towers K70....7.145
- Signal towers K70....7.146
- Signal beacons KSB....7.147

Technical data....7.148

Approximate dimensions....7.149 - 7.153

Degrees of protection.... 7.154

Modular Range
General information

Modular
Pilot devices

General construction
- Snap-on feature reduces installation time
- Bezels: Black plastic, chrome metal. Grey plastic available as an option
- 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
- UL File# E76003
- CSA File# LR19700

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

Pilot lights
- Full voltage, resistor and transformer
- 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

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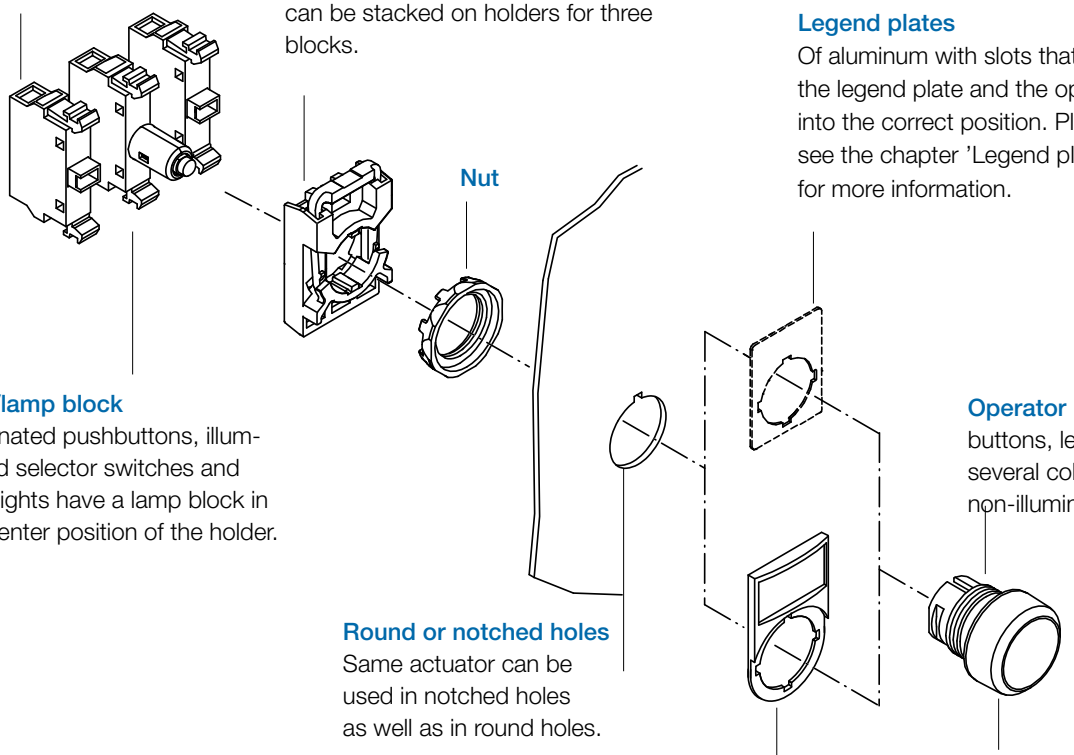
Mounting

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.

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.

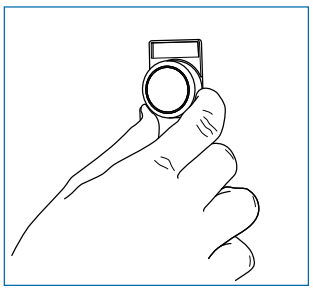
Operator
buttons, lenses and handles in several colors. Illuminated or non-illuminated.

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

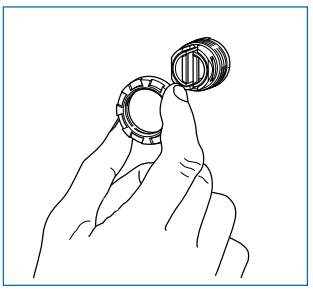
Legend plate holder
Of black plastic. Insert of brushed aluminum.
Please see the chapter 'Legend plates' for more information.

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

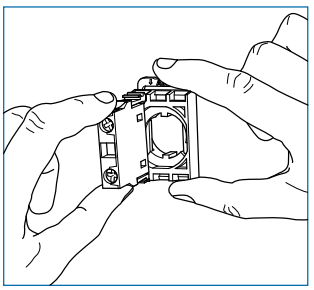
Easy to install



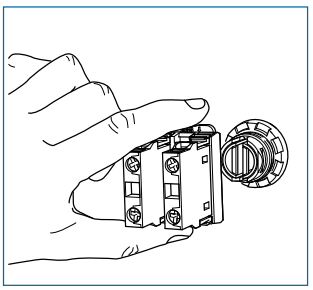
The operator is to be inserted from the front...



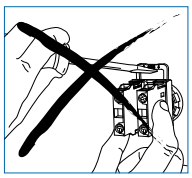
...and secured at the back with the nut.

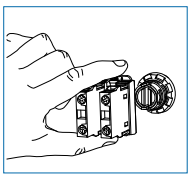


The Contact blocks/lamp block are then snapped on to the holder...



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

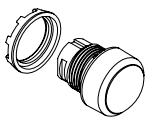




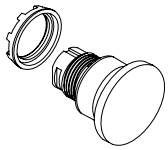
Press down the spring on the holder and pull the holder from the actuator.

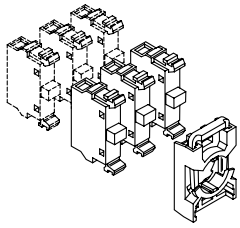
Contact block combinations

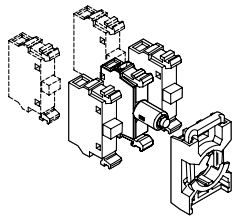
Pushbuttons

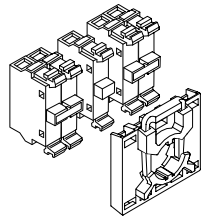


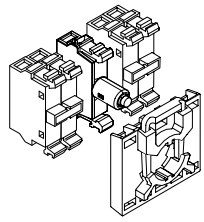
Mushroom pushbuttons



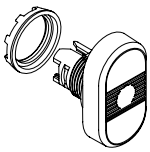


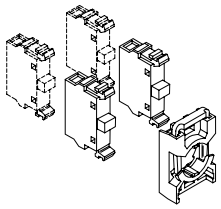


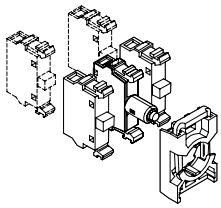


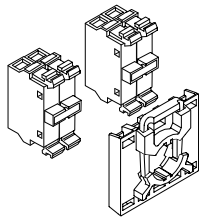


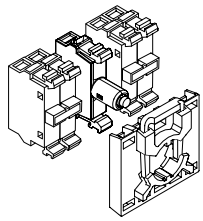
Double pushbuttons



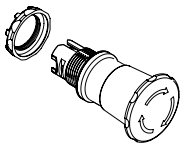


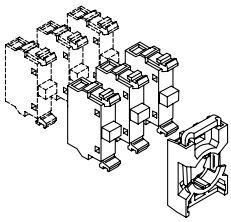


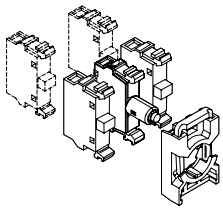




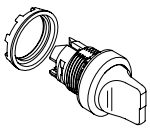
Emergency stop pushbuttons



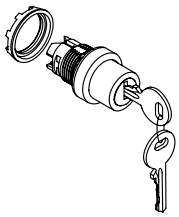


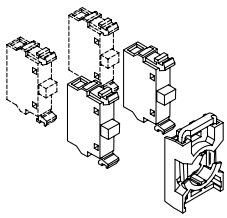


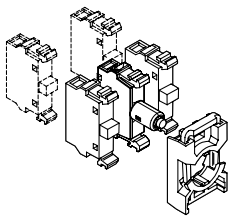
Selector switches

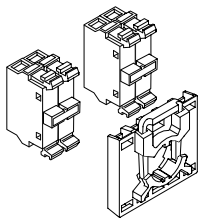


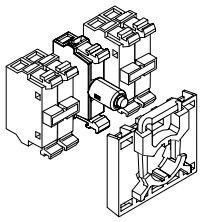
Key-operated selector switches



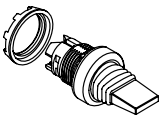


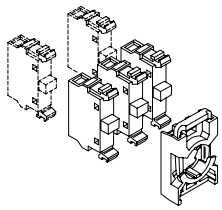


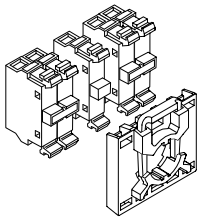




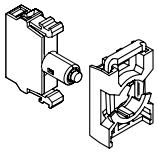
Toggle switches



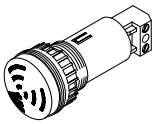




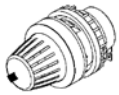
Pilot lights



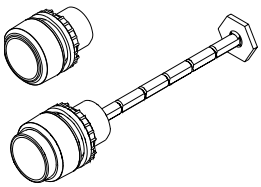
Buzzers



Potentiometers



Reset pushbuttons



Catalog number explanation
Modular pilot devices

Pilot light

Example 1: Type ML1-100R

L1	Pilot **L**ight Head

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

Operators

Example 2: Type MP1-10Y

P	**P**ushbutton
PD	**P**ushbutton, **D**ouble
PK	**P**ushbutton, **K**ey-lockable
PM	**P**ushbutton, **M**ushroom
PMT	**P**ushbutton, **M**ushroom, **T**wist release
PMP	**P**ushbutton, **M**ushroom, **P**ull release
2SS	**2**-pos, **S**elector **S**witch
3SS	**3**-pos, **S**elector **S**witch
KB	**B**uzzer
KT	**P**otentiometer
TS	**T**oggle **S**witch

Button color:
R = **R**ed
G = **G**reen
Y = **Y**ellow
L = **B**lue
W = **W**hite
B = **B**lack (non-illuminated only)
C= **C**lear
U = **G**rey (non-illuminated only)

Lens color for double pushbuttons
R = **R**ed
G = **G**reen
Y = **Y**ellow
C = **C**lear
B = **B**lack (non-illuminated only)
-

Example 3: Type M2SSK1-101

2SSK	**2**-pos. **S**elector **S**witch, **K**ey-lockable
3SSK	**3**-pos. **S**elector **S**witch, **K**ey-lockable
PK	**P**ushbutton, **K**ey-lockable

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

Buzzer, contact blocks, lamp blocks

Example 4: Type MCBH-10

B	**B**uzzer
CB	**C**ontact **B**lock
CBH	**C**ontact **B**lock with **H**older
LB	**L**amp **B**lock

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

M = “Generation” M, Modular Range

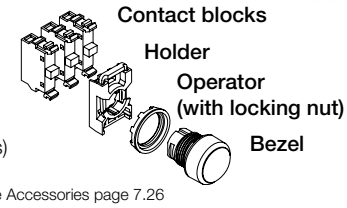
Flush and extended pushbuttons

Non-illuminated, momentary and maintained

How to order:

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

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



NOTE: For contact blocks & holders, see Accessories page 7.26

Bezel - How to order

Black plastic - Standard
Chrome plastic - Replace '**1**' with '**2**' in Catalog number
Chrome metal - Replace '**1**' with '**3**' in Catalog number

Bezel options	Catalog number
Black plastic	MPX-**1**0X
Chrome metal	MPX-**3**0X

Operator: pushbutton

Non-illuminated flush pushbutton with black plastic bezel

Description	Catalog number	Weight oz.
Flush pushbutton		
Momentary		
Red	MP1-10R	0.56
Green	MP1-10G	0.56
Yellow	MP1-10Y	0.56
Blue	MP1-10L	0.56
White	MP1-10W	0.56
Black	MP1-10B	0.56
Clear	MP1-10C	0.56
Maintained		
Red	MP2-10R	0.56
Green	MP2-10G	0.56
Yellow	MP2-10Y	0.56
Blue	MP2-10L	0.56
White	MP2-10W	0.56
Black	MP2-10B	0.56
Clear	MP2-10C	0.56

Non-illuminated extended pushbutton with black plastic bezel

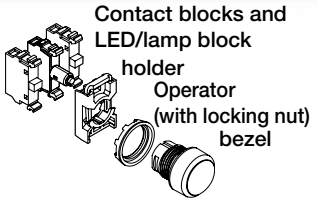
Description	Catalog number	Weight oz.
Extended pushbutton		
Momentary		
Red	MP3-10R	0.56
Green	MP3-10G	0.56
Yellow	MP3-10Y	0.56
Blue	MP3-10L	0.56
White	MP3-10W	0.56
Black	MP3-10B	0.56
Clear	MP3-10C	0.56
Maintained		
Red	MP4-10R	0.56
Green	MP4-10G	0.56
Yellow	MP4-10Y	0.56
Blue	MP4-10L	0.56
White	MP4-10W	0.56
Black	MP4-10B	0.56
Clear	MP4-10C	0.56

Flush and extended pushbuttons
Illuminated, momentary and maintained

How to order:

Alt.1 • Operator
+ holder
+ Contact block(s)
+ LED/lamp block

Alt.2 • Operator
+ holder with contact block(s) and lamp block



NOTE: No contact block in center position, reserved for lamp block

NOTE: For contact blocks, holders & LED lamp blocks, see Accessories pages 7.25 - 7.30.

Bezel - How to order

Black plastic - Standard
Chrome plastic - Replace '**1**' with '**2**' in Catalog number
Chrome metal - Replace '**1**' with '**3**' in Catalog number

Bezel options	Catalog number
Black plastic	MPX-**1**1X
Chrome metal	MPX-**3**1X

7

Illuminated flush pushbutton with black plastic bezel

Operator: pushbutton

Description	Catalog number	Weight oz.
Flush pushbutton (light bulb max 2 W, not included)		
Momentary		
Red	MP1-11R	0.56
Green	MP1-11G	0.56
Yellow	MP1-11Y	0.56
Blue	MP1-11L	0.56
White	MP1-11W	0.56
Clear	MP1-11C	0.56
Maintained		
Red	MP2-11R	0.56
Green	MP2-11G	0.56
Yellow	MP2-11Y	0.56
Blue	MP2-11L	0.56
White	MP2-11W	0.56
Clear	MP2-11C	0.56

Illuminated extended push- button with black plastic bezel

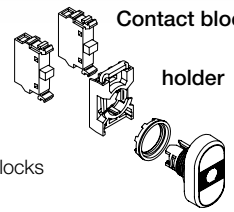
Description	Catalog number	Weight oz.
Extended pushbutton (light bulb max 2 W, not included)		
Momentary		
Red	MP3-11R	0.56
Green	MP3-11G	0.56
Yellow	MP3-11Y	0.56
Blue	MP3-11L	0.56
White	MP3-11W	0.56
Clear	MP3-11C	0.56
Maintained		
Red	MP4-11R	0.56
Green	MP4-11G	0.56
Yellow	MP4-11Y	0.56
Blue	MP4-11L	0.56
White	MP4-11W	0.56
Clear	MP4-11C	0.56

Double pushbuttons
Non-illuminated

How to order:

Alt.1 • Operator
+ holder
+ Contact blocks

Alt.2 • Operator
+ holder with contact blocks



NOTE: No contact block in center position
For contact blocks & holders, see Accessories pages 7.26.

Double pushbutton, non-illuminated
Lens color=black

Operator: Double pushbutton

Upper button	Lower button	Catalog number	Weight oz.
Flush pushbuttons			
Green	**Red**		
No text	No text	MPD1-11B	0.88
I	O	MPD2-11B	0.88
ON	OFF	MPD3-11B	0.88
START	STOP	MPD4-11B	0.88
White	**Black**		
No text	No text	MPD5-11B	0.88
I	O	MPD6-11B	0.88
ON	OFF	MPD7-11B	0.88
START	STOP	MPD8-11B	0.88

Double pushbutton, non-illuminated
Lens color=black

Extended lower pushbutton			
Green	**Red**		
No text	No text	MPD12-11B	0.88
I	O	MPD13-11B	0.88
ON	OFF	MPD14-11B	0.88
START	STOP	MPD15-11B	0.88
White	**Black**		
No text	No text	MPD16-11B	0.88
I	O	MPD17-11B	0.88
ON	OFF	MPD18-11B	0.88
START	STOP	MPD19-11B	0.88

Legend plate holder

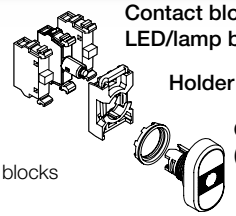
Legend plate holder		
Legend plate holder	MA1-8139	0.11

Double pushbuttons
Non-illuminated

How to order:

Alt.1 • Operator
+ Holder
+ Contact blocks
+ LED/lamp block

Alt.2 • Operator
+ Holder with Contact blocks and lamp block



NOTE: No contact block in center position, reserved for LED/lamp block
For contact blocks & holders, see Accessories pages 7.26.

Double pushbutton, illuminated
Lens color: Red, green, yellow, clear

Double pushbutton, illuminated
Lens color: Red, green, yellow, clear

Operator: Double pushbutton

Upper button	Lower button	Catalog number	Weight oz.
Flush pushbutton			
Red indicator light			
Green	**Red**		
No text	No text	MPD1-11R	0.88
I	O	MPD2-11R	0.88
ON	OFF	MPD3-11R	0.88
START	STOP	MPD4-11R	0.88
White	**Black**		
No text	No text	MPD5-11R	0.88
I	O	MPD6-11R	0.88
ON	OFF	MPD7-11R	0.88
START	STOP	MPD8-11R	0.88
Green indicator light			
Red			
No text	No text	MPD1-11G	0.88
I	O	MPD2-11G	0.88
ON	OFF	MPD3-11G	0.88
START	STOP	MPD4-11G	0.88
White	**Black**		
No text	No text	MPD5-11G	0.88
I	O	MPD6-11G	0.88
ON	OFF	MPD7-11G	0.88
START	STOP	MPD8-11G	0.88
Yellow indicator light			
Green	**Red**		
No text	No text	MPD1-11Y	0.88
I	O	MPD2-11Y	0.88
ON	OFF	MPD3-11Y	0.88
START	STOP	MPD4-11Y	0.88
White	**Black**		
No text	No text	MPD5-11Y	0.88
I	O	MPD6-11Y	0.88
ON	OFF	MPD7-11Y	0.88
START	STOP	MPD8-11Y	0.88
Clear indicator light			
Green	**Red**		
No text	No text	MPD1-11C	0.88
I	O	MPD2-11C	0.88
ON	OFF	MPD3-11C	0.88
START	STOP	MPD4-11C	0.88
White	**Black**		
No text	No text	MPD5-11C	0.88
I	O	MPD6-11C	0.88
ON	OFF	MPD7-11C	0.88
START	STOP	MPD8-11C	0.88

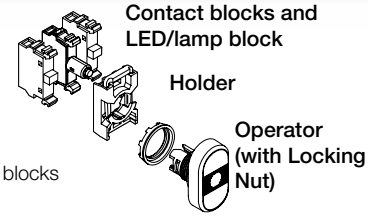
NOTE: LED bulb or integrated LED block recommended.

Double pushbuttons
Illuminated

How to order:

Alt.1 • Operator
+ Holder
+ Contact blocks
+ LED/lamp block

Alt.2 • Operator
+ Holder with Contact blocks and lamp block



NOTE: No contact block in center position, reserved for LED/lamp block
For contact blocks, holders & LED lamp blocks, see Accessories pages 7.25 - 7.30.

Double pushbutton with extended lower button, illuminated
Lens color: Red, green, yellow, clear

Operator: Double pushbutton

Upper button	Lower button	Catalog number	Weight oz.
Extended Lower button			
Red indicator light			
Green	**Red**		
No text	No text	MPD12-11R	0.88
I	O	MPD13-11R	0.88
ON	OFF	MPD14-11R	0.88
START	STOP	MPD15-11R	0.88
White	**Black**		
No text	No text	MPD16-11R	0.88
I	O	MPD17-11R	0.88
ON	OFF	MPD18-11R	0.88
START	STOP	MPD19-11R	0.88
Green indicator light			
Green	**Red**		
No text	No text	MPD12-11G	0.88
I	O	MPD13-11G	0.88
ON	OFF	MPD14-11G	0.88
START	STOP	MPD15-11G	0.88
White	**Black**		
No text	No text	MPD16-11G	0.88
I	O	MPD17-11G	0.88
ON	OFF	MPD18-11G	0.88
START	STOP	MPD19-11G	0.88
Yellow indicator light			
Green	**Red**		
No text	No text	MPD12-11Y	0.88
I	O	MPD13-11Y	0.88
ON	OFF	MPD14-11Y	0.88
START	STOP	MPD15-11Y	0.88
White	**Black**		
No text	No text	MPD16-11Y	0.88
I	O	MPD17-11Y	0.88
ON	OFF	MPD18-11Y	0.88
START	STOP	MPD19-11Y	0.88
Clear indicator light			
Green	**Red**		
No text	No text	MPD12-11C	0.88
I	O	MPD13-11C	0.88
ON	OFF	MPD14-11C	0.88
START	STOP	MPD15-11C	0.88
White	**Black**		
No text	No text	MPD16-11C	0.88
I	O	MPD17-11C	0.88
ON	OFF	MPD18-11C	0.88
START	STOP	MPD19-11C	0.88

NOTE: LED bulb or integrated LED block recommended

Mushroom pushbuttons
Non-illuminated and illuminated

How to order non-illuminated:

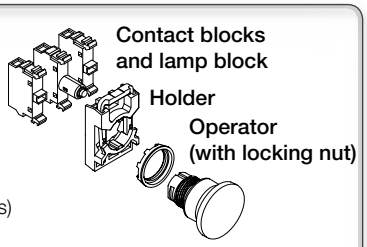
Alt.1 • Operator
+ Holder
+ Contact block(s)

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



NOTE: No contact block in center position, reserved for LED/lamp block
For contact blocks, holders & LED lamp blocks, see Accessories pages 7.25 - 7.30.

Mushroom pushbuttons, non-illuminated

Operator: Mushroom pushbutton

Description	Catalog number	Weight oz.
Non-illuminated		
Ø 40 mm		
Red	MPM1-10R	0.63
Green	MPM1-10G	0.63
Yellow	MPM1-10Y	0.63
black	MPM1-10B	0.63
Ø 60 mm		
Red	MPM2-10R	0.71
Yellow	MPM2-10Y	0.71
black	MPM2-10B	0.71

Mushroom pushbuttons, illuminated

Illuminated (light bulb max 2 W, not included)		
Ø 40 mm		
Red	MPM1-11R	0.63
Green	MPM1-11G	0.63
Yellow	MPM1-11Y	0.63
Ø 60 mm		
Red	MPM2-11R	0.71
Yellow	MPM2-11Y	0.71

Emergency stops
Non-illuminated and illuminated
30mm, 40mm & 60mm head

How to order non-illuminated:

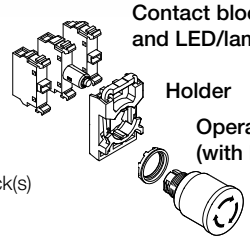
Alt.1 • Operator
+ Holder
+ Contact block(s)

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



NOTE: For contact blocks, holders & LED lamp blocks, see Accessories pages 7.25 - 7.30.

Fulfills IEC 60947-5-5

Operator: Emergency stop ①

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

Description		Catalog number	Weight oz.
Non-illuminated			
Ø 30 mm			
Red	Twist release	MPET3-10R	1.3
Red	Key release code 71/Ronis 455	MPEK3-11R	2.3
Red	Key release code 72/Ronis 421	MPEK3-12R	2.3
Red	Key release code 73/Ronis 3433-E	MPEK3-13R	2.3
Ø 40 mm			
Red	Twist release	MPET4-10R	1.3
Red	Key release code 71/Ronis 455	MPEK4-11R	2.3
Red	Key release code 72/Ronis 421	MPEK4-12R	2.3
Red	Key release code 73/Ronis 3433-E	MPEK4-13R	2.3
Ø 60 mm			
Red	Twist release	MPMT4-11R	1.7

Emergency stop, twist release illuminated, Ø 40 mm

Illuminated (bulb max 2 W, not included).			
Ø 40 mm			
Red	Twist release	MPMT3-11R	1.4
Ø 60 mm			
Red	Twist release	MPMT4-11R	1.7

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 operations.
Robustness	The force 113 N applied in three axes
Conditioning	Heat and cold, moist atmosphere, and in 5 % NaC

Latching test	Impulse voltage test at 2,500 V
Resetting test	Pulling force < 50 N Turning torque < 1 Nm
Shock	15 g shock
Vibration	2 h at 50m/s^2
Contacts with positive opening operation	15 g shock

① E-stop requires yellow background. See legend plates on page 7.118.

Twist, pull or key release operators
Non-illuminated and illuminated
30mm & 40mm head

How to order non-illuminated:

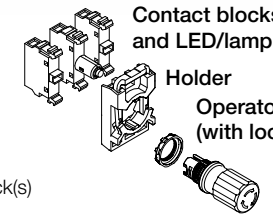
Alt.1 • Operator
+ Holder
+ Contact block(s)

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



NOTE: For contact blocks, holders & LED lamp blocks, see Accessories pages 7.25 - 7.30.

Pull release, Ø 30 mm

Key release, Ø 30 mm

Twist release, Ø 40 mm

Operator: Push pull or twist release

Description		Catalog number	Weight oz.
Non-illuminated			
Ø 30 mm			
Black	Twist release	MPET3-10B	1.3
Black	Pull release	MPEP3-10B	1.3
Red	Pull release	MPEP3-10R	1.3
Black	Key release code 71/Ronis 455	MPEK3-11B	1.3
Ø 40 mm			
Black	Twist release	MPET4-10B	1.3
Black	Pull release	MPEP4-10B	1.3
Red	Pull release	MPEP4-10R	1.3
Back	Key release code 71/Ronis 455	MPEK4-11B	1.3
Ø 60 mm			
Red	Pull release	MPMP4-11R	1.7
Illuminated			
Ø 40 mm			
Red	Pull release	MPMP3-11R	1.4
Ø 60 mm			
Red	Pull release	MPMP4-11R	1.7

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 operations.
Robustness	The force 113 N applied in three axes
Conditioning	Heat and cold, moist atmosphere, and in 5 % NaC

Latching test	Impulse voltage test at 2,500 V
Resetting test	Pulling force < 50 N Turning torque < 1 Nm
Shock	15 g shock
Vibration	2 h at 50m/s^2
Contacts with positive opening operation	15 g shock

① Use as a twist, pull or key release. Operator is not an E-Stop.

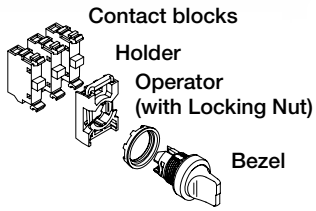
Selector switches

Two position, non-illuminated

How to order:

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

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



NOTE: No contact block in center position
For contact blocks & holders, see Accessories pages 7.26.

Bezel - How to order

Black plastic - Standard
Chrome metal - Replace '**1**' with '**3**' in Catalog number

Bezel options	Catalog number
Black plastic	M2SS(X)-**1**0X
Chrome metal	M2SS(X)-**3**0X

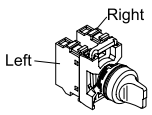
Selector switch, short handle

Selector switch, long handle

Operator: Two-position Selector Switch

Description		Catalog number	Weight oz.
Short handle			
Maintained			
B C	Red	M2SS1-10R	0.53
	Black	M2SS1-10B	0.53
	Grey	M2SS1-10U	0.53
Maintained			
A C	Red	M2SS2-10R	0.53
	Black	M2SS2-10B	0.53
	Grey	M2SS2-10U	0.53
Momentary, spring return from C to B			
B C	Red	M2SS3-10R	0.53
	Black	M2SS3-10B	0.53
	Grey	M2SS3-10U	0.53
Long handle			
Maintained			
B C	Red	M2SS4-10R	0.63
	Black	M2SS4-10B	0.63
	Grey	M2SS4-10U	0.63
Maintained			
A C	Red	M2SS5-10R	0.63
	Black	M2SS5-10B	0.63
	Grey	M2SS5-10U	0.63
Momentary, spring return from C to B			
B C	Red	M2SS6-10R	0.63
	Black	M2SS6-10B	0.63
	Grey	M2SS6-10U	0.63

Contacts actuated



Handle position	Left block	Right block
B	☐	☐
A	☐	☐
C	■	■

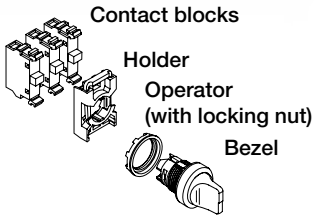
☐ Not actuated
■ Actuated

Selector switches
Three position, non-illuminated

How to order:

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

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



NOTE: For contact blocks & holders, see Accessories pages 7.26.

Bezel - How to order

Black plastic - Standard
Chrome metal - Replace '**1**' with '**3**' in Catalog number

Bezel options	Catalog number
Black plastic	M3SS(X)-**1**0X
Chrome metal	M3SS(X)-**3**0X

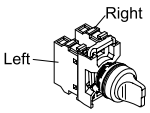
Selector Switch, short handle

Selector Switch, long handle

Operator: Three-position selector switch

Description		Catalog number	Weight oz.
Short handle			
Maintained			
A B C	Red	M3SS1-10R	0.53
	Black	M3SS1-10B	0.53
	Grey	M3SS1-10U	0.53
Momentary, spring return from A to B and from C to B			
A B C	Red	M3SS2-10R	0.53
	Black	M3SS2-10B	0.53
	Grey	M3SS2-10U	0.53
Momentary, spring return from C to B			
A B C	Red	M3SS3-10R	0.53
	Black	M3SS3-10B	0.53
	Grey	M3SS3-10U	0.53
Momentary, spring return from A to B			
A B C	Red	M3SS7-10R	0.53
	Black	M3SS7-10B	0.53
	Grey	M3SS7-10U	0.53
Long handle			
Maintained			
A B C	Red	M3SS4-10R	0.63
	Black	M3SS4-10B	0.63
	Grey	M3SS4-10U	0.63
Momentary, spring return from A to B and from C to B			
A B C	Red	M3SS5-10R	0.63
	Black	M3SS5-10B	0.63
	Grey	M3SS5-10U	0.63
Momentary, spring return from C to B			
A B C	Red	M3SS6-10R	0.63
	Black	M3SS6-10B	0.63
	Grey	M3SS6-10U	0.63
Momentary, spring return from A to B			
A B C	Red	M3SS8-10R	0.63
	Black	M3SS8-10B	0.63
	Grey	M3SS8-10U	0.63

Contacts actuated



Handle position	Left block	Right block
A	■	□
B	□	□
C	□	■

□ Not actuated
■ Actuated

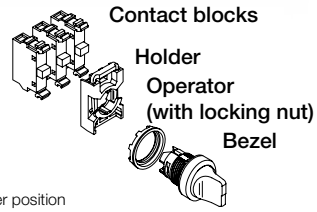
Selector switches

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)



NOTE: No contact block in center position
For contact blocks & holders, see Accessories pages 7.26.

Bezel - How to order

Black plastic - Standard
Chrome metal - Replace '**1**' with '**3**' in Catalog number

Bezel options	Catalog number
Black plastic	M3SSC(X)-**1**0B
Chrome metal	M3SSC(X)-**3**0B

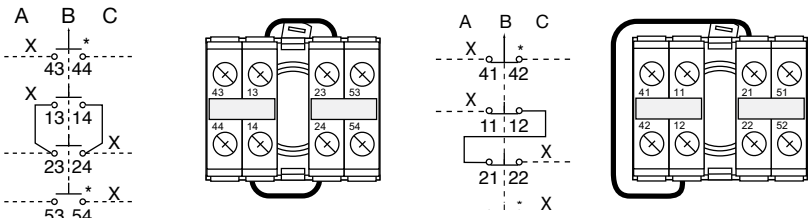
Selector switch, short handle

Operator: Three-position selector switch with operation of center position

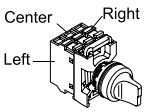
Description	Catalog number	Weight oz.
Short handle		
Black	M3SSC1-10B	0.53
Black	M3SSC2-10B	0.53
Black	M3SSC3-10B	0.53
Black	M3SSC7-10B	0.53
Long handle		
Black	M3SSC4-10B	0.63
Black	M3SSC5-10B	0.63
Black	M3SSC6-10B	0.63
Black	M3SSC8-10B	0.63

Selector switch, long handle

Center position connection detail



Contacts actuated



Handle position	Left block	Center block	Right block
A	■	■	□
B	□	□	□
C	□	■	■

□ Not actuated
■ Actuated

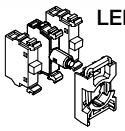
Selector switches

Two position, illuminated

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



Contact blocks and LED/lamp block

Holder

Operator (with locking nut)

Bezel

NOTE: For contact blocks, holders & LED lamp blocks, see Accessories pages 7.25 - 7.30.

Bezel - How to order

black plastic - Standard
Chrome metal - Replace '**1**' with '**3**' in Catalog number

bezel options	Catalog number
black plastic	M2SS(X)-**1**1X
Chrome metal	M2SS(X)-**3**1X

Selector switch, short handle

Operator: Two-position selector switch (light bulb max 2W, not included)

Description		Catalog number	Weight oz.
Short handle			
Maintained			
	Red	M2SS1-11R	0.53
	Green	M2SS1-11G	0.53
	Yellow	M2SS1-11Y	0.53
	Blue	M2SS1-11L	0.53
	Clear	M2SS1-11C	0.53
Maintained			
	Red	M2SS2-11R	0.53
	Green	M2SS2-11G	0.53
	Yellow	M2SS2-11Y	0.53
	Blue	M2SS2-11L	0.53
	Clear	M2SS2-11C	0.53
Momentary, spring return from C to B			
	Red	M2SS3-11R	0.53
	Green	M2SS3-11G	0.53
	Yellow	M2SS3-11Y	0.53
	Blue	M2SS3-11L	0.53
	Clear	M2SS3-11C	0.53

Selector switch, long handle

Long handle			
Maintained			
	Red	M2SS4-11R	0.63
	Green	M2SS4-11G	0.63
	Yellow	M2SS4-11Y	0.63
	Blue	M2SS4-11L	0.63
	Clear	M2SS4-11C	0.63
Maintained			
	Red	M2SS5-11R	0.63
	Green	M2SS5-11G	0.63
	Yellow	M2SS5-11Y	0.63
	Blue	M2SS5-11L	0.63
	Clear	M2SS5-11C	0.63
Momentary, spring return from C to B			
	Red	M2SS6-11R	0.63
	Green	M2SS6-11G	0.63
	Yellow	M2SS6-11Y	0.63
	Blue	M2SS6-11L	0.63
	Clear	M2SS6-11C	0.63

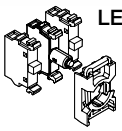
Selector switches

Three position, illuminated, short handle

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



Contact blocks and LED/lamp block

Holder

Operator (with locking nut)

Bezel

NOTE: For contact blocks, holders & LED lamp blocks, see Accessories pages 7.25 - 7.30.

Bezel - How to order

Black plastic - Standard
Chrome metal - Replace '**1**' with '**3**' in Catalog number

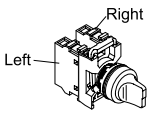
Bezel options	Catalog number
Black plastic	M3SS(X)-**1**1X
Chrome metal	M3SS(X)-**3**1X

Selector switch, short handle

Operator: Three-position selector switches (light bulb max 2W, not included)

Description		Catalog number	Weight oz.
Short handle			
Maintained			
	Red	M3SS1-11R	0.53
	Green	M3SS1-11G	0.53
	Yellow	M3SS1-11Y	0.53
	Blue	M3SS1-11L	0.53
	Clear	M3SS1-11C	0.53
Momentary, spring return from A to B and from C to B			
	Red	M3SS2-11R	0.53
	Green	M3SS2-11G	0.53
	Yellow	M3SS2-11Y	0.53
	Blue	M3SS2-11L	0.53
	Clear	M3SS2-11C	0.53
Momentary, spring return from C to B			
	Red	M3SS3-11R	0.53
	Green	M3SS3-11G	0.53
	Yellow	M3SS3-11Y	0.53
	Blue	M3SS3-11L	0.53
	Clear	M3SS3-11C	0.53
Momentary, spring return from A to B			
	Red	M3SS7-11R	0.53
	Green	M3SS7-11G	0.53
	Yellow	M3SS7-11Y	0.53
	Blue	M3SS7-11L	0.53
	Clear	M3SS7-11C	0.53

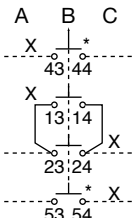
Contacts actuated

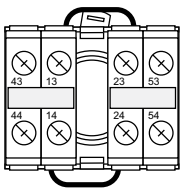


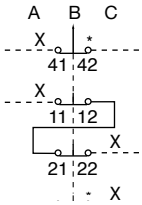
Handle position	Left block	Right block
A	■	□
B	□	□
C	□	■

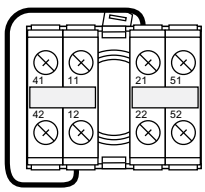
□ Not actuated
■ Actuated

Center position connection detail









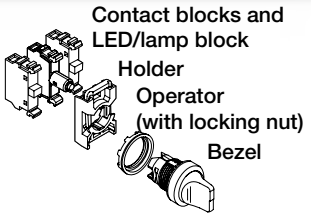
Selector switches

Three position, illuminated, long handle

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



NOTE: For contact blocks, holders & LED lamp blocks, see Accessories pages 7.25 - 7.30.

Bezel - How to order

Black plastic - Standard
Chrome metal - Replace '**1**' with '**3**' in Catalog number

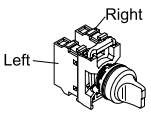
Bezel options	Catalog number
Black plastic	M3SS(X)-**1**1X
Chrome metal	M3SS(X)-**3**1X

Selector Switch, long handle

Operator: Three-position selector switches (light bulb max 2W, not included)

Description		Catalog number	Weight oz.
Long handle			
Maintained			
	Red	M3SS4-11R	0.63
	Green	M3SS4-11G	0.63
	Yellow	M3SS4-11Y	0.63
	Blue	M3SS4-11L	0.63
	Clear	M3SS4-11C	0.63
Momentary, spring return from A to B and from C to B			
	Red	M3SS5-11R	0.63
	Green	M3SS5-11G	0.63
	Yellow	M3SS5-11Y	0.63
	Blue	M3SS5-11L	0.63
	Clear	M3SS5-11C	0.63
Momentary, spring return from C to B			
	Red	M3SS6-11R	0.63
	Green	M3SS6-11G	0.63
	Yellow	M3SS6-11Y	0.63
	Blue	M3SS6-11L	0.63
	Clear	M3SS6-11C	0.63
Momentary, spring return from A to B			
	Red	M3SS8-11R	0.63
	Green	M3SS8-11G	0.63
	Yellow	M3SS8-11Y	0.63
	Blue	M3SS8-11L	0.63
	Clear	M3SS8-11C	0.63

Contacts actuated



Handle position	Left block	Right block
A	■	□
B	□	□
C	□	■

□ Not actuated
■ Actuated

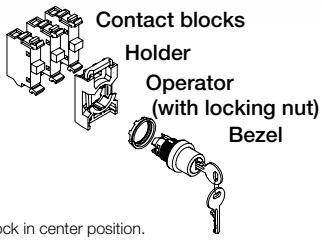
Key-operated selector switches

Two and three positions

How to order:

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

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



NOTE: No contact block in center position.
For contact blocks & holders, see Accessories pages 7.26.

Bezel - How to order

Black plastic - Standard
Chrome metal - Replace '**1**' with '**3**' in Catalog number

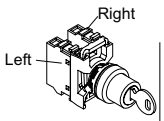
Bezel options	Catalog number
Black plastic	M3SSK(X)-**1**0X
Chrome metal	M3SSK(X)-**3**0X

Key-operated selector switch

Operator: Key-operated selector switch

Description	Catalog number	Weight oz.
Two positions		
Maintained (The key can be removed in both positions)		
Key release code 71/Ronis 455	M2SSK1-101	1.6
Key release code 72/Ronis 421	M2SSK1-102	1.6
Key release code 73/Ronis 3433-E	M2SSK1-103	1.6
Maintained (The key can be removed in position B only)		
Key release code 71/Ronis 455	M2SSK2-101	1.6
Key release code 72/Ronis 421	M2SSK2-102	1.6
Key release code 73/Ronis 3433-E	M2SSK2-103	1.6
Momentary, spring return from C to B (The key can be removed in position B only)		
Key release code 71/Ronis 455	M2SSK3-101	1.6
Key release code 72/Ronis 421	M2SSK3-102	1.6
Key release code 73/Ronis 3433-E	M2SSK3-103	1.6
Three positions		
Maintained (The key can be removed in all positions)		
Key release code 71/Ronis 455	M3SSK1-101	1.6
Key release code 72/Ronis 421	M3SSK1-102	1.6
Key release code 73/Ronis 3433-E	M3SSK1-103	1.6
Maintained (The key can be removed in position B only)		
Key release code 71/Ronis 455	M3SSK2-101	1.6
Key release code 72/Ronis 421	M3SSK2-102	1.6
Key release code 73/Ronis 3433-E	M3SSK2-103	1.6
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	1.6
Key release code 72/Ronis 421	M3SSK3-102	1.6
Key release code 73/Ronis 3433-E	M3SSK3-103	1.6

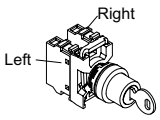
Contacts actuated



Handle position	Left block	Right block
B	☐	☐
C	■	■

☐ Not actuated
■ Actuated

Contacts actuated



Handle position	Left block	Right block
A	■	☐
B	☐	☐
C	☐	■

☐ Not actuated
■ Actuated

Potentiometers

Potentiometer

Resistor data

Element Catalog No.	Cermet
Power rating	2 W
Mechanical angle	280°
Terminals	Screw terminated
Insulation voltage	900 V
Operating temperature	-1 – +70 °C

Operator: Potentiometer

Description	Catalog number	Weight oz.
Complete Potentiometers		
Black knob with integrated position indication and marking in white		
With resistor 5 kohm		
Black plastic bezel	MT-105B	1.4
Chrome metal bezel	MT-305B	1.7
With resistor 10 kohm		
Black plastic bezel	MT-110B	1.4
Chrome metal bezel	MT-310B	1.7
With resistor 50 kohm		
Black plastic bezel	MT-150B	1.4
Chrome metal bezel	MT-350B	1.7

Knob without Resistor

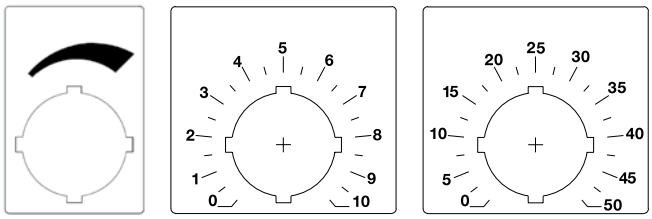
Black knob with integrated position indication and marking in white.
For shaft diameter 6 -6.35 mm.
Min. shaft length 20 mm.

