

## M-0



M-0 series control, monitoring and signalling devices are installed as external accessories on Cortem 'Ex d' enclosures used in any industrial environment where an explosive atmosphere may be present, classified as Zone 1, 2, 21, 22. M-0 control devices can be used to close or open electrical or mechanical devices fitted inside the 'Ex d' enclosures while the signalling devices feature lights to indicate their operating status. The control and signalling device components are made from stainless steel to deliver unbeatable efficiency under any environmental conditions. Levers are made from aluminium while the plastic parts on push-buttons are designed to provide lengthy service life even when used in a highly corrosive atmosphere. M-0 control and signalling devices have an IP66 protection degree.

### CERTIFICATION DATA FOR CONTROL DEVICES

Classification:	Group 2	Category 2D		
Installation: EN 60079.14	zone 21 - zone 22 (Dust)			
Marking:	CE 0722 Ex II 2D Ex tb IIIC Db IP66			
Certification:	ATEX	CML 17 ATEX 3111U	All IEC Ex certification data can be downloaded from <a href="http://www.cortemgroup.com">www.cortemgroup.com</a>	
	IEC Ex	CML 17.0051U		
Standards:	CENELEC EN 60079-0: 2012+A11:2013, EN 60079-31:2014 and EUROPEAN DIRECTIVE 2014/34/UE IEC 60079-0: 2011, IEC 60079-31: 2013			
Degree of protection:	IP66			



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ATEX Certificate



IECEx Certificate

## MECHANICAL FEATURES OF CONTROL DEVICES

<b>Outer body:</b>	Aluminium
<b>Internal bush:</b>	Stainless steel
<b>Internal pin:</b>	Stainless steel
<b>Gaskets:</b>	Acid/hydrocarbon-resistant silicone
<b>Push-button:</b>	Coloured nylon
<b>Illuminated push-button:</b>	Clear coloured polycarbonate
<b>Handle levers:</b>	Aluminium
<b>Coating:</b>	Polyester coating RAL 7035 (Light grey), where this is an option
<b>Device mounting:</b>	Screws into lid
<b>Contact mounting:</b>	Snap onto special flange, which assures quick connection of the whole contact block to the device or boxed type installed on DIN rails directly on the internal frame

## ELECTRICAL FEATURES (Contact block for push-buttons)

<b>Rated voltage:</b>	600V
<b>Rated current:</b>	10A
<b>Impulse withstand voltage:</b>	4kV
<b>Insulation category:</b>	Group C as per VDE 0110
<b>Degree of protection of terminals:</b>	IP2x as per CENELEC EN 60529
<b>Contact operation:</b>	<ul style="list-style-type: none"> <li>– slow acting</li> <li>– self-cleaning (wiping action)</li> <li>– NC contact forced opening</li> <li>– double movable bridge</li> <li>– four points of contact</li> <li>– double break</li> </ul>
<b>Contact resistance</b>	≤ 25 mΩ as per IEC 255.7 category 3

### Electrical performance

Rated thermal current I<sub>th</sub> = 10 A

### Operational limits as per IEC 947.5.1:

Category AC15								
Voltage U <sub>e</sub> (V)	24	48	60	110	220	380	500	600
Current I <sub>e</sub> (A)	10	10	10	6	3	2	1.5	1.2
Category DC13								
Voltage U <sub>e</sub> (V)	24	48	60	110	220	300		
Current I <sub>e</sub> (A)	2.5	1.5	1	0.22	0.27	0.2		

### Operational limits as per IEC 947.5.1:

AC Heavy Duty	(A600)
DC Standard Duty	(Q300)

### Short-circuit protection

16A gG time-delay fuses as per IEC 269.1 and 269.3

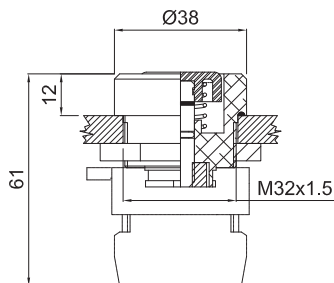
## ELECTRICAL FEATURES (CONTACT BLOCK FOR M-0553.. HANDLES)

### Alternating current

Series			10	16	20	32	40/63
Rated voltage	U <sub>e</sub> VDE/IEC	V	690	690	690	690	690
Rated current	I <sub>th</sub> VDE/IEC	A	20	25	32	45	63
	220V-240V	kW	2.2	4.5	5.5	7.5	15
	380V-440V	kW	4.0	7.5	9.0	11.0	30
AC3 VDE/IEC, Direct starting of squirrel cage motor, stop during operation	660V-690V	kW	4.0	7.5	11.0	15.0	30
	110V	kW	0.4	1.5	1.5	2.5	2.5
	220V-240V	kW	0.75	2.5	4.5	4.0	6
	400V	kW	1.3	4.0	5.5	5.5	7.5

