



Modular range
30mm



8

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

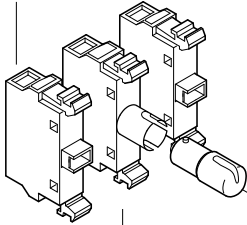
General information

Mounting

Exploded view

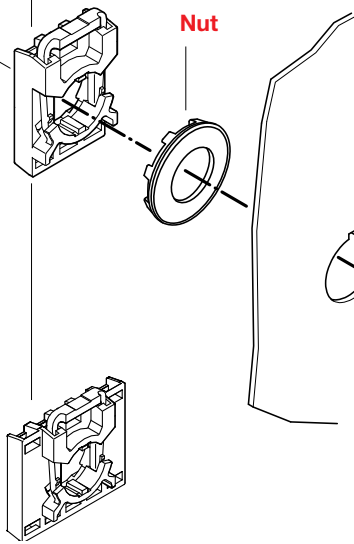
Contact block

Single pole with making or breaking contact



Holder

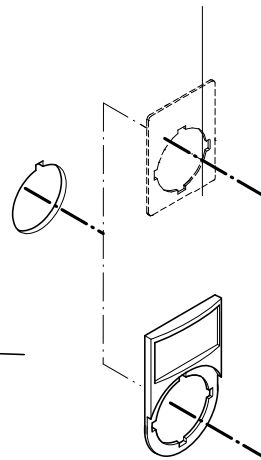
Available either for three or five blocks in one single row. Additional blocks can be stacked on holders for three blocks.



Nut

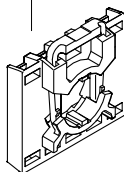
Legend plates

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



Lamp block

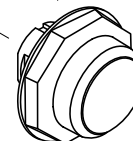
Illuminated pushbuttons, illuminated selector switches and pilot lights have a lamp block in the center position of the holder.



Five block holder

Operator

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

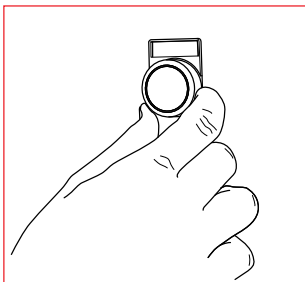


Bezels

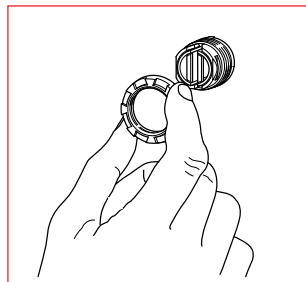
Pushbuttons, selector switches and toggle switches with bezel in black plastic, chrome metal are available.

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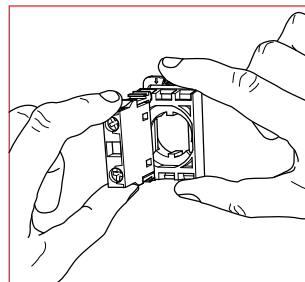
Easy to mount



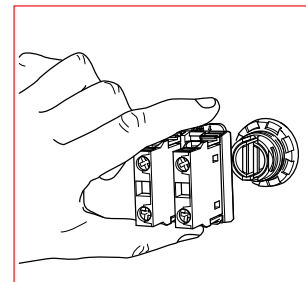
The operator is to be inserted from the front.....



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

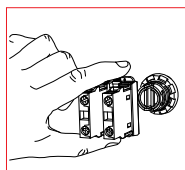
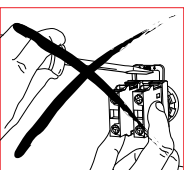


The contact blocks/lamp block are then snapped on to the holder...



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

...and to remove

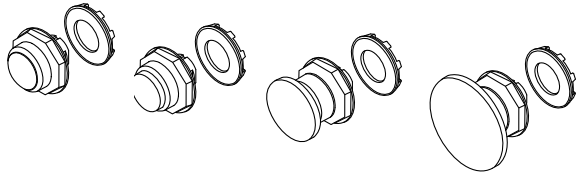


Press down the spring on the holder and pull the holder from the actuator.

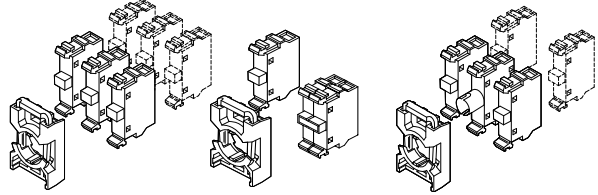
Selection guide

Pilot Devices
Modular Range
30mm

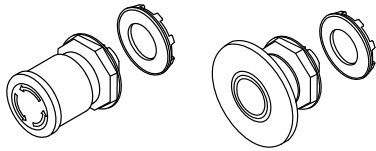
Pushbuttons and Mushroom pushbuttons



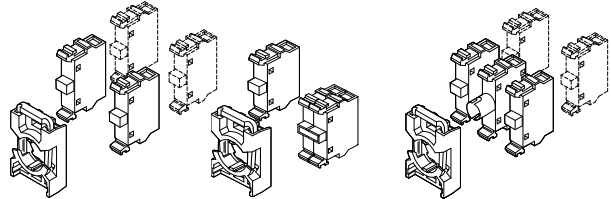
Contact block/lamp block combinations



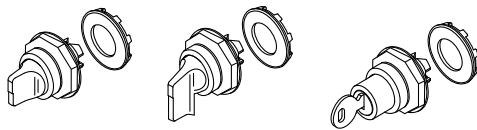
Emergency stop pushbuttons



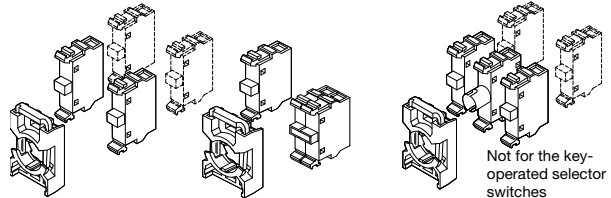
Contact block/lamp block combinations



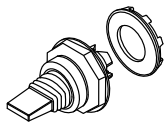
Selector switches



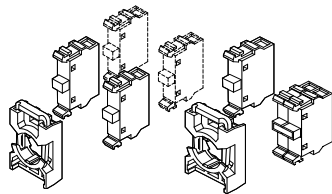
Contact block/lamp block combinations



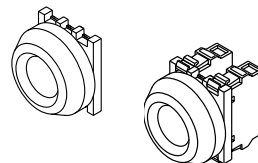
Toggle switches



Contact block combinations

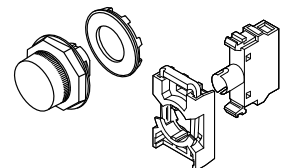


Definite purpose push-buttons



Pilot lights

Lamp block combination

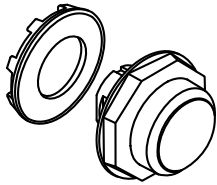


Flush and extended pushbuttons

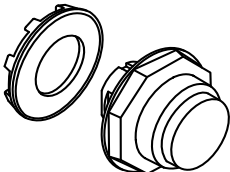
Non-illuminated and illuminated

Momentary and maintained

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Flush



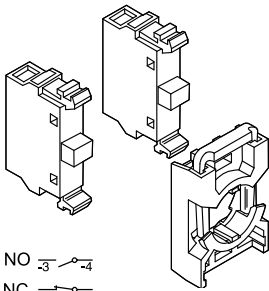
Extended

Δ Non-illuminated
button color

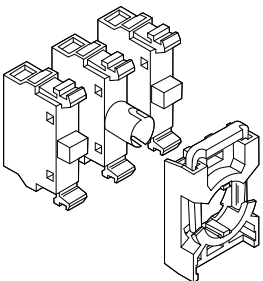
R Red
G Green
Y Yellow
L Blue
W White
B Black
C Clear

‡ Illuminated
button color

R Red
G Green
Y Yellow
L Blue
W White
C Clear



NO $\overline{3}$ \rightarrow $\overline{4}$
NC $\overline{1}$ \rightarrow $\overline{2}$