Black plastic bezel	KT-100B	1.2
Chrome metal bezel	KT-300B	1.5

Legend plates aluminum

Symbol: see fig.	(29.6 x 44.5 mm)	SK 615 562-87	0.071
Scale: 0-10	(48.5 x 44.5 mm)	SK 615 562-88	0.071
Scale: 0-50	(48.5 x 44.5 mm)	1SFA611830R1252	0.071

Legend plates



Buzzers

Buzzer

Operator: Buzzer

Description		Catalog number	Weight oz.
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 Catalog number**		
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

How to order without shaft:

Alt.1 • Operator

How to order with shaft:

Alt.1 • Operator
+ shaft
+ flexible joint

Bezel - How to order
Black plastic - Standard
Chrome metal - Replace '**1**' with '**3**' in Catalog number

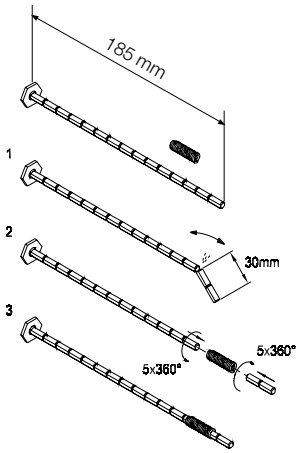
Bezel options	Catalog number
Black plastic	KPRX-**1**0XX
Chrome metal	KPRX-**3**0XX

Reset pushbutton actuator without shaft

Operator: Reset pushbutton

Description	Text	Catalog number	Weight oz.
Without shaft			
Flush pushbutton			
Red	No text	KPR1-100R	0.71
Green	No text	KPR1-100G	0.71
	II	KPR1-103G	0.71
Yellow	No text	KPR1-100Y	0.71
Blue	No text	KPR1-100L	0.71
	R	KPR1-101L	0.71
white	No text	KPR1-100W	0.71
	R	KPR1-101W	0.71
	I	KPR1-102W	0.71
	II	KPR1-103W	0.71
black	No text	KPR1-100B	0.71
	RESET	KPR1-104B	0.71
Extended pushbutton			
Red	No text	KPR2-100R	0.74
	O	KPR2-105R	0.74
white	No text	KPR2-100W	0.74
black	No text	KPR2-100B	0.74
	O	KPR2-105B	0.74

Reset pushbutton with shaft marked "R"



With shaft			
flush pushbutton			
Red	No text	KPR3-100R	0.95
Green	No text	KPR3-100G	0.95
	II	KPR3-103G	0.95
Yellow	No text	KPR3-100Y	0.95
Blue	No text	KPR3-100L	0.95
	R	KPR3-101L	0.95
White	No text	KPR3-100W	0.95
	R	KPR3-101W	0.95
	I	KPR3-102W	0.95
	II	KPR3-103W	0.95
Black	No text	KPR3-100B	0.95
	RESET	KPR3-104B	0.95
	RESET	KPR3-104BMR	0.95
Extended pushbutton			
Red	No text	KPR4-100R	0.99
	O	KPR4-105R	0.99
White	No text	KPR4-100W	0.99
Black	No text	KPR4-100B	0.99
	O	KPR4-105B	0.99

Accessories – In applications with long shaft, a flexible joint can be used to avoid damage to the shaft.

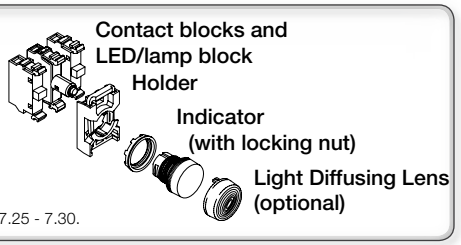
Shaft: (including fixing nut)	KA1-8046	0.25
Flexible joint	KA1-8047	0.18
240mm metal shaft Including fixing nut & foot	KA1-8046MR	

Pilot lights

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)



For contact blocks, holders & LED lamp blocks, see Accessories pages 7.25 - 7.30.

Pilot light

Indicator: Pilot light

Description	Catalog number	Weight oz.
Pilot lights		
Red	ML1-100R	0.63
Green	ML1-100G	0.63
Yellow	ML1-100Y	0.63
Blue	ML1-100L	0.63
White	ML1-100W	0.63
Clear	ML1-100C	0.63

Note: Bulbs, lamp blocks & LED blocks are not included – See Accessories page 7.27.

Light diffusing lens

Accessories

Light diffusing lens	KA1-8005	0.035

Note: Light diffusing lens is used to improve illumination of LED bulbs. Cannot be used together with text cap.

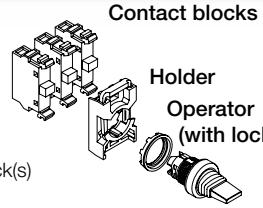
① Bulb not included.

Toggle switches
Two and three position

How to order:

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

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



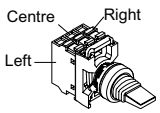
NOTE: For contact blocks & holders, see Accessories pages 7.26.

Toggle Switch

Operator: Toggle switch

Description	Bezel	Catalog number	Weight oz.
Two positions			
Maintained			
A C	Black plastic	MTS1-10B	0.74
	Chrome metal	MTS1-30B	0.74
Three positions			
Momentary, spring return from A to B and from C to B			
A B C	Black plastic	MTS2-10B	0.74
	Chrome metal	MTS2-30B	0.74
Maintained			
A B C	Black plastic	MTS3-10B	0.74
	Chrome metal	MTS3-30B	0.74

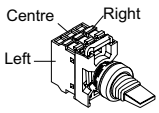
Contacts actuated



Handle position	Left block	Center block	Right block
A	■	■	■
C	□	□	□

□ Not actuated
■ Actuated

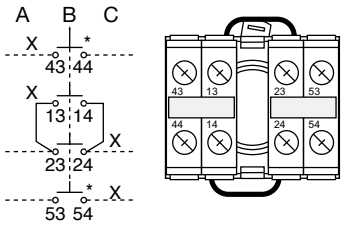
Contacts actuated



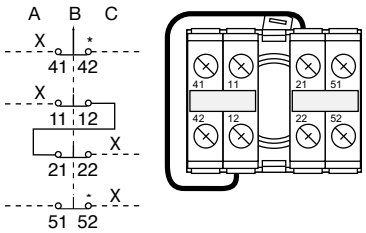
Handle position	Left block	Center block	Right block
A	□	■	■
B	□	□	□
C	■	■	□

□ Not actuated
■ Actuated

Center position connection detail



* Contacts may be N.O. or N.C.

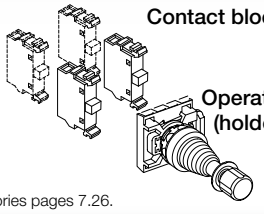


* Contacts may be N.O. or N.C.

Joysticks
IP67 and IP69K

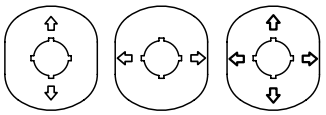
How to order:

- Operator holder included
+ Contact blocks

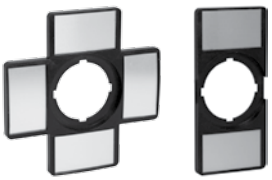


For contact blocks, see Accessories pages 7.26.

Joystick with latching function



Legend plates



Legend plate hc

Operator: Joystick

Description	Catalog number	Weight oz.
Joystick		
2-position maintained	MJS1-60B	2.2
2-position momentary	MJS2-60B	2.2
4-position maintained	MJS5-60B	3.1
4-position momentary	MJS6-60B	3.1
Joystick with latching function		
2-position maintained	MJS7-60B	2.2
2-position momentary	MJS8-60B	2.2
4-position maintained	MJS11-60B	3.1
4-position momentary	MJS12-60B	3.1
Micro switch blocks		
1 NO	MCBL-10	0.35
1 NC	MCBL-01	0.35
Legend plates		
2-position (1) (up - down)	MA6-1240	0.14
2-position (2) (right - left)	MA6-1241	0.14
4-position (3)	MA6-1242	0.14
Legend plate holders		
4-position	MA1-8137	0.14
2-position	MA1-8138	0.11
Insert with symbol		
↑	MA6-1065	0.035

Accessories
Transformer and lamp blocks

Transformer block for pilot lights

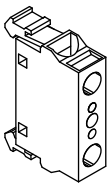
Description		Bulb suffix LED	Bulb suffix Filament	Catalog number	Weight oz.
Transformer blocks for pilot lights					
For 6 or 24 V Filament bulb and 24 V LED. Max 1.2 W Filament bulb lamp block included in the transformer, BA 9s base					
Primary voltage	**Secondary voltage**				
110-127 V AC	6 V AC	–	T2	KTR1-1001	3.4
220-250 V AC	6 V AC	–	T2	KTR1-1002	3.4
380-420 V AC	6 V AC	–	T3	KTR1-1003	3.4
440-480 V AC	6 V AC	–	T4	KTR1-1004	3.4
500-600 V AC	6 V AC	–	T5	KTR1-1005	3.4
110-127 V AC	24 V AC [1]	T1	T6	KTR1-1011	3.4
220-250 V AC	24 V AC [1]	T2	T7	KTR1-1012	3.4
380-420 V AC	24 V AC [1]	T3	T8	KTR1-1013	3.4
440-480 V AC	24 V AC [1]	T4	T9	KTR1-1014	3.4

Transformer block for illuminated operators

Transformer blocks for illuminated operators - Intended to supply 1.2W filament bulb mounted in lamp block MLB-J only

110-127 V AC	6 V AC	–	T2	KTR1-2001	3.4
220-250 V AC	6 V AC	–	T2	KTR1-2002	3.4
380-420 V AC	6 V AC	–	T3	KTR1-2003	3.4
440-480 V AC	6 V AC	–	T4	KTR1-2004	3.4
500-600 V AC	6 V AC	–	T5	KTR1-2005	3.4
110-127 V AC	24 V AC [1]	T1	T6	KTR1-2011	3.4
220-250 V AC	24 V AC [1]	T2	T7	KTR1-2012	3.4
380-420 V AC	24 V AC [1]	T3	T8	KTR1-2013	3.4
440-480 V AC	24 V AC [1]	T4	T9	KTR1-2014	3.4

[1] Can be used with LED bulb



Diode block

Diode block

Diode block	MDB-1001	0.53

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

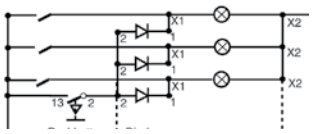


Diagram for lamp test with three Diode blocks
(not intended for integraded LED bulbs)

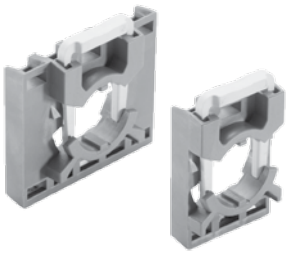
Lamp block

Single lamp blocks for front mounting, BA 9s base

Description		Catalog number	Weight oz.
230 V, 2 W X1 X2	For max. 2 W, 230 V AC and DC Filament bulb or LED	MLB-1	0.53
115 V, 60 V, 1.2 W, X1, X2	115 V AC supply voltage. For 60 V Filament bulb 1.2 W	MLB-2	0.60
230 V, 130 V, 2 W, X1, X2	230 V AC supply voltage. For 130 V Filament bulb 2 W	MLB-3	0.71
115 V, 24 V, LED, X1, X2	115 V AC and DC supply voltage For 24 V LED only	MLB-4	0.60
LED, X1, X2, 24-230V	LED block designed to prevent glowing from leakage current.	MLB-8	0.53

NOTE: Package order quantities will apply.

Accessories
Contact blocks and holders

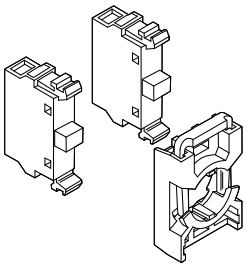


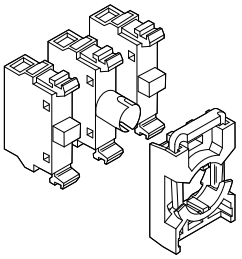
Holders for contact block

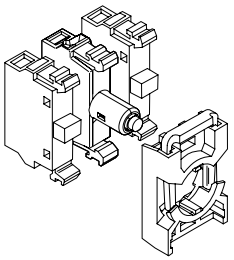
Contact block

Micro switch blocks

Double contact blocks







Description	Catalog number	Weight oz.
Holders		
Holders for three blocks	MCBH-00	0.21
Holders for five blocks*	MCBH5-00	0.28

* Note: Double contact blocks are required on side positions

Single contact blocks for front mounting		
1 NO	MCB-10	0.46
1 NC	MCB-01	0.46
1 NO w/gold plated contacts	MCB-10G	0.46
1 NC w/gold plated contacts	MCB-01G	0.46
Micro switch blocks		
1 NO	MCBL-10	0.35
1 NC	MCBL-01	0.35
Double contact block for front mounting		
2 NO	MCB-20	0.92
2 NC	MCB-02	0.92
1 NO + 1 NC	MCB-11	0.92
2NC w/gold plated contacts	MCB-02G	0.92
2NO w/gold plated contacts	MCB-20G	0.92

Note: To be used together with MCBH5-00 when Contact blocks in position 4- and 5- are needed. Also when using 2nd lamp blocks MCBH-00 together with Selector Switch and Contact block in position 3- is needed

Contact blocks with holder for front mounting ①

For non-illuminated operators

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

For illuminated operator

1 LB	MCBH-001
1 NC + 1 LB	MCBH-011
1 NO + 1 LB	MCBH-101
1 NO + 1 NC + 1 LB	MCBH-111
2 NO & 1 LB	MCBH-021
2 NO & 1 LB	MCBH-201

① Max. # of blocks in holder is 3.

Accessories
LED bulbs

LED bulbs

Description	Wavelength nm	Luminance mcd	Catalog number	Weight oz.
LED bulbs 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 (+).				
Rated voltage 12 V, DC, rated current 15 mA, service life >50 000 h				
Red	630	250	KA2-2011	0.18
Green	525	1000	KA2-2012	0.18
Yellow	592	250	KA2-2013	0.18
Blue	470	450	KA2-2014	0.18
White	1)	600	KA2-2015	0.18
Rated voltage 24 V, (AC)/DC, rated current 15 mA, service life >50 000 h				
Red	630	250	KA2-2021	0.18
Green	525	800	KA2-2022	0.18
Yellow	592	250	KA2-2023	0.18
Blue	470	400	KA2-2024	0.18
White	1)	500	KA2-2025	0.18
Rated voltage 36 V, (AC)/DC, rated current 12 mA, service life >50 000 h				
Red	630	200	KA2-2031	0.18
Green	525	2000	KA2-2032	0.18
Yellow	592	200	KA2-2033	0.18
Blue	470	750	KA2-2034	0.18
White	1)	1400	KA2-2035	0.18
Rated voltage 48 V, (AC)/DC, rated current 12 mA, service life >50 000 h				
Red	630	200	KA2-2041	0.18
Green	525	1700	KA2-2042	0.18
Yellow	592	240	KA2-2043	0.18
Blue	470	720	KA2-2044	0.18
White	1)	1200	KA2-2045	0.18
Rated voltage 60 V, (AC)/DC, rated current 10 mA, service life >50 000 h				
Red	630	160	KA2-2051	0.18
Green	525	1400	KA2-2052	0.18
Yellow	592	200	KA2-2053	0.18
Blue	470	600	KA2-2054	0.18
White	1)	1000	KA2-2055	0.18
Rated voltage 110-130 V, AC, rated current 4-6 mA, service life 25 000 h				
Red	630	60-100	KA2-2131	0.18
Green	525	500-850	KA2-2132	0.18
Yellow	592	70-120	KA2-2133	0.18
Blue	470	220-350	KA2-2134	0.18
White	1)	350-600	KA2-2135	0.18
Rated voltage 110-130 V, AC/DC, rated current 4-6 mA, service life 25 000 h				
Red	630	60	KA2-2141	0.18
Green	525	500	KA2-2142	0.18
Yellow	592	70	KA2-2143	0.18
Blue	470	220	KA2-2144	0.18
White	1)	350	KA2-2145	0.18
Rated voltage 230 V, AC, rated current 4 mA, service life 25 000 h				
Red	630	60	KA2-2221	0.18
Green	525	500	KA2-2222	0.18
Yellow	592	70	KA2-2223	0.18
Blue	470	220	KA2-2224	0.18
White	1)	350	KA2-2225	0.18

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
LED and filament bulbs

LED bulbs

Description	Wavelength nm	Luminance mcd	Catalog number	Weight oz.
LED bulbs continued				
Rated voltage 230 V, AC/DC, rated current 4 mA, service life 25 000 h				
Red	630	60	KA2-2231	0.18
Green	525	500	KA2-2232	0.18
Yellow	592	70	KA2-2233	0.18
Blue	470	220	KA2-2234	0.18
White	[1]	350	KA2-2235	0.18

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.

7

Flashing LED bulbs

Rated voltage 24 V, DC rated current 25 mA

Description	Wavelength nm	Service life hours	Catalog number	Weight oz.
Red	630	50 000	4950 512-1	0.18
Green	565	50 000	4950 512-2	0.18
Yellow	585	50 000	4950 512-3	0.18

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 m AC/DC	Rated current A	Rated output W	Service life h	Luminance mcd	Catalog number	Weight oz.
6	200	1.2	10 000	350	5911 086-11	0.071
12	100	1.2	10 000	203	5911 086-12	0.071
24	50	1.2	10 000	280	5911 086-13	0.071
30	40	1.2	10 000	250	5911 086-4	0.071
48	42	2	6 000	500	5911 086-5	0.071
60	20	1.2	5 000	190	5911 086-14	0.071
110	18	2	7 500	250	5911 086-7	0.071
130	15	2	7 500	120	5911 086-15	0.071

A lamp Changing Tool is required for changing bulb.

Lamp changing tool

Lamp changing tool

For LED bulbs and for bulbs	KA1-8072	0.071

A lamp changing tool is required for changing bulb.

Accessories

LED blocks, front mounting

LED block with built in leakage current protection

Description	Rated Current mA	Wavelength nm	Luminance mcd	Catalog number	Weight oz.
LED-blocks					
Lamp block with one diode chip integrated into lamp block. Choose the same color for the LED and the lamp cap or else use a clear cap.					
Rated voltage 12 V, DC					
Red	12.0	620	320	MLBL-00R	0.42
Green	9.3	520	1500	MLBL-00G	0.42
Yellow	12.0	588	380	MLBL-00Y	0.42
Blue	9.5	468	450	MLBL-00L	0.42
White	9.3	2)	600	MLBL-00W	0.42
Rated voltage 24 V, AC/DC					
Red	9.9	620	250	MLBL-01R	0.42
Green	9.2	520	1500	MLBL-01G	0.42
Yellow	9.9	588	250	MLBL-01Y	0.42
Blue	9.3	468	450	MLBL-01L	0.42
White	9.2	2)	600	MLBL-01W	0.42
Rated voltage 48 V, AC/DC					
Red	10.0	620	260	MLBL-02R	0.42
Green	9.7	520	1500	MLBL-02G	0.42
Yellow	10.0	588	300	MLBL-02Y	0.42
Blue	9.7	468	450	MLBL-02L	0.42
White	9.7	1)	600	MLBL-02W	0.42
Rated voltage 60 V, AC/DC					
Red	13.0	620	350	MLBL-03R	0.42
Green	12.7	520	2000	MLBL-03G	0.42
Yellow	13.0	588	400	MLBL-03Y	0.42
Blue	12.7	468	550	MLBL-03L	0.42
White	12.7	1)	750	MLBL-03W	0.42
Rated voltage 110-130 V, AC					
Red	8.6	620	200	MLBL-04R	0.42
Green	8.5	520	1200	MLBL-04G	0.42
Yellow	8.6	588	250	MLBL-04Y	0.42
Blue	7.0	468	400	MLBL-04L	0.42
White	7.0	1)	500	MLBL-04W	0.42
Rated voltage 110-130 V, DC					
Red	9.9	620	250	MLBL-05R	0.42
Green	9.8	520	1500	MLBL-05G	0.42
Yellow	9.9	588	300	MLBL-05Y	0.42
Blue	9.8	468	450	MLBL-05L	0.42
White	9,8	1)	600	MLBL-05W	0.42
Rated voltage 220 V, DC					
Red	8.0	620	180	MLBL-06R	0.42
Green	8.0	520	110	MLBL-06G	0.42
Yellow	8.0	588	200	MLBL-06Y	0.42
Blue	8.0	468	450	MLBL-06L	0.42
White	8.0	1)	600	MLBL-06W	0.42
Rated voltage 230 V, AC					
Red	9.5	620	250	MLBL-07R	0.42
Green	9.4	520	1500	MLBL-07G	0.42
Yellow	9.5	588	300	MLBL-07Y	0.42
Blue	8.2	468	450	MLBL-07L	0.42
White	8.2	1)	600	MLBL-07W	0.42

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

LED blocks, front mounting

LED block with built in leakage current protection

Description	Rated Current mA	Wavelength nm	Luminance mcd	Catalog number	Weight oz.
LED blocks, cont.					
Lamp block with one diode chip integrated into lamp block. Choose the same color for the LED and the lamp cap or else use a clear cap.					
Rated voltage 380 V, AC					
Red	10.2	620	250	MLBL-08R	0.42
Green	10.2	520	1500	MLBL-08G	0.42
Yellow	10.2	582	300	MLBL-08Y	0.42
Blue	9.1	468	450	MLBL-08L	0.42
White	9,1	1)	600	MLBL-08W	0.42
Rated voltage 415 V, AC					
Red	11.2	620	280	MLBL-09R	0.42
Green	11.2	520	1800	MLBL-09G	0.42
Yellow	11.2	588	350	MLBL-09Y	0.42
Blue	9.9	468	500	MLBL-09L	0.42
White	9.9	1)	650	MLBL-09W	0.42

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 7.62.

Accessories

DIN-rail adaptor

Dummy block

30mm adaptors

Adaptor

30mm gasket

Lamp changing tool

Mounting tool

Mounting tool for power tool

Blanking plugs

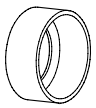
Square bezels

Description	Catalog number	Weight oz.
DIN-rail Adaptor		
DIN-rail adaptor	MA1-8131	0.71
DIN-rail (adaptor) kit with one dummy block	MA1-8001	0.99
NOTE: Use with base mount blocks. See page ___.		
Dummy block		
Dummy block, rear mount	MDB-2	0.11
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 ①		
Black plastic	KA1-8027	0.25
Metal	KA1-8028	0.74
For pushbuttons, selector switches, pilot lights, potentiometers and buzzers:		
Black plastic	KA1-8029	0.35
Metal	KA1-8030	1.2
Flush mounted adaptors (metal)		
For pushbuttons	KA1-8073	1.8
For Selector switches	MA1-8074	1.8
30mm Gasket		
For 30mm adaptors for 22mm operator	1SFA616920R8019	
Lamp changing tool		
For LED bulbs and for bulbs	KA1-8072	0.071
Mounting tool for operator		
Mounting tool for tightening the locking nut	MA1-8015	0.74
Mounting tool for power tool	MA1-8149	5.5
Extra key		
Ronis 455 (key code 71)	SK616021-71	0.25
Ronis 421 (key code 72)	SK616021-72	0.25
Ronis 3433-E (key code 73)	SK616021-73	0.25
Locking nut		
Locking nut 22mm	MA1-8019	0.035
Locking nut 30mm w/22mm device	MA1-8134	
The Locking nut can also be used with Compact Devices.		
Blanking plug		
Grey, 22mm	MA1-8129	0.18
Light grey, 22mm	MA1-8136	0.18
Black, 22mm	MA1-8130	0.18
Black, 30mm	MA1-8133	0.18
Square bezel		
Black, plastic	SK616016-2	0.035
Grey, plastic	MA1-8124	0.035

① For use with MPMP and MPMT only

Accessories

Protective membrane

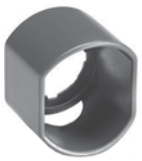

Protective ring

Protective cover

Bezel

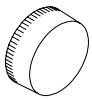
Shroud for emergency stop

Lockable shroud


Touch guard

Description	Catalog number	Weight oz.
Protective membrane		
For flush button	KA1-8052	0.071
For extended button	KA1-8002	0.071
For double pushbutton	MA1-8126	0.071
Protective ring		
Operator for protective ring	SK615512-1	0.071
Note: For flush and extended pushbuttons. To prevent accidental operation. Cannot be used together with Legend plate holder		
Protective cover		
Protective cover	KA1-8010	0.28
Note: For flush pushbutton. To prevent accidental operation. Cannot be used together with Legend plate holder.		
Bezel		
For pushbutton		
Grey plastic	KA1-8079	0.071
black plastic	KA1-8022	0.071
Chrome metal	KA1-8021	0.53
For Selector switch		
Grey plastic	KA1-8077	0.035
black plastic	KA1-8080	0.035
Chrome metal	KA1-8024	0.35
Shroud for emergency stop		
Yellow	MA1-8053	0.71
Grey	MA1-8128	0.71
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. Not for use with plastic enclosures.		
Shroud for pilot devices		
Lockable shroud	MA1-8153	0.023
Touch guard for pushbuttons		
Touch guard	MA1-8152	0.009

Accessories
Lenses



Lens for Pilot light

Flush lens for pushbutton

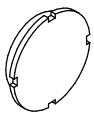
Extended lens for pushbutton

Description	Catalog number	Weight oz.
Lenses for pilot lights		
Red	KA1-8031	0.071
Green	KA1-8032	0.071
Yellow	KA1-8033	0.071
Blue	KA1-8034	0.071
White	KA1-8035	0.071
Clear	KA1-8038	0.071
Fresenal light diffusion lens ①	KA1-8005	0.071
Lenses for non-Illuminated pushbuttons		
Flush – opague		
Red	KA1-8081	0.53
Green	KA1-8082	0.53
Yellow	KA1-8083	0.53
Blue	KA1-8084	0.53
White	KA1-8085	0.53
Black	KA1-8086	0.53
Grey	KA1-8087	0.53
Clear	KA1-8088	0.53
Extended - opaque		
Red	KA1-8091	0.88
Green	KA1-8092	0.88
Yellow	KA1-8093	0.88
Blue	KA1-8094	0.88
White	KA1-8095	0.88
Black	KA1-8096	0.88
Grey	KA1-8097	0.88
Clear	KA1-8098	0.88
Lenses for illuminated pushbuttons		
Flush – transparent		
Red	KA1-8101	0.53
Green	KA1-8102	0.53
Yellow	KA1-8103	0.53
Blue	KA1-8104	0.53
White	KA1-8105	0.53
Clear	KA1-8108	0.53
Extended - transparent		
Red	KA1-8111	0.88
Green	KA1-8112	0.88
Yellow	KA1-8113	0.88
Blue	KA1-8114	0.88
White	KA1-8115	0.88
Clear	KA1-8118	0.88

① Light diffusing lens insert is placed between the bulb and the lens.

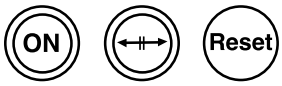
Text cap inserts

Legend	Cap color ①	Suffix code ②	Flush button catalog number	Extended button catalog number	Pilot light catalog number
	White	C82	1SFA616901R9036	—	—
Start	White	C67	1SFA616901R2030	1SFA616902R2030	1SFA616903R2030
START	Green	C5	1SFA616906R1042	—	—
	Black	C81	1SFA616908R1042	—	—
On	White	C68	1SFA616901R1020	1SFA616902R1020	1SFA616903R1020
ON	White	C69	1SFA616901R1039	—	1SFA616903R1039
	Green	C70	1SFA616906R1039	—	—
	Black	C1	1SFA616908R1039	—	—
Off	White	C71	1SFA616901R1019	1SFA616902R1019	1SFA616903R1019
OFF	White	C72	—	1SFA616902R1040	—
	Red	C73	—	1SFA616905R1040	—
	Black	C2	1SFA616908R1040	1SFA616909R1040	—
Stop	White	C74	1SFA616901R1031	1SFA616902R1031	1SFA616903R1031
STOP	Red	C4	1SFA616904R1047	1SFA616905R1047	—
Reset	White	C75	1SFA616901R1025	1SFA616902R1025	1SFA616903R1025
Blank	White	C15	1SFA616901R9000	1SFA616902R9000	1SFA616903R9000
	Green	CG	29491468-2	29491469-2	—
UP	Green	C11	1SFA616906R1043	—	—
DOWN	Green	C12	1SFA616906R1044	—	—
OPEN	White	C16	1SFA616901R1045	—	—
	Green	C19	1SFA616906R1045	—	—
CLOSE	White	C17	1SFA616901R1046	—	—
	Green	C20	1SFA616906R1046	—	—
REV	Green	C6	1SFA616906R1048	—	—
FWD	Green	C7	1SFA616906R1049	—	—
SLOW	Green	C8	1SFA616906R1050	—	—
FAST	Green	C9	1SFA616906R1051	—	—
JOG	Green	C10	1SFA616906R1052	—	—
RESET	Black	C3	1SFA616908R1041	—	—
LATCH	White	C18	1SFA616901R1053	—	—

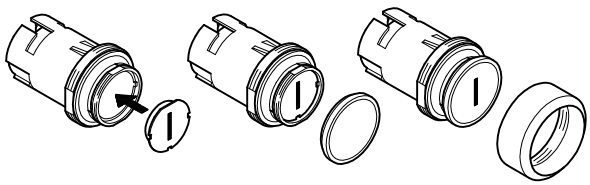

Flush pushbutton

Extended pushbutton

Pilot light



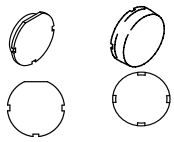
Examples of inserts


1 2 3
Insert assembly

① Illuminated pushbuttons and pilot lights must use white insert.
② Add suffix code to end of the catalog number.

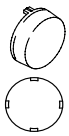
Text cap inserts

Flush button **Extended button**



Can be turned 90° or 180°

Pilot light



Text caps for illuminated pushbuttons and pilot lights

Text/Symbol ①	Cap color	Suffix ②	Flush button Catalog No.	Extended button Catalog No.	Pilot light Catalog No.
	White	C14	1SFA616901R9006	1SFA616902R9006	1SFA616903R9006
O	White	C21	1SFA616901R9004	1SFA616902R9004	1SFA616903R9004
	Red	C22	1SFA616904R9004	1SFA616905R9004	–
	Black	C23	1SFA616908R9004	–	–
I	White	C24	1SFA616901R9002	1SFA616902R9002	1SFA616903R9002
	Green	C25	1SFA616906R9002	–	–
	Black	C26	1SFA616908R9002	–	–
II	White	C27	1SFA616901R9003	1SFA616902R9003	1SFA616903R9003
	Green	C28	1SFA616906R9003	–	–
	Black	C29	1SFA616908R9003	–	–
III	White	C30	1SFA616901R9028	1SFA616902R9028	–
	Black	C31	1SFA616908R9028	–	–
+	White	C32	1SFA616901R9011	1SFA616902R9011	–
	Green	C33	1SFA616906R9011	–	–
	Black	C34	1SFA616908R9011	–	–
–	White	C35	1SFA616901R9012	–	–
	Red	C36	1SFA616904R9012	–	–
	Black	C37	1SFA616908R9012	–	–
	White	C38	1SFA616901R9005	1SFA616902R9005	1SFA616903R9005
	Black	C39	1SFA616908R9005	–	–
	White	C40	1SFA616901R9014	1SFA616902R9014	–
	Black	C41	1SFA616908R9014	–	–
	White	C42	1SFA616901R9015	1SFA616902R9015	–
	Black	C43	1SFA616908R9015	–	–
	White	C44	1SFA616901R9016	1SFA616902R9016	–
	Black	C45	1SFA616908R9016	–	–
	White	C46	1SFA616901R9017	1SFA616902R9017	–
	Black	C47	1SFA616908R9017	–	–
	White	C47	1SFA616901R9018	1SFA616902R9018	–
	Black	C48	1SFA616908R9018	–	–
	White	C49	1SFA616901R9019	1SFA616902R9019	–
	Black	C50	1SFA616908R9019	–	–
	White	C51	1SFA616901R9020	1SFA616902R9020	–
	Black	C52	1SFA616908R9020	–	–
	White	C53	1SFA616901R9021	1SFA616902R9021	–
	Black	C54	1SFA616908R9021	–	–
	White	C55	1SFA616901R9022	1SFA616902R9022	–
	Black	C56	1SFA616908R9022	–	–
	White	C57	1SFA616901R9023	1SFA616902R9023	–
	Black	C58	1SFA616908R9023	–	–
	White	C59	1SFA616901R9024	1SFA616902R9024	–
	Black	C60	1SFA616908R9024	–	–
	White	C61	1SFA616901R9025	1SFA616902R9025	–
	Black	C62	1SFA616908R9025	–	–
	White	C63	1SFA616901R9026	1SFA616902R9026	–
	Black	C64	1SFA616908R9026	–	–
	White	C65	1SFA616901R9027	1SFA616902R9027	–
	Black	C66	1SFA616908R9027	–	–

① Use only white caps for illuminated pushbutton and pilot lights.
② Add suffix code to end of the catalog number.

Technical data

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	Catalog number 1, 3R, 4, 4X, 12, 13
Double pushbutton: MPD *	IP66	Catalog number 1, 3R, 4, 4X, 12, 13
Mushroom pushbutton: MPM *	IP66	Catalog number 1, 3R, 4, 4X, 12, 13
Emergency Stop: MPMT/P *	IP66	Catalog number 1, 3R, 4, 4X, 12, 13
Selector Switch: M2SS/M3SS *	IP66	Catalog number 1, 3R, 4, 4X, 12, 13
Key-operated Selector Switch: M2SSK/M3SSK *	IP66	Catalog number 1, 3R, 4, 4X, 12
Toggle Switch: MTS2/MTS3 *	IP66	Catalog number 1, 3R, 4, 4X, 12, 13
Extreme Duty pushbutton: KP6	-	Catalog number 1, 3R, 4, 4X
Reset pushbutton: KPR *	IP 66	Catalog number 1, 3R, 4, 4X, 12, 13
Joystick: MJS	IP66, 67, 69K	Catalog number 1, 4X (indoor), 12, 13
Pilot lights: ML	IP66	Catalog number 1, 3R, 4, 4X, 12, 13
Buzzer: KB	IP65	Catalog number 4X
Potentiometer: KT *	IP66	Catalog number 1, 3R, 4, 4X, 12, 13
Contact block and Transformer block	IP20	-
Plastic Enclosures	IP66	Catalog number 1, 3R, 4, 4X, 12, 13
Metallic Enclosures	IP66, 67, 69K	-

Temperature

Ambient temperature during operation	-25 to +70 °C
Storage temperature	-40 to +85 °C

*) With Chrome plastic bezel IP66 Catalog number 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 mm² /AWG 20 max. 2 x 2.5 mm²/2 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, toulene). 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 Catalog numbers 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.

Approvals

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

For detail information please contact ABB

Technical data

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_e 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_e 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 at: 250 V at: 480 V at: 600 V	0.55 A 0.27 A 0.10 A 0.10 A
Contact resistance	< 25 mΩ			
Compulsory function test	at: 5V, 16 mA			

Max. number of contact blocks per operator

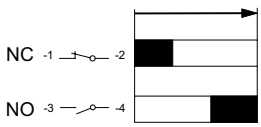
The Contact blocks can be stacked in max two levels on the 3- block holder. Only one level is accepted on the 5-block holder.

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	gG 16A

Diagram for make-and-break contact



■ = Closed contact

Micro Switch block / Ratings as per IEC 60947-5-1

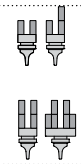
Rated Insulation Voltage, U_i		125 V
Rated Thermal Current, I_{th}		3 A
Rated Operational Current, I_e utilisation category AC 14,	at: 125 V	0.5 A
Rated Operational Current, I_e utilization category DC 13,	at: 24 V	0.3 A
Rated Operational Current, I_e utilization category DC 12,	at: 24 V	0.1 A

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
	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		
Present standard (no operation of center contact)		500 000 operations
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

Lamp block ratings as per IEC 60 947-5-1

Rated Insulation Voltage	230 V
Base	BA 9s
Permissible power, up to	2 W

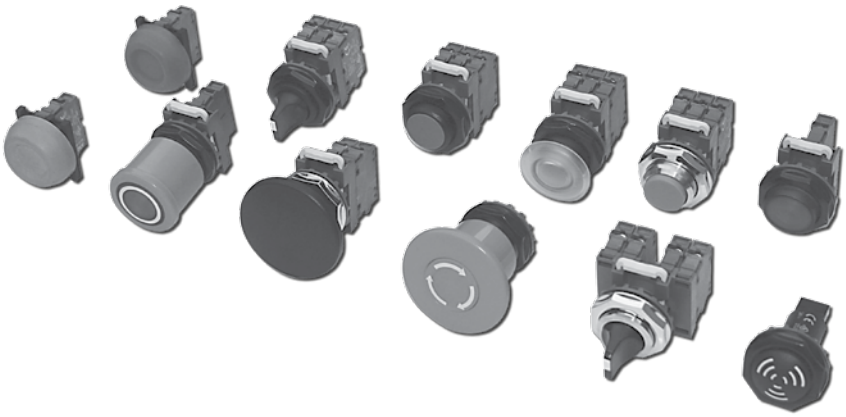
Transformer block

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.

Modular range
30mm



Modular Range, 30mm

Pilot devices

General construction

- Snap-on features reduce installation time
- Bezels: black plastic or 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
- UL File# E76003
- CSA File# LR19700

Operators

- Pushbuttons, illuminated and non-illuminated
- Mushroom pushbuttons, illuminated and non-illuminated, 40mm and 60mm diameter
- 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

Contact blocks

- Quick-mount, quick release contact block holder for fast and easy assembly/disassembly
- 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
- Contact block holder for three or five blocks in a single row

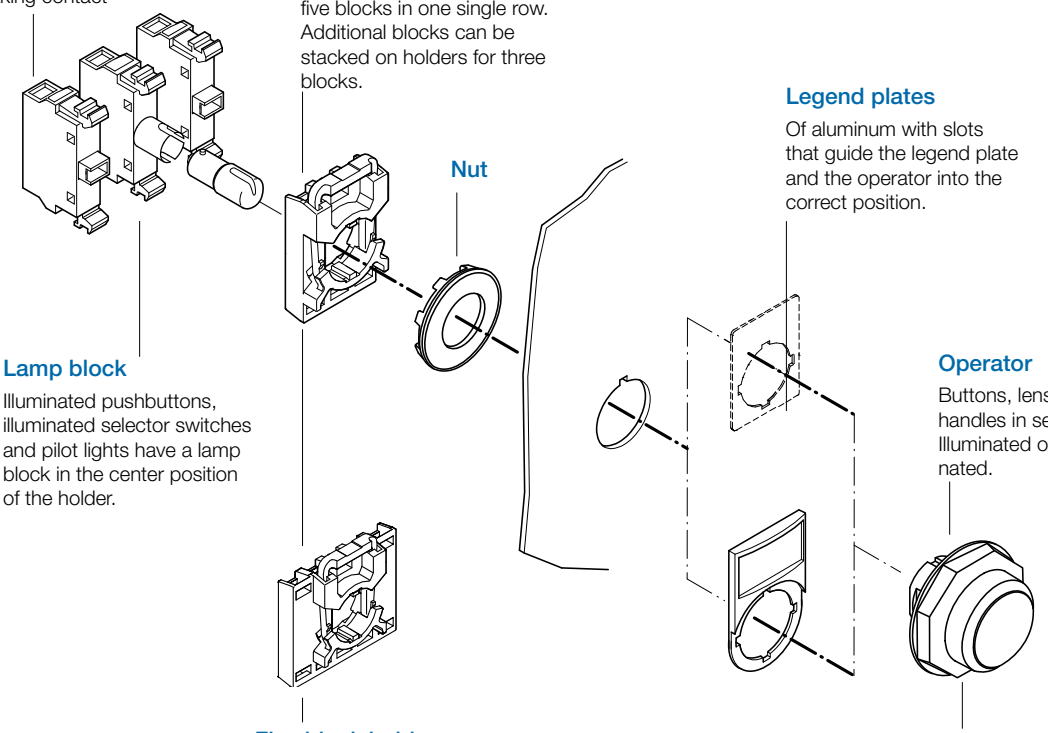
Pilot lights

- Full voltage, resistor and transformer
- LED and filament bulbs available

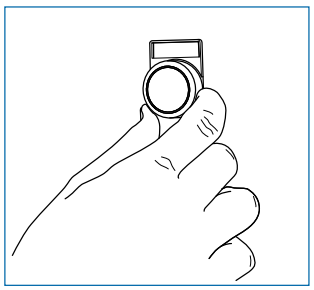
Spec Tech Industrial Electric www.spectechind.com 888-773-2832

General information
Mounting

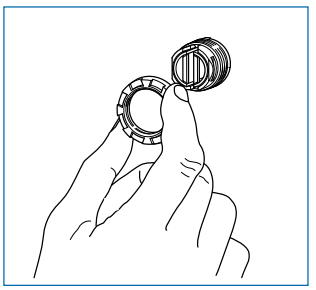
Exploded view



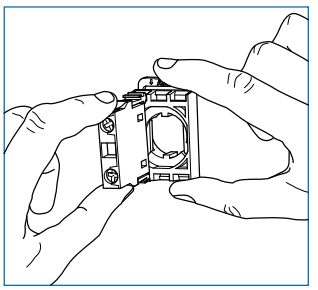
Easy to mount



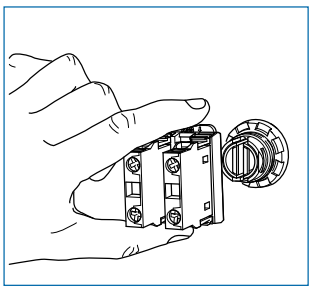
The operator is to be inserted from the front.....



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

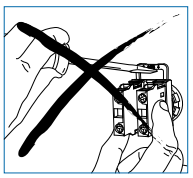


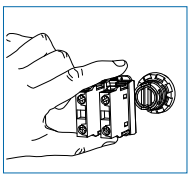
The contact blocks/lamp block are then snapped on to the holder...



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

...and to remove

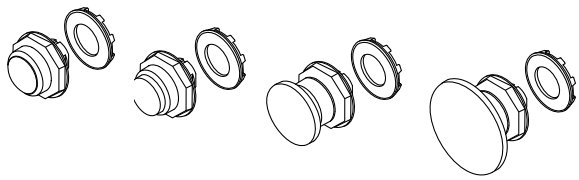




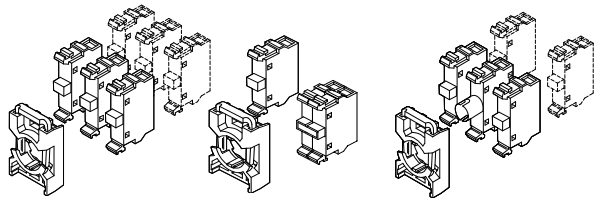
Press down the spring on the holder and pull the holder from the actuator.

Selection guide

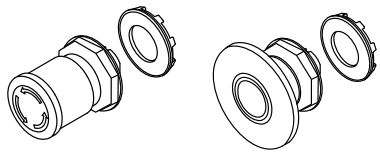
Pushbuttons and Mushroom pushbuttons



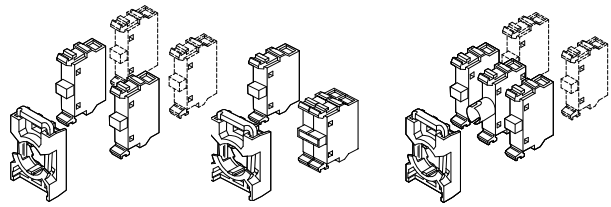
Contact block/lamp block combinations



Emergency stop pushbuttons

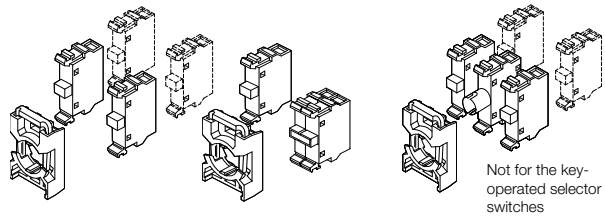


Contact block/lamp block combinations



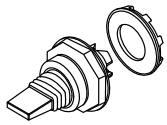
Selector switches

Contact block/lamp block combinations

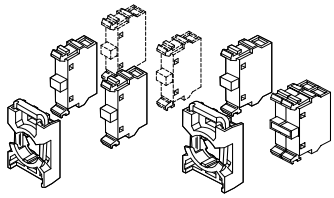


Not for the key-operated selector switches

Toggle switches

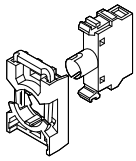


Contact block combinations

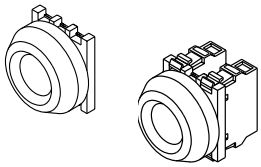


Pilot lights

Lamp block combination



Extreme duty pushbuttons



Flush and extended pushbuttons

Non-illuminated and illuminated
Momentary and maintained

How to order non-illuminated:

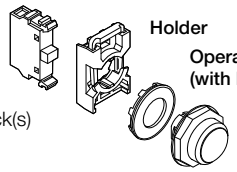
Alt.1 • Operator
+ Holder
+ Contact block(s)

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

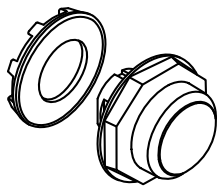


Δ Non-illuminated button color		‡ Illuminated button color	
R Red	**G** Green	**R** Red	**G** Green
Y Yellow	**L** Blue	**Y** Yellow	**L** Blue
W White	**B** Black	**W** White	**B** Black
C Clear			

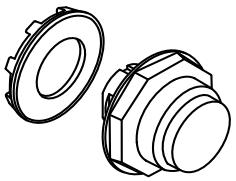
To select button color, substitute the Δ or the ‡ in the catalog number with the above color letter code. EX: G1MP1-10R (for a red button).

NOTE: No contact block in center position, reserved for LED/lamp block
For contact blocks, holders & LED lamp blocks, see Accessories pages 7.54 - 7.58.