## M-0... control, monitoring and signalling devices

Ex tb

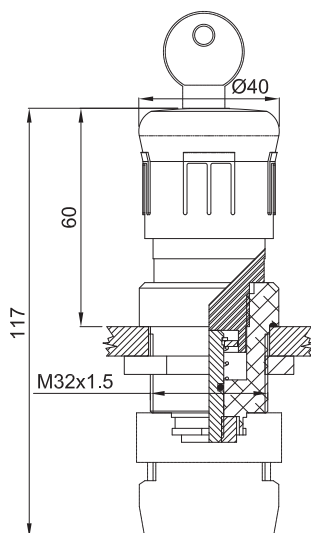


Normal push-button with standard 10A 600V  
1NO+1NC contacts.  
Button comes in choice of six colours.

Blue (B)	M-0639../B..
White (BI)	M-0639../BI..
Yellow (G)	M-0639../G..
Black (N)	M-0639../N..
Red (R)	M-0639../R..
Green (V)	M-0639../V..

Add IN for stainless steel body

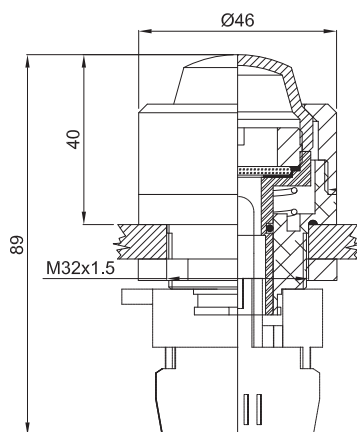
**Note:**  
For the padlockable push-button add  
CODE + L (e.g. M- 0639/RL)



Normal push-button with standard 10A 600V  
1NO+1NC contacts.

Emergency stop pushbutton with release	M-0638
Black push-pull, stop push-button	M-0638../N
Emergency stop pushbutton with key release	M-0638../K
Push-pull, stop pushbutton	M-0638../P

Add IN for stainless steel body



Illuminated push-button with standard 10A 600V  
1NO+1NC contacts. (lamps on request)  
Illuminated button comes in choice of five colours.

Blue	M-0637../B
White	M-0637../I
Yellow	M-0637../G
Red	M-0637../R
Green	M-0637../V

Add IN for stainless steel body

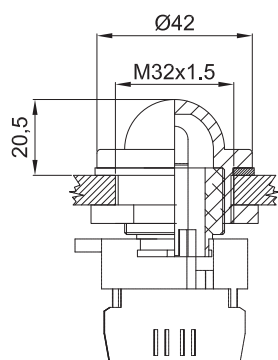
## M-0... control, monitoring and signalling devices

### ILLUSTRATION

### DIMENSIONS mm

### DESCRIPTION

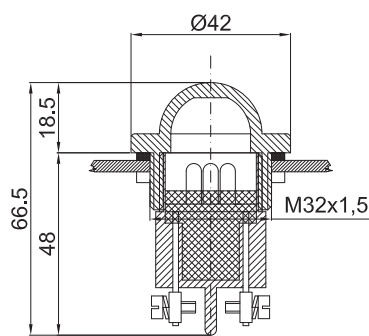
### CODE



Indicator light with 3W lamps (on request\*),  
12/240 Vac/dc.  
Lens comes in choice of five colours.

Blue	<b>M-0636/B</b>
Yellow	<b>M-0636/G</b>
White	<b>M-0636/I</b>
Red	<b>M-0636/R</b>
Green	<b>M-0636/V</b>

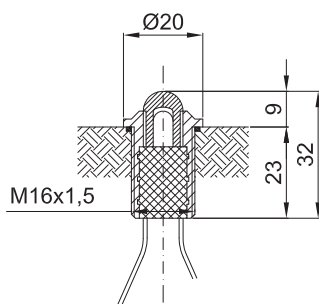
* lamp	12V:	<b>LAMPBA9S12V</b>
	24V:	<b>LAMPBA9S24V</b>
	110V:	<b>LAMPBA9S110V</b>
	240V:	<b>LAMPBA9S240V</b>



Multi-LED indicators come with lenses in  
different colours. Reliability with a LED  
service life of 50,000 hours.