Non-illuminated

Description	Catalog number	List price
Black plastic bezel		
Flush, momentary	G1MP1-10Δ	\$ 14.10
Flush, maintained	G1MP2-10Δ	25.30
Extended, momentary	G1MP3-10Δ	14.10
Extended, maintained	G1MP4-10Δ	25.30
Chrome bezel		
Flush, momentary	G2MP1-30Δ	16.00
Flush, maintained	G2MP2-30Δ	27.30
Extended, momentary	G2MP3-30Δ	16.10
Extended, maintained	G2MP4-30Δ	27.30

Illuminated^①

Description	Catalog number	List price
Black plastic bezel		
Flush, momentary	G1MP1-11‡	\$ 14.10
Flush, maintained	G1MP2-11‡	25.30
Extended, momentary	G1MP3-11‡	14.10
Extended, maintained	G1MP4-11‡	25.30
Chrome bezel		
Flush, momentary	G2MP1-31‡	16.10
Flush, maintained	G2MP2-31‡	27.30
Extended, momentary	G2MP3-31‡	16.10
Extended, maintained	G2MP4-31‡	27.30

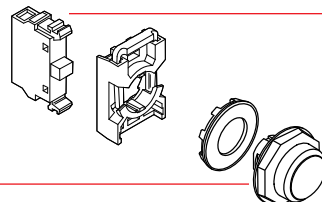
Contact blocks, lamp block and holder^②

Blocks	Catalog number	Ref. code	List price
1 NO with holder	MCBH-10	1SFA 611 605 R1101	\$ 10.00
1 NC with holder	MCBH-01	1SFA 611 605 R1110	10.00
2 NO with holder	MCBH-20	1SFA 611 605 R1102	18.00
2 NC with holder	MCBH-02	1SFA 611 605 R1120	18.00
1 NO + 1 NC with holder	MCBH-11	1SFA 611 605 R1111	18.00
1 NO + 1 LB with holder	MCBH-101	1SFA 611 605 R1201	27.50
1 NC + 1 LB with holder	MCBH-011	1SFA 611 605 R1210	27.50
2 NO + 1 LB with holder ^①	MCBH-201	1SFA 611 605 R1202	35.50
2 NC + 1 LB with holder	MCBH-021	1SFA 611 605 R1220	35.50
1 NO + 1 NC + 1 LB with holder	MCBH-111	1SFA 611 605 R1211	35.50
1 NO without holder	MCB-10	1SFA 611 610 R1001	8.00
1 NC without holder	MCB-01	1SFA 611 610 R1010	8.00
Lamp block for 2 W, max 230 V AC/DC bulb or LED	MLB-1	1SFA 611 620 R1001	17.50
Holder for 3 blocks	MCBH-00	1SFA 611 605 R1100	2.00

Ordering example

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

Ref.: 1 piece of G1MP1- 40R +1 piece of MCBH-10



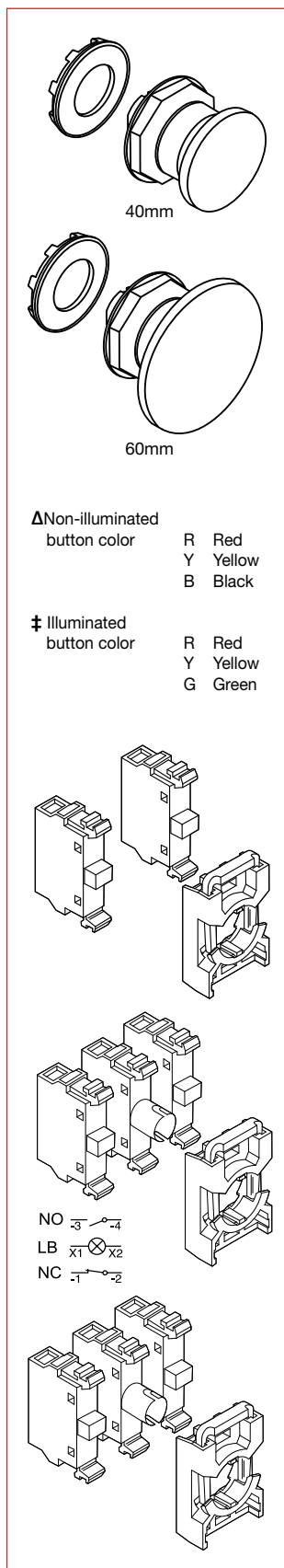
① No contact block in the center position.

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



Non-illuminated

Description	Catalog number	List price
Black plastic bezel		
40mm	G1MPM1-10Δ	\$ 24
60mm	G1MPM2-10Δ	28
Chrome bezel		
40mm	G2MPM1-30Δ	26
60mm	G2MPM2-30Δ	30

Illuminated^①

Description	Catalog number	List price
Black plastic bezel		
40mm	G1MPM1-11‡	\$ 24
60mm	G1MPM2-11‡	28
Chrome bezel		
40mm	G2MPM1-31‡	26
60mm	G2MPM2-31‡	30

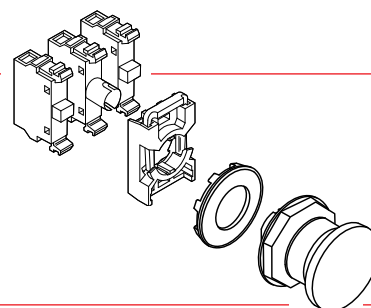
Contact blocks, lamp block and holder^②

Blocks	Catalog number	Ref. code	List price
1 NO with holder	MCBH-10	1SFA 611 605 R1101	\$ 10.00
1 NC with holder	MCBH-01	1SFA 611 605 R1110	10.00
2 NO with holder	MCBH-20	1SFA 611 605 R1102	18.00
2 NC with holder	MCBH-02	1SFA 611 605 R1120	18.00
1 NO + 1 NC with holder	MCBH-11	1SFA 611 605 R1111	18.00
1 NO + 1 LB with holder	MCBH-101	1SFA 611 605 R1201	27.50
1 NC + 1 LB with holder	MCBH-011	1SFA 611 605 R1210	27.50
2 NO + 1 LB with holder ^①	MCBH-201	1SFA 611 605 R1202	35.50
2 NC + 1 LB with holder	MCBH-021	1SFA 611 605 R1220	35.50
1 NO + 1 NC + 1 LB with holder	MCBH-111	1SFA 611 605 R1211	35.50
1 NO without holder	MCB-10	1SFA 611 610 R1001	8.00
1 NC without holder	MCB-01	1SFA 611 610 R1010	8.00
Lamp block for 2 W, max 230 V AC/DC bulb or LED	MLB-1	1SFA 611 620 R1001	17.50
Holder for 3 blocks	MCBH-00	1SFA 611 605 R1100	2.00

Ordering example – Mushroom Pushbutton

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

Ref.: 1 piece of G1MPM1-41B + 1 piece of MCBH-111
Bulb - see accessories



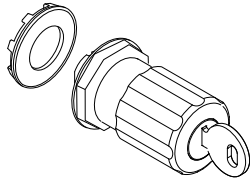
- ① No contact block in the center position
② Lamp block MLB-1. Bulb not included. Other lamp block see Accessories, bulb max 1.2 W.