7



Flush



Extended

Non-illuminated

Description	Catalog number
Black plastic bezel	
Flush, momentary	G1MP1-10Δ
Flush, maintained	G1MP2-10Δ
Extended, momentary	G1MP3-10Δ
Extended, maintained	G1MP4-10Δ
Chrome bezel	
Flush, momentary	G2MP1-30Δ
Flush, maintained	G2MP2-30Δ
Extended, momentary	G2MP3-30Δ
Extended, maintained	G2MP4-30Δ

Illuminated①

Description	Catalog number
Black plastic bezel	
Flush, momentary	G1MP1-11‡
Flush, maintained	G1MP2-11‡
Extended, momentary	G1MP3-11‡
Extended, maintained	G1MP4-11‡
Chrome bezel	
Flush, momentary	G2MP1-31‡
Flush, maintained	G2MP2-31‡
Extended, momentary	G2MP3-31‡
Extended, maintained	G2MP4-31‡

① No contact block in the center position.
② Lamp block MLB-1. Bulb not included. Other lamp block see Accessories, bulb max 1.2 W.

Mushroom pushbuttons

Non-illuminated and illuminated
Momentary

How to order non-illuminated:

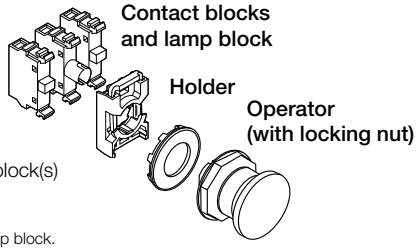
Alt.1 • Operator
+ Holder
+ Contact block(s)

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

How to order illuminated:

Alt.1 • Operator
+ Holder
+ Contact block(s)
+ LED/lamp block

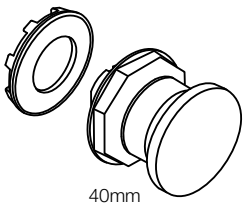
Alt.2 • Operator
+ Holder with Contact block(s) and lamp block

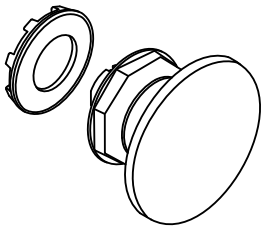


Δ Non-illuminated button color	‡ Illuminated button color
R Red	**R** Red
Y Yellow	**Y** Yellow
B Black	**G** Green

To select button color, substitute the Δ or the ‡ in the catalog number with the above color letter code.
EX: G1MPM1-10R (for a red button).

NOTE: No contact block in center position, reserved for LED/lamp block.
For contact blocks, holders & LED lamp blocks, see Accessories pages 7.54 - 7.58.


40mm


60mm

Non-illuminated

Description	Catalog number
Black plastic bezel	
40mm	G1MPM1-10Δ
60mm	G1MPM2-10Δ
Chrome bezel	
40mm	G2MPM1-30Δ
60mm	G2MPM2-30Δ

Illuminated ①

Description	Catalog number
Black plastic bezel	
40mm	G1MPM1-11‡
60mm	G1MPM2-11‡
Chrome bezel	
40mm	G2MPM1-31‡
60mm	G2MPM2-31‡

① No contact block in the center position
② Lamp block MLB-1. Bulb not included. Other lamp block see Accessories, bulb max 1.2 W.

Emergency stop pushbuttons

Non-illuminated and illuminated
30mm, 40mm & 60mm head

How to order non-illuminated:

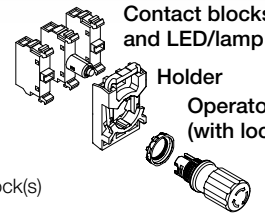
Alt.1 • Operator
+ Holder
+ Contact block(s)

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

How to order illuminated:

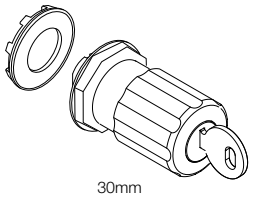
Alt.1 • Operator
+ Holder
+ Contact block(s)
+ LED/lamp block

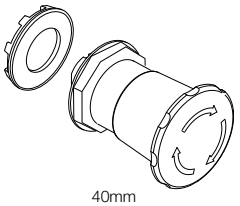
Alt.2 • Operator
+ Holder with Contact block(s)
and LED/lamp block



NOTE: No contact block in center position, reserved for LED/lamp block.
For contact blocks, holders & LED lamp blocks, see Accessories pages 7.54 - 7.58.

7 Fulfills IEC 60947-5-5


30mm


40mm

Operator: Emergency Stop

	Description	Catalog number
Non-Illuminated		
30mm		
Black Plastic Bezel		
Red	Twist release	G1MPET3-10R
Red	Key release (Key code 71, Ronis 455)	G1MPEK3-11R
Red	Key release (Key code 72, Ronis 421)	G1MPEK3-12R
Red	Key release (Key code 73, Ronis 3433-E)	G1MPEK3-13R
Chrome Bezel		
Red	Twist release	G2MPET3-10R
Red	Key release (Key code 71, Ronis 455)	G2MPEK3-11R
Red	Key release (Key code 72, Ronis 421)	G2MPEK3-12R
Red	Key release (Key code 73, Ronis 3433-E)	G2MPEK3-13R
40mm		
Black Plastic Bezel		
Red	Twist release	G1MPET4-10R
Red	Key release (Key code 71, Ronis 455)	G1MPEK4-11R
Red	Key release (Key code 72, Ronis 421)	G1MPEK4-12R
Red	Key release (Key code 73, Ronis 3433-E)	G1MPEK4-13R
Chrome Bezel		
Red	Twist release	G2MPET4-10R
Red	Key release (Key code 71, Ronis 455)	G2MPEK4-11R
Red	Key release (Key code 72, Ronis 421)	G2MPEK4-12R
Red	Key release (Key code 73, Ronis 3433-E)	G2MPEK4-13R
Illuminated		
40mm		
Black Plastic Bezel		
Red	Twist release	G1MPMT3-11R
Chrome Bezel		
Red	Twist release	G2MPMT3-11R
60mm		
Black Plastic Bezel		
Red	Twist release	G1MPMT4-11R
Chrome Bezel		
Red	Twist release	G2MPMT4-11R

Pull release operators

Non-illuminated and illuminated 30mm, 40mm & 60mm head

How to order non-illuminated:

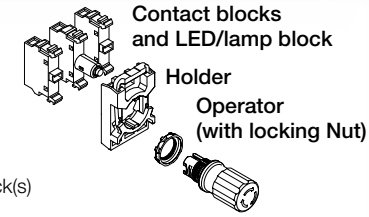
Alt.1 • Operator
+ Holder
+ Contact block(s)

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

How to order illuminated:

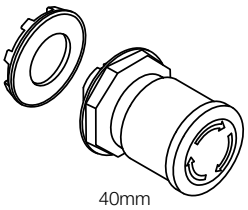
Alt.1 • Operator
+ Holder
+ Contact block(s)
+ LED/lamp block

Alt.2 • Operator
+ Holder with Contact block(s)
and LED/lamp block

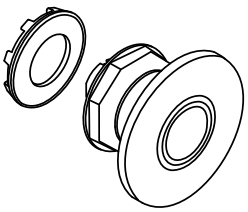


NOTE: No contact block in center position, reserved for LED/lamp block.
For contact blocks, holders & LED lamp blocks, see Accessories pages 7.54 - 7.58.

Fulfills IEC 60947-5-5



40mm



60mm

Operator: Twist or pull release operators

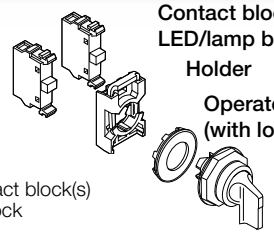
	Description	Catalog number
Non-Illuminated		
30mm		
Black Plastic Bezel		
Red	Pull release	G1MPEP3-10R
Chrome bezel		
Red	Pull release	G2MEP3-10R
40mm		
Black Plastic Bezel		
Red	Pull release	G1MPEP4-10R
Chrome Bezel		
Red	Twist release	G2MPET4-10R
Illuminated		
40mm		
Black Plastic Bezel		
Red	Pull release	G1MPMP3-11R
Chrome bezel		
Red	Pull release	G2MPMP3-11R
60mm		
Black Plastic Bezel		
Red	Pull release	G1MPMP4-11R
Chrome Bezel		
Red	Twist release	G2MPMP4-11R

Two position selector switches
Non-illuminated

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

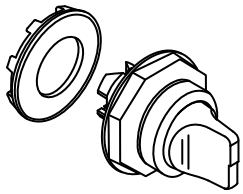


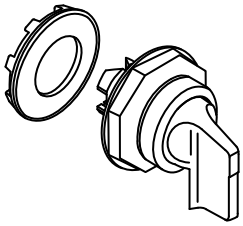
Δ Non-illuminated handle color
R Red
B Black
U Grey

To select handle color, substitute the **Δ** in the catalog number with the above color letter code.
EX: G1M2SS1-10ΔR(for a red button).

NOTE: No contact block in center position, reserved for LED/lamp block.
For contact blocks & holders, see Accessories pages 7.54.

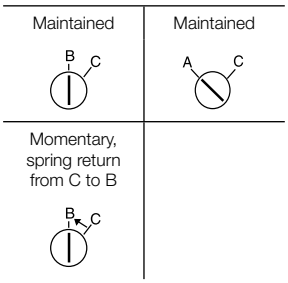
7


Short handle


Long handle

Non-illuminated

Description	Catalog number
Short handle	
Black plastic bezel	
Maintained B & C	G1M2SS1-10Δ
Maintained A & C	G1M2SS2-10Δ
Spring return from C to B	G1M2SS3-10Δ
Chrome bezel	
Maintained B & C	G2M2SS1-30Δ
Maintained A & C	G2M2SS2-30Δ
Spring return from C to B	G2M2SS3-30Δ
Long handle	
Black plastic bezel	
Maintained B & C	G1M2SS4-10Δ
Maintained A & C	G1M2SS5-10Δ
Spring return from C to B	G1M2SS6-10Δ
Chrome bezel	
Maintained B & C	G2M2SS4-30Δ
Maintained A & C	G2M2SS5-30Δ
Spring return from C to B	G2M2SS6-30Δ



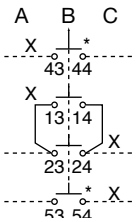
Contact functions

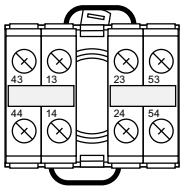
Block positions as seen from operator front.

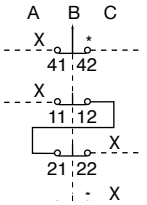
Handle position	Left block	Right block
A (B)	O	O
C	x	x

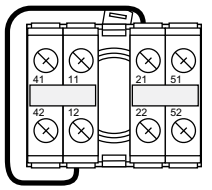
O = not actuated (normal state)
x = actuated (state changed)

Center position connection detail







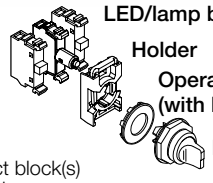


Two position selector switches
Illuminated

How to order:

Alt.1 • Operator
+ Holder
+ Contact block(s)
+ LED/lamp block

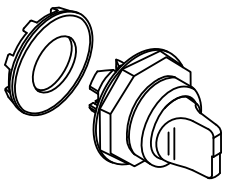
Alt.2 • Operator
+ Holder with Contact block(s) and LED/lamp block

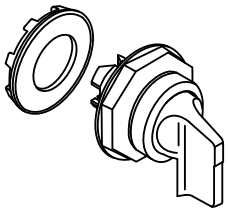


Δ Illuminated handle color	
R Red	**L** Blue
G Green	**C** Clear
Y Yellow	

To select handle color, substitute the Δ in the catalog number with the above color letter code.
EX: G1M2SS1-11R (for a red handle).

For contact blocks, holders & LED lamp blocks, see Accessories pages 7.54 - 7.58.


Short handle

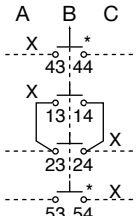

Long handle

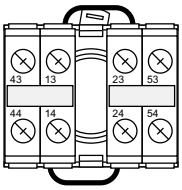
Illuminated ①

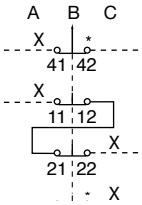
Description	Catalog number
Short handle	
Black plastic bezel	
Maintained B & C	G1M2SS1-11Δ
Maintained A & C	G1M2SS2-11Δ
Spring return from C to B	G1M2SS3-11Δ
Chrome bezel	
Maintained B & C	G2M2SS1-31Δ
Maintained A & C	G2M2SS2-31Δ
Spring return from C to B	G2M2SS3-31Δ
Long handle	
Black plastic bezel	
Maintained B & C	G1M2SS4-11Δ
Maintained A & C	G1M2SS5-11Δ
Spring return from C to B	G1M2SS6-11Δ
Chrome bezel	
Maintained B & C	G2M2SS4-31Δ
Maintained A & C	G2M2SS5-31Δ
Spring return from C to B	G2M2SS6-31Δ

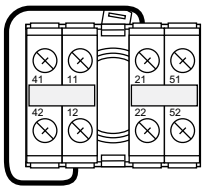
Maintained	Maintained
Momentary, spring return from C to B	

Center position connection detail









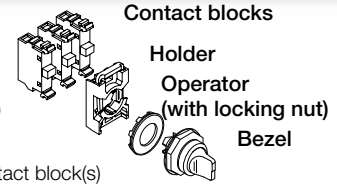
① No contact block in the center position
② Lamp block MLB-1. Bulb not included. Other lamp block see Accessories, bulb max 1.2 W.

Three position selector switches
Non-illuminated

How to order:

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

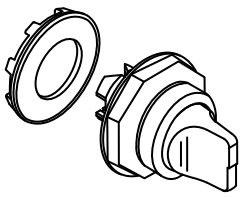
Alt.2 • Operator
+ Holder with contact block(s)



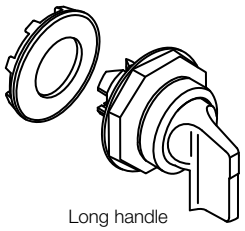
NOTE: No contact block in center position.
For contact blocks & holders, see Accessories pages 7.54.

Δ Non-illuminated handle color
R Red
B Black
U Grey

To select handle color, substitute the **Δ** in the catalog number with the above color letter code.
EX: G1M3SS1-10R (for a red handle).



Short handle



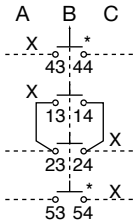
Long handle

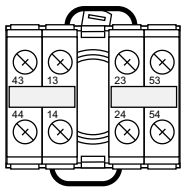
Maintained	Momentary, spring return from A to B and from C to B
Momentary, spring return from C to B	Momentary, spring return from A to B

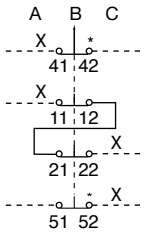
Non-illuminated

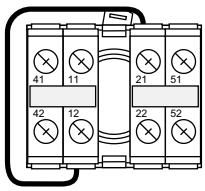
Description	Catalog number
Short handle	
Black plastic bezel	
Maintained A, B & C	G1M3SS1-10Δ
Spring return A & C to B	G1M3SS2-10Δ
Maint A, Spring ret C to B	G1M3SS3-10Δ
Maint C, Spring ret A to B	G1M3SS7-10Δ
Chrome bezel	
Maintained A, B & C	G2M3SS1-30Δ
Spring return A & C to B	G2M3SS2-30Δ
Maint A, Spring ret C to B	G2M3SS3-30Δ
Maint C, Spring ret A to B	G2M3SS7-30Δ
Long handle	
Black plastic bezel	
Maintained A, B & C	G1M3SS4-10Δ
Spring return A & C to B	G1M3SS5-10Δ
Maint A, Spring ret C to B	G1M3SS6-10Δ
Maint C, Spring ret A to B	G1M3SS8-10Δ
Chrome bezel	
Maintained A, B & C	G2M3SS4-30Δ
Spring return A & C to B	G2M3SS5-30Δ
Maint A, Spring ret C to B	G2M3SS6-30Δ
Maint C, Spring ret A to B	G2M3SS8-30Δ

Center position connection detail







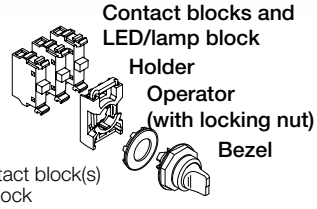


Three position selector switches
Illuminated

How to order:

Alt.1 • Operator
+ Holder
+ Contact block(s)
+ LED/lamp block

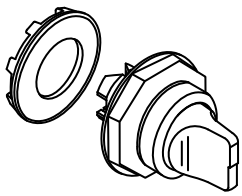
Alt.2 • Operator
+ Holder with Contact block(s) and LED/lamp block

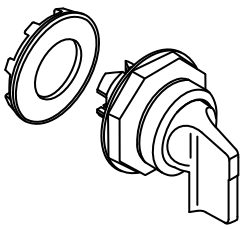


Δ Illuminated handle color	
R Red	**L** Blue
G Green	**C** Clear
Y Yellow	

To select handle color, substitute the **Δ** in the catalog number with the above color letter code.
EX: G1M3SS1-11R (for a red handle).

NOTE: For contact blocks, holders & LED lamp blocks, see Accessories pages 7.54 - 7.58.


Short handle

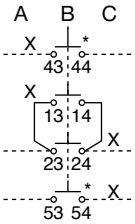

Long handle

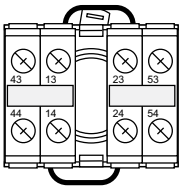
Illuminated①

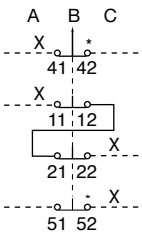
Description	Catalog number
Short handle	
Black plastic bezel	
Maintained A, B & C	G1M3SS1-11Δ
Spring return A & C to B	G1M3SS2-11Δ
Maint A, Spring ret C to B	G1M3SS3-11Δ
Maint C, Spring ret A to B	G1M3SS7-11Δ
Chrome bezel	
Maintained A, B & C	G2M3SS1-31Δ
Spring return A & C to B	G2M3SS2-31Δ
Maint A, Spring ret C to B	G2M3SS3-31Δ
Maint C, Spring ret A to B	G2M3SS7-31Δ
Long handle	
Black plastic bezel	
Maintained A, B & C	G1M3SS4-11Δ
Spring return A & C to B	G1M3SS5-11Δ
Maint A, Spring ret C to B	G1M3SS6-11Δ
Maint C, Spring ret A to B	G1M3SS8-11Δ
Chrome bezel	
Maintained A, B & C	G2M3SS4-31Δ
Spring return A & C to B	G2M3SS5-31Δ
Maint A, Spring ret C to B	G2M3SS6-31Δ
Maint C, Spring ret A to B	G2M3SS8-31Δ

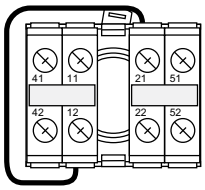
Maintained	Momentary, spring return from A to B and from C to B
Momentary, spring return from C to B	Momentary, spring return from A to B

Center position connection detail









① No contact block in the center position

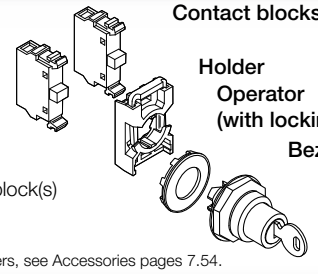
Key-operated selector switches ①

Two and three position

How to order:

Alt.1 • Operator
+ Holder
+ Contact block(s)
+ LED/lamp block

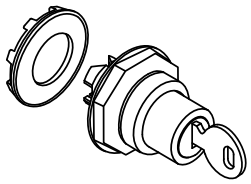
Alt.2 • Operator
+ Holder with Contact block(s) and LED/lamp block



Δ Key codes
1 Ronis 71
2 Ronis 72
3 Ronis 73

To select desired key code, substitute the **Δ** in the catalog number with the above key letter code.
EX: G1M2SSK!-102 (Ronis 72 key)

NOTE: For contact blocks & holders, see Accessories pages 7.54.



Two position	Three position
Maintained	Maintained
Maintained	Maintained
Momentary, spring return from C to B	Momentary, spring return from A to B and from C to B
	Momentary, spring return from C to B
	Momentary, spring return from C to B

Description	The key can be removed in...	Catalog number
2-position		
Black plastic bezel		
Maintained B & C	B & C	G1M2SSK1-10Δ
Maintained B & C	B only	G1M2SSK2-10Δ
Spring return C to B	B only	G1M2SSK3-10Δ
Chrome bezel		
Maintained B & C	B & C	G2M2SSK1-30Δ
Maintained B & C	B only	G2M2SSK2-30Δ
Spring return C to B	B only	G2M2SSK3-30Δ
3-position		
Black plastic bezel		
Maintained A, B, &C	A, B & C	G1M3SSK1-10Δ
Maintained A, B, &C	B only	G1M3SSK2-10Δ
Spring return A & C to B	B only	G1M3SSK3-10Δ
Spring return C to B	A only	G1M3SSK4-10Δ
Spring return C to B	A, B, & C	G1M3SSK5-10Δ
Chrome bezel		
Maintained A, B, &C	A, B & C	G2M3SSK1-30Δ
Maintained A, B, &C	B only	G2M3SSK2-30Δ
Spring return A & C to B	B only	G2M3SSK3-30Δ
Spring return C to B	A only	G2M3SSK4-30Δ
Spring return C to B	A, B, & C	G2M3SSK5-30Δ

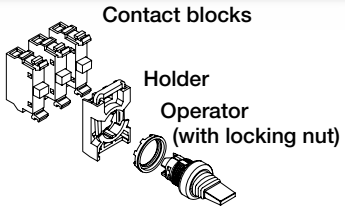
① Includes two keys

Toggle switches
Two and three position

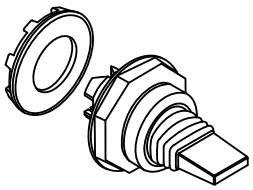
How to order:

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

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



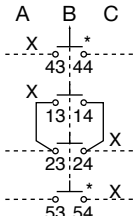
NOTE: For contact blocks & holders, see Accessories pages 7.54.

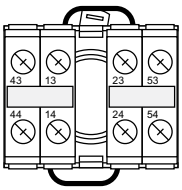


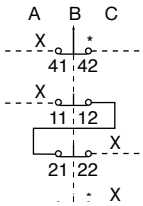
Description	Catalog number
2-position	
Maintained, black bezel	G1MTS1-10B
Maintained, chrome bezel	G2MTS1-30B
3-position	
Maintained, black bezel	G1MTS3-10B
Maintained, chrome bezel	G2MTS3-30B
Spring return from A and C to B, black bezel	G1MTS2-10B
Spring return from A and C to B, chrome bezel	G2MTS2-30B

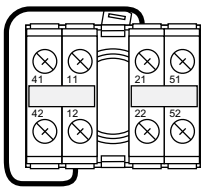
Two position	Three position
Maintained	Momentary, spring return from A to B and from C to B
	Maintained

Center position connection detail







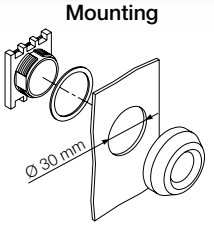


Extreme duty pushbuttons
for 30mm mounting hole

How to order

• Operator
+ Contact block(s)

Mounting



NOTE: For contact blocks, see Accessories pages 7.54.

Red

Green

Black

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	Catalog number	Weight oz.
Red	-	KP6-40R	0.78
Green	-	KP6-40G	0.78
black	-	KP6-40B	0.78
black	1 NO + 1 NC	KP6-40B-11	1.7
black	1 NO	KP6-40B-10	1.2
black	1 NC	KP6-40B-01	1.2
black	2 NO	KP6-40B-20	1.7
black	2 NC	KP6-40B-02	1.7

Contact blocks

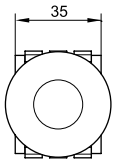
1 NO	MCB-10	0.46
1 NC	MCB-01	0.46

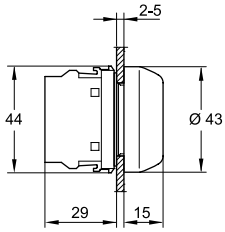
Accessories

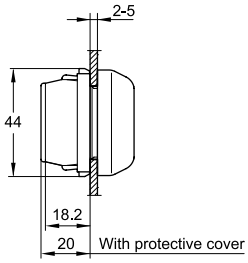
Guide washer for positioning and anti-rotation	2154 373-1	

Technical data

Degree of protection	IP66 UL Catalog number 1, 3R, 4, 4X
Ambient temperature	-30° — +70°





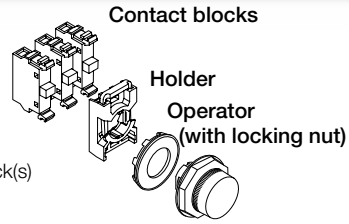


Pilot lights

How to order:

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

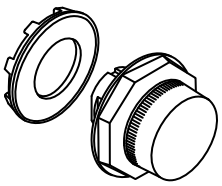
Alt.2 • Operator
+ Holder with Contact block(s)



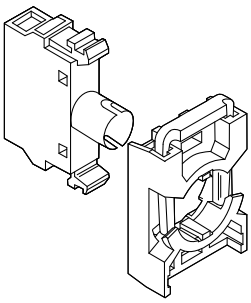
Δ Lens color	
R Red	**L** Blue
G Green	**W** White
Y Yellow	**C** Clear

To select lens color, substitute the Δ in the catalog number with the above color letter code.
EX: G1ML1-100R (for a red lens).

NOTE: For contact blocks, see Accessories pages 7.54.

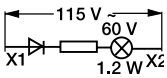
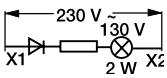


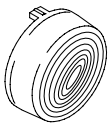
Description	Catalog number
Black plastic mounting ring	G1ML1-100Δ
Chrome mounting ring	G2ML1-100Δ



Lamp block + holder

Lamp blocks with holder ①

Supply voltage	Catalog number
For max. 2 W, 230 V AC and DC filament bulb or LED 115 V AC supply voltage.	MCBH-001
For 60 V filament bulb max. 1.2 W  230 V AC supply voltage.	MCBH-002
For 130 V filament bulb max. 2 W 	MCBH-003



Diffusing lens

Light diffusing lens

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

Description	Catalog number
The lens is used instead of text cap	KA1-8005

① Bulb not included. See page 7.48

Accessories

Transformer and lamp blocks

Transformer block for pilot lights

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

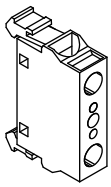
Primary voltage	Secondary voltage	Bulb suffix LED	Bulb suffix Filament	Catalog number	Weight oz.
110-127 V AC	6 V AC	–	T2	KTR1-1001	3.4
220-250 V AC	6 V AC	–	T2	KTR1-1002	3.4
380-420 V AC	6 V AC	–	T3	KTR1-1003	3.4
440-480 V AC	6 V AC	–	T4	KTR1-1004	3.4
500-600 V AC	6 V AC	–	T5	KTR1-1005	3.4
110-127 V AC	24 V AC [1]	T1	T6	KTR1-1011	3.4
220-250 V AC	24 V AC [1]	T2	T7	KTR1-1012	3.4
380-420 V AC	24 V AC [1]	T3	T8	KTR1-1013	3.4
440-480 V AC	24 V AC [1]	T4	T9	KTR1-1014	3.4

Transformer block for illuminated operators

Transformer blocks for illuminated operators - Intended to supply 1.2W filament bulb mounted in lamp block MLB-J only

110-127 V AC	6 V AC	–	T2	KTR1-2001	3.4
220-250 V AC	6 V AC	–	T2	KTR1-2002	3.4
380-420 V AC	6 V AC	–	T3	KTR1-2003	3.4
440-480 V AC	6 V AC	–	T4	KTR1-2004	3.4
500-600 V AC	6 V AC	–	T5	KTR1-2005	3.4
110-127 V AC	24 V AC [1]	T1	T6	KTR1-2011	3.4
220-250 V AC	24 V AC [1]	T2	T7	KTR1-2012	3.4
380-420 V AC	24 V AC [1]	T3	T8	KTR1-2013	3.4
440-480 V AC	24 V AC [1]	T4	T9	KTR1-2014	3.4

[1] Can be used with LED bulb



Diode block

Diode block

Diode block	MDB-1001	0.53

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

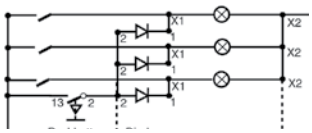


Diagram for lamp test with three Diode blocks
(not intended for integraded LED bulbs)

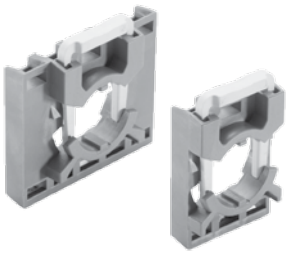
Lamp block

Single lamp blocks for front mounting, BA 9s base

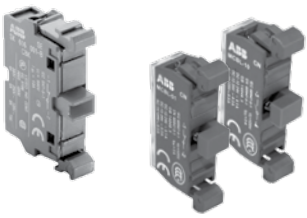
Description		Catalog number	Weight oz.
230 V, 2 W X1 X2	For max. 2 W, 230 V AC and DC Filament bulb or LED	MLB-1	0.53
115 V 60 V 1.2 W X1 X2	115 V AC supply voltage. For 60 V Filament bulb 1.2 W	MLB-2	0.60
230 V 130 V 2 W X1 X2	230 V AC supply voltage. For 130 V Filament bulb 2 W	MLB-3	0.71
115 V 24 V LED X1 X2	115 V AC and DC supply voltage For 24 V LED only	MLB-4	0.60
LED X1 X2 24-230V	LED block designed to prevent glowing from leakage current.	MLB-8	0.53

NOTE: Package order quantities will apply.

Accessories
Contact blocks and holders

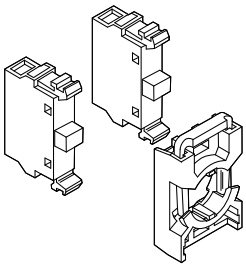


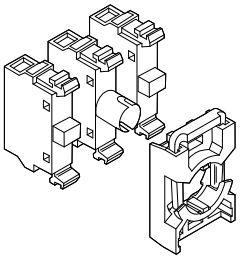
Holders for contact block

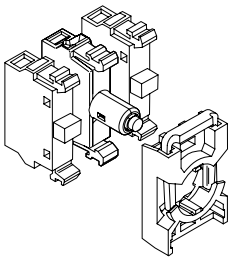


Contact block Micro switch blocks

Double contact blocks







Description	Catalog number	Weight oz.
Holders		
Holders for three blocks	MCBH-00	0.21
Holders for five blocks*	MCBH5-00	0.28

* Note: Double contact blocks are required on side positions

Single contact blocks for front mounting		
1 NO	MCB-10	0.46
1 NC	MCB-01	0.46
1 NO w/gold plated contacts	MCB-10G	0.46
1 NC w/gold plated contacts	MCB-01G	0.46
Micro switch blocks		
1 NO	MCBL-10	0.35
1 NC	MCBL-01	0.35
Double contact block for front mounting		
2 NO	MCB-20	0.92
2 NC	MCB-02	0.92
1 NO + 1 NC	MCB-11	0.92
2NC w/gold plated contacts	MCB-02G	0.92
2NO w/gold plated contacts	MCB-20G	0.92

Note: To be used together with MCBH5-00 when Contact blocks in position 4- and 5- are needed. Also when using 2nd lamp blocks MCBH-00 together with Selector Switch and Contact block in position 3- is needed

Contact blocks with holder for front mounting ①

For non-illuminated operators	
1 NC	MCBH-01
1 NO	MCBH-10
2 NC	MCBH-02
2 NO	MCBH-20
3 NC	MCBH-03
3 NO	MCBH-30
1 NO + 1 NC	MCBH-11
1 NO + 2 NC	MCBH-12
2 NO + 1 NC	MCBH-21
For illuminated operator	
1 LB	MCBH-001
1 NC + 1 LB	MCBH-011
1 NO + 1 LB	MCBH-101
1 NO + 1 NC + 1 LB	MCBH-111
2 NO & 1 LB	MCBH-021
2 NO & 1 LB	MCBH-201

① Max. # of blocks in holder is 3.

Accessories
LED bulbs

LED bulbs

Description	Wavelength nm	Luminance mcd	Catalog number	Weight oz.
LED bulbs				
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 (+).				
Rated voltage 12 V, DC, rated current 15 mA, service life >50 000 h				
Red	630	250	KA2-2011	0.18
Green	525	1000	KA2-2012	0.18
Yellow	592	250	KA2-2013	0.18
Blue	470	450	KA2-2014	0.18
White	1)	600	KA2-2015	0.18
Rated voltage 24 V, (AC)/DC, rated current 15 mA, service life >50 000 h				
Red	630	250	KA2-2021	0.18
Green	525	800	KA2-2022	0.18
Yellow	592	250	KA2-2023	0.18
Blue	470	400	KA2-2024	0.18
White	1)	500	KA2-2025	0.18
Rated voltage 36 V, (AC)/DC, rated current 12 mA, service life >50 000 h				
Red	630	200	KA2-2031	0.18
Green	525	2000	KA2-2032	0.18
Yellow	592	200	KA2-2033	0.18
Blue	470	750	KA2-2034	0.18
White	1)	1400	KA2-2035	0.18
Rated voltage 48 V, (AC)/DC, rated current 12 mA, service life >50 000 h				
Red	630	200	KA2-2041	0.18
Green	525	1700	KA2-2042	0.18
Yellow	592	240	KA2-2043	0.18
Blue	470	720	KA2-2044	0.18
White	1)	1200	KA2-2045	0.18
Rated voltage 60 V, (AC)/DC, rated current 10 mA, service life >50 000 h				
Red	630	160	KA2-2051	0.18
Green	525	1400	KA2-2052	0.18
Yellow	592	200	KA2-2053	0.18
Blue	470	600	KA2-2054	0.18
White	1)	1000	KA2-2055	0.18
Rated voltage 110-130 V, AC, rated current 4-6 mA, service life 25 000 h				
Red	630	60-100	KA2-2131	0.18
Green	525	500-850	KA2-2132	0.18
Yellow	592	70-120	KA2-2133	0.18
Blue	470	220-350	KA2-2134	0.18
White	1)	350-600	KA2-2135	0.18
Rated voltage 110-130 V, AC/DC, rated current 4-6 mA, service life 25 000 h				
Red	630	60	KA2-2141	0.18
Green	525	500	KA2-2142	0.18
Yellow	592	70	KA2-2143	0.18
Blue	470	220	KA2-2144	0.18
White	1)	350	KA2-2145	0.18
Rated voltage 230 V, AC, rated current 4 mA, service life 25 000 h				
Red	630	60	KA2-2221	0.18
Green	525	500	KA2-2222	0.18
Yellow	592	70	KA2-2223	0.18
Blue	470	220	KA2-2224	0.18
White	1)	350	KA2-2225	0.18

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
LED and filament bulbs

LED bulbs

Description	Wavelength nm	Luminance mcd	Catalog number	Weight oz.
LED bulbs continued				
Rated voltage 230 V, AC/DC, rated current 4 mA, service life 25 000 h				
Red	630	60	KA2-2231	0.18
Green	525	500	KA2-2232	0.18
Yellow	592	70	KA2-2233	0.18
Blue	470	220	KA2-2234	0.18
White	[1]	350	KA2-2235	0.18

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, DC rated current 25 mA

Description	Wavelength nm	Service life hours	Catalog number	Weight oz.
Red	630	50 000	4950 512-1	0.18
Green	565	50 000	4950 512-2	0.18
Yellow	585	50 000	4950 512-3	0.18

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 m AC/DC	Rated current A	Rated output W	Service life h	Luminance mcd	Catalog number	Weight oz.
6	200	1.2	10 000	350	5911 086-11	0.071
12	100	1.2	10 000	203	5911 086-12	0.071
24	50	1.2	10 000	280	5911 086-13	0.071
30	40	1.2	10 000	250	5911 086-4	0.071
48	42	2	6 000	500	5911 086-5	0.071
60	20	1.2	5 000	190	5911 086-14	0.071
110	18	2	7 500	250	5911 086-7	0.071
130	15	2	7 500	120	5911 086-15	0.071

A lamp Changing Tool is required for changing bulb.

Lamp changing tool

Lamp changing tool

For LED bulbs and for bulbs	KA1-8072	0.071

A lamp changing tool is required for changing bulb.

Accessories

LED blocks, front mounting

LED block with built in leakage current protection

Description	Rated Current mA	Wavelength nm	Luminance mcd	Catalog number	Weight oz.
LED-blocks					
Lamp block with one diode chip integrated into lamp block. Choose the same color for the LED and the lamp cap or else use a clear cap.					
Rated voltage 12 V, DC					
Red	12.0	620	320	MLBL-00R	0.42
Green	9.3	520	1500	MLBL-00G	0.42
Yellow	12.0	588	380	MLBL-00Y	0.42
Blue	9.5	468	450	MLBL-00L	0.42
White	9.3	2)	600	MLBL-00W	0.42
Rated voltage 24 V, AC/DC					
Red	9.9	620	250	MLBL-01R	0.42
Green	9.2	520	1500	MLBL-01G	0.42
Yellow	9.9	588	250	MLBL-01Y	0.42
Blue	9.3	468	450	MLBL-01L	0.42
White	9.2	2)	600	MLBL-01W	0.42
Rated voltage 48 V, AC/DC					
Red	10.0	620	260	MLBL-02R	0.42
Green	9.7	520	1500	MLBL-02G	0.42
Yellow	10.0	588	300	MLBL-02Y	0.42
Blue	9.7	468	450	MLBL-02L	0.42
White	9.7	1)	600	MLBL-02W	0.42
Rated voltage 60 V, AC/DC					
Red	13.0	620	350	MLBL-03R	0.42
Green	12.7	520	2000	MLBL-03G	0.42
Yellow	13.0	588	400	MLBL-03Y	0.42
Blue	12.7	468	550	MLBL-03L	0.42
White	12.7	1)	750	MLBL-03W	0.42
Rated voltage 110-130 V, AC					
Red	8.6	620	200	MLBL-04R	0.42
Green	8.5	520	1200	MLBL-04G	0.42
Yellow	8.6	588	250	MLBL-04Y	0.42
Blue	7.0	468	400	MLBL-04L	0.42
White	7.0	1)	500	MLBL-04W	0.42
Rated voltage 110-130 V, DC					
Red	9.9	620	250	MLBL-05R	0.42
Green	9.8	520	1500	MLBL-05G	0.42
Yellow	9.9	588	300	MLBL-05Y	0.42
Blue	9.8	468	450	MLBL-05L	0.42
White	9,8	1)	600	MLBL-05W	0.42
Rated voltage 220 V, DC					
Red	8.0	620	180	MLBL-06R	0.42
Green	8.0	520	110	MLBL-06G	0.42
Yellow	8.0	588	200	MLBL-06Y	0.42
Blue	8.0	468	450	MLBL-06L	0.42
White	8.0	1)	600	MLBL-06W	0.42
Rated voltage 230 V, AC					
Red	9.5	620	250	MLBL-07R	0.42
Green	9.4	520	1500	MLBL-07G	0.42
Yellow	9.5	588	300	MLBL-07Y	0.42
Blue	8.2	468	450	MLBL-07L	0.42
White	8.2	1)	600	MLBL-07W	0.42

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

LED blocks, front mounting

LED block with built in leakage current protection

Description	Rated Current mA	Wavelength nm	Luminance mcd	Catalog number	Weight oz.
LED blocks, cont.					
Lamp block with one diode chip integrated into lamp block. Choose the same color for the LED and the lamp cap or else use a clear cap.					
Rated voltage 380 V, AC					
Red	10.2	620	250	MLBL-08R	0.42
Green	10.2	520	1500	MLBL-08G	0.42
Yellow	10.2	582	300	MLBL-08Y	0.42
Blue	9.1	468	450	MLBL-08L	0.42
White	9,1	[1]	600	MLBL-08W	0.42
Rated voltage 415 V, AC					
Red	11.2	620	280	MLBL-09R	0.42
Green	11.2	520	1800	MLBL-09G	0.42
Yellow	11.2	588	350	MLBL-09Y	0.42
Blue	9.9	468	500	MLBL-09L	0.42
White	9.9	[1]	650	MLBL-09W	0.42

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 7.62.

Accessories

DIN-rail adaptor

Dummy block

30mm adaptors

Adaptor

30mm gasket

Lamp changing tool

Mounting tool

Mounting tool for power tool

Blanking plugs

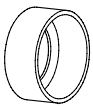
Square bezels

Description	Catalog number	Weight oz.
DIN-rail Adaptor		
DIN-rail adaptor	MA1-8131	0.71
DIN-rail (adaptor) kit with one dummy block	MA1-8001	0.99
NOTE: Use with base mount blocks.		
Dummy block		
Dummy block, rear mount	MDB-2	0.11
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 ①		
Black plastic	KA1-8027	0.25
Metal	KA1-8028	0.74
For pushbuttons, selector switches, pilot lights, potentiometers and buzzers:		
Black plastic	KA1-8029	0.35
Metal	KA1-8030	1.2
Flush mounted adaptors (metal)		
For pushbuttons	KA1-8073	1.8
For Selector switches	MA1-8074	1.8
30mm Gasket		
For 30mm adaptors for 22mm operator	1SFA616920R8019	
Lamp changing tool		
For LED bulbs and for bulbs	KA1-8072	0.071
Mounting tool for operator		
Mounting tool for tightening the locking nut	MA1-8015	0.74
Mounting tool for power tool	MA1-8149	5.5
Extra key		
Ronis 455 (key code 71)	SK616021-71	0.25
Ronis 421 (key code 72)	SK616021-72	0.25
Ronis 3433-E (key code 73)	SK616021-73	0.25
Locking nut		
Locking nut 22mm	MA1-8019	0.035
Locking nut 30mm w/22mm device	MA1-8134	
The Locking nut can also be used with Compact Devices.		
Blanking plug		
Grey, 22mm	MA1-8129	0.18
Light grey, 22mm	MA1-8136	0.18
Black, 22mm	MA1-8130	0.18
Black, 30mm	MA1-8133	0.18
Square bezel		
Black, plastic	SK616016-2	0.035
Grey, plastic	MA1-8124	0.035

① Illuminated pushbuttons and pilot lights must use white insert.
② For extended pushbuttons, insert "E" at the end of the catalog number. For use with MPM and MPMT only.
③ For use with MPM and MPMT only, insert "P" at end of the catalog number.

Accessories

Protective membrane


Protective ring

Protective cover

Bezel

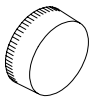
Shroud for emergency stop

Lockable shroud

Touch guard

Description	Catalog number	Weight oz.
Protective membrane		
For flush button	KA1-8052	0.071
For extended button	KA1-8002	0.071
For double pushbutton	MA1-8126	0.071
Protective ring		
Operator for protective ring	SK615512-1	0.071
Note: For flush and extended pushbuttons. To prevent accidental operation. Cannot be used together with Legend plate holder		
Protective cover		
Protective cover	KA1-8010	0.28
Note: For flush pushbutton. To prevent accidental operation. Cannot be used together with Legend plate holder.		
Bezel		
For pushbutton		
Grey plastic	KA1-8079	0.071
black plastic	KA1-8022	0.071
Chrome metal	KA1-8021	0.53
For Selector switch		
Grey plastic	KA1-8077	0.035
black plastic	KA1-8080	0.035
Chrome metal	KA1-8024	0.35
Shroud for emergency stop		
Yellow	MA1-8053	0.71
Grey	MA1-8128	0.71
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. Not for use with plastic enclosures.		
Shroud for pilot devices		
Lockable shroud	MA1-8153	0.023
Touch guard for pushbuttons		
Touch guard	MA1-8152	0.009

Accessories
Lenses



Lens for Pilot light

Flush lens for pushbutton

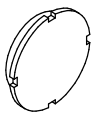
Extended lens for pushbutton

Description	Catalog number	Weight oz.
Lenses for pilot lights		
Red	KA1-8031	0.071
Green	KA1-8032	0.071
Yellow	KA1-8033	0.071
Blue	KA1-8034	0.071
White	KA1-8035	0.071
Clear	KA1-8038	0.071
Fresenal light diffusion lens ①	KA1-8005	0.071
Lenses for non-Illuminated pushbuttons		
Flush – opague		
Red	KA1-8081	0.53
Green	KA1-8082	0.53
Yellow	KA1-8083	0.53
Blue	KA1-8084	0.53
White	KA1-8085	0.53
Black	KA1-8086	0.53
Grey	KA1-8087	0.53
Clear	KA1-8088	0.53
Extended - opaque		
Red	KA1-8091	0.88
Green	KA1-8092	0.88
Yellow	KA1-8093	0.88
Blue	KA1-8094	0.88
White	KA1-8095	0.88
Black	KA1-8096	0.88
Grey	KA1-8097	0.88
Clear	KA1-8098	0.88
Lenses for illuminated pushbuttons		
Flush – transparent		
Red	KA1-8101	0.53
Green	KA1-8102	0.53
Yellow	KA1-8103	0.53
Blue	KA1-8104	0.53
White	KA1-8105	0.53
Clear	KA1-8108	0.53
Extended - transparent		
Red	KA1-8111	0.88
Green	KA1-8112	0.88
Yellow	KA1-8113	0.88
Blue	KA1-8114	0.88
White	KA1-8115	0.88
Clear	KA1-8118	0.88

① Light diffusing lens insert is placed between the bulb and the lens.