Blue	<b>M-0612/3B..</b>
Yellow	<b>M-0612/3G..</b>
Colourless	<b>M-0612/3I..</b>
Red	<b>M-0612/3R..</b>
Green	<b>M-0612/3V..</b>

Can be ordered in 4 possible voltages:  
**110 Vac/dc** = **M-0612/..110**  
**12 Vac/dc** = **M-0612/..12**  
**230 Vac** = **M-0612/..230**  
**24 Vac/dc** = **M-0612/..24**


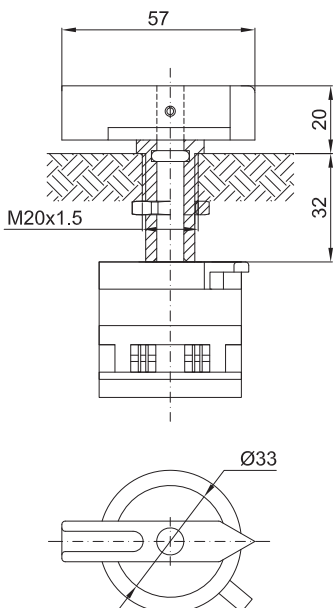

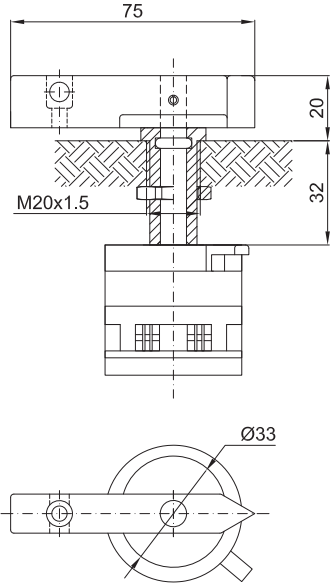

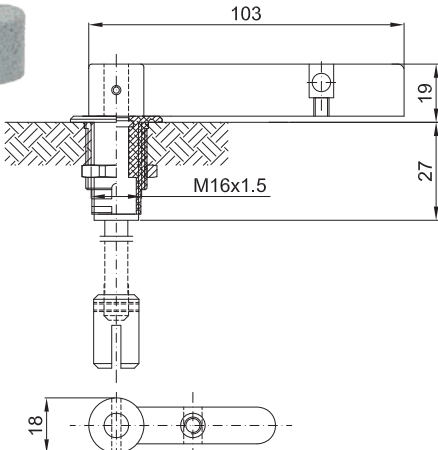


Indicator light with one high-brightness  
LED, for a consumption of 20 mA and  
estimated life of around 50,000 hours.  
LED in 5 colours available.  
Complete with locknut.

Color	If (mA)	Vf Tip. (V)	Vf max. (V)	
Red	20	2.1	2.6	<b>M-0487</b>
Yellow	20	2.1	2.4	<b>M-0487/G</b>
Clear	20	3.2	4.0	<b>M-0487/I</b>
Green	20	3.2	4.0	<b>M-0487/V</b>
Bicolor	20	2.0	2.5	<b>M-0487/1</b>

# M-0... control, monitoring and signalling devices

Ex tb

ILLUSTRATION	DIMENSIONS mm	DESCRIPTION	CODE
		Quick-connect handle for cam or rotary switch. Fixed pin length. Complete with locknut.  Add suffix <b>IN</b> for stainless steel body and handle  <b>Note:</b> contact block is supplied on request. Please contact our sales department if you need advice	M-0634/10..
		Quick-connect padlockable handle for cam or rotary switch. Fixed pin length. Complete with locknut.  Add suffix <b>IN</b> for stainless steel body and handle  <b>Note:</b> contact block is supplied on request. Please contact our sales department if you need advice	M-0634/10L..
		Padlockable handle for cam switch. Complete with locknut.  Fixed pin length  Variable pin length  Add <b>IN</b> for stainless steel body and handle	M-0634../11F M-0634../11V

## M-0... control, monitoring and signalling devices

ILLUSTRATION	DIMENSIONS mm	DESCRIPTION	CODE
		Padlockable handle for special switches. (3RV motor protectors). Complete with locknut.	
		Variable pin length	M-0634../12V
		Fixed pin length	M-0634../12F
		Add <b>IN</b> for stainless steel body and handle	
		Padlockable handle for switches with Ø6 shaft. Complete with locknut.	
		Variable pin length	M-0634../13V
		Fixed pin length	M-0634../13F
		Add <b>IN</b> for stainless steel body and handle	
		Padlockable handle for enclosed circuit breakers. Complete with locknut.	
		Variable pin length (size to order)	M-0634../14V
		Fixed pin length	M-0634../14F
		Add <b>IN</b> for stainless steel body and handle	