Emergency stop pushbuttons

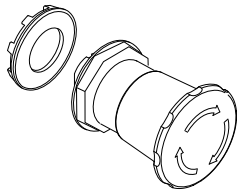
Non-illuminated

30mm & 40mm head

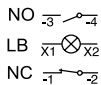
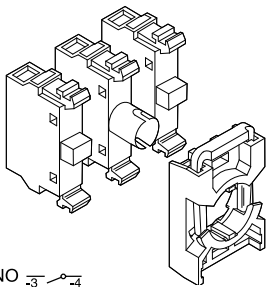
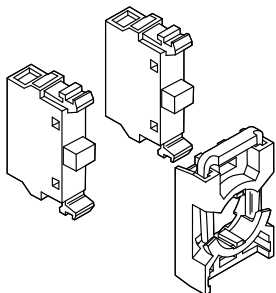
Fulfills IEC 60947-5-5



30mm



40mm



Operator

Operator function	Button color and material	Catalog No.	List Price
ø 30mm			
black bezel, non-illuminated			
Twist release	Red, plastic	G1MPET3-10R	\$ 34.00
Pull release	Red, plastic	G1MPEP3-10R	34.00
Key release			
(Key code 71, Ronis 455)	Red, plastic	G1MPEK3-11R	48.00
(Key code 72, Ronis 421)	Red, plastic	G1MPEK3-12R	48.00
(Key code 73, Ronis 3433-E)	Red, plastic	G1MPEK3-13R	48.00
chrome bezel, non-illuminated			
Twist release	Red, plastic	G2MPET3-10R	36.00
Pull release	Red, plastic	G2MPEP3-10R	36.00
Key release			
(Key code 71, Ronis 455)	Red, plastic	G2MPEK3-11R	50.00
(Key code 72, Ronis 421)	Red, plastic	G2MPEK3-12R	50.00
(Key code 73, Ronis 3433-E)	Red, plastic	G2MPEK3-13R	50.00
ø 40mm			
black bezel, non-illuminated			
Twist release	Red, plastic	G1MPET4-10R	38.00
Pull release	Red, plastic	G1MPEP4-10R	38.00
Key release			
(Key code 71, Ronis 455)	Red, plastic	G1MPEK4-11R	56.00
(Key code 72, Ronis 421)	Red, plastic	G1MPEK4-12R	56.00
(Key code 73, Ronis 3433-E)	Red, plastic	G1MPEK4-13R	56.00
chrome bezel, non-illuminated			
Twist release	Red, plastic	G2MPET4-10R	40.00
Pull release	Red, plastic	G2MPEP4-10R	40.00
Key release			
(Key code 71, Ronis 455)	Red, plastic	G2MPEK4-11R	58.00
(Key code 72, Ronis 421)	Red, plastic	G2MPEK4-12R	58.00
(Key code 73, Ronis 3433-E)	Red, plastic	G2MPEK4-13R	58.00

Contact blocks, lamp block and holder [®]

Blocks	Catalog number	Ref. code	List price
1 NO with holder	MCBH-10	1SFA 611 605 R1101	\$ 10.00
1 NC with holder	MCBH-01	1SFA 611 605 R1110	10.00
2 NO with holder	MCBH-20	1SFA 611 605 R1102	18.00
2 NC with holder	MCBH-02	1SFA 611 605 R1120	18.00
1 NO + 1 NC with holder	MCBH-11	1SFA 611 605 R1111	18.00
1 NO without holder	MCB-10	1SFA 611 610 R1001	8.00
1 NC without holder	MCB-01	1SFA 611 610 R1010	8.00
Holder for 3 blocks	MCBH-00	1SFA 611 605 R1100	2.00

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

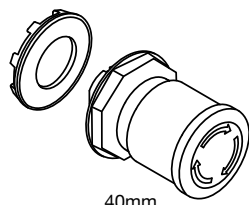
Durability test	6,050 cycles. This is not a test of mechanical life. The product has a mechanical life of 100,000 operations.	Latching test	Impulse voltage test at 2,500 V
Robustness	The force 113 N applied in three axes	Resetting test	Pulling force < 50 N Turning torque < 1 Nm
Conditioning	Heat and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

Emergency stop pushbuttons

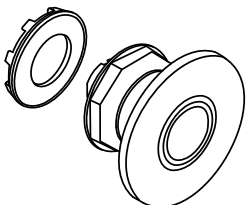
Non-illuminated and illuminated

40mm & 60mm head

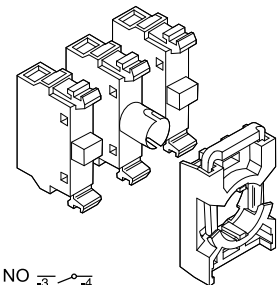
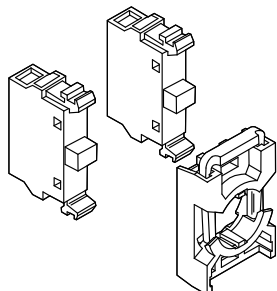
Fulfills IEC 60947-5-5






40mm



60mm



NO 
 LB 
 NC 

Non-illuminated, red

Description	Catalog number	List price
Black plastic bezel		
40mm, twist release	G1MPMT3-10R	\$ 42.00
40mm, pull release	G1MPMP3-10R	42.00
60mm, twist release	G1MPMT4-10R	54.00
60mm, pull release	G1MPMP4-10R	54.00
Chrome bezel		
40mm, twist release	G2MPMT3-10R	44.00
40mm, pull release	G2MPMP3-10R	44.00
60mm, twist release	G2MPMT4-10R	56.00
60mm, pull release	G2MPMP4-10R	56.00

Illuminated, red^①

Description	Catalog number	List price
Black plastic bezel		
40mm, twist release	G1MPMT3-11R	\$ 42.00
40mm, pull release	G1MPMP3-11R	42.00
60mm, twist release	G1MPMT4-11R	54.00
60mm, pull release	G1MPMP4-11R	54.00
Chrome bezel		
40mm, twist release	G2MPMT3-11R	44.00
40mm, pull release	G2MPMP3-11R	44.00
60mm, twist release	G2MPMT4-11R	56.00
60mm, pull release	G2MPMP4-11R	56.00

Contact blocks, lamp block and holder^②

Blocks	Catalog number	Ref. code	List price
1 NO with holder	MCBH-10	1SFA 611 605 R1101	\$ 10.00
1 NC with holder	MCBH-01	1SFA 611 605 R1110	10.00
2 NO with holder	MCBH-20	1SFA 611 605 R1102	18.00
2 NC with holder	MCBH-02	1SFA 611 605 R1120	18.00
1 NO + 1 NC with holder	MCBH-11	1SFA 611 605 R1111	18.00
1 NO + 1 LB with holder	MCBH-101	1SFA 611 605 R1201	27.50
1 NC + 1 LB with holder	MCBH-011	1SFA 611 605 R1210	27.50
2 NO + 1 LB with holder	MCBH-201	1SFA 611 605 R1202	35.50
2 NC + 1 LB with holder	MCBH-021	1SFA 611 605 R1220	35.50
1 NO + 1 NC + 1 LB with holder	MCBH-111	1SFA 611 605 R1211	35.50
1 NO without holder	MCB-10	1SFA 611 610 R1001	8.00
1 NC without holder	MCB-01	1SFA 611 610 R1010	8.00
Lamp block for 2 W, max 230 V AC/DC bulb or LED	MLB-1	1SFA 611 620 R1001	17.50
Holder for 3 blocks	MCBH-00	1SFA 611 605 R1100	2.00

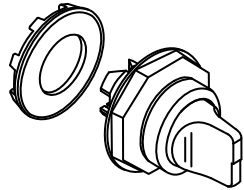
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		Vibration	2 h at 50m/s ²
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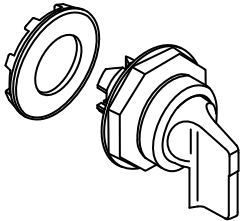
^① No contact in the center position

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

2 Position selector switches Non-illuminated



Short handle



Long handle

Δ Switch color R Red
 B Black
 U Grey

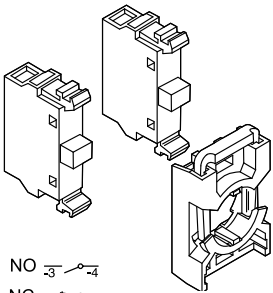
Maintained



Maintained



Momentary,
spring return
from C to B



NO
NC

Contact functions

Block positions as seen from operator front.