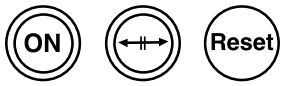
Text cap inserts

Legend	Cap color ①	Suffix code ②	Flush button catalog number	Extended button catalog number	Pilot light catalog number
	White	C82	1SFA616901R9036	—	—
Start	White	C67	1SFA616901R2030	1SFA616902R2030	1SFA616903R2030
START	Green Black	C5 C81	1SFA616906R1042 1SFA616908R1042	— —	— —
On	White	C68	1SFA616901R1020	1SFA616902R1020	1SFA616903R1020
ON	White Green Black	C69 C70 C1	1SFA616901R1039 1SFA616906R1039 1SFA616908R1039	— — —	1SFA616903R1039 — —
Off	White	C71	1SFA616901R1019	1SFA616902R1019	1SFA616903R1019
OFF	White Red Black	C72 C73 C2	— — 1SFA616908R1040	1SFA616902R1040 1SFA616905R1040 1SFA616909R1040	— — —
Stop	White	C74	1SFA616901R1031	1SFA616902R1031	1SFA616903R1031
STOP	Red	C4	1SFA616904R1047	1SFA616905R1047	—
Reset	White	C75	1SFA616901R1025	1SFA616902R1025	1SFA616903R1025
Blank	White Green	C15 CG	1SFA616901R9000 29491468-2	1SFA616902R9000 29491469-2	1SFA616903R9000 —
UP	Green	C11	1SFA616906R1043	—	—
DOWN	Green	C12	1SFA616906R1044	—	—
OPEN	White Green	C16 C19	1SFA616901R1045 1SFA616906R1045	— —	— —
CLOSE	White Green	C17 C20	1SFA616901R1046 1SFA616906R1046	— —	— —
REV	Green	C6	1SFA616906R1048	—	—
FWD	Green	C7	1SFA616906R1049	—	—
SLOW	Green	C8	1SFA616906R1050	—	—
FAST	Green	C9	1SFA616906R1051	—	—
JOG	Green	C10	1SFA616906R1052	—	—
RESET	Black	C3	1SFA616908R1041	—	—
LATCH	White	C18	1SFA616901R1053	—	—

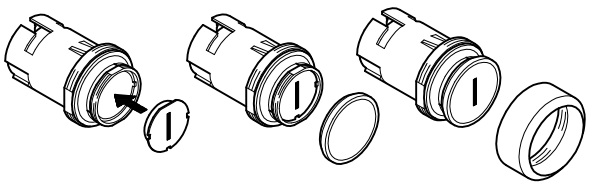

Flush pushbutton

Extended pushbutton

Pilot light



Examples of inserts


1 2 3
Insert assembly

① Illuminated pushbuttons and pilot lights must use white insert.
② Add suffix code to end of the catalog number.

Technical data

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	Catalog number 1, 3R, 4, 4X, 12, 13
Double pushbutton: MPD *	IP66	Catalog number 1, 3R, 4, 4X, 12, 13
Mushroom pushbutton: MPM *	IP66	Catalog number 1, 3R, 4, 4X, 12, 13
Emergency Stop: MPMT/P *	IP66	Catalog number 1, 3R, 4, 4X, 12, 13
Selector Switch: M2SS/M3SS *	IP66	Catalog number 1, 3R, 4, 4X, 12, 13
Key-operated Selector Switch: M2SSK/M3SSK *	IP66	Catalog number 1, 3R, 4, 4X, 12
Toggle Switch: MTS2/MTS3 *	IP66	Catalog number 1, 3R, 4, 4X, 12, 13
Extreme Duty pushbutton: KP6	-	Catalog number 1, 3R, 4, 4X
Reset pushbutton: KPR *	IP 66	Catalog number 1, 3R, 4, 4X, 12, 13
Joystick: MJS	IP66, 67, 69K	Catalog number 1, 4X (indoor), 12, 13
Pilot lights: ML	IP66	Catalog number 1, 3R, 4, 4X, 12, 13
Buzzer: KB	IP65	Catalog number 4X
Potentiometer: KT *	IP66	Catalog number 1, 3R, 4, 4X, 12, 13
Contact block and Transformer block	IP20	-
Plastic Enclosures	IP66	Catalog number 1, 3R, 4, 4X, 12, 13
Metallic Enclosures	IP66, 67, 69K	-

Temperature

Ambient temperature during operation	-25 to +70 °C
Storage temperature	-40 to +85 °C

*) With Chrome plastic bezel IP66 Catalog number 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, toulene). 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 Catalog numbers 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.

Approvals

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

For detail information please contact ABB

Technical data

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_e 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_e 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 at: 250 V at: 480 V at: 600 V	0.55 A 0.27 A 0.10 A 0.10 A
Contact resistance	< 25 mΩ			
Compulsory function test	at: 5V, 16 mA			

Max. number of contact blocks per operator

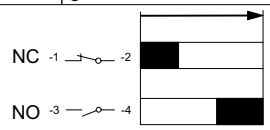
The Contact blocks can be stacked in max two levels on the 3- block holder. Only one level is accepted on the 5-block holder.

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	gG 16A

Diagram for make-and-break contact



■ = Closed contact

Micro Switch block / Ratings as per IEC 60947-5-1

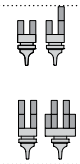
Rated Insulation Voltage, U_i		125 V
Rated Thermal Current, I_{th}		3 A
Rated Operational Current, I_e utilisation category AC 14,	at: 125 V	0.5 A
Rated Operational Current, I_e utilization category DC 13,	at: 24 V	0.3 A
Rated Operational Current, I_e utilization category DC 12,	at: 24 V	0.1 A

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
	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		
Present standard (no operation of center contact)		500 000 operations
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

7

Spec Tech Industrial Electric www.spectechind.com 888-773-2832

Notes

Spec Tech Industrial Electric www.spectechind.com 888-773-2832

Assembled Modular Range
22mm & 30mm

Assembled 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
- UL File# E76003
- CSA File# LR19700

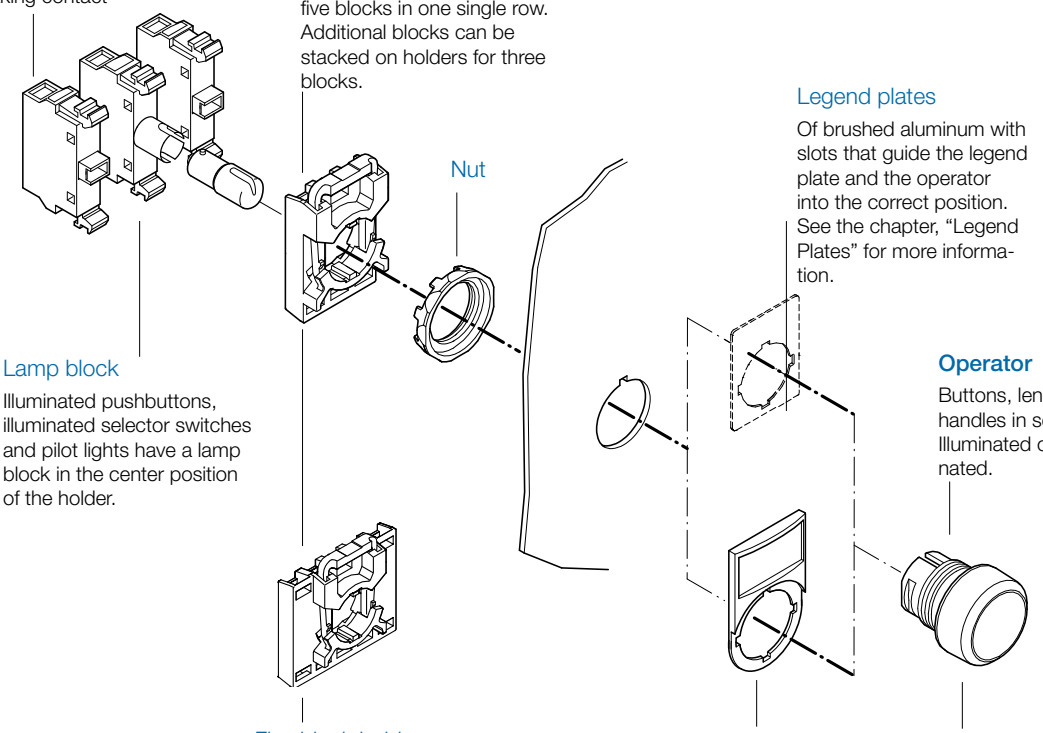
Operators
- Pushbuttons, illuminated and non-illuminated
- Double pushbuttons, illuminated and non-illuminated
- Mushroom pushbuttons, illuminated and non-illuminated, 40mm and 60mm diameter
- Emergency stop pushbuttons, illuminated and non-illuminated, twist or pull release
- Selector switches, illuminated 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

Contact blocks
- Quick-mount, quick release contact block holder for fast and easy assembly/disassembly
- 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
- Contact block holder for three or five blocks in a single row

Pilot lights
- Full voltage, resistor and transformer
- LED and filament bulbs available

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.

Nut

Legend plates

Of brushed aluminum with slots that guide the legend plate and the operator into the correct position. 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.

Operator

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

Five block holder

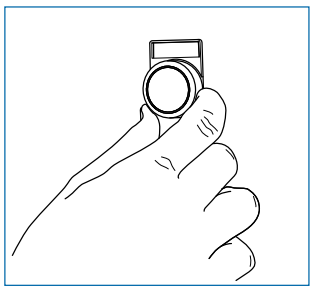
Legend plate holder

Of black plastic, insert of brushed aluminum. See the chapter, "Legend Plates" for more information.

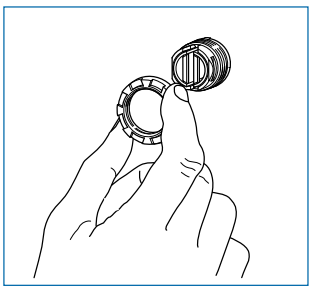
Bezels

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

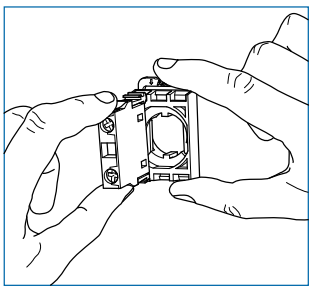
Easy to mount



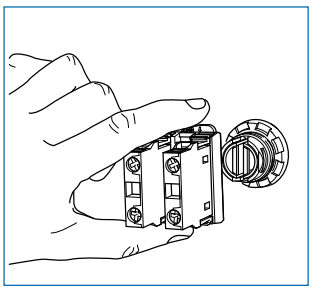
The operator is to be inserted from the front.....



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

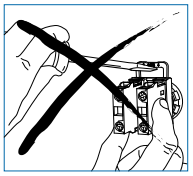


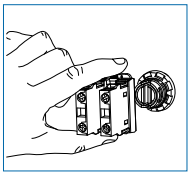
The contact blocks/lamp block are then snapped on to the holder...



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

...and to remove

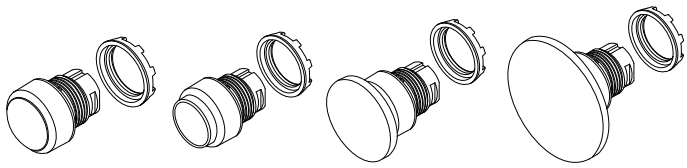




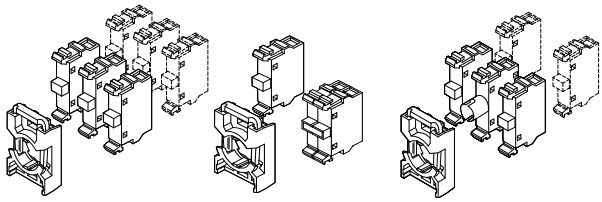
Press down the spring on the holder and pull the holder from the actuator.

Selection guide

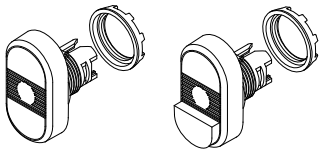
Pushbuttons and Mushroom pushbuttons



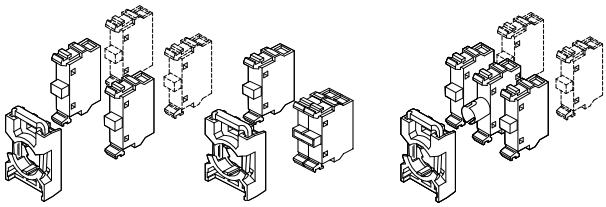
Contact block/lamp block combinations



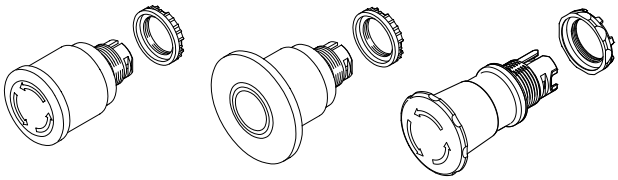
Double pushbuttons



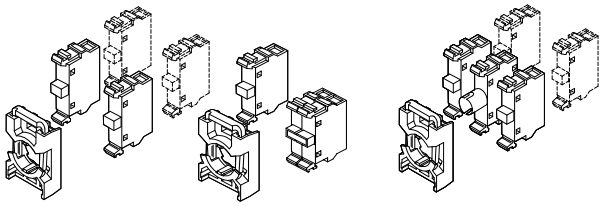
Contact block/lamp block combinations



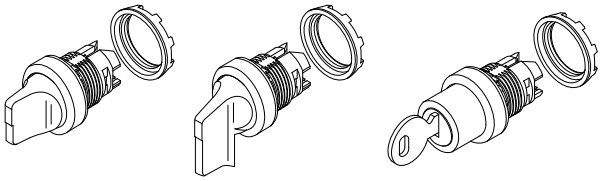
Emergency stop pushbuttons



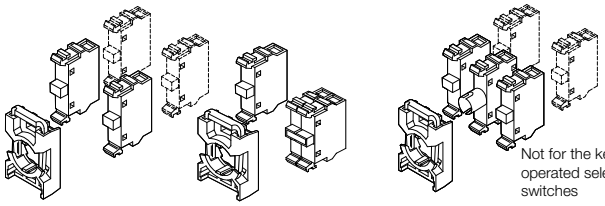
Contact block/lamp block combinations



Selector switches

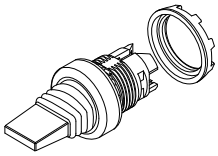


Contact block/lamp block combinations

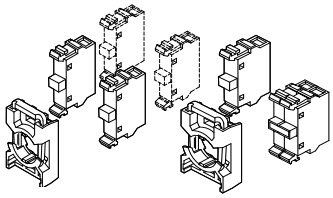


Not for the key-operated selector switches

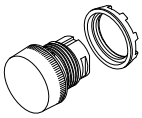
Toggle switches



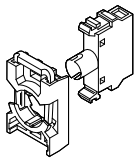
Contact block combinations



Pilot lights



Lamp block combination



Catalog number and list price explanation

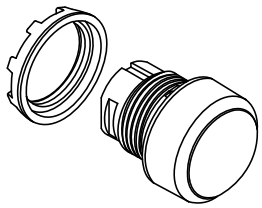
Assembled pilot device catalog numbers are created by selecting the appropriate characters from the grid. Begin at the top of the grid and work down, adding the desired characters to the catalog number to create a specific product. The list price is found by adding the prices of all the individually selected options.

Pushbuttons, non-illluminated

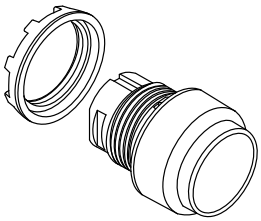
Options	Catalog number characters															
Momentary flush			**M**	**P**	**1**	-										
Maintained flush			M	P	2	-										
Momentary extended			M	P	3	-										
Maintained extended			M	P	4	-										
Bezel, black plastic, with holder						-	**4**	**0**								
Bezel, chrome metal, with holder						-	6	0								
Button color - Red						-			**R**							
Button color - Green						-			G							
Button color - Yellow						-			Y							
Button color - Blue						-			L							
Button color - White						-			W							
Button color - Black						-			B							
Button color - Clear						-			C							
Contact blocks, 1 NO						-				**1**	**0**					
Contact blocks, 2 NO						-				2	0					
Contact blocks, 3 NO						-				3	0					
Contact blocks, 1 NC						-				0	1					
Contact blocks, 2 NC						-				0	2					
Contact blocks, 3 NC						-				0	3					
Contact blocks, 1 NO + 1 NC						-				1	1					
Contact blocks, 2 NO + 1 NC						-				2	1					
Contact blocks, 1 NO + 2 NC						-				1	2					
Contact blocks, 1 NO, Gold						-				1	0	G				
Contact blocks, 2 NO, Gold						-				2	0	G				
Contact blocks, 3 NO, Gold						-				3	0	G				
Contact blocks, 1 NC, Gold						-				0	1	G				
Contact blocks, 2 NC, Gold						-				0	2	G				
Contact blocks, 3 NC, Gold						-				0	3	G				
Contact blocks, 1 NO + 1 NC, Gold						-				1	1	G				
Contact blocks, 2 NO + 1 NC, Gold						-				2	1	G				
Contact blocks, 1 NO + 2 NC, Gold						-				1	2	G				
Text Caps with Clear Lens Only						-			C				C	X	X	
5 Block Holder						-										5
30mm Black Plastic Adaptor Ring	G	1				-										
30mm Chrome Metal Adaptor Ring	G	2				-										
			M	**P**	**1**	**-**	**4**	**0**	**R**	**1**	**0**					

EXAMPLE:
What is the catalog number and price for a 22mm momentary flush pushbutton with a black bezel, red button & 1 NO contact block? Follow the arrows to see how the catalog number is determined.

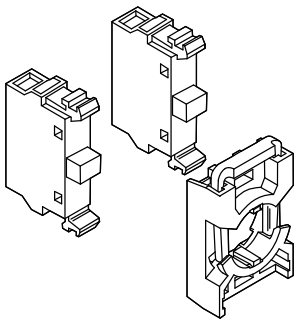
Pushbuttons
Non-illuminated

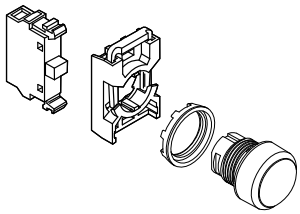


Flush



Extended





Pushbuttons, non-illuminated

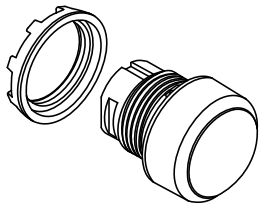
Options	Catalog number characters															
Momentary Flush			M	P	1	-										
Maintained Flush ①			M	P	2	-										
Momentary Extended			M	P	3	-										
Maintained Extended ①			M	P	4	-										
Bezel, Black Plastic, with Holder						-	4	0								
Bezel, Chrome Metal, with Holder						-	6	0								
Button Color - Red						-			R							
Button Color - Green						-			G							
Button Color - Yellow						-			Y							
Button Color - Blue						-			L							
Button Color - White						-			W							
Button Color - Black						-			B							
Button Color - Clear						-			C							
Contact Blocks, 1NO						-				1	0					
Contact Blocks, 2NO						-				2	0					
Contact Blocks, 3NO						-				3	0					
Contact Blocks, 1NC						-				0	1					
Contact Blocks, 2NC						-				0	2					
Contact Blocks, 3NC						-				0	3					
Contact Blocks, 1NO+1NC						-				1	1					
Contact Blocks, 2NO+1NC						-				2	1					
Contact Blocks, 1NO+2NC						-				1	2					
Contact Blocks, 1NO, Gold						-				1	0	G				
Contact Blocks, 2NO, Gold						-				2	0	G				
Contact Blocks, 3NO, Gold						-				3	0	G				
Contact Blocks, 1NC, Gold						-				0	1	G				
Contact Blocks, 2NC, Gold						-				0	2	G				
Contact Blocks, 3NC, Gold						-				0	3	G				
Contact Blocks, 1NO+1NC, Gold						-				1	1	G				
Contact Blocks, 2NO+1NC, Gold						-				2	1	G				
Contact Blocks, 1NO+2NC, Gold						-				1	2	G				
Text Caps with Clear Lens Only						-			C				C	X	X②	
5 Block Holder						-										5
30mm Black Plastic Adaptor Ring	G	1				-										
30mm Chrome Metal Adaptor Ring	G	2				-										

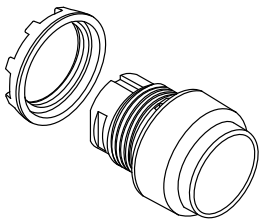
See catalog number explanation on page 7.70.

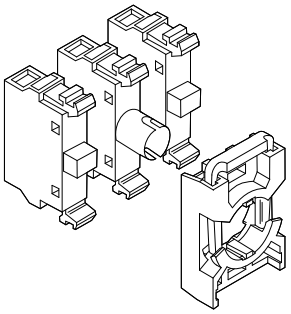
① No contact block in center position.
② Replace "XX" with text cap legends from pages 7.72 - 7.74.

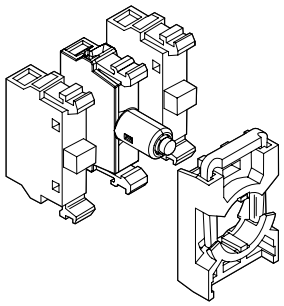
Pilot Devices
Modular Range
Assembled, 22 & 30mm

Pushbuttons
Illuminated ①


Flush


Extended





Pushbuttons, Illuminated ①

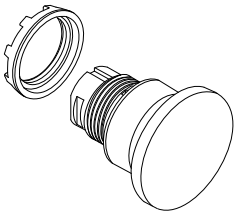
Options	Catalog number characters																	
Momentary Flush			M	P	1	-												
Maintained Flush			M	P	2	-												
Momentary Extended			M	P	3	-												
Maintained Extended			M	P	4	-												
Bezel, Black Plastic, with Holder						-	4											
Bezel, Chrome Metal, with Holder						-	6											
Lamp block, MLB-1, Bulb not Included						-		2										
Lamp block, MLB-4, Bulb not Included						-		5										
Lamp block, MLB-5, Bulb not Included						-		6										
Lamp block w/integrated LED ③								7										
Lamp block w/zener diode, Bulb not incl.								8										
Button Color - Red						-			R									
Button Color - Green						-			G									
Button Color - Yellow						-			Y									
Button Color - Blue						-			L									
Button Color - White						-			W									
Button Color - Clear						-			C									
Contact Blocks, 1NO						-				1	0							
Contact Blocks, 2NO						-				2	0							
Contact Blocks, 3NO						-				3	0							
Contact Blocks, 1NC						-				0	1							
Contact Blocks, 2NC						-				0	2							
Contact Blocks, 3NC						-				0	3							
Contact Blocks, 1NO+1NC						-				1	1							
Contact Blocks, 2NO+1NC						-				2	1							
Contact Blocks, 1NO+2NC						-				1	2							
Contact Blocks, 1NO, Gold						-				1	0	G						
Contact Blocks, 2NO, Gold						-				2	0	G						
Contact Blocks, 3NO, Gold						-				3	0	G						
Contact Blocks, 1NC, Gold						-				0	1	G						
Contact Blocks, 2NC, Gold						-				0	2	G						
Contact Blocks, 3NC, Gold						-				0	3	G						
Contact Blocks, 1NO+1NC, Gold						-				1	1	G						
Contact Blocks, 2NO+1NC, Gold						-				2	1	G						
Contact Blocks, 1NO+2NC, Gold						-				1	2	G						
LED 12VDC						-							L	7				
LED 24VAC/DC						-							L	8				
LED 48VAC/DC						-							L	9				
LED 60VAC/DC						-							L	6	0			
LED 110-130VAC						-							L	1				
LED 110-130VAC/DC						-							L	1	3			
LED 230V AC/DC						-							L	2				
LED 230V AC - Integrated only													L	2	3			
LED 380V AC - Integrated only													L	3	8			
LED 415V AC - Integrated only													L	4	1			
Transformer Block 110-127/24VLED						-							T	L	1			
Transformer Block 220-240/24VLED						-							T	L	2			
Transformer Block 380-420/24VLED						-							T	L	3			
Transformer Block 440-480/24VLED						-							T	L	4			
Text Caps with Clear Lens Only						-			C							C	X	X④
5 Block Holder						-												5
30mm Black Plastic Adaptor Ring	G	1				-												
30mm Chrome Metal Adaptor Ring	G	2				-												

See catalog number explanation on page 7.70.

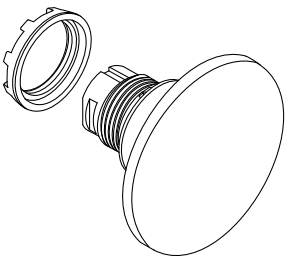
① No contact block in center position.
② No LED or transformer block can be combined with "illuminated without lamp block" selection.
③ Includes one diode chip integrated into lamp block.
④ Replace "XX" with text cap legends from pages 7.72 - 7.74

Mushroom pushbuttons

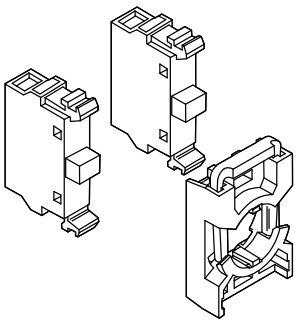
Non-illuminated, momentary



40mm head



60mm head



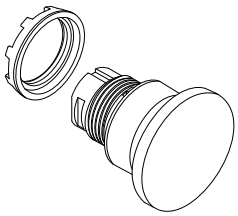
Mushroom pushbuttons, non-illuminated

Options	Catalog number characters													
Momentary, 40 mm			M	P	M	1	-							
Momentary, 60 mm			M	P	M	2	-							
Bezel, Black Plastic, with Holder							-	4	0					
Bezel, Chrome Metal, with Holder							-	6	0					
Button Color - Red							-			R				
Button Color - Yellow							-			Y				
Button Color - Black							-			B				
Contact Blocks, 1NO							-				1	0		
Contact Blocks, 2NO							-				2	0		
Contact Blocks, 3NO							-				3	0		
Contact Blocks, 1NC							-				0	1		
Contact Blocks, 2NC							-				0	2		
Contact Blocks, 3NC							-				0	3		
Contact Blocks, 1NO+1NC							-				1	1		
Contact Blocks, 2NO+1NC							-				2	1		
Contact Blocks, 1NO+2NC							-				1	2		
Contact Blocks, 1NO, Gold							-				1	0	G	
Contact Blocks, 2NO, Gold							-				2	0	G	
Contact Blocks, 3NO, Gold							-				3	0	G	
Contact Blocks, 1NC, Gold							-				0	1	G	
Contact Blocks, 2NC, Gold							-				0	2	G	
Contact Blocks, 3NC, Gold							-				0	3	G	
Contact Blocks, 1NO+1NC, Gold							-				1	1	G	
Contact Blocks, 2NO+1NC, Gold							-				2	1	G	
Contact Blocks, 1NO+2NC, Gold							-				1	2	G	
5 Block Holder							-							5
30mm Black Plastic Adaptor Ring	G	1					-							
30mm Chrome Metal Adaptor Ring	G	2					-							

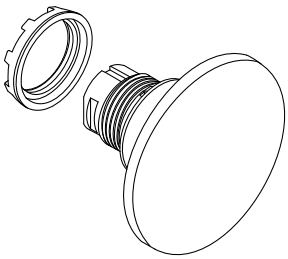
See catalog number explanation on page 7.70.

Mushroom pushbuttons

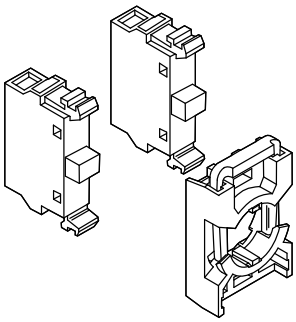
Illuminated, momentary ①

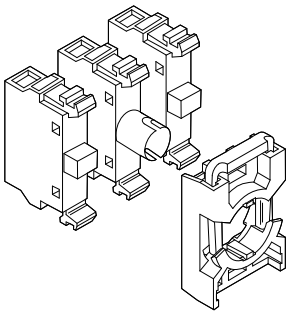


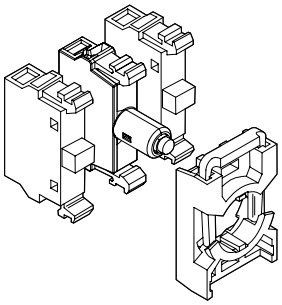
40mm head



60mm head







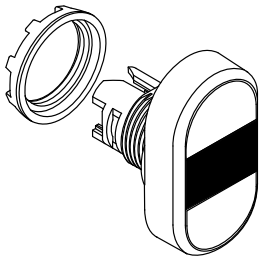
Mushroom pushbuttons, illuminated, momentary ①

Options	Catalog number characters															
Momentary, 40 mm			M	P	M	1	-									
Momentary, 60 mm			M	P	M	2	-									
Bezel, Black Plastic, with Holder							-	4								
Bezel, Chrome Metal, with Holder							-	6								
Lamp block, MLB-1, Bulb not Included							-		2							
Lamp block, MLB-4, Bulb not Included							-		5							
Lamp block, MLB-5, Bulb not Included							-		6							
Lamp block w/integrated LED ②							-		7							
Lamp block with zener diode, bulb not incl.									8							
Button Color - Red							-			R						
Button Color - Yellow							-			Y						
Button Color - Green (40mm only)							-			G						
Contact Blocks, 1NO							-				1	0				
Contact Blocks, 2NO							-				2	0				
Contact Blocks, 3NO							-				3	0				
Contact Blocks, 1NC							-				0	1				
Contact Blocks, 2NC							-				0	2				
Contact Blocks, 3NC							-				0	3				
Contact Blocks, 1NO+1NC							-				1	1				
Contact Blocks, 2NO+1NC							-				2	1				
Contact Blocks, 1NO+2NC							-				1	2				
Contact Blocks, 1NO, Gold							-				1	0	G			
Contact Blocks, 2NO, Gold							-				2	0	G			
Contact Blocks, 3NO, Gold							-				3	0	G			
Contact Blocks, 1NC, Gold							-				0	1	G			
Contact Blocks, 2NC, Gold							-				0	2	G			
Contact Blocks, 3NC, Gold							-				0	3	G			
Contact Blocks, 1NO+1NC, Gold							-				1	1	G			
Contact Blocks, 2NO+1NC, Gold							-				2	1	G			
Contact Blocks, 1NO+2NC, Gold							-				1	2	G			
LED 12VDC							-							L	7	
LED 24VAC/DC							-							L	8	
LED 48VAC/DC							-							L	9	
LED 60VAC/DC							-							L	6	0
LED 110-130VAC							-							L	1	
LED 110-130VAC/DC							-							L	1	3
LED 230V, AC/DC							-							L	2	
LED 230V, AC-integrated only														L	2	3
LED 380V, AC-integrated only														L	3	8
LED 415V, AC-integrated only														L	4	1
Transformer Block 110-127/24VLED							-							T	L	1
Transformer Block 220-240/24VLED							-							T	L	2
Transformer Block 380-420/24VLED							-							T	L	3
Transformer Block 440-480/24VLED							-							T	L	4
5 Block Holder							-									5
30mm Black Plastic Adaptor Ring	G	1					-									
30mm Chrome Metal Adaptor Ring	G	2					-									

See catalog number explanation on page 7.70.

① No contact block in center position.
② Includes one diode chip integrated into lamp block.

Double pushbuttons,
Flush/flush, non-illuminated ①

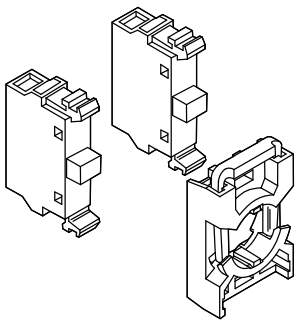


Double pushbutton

Double pushbuttons, flush/flush, non-illuminated ①

Options	Catalog number characters											
Flush/Flush, Green/Red	M	P	D	1	-							
Flush/Flush, Green/Red, I/O	M	P	D	2	-							
Flush/Flush, Green/Red, ON/OFF	M	P	D	3	-							
Flush/Flush, Green/Red, START/STOP	M	P	D	4	-							
Flush/Flush, White/Black	M	P	D	5	-							
Flush/Flush, White/Black, I/O	M	P	D	6	-							
Flush/Flush, White/Black, ON/OFF	M	P	D	7	-							
Flush/Flush, White/Black, START/STOP	M	P	D	8	-							
With Holder					-	2	0					
Center Lens Color - Black					-			B				
Contact Blocks, 1NO					-				1	0		
Contact Blocks, 2NO					-				2	0		
Contact Blocks, 3NO					-				3	0		
Contact Blocks, 1NC					-				0	1		
Contact Blocks, 2NC					-				0	2		
Contact Blocks, 3NC					-				0	3		
Contact Blocks, 1NO+1NC					-				1	1		
Contact Blocks, 2NO+1NC					-				2	1		
Contact Blocks, 1NO+2NC					-				1	2		
Contact Blocks, 1NO, Gold					-				1	0	G	
Contact Blocks, 2NO, Gold					-				2	0	G	
Contact Blocks, 3NO, Gold					-				3	0	G	
Contact Blocks, 1NC, Gold					-				0	1	G	
Contact Blocks, 2NC, Gold					-				0	2	G	
Contact Blocks, 3NC, Gold					-				0	3	G	
Contact Blocks, 1NO+1NC, Gold					-				1	1	G	
Contact Blocks, 2NO+1NC, Gold					-				2	1	G	
Contact Blocks, 1NO+2NC, Gold					-				1	2	G	
5 Block Holder					-							5

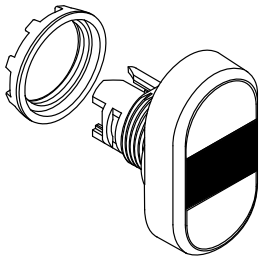
See catalog number explanation on page 7.70.



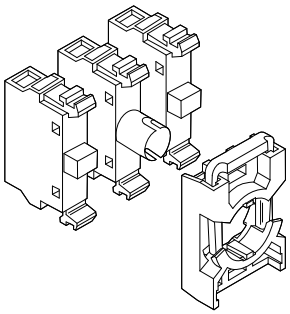
① No contact block in center position.

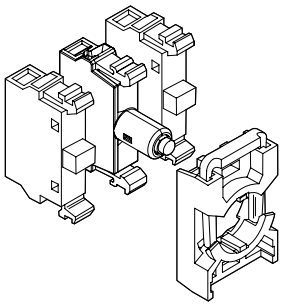
Double pushbuttons

Flush/flush, illuminated center ①



Double pushbutton, flush/flush





Double pushbuttons, flush/flush, illuminated center ①

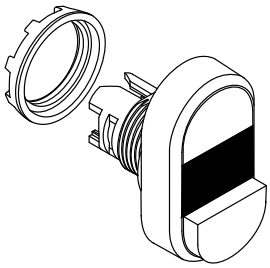
Options	Catalog number characters													
Flush/Flush, Green/Red	M	P	D	1	-									
Flush/Flush, Green/Red, I/O	M	P	D	2	-									
Flush/Flush, Green/Red, ON/OFF	M	P	D	3	-									
Flush/Flush, Green/Red, START/STOP	M	P	D	4	-									
Flush/Flush, White/Black	M	P	D	5	-									
Flush/Flush, White/Black, I/O	M	P	D	6	-									
Flush/Flush, White/Black, ON/OFF	M	P	D	7	-									
Flush/Flush, White/Black, START/STOP	M	P	D	8	-									
With Holder					-	2								
Lamp block, MLB-1, Bulb not Included					-		2							
Lamp block, MLB-4, Bulb not Included					-		5							
Lamp block, MLB-5, Bulb not Included					-		6							
Lamp block w/integrated LED ③							7							
Lamp block with zener diode, bulb not incl.							8							
Center Lens Color - Red					-			R						
Center Lens Color - Yellow					-			Y						
Center Lens Color - Green					-			G						
Center Lens Color - Clear								C						
Contact Blocks, 1NO					-				1	0				
Contact Blocks, 2NO					-				2	0				
Contact Blocks, 3NO					-				3	0				
Contact Blocks, 1NC					-				0	1				
Contact Blocks, 2NC					-				0	2				
Contact Blocks, 3NC					-				0	3				
Contact Blocks, 1NO+1NC					-				1	1				
Contact Blocks, 2NO+1NC					-				2	1				
Contact Blocks, 1NO+2NC					-				1	2				
Contact Blocks, 1NO, Gold					-				1	0	G			
Contact Blocks, 2NO, Gold					-				2	0	G			
Contact Blocks, 3NO, Gold					-				3	0	G			
Contact Blocks, 1NC, Gold					-				0	1	G			
Contact Blocks, 2NC, Gold					-				0	2	G			
Contact Blocks, 3NC, Gold					-				0	3	G			
Contact Blocks, 1NO+1NC, Gold					-				1	1	G			
Contact Blocks, 2NO+1NC, Gold					-				2	1	G			
Contact Blocks, 1NO+2NC, Gold					-				1	2	G			
LED 12VDC					-							L	7	
LED 24VAC/DC					-							L	8	
LED 48VAC/DC					-							L	9	
LED 60VAC/DC					-							L	6	0
LED 110-130VAC					-							L	1	
LED 110-130VAC/DC					-							L	1	3
LED 230V AC/DC					-							L	2	
LED 230V, AC-integrated only												L	2	3
LED 380V, AC-integrated only												L	3	8
LED 415V, AC-integrated only												L	4	1
Transformer Block 110-127/24VLED					-							T	L	1
Transformer Block 220-240/24VLED					-							T	L	2
Transformer Block 380-420/24VLED					-							T	L	3
Transformer Block 440-480/24VLED					-							T	L	4
5 Block Holder					-									5

See catalog number explanation on page 7.70.

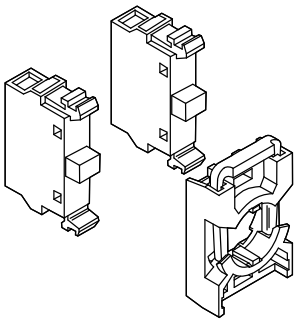
① No contact block in center position.
② No LED or transformer block can be combined with "illuminated without lamp block" selection.
③ Includes one diode chip integrated into lamp block.

Double pushbuttons

Flush/extended, non-illuminated ①



Double pushbutton, flush/extended



Double pushbuttons, flush/extended, non-illuminated ①

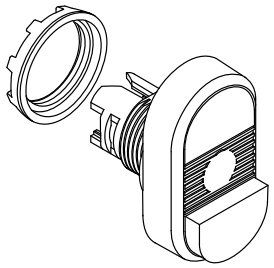
Options	Catalog number characters											
Flush/extended, Green/Red	M	P	D	1	2	-						
Flush/extended, Green/Red, I/O	M	P	D	1	3	-						
Flush/extended, Green/Red, ON/OFF	M	P	D	1	4	-						
Flush/extended, Green/Red, START/STOP	M	P	D	1	5	-						
Flush/extended, White/Black	M	P	D	1	6	-						
Flush/extended, White/Black, I/O	M	P	D	1	7	-						
Flush/extended, White/Black, ON/OFF	M	P	D	1	8	-						
Flush/extended, White/Black, START/STOP	M	P	D	1	9	-						
With Holder						-	2	0				
Center Lens Color - Black						-			B			
Contact Blocks, 1NO						-				1	0	
Contact Blocks, 2NO						-				2	0	
Contact Blocks, 3NO						-				3	0	
Contact Blocks, 1NC						-				0	1	
Contact Blocks, 2NC						-				0	2	
Contact Blocks, 3NC						-				0	3	
Contact Blocks, 1NO+1NC						-				1	1	
Contact Blocks, 2NO+1NC						-				2	1	
Contact Blocks, 1NO+2NC						-				1	2	
Contact Blocks, 1NO, Gold						-				1	0	G
Contact Blocks, 2NO, Gold						-				2	0	G
Contact Blocks, 3NO, Gold						-				3	0	G
Contact Blocks, 1NC, Gold						-				0	1	G
Contact Blocks, 2NC, Gold						-				0	2	G
Contact Blocks, 3NC, Gold						-				0	3	G
Contact Blocks, 1NO+1NC, Gold						-				1	1	G
Contact Blocks, 2NO+1NC, Gold						-				2	1	G
Contact Blocks, 1NO+2NC, Gold						-				1	2	G
5 Block Holder						-						5

See catalog number explanation on page 7.70.

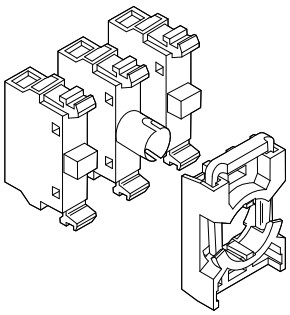
① No contact block in center position.

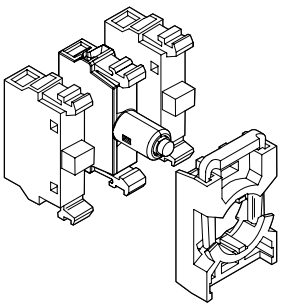
Double pushbuttons

Flush/extended, illuminated ①



Double pushbutton, flush/extended, illuminated





Double pushbuttons, flush/extended, illuminated ①

Options	Catalog number characters														
Flush/extended, Green/Red	M	P	D	1	2	-									
Flush/extended, Green/Red, I/O	M	P	D	1	3	-									
Flush/extended, Green/Red, ON/OFF	M	P	D	1	4	-									
Flush/extended, Green/Red, START/STOP	M	P	D	1	5	-									
Flush/extended, White/Black	M	P	D	1	6	-									
Flush/extended, White/Black, I/O	M	P	D	1	7	-									
Flush/extended, White/Black, ON/OFF	M	P	D	1	8	-									
Flush/extended, White/Black, START/STOP	M	P	D	1	9	-									
With Holder						-	2								
Lamp block, MLB-1, Bulb not Included						-		2							
Lamp block, MLB-4, Bulb not Included						-		5							
Lamp block, MLB-5, Bulb not Included						-		6							
Lamp block w/integrated LED ③								7							
Lamp block w/zener diode, bulb not incl.								8							
Center Lens Color - Red						-			R						
Center Lens Color - Yellow						-			Y						
Center Lens Color - Green						-			G						
Center Lens Color - Clear									C						
Contact Blocks, 1NO						-				1	0				
Contact Blocks, 2NO						-				2	0				
Contact Blocks, 3NO						-				3	0				
Contact Blocks, 1NC						-				0	1				
Contact Blocks, 2NC						-				0	2				
Contact Blocks, 3NC						-				0	3				
Contact Blocks, 1NO+1NC						-				1	1				
Contact Blocks, 2NO+1NC						-				2	1				
Contact Blocks, 1NO+2NC						-				1	2				
Contact Blocks, 1NO, Gold						-				1	0	G			
Contact Blocks, 2NO, Gold						-				2	0	G			
Contact Blocks, 3NO, Gold						-				3	0	G			
Contact Blocks, 1NC, Gold						-				0	1	G			
Contact Blocks, 2NC, Gold						-				0	2	G			
Contact Blocks, 3NC, Gold						-				0	3	G			
Contact Blocks, 1NO+1NC, Gold						-				1	1	G			
Contact Blocks, 2NO+1NC, Gold						-				2	1	G			
Contact Blocks, 1NO+2NC, Gold						-				1	2	G			
LED 12VDC						-							L	7	
LED 24VAC/DC						-							L	8	
LED 48VAC/DC						-							L	9	
LED 60VAC/DC						-							L	6	0
LED 110-130VAC						-							L	1	
LED 110-130VAC/DC						-							L	1	3
LED 230V AC/DC						-							L	2	
LED 230V, AC-integrated only													L	2	3
LED 380V, AC-integrated only													L	3	8
LED 415V, AC-integrated only													L	4	1
Transformer Block 110-127/24VLED						-							T	L	1
Transformer Block 220-240/24VLED						-							T	L	2
Transformer Block 380-420/24VLED						-							T	L	3
Transformer Block 440-480/24VLED						-							T	L	4
5 Block Holder						-									5

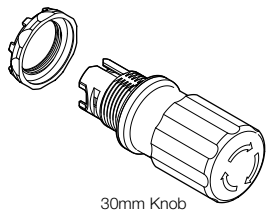
See catalog number explanation on page 7.70.