## M-0... control, monitoring and signalling devices

Ex tb


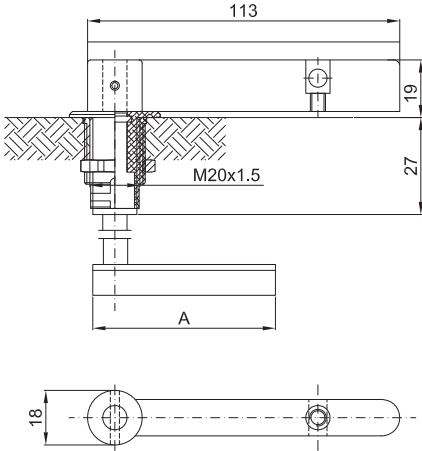

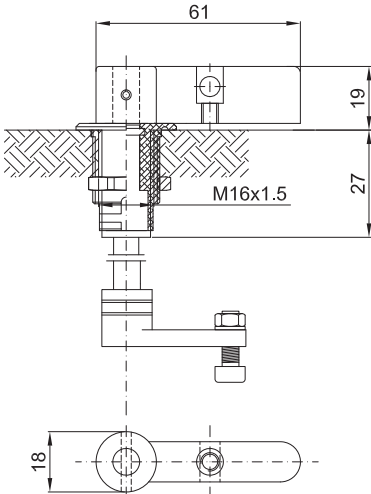

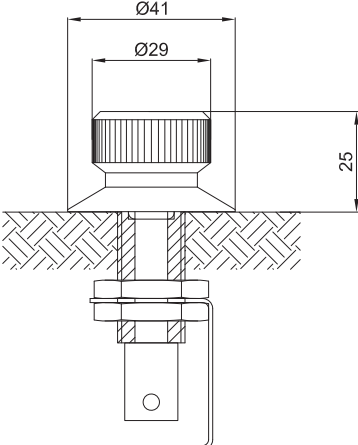

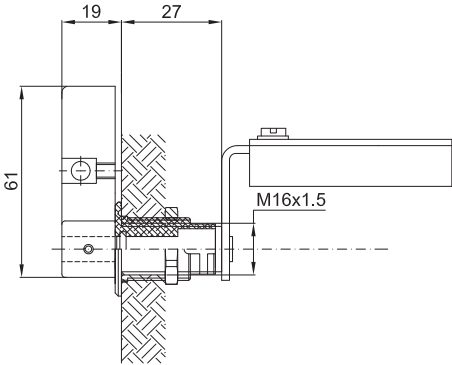
ILLUSTRATION	DIMENSIONS mm	DESCRIPTION	CODE
		Padlockable handle for heavy-duty series enclosed circuit breakers. Complete with locknut.  Variable pin length  Fixed pin length  Add <b>IN</b> for stainless steel body and handle	<b>M-0634../01V</b> <b>M-0634../01F</b>
		Padlockable handle for modular circuit breakers. Complete with locknut.  Fixed pin length  Variable pin length  Add <b>IN</b> for stainless steel body and handle	<b>M-0634../04F</b> <b>M-0634../04V</b>
		Knob for potentiometers with Ø6 shaft	<b>M-0634/06</b>

ILLUSTRATION	DIMENSIONS mm	DESCRIPTION	CODE
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Ex tb

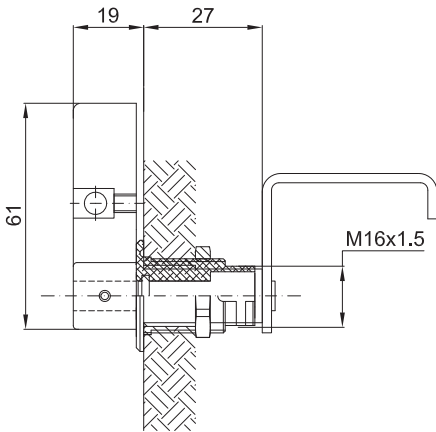




Handle for enclosed circuit breakers. Wall mounting. Complete with locknut.