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

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

Non-illuminated

Description	Catalog number	List price
Short handle		
Black plastic bezel		
Maintained B & C	G1M2SS1-10Δ	\$ 19
Maintained A & C	G1M2SS2-10Δ	19
Spring return from C to B	G1M2SS3-10Δ	22
Chrome bezel		
Maintained B & C	G2M2SS1-30Δ	21
Maintained A & C	G2M2SS2-30Δ	21
Spring return from C to B	G2M2SS3-30Δ	24
Long handle		
Black plastic bezel		
Maintained B & C	G1M2SS4-10Δ	19
Maintained A & C	G1M2SS5-10Δ	19
Spring return from C to B	G1M2SS6-10Δ	22
Chrome bezel		
Maintained B & C	G2M2SS4-30Δ	21
Maintained A & C	G2M2SS5-30Δ	21
Spring return from C to B	G2M2SS6-30Δ	24

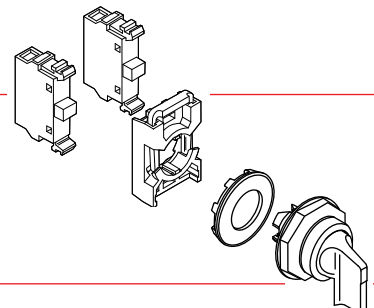
Contact blocks and holder

Blocks	Catalog number	Ref. code	List price
1 NO with holder	MCBH-10	1SFA 611 605 R1101	\$ 10.00
1 NC with holder	MCBH-01	1SFA 611 605 R1110	10.00
2 NO with holder	MCBH-20	1SFA 611 605 R1102	18.00
2 NC with holder	MCBH-02	1SFA 611 605 R1120	18.00
1 NO + 1 NC with holder	MCBH-11	1SFA 611 605 R1111	18.00
1 NO without holder	MCB-10	1SFA 611 610 R1001	8.00
1 NC without holder	MCB-01	1SFA 611 610 R1010	8.00
Holder for 3 blocks	MCBH-00	1SFA 611 605 R1100	2.00

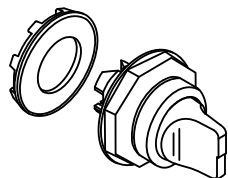
Ordering example

Requested: A non-illuminated modular selector switch. Black.
Maintained.
Handle positions: A and C
With 2 NC contacts

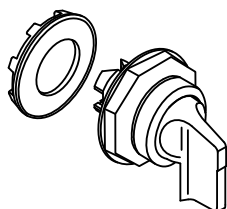
Ref.: 1 piece of G1M2SS2-40B + 1 piece of MCBH-02



2 Position selector switches Illuminated

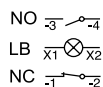
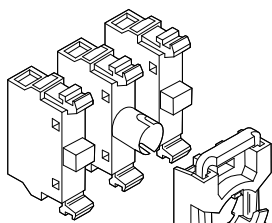
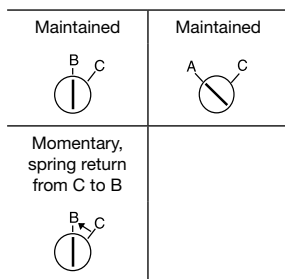


Short handle



Long handle

Δ Switch color	R	Red
	G	Green
	Y	Yellow
	L	Blue
	C	Clear



Illuminated^①

Description	Catalog number	List price
Short handle		
Black plastic bezel		
Maintained B & C	G1M2SS1-11Δ	\$ 25
Maintained A & C	G1M2SS2-11Δ	25
Spring return from C to B	G1M2SS3-11Δ	34
Chrome bezel		
Maintained B & C	G2M2SS1-31Δ	27
Maintained A & C	G2M2SS2-31Δ	27
Spring return from C to B	G2M2SS3-31Δ	36
Long handle		
Black plastic bezel		
Maintained B & C	G1M2SS4-11Δ	25
Maintained A & C	G1M2SS5-11Δ	25
Spring return from C to B	G1M2SS6-11Δ	34
Chrome bezel		
Maintained B & C	G2M2SS4-31Δ	27
Maintained A & C	G2M2SS5-31Δ	27
Spring return from C to B	G2M2SS6-31Δ	36

Contact blocks, lamp block and holder^②

Blocks	Catalog number	Ref. code	List price
1 NO + 1 LB with holder	MCBH-101	1SFA 611 605 R1201	\$ 27.50
1 NC + 1 LB with holder	MCBH-011	1SFA 611 605 R1210	27.50
2 NO + 1 LB with holder	MCBH-201	1SFA 611 605 R1202	35.50
2 NC + 1 LB with holder	MCBH-021	1SFA 611 605 R1220	35.50
1 NO + 1 NC with holder	MCBH-111	1SFA 611 605 R1211	35.50
1 NO without holder	MCB-10	1SFA 611 610 R1001	8.00
1 NC without holder	MCB-01	1SFA 611 610 R1010	8.00
Lamp block for 2 W, max 230 V AC/DC bulb or LED	MLB-1	1SFA 611 620 R1001	17.50
Holder for 3 blocks	MCBH-00	1SFA 611 605 R1100	2.00

Contact functions See page 8.38

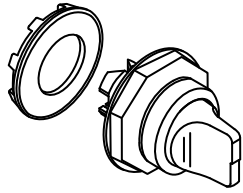
Ordering example See page 8.38

① No contact block in the center position

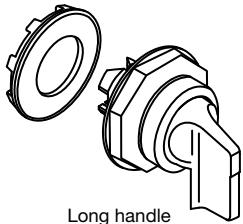
② Lamp block MLB-1. Bulb not included. Other lamp block see Accessories, bulb max 1.2 W.

3 Position selector switches Non-illuminated

8



Short handle



Long handle

Δ Switch color	R	Red
	B	Black
	U	Grey

Maintained



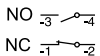
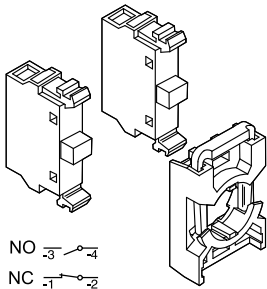
Momentary, spring return from A to B and from C to B



Momentary, spring return from C to B



Momentary, spring return from A to B



Contact functions

Block positions as seen from operator front.

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

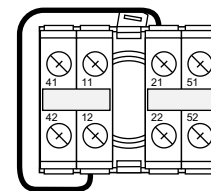
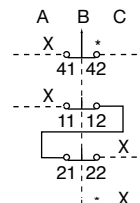
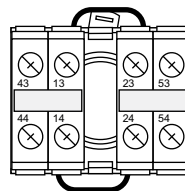
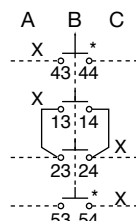
Non-illuminated

Description	Catalog number	List price
Short handle		
Black plastic bezel		
Maintained A, B & C	G1M3SS1-10Δ	\$ 19
Spring return A & C to B	G1M3SS2-10Δ	22
Maint A, Spring ret C to B	G1M3SS3-10Δ	22
Maint C, Spring ret A to B	G1M3SS7-10Δ	22
Chrome bezel		
Maintained A, B & C	G2M3SS1-30Δ	21
Spring return A & C to B	G2M3SS2-30Δ	24
Maint A, Spring ret C to B	G2M3SS3-30Δ	24
Maint C, Spring ret A to B	G2M3SS7-30Δ	24
Long handle		
Black plastic bezel		
Maintained A, B & C	G1M3SS4-10Δ	19
Spring return A & C to B	G1M3SS5-10Δ	22
Maint A, Spring ret C to B	G1M3SS6-10Δ	22
Maint C, Spring ret A to B	G1M3SS8-10Δ	22
Chrome bezel		
Maintained A, B & C	G2M3SS4-30Δ	21
Spring return A & C to B	G2M3SS5-30Δ	24
Maint A, Spring ret C to B	G2M3SS6-30Δ	24
Maint C, Spring ret A to B	G2M3SS8-30Δ	24