① No contact block in center position.
② No LED or transformer block can be combined with "illuminated without lamp block" selection.
③ Includes one diode chip integrated into lamp block.

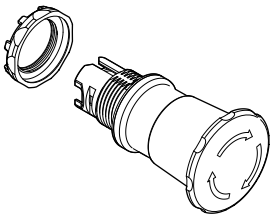
Emergency stops & twist, pull release operators

Non-illuminated, maintained

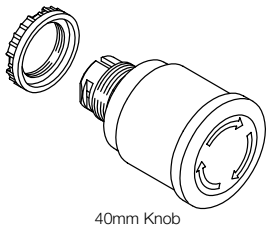
Fulfills IEC 60947-5-5



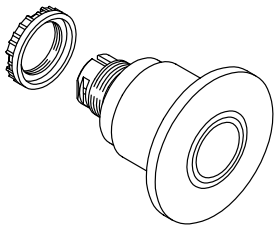
30mm Knob



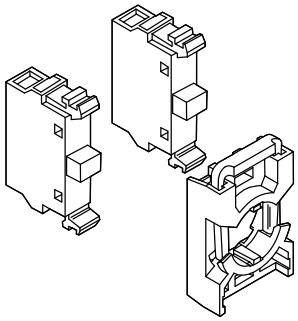
40mm Mushroom



40mm Knob



60mm Mushroom



Emergency stops and machine stops, non-illuminated, maintained

Options	Catalog number characters														
30mm Knob, Twist Release			M	P	E	T	3	-							
30mm Knob, Pull Release			M	P	E	P	3	-							
30mm Knob, Key Release (Key Code 71)			M	P	E	K	3	-							
40mm Mushroom, Twist Release			M	P	E	T	4	-							
40mm Mushroom, Pull Release			M	P	E	P	4	-							
40mm Mushroom, Key Release (Key Code 71)			M	P	E	K	4	-							
60mm, Mushroom Twist Release			M	P	M	T	4	-							
60mm, Mushroom Pull Release			M	P	M	P	4	-							
With Holder, 3 block								-	2	0					
Red								-			R				
Contact Blocks, 1NO								-				1	0		
Contact Blocks, 2NO								-				2	0		
Contact Blocks, 3NO								-				3	0		
Contact Blocks, 1NC								-				0	1		
Contact Blocks, 2NC								-				0	2		
Contact Blocks, 3NC								-				0	3		
Contact Blocks, 1NO+1NC								-				1	1		
Contact Blocks, 2NO+1NC								-				2	1		
Contact Blocks, 1NO+2NC								-				1	2		
Contact Blocks, 1NO, Gold								-				1	0	G	
Contact Blocks, 2NO, Gold								-				2	0	G	
Contact Blocks, 3NO, Gold								-				3	0	G	
Contact Blocks, 1NC, Gold								-				0	1	G	
Contact Blocks, 2NC, Gold								-				0	2	G	
Contact Blocks, 3NC, Gold								-				0	3	G	
Contact Blocks, 1NO+1NC, Gold								-				1	1	G	
Contact Blocks, 2NO+1NC, Gold								-				2	1	G	
Contact Blocks, 1NO+2NC, Gold								-				1	2	G	
5 Block Holder								-							5
30mm Black Plastic Adaptor Ring	G	1													
30mm Chrome Metal Adaptor Ring	G	2													

See catalog number explanation on page 7.70.

NOTE:
1. If used as an emergency stop, device must have a yellow background.
2. E-stop requires twist to release only.

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

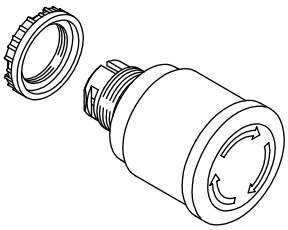
Durability test	6,0505 cycles. This is not a test of mechanical life. The product has a mechanical life of 100,000 operations.
Robustness	The force 113 N applied in three axes.
Conditioning	Heat and cold, moist atmosphere, and in 5% NaC

Latching test	Impulse voltage test at 2,500 V
Resetting test	Pulling force < 50 N Turning torque < Nm
Shock	15 g shock
Vibration	2 h at 50 m/s2
Contacts with positive opening operation	15 g shock

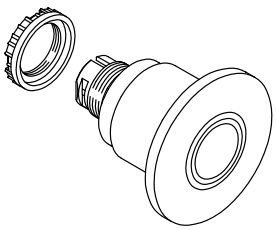
Emergency stops & twist, pull release operators

Illuminated, maintained ①

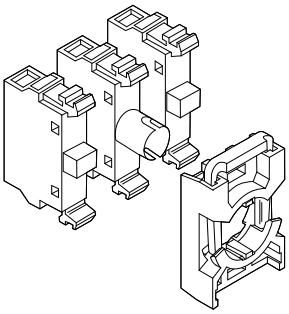
Fulfills IEC 60947-5-5

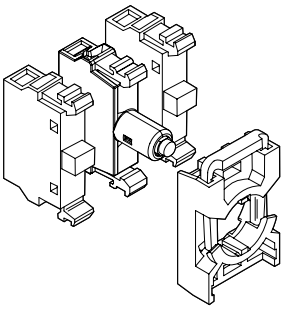


40mm Knob



60mm Mushroom





Emergency stops and machine stops, illuminated ①

Options	Catalog number characters																
40mm, Knob Twist Release			M	P	M	T	3	-									
60mm, Mushroom Twist Release			M	P	M	T	4	-									
60mm, Mushroom Pull Release			M	P	M	P	4	-									
With Holder								-	2								
Lamp block, MLB-1, Bulb not Included								-		2							
Lamp block, MLB-4, Bulb not Included								-		5							
Lamp block, MLB-5, Bulb not Included								-		6							
Lamp block w/integrated LED ③										7							
Lamp block with zener diode, bulb not incl.										8							
Button Color - Red								-			R						
Contact Blocks, 1NO								-				1	0				
Contact Blocks, 2NO								-				2	0				
Contact Blocks, 3NO								-				3	0				
Contact Blocks, 1NC								-				0	1				
Contact Blocks, 2NC								-				0	2				
Contact Blocks, 3NC								-				0	3				
Contact Blocks, 1NO+1NC								-				1	1				
Contact Blocks, 2NO+1NC								-				2	1				
Contact Blocks, 1NO+2NC								-				1	2				
Contact Blocks, 1NO, Gold								-				1	0	G			
Contact Blocks, 2NO, Gold								-				2	0	G			
Contact Blocks, 3NO, Gold								-				3	0	G			
Contact Blocks, 1NC, Gold								-				0	1	G			
Contact Blocks, 2NC, Gold								-				0	2	G			
Contact Blocks, 3NC, Gold								-				0	3	G			
Contact Blocks, 1NO+1NC, Gold								-				1	1	G			
Contact Blocks, 2NO+1NC, Gold								-				2	1	G			
Contact Blocks, 1NO+2NC, Gold								-				1	2	G			
LED 12VDC								-							L	7	
LED 24VAC/DC								-							L	8	
LED 48VAC/DC								-							L	9	
LED 60VAC/DC								-							L	6	0
LED 110-130VAC								-							L	1	
LED 110-130VAC/DC								-							L	1	3
LED 230V AC/DC								-							L	2	
LED 230V, AC-integrated only															L	2	3
LED 380V, AC-integrated only															L	3	8
LED 415V, AC-integrated only															L	4	1
Transformer Block 110-127/24VLED								-							T	L	1
Transformer Block 220-240/24VLED								-							T	L	2
Transformer Block 380-420/24VLED								-							T	L	3
Transformer Block 440-480/24VLED								-							T	L	4
5 Block Holder								-										5
30mm Black Plastic Adaptor Ring	G	1															
30mm Chrome Metal Adaptor Ring	G	2															

See catalog number explanation on page 7.70.

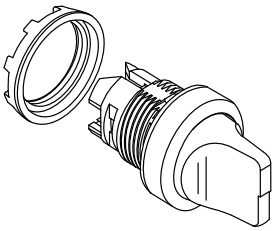
NOTE:
1. If used as an emergency stop, device must have a yellow background.
2. E-stop requires twist to release only.

To comply with the standard, IEC 60947-5-5, a number of tests have to be conducted.
See page 7.49.

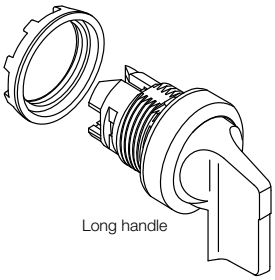
① No contact block in center position.
② No filament bulb, LED or transformer block can be combined with "illuminated without lamp block" selection.
③ Includes one diode chip integrated into lamp block.

Selector switches, two position

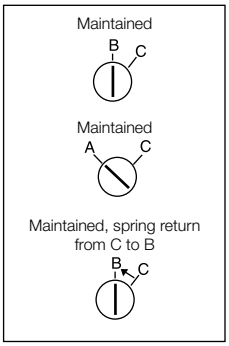
Non-illuminated ①

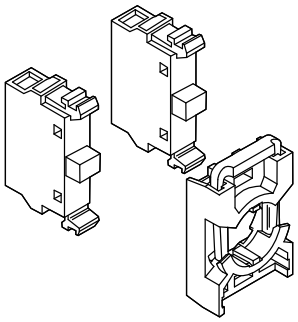


Short handle



Long handle





Selector switches, 2 position, non-illuminated ①

Options	Catalog number characters													
Short/Main B&C			M	2	S	S	1	-						
Short/Main A&C			M	2	S	S	2	-						
Short/Spring Return C to B			M	2	S	S	3	-						
Long/Main B&C			M	2	S	S	4	-						
Long/Main A&C			M	2	S	S	5	-						
Long/Spring Return C to B			M	2	S	S	6	-						
Bezel, Black Plastic, with Holder								-	4	0				
Bezel, Chrome Metal, with Holder								-	6	0				
Switch Color - Red								-			R			
Switch Color - Black								-			B			
Switch Color - Grey								-			U			
Contact Blocks, 1NO								-				1	0	
Contact Blocks, 2NO								-				2	0	
Contact Blocks, 3NO								-				3	0	
Contact Blocks, 1NC								-				0	1	
Contact Blocks, 2NC								-				0	2	
Contact Blocks, 3NC								-				0	3	
Contact Blocks, 1NO+1NC								-				1	1	
Contact Blocks, 2NO+1NC								-				2	1	
Contact Blocks, 1NO+2NC								-				1	2	
Contact Blocks, 1NO, Gold								-				1	0	G
Contact Blocks, 2NO, Gold								-				2	0	G
Contact Blocks, 3NO, Gold								-				3	0	G
Contact Blocks, 1NC, Gold								-				0	1	G
Contact Blocks, 2NC, Gold								-				0	2	G
Contact Blocks, 3NC, Gold								-				0	3	G
Contact Blocks, 1NO+1NC, Gold								-				1	1	G
Contact Blocks, 2NO+1NC, Gold								-				2	1	G
Contact Blocks, 1NO+2NC, Gold								-				1	2	G
5 Block Holder								-							5
30mm Black Plastic Adaptor Ring	G	1												
30mm Chrome Metal Adaptor Ring	G	2												

See catalog number explanation on page 7.70.

Contact functions

Block positions as seen from operator front.

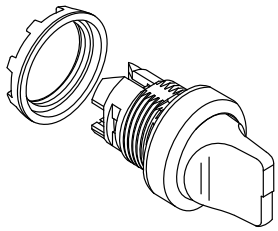
Handle position	Left block	Right block
A or (B)	O	O
C	X	X

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

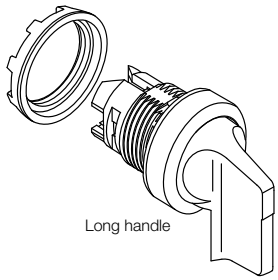
① No contact block in center position.

Selector switches, two position

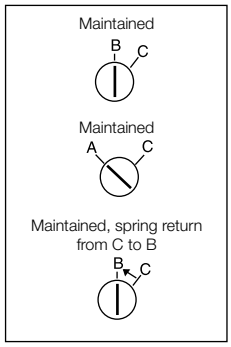
Illuminated ①

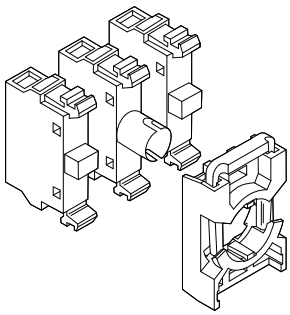


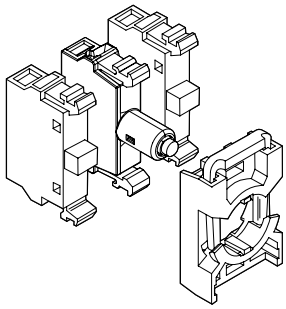
Short handle



Long handle







Selector switches, 2 position, illuminated ①

Options	Catalog number characters																
Short/Main B&C			M	2	S	S	1	-									
Short/Main A&C			M	2	S	S	2	-									
Short/Spring Return C to B			M	2	S	S	3	-									
Long/Main B&C			M	2	S	S	4	-									
Long/Main A&C			M	2	S	S	5	-									
Long/Spring Return C to B			M	2	S	S	6	-									
Bezel, Black Plastic, with Holder								-	4								
Bezel, Chrome Metal, with Holder								-	6								
Lamp block, MLB-1, Bulb not Included								-		2							
Lamp block, MLB-4, Bulb not Included								-		5							
Lamp block, MLB-5, Bulb not Included								-		6							
Lamp block w/integrated LED ③										7							
Lamp block w/zener diode, Bulb not incl.										8							
Switch Color - Red								-			R						
Switch Color - Green								-			G						
Switch Color - Yellow								-			Y						
Switch Color - Blue								-			L						
Switch Color - Clear								-			C						
Contact Blocks, 1NO								-				1	0				
Contact Blocks, 2NO								-				2	0				
Contact Blocks, 3NO								-				3	0				
Contact Blocks, 1NC								-				0	1				
Contact Blocks, 2NC								-				0	2				
Contact Blocks, 3NC								-				0	3				
Contact Blocks, 1NO+1NC								-				1	1				
Contact Blocks, 2NO+1NC								-				2	1				
Contact Blocks, 1NO+2NC								-				1	2				
Contact Blocks, 1NO, Gold								-				1	0	G			
Contact Blocks, 2NO, Gold								-				2	0	G			
Contact Blocks, 3NO, Gold								-				3	0	G			
Contact Blocks, 1NC, Gold								-				0	1	G			
Contact Blocks, 2NC, Gold								-				0	2	G			
Contact Blocks, 3NC, Gold								-				0	3	G			
Contact Blocks, 1NO+1NC, Gold								-				1	1	G			
Contact Blocks, 2NO+1NC, Gold								-				2	1	G			
Contact Blocks, 1NO+2NC, Gold								-				1	2	G			
LED 12VDC								-							L	7	
LED 24VAC/DC								-							L	8	
LED 48VAC/DC								-							L	9	
LED 60VAC/DC								-							L	6	0
LED 110-130VAC								-							L	1	
LED 110-130VAC/DC								-							L	1	3
LED 230V AC/DC								-							L	2	
LED 230V, AC-integrated only															L	2	3
LED 380V, AC-integrated only															L	3	8
LED 415V, AC-integrated only															L	4	1
Transformer Block 110-127/24VLED								-							T	L	1
Transformer Block 220-240/24VLED								-							T	L	2
Transformer Block 380-420/24VLED								-							T	L	3
Transformer Block 440-480/24VLED								-							T	L	4
5 Block Holder								-									5
30mm Black Plastic Adaptor Ring ③	G	1															
30mm Chrome Metal Adaptor Ring ③	G	2															

See catalog number explanation on page 7.70.

Contact functions

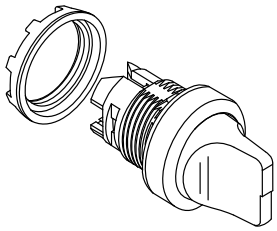
Block positions as seen from operator front.

Handle position	Left block	Right block
A or (B)	O	O
C	X	X

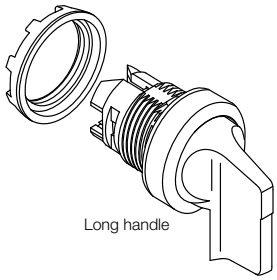
O = not actuated (normal state)
X = actuated (changed state)

① No contact block in center position.
② No LED or transformer block can be combined with "illuminated without lamp block" selection.
③ Includes one diode chip integrated into lamp block.

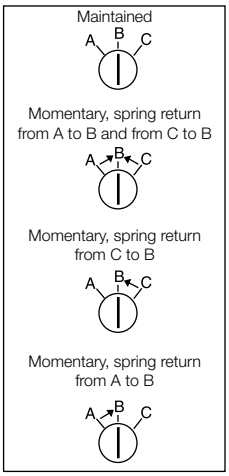
Selector switches, two position
Non-Illuminated ①

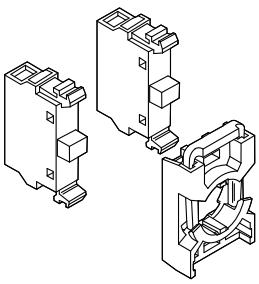


Short handle



Long handle



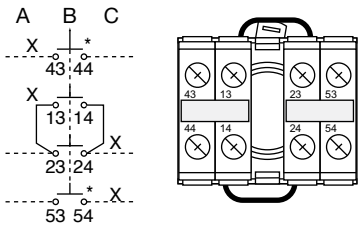


Selector switches, 2 position, non-illuminated ①

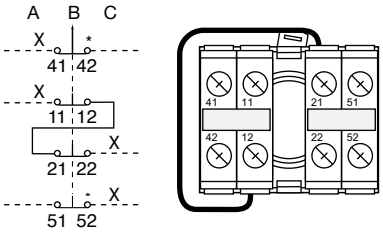
Options	Catalog number characters																	
Short/3-Main			M	3	S	S	1	-										
Short/Spring Return to B			M	3	S	S	2	-										
Short/Main A&B/Spring Return C to B			M	3	S	S	3	-										
Long/3-Main			M	3	S	S	4	-										
Long/Spring Return to B			M	3	S	S	5	-										
Long/Main A&B/Spring Return C to B			M	3	S	S	6	-										
Short/Main B&C/Spring Return A to B			M	3	S	S	7	-										
Long/Main B&C/Spring Return A to B			M	3	S	S	8	-										
Bezel, Black Plastic, with Holder								-	4	0								
Bezel, Chrome Metal, with Holder								-	6	0								
Switch Color - Red								-			R							
Switch Color - Black								-			B							
Switch Color - Grey								-			U							
Contact Blocks, 1NO								-				1	0					
Contact Blocks, 2NO								-				2	0					
Contact Blocks, 3NO								-				3	0					
Contact Blocks, 1NC								-				0	1					
Contact Blocks, 2NC								-				0	2					
Contact Blocks, 3NC								-				0	3					
Contact Blocks, 1NO+1NC								-				1	1					
Contact Blocks, 2NO+1NC								-				2	1					
Contact Blocks, 1NO+2NC								-				1	2					
Contact Blocks, 1NO, Gold								-				1	0	G				
Contact Blocks, 2NO, Gold								-				2	0	G				
Contact Blocks, 3NO, Gold								-				3	0	G				
Contact Blocks, 1NC, Gold								-				0	1	G				
Contact Blocks, 2NC, Gold								-				0	2	G				
Contact Blocks, 3NC, Gold								-				0	3	G				
Contact Blocks, 1NO+1NC, Gold								-				1	1	G				
Contact Blocks, 2NO+1NC, Gold								-				2	1	G				
Contact Blocks, 1NO+2NC, Gold								-				1	2	G				
5 Block Holder								-										5
30mm Black Plastic Adaptor Ring	G	1																
30mm Chrome Metal Adaptor Ring	G	2																

See catalog number explanation on page 7.70.

Center position connection detail



* Contacts may be N.O. or N.C.



* Contacts may be N.O. or N.C.

Contact functions

Block positions as seen from operator front.

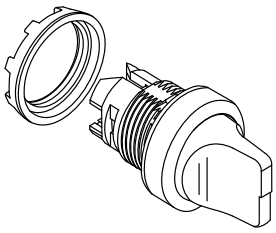
Handle position	Left block	Right block
A	X	O
B	O	O
C	O	X

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

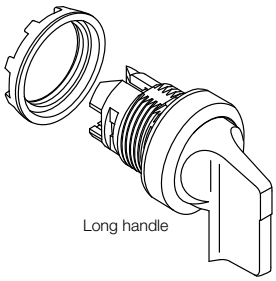
① No contact block in center position.

Selector switches, three position

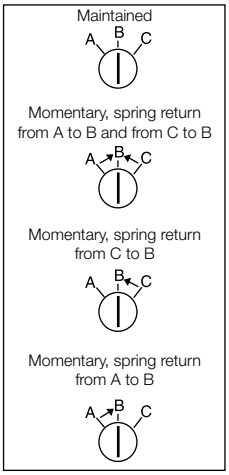
Illuminated ①



Short handle



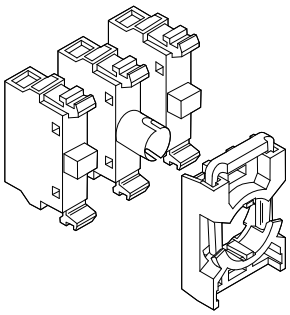
Long handle



Selector switches, 3 position, illuminated ①

Options	Catalog number characters																
Short/3-Main			M	3	S	S	1	-									
Short/Spring Return to B			M	3	S	S	2	-									
Short/Main A&B/Spring Return C to B			M	3	S	S	3	-									
Long/3-Main			M	3	S	S	4	-									
Long/Spring Return to B			M	3	S	S	5	-									
Long/Main A&B/Spring Return C to B			M	3	S	S	6	-									
Short/Main B&C/Spring Return A to B			M	3	S	S	7	-									
Long/Main B&C/Spring Return A to B			M	3	S	S	8	-									
Bezel, Black Plastic, with Holder								-	4								
Bezel, Chrome Metal, with Holder								-	6								
Lamp block, MLB-1, Bulb not Included								-		2							
Lamp block, MLB-4, Bulb not Included								-		5							
Lamp block, MLB-5, Bulb not Included								-		6							
Lamp block w/integrated LED ③										7							
Lamp block with zener diode, bulb not incl.										8							
Switch Color - Red								-			R						
Switch Color - Green								-			G						
Switch Color - Yellow								-			Y						
Switch Color - Blue								-			L						
Switch Color - Clear								-			C						
Contact Blocks, 1NO								-				1	0				
Contact Blocks, 2NO								-				2	0				
Contact Blocks, 3NO								-				3	0				
Contact Blocks, 1NC								-				0	1				
Contact Blocks, 2NC								-				0	2				
Contact Blocks, 3NC								-				0	3				
Contact Blocks, 1NO+1NC								-				1	1				
Contact Blocks, 2NO+1NC								-				2	1				
Contact Blocks, 1NO+2NC								-				1	2				
Contact Blocks, 1NO, Gold								-				1	0	G			
Contact Blocks, 2NO, Gold								-				2	0	G			
Contact Blocks, 3NO, Gold								-				3	0	G			
Contact Blocks, 1NC, Gold								-				0	1	G			
Contact Blocks, 2NC, Gold								-				0	2	G			
Contact Blocks, 3NC, Gold								-				0	3	G			
Contact Blocks, 1NO+1NC, Gold								-				1	1	G			
Contact Blocks, 2NO+1NC, Gold								-				2	1	G			
Contact Blocks, 1NO+2NC, Gold								-				1	2	G			
LED 12VDC								-							L	7	
LED 24VAC/DC								-							L	8	
LED 48VAC/DC								-							L	9	
LED 60VAC/DC								-							L	6	0
LED 110-130VAC								-							L	1	
LED 110-130VAC/DC								-							L	1	3
LED 230V AC/DC								-							L	2	
LED 230V, AC-integrated only															L	2	3
LED 380V, AC-integrated only															L	3	8
LED 415V, AC-integrated only															L	4	1
Transformer Block 110-127/24VLED								-							T	L	1
Transformer Block 220-240/24VLED								-							T	L	2
Transformer Block 380-420/24VLED								-							T	L	3
Transformer Block 440-480/24VLED								-							T	L	4
5 Block Holder								-										5
30mm Black Plastic Adaptor Ring	G	1															
30mm Chrome Metal Adaptor Ring	G	2															

See catalog number explanation on page 7.70.

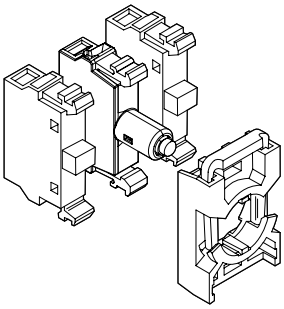


Contact functions

Block positions as seen from operator front.

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

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



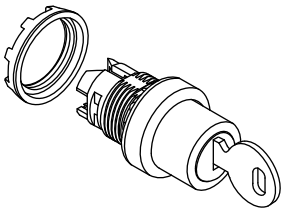
Center position connection detail

See page 7.56.

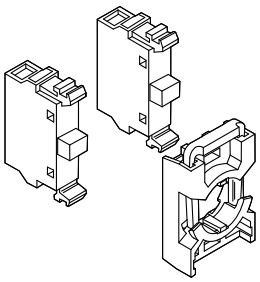
① No contact block in center position.
② No LED or transformer block can be combined with "illuminated without lamp block" selection.
③ Includes one diode chip integrated into lamp block.

Key-operated selector switches

Two & three position ①



Key operated



Key-operated selector switches, 2 & 3 position ①

Options	Catalog number characters															
2 Maintained Positions, Key Removable in B and C			M	2	S	S	K	1	-							
2 Maintained Positions, Key Removable in B			M	2	S	S	K	2	-							
2 Positions, Spring Return from C to B, Key Removable in B			M	2	S	S	K	3	-							
3 Maintained Positions, Key Removable in A, B and C			M	3	S	S	K	1	-							
3 Maintained Positions, Key Removable in B			M	3	S	S	K	2	-							
3 Positions, Spring Return from A and C to B, Key Removable in B			M	3	S	S	K	3	-							
3 Positions, A and B maintained, Spring Return C to B, Key Removable in A			M	3	S	S	K	4	-							
3 Positions, A and B maintained, Spring Return C to B, Key Removable in All Positions			M	3	S	S	K	5	-							
Bezel, Black Plastic, with Holder									-	4	0					
Bezel, Chrome Metal, with Holder									-	6	0					
Key Code 71									-			1				
Key Code 72									-			2				
Key Code 73									-			3				
Other Key Code									-			4				
Contact Blocks, 1NO									-				1	0		
Contact Blocks, 2NO									-				2	0		
Contact Blocks, 3NO									-				3	0		
Contact Blocks, 1NC									-				0	1		
Contact Blocks, 2NC									-				0	2		
Contact Blocks, 3NC									-				0	3		
Contact Blocks, 1NO+1NC									-				1	1		
Contact Blocks, 2NO+1NC									-				2	1		
Contact Blocks, 1NO+2NC									-				1	2		
Contact Blocks, 1NO, Gold									-				1	0	G	
Contact Blocks, 2NO, Gold									-				2	0	G	
Contact Blocks, 3NO, Gold									-				3	0	G	
Contact Blocks, 1NC, Gold									-				0	1	G	
Contact Blocks, 2NC, Gold									-				0	2	G	
Contact Blocks, 3NC, Gold									-				0	3	G	
Contact Blocks, 1NO+1NC, Gold									-				1	1	G	
Contact Blocks, 2NO+1NC, Gold									-				2	1	G	
Contact Blocks, 1NO+2NC, Gold									-				1	2	G	
5 Block Holder									-							5
30mm Black Plastic Adaptor Ring	G	1														
30mm Chrome Metal Adaptor Ring	G	2														

See catalog number explanation on page 7.70.

2 position ①
Maintained

Momentary, spring return from C to B

3 position ①
Maintained

Momentary, spring return from A to B and from C to B

Momentary, spring return from C to B

Momentary, spring return from A to B

Extra key

Description	Catalog No.	Reference code
Ronis 455 (key code 71)	SK 616 021-71	SK 616 021-71
Ronis 421 (key code 72)	SK 616 021-72	SK 616 021-72
Ronis 3433-E (key code 73)	SK 616 021-73	SK 616 021-73

Contact block functions

Block positions as seen from operator front.

2 Position switch

Handle position	Left block	Right block
B	O	O
C	X	X

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

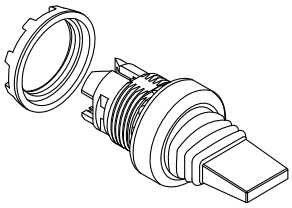
3 Position switch

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

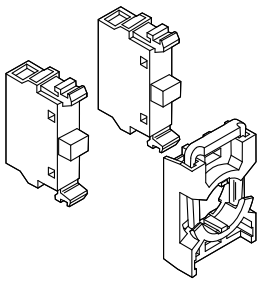
O = not actuated (normal state)
X = actuated (changed state)

① No contact block in center position.

Toggle switches



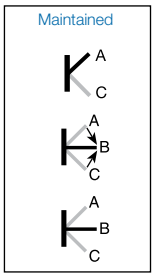
Toggle switch



Toggle switches

Options	Catalog number characters													
2 Maintained Positions			M	T	S	1	-							
3 Positions, Spring Return to Center			M	T	S	2	-							
3 Maintained Positions			M	T	S	3	-							
Bezel, Black, with Holder							-	4	0					
Bezel, Chrome, with Holder							-	6	0					
Switch Color - Black							-			B				
Contact Blocks, 1NO							-				1	0		
Contact Blocks, 2NO							-				2	0		
Contact Blocks, 3NO							-				3	0		
Contact Blocks, 1NC							-				0	1		
Contact Blocks, 2NC							-				0	2		
Contact Blocks, 3NC							-				0	3		
Contact Blocks, 1NO+1NC							-				1	1		
Contact Blocks, 2NO+1NC							-				2	1		
Contact Blocks, 1NO+2NC							-				1	2		
Contact Blocks, 1NO, Gold							-				1	0	G	
Contact Blocks, 2NO, Gold							-				2	0	G	
Contact Blocks, 3NO, Gold							-				3	0	G	
Contact Blocks, 1NC, Gold							-				0	1	G	
Contact Blocks, 2NC, Gold							-				0	2	G	
Contact Blocks, 3NC, Gold							-				0	3	G	
Contact Blocks, 1NO+1NC, Gold							-				1	1	G	
Contact Blocks, 2NO+1NC, Gold							-				2	1	G	
Contact Blocks, 1NO+2NC, Gold							-				1	2	G	
5 Block Holder							-							5
30mm Black Plastic Adaptor Ring	G	1												
30mm Chrome Metal Adaptor Ring	G	2												

See catalog number explanation on page 7.70.



Contact block functions

Block positions as seen from operator front.

2 Position switch

Handle position	Left block	Right block
A	O	O
C	X	X

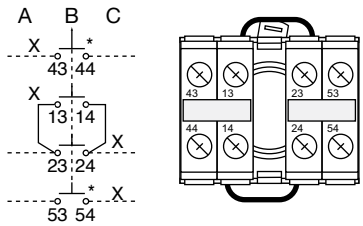
O = not actuated (normal state)
X = actuated (changed state)

3 Position switch

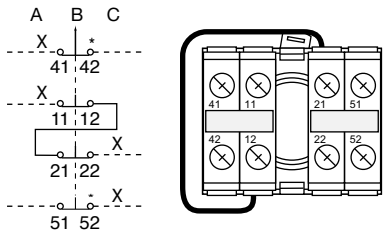
Handle position	Left block	Right block
A	O	X
B	O	O
C	X	O

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

Center position connection detail

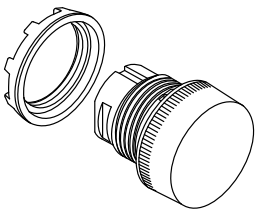


* Contacts may be N.O. or N.C.

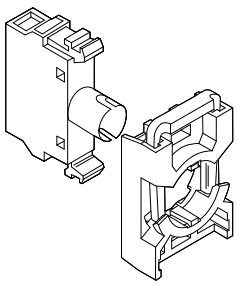


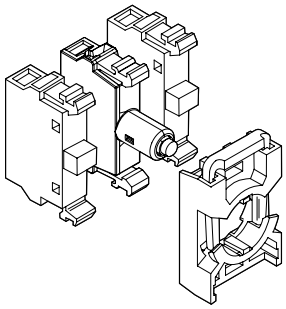
* Contacts may be N.O. or N.C.

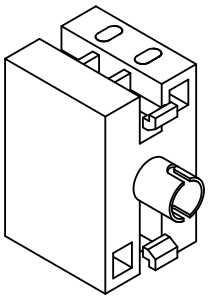
Pilot lights



Pilot light







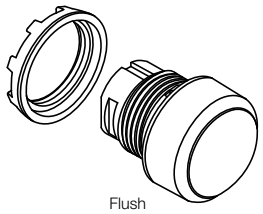
Pilot lights

Options	Catalog number characters													
Pilot Light with light diffusing lens			M	L	1	-								
With Holder						-	2	0						
Lens Color - Red						-			R					
Lens Color - Green						-			G					
Lens Color - Yellow						-			Y					
Lens Color - Blue						-			L					
Lens Color - White						-			W					
Lens Color - Clear						-			C					
Lamp block, MLB-1, Bulb not Included						-				1	0			
Lamp block, MLB-4, Bulb not Included						-				0	1			
Lamp block, MLB-5, Bulb not Included						-				0	2			
Lamp block w/integrated LED ①											7			
Lamp block with zener diode, bulb not incl.											8			
LED 12VDC						-						L	7	
LED 24VAC/DC						-						L	8	
LED 48VAC/DC						-						L	9	
LED 60VAC/DC						-						L	6	0
LED 110-130VAC						-						L	1	
LED 110-130VAC/DC						-						L	1	3
LED 230V AC/DC						-						L	2	
LED 230V, AC-integrated only												L	2	3
LED 380V, AC-integrated only												L	3	8
LED 415V, AC-integrated only												L	4	1
Transformer Block 110-127/24VLED						-						TL1		
Transformer Block 220-240/24VLED						-						TL2		
Transformer Block 380-420/24VLED						-						TL3		
Transformer Block 440-480/24VLED						-						TL4		
5 Block Holder						-								5
30mm Black Plastic Adaptor Ring	G	1				-								
30mm Chrome Metal Adaptor Ring	G	2				-								

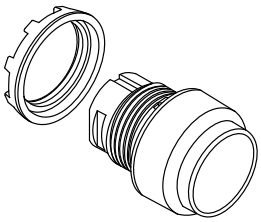
See catalog number explanation on page 7.70.

③ Includes one diode chip integrated into lamp block.

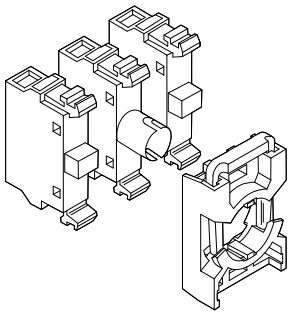
Press to test pilot lights

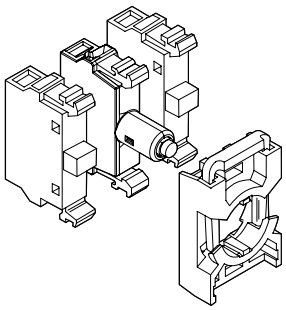


Flush



Extended



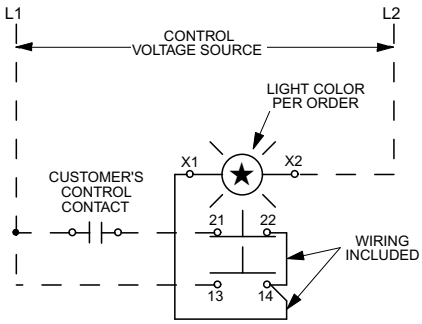


Press to test pilot lights ②

Options	Catalog number characters									
Momentary, Flush			M	P	1	-				
Momentary, Extended			M	P	3	-				
Bezel, Black Plastic with Holder, 1/1 Contacts						-	KL			
Bezel, Chrome Metal with Holder, 1/1 Contacts						-	ML			
Illuminated without Lamp Block						-		PT		
Full Voltage Lamp Block, (select LED from below)						-		FPT		
Resistor Lamp Block, (select 120V or 240V LED only)						-		RPT		
LED, 12VDC						-			L7	
LED, 24VAC/DC						-			L8	
LED, 48VAC/DC						-			L9	
LED, 60VAC/DC						-			L60	
LED 110-130VAC									L1	
LED 110-130VAC/DC									L13	
LED 230VAC/DC									L2	
LED 230VAC Integrated only									L230	
LED 380VAC Integrated only									L38	
LED 415VAC Integrated only									L41	
Transformer + Lamp Block 110-127/6VBulb						-		TPT1		
Transformer + Lamp Block 220-240/6VBulb						-		TPT2		
Transformer + Lamp Block 380-420/6VBulb						-		TPT3		
Transformer + Lamp Block 440-480/6VBulb						-		TPT4		
Transformer + Lamp Block 500-600/6VBulb						-		TPT5		
Transformer + Lamp Block 110-127/24VBulb						-		TPT6		
Transformer + Lamp Block 220-240/24VBulb						-		TPT7		
Transformer + Lamp Block 380-420/24VBulb						-		TPT8		
Transformer + Lamp Block 440-480/24VBulb						-		TPT9		
Transformer + Lamp Block 110-127/24VLED						-		TPTL1		
Transformer + Lamp Block 220-240/24VLED						-		TPTL2		
Transformer + Lamp Block 380-420/24VLED						-		TPTL3		
Transformer + Lamp Block 440-480/24VLED						-		TPTL4		
Button Color - Red						-				R
Button Color - Green						-				G
Button Color - Yellow						-				Y
Button Color - Blue						-				L
Button Color - White						-				W
Button Color - Clear						-				C
30mm Black Plastic Adaptor Ring	G	1				-				
30mm Chrome Metal Adaptor Ring	G	2				-				

See catalog number explanation on page 7.70.

Schematic



Press- to-test schematic

① LED or transformer block cannot be combined with "illuminated without lamp block" selection.
② 1 NO & 1NC contact blocks included.