**M-0634/07**

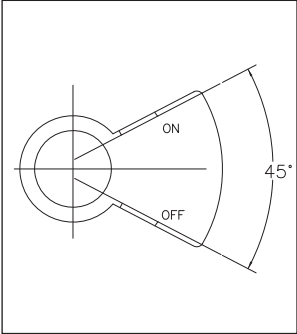




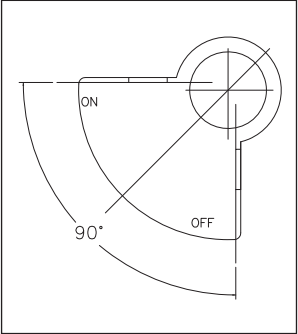
Handle for modular circuit breakers. Wall mounting. Complete with locknut.

**M-0634/09**

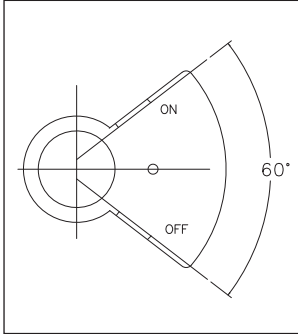
Type of handle padlocking devices



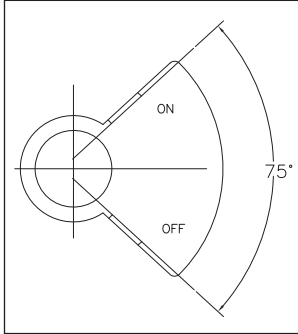
Code **M-698/5**



Code **M-698/6**



Code **M-698/7**



Code **M-698/8**

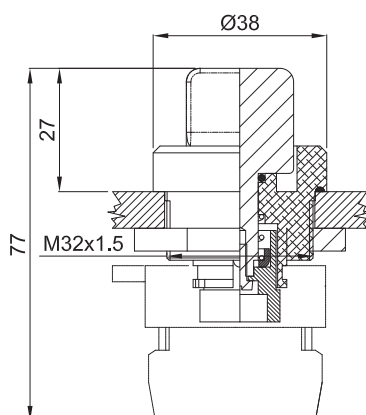


## ILLUSTRATION

## DIMENSIONS mm

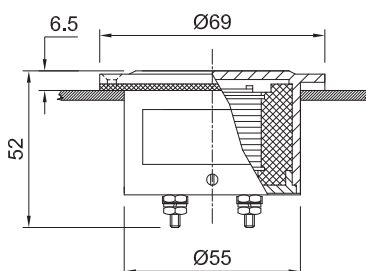
## DESCRIPTION

## CODE



Selector with 0A 600V 1NO+1NC contacts.

Selector R arrangement	M-0635/R
Left selector RSX arrangement	M-0635/RSX
Selector X arrangement	M-0635/X
Selector 1C arrangement	M-0635/1C
Selector 1I arrangement	M-0635/1I
Selector 1M arrangement	M-0635/1M
Selector 1W arrangement	M-0635/1W
Selector 1Z arrangement	M-0635/1Z
Selector 2C arrangement	M-0635/2C
Selector 2I arrangement	M-0635/2I
Selector 2W arrangement	M-0635/2W
Selector 2Z arrangement	M-0635/2Z
Selector 3I arrangement	M-0635/3I
Selector 4I arrangement	M-0635/4I



The Cortem certified ammeter and voltmeter are suitable for measuring electrical values when the situation demands the utmost accuracy. The internal faces featuring the measuring range scale are produced to the customer's specifications.

Ammeter	B-0140A
voltmeter	B-0140V

Maximum voltage:	600 V
Nominal frequency:	40 ÷ 60 Hz
Precision class:	1.5
Dissipated power:	1.1 VA (B-0140A) 3.0 VA (B-0140V)

Measurement range - Direct measurement:

0 ÷ 40 mA	0 ÷ 0.1 A
0 ÷ 60 mA	0 ÷ 1.5 A
0 ÷ 100 mA	0 ÷ 2.5 A
0 ÷ 250 mA	0 ÷ 5 A
0 ÷ 400 mA	0 ÷ 6 A
0 ÷ 600 mA	0 ÷ 15 A

Measuring range - With current transformer:

0 ÷ 2.5 mA	0 ÷ 50 A
0 ÷ 5 mA	0 ÷ 60 A
0 ÷ 10 mA	0 ÷ 75 A
0 ÷ 15 mA	0 ÷ 100 A
0 ÷ 20 mA	0 ÷ 150 A
0 ÷ 25 mA	0 ÷ 200 A
0 ÷ 30 mA	0 ÷ 300 A
0 ÷ 40 mA	0 ÷ 400 A