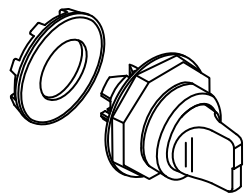
Contact blocks and holder

Blocks	Catalog number	Ref. code	List price
1 NO with holder	MCBH-10	1SFA 611 605 R1101	\$ 10.00
1 NC with holder	MCBH-01	1SFA 611 605 R1110	10.00
2 NO with holder	MCBH-20	1SFA 611 605 R1102	18.00
2 NC with holder	MCBH-02	1SFA 611 605 R1120	18.00
1 NO + 1 NC with holder	MCBH-11	1SFA 611 605 R1111	18.00
1 NO without holder	MCB-10	1SFA 611 610 R1001	8.00
1 NC without holder	MCB-01	1SFA 611 610 R1010	8.00
Holder for 3 blocks	MCBH-00	1SFA 611 605 R1100	2.00

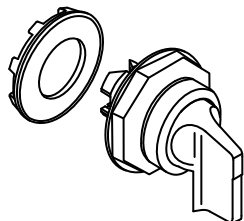
Center position connection detail



3 Position selector switches Illuminated



Short handle



Long handle

Δ Switch color	R	Red
	G	Green
	Y	Yellow
	L	Blue
	C	Clear

Maintained



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



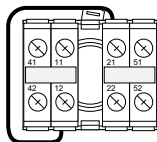
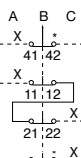
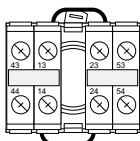
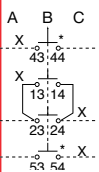
Momentary,
spring return
from C to B



Momentary,
spring return
from A to B



Center position connection detail



Illuminated^①

Description	Catalog number	List price
Short handle		
Black plastic bezel		
Maintained A, B & C	G1M3SS1-11Δ	\$ 25
Spring return A & C to B	G1M3SS2-11Δ	34
Maint A, Spring ret C to B	G1M3SS3-11Δ	34
Maint C, Spring ret A to B	G1M3SS7-11Δ	34
Chrome bezel		
Maintained A, B & C	G2M3SS1-31Δ	27
Spring return A & C to B	G2M3SS2-31Δ	36
Maint A, Spring ret C to B	G2M3SS3-31Δ	36
Maint C, Spring ret A to B	G2M3SS7-31Δ	36
Long handle		
Black plastic bezel		
Maintained A, B & C	G1M3SS4-11Δ	25
Spring return A & C to B	G1M3SS5-11Δ	34
Maint A, Spring ret C to B	G1M3SS6-11Δ	34
Maint C, Spring ret A to B	G1M3SS8-11Δ	34
Chrome bezel		
Maintained A, B & C	G2M3SS4-31Δ	27
Spring return A & C to B	G2M3SS5-31Δ	36
Maint A, Spring ret C to B	G2M3SS6-31Δ	36
Maint C, Spring ret A to B	G2M3SS8-31Δ	36

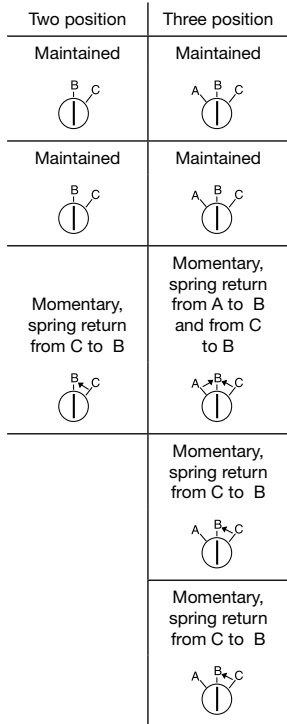
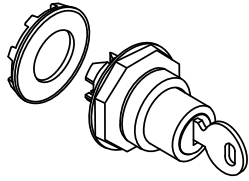
Contact blocks, lamp block and holder See page 8.40

Contact functions See page 8.40

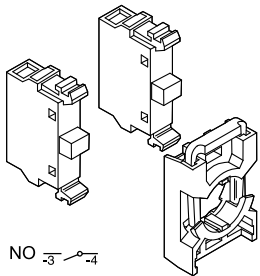
Ordering example See page 8.40

^① No contact block in the center position

Key-operated selector switches ① 2 and 3 position



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



NO

NC

Description	The key can be removed in...	Catalog number	List price
2-position			
Black plastic bezel			
Maintained B & C	B & C	G1M2SSK1-10Δ	\$ 49
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	51
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	61
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	63
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	

Contact blocks and holder

Blocks	Catalog number	Ref. code	List price
2 NO with holder	MCBH-20	1SFA 611 605 R1102	\$ 18.00
2 NC with holder	MCBH-02	1SFA 611 605 R1120	
1 NO + 1 NC with holder	MCBH-11	1SFA 611 605 R1111	
1 NO without holder	MCB-10	1SFA 611 610 R1001	8.00
1 NC without holder	MCB-01	1SFA 611 610 R1010	8.00
Holder for 3 blocks	MCBH-00	1SFA 611 605 R1100	2.00

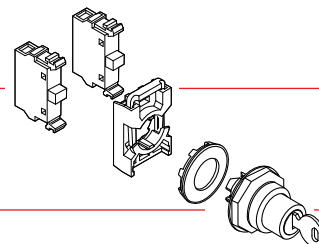
Contact functions

2 positions: See Page 8.38
 3 positions: See Page 8.40

Ordering example

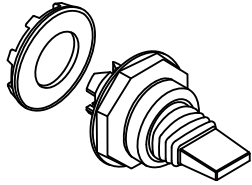
Requested: A key-operated selector switch. Three positions. Maintained. The key removeable in position B. Key code 72. With 2 NC contacts

Ref.: 1 piece of G1M3SSK2-402 + 1 piece of MCBH-02

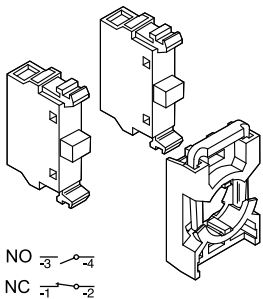


① Includes two keys

Toggle switches 2 and 3 position



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



Description

2-position

Maintained, black bezel
Maintained, chrome bezel

Catalog number

List price

G1MTS1-10B \$ 26.00
G2MTS1-30B 28.00

3-position

Maintained, black bezel
Maintained, chrome bezel
Spring return from A and C to B, black bezel
Spring return from A and C to B, chrome bezel

G1MTS3-10B 26.00
G2MTS3-30B 28.00
G1MTS2-10B 26.00
G2MTS2-30B 28.00

Contact blocks and holder

Blocks	Catalog number	Ref. code	List price
1 NO with holder	MCBH-10	1SFA 611 605 R1101	\$ 10.00
1 NC with holder	MCBH-01	1SFA 611 605 R1110	10.00
2 NO with holder	MCBH-20	1SFA 611 605 R1102	18.00
2 NC with holder	MCBH-02	1SFA 611 605 R1120	18.00
1 NO + 1 NC with holder	MCBH-11	1SFA 611 605 R1111	18.00
1 NO without holder	MCB-10	1SFA 611 610 R1001	8.00
1 NC without holder	MCB-01	1SFA 611 610 R1010	8.00
Holder for 3 blocks	MCBH-00	1SFA 611 605 R1100	2.00

Contact block functions

Block positions as seen from operator front.

2-position maintained switch

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

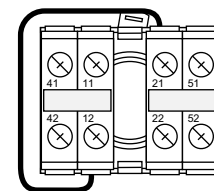
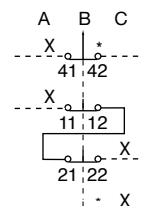
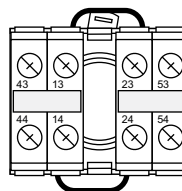
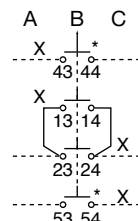
O = not actuated (normal state)
x = actuated (state changed)

3-position switch

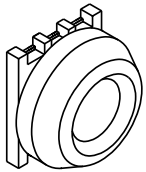
Handle position	Left block	Middle block	Right block
A	O	x	x
B	O	O	O
C	x	x	O

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

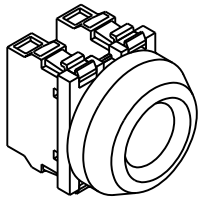
Center position connection detail



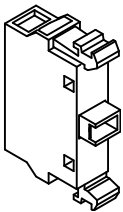
Definite purpose pushbuttons IP 66, and now NEMA 1, 3R, 4 & 4X!