Compact Range
22mm

Compact Range, 22mm

Pilot devices

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
- 42mm built in depth
- Up to 2 electrical separated contacts
- Metal or black plastic look
- UL file #E76003

Product features
- Suitable in the toughest environments IP 66, 67 & 69K
- Wiping action gives high performance with low energies
- UL/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

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Pilot Devices
Compact Range
22mm

Pushbuttons

Flush and extended, non-illuminated

Color codes for pushbuttons

	Red	Green	Yellow	Blue	White	Black	Grey
Δ	R	G	Y	L	W	B	U

Bezel - How to order

Black Plastic - Standard
Chrome Metal - Replace '**1**' with '**3**' in Catalog number

Bezel options	Catalog number
Black plastic	CP(X)**1**0X-XX
Chrome metal	CP(X)**3**0X-XX

7

Operator: Flush and extended pushbutton

Flush pushbutton

Description	Catalog number	Weight oz.
Flush pushbutton		
Momentary		
1 NO	CP110Δ-10	0.63
2 NO	CP110Δ-20	0.78
1 NC	CP110Δ-01	0.63
2 NC	CP110Δ-02	0.78
1 NO +1 NC	CP110Δ-11	0.78
Maintained		
1 NO	CP210Δ-10	0.63
2 NO	CP210Δ-20	0.78
1 NC	CP210Δ-01	0.63
2 NC	CP210Δ-02	0.78
1 NO +1 NC	CP210Δ-11	0.78

Extended pushbutton

Extended pushbutton		
Momentary		
1 NO	CP310Δ-10	0.67
2 NO	CP310Δ-20	0.78
1 NC	CP310Δ-01	0.67
2 NC	CP310Δ-02	0.78
1 NO +1 NC	CP310Δ-11	0.78
Maintained		
1 NO	CP410Δ-10	0.67
2 NO	CP410Δ-20	0.78
1 NC	CP410Δ-01	0.67
2 NC	CP410Δ-02	0.78
1 NO +1 NC	CP410Δ-11	0.78

Flush pushbutton
with marking

Flush pushbutton		
Momentary, white button with black I		
1 NO	CP1110W-10	0.63
Momentary, white button with black II		
1 NO	CP1210W-10	0.63
Extended pushbutton		
Momentary, black button with white O		
1 NC	CP3310B-01	0.63

Pushbuttons
Flush and extended, illuminated

Bezel - How to order
Black plastic - Standard
Chrome metal - Replace '**1**' with '**3**' in Catalog number

Bezel options	Catalog number
Black plastic	CP(X)**1**XX-XX
Chrome metal	CP(X)**3**XX-XX

Illuminated pushbutton

Illuminated pushbutton extended

Operator: Illuminated pushbutton with integrated LED

Description		Catalog number	Weight oz.
Flush pushbutton 24V AC/DC			
Momentary			
Red	1 NC	CP111R-01	0.88
Red	1 NO	CP111R-10	0.88
Green	1 NO	CP111G-10	0.88
Yellow	1 NO	CP111Y-10	0.88
Maintained			
Red	1 NC	CP211R-01	0.88
Red	1 NO	CP211R-10	0.88
Green	1 NO	CP211G-10	0.88
Yellow	1 NO	CP211Y-10	0.88
Extended pushbutton 24V AC/DC			
Momentary			
Red	1 NC	CP311R-01	0.88
Red	1 NO	CP311R-10	0.88
Green	1 NO	CP311G-10	0.88
Yellow	1 NO	CP311Y-10	0.88
Maintained			
Red	1 NC	CP411R-01	0.88
Red	1 NO	CP411R-10	0.88
Green	1 NO	CP411G-10	0.88
Yellow	1 NO	CP411Y-10	0.88
Flush pushbutton 110-130V AC/DC			
Momentary			
Red	1 NC	CP112R-01	0.88
Red	1 NO	CP112R-10	0.88
Green	1 NO	CP112G-10	0.88
Yellow	1 NO	CP112Y-10	0.88
Maintained			
Red	1 NC	CP212R-01	0.88
Red	1 NO	CP212R-10	0.88
Green	1 NO	CP212G-10	0.88
Yellow	1 NO	CP212Y-10	0.88
Extended pushbutton 110-130V AC/DC			
Momentary			
Red	1 NC	CP312R-01	0.88
Red	1 NO	CP312R-10	0.88
Green	1 NO	CP312G-10	0.88
Yellow	1 NO	CP312Y-10	0.88

Illuminated pushbuttons

Flush and extended, illuminated

Illuminated pushbutton

Operator: Illuminated pushbutton with integrated LED

Description		Catalog number	Weight oz.
Extended pushbutton 110-130V AC/DC			
Maintained			
Red	1 NC	CP412R-01	0.88
Red	1 NO	CP412R-10	0.88
Green	1 NO	CP412G-10	0.88
Yellow	1 NO	CP412Y-10	0.88
Flush pushbutton 220V AC/DC			
Momentary			
Red	1 NC	CP113R-01	0.88
Red	1 NO	CP113R-10	0.88
Green	1 NO	CP113G-10	0.88
Yellow	1 NO	CP113Y-10	0.88
Maintained			
Red	1 NC	CP213R-01	0.88
Red	1 NO	CP213R-10	0.88
Green	1 NO	CP213G-10	0.88
Yellow	1 NO	CP213Y-10	0.88
Extended pushbutton 220V AC/DC			
Momentary			
Red	1 NC	CP313R-01	0.88
Red	1 NO	CP313R-10	0.88
Green	1 NO	CP313G-10	0.88
Yellow	1 NO	CP313Y-10	0.88
Maintained			
Red	1 NC	CP413R-01	0.88
Red	1 NO	CP413R-10	0.88
Green	1 NO	CP413G-10	0.88
Yellow	1 NO	CP413Y-10	0.88

Illuminated pushbutton extended

Compact mushrooms

Compact mushroom

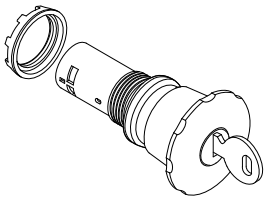
Operator: Compact mushroom

Description		Catalog number	Weight oz.
Red	1 NO + 1 NC	CPM310R-11	1.3
Green	1 NO + 1 NC	CPM310G-11	1.3
Yellow	1 NO + 1 NC	CPM310Y-11	1.3
Black	1 NO + 1 NC	CPM310B-11	1.3
Blue	1 NO + 1 NC	CPM310L-11	1.3

Emergency stop pushbuttons
Non-illuminated
30mm and 40mm

Emergency stop pushbutton twist release, 30 mm

Emergency stop pushbutton pull release, 40 mm



Emergency stop pushbutton key release, 40mm

Operator: Emergency stop pushbutton

Description	Catalog number	Weight oz.
Emergency stop pushbutton		
Twist release, Ø 30 mm		
1 NC	CE3T-10R-01	1.1
2 NO	CE3T-10R-20	1.1
2 NO	CE4T-10R-20	1.1
2 NC	CE3T-10R-02	1.1
1 NO + 1 NC	CE3T-10R-11	1.1
Key release Ø 30 mm: Ronis 455, Key code 71		
2 NC	CE3K1-10R-02	2.1
1 NO +1 NC	CE3K1-10R-11	2.1
Twist release Ø 40 mm		
1 NC	CE4T-10R-01	1.3
2 NC	CE4T-10R-02	1.3
1 NO + NC	CE4T-10R-11	1.3
Key release Ø 40 mm: Key code 71 = Ronis 455		
2 NC	CE4K1-10R-02	2.3
1 NO +1 NC	CE4K1-10R-11	2.3
"EMO" Marking		
Twist release		
Contacts included:		
2 NC Red	CE9-1003	0.087

Twist, pull or key release operators
Non-illuminated
30mm and 40 mm

Machine stop pushbutton twist release 30 mm

Operator: Twist, pull or key release

Description	Catalog number	Weight oz.
Machine stop pushbutton		
Twist release Ø 30 mm		
1 NO +1 NC	CE3T-10B-11	1.1
Pull release Ø 30 mm		
1 NO +1 NC	CE3P-10B-11	1.1
Key release Ø 30 mm: Key code 71 = Ronis 455		
1 NO +1 NC	CE3K1-10B-11	2.1
Twist release Ø 40 mm		
1 NO +1 NC	CE4T-10B-11	1.1
Pull release Ø 40 mm		
1 NO +1 NC	CE4P-10B-11	1.1
Key release Ø 40 mm: Key code 71 = Ronis 455		
1 NO +1 NC	CE4K1-10B-11	2.3
Pull release Ø 30 mm		
2 NC	CE3P-10R-02	1.1
1 NO + 1NC	CE3P-10R-11	1.1
Pull release Ø 40 mm		
2 NC	CE4P-10R-02	1.3
1 NO + 1 NC	CE4P-10R-11	1.3

Pilot Devices
Compact Range
22mm

Selector switches

Two and three position, non-illuminated

Color codes for switches

	Red	Black	Grey
Δ	R	B	U

Bezel - How to order

Black plastic - Standard
Chrome metal - Replace '**1**' with '**3**' in Catalog number

Bezel options	Catalog number
Black plastic	C(X)SS(X)**1**0X-XX
Chrome metal	C(X)SS(X)**3**0X-XX

7

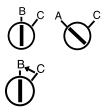
Selector switch

Operator: Selector switches

Description		Catalog number	Weight oz.
Two-position			
Maintained			
	1 NO	C2SS110Δ-10	0.71
	2 NO	C2SS110Δ-20	0.85
	1 NC	C2SS110Δ-01	0.71
	2 NC	C2SS110Δ-02	0.85
	1 NO +1 NC	C2SS110Δ-11	0.85
Maintained			
	1 NO	C2SS210Δ-10	0.71
	2 NO	C2SS210Δ-20	0.85
	1 NC	C2SS210Δ-01	0.71
	2 NC	C2SS210Δ-02	0.85
	1 NO +1 NC	C2SS210Δ-11	0.85
Momentary			
	1 NO	C2SS310Δ-10	0.71
	2 NO	C2SS310Δ-20	0.85
	1 NC	C2SS310Δ-01	0.71
	2 NC	C2SS310Δ-02	0.85
	1 NO +1 NC	C2SS310Δ-11	0.85
Three-position			
Maintained			
	2 NO	C3SS110Δ-20	0.85
	2 NC	C3SS110Δ-02	0.85
	1 NO +1 NC	C3SS110Δ-11	0.85
Momentary			
	2 NO	C3SS210Δ-20	0.85
	2 NC	C3SS210Δ-02	0.85
	1 NO +1 NC	C3SS210Δ-11	0.85
Momentary			
	2 NO	C3SS310Δ-20	0.85
	2 NC	C3SS310Δ-02	0.85
	1 NO +1 NC	C3SS310Δ-11	0.85
Momentary			
	2 NO	C3SS710Δ-20	0.85
	2 NC	C3SS710Δ-02	0.85
	1 NO +1 NC	C3SS710Δ-11	0.85

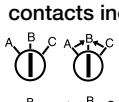
Contacts actuated

Two position selector switch contacts included,



	actuated in position C			
	NC	NO	NC	NO
	11–12	13–14	21–22	23–24
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
	21–22	23–24	11–12	13–14
2NO	–	1	–	1
2NC	1	–	1	–
1NO + 1NC	1	–	–	1

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Pilot lights with integrated LED

Pilot light with integrated LED, with leakage current protection

Operator: Pilot light with integrated LED

Description	Rated Current mA	Wavelength nm	Luminance mcd	Catalog number	Weight oz.
Pilot light with integrated LED service life >50 000 hours					
Rated voltage 12 V, DC [1]					
Red	30	625	60	CL-501R	0.81
Green	15	520	126	CL-501G	0.81
Yellow	30	590	60	CL-501Y	0.81
Blue	30	470	22	CL-501L	0.81
White	30	[2]	88	CL-501W	0.81
Rated voltage 24 V, AC/DC					
Red	15	625	60	CL-502R	0.81
Green	15	520	126	CL-502G	0.81
Yellow	15	590	60	CL-502Y	0.81
Blue	15	470	22	CL-502L	0.81
White	15	[2]	88	CL-502W	0.81
Rated voltage 48 V, AC/DC					
Red	15	625	60	CL-504R	0.81
Green	15	520	126	CL-504G	0.81
Yellow	15	590	60	CL-504Y	0.81
Blue	15	470	22	CL-504L	0.81
White	15	[2]	88	CL-504W	0.81
Rated voltage 60 V, AC/DC					
Red	15	625	60	CL-505R	0.81
Green	15	520	126	CL-505G	0.81
Yellow	15	590	60	CL-505Y	0.81
Blue	15	470	22	CL-505L	0.81
White	15	[2]	88	CL-505W	0.81
Rated voltage 110-130 V, AC					
Red	15	625	60	CL-513R	0.81
Green	15	520	126	CL-513G	0.81
Yellow	15	590	60	CL-513Y	0.81
Blue	15	470	22	CL-513L	0.81
White	15	[2]	88	CL-513W	0.81
Rated voltage 110-130 V, DC [1]					
Red	15	625	60	CL-515R	0.81
Green	15	520	126	CL-515G	0.81
Yellow	15	590	60	CL-515Y	0.81
Blue	15	470	22	CL-515L	0.81
White	15	[2]	88	CL-515W	0.81
Rated voltage 220 V, DC [1]					
Red	15	625	60	CL-520R	0.81
Green	15	520	126	CL-520G	0.81
Yellow	15	590	60	CL-520Y	0.81
Blue	15	470	22	CL-520L	0.81
White	15	[2]	88	CL-520W	0.81

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.

Pilot lights with integrated LED

Pilot light with integrated LED, with leakage current protection

Operator: Pilot light with integrated LED - Service life 750,000 hours

Description	Rated current mA	Wavelength nm	Luminance mcd	Catalog number	Weight oz.
Rated voltage 230 V, AC					
Red	15	625	60	CL-523R	0.81
Green	15	520	126	CL-523G	0.81
Yellow	15	590	60	CL-523Y	0.81
Blue	15	470	22	CL-523L	0.81
White	15	2)	88	CL-523W	0.81
Rated voltage 380 V, AC					
Red	15	625	60	CL-530R	0.81
Green	15	520	126	CL-530G	0.81
Yellow	15	590	60	CL-530Y	0.81
Blue	15	470	22	CL-530L	0.81
White	15	2)	88	CL-530W	0.81
Rated voltage 415 V, AC					
Red	15	625	60	CL-541R	0.81
Green	15	520	126	CL-541G	0.81
Yellow	15	590	60	CL-541Y	0.81
Blue	15	470	22	CL-541L	0.81
White	15	2)	88	CL-541W	0.81

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

Pilot lights

Pilot light

Operator: Pilot light – Ba 9s base, bulb not included

Description	Catalog number	Weight oz.
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

Buzzers

Buzzer, green

Buzzer, red

Buzzer, yellow

Buzzer, black

Description		Luminance mcd	Catalog number	Package quantity	Weight kg
Non-illuminated					
Rated voltage 24V, AC/DC					
Black	Continuous		CB1-620B	10	0.021
Black	Pulsation		CB1-630B	10	0.021
Rated voltage 110-130 V, AC					
Black	Continuous		CB1-621B	10	0.021
Black	Pulsation		CB1-631B	10	0.021
Rated voltage 110-130 V, DC					
Black	Continuous		CB1-622B	10	0.021
Black	Pulsation		CB1-632B	10	0.021
Rated voltage 230 V, AC					
Black	Continuous		CB1-623B	10	0.021
Black	Pulsation		CB1-633B	10	0.021
Iluminated					
Rated voltage 24V, AC/DC					
Green	Continuous	126	CB1-600G	10	0.021
Red	Pulsation	60	CB1-610R	10	0.021
Yellow	Pulsation	60	CB1-610Y	10	0.021
Rated voltage 110-130 V, AC					
Green	Continuous	126	CB1-601G	10	0.021
Red	Pulsation	60	CB1-611R	10	0.021
Yellow	Pulsation	60	CB1-611Y	10	0.021
Rated voltage 110-130 V, DC					
Green	Continuous	126	CB1-602G	10	0.021
Red	Pulsation	60	CB1-612R	10	0.021
Yellow	Pulsation	60	CB1-612Y	10	0.021
Rated voltage 230 V, AC					
Green	Continuous	126	CB1-603G	10	0.021
Red	Pulsation	60	CB1-613R	10	0.021
Yellow	Pulsation	60	CB1-613Y	10	0.021

Accessories
LED Bulbs

LED bulbs

Description	Rated Current mA	Wavelength nm	Luminance mcd	Catalog number	Weight oz.
LED Bulbs					
With one diode chip inserted on Ba9s base, choose the same color for the LED and the lamp cap or else use a clear lamp cap. For white light, use a LED clear lens cap.					
Rated voltage 12 V, AC service life >50 000 h					
Red	15	630	250	KA2-2011	0.18
Green	15	525	1000	KA2-2012	0.18
Yellow	15	592	250	KA2-2013	0.18
Blue	15	470	450	KA2-2014	0.18
White	15	1)	600	KA2-2015	0.18
Rated voltage 24 V, (AC)/DC service life >50 000 h					
Red	15	630	250	KA2-2021	0.18
Green	15	525	800	KA2-2022	0.18
Yellow	15	592	250	KA2-2023	0.18
Blue	15	470	400	KA2-2024	0.18
White	15	1)	500	KA2-2025	0.18
Rated voltage 36 V, (AC)/DC service life >50 000 h					
Red	12	630	200	KA2-2031	0.18
Green	12	525	2000	KA2-2032	0.18
Yellow	12	592	200	KA2-2033	0.18
Blue	12	470	750	KA2-2034	0.18
White	12	1)	1400	KA2-2035	0.18
Rated voltage 48 V, (AC)/DC service life >50 000 h					
Red	12	630	200	KA2-2041	0.18
Green	12	525	1700	KA2-2042	0.18
Yellow	12	592	240	KA2-2043	0.18
Blue	12	470	720	KA2-2044	0.18
White	12	1)	1200	KA2-2045	0.18
Rated voltage 60 V, (AC)/DC service life >50 000 h					
Red	10	630	160	KA2-2051	0.18
Green	10	525	1400	KA2-2052	0.18
Yellow	10	592	200	KA2-2053	0.18
Blue	10	470	600	KA2-2054	0.18
White	10	1)	1000	KA2-2055	0.18
Rated voltage 110-130 V, AC service life 25 000 h					
Red	4-6	630	60-100	KA2-2131	0.18
Green	4-6	525	500-850	KA2-2132	0.18
Yellow	4-6	592	70-120	KA2-2133	0.18
Blue	4-6	470	220-350	KA2-2134	0.18
White	4-6	1)	350-600	KA2-2135	0.18
Rated voltage 110-130 V, AC/DC service life 25 000 h					
Red	4-6	630	60	KA2-2141	0.18
Green	4-6	525	500	KA2-2142	0.18
Yellow	4-6	592	70	KA2-2143	0.18
Blue	4-6	470	220	KA2-2144	0.18
White	4-6	1)	350	KA2-2145	0.18
Rated voltage 230 V, AC service life 25 000 h					
Red	4	630	60	KA2-2221	0.18
Green	4	525	500	KA2-2222	0.18
Yellow	4	592	70	KA2-2223	0.18
Blue	4	470	220	KA2-2224	0.18
White	4	1)	350	KA2-2225	0.18

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
LED and filament bulbs

LED bulbs

Description	Rated Current mA	Wave-length nm	Luminance mcd	Catalog number	Weight oz.
LED bulbs continued					
Rated voltage 230 V, AC/DC service life 25 000 h					
Red	4	630	60	KA2-2231	0.18
Green	4	525	500	KA2-2232	0.18
Yellow	4	592	70	KA2-2233	0.18
Blue	4	470	220	KA2-2234	0.18
White	4	[1]	350	KA2-2235	0.18

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	Ser-vice life h	Luminance mcd	Catalog number	Weight oz.
Filament bulbs BA 9s base						
6	200	1.2	10 000	350	5911 086-11	0.071
12	100	1.2	10 000	230	5911 086-12	0.071
24	50	1.2	10 000	280	5911 086-13	0.071
30	40	1.2	10 000	250	5911 086-4	0.071
48	42	2	6 000	500	5911 086-5	0.071
60	20	1.2	5 000	190	5911 086-14	0.071
110	18	2	7 500	250	5911 086-7	0.071
130	15	2	7 500	120	5911 086-15	0.071

Note: Catalog number 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	0.071

Accessories

DIN-rail adaptor with pushbutton

Lamp changing tool

Mounting tool

Mounting tool for power tool

Protective cover

Bezels

Square bezels

Blanking plugs

Adaptor

Description	Catalog number	Weight oz.
DIN-rail adaptor		
DIN-rail adaptor	CA1-8080	0.99
Dummy block	MDB-2	0.11
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	0.071
Mounting tool		
Used for tightening the locking nut	MA1-8015	0.74
Mounting tool for power tool	MA1-8149	5.5
Membrane		
Flush button	KA1-8052	0.071
Extended button	KA1-8002	0.071
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	0.071
Note: For flush and extended pushbutton to prevent inadvertent operation. Cannot be used together with legend plate holder.		
Protective cover		
Protective cover	KA1-8010	0.28
Note: For flush pushbutton. To prevent accidental operation. Cannot be used together with legend plate holder.		
Button		
Grey, flush	KA1-8087	0.035
Grey, extended	KA1-8097	0.035
Bezel		
For pushbutton		
Black	KA1-8022	0.071
Metal	KA1-8021	0.53
For selector switch		
Black	CA1-8077	0.035
Metal	CA1-8078	0.35
Square bezel		
Black, plastic	SK 616 016-2	0.035
Grey, plastic	MA1-8124	0.035
Light diffusing lens		
Light diffusing lens	KA1-8005	0.035
Note: To improve illumination. Cannot be used with text cap. The lens is used instead of text cap		
Blanking plug		
Light grey	MA1-8136	0.18
Grey	MA1-8129	0.18
Black	MA1-8130	0.18
Adaptors 30 mm		
Black plastic	KA1-8029	0.35
Metal	KA1-8030	1.2
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	1.8
For flush mounted selector switches	CA1-8075	1.6
Extra key		
Key code 71=Ronis 455	SK 616 021-71	0.25

Technical data

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	Catalog number 1, 3R, 4, 4X, 12, 13
Selector Switches	IP66, IP67 and IP69K	Catalog number 1, 3R, 4, 4X, 12, 13
Pilot Lights Buzzers	IP66, IP67 and IP69K	Catalog number 1, 3R, 4, 4X, 12, 13
Emergency Stops	IP66, IP67 and IP69K	Catalog number 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 Buzzer	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	gG 10A

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, toulene). 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 Catalog numbers 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

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 impulse withstand voltage U_{imp}		4 kV	
Rated frequency		50-60 Hz	
Sound level db		>90 db	
Rated Operational Current, I_e Utilization category AC-15	at: 240 V	1 A	
Rated Operational Current, I_e 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

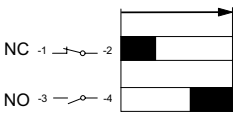
Max. fuse at 1 kA	gG 10A

Minimum switching capacity

5 V DC	1 mA

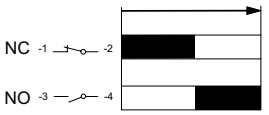
Make-and-break contacts

Pushbutton



= Closed contact

Emergency Stop Pushbutton



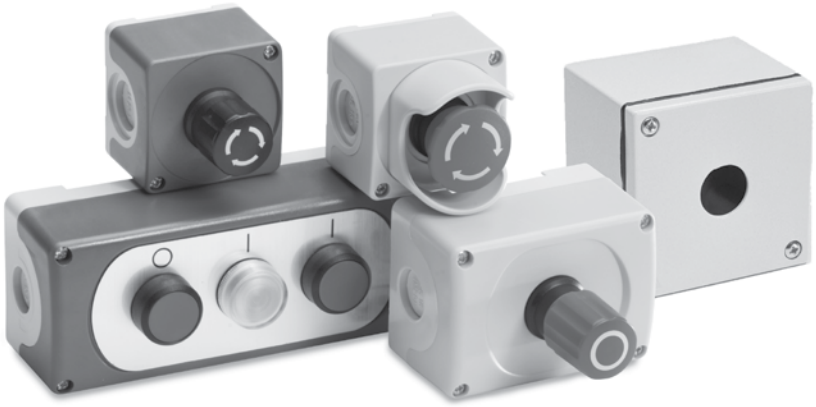
= Closed contact

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

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
UL 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
UL Type 1, 3R, 4, 4X, 12, 13

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

Spec Tech Industrial Electric www.spectechind.com 888-773-2832

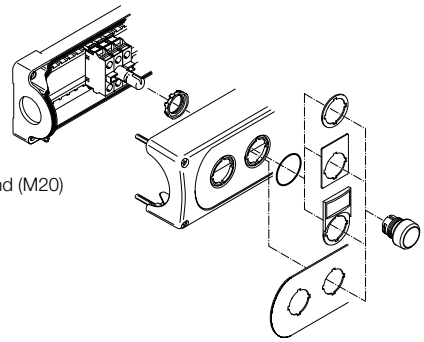
Plastic enclosures
Modular Range, 22mm

Empty enclosures
1-seat - 6-seat

Description		Catalog number	Weight oz.
Empty plastic enclosures with stainless steel screws			
1-seat	Dark grey/light grey	MEP1-0	5.3
1-seat	Yellow/light grey	MEPY1-0	5.3
2-seat	Dark grey/light grey	MEP2-0	6.0
3-seat	Dark grey/light grey	MEP3-0	7.1
4-seat	Dark grey/light grey	MEP4-0	8.1
6-seat	Dark grey/light grey	MEP6-0	11

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)



UL Listed applications: For end of line use only.

Plastic enclosures, assembled stations

1, 2 & 3 seat, 22mm
Modular range

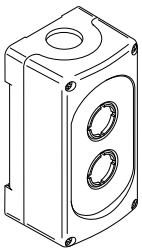
1-seat Plastic enclosures. Yellow top/light grey bottom

Description	Pos - 1	Pos - 2	Pos - 3	Pos - 4	Catalog No.
	Twist Release 40mm E	—	—	—	P1-ES
Type	Stop	—	—	—	
Color	Red	—	—	—	
Contacts	2 NC	—	—	—	
Name plate	EMERGENCY STOP	—	—	—	
	Ill. Twist Release 40mm E	—	—	—	P1-1ES
Type	40mm E-Stop	—	—	—	
Color	Red, 120V filament	—	—	—	
Contacts	2 NC, 1 LB	—	—	—	
Name plate	EMERGENCY STOP	—	—	—	

1-seat Plastic enclosure, dark grey top/light grey bottom

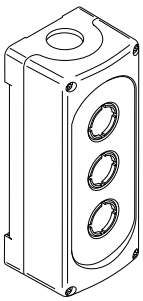
Description	Pos - 1	Pos - 2	Pos - 3	Pos - 4	Catalog No.
Type	3-pos sel. Main	—	—	—	P1-HOA
Color	Black	—	—	—	
Contacts	2 NO	—	—	—	
Name plate	HAND/OFF/AUTO	—	—	—	

2-seat Plastic enclosure, dark grey top/light grey bottom



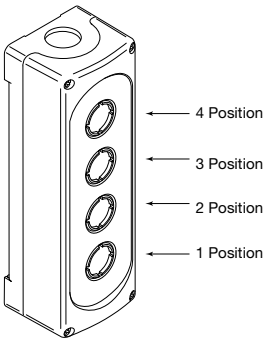
Description	Pos - 1	Pos - 2	Pos - 3	Pos - 4	Catalog No.
Type	Button mom, Ext.	Button mom, Flush	—	—	P2-SS
Color	Red	Green	—	—	
Contacts	1 NC	1 NO	—	—	
Name plate	STOP	START	—	—	
Type	3-pos sel. Main	Pilot Light	—	—	P2-1HOARL
Color	Black	Red	—	—	
Contacts	2 NO	1 LB, 120V filament	—	—	
Name plate	HAND/OFF/AUTO	RUN	—	—	
Type	2-pos sel. Main	Pilot Light	—	—	P2-100RL
Color	Black	Red	—	—	
Contacts	1 NO	1 LB, 120V filamenet	—	—	
Name plate	ON/OFF	RUN	—	—	

3-seat Plastic enclosure, dark grey top/light grey bottom



Description	Pos - 1	Pos - 2	Pos - 3	Pos - 4	Catalog No.
Type	Button mom, Ext.	Button mom, Flush	Pilot Light	—	P3-1SSRL
Color	Red	Green	Red	—	
Contacts	1 NC	1 NO	1 LB, 120V filament	—	
Name plate	STOP	START	RUN	—	
Type	3-pos sel. Main	Pilot Light	Pilot Light	—	P3-1HOARLGL
Color	Black	Red	Green	—	
Contacts	2 NO	1 LB, 120V filament	1 LB, 120V filament	—	
Name plate	HAND/OFF/AUTO	RUN	OFF	—	
Type	2-pos sel. Main	Pilot Light	Pilot Light	—	P3-1OORLGL
Color	Black	Red	Green	—	
Contacts	1 NO	1 LB, 120V filament	1 LB, 120V filament	—	
Name plate	ON/OFF	RUN	OFF	—	
Type	3-pos sel. Main	Button mom, Flush	Pilot Light	—	P3-1HOASRL
Color	Black	Green	Red	—	
Contacts	2 NO	1 NO	1 LB, 120V filament	—	
Name plate	HAND/OFF/AUTO	START	RUN	—	
Type	Twist Release 40mm E Stop	3-pos sel. Main	Pilot Light	—	P3-1ESHOARL
Color	Red	Black	Red	—	
Contacts	2 NC	2 NO	1 LB, 120V filament	—	
Name plate	EMERGENCY STOP	HAND/OFF/AUTO	RUN	—	
Type	5kOhm Pot	Stop	Start	—	MEP3-SSPOT5
Color	Black	Red	Green	—	
Contacts	Leads	1NO+1NC	1NO+1NC	—	
Name Plate	Scale	(text cap)	(text cap)	—	

Plastic enclosures, assembled stations
4 seat
Modular range



4-seat Plastic enclosure, dark grey top/light grey bottom

Description					Catalog No.
	Pos - 1	**Pos - 2**	**Pos - 3**	**Pos - 4**	
Type	Button mom., Ext.	Button mom., Flush	Pilot Light	Pilot Light	P4-1SSRLGL
Color	Red	Green	Green	Red	
Contacts	1 NC	1 NO	1 LB, 120V filament	1 LB, 120V filament	
Name plate	STOP	START	OFF	RUN	
Type	3-pos sel. Main	Button mom, Flush	Pilot Light	Pilot Light	P4-1HOASRLGL
Color	Black	Green	Green	RED	
Contacts	2 NO	1 NO	1 LB, 120V filament	1 LB, 120V filament	
Name plate	HAND/OFF/AUTO	START	OFF	RUN	
Type	3-pos sel. Main	Pilot Light	Pilot Light	Pilot Light	P4-1HOARLYLGL
Color	Black	Green	Yellow	Red	
Contacts	2 NO	1 LB, 120V filament	1 LB, 120V filament	1 LB, 120V filament	
Name plate	HAND/OFF/AUTO	OFF	FAULT	RUN	
Type	2-pos. sel. Main	Pilot Light	Pilot Light	Pilot Light	P4-1OORLYLGL
Color	Black	Green	Yellow	Red	
Contacts	1 NO	1 LB, 120V filament	1 LB, 120V filament	1 LB, 120V filament	
Name plate	ON/OFF	OFF	FAULT	RUN	
Type	Twist Release 40mm E Stop	Button mom., Ext.	Button mom., Flush	Pilot Light	P4-1ESSSRL
Color	Red	Red	Green	Red	
Contacts	2 NC	1 NC	1 NO	1 LB, 120V filament	
Name plate	EMERGENCY STOP	STOP	START	RUN	
Type	Twist Release 40mm E Stop	3-pos. sel. Main	Pilot Light	Pilot Light	P4-1ESHOARLGL
Color	Red	Black	Green	Red	
Contacts	2 NC	2 NO	1 LB, 120V filament	1 LB, 120V filament	
Name plate	EMERGENCY STOP	HAND/OFF/AUTO	OFF	RUN	
Type	Twist Release 40mm E Stop	2-pos sel. Main	Pilot Light	Pilot Light	P4-1ESOORLGL
Color	Red	Black	Green	Red	
Contacts	2 NC	1 NO	1 LB, 120V filament	1 LB, 120V filament	
Name plate	EMERGENCY STOP	ON/OFF	OFF	RUN	

Plastic enclosures
Compact Range E-Stop

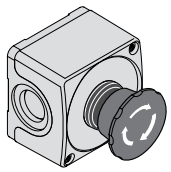
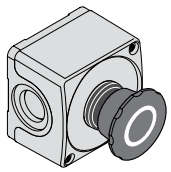
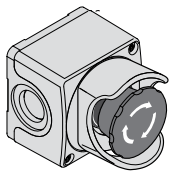
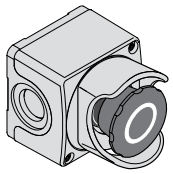
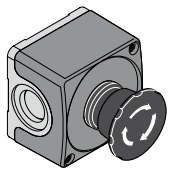
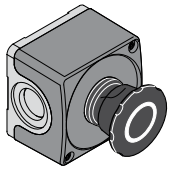
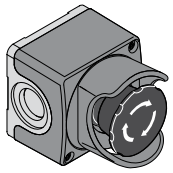
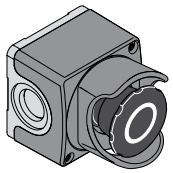
1-seat plastic enclosure for emergency stop pushbutton (yellow) and machine stops (grey)

Description	Catalog number	Weight oz.
Enclosure for emergency stop pushbutton		
Yellow/light grey	CEPY1-0	2.5
Shroud		
Yellow	CA1-8053	0.56
Enclosure for machine stop pushbutton		
Dark grey/light grey	CEP1-0	2.5
Shroud		
Grey	CA1-8054	0.56

Assembled stations - see page 7.65.

Plastic assembled stations
Compact E-Stop

Assembled 1-seat emergency stop enclosures

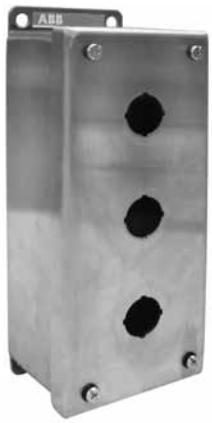
	Description	Catalog Number
	Emergency Stop Enclosure Twist release; red button 2NC	CEPY1-1001
	With aluminum legend plate	CEPY1-1001LP
	Emergency Stop Enclosure Pull release; red button 2NC	CEPY1-1002
	With aluminum legend plate	CEPY1-1002LP
	Emergency Stop Enclosure with Shroud Twist release; red button 2NC	CEPY1-2001
	Emergency Stop Enclosure with Shroud Pull release; red button 2NC	CEPY1-2002
	Machine Stop Enclosure Twist release; black button 1NO + 1NC	CEP1-1001
	Machine Stop Enclosure Pull release; black button 1NO + 1NC	CEP1-1002
	Machine Stop Enclosure with Shroud Twist release; black button 1NO + 1NC	CEP1-2001
	Machine Stop Enclosure with Shroud Pull release; black button 1NO + 1NC	CEP1-2002

Steel enclosures, empty
22mm

MEM121-0

UL Type 4 & 12, 0.075” carbon steel, ANSI-61 gray, 22mm

Description	Height	Width	Depth	Catalog Number
1-hole	3.50	3.25	2.75	MEM121-0
2-hole	5.75	3.25	2.75	MEM122-0
3-hole	8.00	3.25	2.75	MEM123-0
4-hole	10.25	3.25	2.75	MEM124-0
6-hole, 2x3	9.50	6.25	3.00	MEM126-0

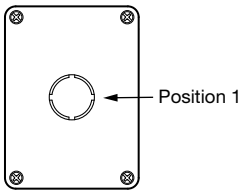

MEMX3-0

UL Type 4X, stainless steel, brushed finish, 22mm

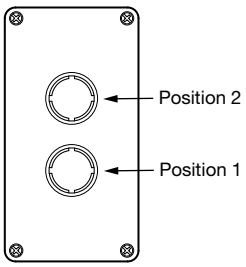
Description	Height	Width	Depth	Catalog Number
1-hole	3.50	3.25	2.75	MEMX1-0
2-hole	5.75	3.25	2.75	MEMX2-0
3-hole	8.00	3.25	2.75	MEMX3-0
4-hole	10.25	3.25	2.75	MEMX4-0
6-hole, 2x3	9.50	6.25	3.00	MEMX6-0

Steel enclosures, assembled stations

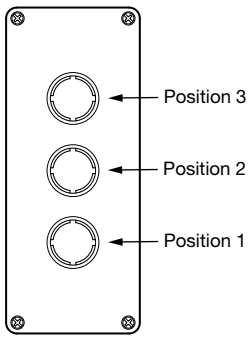
22mm



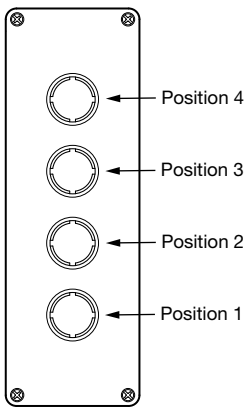
1 Position



2 Position



3 Position



4 Position

1-Seat Stations

	Pos 1	Pos 2	Pos 3	Pos 4	Type 12 Catalog Number	Type 4X Stainless Catalog Number
E-STOP						
Type	40mm Twist	-	-	-	MEM121-ES	MEMX1-ES
Color	Red	-	-	-		
Contacts	2NC	-	-	-		
Name Plate	EMER. STOP	-	-	-		
E-STOP Illuminated						
Type	40mm Twist	-	-	-	MEM121-1ES	MEMX1-1ES
Color	Red Illuminated	-	-	-		
Contacts	2NC	-	-	-		
Lamp	120V LED	-	-	-		
Name Plate	EMER. STOP	-	-	-		

2-Seat Stations

	Pos 1	Pos 2	Pos 3	Pos 4	Type 12 Catalog Number	Type 4X Stainless Catalog Number
START, STOP						
Type	Mom, extend.	Mom, flush	-	-	MEM122-SS	MEMX2-SS
Color	Red	Green	-	-		
Contacts	1NO + 1NC	1NO + 1NC	-	-		
Name Plate	STOP	START	-	-		
HOA, RUN LIGHT						
Type	3-pos, maint.	Pilot light	-	-	MEM122-1HOARL	MEMX2-1HOARL
Color	Black	Red	-	-		
Contacts	2NO	120V LED	-	-		
Name Plate	Hand O Auto	Run	-	-		

3-Seat Stations

	Pos 1	Pos 2	Pos 3	Pos 4	Type 12 Catalog Number	Type 4X Stainless Catalog Number
START, STOP, RUN LIGHT						
Type	Mom, extend.	Mom, flush	Pilot light	-	MEM123-1SSRL	MEMX3-1SSRL
Color	Red	Green	Red	-		
Contacts	1NO + 1NC	1NO + 1NC	120V LED	-		
Name Plate	STOP	START	Run	-		
START, STOP, E-STOP						
Type	40mm Twist	Mom, extend.	Mom, flush	-	MEM123-SSES	MEMX3-SSES
Color	Red	Red	Green	-		
Contacts	2NC	1NO + 1NC	1NO + 1NC	-		
Name Plate	EMER. STOP	STOP	START	-		

4-Seat Stations

	Pos 1	Pos 2	Pos 3	Pos 4	Type 12 Catalog Number	Type 4X Stainless Catalog Number
START, STOP, E-STOP, RUN LIGHT						
Type	40mm Twist	Mom, extend.	Mom, flush	Pilot light	MEM124-1ESSSRL	MEMX4-1ESSSRL
Color	Red	Red	Green	Red		
Contacts	2NC	1NO + 1NC	1NO + 1NC	120V LED		
Name Plate	EMER. STOP	STOP	START	Run		

Two position selector switches
for vertically mounted enclosures

How to order non-illuminated:

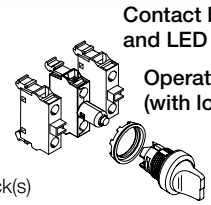
Alt.1 • **Operator**
+ Holder
+ Contact block(s)

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



NOTE: For contact blocks & LED lamp blocks, see Accessories pages 7.113 - 7.115.

Bezel - How to order

Black plastic - Standard
Chrome metal - Replace '**1**' with '**3**' in Catalog number

Bezel options	Catalog number
Black plastic	M2SSVX-**1**XX
Chrome metal	M2SSVX-**3**XX

7

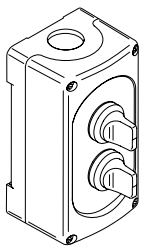
Two-position selector switch non-illuminated

Operator: Two-position Selector Switch

Description		Catalog number	Weight oz.
Short handle, non-illuminated			
Maintained			
B C	Red	M2SSV1-10R	0.53
	Black	M2SSV1-10B	0.53
Maintained			
A C	Red	M2SSV2-10R	0.53
	Black	M2SSV2-10B	0.53
Momentary, spring return from C to B			
B C	Red	M2SSV3-10R	0.53
	Black	M2SSV3-10B	0.53

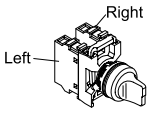
Two-position selector switch illuminated

Short handle, illuminated			
Maintained			
B C	Red	M2SSV1-11R	0.53
	Green	M2SSV1-11G	0.53
	Yellow	M2SSV1-11Y	0.53
Maintained			
A C	Red	M2SSV2-11R	0.53
	Green	M2SSV2-11G	0.53
	Yellow	M2SSV2-11Y	0.53
Momentary, spring return from C to B			
B C	Red	M2SSV3-11R	0.53
	Green	M2SSV3-11G	0.53
	Yellow	M2SSV3-11Y	0.53



Enclosure with selector switches

Contacts actuated



Handle position		Left block	Right block
B C	B	☐	☐
A C	A	☐	☐
	C	■	■

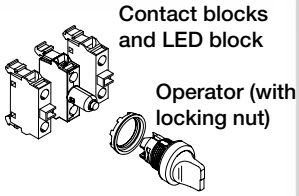
☐ Not actuated
■ Actuated

Three position selector switches
for vertically mounted enclosures

How to order:

Alt.1 • Operator
+ Contact blocks for rear mounting

Alt.2 • Operator
+ Contact blocks and lamp block for rear mounting



NOTE: For contact blocks & LED lamp blocks, see Accessories pages 7.111 - 7.113.

Bezel - How to order

Black plastic - Standard
Chrome metal - Replace '**1**' with '**3**' in Catalog number

Bezel options	Catalog number
Black Plastic	M3SSVX-**1**XX
Chrome Metal	M3SSVX-**3**XX

Three-position selector switch non-illuminated

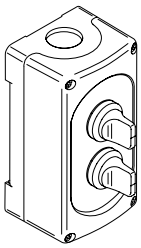
Operator: Three-position selector switch

Description		Catalog number	Weight oz.
Short Handle, non-illuminated			
Maintained			
	Red	M3SSV1-10R	0.53
	Black	M3SSV1-10B	0.53
Momentary, spring return from A to B and from C to B			
	Red	M3SSV2-10R	0.53
	Black	M3SSV2-10B	0.53
Momentary, spring return from C to B			
	Red	M3SSV3-10R	0.53
	Black	M3SSV3-10B	0.53

Three-position selector switch illuminated

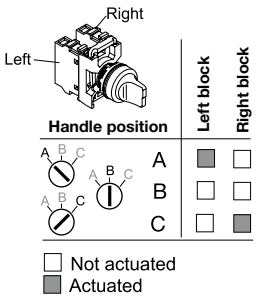
Short handle, illuminated			
Maintained			
	Red	M3SSV1-11R	0.53
	Green	M3SSV1-11G	0.53
	Yellow	M3SSV1-11Y	0.53
Momentary, spring return from A to B and from C to B			
	Red	M3SSV2-11R	0.53
	Green	M3SSV2-11G	0.53
	Yellow	M3SSV2-11Y	0.53
Momentary, spring return from C to B			
	Red	M3SSV3-11R	0.53
	Green	M3SSV3-11G	0.53
	Yellow	M3SSV3-11Y	0.53

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



Enclosure with selector switches

Contacts actuated



LED Blocks
for rear mounting

LED block with built in leakage current protection

Description	Rated Current mA	Wavelength nm	Luminance mcd	Catalog number	Weight oz.
LED blocks					
Rated voltage 12 V, DC [1]					
Red	12.0	620	320	MLBL-00BR	0.42
Green	9.3	520	1500	MLBL-00BG	0.42
Yellow	12.0	588	380	MLBL-00BY	0.42
Blue	9.5	468	450	MLBL-00BL	0.42
White	9.3	[2]	600	MLBL-00BW	0.42
Rated voltage 24 V, AC/DC [1]					
Red	9.9	620	250	MLBL-01BR	0.42
Green	9.2	520	1500	MLBL-01BG	0.42
Yellow	9.9	588	250	MLBL-01BY	0.42
Blue	9.3	468	450	MLBL-01BL	0.42
White	9.2	[2]	600	MLBL-01BW	0.42
Rated voltage 48 V, AC/DC [1]					
Red	10.0	620	260	MLBL-02BR	0.42
Green	9.7	520	1500	MLBL-02BG	0.42
Yellow	10.0	588	300	MLBL-02BY	0.42
Blue	9.7	468	450	MLBL-02BL	0.42
White	9.7	[2]	600	MLBL-02BW	0.42
Rated voltage 60 V, AC/DC [1]					
Red	13.0	620	350	MLBL-03BR	0.42
Green	12.7	520	2000	MLBL-03BG	0.42
Yellow	13.0	588	400	MLBL-03BY	0.42
Blue	12.7	468	550	MLBL-03BL	0.42
White	12.7	[2]	750	MLBL-03BW	0.42
Rated voltage 110-130 V, AC					
Red	8.6	620	200	MLBL-04BR	0.42
Green	8.5	520	1200	MLBL-04BG	0.42
Yellow	8.6	588	250	MLBL-04BY	0.42
Blue	7.0	468	400	MLBL-04BL	0.42
White	7.0	[2]	500	MLBL-04BW	0.42
Rated voltage 110-130 V, DC [1]					
Red	9.9	620	250	MLBL-05BR	0.42
Green	9.8	520	1500	MLBL-05BG	0.42
Yellow	9.9	588	300	MLBL-05BY	0.42
Blue	9.8	468	450	MLBL-05BL	0.42
White	9.8	[2]	600	MLBL-05BW	0.42
Rated voltage 220 V, DC [1]					
Red	8.0	620	180	MLBL-06BR	0.42
Green	8.0	520	110	MLBL-06BG	0.42
Yellow	8.0	588	200	MLBL-06BY	0.42
Blue	8.0	468	450	MLBL-06BL	0.42
White	8.0	[2]	600	MLBL-06BW	0.42
Rated voltage 230 V, AC					
Red	9.5	620	250	MLBL-07BR	0.42
Green	9.4	520	1500	MLBL-07BG	0.42
Yellow	9.5	588	300	MLBL-07BY	0.42
Blue	8.2	468	450	MLBL-07BL	0.42
White	8.2	[2]	600	MLBL-07BW	0.42

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.

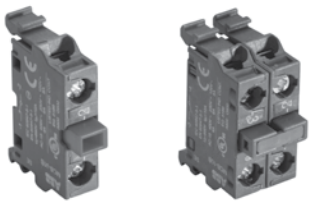
LED Blocks
for rear mounting

LED block with built in leakage current protection

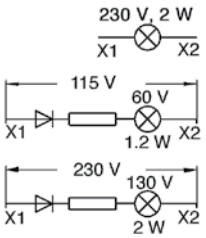
Description	Rated current mA	Wavelength nm	Luminance mcd	Catalog number	Weight oz.
Cont. LED blocks					
Rated voltage 380 V, AC					
Red	10.2	620	250	MLBL-08BR	0.42
Green	10.2	520	1500	MLBL-08BG	0.42
Yellow	10.2	582	300	MLBL-08BY	0.42
Blue	9.1	468	450	MLBL-08BL	0.42
White	9.1	[2]	600	MLBL-08BW	0.42
Rated voltage 415 V, AC					
Red	11.2	620	280	MLBL-09BR	0.42
Green	11.2	520	1800	MLBL-09BG	0.42
Yellow	11.2	588	350	MLBL-09BY	0.42
Blue	9.9	468	500	MLBL-09BL	0.42
White	9.9	[2]	650	MLBL-09BW	0.42

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

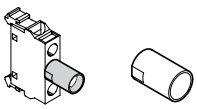
Accessories
for plastic enclosures



Contact block Double contact block



Lamp blocks



Protective sleeve

Cable gland

Sealing ring

Blanking plugs

Description	Catalog number	Weight oz.
Contact block for rear mounting		
1NO	MCB-10B	0.46
1NC	MCB-01B	0.46
Double contact block		
2NO	MCB-20B	0.92
2NC	MCB-02B	0.92
1NO+1NC	MCB-11B	0.92
Contact block with gold plated contacts		
1NO	MCB-10BG	0.46
1NC	MCB-01BG	0.46
Lamp block for rear mounting		
For max. 2 W, 230 V AC and DC Filament Bulb or LED	MLB-1B	0.53
115 V AC supply voltage. For 60 V Filament Bulb 1.2 W	MLB-2B	0.60
230 V AC supply voltage. For 130 V Filament Bulb 2 W	MLB-3B	0.71
Protective sleeve		
Protective sleeve	5396 0543-1	0.071

Note: To make a rear mounted lamp block screen protected. IP20 (Not together with illuminated selector switch)

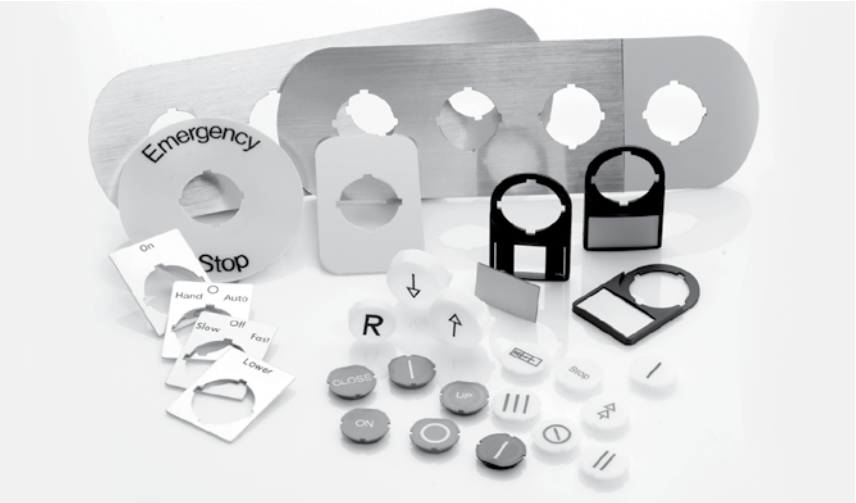
Cable gland		
Grey plastic. Threaded outer sleeve sealing ring included.		
M25	MA5-3001	0.53
M20	MA5-3002	0.53
PG 13.5	MA5-3006	0.35
PG 16	MA5-3007	0.53
Nut		
Grey plastic. For cable gland above.		
M25	MA5-3003	0.18
M20	MA5-3004	0.18
PG 13.5	MA5-3008	0.035
PG 16	MA5-3009	0.035
Earthing Terminal		
For Plastic Enclosure.	MA5-3005	0.18
Sealing ring		
For plastic enclosure.	MA1-8150	0.035
Spacer		
1 mm thick. Needed when legend plates are not used in plastic enclosures.		
Spacer	SK 615 516-1	0.071
Spacer for modular emergency stop pushbutton	KA1-8045	0.14
Blanking plug		
Grey, 22mm	MA1-8129	0.18
Black, 22mm	MA1-8130	0.18
Black, 30mm	MA1-8133	0.18
Light grey, 22mm	MA1-8136	0.18
Adaptor		
PG 16/M20	MA5-3010	0.35

Spec Tech Industrial Electric www.spectechind.com 888-773-2832

Notes

Spec Tech Industrial Electric www.spectechind.com 888-773-2832

Legend plates
22mm



Fixed legend plates
- Of silvergrey annodized aluminum for:
  – pushbuttons
  – two-position selector switches
  – three-position selector switches
  – toggle switches
  – customer selected text

Special legend plates
- For emergency stop pushbuttons
- Legend plate with or without customer selected text
- Legend plate holders with inserts of annodized brushed aluminum with or without text or symbol for:
  – pushbuttons
  – two-position selector switch
  – three position selector switch
  – customer selected text

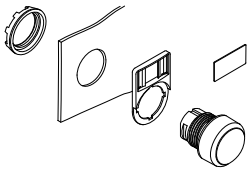
  For plastic enclosures:
- Legend plate holders with inserts of annodized brushed aluminum on black plastic.
  With or without text or symbol for push-buttons
- Legend plates of silvergrey annodized aluminum. For 1- 2-, 3- 4- or 6-seat plastic enclosures

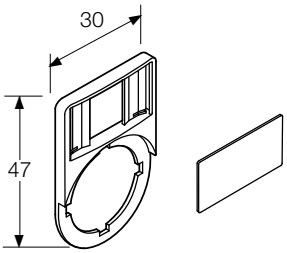
Spec Tech Industrial Electric www.spectechind.com 888-773-2832

Special legend plates
22mm

Legend plate holders with inserts
- Holder of black plastic.
- Holder of grey plastic for plastic enclosures.
- Insert of brushed aluminum on black plastic.

The insert is securely retained in a pocket and can be removed.
3 mm high text in typeface Helvetica.





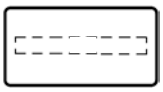
Legend plate holder (black) for panel mounting

Description	Catalog number
Black	1SFA616920R8120

Inserts

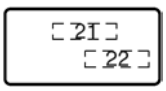
Description	Catalog number
Of brushed aluminum on black plastic	
Without text or symbol	1SFA616920R8121

Inserts with text/symbol



Description	Catalog number
Of brushed aluminum on black plastic	
With text or symbol	
O	1SFA611930R1032
I	1SFA611930R1033
→	1SFA611930R1034
→→	1SFA611930R1035
Close	1SFA611930R1036
Open	1SFA611930R1037
On	1SFA611930R1038
Off	1SFA611930R1039
Fast	1SFA611930R1040
Slow	1SFA611930R1041
Down	1SFA611930R1042
Up	1SFA611930R1043
Start	1SFA611930R1044
Stop	1SFA611930R1045

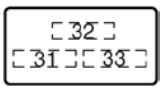
Inserts for two-position selector switches
Of brushed aluminum on black plastic. Text on both sides.



For two-position. selector switch

Description		Catalog number
With text or symbol		
Pos. 21	Pos. 22	
O	I	1SFA611930R1070
I	II	1SFA611930R1071
→	→→	1SFA611930R1072
Off	On	1SFA611930R1073
Stop	Start	1SFA611930R1074
Low	High	1SFA611930R1075
Slow	Fast	1SFA611930R1076
Close	Open	1SFA611930R1077
Jog	Run	1SFA611930R1078
Hand	Auto	1SFA611930R1079

Special legend plates
22mm

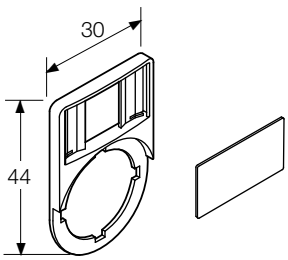


For three-position selector switch

Inserts for three-position selector switches

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

Description			Catalog number
With text or symbol			
Pos. 31	Pos. 32	Pos. 33	
←	O	→	1SFA611930R1080
→	O	→→	1SFA611930R1081
I	O	II	1SFA611930R1082
Hand	O	Auto	1SFA611930R1083
Slow	Off	Fast	1SFA611930R1084



Legend plate holder (grey) for plastic enclosures

Description	Catalog number
Grey	1SFA611930R1060

Inserts

Description	Catalog number
Of brushed aluminum on black plastic Without text or symbol	1SFA611930R1061

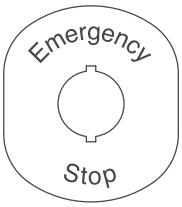
Inserts with text/symbol

Description	Catalog number
Of brushed aluminum on black plastic	
With text or symbol	
O	1SFA611930R1062
I	1SFA611930R1063
II	1SFA611930R1064

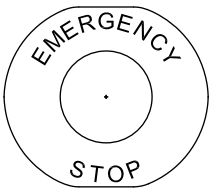
Special legend plates
Emergency stops
22mm

SK 615 546-2

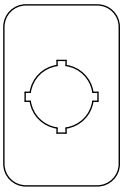
CA6-1026



MA6-1101



ELP22-1101


1SFA 611 930 R1011

Emergency stop legend plates, 70mm, for modular enclosures ①

Description/Text	Catalog number
Black text on a yellow aluminum plate. Emergency Stop Without text	 SK 615 546-2 SK 615 546-8
Black text on a yellow plastic plate. Can be used as yellow background. Emergency Stop	 1SFA616915R1005

Emergency stop legend plates, 60mm, for Compact enclosures

Description/Text	Catalog number
Legend plate, yellow aluminum, 60mm	CA6-1026

Emergency stop legend plates for Modular enclosures

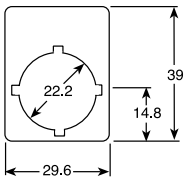
Description/Text	Catalog number
For horizontally mounted enclosures with yellow plastic/black text	MA6-1026
UL Type 3/3R, 4, 4X, 12 For horizontally mounted enclosures with yellow plastic/black text	ELP22-1101
For vertically mounted enclosures with yellow plastic/black text	MA6-1101

Emergency stop legend plate

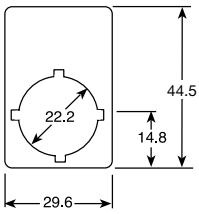
Description/Text	Catalog number
Black text on a yellow aluminum plate. Legend plate without text Legend plate (1SFA 611 930 R1010) with text: Emergency Stop	 1SFA611930R1010 1SFA611930R1019
Black text on a yellow plastic plate. Legend plate without text Legend plate (1SFA 611 930 R1011) with text: Emergency Stop	 1SFA611930R1011 1SFA611930R1023

① Does not work with pushbutton enclosure.
② Quantity per package: 10.
③ When ordering, please state text and position (Line 21 and Line 22). Only the initial character is upper case unless other is stated. Quantity per package: 1.

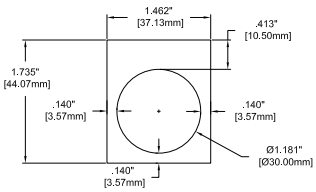
Legend plates for pushbuttons
22mm



39mm



44.5mm



44.07mm

22mm Blank fixed legend plates

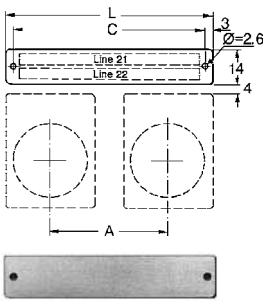
Of silvergrey aluminum

Size	Catalog number
39mm H	SK 615 540-1
44.5mm H	SK 615 541-1
44.07 mm H (UL Type 3/3R, 4, 4X & 12)	LP22-2000

22mm Engraved fixed legend plates, with text ①

Of silvergrey aluminum

Text	Catalog number
English	
Close	SK 615 552-13
Down	SK 615 552-14
Emergency stop	SK 615 552-15
Fast	SK 615 552-16
Forward	SK 615 552-17
In	SK 615 550-29
Inching	SK 615 552-18
Jog	SK 615 552-JO
Left	SK 615 552-39
Lower	SK 615 552-20
Off	SK 615 552-21
On	SK 615 552-22
Open	SK 615 552-23
Out	SK 615 552-24
Raise	SK 615 552-25
Reset	SK 615 552-27
Reverse	SK 615 552-28
Right	SK 615 552-40
Run	SK 615 552-29
Slow	SK 615 552-30
Start	SK 615 550-44
Stop	SK 615 552-31
Up	SK 615 552-32



Legend plates without or with customer-selected text

Of aluminum

Number of operations	Max number of characters per line	Dimensions A	L	C	Without text Catalog number
1	7	-	29.6	23.6	SK 615 545-1
2	20	30.5	60	54	SK 615 545-2
2	24	40	70	64	SK 615 545-3
3	33	30.5	90	84	SK 615 545-4
3	42	40	110	104	SK 615 545-5

① Text height 3 mm.

Engraved legend plate form

Special legend plates
22mm

ENGRAVED LEGEND PLATE FORM PAGE: ____ OF: ____

ORDER DATE: _____ ORDER NUMBER: _____

ISSUED BY: _____ ORDER QTY: _____

ALL CAPITALS? YES NO SHIPPING METHOD: _____

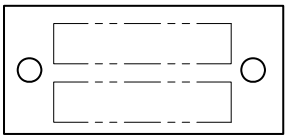
REMARKS: _____ DUE DATE: _____ - _____ - _____

To be completed by ABB personnel:

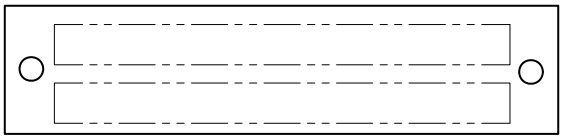
ENGRAVER: _____ Q.C. INSPECTION: _____

PRINT INFORMATION TO BE ENGRAVED

MAX 7 CHARAC-TERS PER LINE

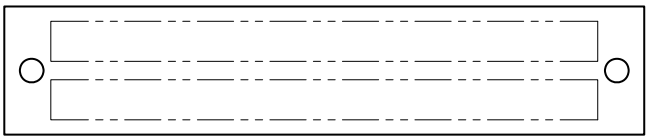


SK 615 545-1



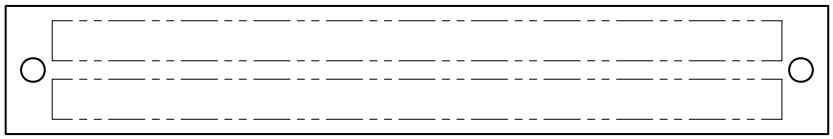
SK 615 545-2

MAXIMUM OF 20 CHARACTERS PER LINE



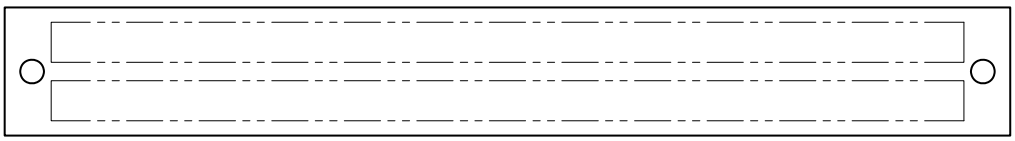
SK 615 545-3

MAXIMUM OF 24 CHARACTERS PER LINE



SK 615 545-4

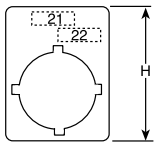
MAXIMUM OF 33 CHARACTERS PER LINE



SK 615 545-5

MAXIMUM OF 44 CHARACTERS PER LINE

Legend plates for two position selector switches 22mm



H = 39 mm

Engraved fixed legend plates, with symbols ①

Of silvergrey aluminum

Symbol/Text Pos 21	Pos. 22	Catalog number
O	I	SK 615 550-75
I	II	SK 615 550-76
→	→→	SK 615 562-72

Engraved fixed legend plates, with text ①

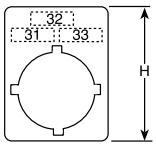
Of silvergrey aluminum

Symbol/Text Pos 21	Pos. 22	Catalog number
English		
Hand	Auto	SK 615 550-71
Jog	Run	SK 615 552-52
Off	On	SK 615 552-53
Stop	Start	SK 615 552-55

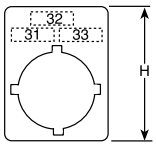
7

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

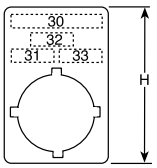
Legend plates for three position selector switches 22mm



H = 39 mm



H = 39 mm



H = 44.5 mm

Engraved fixed legend plates, with symbols ①

Of silvergrey aluminum

Symbol/Text Pos 31	Pos. 32	Pos. 33	Catalog number
I	O	II	SK 615 550-81
←	O	→	SK 615 562-82
→	O	→→	SK 615 562-83

Engraved fixed legend plates, with text ①

Of silvergrey aluminum

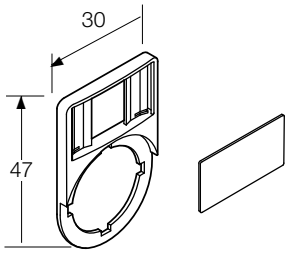
Symbol/Text Pos 31	Pos. 32	Pos. 33	Catalog number
English			
Hand	O	Auto	SK 615 550-80
Slow	Off	Fast	SK 615 552-60

Aluminum name plate blank (annodized silvergray aluminum)

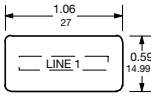
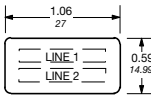
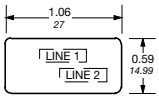
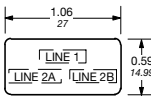
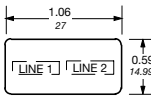
Blank	39mm	SK 615 540-1
	44.5mm	SK 615 541-1

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

Custom engraved inserts
for legend plate holders
22mm



Nameplate Inserts — Brushed aluminum

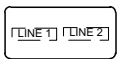
Type	Maximum letters per line	Catalog number
 1 line	11	MP-NP19-01
 2 lines	11	MP-NP19-02
 2 position selector switch	5	MP-NP19-03
 3 position selector switch	5	MP-NP19-04
 2 position selector switch	5	MP-NP19-05

General specifications

1. All characters are 1/8" high, upper & lower case. Please specify if all capital letters are desired.
2. The legend plate inserts and the fixed legend plates are silver-grey anodized aluminum.
3. All special engravings involve engraving the desired lettering into the metal surface and then treating the engraved surfaces with black ink.

EXAMPLE:

MP-NP19-05
1: FWD
2: REV



"MP-NP19" is the blank legend plate catalog number. "-05" refers to the layout of text (see dimension illustrations).

Legend Plate order form

Use legend plate order form on next page.

Engraved legend plate form

Custom engraved nameplates
22mm

ENGRAVED LEGEND PLATE FORM
MP-NP19

PAGE: _____ OF: _____

MP-NP19- ___ ___ (BRUSHED ALUMINUM)

ORIG. DATE: _____

ISSUED BY: _____

ALL CAPITALS? YES NO

REMARKS: _____

ORDER NUMBER: _____

ORDER: QTY: _____

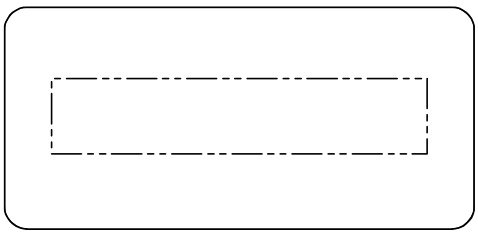
SHIPPING METHOD: _____

DUE DATE: _____ – _____ – _____

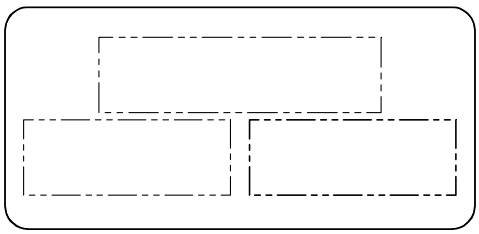
ENGRAVER: _____

Q.C. INSPECTION: _____

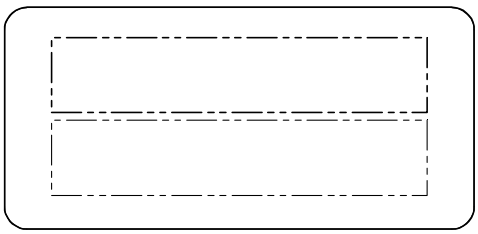
PRINT INFORMATION TO BE ENGRAVED



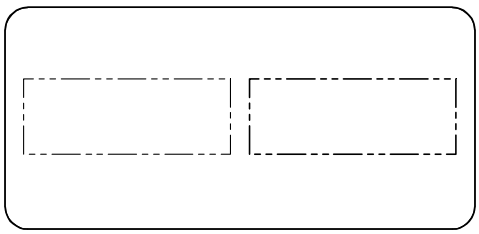
-01



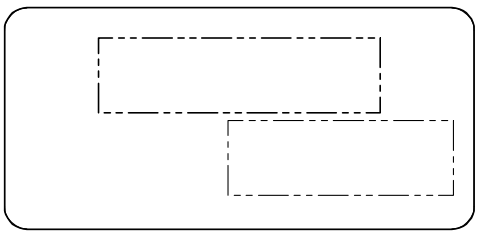
-04



-02



-05

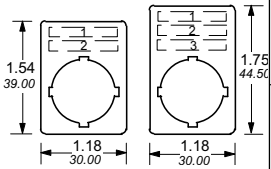
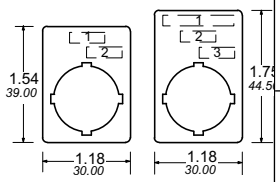
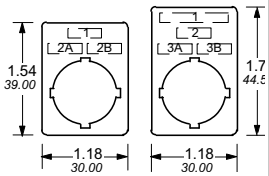
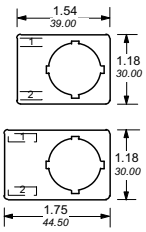
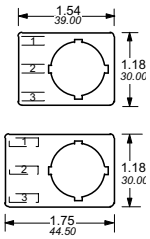


-03

MP-NP19: REV. A
03/04/05

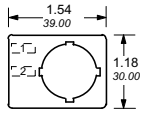
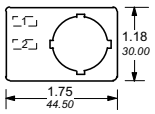
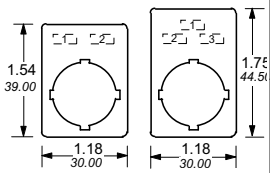
Custom engraved nameplates
22mm

Fixed nameplates — aluminum ①

Type	Maximum letters per line	Catalog number
 Pushbuttons or pilot lights	11 39mm	MP-NPE28-01
	11 44.5mm	MP-NPE29-01
 2 Position selector switches	5 39mm	MP-NPE28-02
	11 (line 1) 5 (line 2) 5 (line 3) 44.5mm	MP-NPE29-02
 3 Position selector switches	5 39mm	MP-NPE28-03
	11 (line 1) 5 (line 2) 5 (line 3A) 5 (line 3B) 44.5mm	MP-NPE29-03
 2 Position toggle switches	4 39mm	MP-NPE28-04
	5 44.5mm	MP-NPE29-04
 3 Position toggle switches	39mm	MP-NPE28-05
	44.5mm	MP-NPE29-05

CBK-NPE28-02

Fixed nameplates — aluminum ①

Type	Maximum letters per line	Catalog number
	11 39mm	MP-NPE28-06
 Pushbuttons or pilot lights	11 44.5mm	MP-NPE29-06
 2 Position selector switches	5 39mm	MP-NPE28-07
	11 (line 1) 5 (line 2) 5 (line 3) 44.5mm	MP-NPE29-07

General specifications

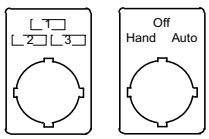
1. All characters are 1/8" high, upper & lower case. Please specify if all capital letters are desired.
2. The legend plate inserts and the fixed legend plates are silver-grey anodized aluminum.
3. All special engravings involve engraving the desired lettering into the metal surface and then treating the engraved surfaces with black ink.

Ordering custom engraved nameplates — USE ORDER FORM FROM FOLLOWING PAGES

1. Select the desired legend plate.
2. Indicate the catalog number.
3. Write the desired words to be engraved on each line.

EXAMPLE:

MP-NPE28P-03
1: OFF
2: HAND
3: AUTO



① For drilling plans, see page 7.74.

Engraved legend plate form

Custom engraved nameplates
22mm

ENGRAVED LEGEND PLATE FORM

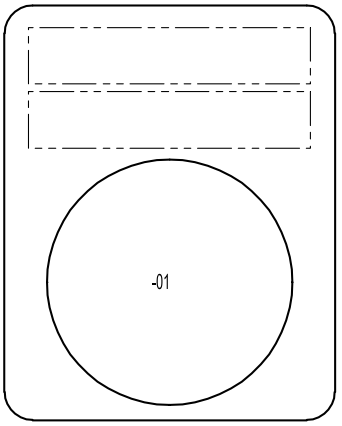
MP-NPE28

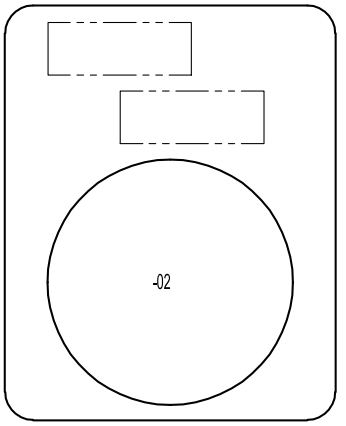
PAGE:____OF:_____

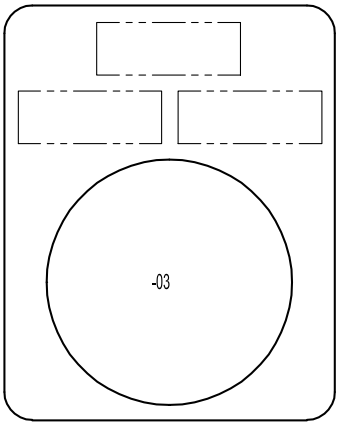
MP-NPE28-___ ___ (BRUSHED ALUMNINUM)
ORIG. DATE:_____
ISSUED BY:_____
ALL CAPITALS? YES NO
REMARKS:_____

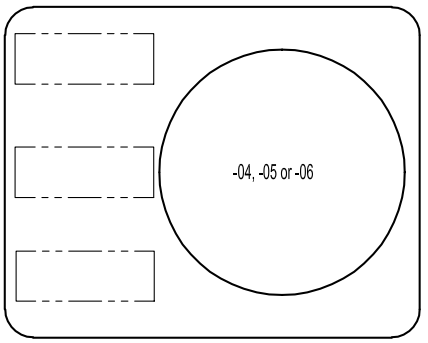
ORDER NUMBER:_____
ORDER: QTY:_____
SHIPPING METHOD:_____
DUE DATE:____ - ____ - ___
ENGRAVER: _____
Q.C. INSPECTION:_____

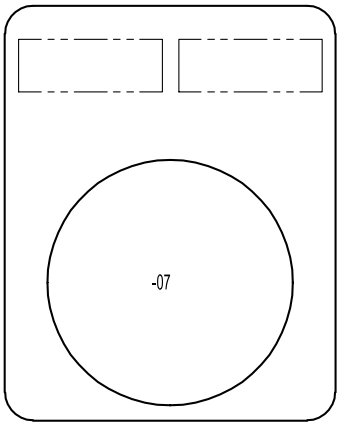
PRINT INFORMATION TO BE ENGRAVED











MP-NPE28
5/26/04

Engraved legend plate form

Custom engraved nameplates
22mm

ENGRAVED LEGEND PLATE FORM

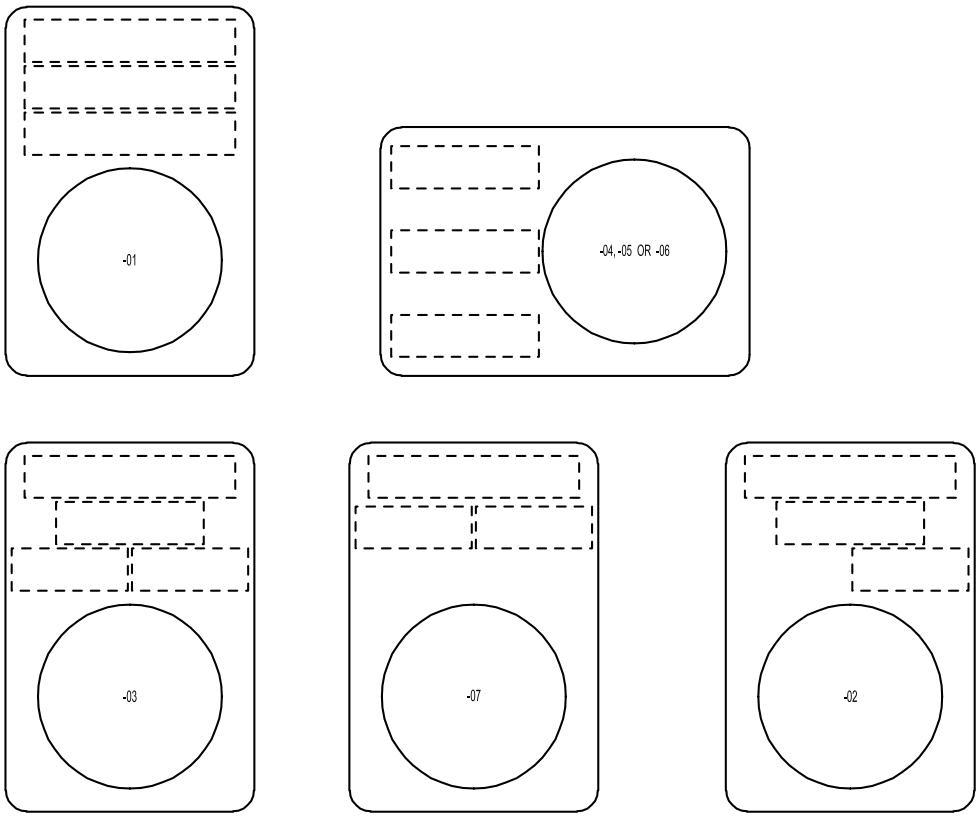
MP-NPE29

PAGE:____OF:_____

MP-NPE29- ___ ___ (BRUSHED ALUMNINUM)
ORIG. DATE:_____
ISSUED BY:_____
ALL CAPITALS? YES NO
REMARKS:_____

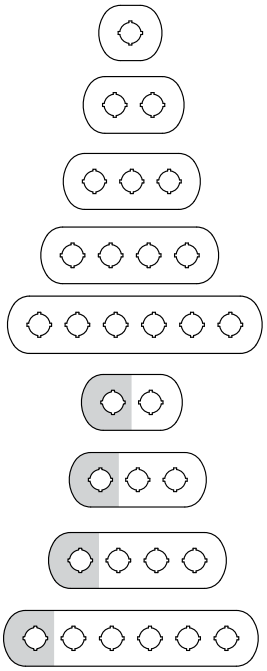
ORDER NUMBER:_____
ORDER: QTY:_____
SHIPPING METHOD:_____
DUE DATE:____ - ____ - ___
ENGRAVER: _____
Q.C. INSPECTION:_____

PRINT INFORMATION TO BE ENGRAVED



MP-NPE29
6/10/04

Special legend plates
for plastic enclosures
22mm



Legend plates for plastic enclosures
For 1, 2, 3, 4 or 6-seat

Description	Catalog number
Of silvergrey aluminum on plastic.	
1-seat	1SFA611930R1000
2-seat	1SFA611930R1002
3-seat	1SFA611930R1003
4-seat	1SFA611930R1004
6-seat	1SFA611930R1005
Of silvergrey aluminum on plastic. (Pos. 1 Yellow)	
2-seat	1SFA611930R1006
3-seat	1SFA611930R1007
4-seat	1SFA611930R1008
6-seat	1SFA611930R1009

Custom engraved legend plates for plastic enclosures
For 1, 2, 3, 4 or 6-seat

Fill in appropriate templates on the following pages when ordering

Description	Name Plate	Catalog number
Custom engraved 1-seat	1SFA 611 930 R1000	CUSTOM 1 SEAT
Custom engraved 2-seat	1SFA 611 930 R1002	CUSTOM 2 SEAT
Custom engraved 3-seat	1SFA 611 930 R1003	CUSTOM 3 SEAT
Custom engraved 4-seat	1SFA 611 930 R1004	CUSTOM 4 SEAT
Custom engraved 6-seat	1SFA 611 930 R1005	CUSTOM 6 SEAT
Custom engraved 2-seat, position 1 yellow	1SFA 611 930 R1006	CUSTOM 2 SEAT Y
Custom engraved 3-seat, position 1 yellow	1SFA 611 930 R1007	CUSTOM 3 SEAT Y
Custom engraved 4-seat, position 1 yellow	1SFA 611 930 R1008	CUSTOM 4 SEAT Y
Custom engraved 6-seat, position 1 yellow	1SFA 611 930 R1009	CUSTOM 6 SEAT Y

Engraved legend plate form

Custom engraved nameplates
1-Seat, vertical, 22mm

ENGRAVED LEGEND PLATE FORM

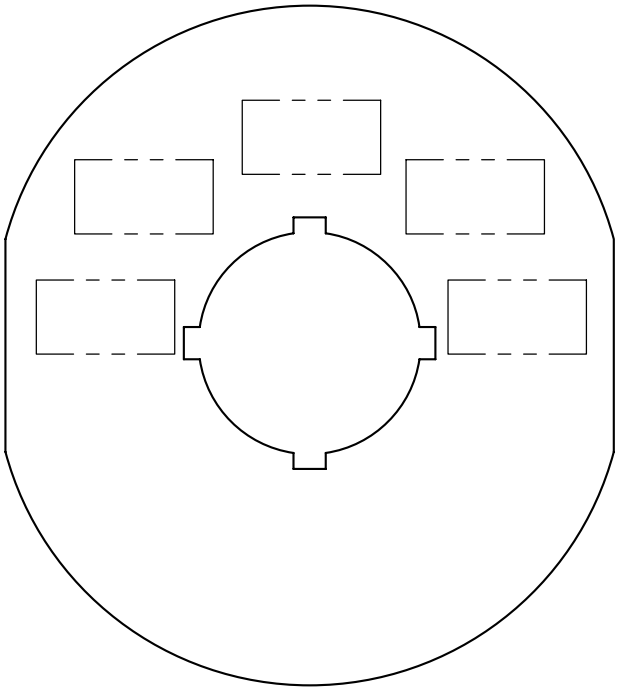
PAGE ____ of _____

CUSTOM 1 SEAT
(silver-grey brushed plastic)

ORDER NUMBER : _____ ORDER QTY: _____
SHIPPING METHOD _____ DUE DATE: _____ / _____ / _____
ALL CAPITALS? YES NO
ORDER DATE: _____ ISSUED BY
REMARKS: _____ _____

To be completed by ABB personnel.
ENGRAVER _____ Q.C. INSPECTION:
_____ _____

PRINT INFORMATION TO BE ENGRAVED:



Engraved legend plate form

Custom engraved nameplates
1-Seat, horizontal, 22mm

ENGRAVED LEGEND PLATE FORM

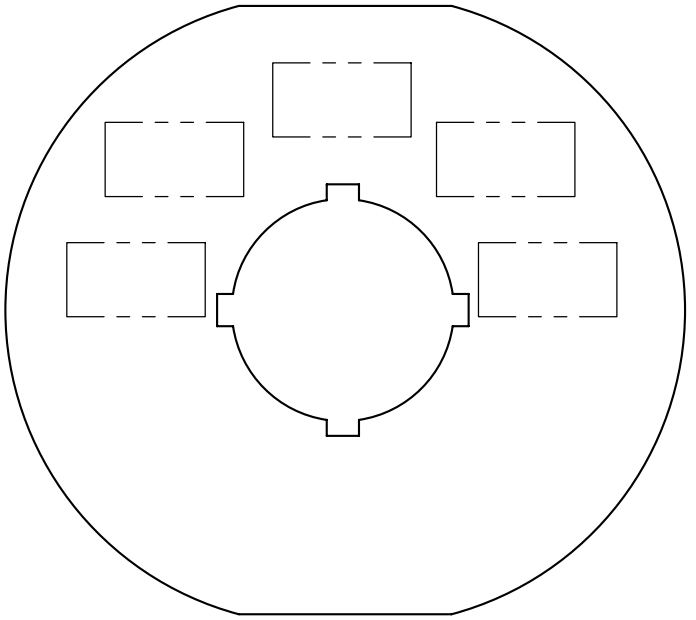
PAGE ____ of _____

CUSTOM 1 SEAT
(silver-grey brushed plastic)

ORDER NUMBER : _____ ORDER QTY: _____
SHIPPING METHOD _____ DUE DATE: _____ / _____ / _____
ALL CAPITALS? YES NO
ORDER DATE: _____ ISSUED BY
REMARKS : _____ _____

To be completed by ABB personnel.
ENGRAVER _____ Q.C. INSPECTION:
_____ _____

PRINT INFORMATION TO BE ENGRAVED:



Engraved legend plate form

Custom engraved nameplates
2-Seat, vertical, 22mm

ENGRAVED LEGEND PLATE FORM

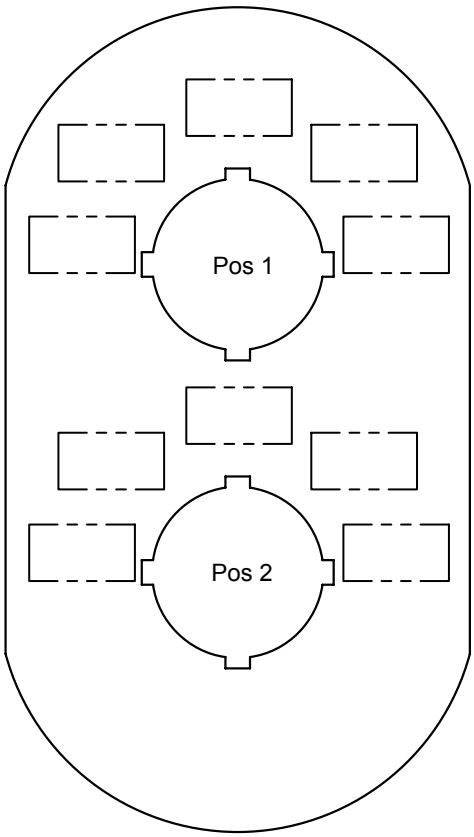
PAGE ____ of _____

CIRCLE ONE: CUSTOM 2 SEAT (silver-grey aluminum) CUSTOM 2 SEAT Y (position 1 yellow)

ORDER NUMBER : _____ ORDER QTY: _____
SHIPPING METHOD _____ DUE DATE: _____ / _____ / _____
ALL CAPITALS? YES NO
ORDER DATE: _____ ISSUED BY
REMARKS: _____ _____

To be completed by ABB personnel.
ENGRAVER _____ Q.C. INSPECTION:
_____ _____

PRINT INFORMATION TO BE ENGRAVED:



Engraved legend plate form

Custom engraved nameplates
3-Seat, vertical, 22mm

ENGRAVED LEGEND PLATE FORM

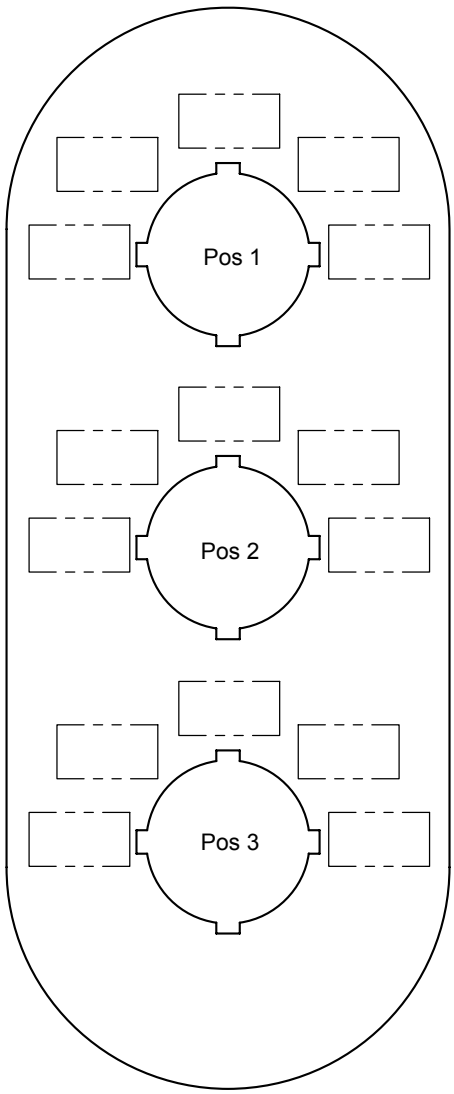
PAGE ____ of _____

CIRCLE ONE: CUSTOM 3 SEAT (silver-grey aluminum) CUSTOM 3 SEAT Y (position 1 yellow)

ORDER NUMBER : _____ ORDER QTY: _____
SHIPPING METHOD _____ DUE DATE: _____ / _____ / _____
ALL CAPITALS? YES NO
ORDER DATE: _____ ISSUED BY
REMARKS: _____ _____

To be completed by ABB personnel.
ENGRAVER _____ Q.C. INSPECTION:
_____ _____

PRINT INFORMATION TO BE ENGRAVED:



Engraved legend plate form

Custom engraved nameplates
4-Seat, vertical, 22mm

ENGRAVED LEGEND PLATE FORM

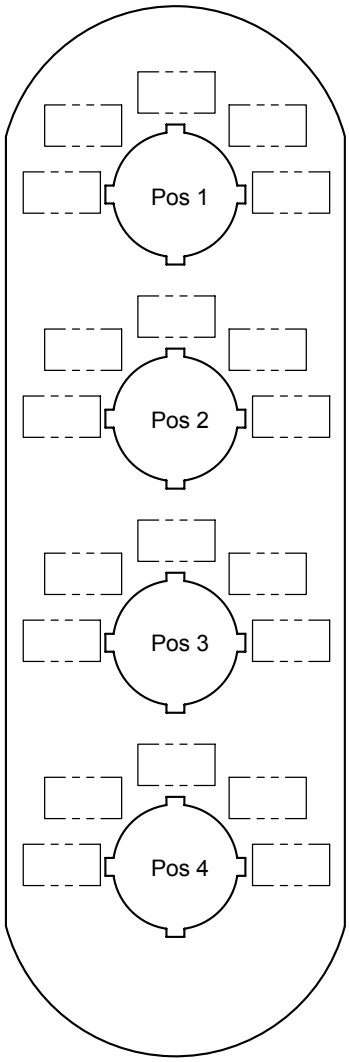
PAGE ____ of _____

CIRCLE ONE: CUSTOM 4 SEAT (silver-grey aluminum) CUSTOM 4 SEAT Y (position 1 yellow)

ORDER NUMBER : _____ ORDER QTY: _____
SHIPPING METHOD _____ DUE DATE: _____ / _____ / _____
ALL CAPITALS? YES NO
ORDER DATE: _____ ISSUED BY
REMARKS: _____ _____

To be completed by ABB personnel
ENGRAVER _____ Q.C. INSPECTION: _____
_____

PRINT INFORMATION TO BE ENGRAVED:



Engraved legend plate form

Custom engraved nameplates
6-Seat, vertical, 22mm

ENGRAVED LEGEND PLATE FORM

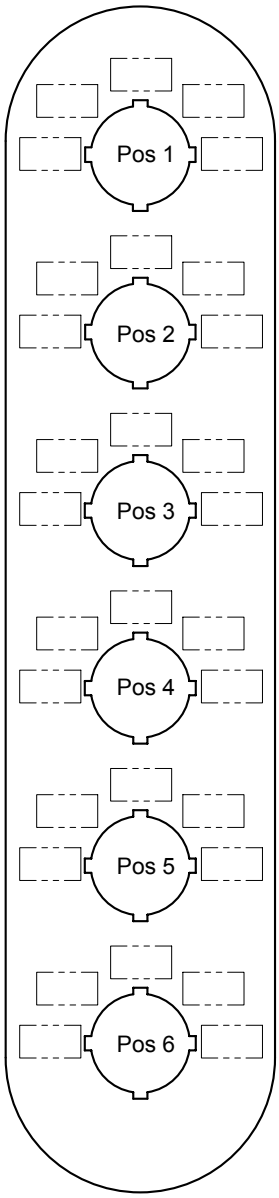
PAGE ____ of _____

CIRCLE ONE: CUSTOM 6 SEAT (silver-grey aluminum) CUSTOM 6 SEAT Y (position 1 yellow)

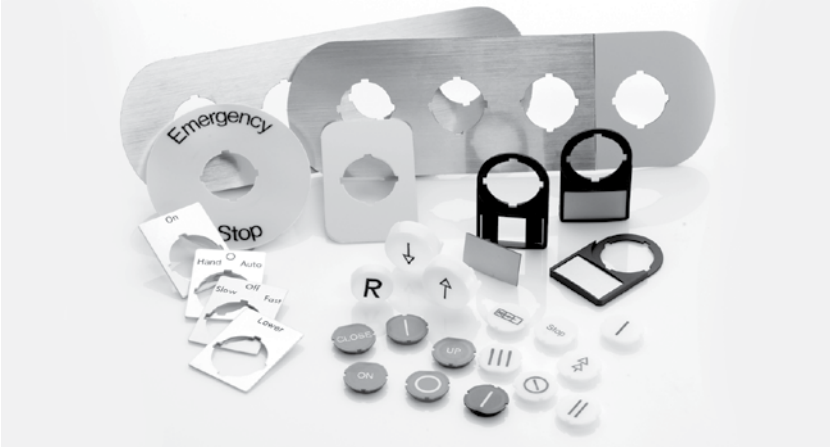
ORDER NUMBER : _____ ORDER QTY: _____
SHIPPING METHOD _____ DUE DATE: _____ / _____ / _____
ALL CAPITALS? YES NO
ORDER DATE: _____ ISSUED BY
REMARKS: _____ _____

To be completed by ABB personnel.
ENGRAVER _____ Q.C. INSPECTION:
_____ _____

PRINT INFORMATION TO BE ENGRAVED:



Legend plates
30mm

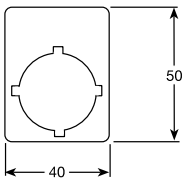


Custom legend plates
- Legend plate with customer selected text

Legend plates
30mm

Spec Tech Industrial Electric www.spectechind.com 888-773-2832

Legend plates for pushbuttons
30mm

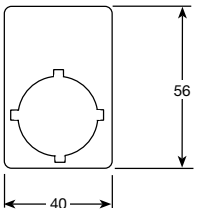


40mm

Blank fixed legend plates

Of silvergrey aluminum

Size	Catalog Number
50mm H	SK 615 640-1
56mm H	SK 615 641-1



40mm

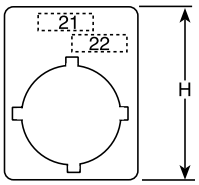
Engraved fixed legend plates, with text ①

Of silvergrey aluminum, 50mm H

Text	Catalog Number
English	
Close	SK 615 652-13
Down	SK 615 652-14
Emergency stop	SK 615 652-15
Fast	SK 615 652-16
Forward	SK 615 652-17
In	SK 615 650-29
Inching	SK 615 652-18
Jog	SK 615 652-JO
Left	SK 615 652-39
Lower	SK 615 652-20
Off	SK 615 652-21
On	SK 615 652-22
Open	SK 615 652-23
Out	SK 615 652-24
Raise	SK 615 652-25
Reset	SK 615 652-27
Reverse	SK 615 652-28
Right	SK 615 652-40
Run	SK 615 652-29
Slow	SK 615 652-30
Start	SK 615 652-44
Stop	SK 615 652-31
Up	SK 615 652-32

① Text height 3 mm.