Actuator only



Actuator with blocks



Contact block

Definite purpose pushbuttons

The definite purpose pushbutton, 30 mm, 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.

Included contact blocks	Membrane color	Catalog number	Ref. code	List price
1 NO + 1 NC	Black	1SFA616105R4076	1SFA 616 105 R4076	\$ 45.00
1 NO	Black	1SFA616105R4016	1SFA 616 105 R4016	37.00
1 NC	Black	1SFA616105R4046	1SFA 616 105 R4046	37.00
2 NO	Black	1SFA616105R4026	1SFA 616 105 R4026	45.00
2 NC	Black	1SFA616105R4056	1SFA 616 105 R4056	45.00
-	Red	KP6-40R	1SFA 616 105 R4001	29.00
-	Green	KP6-40G	1SFA 616 105 R4002	29.00
-	Black	KP6-40B	1SFA 616 105 R4006	29.00

Contact block

Description	Catalog number	Ref. code	List price
1 NO	MCB-10	1SFA 611 610 R1001	\$ 8.00
1 NC	MCB-01	1SFA 611 610 R1010	

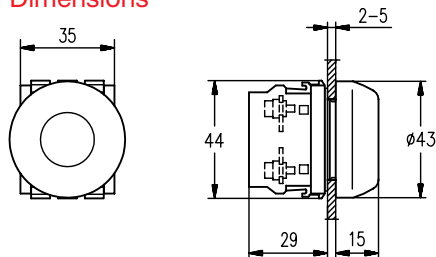
Accessories

Description	Catalog number	Ref. code	List price
Guide washer for positioning and anti rotation	2154 373-1	2154 373-1	\$ 2.00

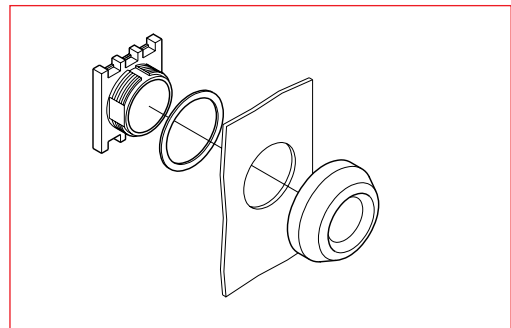
Technical data

Degree of protection	NEMA 4X, IP66
Ambient temperature	-30° ...+70°

Dimensions

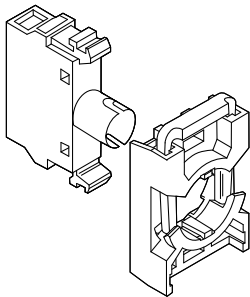
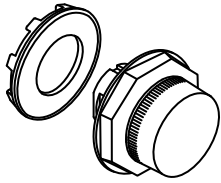


Mounting



Pilot lights

Pilot Devices
Modular Range
30mm



Lamp block + holder



Diffusing lens

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

Description

Black plastic mounting ring
Chrome mounting ring

Catalog number

G1ML1-100Δ
G2ML1-100Δ

List price

\$ 12.50
14.50

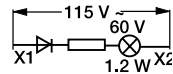
Lamp blocks with holder ①

Supply voltage

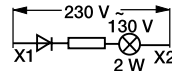
For max. 2 W, 230 V AC and DC filament bulb or LED



115 V AC supply voltage.
For 60 V filament bulb
max. 1.2 W



230 V AC supply voltage.
For 130 V filament bulb
max. 2 W



Catalog number

MCBH-001

Ref. code

1SFA 611 605 R1200

List price

\$ 19.50

MCBH-002

1SFA 611 605 R1300

23.50

MCBH-003

1SFA 611 605 R1400

23.50

Light diffusing lens

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

Description

The lens is used instead of text cap

Catalog number

KA1-8005

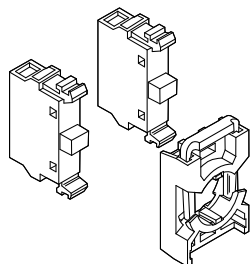
Ref. code

1SFA 616 920 R8005

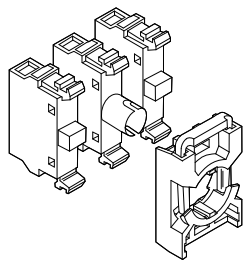
List price

\$ 3.00

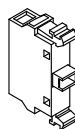
① Bulb not included. See page 8.48



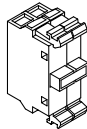
Contact block + holder



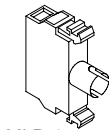
Contacts and lamp block + holder



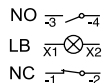
MCB-10



MCB-20



MLB-1



Contact blocks and lamp blocks with holder for front mounting

Max. number of blocks in holder	Included blocks	Catalog number	Ref. code	List price
For non-illuminated operators				
3	1 NC	MCBH-01	1SFA 611 605 R1110	\$ 10.00
3	1 NO	MCBH-10	1SFA 611 605 R1101	10.00
3	2 NC	MCBH-02	1SFA 611 605 R1120	18.00
3	2 NO	MCBH-20	1SFA 611 605 R1102	18.00
3	3 NC	MCBH-03	1SFA 611 605 R1130	26.00
3	3 NO	MCBH-30	1SFA 611 605 R1103	26.00
3	1 NO + 1 NC	MCBH-11	1SFA 611 605 R1111	18.00
3	1 NO + 2 NC	MCBH-12	1SFA 611 605 R1121	26.00
3	2 NO + 1 NC	MCBH-21	1SFA 611 605 R1112	26.00

For illuminated operators				
3	1 NC + 1 LB	MCBH-011	1SFA 611 605 R1210	27.50
3	1 NO + 1 LB	MCBH-101	1SFA 611 605 R1201	27.50
3	1 NO + 1 NC + 1 LB	MCBH-111	1SFA 611 605 R1211	35.50
3	2 NC + 1 LB	MCBH-021	1SFA 611 605 R1220	35.50
3	2 NO + 1 LB	MCBH-201	1SFA 611 605 R1202	35.50

Single contact blocks for front mounting

Included blocks	Catalog number	Ref. code	List price
1 NO	MCB-10	1SFA 611 610 R1001	\$ 8.00
1 NC	MCB-01	1SFA 611 610 R1010	8.00
1 NO with gold plated contacts	MCB-10G	1SFA 611 610 R1101	16.00
1 NC with gold plated contacts	MCB-01G	1SFA 611 610 R1110	16.00

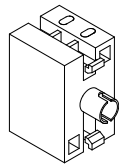
Double contact block for front mounting

To be used together with MCBH5-00 when contact blocks in position 4- and 5- are needed.
Also when using MCBH-00 together with selector switch and contact block in position 3- is needed

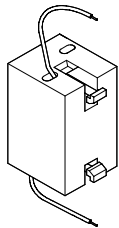
Included blocks	Catalog number	Ref. code	List price
2 NO	MCB-20	1SFA 611 610 R1002	\$ 16.00
2 NC	MCB-02	1SFA 611 610 R1020	
1 NO + 1 NC	MCB-11	1SFA 611 610 R1011	

Single lamp blocks for front mounting, Ba 9s base

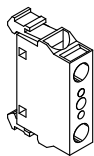
Description	Catalog number	Ref. code	List price
For max. 2 W, 230 V AC and DC filament bulb or LED	MLB-1	1SFA 611 620 R1001	\$ 17.50
115 V AC supply voltage. For 60 V filament bulb max. 1.2 W	MLB-2	1SFA 611 620 R1002	21.50
230 V AC supply voltage. For 130 V filament bulb max. 2 W	MLB-3	1SFA 611 620 R1003	21.50
115 V AC and DC supply voltage For 24 V LED	MLB-4	1SFA 611 620 R1004	21.50
24 V AC and DC supply voltage. With resistor. Intended for electronic circuits. The resistor limits the making current and protects against disturbances in the electronic circuit For 24 V filament bulb	MLB-5	1SFA 611 620 R1005	21.50
With Zener diode max 230V AC/DC, LEDs Used in applications where voltage interference is a problem (i.e., the LED is visibly lit although control voltage is off.	MLB-8	1SFA 611 620 R1008	19.00



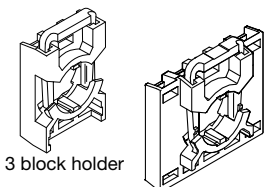
Transformer block with lamp holder for pilot lights



Transformer block for illuminated operators



Diode block



3 block holder

5 block holder

Transformer block

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

Primary voltage	Secondary voltage	Bulb Suffix LED Filament	Catalog number	Ref. code	List price
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With lamp holder for front mounting, Ba 9s base

Intended to supply a 1.2 W filament bulb.