Legend plates for selector switches
30mm

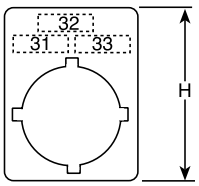


Two positions

Engraved fixed legend plates, with text ①

Of silvergrey aluminum, 50mm H

Symbol/Text Pos 21	Pos. 22	Catalog Number
English		
Fwd	Rev	SK 615 652-FR
Hand	Auto	SK 615 652-71
Jog	Run	SK 615 652-52
Off	On	SK 615 652-53
Stop	Start	SK 615 652-55



Three positions

Engraved fixed legend plates, with text ①

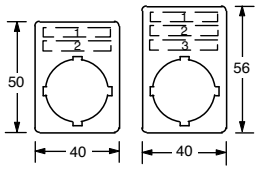
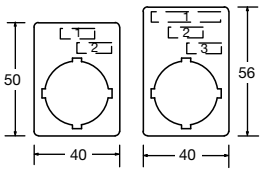
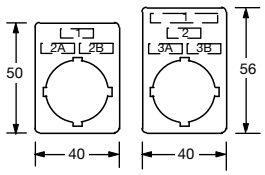
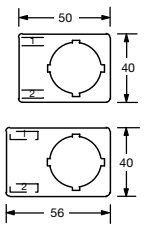
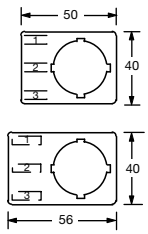
Of silvergrey aluminum, 50mm H

Symbol/Text Pos 31	Pos. 32	Pos. 33	Catalog Number
English			
Hand	O	Auto	SK 615 652-80
Slow	Off	Fast	SK 615 652-60

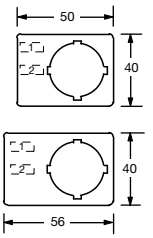
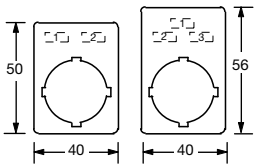
① Text height 3 mm. Only the initial character is upper case unless other is stated.

Custom engraved legend plates
30mm

Fixed nameplates — aluminum

Type	Maximum letters per line	Catalog number
 Pushbuttons or pilot lights	11 50mm	G1MP-NPE28-01
	11 56mm	G1MP-NPE29-01
 2 Position selector switches	5 50mm	G1MP-NPE28-02
	11 (line 1) 5 (line 2) 5 (line 3) 56mm	G1MP-NPE29-02
 3 Position selector switches	5 50mm	G1MP-NPE28-03
	11 (line 1) 5 (line 2) 5 (line 3A) 5 (line 3B) 56mm	G1MP-NPE29-03
 2 Position toggle switches	4 50mm	G1MP-NPE28-04
	5 56mm	G1MP-NPE29-04
 3 Position toggle switches	50mm	G1MP-NPE28-05
	56mm	G1MP-NPE29-05

Fixed nameplates — aluminum

Type	Maximum letters per line	Catalog number
 Pushbuttons or pilot lights	11 50mm	G1MP-NPE28-06
	11 56mm	G1MP-NPE29-06
 2 Position selector switches	5 50mm	G1MP-NPE28-07
	11 (line 1) 5 (line 2) 5 (line 3) 56mm	G1MP-NPE29-07

General specifications

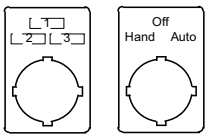
1. All characters are 1/8" high, upper & lower case. Please specify if all capital letters are desired.
2. The legend plate inserts and the fixed legend plates are silver-grey anodized aluminum.
3. All special engravings involve engraving the desired lettering into the metal surface and then treating the engraved surfaces with black ink.

Ordering custom engraved nameplates

1. Select the desired legend plate.
2. Use following pages to order.
3. Indicate the catalog number.
4. Write the desired words to be engraved on each line.

EXAMPLE:

G1MP-NPE28P-03
1: OFF
2: HAND
3: AUTO



Engraved legend plate form

Custom engraved legend plates
30mm

ENGRAVED LEGEND PLATE FORM

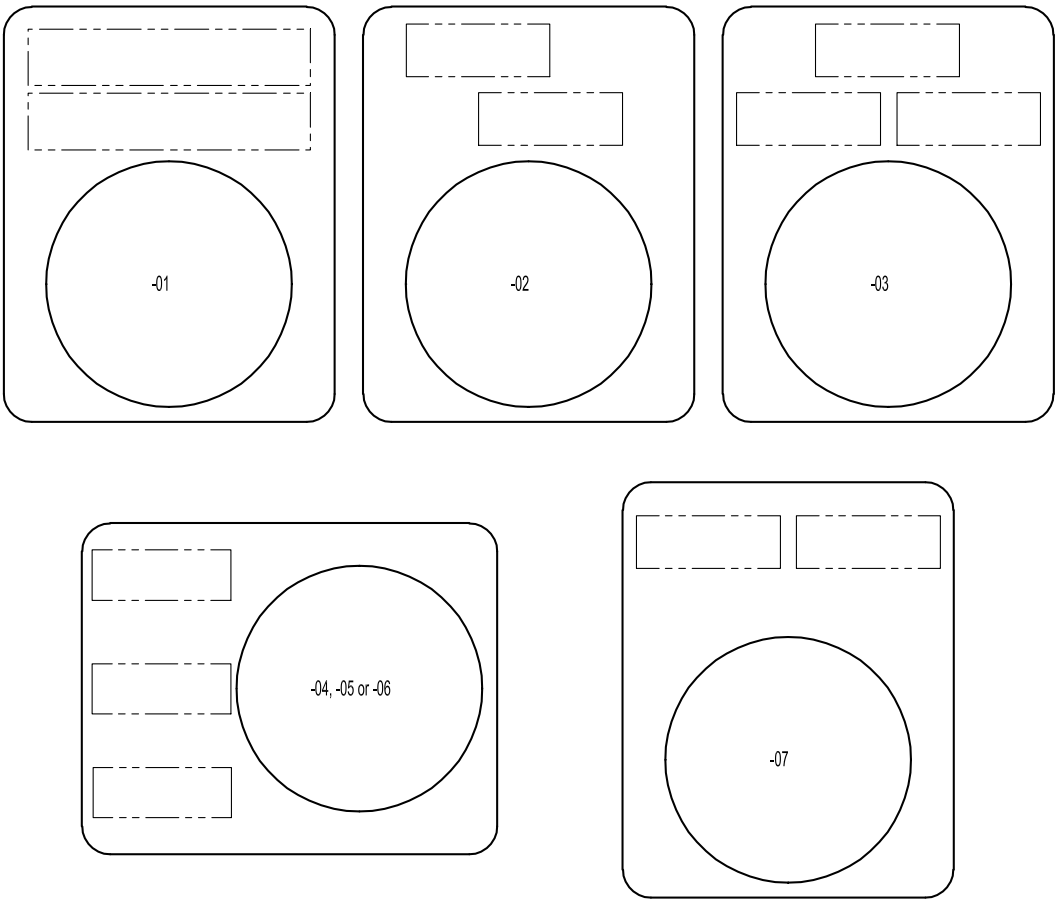
G1MP-NPE28

PAGE:____OF:_____

G1MP-NPE28-___ ___ (BRUSHED ALUMNINUM)
ORIG. DATE:_ _____
ISSUED BY: _____
ALL CAPITALS? YES NO
REMARKS:_ _____

ORDER NUMBER:_____
ORDER: QTY:_____
SHIPPING METHOD:_____
DUE DATE:____ - ____ - ___
ENGRAVER: _____
Q.C. INSPECTION:_____

PRINT INFORMATION TO BE ENGRAVED



G1MP-NPE28
6/10/04

Engraved legend plate form

Custom engraved legend plates 30mm

ENGRAVED LEGEND PLATE FORM

G1MP-NPE29

PAGE:____OF:_____

G1MP-NPE29-___ ___ (BRUSHED ALUMNINUM)

ORIG. DATE:_____

ISSUED BY: _____

ALL CAPITALS? YES NO

REMARKS:_ _____

ORDER NUMBER:_____

ORDER: QTY:_____

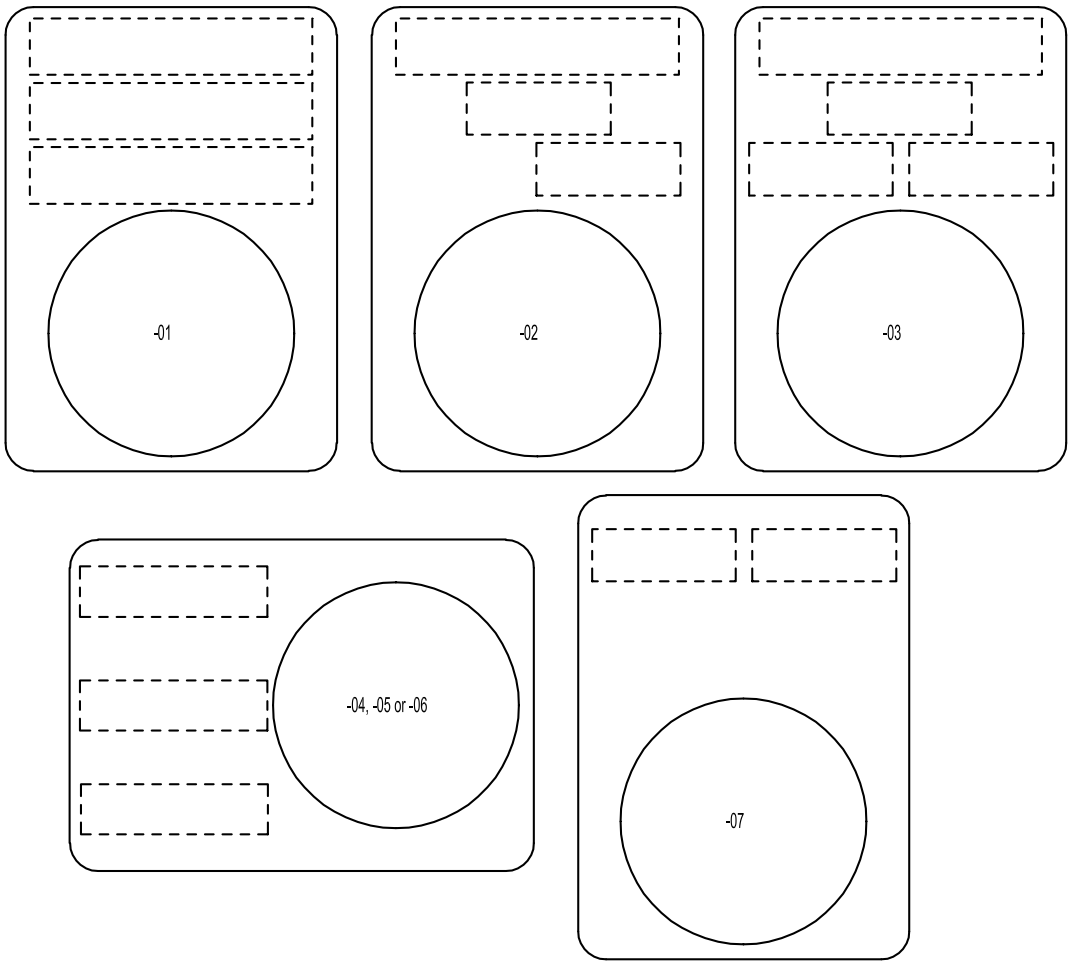
SHIPPING METHOD:_____

DUE DATE:____ - ____ - ___

ENGRAVER: _____

Q.C. INSPECTION:_____

PRINT INFORMATION TO BE ENGRAVED



G1MP-NPE29

6/10/04

Signal towers & beacons

Signal towers K70
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

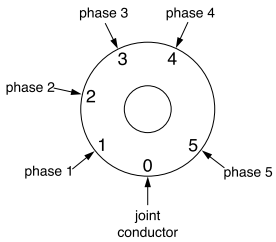
Spec Tech Industrial Electric www.spectechind.com 888-773-2832

Signal towers K70
Signal beacons KSB

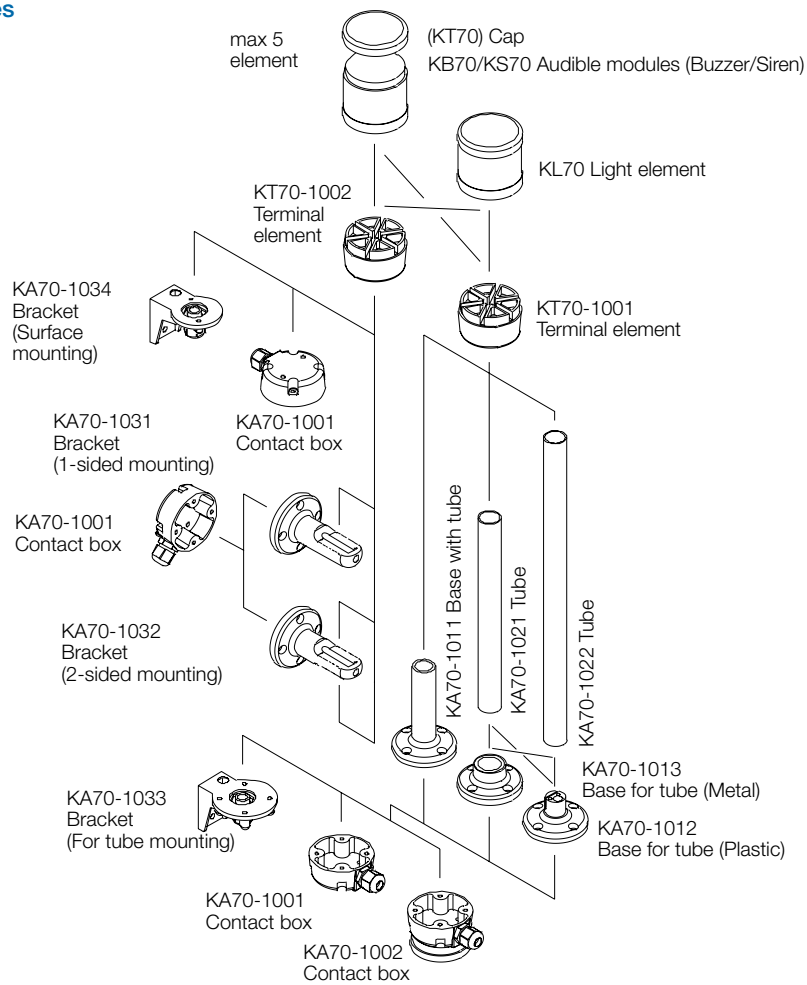
Simple fitting with quick fix system

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

Light Elements

Description	Catalog number	Weight oz.
Light element		
Permanent light, 12-240 V AC/DC. For bulb BA 15d. Bulb not included		
Red	KL70-401R	3.2
Green	KL70-401G	3.2
Yellow	KL70-401Y	3.2
Blue	KL70-401L	3.2
Clear	KL40-401C	3.2
Blinking light, 24 V AC/DC. With integrated LED		
Red	KL70-306R	3.5
Green	KL70-306G	3.5
Yellow	KL70-306Y	3.5
Blue	KL70-306L	3.5
Clear	KL70-306C	3.5
Flashing light, 24 V AC/DC. With integrated Xenon Tube		
Red	KL70-203R	4.2
Green	KL70-203G	4.2
Yellow	KL70-203Y	4.2
Blue	KL70-203L	4.2
Clear	KL70-203C	4.2
Blinking light, 115 V AC. With integrated LED		
Red	KL70-342R	0.10
Green	KL70-342G	3.5
Yellow	KL70-342Y	3.5
Blue	KL70-342L	3.5
Clear	KL70-342C	3.5
Flashing light, 115 V AC. With integrated Xenon Tube		
Red	KL70-113R	3.9
Green	KL70-113G	3.9
Yellow	KL70-113Y	3.9
Blue	KL70-113L	3.9
Clear	KL70-113C	3.9
Blinking light, 230 V AC. With integrated LED		
Red	KL70-352R	3.5
Green	KL70-352G	3.5
Yellow	KL70-352Y	3.5
Blue	KL70-352L	3.5
Clear	KL70-352C	3.5
Flashing light, 230 V AC. With integrated Xenon Tube		
Red	KL70-123R	3.9
Green	KL70-123G	3.9
Yellow	KL70-123Y	3.9
Blue	KL70-123L	3.9
Clear	KL70-123C	3.9
LED Permanent light, 24 V AC/DC. With integrated LED		
Red	KL70-305R	3.5
Green	KL70-305G	3.5
Yellow	KL70-305Y	3.5
Blue	KL70-305L	3.5
Clear	KL70-305C	3.5
LED Rotating light, 24 V AC/DC. With integrated LED		
Red	KL70-307R	3.5
Green	KL70-307G	3.5
Yellow	KL70-307Y	3.5
Blue	KL70-307L	3.5
Clear	KL70-307C	3.5

Signal towers K70

LED bulb

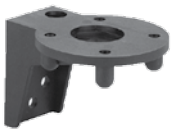
Description	Catalog number	Weight oz.
Bulbs for signal tower K70 bulb Ba 15d, 42mm, Max 7 W. For permanent or blinking light.		
24 V, 5 W, AC/DC	KA4-1021	0.32
115 V, 5 W, AC/DC	KA4-1118	0.32
230 V, 5 W, AC/DC	KA4-1148	0.32
LED bulbs for signal tower K70 Ba 15d. For 24 V AC/DC, 40mA.		
Red	KA4-1021	0.32
Green	KA4-1022	0.32
Yellow	KA4-1023	0.32
Blue	KA4-1024	0.32
White	KA4-1025	0.32

Terminal element

Audible modules. Buzzer element. 85 dB, continuous or pulsating tone, adjustable.		
24 V AC/DC	KB70-3001	0.39
115 V AC	KB70-3101	0.39
230 V AC	KB70-1201	0.42
Siren element		
Multi function, 8 diff. Tones adjustable, volume adjustable 100 dB, 115 V AC	KS70-1104	0.46
Multi function, 8 diff. Tones adjustable, volume adjustable 100 dB, 230 V AC	KS70-1204	0.42
Multi function, 7 diff. Tones adjustable, volume adjustable, remote control, 100 dB, 24 V DC	KS70-2004	0.42
Multi function, 8 diff. Tones adjustable, volume adjustable 100 dB, 24 V AC/DC	KS70-3004	0.42
Continuous tone alternating 108 dB, 24 V DC	KS70-2002	0.53
Terminal elements		
For tube mounting, including cap	KT70-1001	0.53
For bracket or base, including cap	KT70-1002	0.53

Contact box

Special parts		
Contact box		
Cable exit at side	KA70-1001	0.25
Magnetic base	KA70-1002	0.25
Base with tube		
D=25 mm L=110 mm	KA70-1011	0.21
Base for tube		
D=25 mm, Plastic	KA70-1012	0.11
D=25 mm, Metal	KA70-1013	1.1
Tube, anodized aluminum		
D=25 mm L=250 mm	KA70-1021	0.28
D=25 mm L=400 mm	KA70-1022	0.42
D=25 mm L=800 mm	KA70-1023	0.42
Bracket		
1-sided mounting	KA70-1031	0.25
2-sided mounting	KA70-1032	0.25
For tube mounting	KA70-1033	0.25
For surface mounting	KA70-1034	0.25



Bracket

Signal beacons KSB

Light element

Description	Catalog number	Weight oz.
Light element		
Permanent light, 12-240 V AC/DC. For bulb BA 15d. Bulb not included.		
Red	KSB-401R	0.46
Green	KSB-401G	0.46
Yellow	KSB-401Y	0.46
Blue	KSB-401L	0.46
Clear	KSB-401C	0.46
Flashing light, 24 V DC. With integrated Xenon Tube		
Red	KSB-203R	0.49
Green	KSB-203G	0.49
Yellow	KSB-203Y	0.49
Blue	KSB-203L	0.49
Clear	KSB-203C	0.49
Flashing light, 115 V AC. With integrated Xenon Tube		
Red	KSB-113R	0.49
Green	KSB-113G	0.49
Yellow	KSB-113Y	0.49
Blue	KSB-113L	0.49
Clear	KSB-113C	0.49
Flashing light, 230 V AC. With integrated Xenon Tube		
Red	KSB-123R	0.49
Green	KSB-123G	0.49
Yellow	KSB-123Y	0.49
Blue	KSB-123L	0.49
Clear	KSB-123C	0.49
LED permanent light, 24 V AC/DC. With integrated LED		
Red	KSB-305R	0.49
Green	KSB-305G	0.49
Yellow	KSB-305Y	0.49
LED blinking light, 24 V AC/DC. With integrated LED		
Red	KSB-306R	0.49
Green	KSB-306G	0.49
Yellow	KSB-306Y	0.49
LED rotation light, 24 V AC/DC. With integrated LED		
Red	KSB-307R	0.49
Green	KSB-307G	0.49
Yellow	KSB-307Y	0.49

Anti-twist device

Special parts		
Anti-twist device	KASB-100	0.18

Bulbs for signal beacons max 10 W. For permanent light. Bulb Ba 15d, 52mm.		
12 V, 7 W, AC/DC	KA3-1018	0.39
24 V, 7 W, AC/DC	KA3-1028	0.39
115 V, 7 W, AC/DC	KA3-1118	0.39
220-260 V, 7-10 W, AC/DC	KA3-1148	0.39

Technical data

Signal towers K70 and signal beacons KSB

Signal towers K70

Approvals

CE	E 175 441 c UL us

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 mm²		
Number of modules possible -2-sided bracket	max. 5 max. 10 elements		
Degrees of protection			
Light Elements	IP 54	UL Catalog number 5	
Audible Elements	IP 54	UL Catalog number 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

CE	E 175 441 c UL us

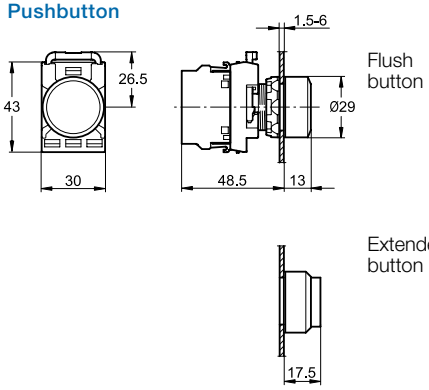
Technical specifications

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 mm²		
Degrees of protection	IP 65, UL Catalog number 5		
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		

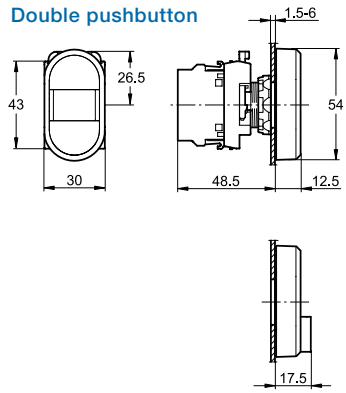
Approximate dimensions
Modular Range

3D drawings can be found in ABB Library.

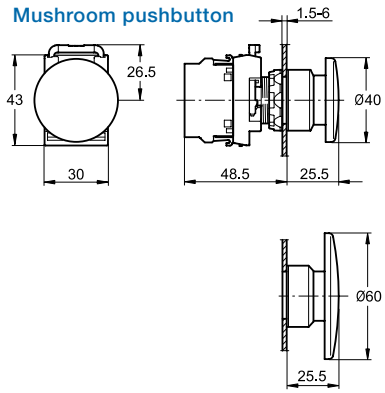
Pushbutton



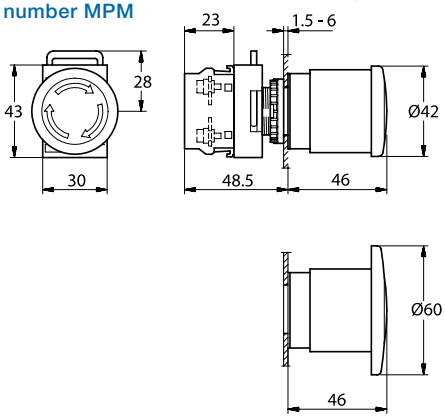
Double pushbutton



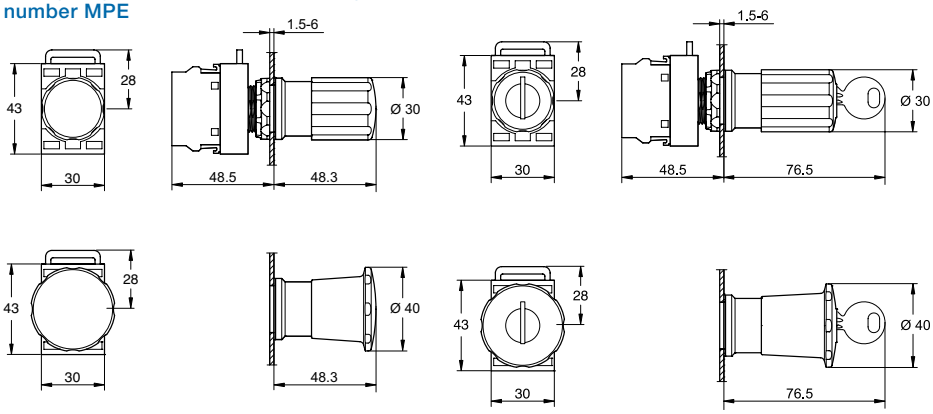
Mushroom pushbutton



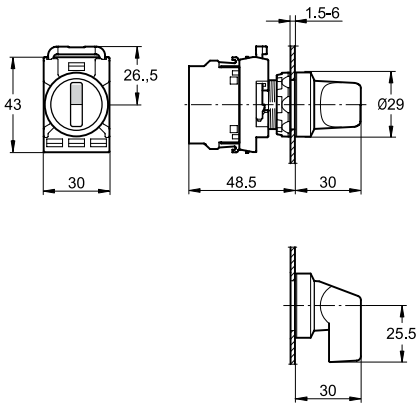
Emergency stop pushbutton Catalog number MPM



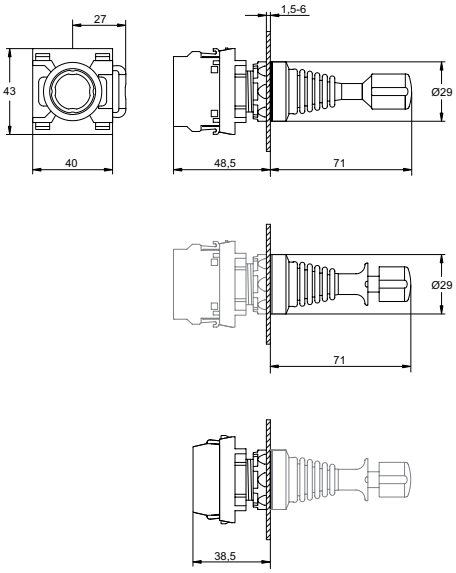
Emergency stop pushbutton Catalog number MPE



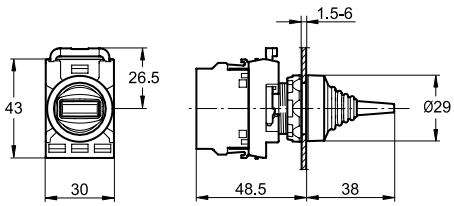
Selector switch



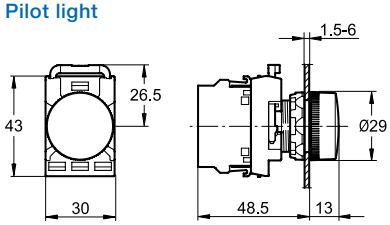
Joystick



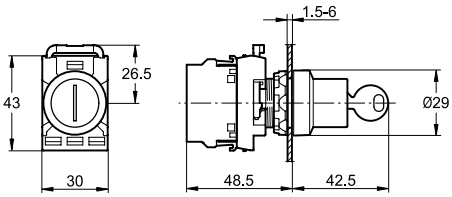
Toggle switch



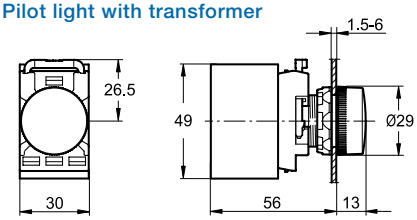
Pilot light



Key-operated selector switch

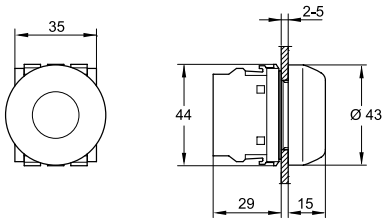


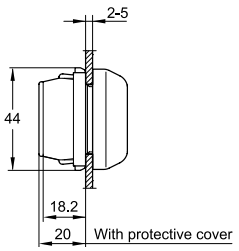
Pilot light with transformer



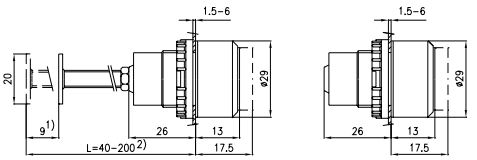
Approximate dimensions
Drilling plans

Heavy duty pushbutton



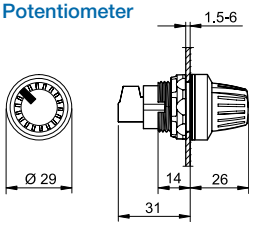


Reset pushbutton

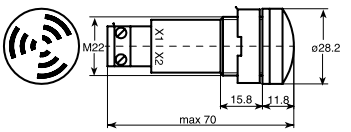


1) Length of stroke.
2) Can be cut to desired length.

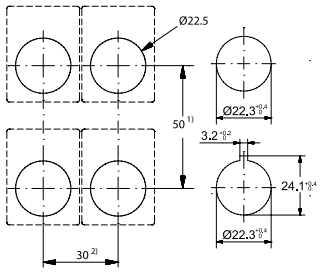
Potentiometer



Buzzer

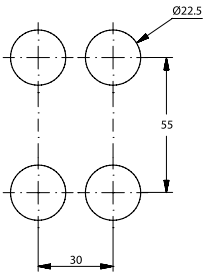


Drilling plans for pushbuttons, switches and pilot lights

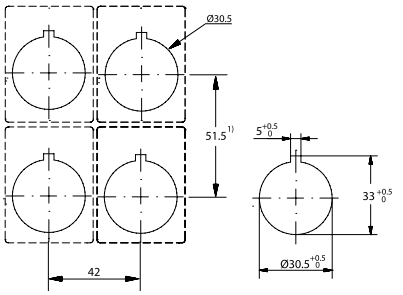


1) 55 mm when Legend Plate H= 44.5 mm is used.
61 mm for mushroom Pushbutton with D=60 mm
2) 37 mm when Legend Plate with insert is used,

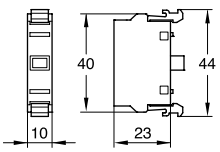
Drilling plan for double pushbutton



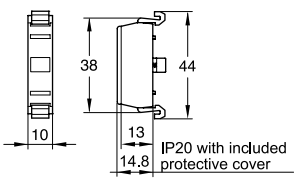
Drilling plan for 30 mm adaptor



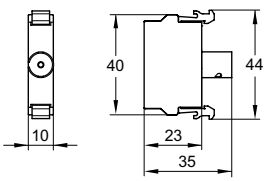
Contact block
(for front mounting)



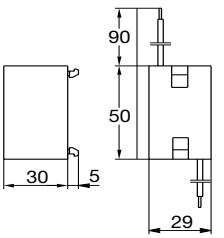
Micro contact block
(for front mounting)



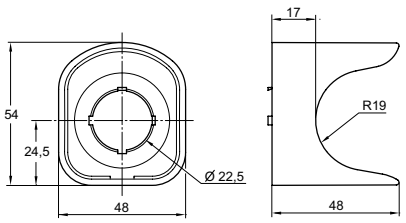
Lamp block
(for front mounting)



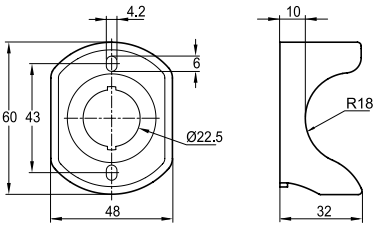
Transformer block



Emergency stop shroud
Modular Range

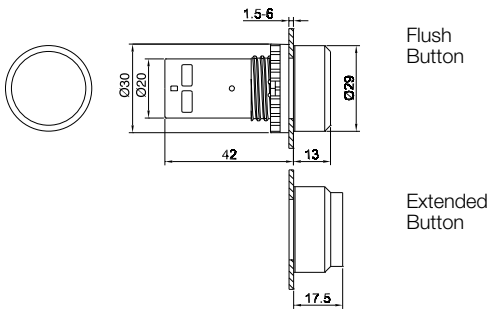


Emergency stop shroud
Compact Range

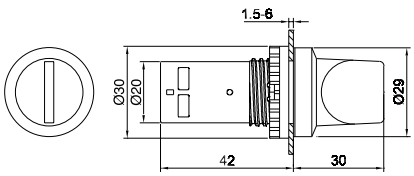


Approximate dimensions
Compact Range

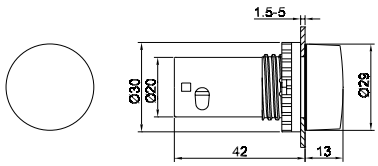
Pushbutton



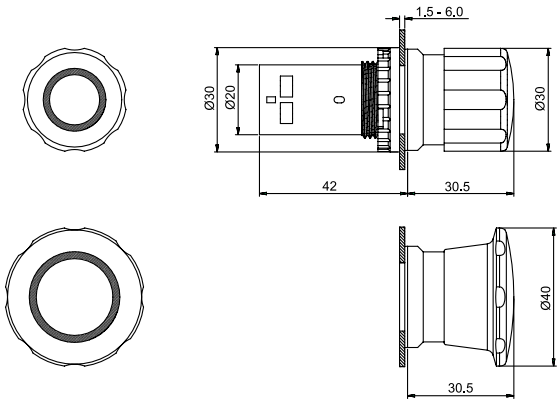
Selector switch



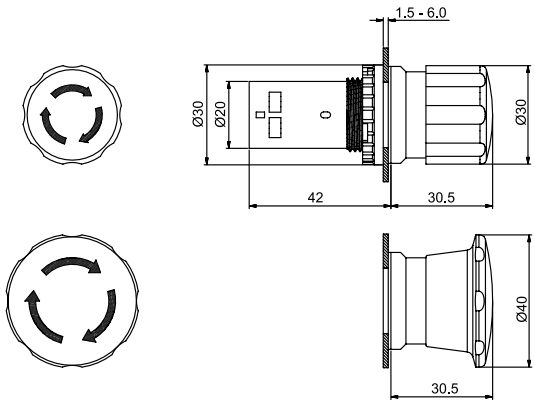
Pilot light



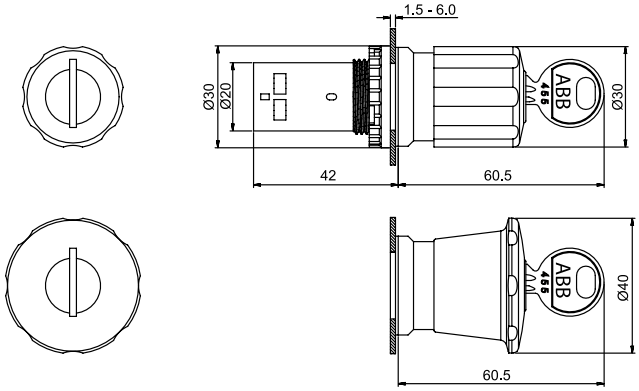
Emergency stop pushbuttons
CE3P/CE4P (Pull release)



CE3T/CE4T (Twist release)



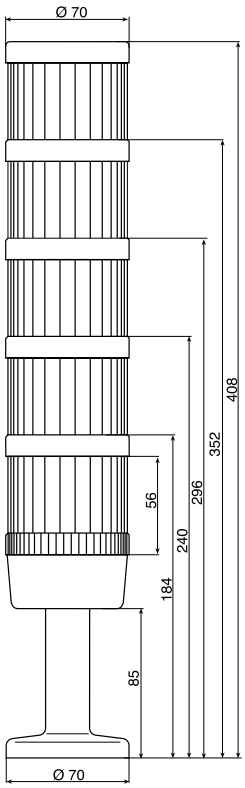
CE3K1/CE4K1



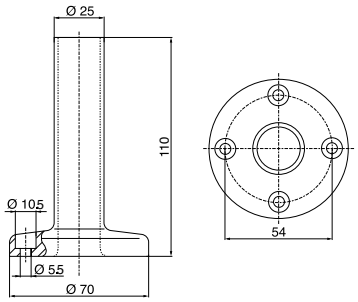
Dimensions and drilling plans

Signal towers

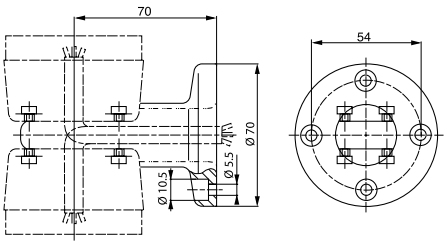
Signal towers K 70



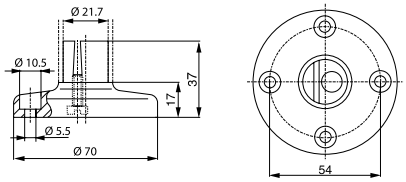
Base with integrated tube



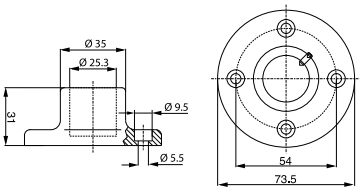
Bracket 2-sided mounting



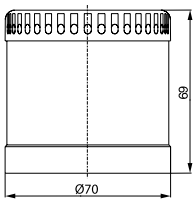
Base for tube, plastic



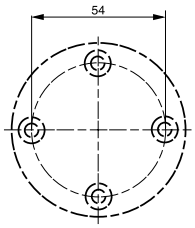
Base for tube, metal



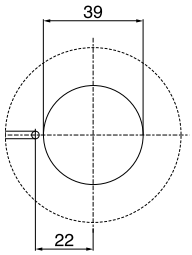
Audible module



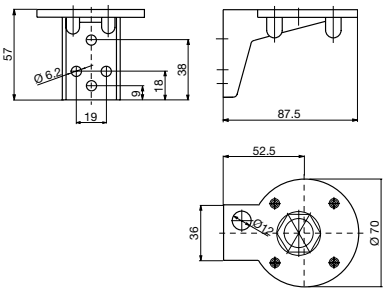
Drilling plan for signal towers K 70



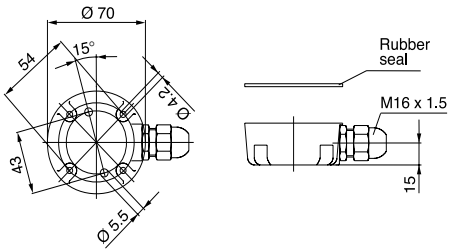
Drilling plan for signal beacons KSB



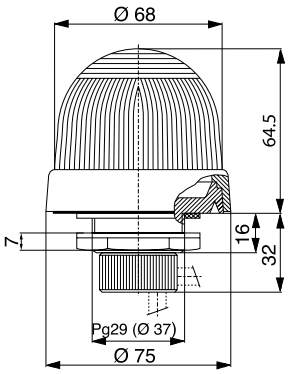
Bracket for tube mounting

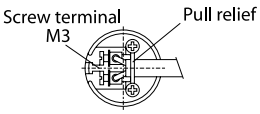


Contact box for cable exit at side

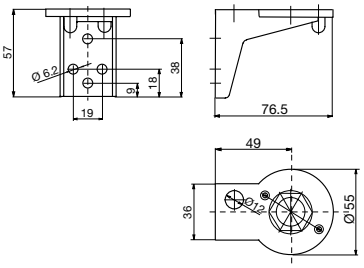


Signal beacons K SB

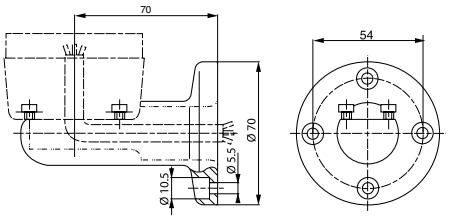




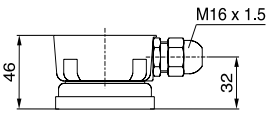
Bracket for surface mounting



Bracket 1-sided mounting



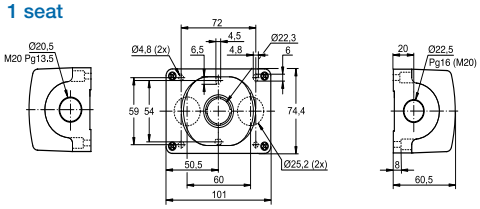
Contact box with magnetic base



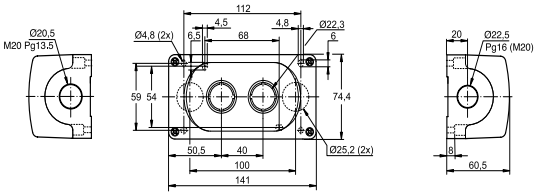
Approximate dimensions
Enclosures

Plastic enclosures

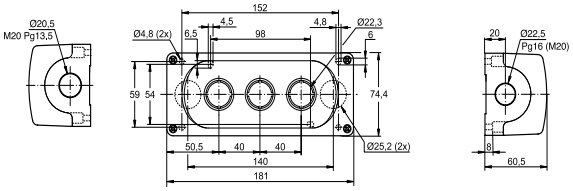
1 seat



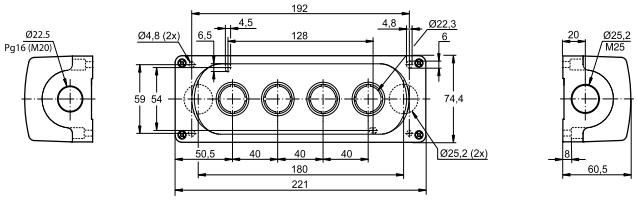
2 seats



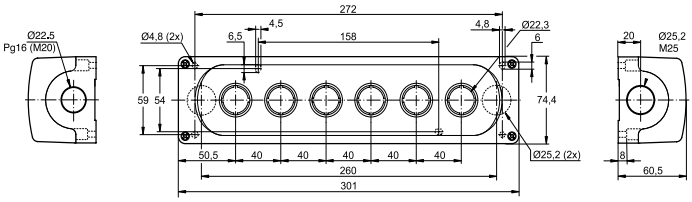
3 seats



4 seats

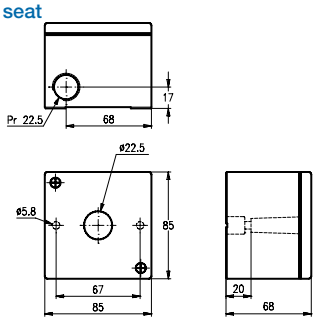


6 seats

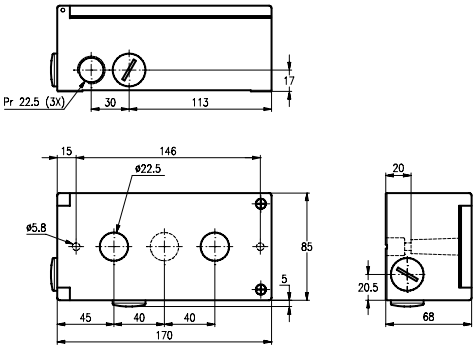


Metallic enclosures

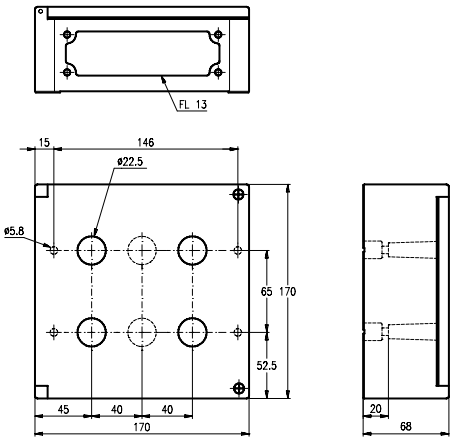
1 seat



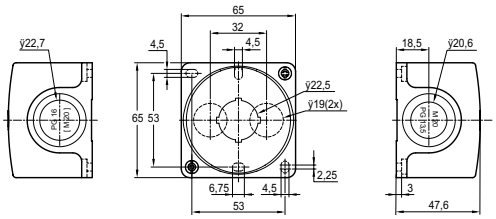
2 or 3 seats



4 or 6 seats



Plastic enclosure for Compact Range



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 Catalog number 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

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