110 - 127 V AC 6 V AC	-	T1	KTR1-1001	1SFA 616 950 R1001	\$ 35.00
220 - 250 V AC 6 V AC	-	T2	KTR1-1002	1SFA 616 950 R1002	
380 - 420 V AC 6 V AC	-	T3	KTR1-1003	1SFA 616 950 R1003	
440 - 480 V AC 6 V AC	-	T4	KTR1-1004	1SFA 616 950 R1004	
500 - 600 V AC 6 V AC	-	T9	KTR1-1005	1SFA 616 950 R1005	
110 - 127 V AC 24 V AC ①	TL1	T5	KTR1-1011	1SFA 616 950 R1011	\$ 35.00
220 - 250 V AC 24 V AC ①	TL2	T6	KTR1-1012	1SFA 616 950 R1012	
380 - 420 V AC 24 V AC ①	TL3	T7	KTR1-1013	1SFA 616 950 R1013	
440 - 480 V AC 24 V AC ①	TL4	T8	KTR1-1014	1SFA 616 950 R1014	

For illuminated operators ②

Intended to supply a 1.2 W filament bulb mounted in lamp block MLB-1 (1SFA 611 620 R1001) only.

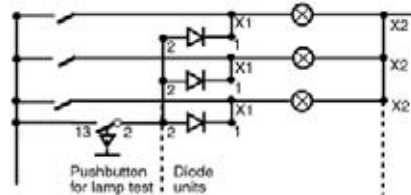
110 - 127V AC 6 V AC	-	T1	KTR1-2001	1SFA 616 950 R2001	35.00
220 - 250 V AC 6 V AC	-	T2	KTR1-2002	1SFA 616 950 R2002	
380 - 420 V AC 6 V AC	-	T3	KTR1-2003	1SFA 616 950 R2003	
440 - 480 V AC 6 V AC	-	T4	KTR1-2004	1SFA 616 950 R2004	
500 - 600 V AC 6 V AC	-	T9	KTR1-2005	1SFA 616 950 R2005	
110 - 127 V AC 24 V AC ①	TL1	T5	KTR1-2011	1SFA 616 950 R2011	35.00
220 - 250 V AC 24 V AC ①	TL2	T6	KTR1-2012	1SFA 616 950 R2012	
380 - 420 V AC 24 V AC ①	TL3	T7	KTR1-2013	1SFA 616 950 R2013	
440 - 480 V AC 24 V AC ①	TL4	T8	KTR1-2014	1SFA 616 950 R2014	

Diode block

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

Description	Catalog number	Ref. code	List price
Diode block	MDB-1001	1SFA 611 630 R1001	\$ 14.00

Diagram for lamp test with three diode block



Holders

Description	Catalog number	Ref. code	List price
Holders for front mounting			
For three blocks	MCBH-00	1SFA 611 605 R1100	\$ 2.00
For five blocks	MCBH5-00	1SFA 611 601 R1100	4.00

① Can be used with LED bulb

② To be used with directly supplied lamp blocks only.

Accessories



LEDs

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

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

Description				Catalog No.	Ref. Code	List Price
Color	Rated current mA	Wave-length nm	Luminance mcd			
Rated voltage 12 V, DC Service life >50 000 h						
Red	15	630	250	KA2-2011	1SFA 616 921 R2011	\$ 21.00
Green	15	525	1000	KA2-2012	1SFA 616 921 R2012	
Yellow	15	592	250	KA2-2013	1SFA 616 921 R2013	
Blue	15	470	450	KA2-2014	1SFA 616 921 R2014	
White	15	x=0.31 y=0.32	600	KA2-2015	1SFA 616 921 R2015	
Rated voltage 24 V, (AC)/DC Ⓞ Service life >50 000 h						
Red	15	630	250	KA2-2021	1SFA 616 921 R2021	15.00
Green	15	525	800	KA2-2022	1SFA 616 921 R2022	
Yellow	15	592	250	KA2-2023	1SFA 616 921 R2023	
Blue	15	470	400	KA2-2024	1SFA 616 921 R2024	
White	15	x=0.31 y=0.32	500	KA2-2025	1SFA 616 921 R2025	
Rated voltage 36 V, (AC)/DC Ⓞ Service life >50 000 h						
Red	12	630	250	KA2-2031	1SFA 616 921 R2031	21.00
Green	12	525	800	KA2-2032	1SFA 616 921 R2032	
Yellow	12	592	250	KA2-2033	1SFA 616 921 R2033	
Blue	12	470	400	KA2-2034	1SFA 616 921 R2034	
White	12	x=0.31 y=0.32	500	KA2-2035	1SFA 616 921 R2035	
Rated voltage 48 V, (AC)/DC Ⓞ Service life >50 000 h						
Red	12	630	200	KA2-2041	1SFA 616 921 R2041	15.00
Green	12	525	1700	KA2-2042	1SFA 616 921 R2042	
Yellow	12	592	240	KA2-2043	1SFA 616 921 R2043	
Blue	12	470	720	KA2-2044	1SFA 616 921 R2044	
White	12	x=0.31 y=0.32	1200	KA2-2045	1SFA 616 921 R2045	
Rated voltage 60 V, (AC)/DC Ⓞ Service life >50 000 h						
Red	10	630	160	KA2-2051	1SFA 616 921 R2051	21.00
Green	10	525	1400	KA2-2052	1SFA 616 921 R2052	
Yellow	10	592	200	KA2-2053	1SFA 616 921 R2053	
Blue	10	470	600	KA2-2054	1SFA 616 921 R2054	
White	10	x=0.31 y=0.32	1000	KA2-2055	1SFA 616 921 R2055	
Rated voltage 110-130 V, AC Ⓞ Service life 25 000 h						
Red	4-6	630	60-100	KA2-2131	1SFA 616 921 R2131	15.00
Green	4-6	525	500-850	KA2-2132	1SFA 616 921 R2132	
Yellow	4-6	592	70-120	KA2-2133	1SFA 616 921 R2133	
Blue	4-6	470	220-350	KA2-2134	1SFA 616 921 R2134	
White	4-6	x=0.31 y=0.32	350-600	KA2-2135	1SFA 616 921 R2135	
Rated voltage 110-130 V, AC/DC Ⓞ Service life 25 000 h						
Red	4-6	630	60-100	KA2-2141	1SFA 616 921 R2141	21.00
Green	4-6	525	500-850	KA2-2142	1SFA 616 921 R2142	
Yellow	4-6	592	70-120	KA2-2143	1SFA 616 921 R2143	
Blue	4-6	470	220-350	KA2-2144	1SFA 616 921 R2144	
White	4-6	x=0.31 y=0.32	350-600	KA2-2145	1SFA 616 921 R2145	
Rated voltage 230 V, AC Ⓞ Service life 25 000 h						
Red	4	630	60	KA2-2221	1SFA 616 921 R2221	21.00
Green	4	525	500	KA2-2222	1SFA 616 921 R2222	
Yellow	4	592	70	KA2-2223	1SFA 616 921 R2223	
Blue	4	470	220	KA2-2224	1SFA 616 921 R2224	
White	4	x=0.31 y=0.32	350	KA2-2225	1SFA 616 921 R2225	
Rated voltage 230 V, AC/DC Ⓞ Service life 25 000 h						
Red	4	630	60	KA2-2231	1SFA 616 921 R2221	21.00
Green	4	525	500	KA2-2232	1SFA 616 921 R2222	
Yellow	4	592	70	KA2-2233	1SFA 616 921 R2223	
Blue	4	470	220	KA2-2234	1SFA 616 921 R2224	
White	4	x=0.31 y=0.32	350	KA2-2235	1SFA 616 921 R2225	

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

Accessories

Pilot Devices
Modular Range
30mm



Filament bulb

Filament bulbs

Ba 9s base. A lamp changing tool is required for changing bulb.

Description					Catalog number	Ref. code	List price
Rated voltage V	Rated current mA	Rated output W	Service life h	Lumiance mcd			
6	200	1.2	10 000	350	5911 086-11	5911 086-11	\$ 6.00
12	100	1.2	10 000	230	5911 086-12	5911 086-12	
24	50	1.2	10 000	280	5911 086-13	5911 086-13	
30	40	1.2	10 000	250	5911 086-4	5911 086-4	
48	42	2	6 000	500	5911 086-5	5911 086-5	
60	20	1.2	5 000	190	5911 086-14	5911 086-14	
110	18	2	7 500	250	5911 086-7	5911 086-7	
130	15	2	7 500	120	5911 086-15	5911 086-15	



Flashing LED

Flashing LED

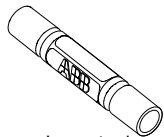
A lamp changing tool is required for changing bulb.

Choose the same color for the LED and the lamp cap or use a clear lamp cap.

The lamp base has to be connected to cathode (-) and the bottom contact to anode (+).

Description					Catalog number	Ref. code	List price
Color	Wave length nm	Service life hours					
Rated voltage 24 V, rated current 25 mA, DC							
Red	630	50 000		4950 512-1	4950 512-1		\$ 20.00
Green	565	50 000		4950 512-2	4950 512-2		44.25
Yellow	585	50 000		4950 512-3	4950 512-3		20.00

Accessories



Lamp tool



Mounting tool



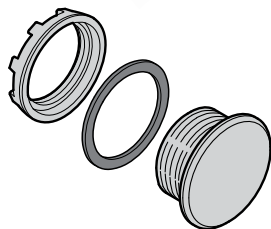
30mm adaptors



Flush mount adaptor



Extra key



Blanking plug



30mm gasket

Lamp changing tool

Description	Catalog number	Ref. code	List price
For LEDs and for bulbs	KA1-8072	1SFA 616 920 R8072	\$ 10.00

Mounting tool

Description	Catalog number	Ref. code	List price
Used for tightening the sleeve	KA1-8015	1SFA 611 920 R8015	\$ 10.00

30mm adaptors

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

Description	Catalog number	Ref. code	List price
For use with emergency stop pushbuttons			
Black plastic	KA1-8027	1SFA 616 920 R8027	\$ 8.00
Metal	KA1-8028	1SFA 616 920 R8028	10.00

For use with pushbuttons, selector switches, pilot lights, potentiometers and buzzers

Black plastic	KA1-8029	1SFA 616 920 R8029	8.00
Metal	KA1-8030	1SFA 616 920 R8030	10.00

Flush mount adaptor, 30mm

Description	Catalog number	Ref. code	List price
For flush mounted pushbuttons	KA1-8073	1SFA 616 920 R8073	\$ 15.00
For flush mounted selector switches	KA1-8074	1SFA 616 920 R8074	

Extra key

Description	Catalog number	Ref. code	List price
Ronis 455 (key code 71)	SK 616 021-71	SK 616 021-71	\$ 10.00
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	

Blanking plug (30mm)

Description	Catalog number	Ref. code	List price
Black plastic	MA1-8133	1SFA 611 920 R8133	\$ 7.30

30mm gasket

Description	Catalog number	List price
Gasket, 30mm	1SFA616920R8018	\$ 1.50



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

Standards

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

Degrees of protection

Operators	IP	UL/CSA
Pushbutton with flush or extended button, MP	IP 66	Type 1, 3R, 4, 4X, 12, 13
Double pushbutton, MPD	IP 66	Type1, 3R, 4, 4X, 12, 13
Mushroom pushbutton, momentary, MPM	IP 66	Type 1, 3R, 4, 4X, 12, 13
Emergency stop pushbutton, MPMT/P	IP 66	Type 1, 3R, 4, 4X, 12, 13
Selector switch, M2SS/M3SS	IP 66	Type 1, 3R, 4, 4X, 12, 13
Key operated selector switch, M2SSK/M3SSK	IP 66	Type 1, 3R, 4, 4X, 12
Toggle switch, MTS2/MTS3	IP 66	Type 1, 3R, 4, 4X, 12, 13
Definite purpose pushbutton, 30 mm, KP6	IP 66	Type 1, 3R, 4, 4X
Reset button, KPR	IP 66	Type 1, 3R, 4, 4X, 12, 13
Pilot lights, ML	IP 66	Type 1, 3R, 4, 4X, 12, 13
Buzzer, KB	IP 65	Type 4X
Potentiometer, KT	IP 66	Type 1, 3R, 4, 4X, 12, 13
Contact block & transformer block	IP 20	



Material

No ozone depleting substances in the products.

All front parts are made of polycarbonate

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

Mechanical life

Operators

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

Temperature

Ambient temperature during operation	-25 to +70 °C
<i>Exception: All pilot devices with 2 W continuously lit filament bulb</i>	
	-25 to +40 °C
Storage temperature	-30 to +85 °C

8

Terminals

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

Tightening torque

Locking nut, M22	Min. 2 Nm Max. 2.3 Nm
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Contact blocks

Mechanical endurance 10 million operations

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

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

Ratings as per IEC 60 947-5-1

Rated insulation voltage, U_i	690 V
Rated thermal current, I_{th}	10 A
Rated operational current, I_e	
utilisation category AC 15,	at 120 V 8 A
	230 V 6 A
	400 V 4 A
	690 V 2 A

Rated operational current, I_e	
utilisation category DC 13,	at 24 V 5 A
	125 V 1.1 A
	250 V 0.55 A

Contact resistance < 25 mΩ

Compulsory function test at 5V, 16 mA

Max. number of contact blocks per operator ①

Pushbutton, toggle switch and mushroom pushbutton	6
Maintained pushbutton	4
Double pushbutton, selector switch, key operated selector switch and emergency stop pushbutton	4
Short circuit protection	
Max. fuse at 1 kA	16 A ordinary 10 A delayed

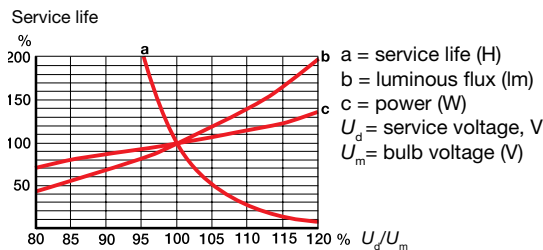
Lamp block

Ratings as per IEC 60 947-5-1

Rated insulation voltage	230 V
Base	Ba 9s
Permissible power, up to	2 W

Service life of filament bulb

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



Lamp comparison

Bulb Catalog No.	Approx. life (hours)	Shock and service immunity	High vibration temperature	Low power operating	Brightness consumption
Filament	5000 - 10 000	+	+	+	+++
LED	25 000 - 50 000	+++	++	++	++

Very good +++
Good ++
Less good +

Transformer block

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

Rated power	1.5 W
Rated voltage	Ratio, see Accessories page 8.25
Rated insulation voltage acc. to IEC 70 °C (DT)	Class E

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