

M-O



M-O 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-O 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-O 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 IIC Db IP66			
Certification:	ATEX	CML 17 ATEX 3111U	All IEC Ex certification data can be downloaded from www.cortemgroup.com	
	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

Outer body:	Aluminium
Internal bush:	Stainless steel
Internal pin:	Stainless steel
Gaskets:	Acid/hydrocarbon-resistant silicone
Push-button:	Coloured nylon
Illuminated push-button:	Clear coloured polycarbonate
Handle levers:	Aluminium
Coating:	Polyester coating RAL 7035 (Light grey), where this is an option
Device mounting:	Screws into lid
Contact mounting:	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)

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

Electrical performance

Rated thermal current I_{th} = 10 A

Operational limits as per IEC 947.5.1:

Category AC15								
Voltage U _e (V)	24	48	60	110	220	380	500	600
Current I _e (A)	10	10	10	6	3	2	1.5	1.2
Category DC13								
Voltage U _e (V)	24	48	60	110	220	300		
Current I _e (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

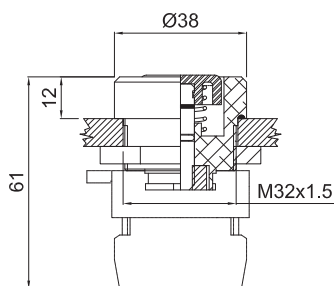
ELECTRICAL FEATURES (CONTACT BLOCK FOR M-0553.. HANDLES)

Alternating current

Series			10	16	20	32	40/63
Rated voltage	U _e VDE/IEC	V	690	690	690	690	690
Rated current	I _{th} 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-O... control, monitoring and signalling devices

Ex tb

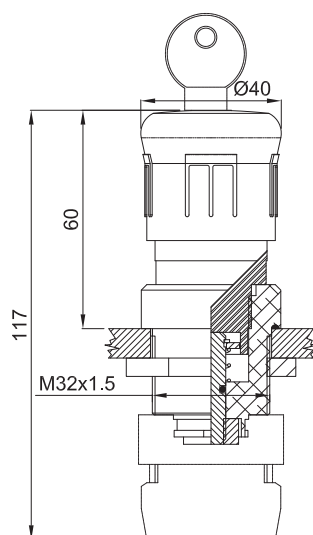


Normal push-button with standard 10A 600V
1NO+1NC contacts.
Button comes in choice of six colours.

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

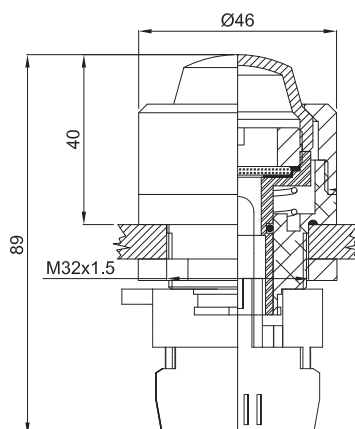
Note:
For the padlockable push-button add
CODE + L (e.g. M- 0639/RL)



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

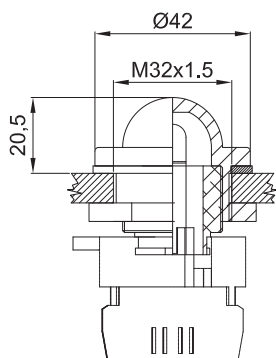
Add IN for stainless steel body

ILLUSTRATION

DIMENSIONS mm

DESCRIPTION

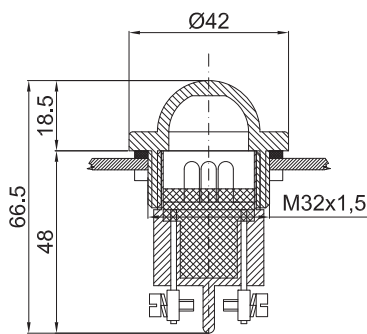
CODE



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

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

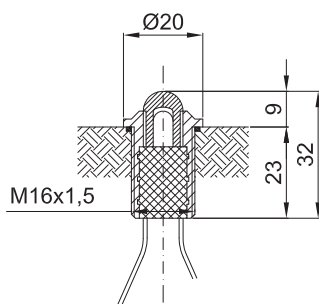
* lamp	12V:	LAMPBA9S12V
	24V:	LAMPBA9S24V
	110V:	LAMPBA9S110V
	240V:	LAMPBA9S240V



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

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

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	M-0487
Yellow	20	2.1	2.4	M-0487/G
Clear	20	3.2	4.0	M-0487/I
Green	20	3.2	4.0	M-0487/V
Bicolor	20	2.0	2.5	M-0487/1

M-O... 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 IN for stainless steel body and handle Note: 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 IN for stainless steel body and handle Note: 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 IN for stainless steel body and handle	M-0634../11F M-0634../11V


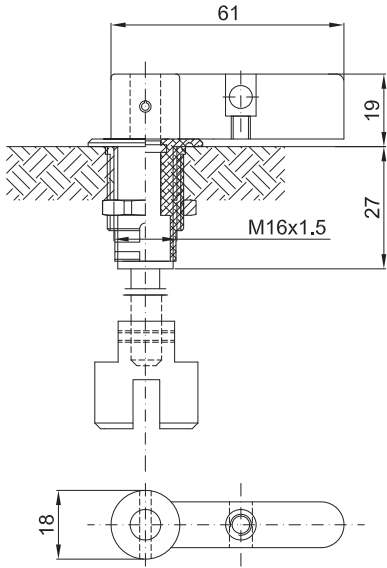

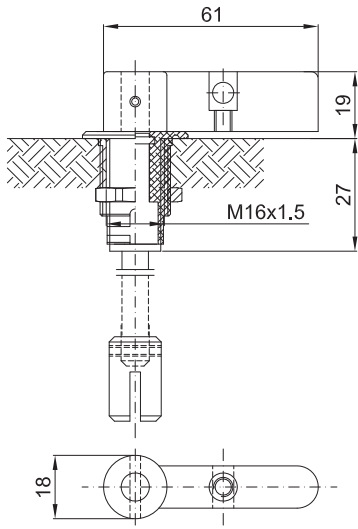

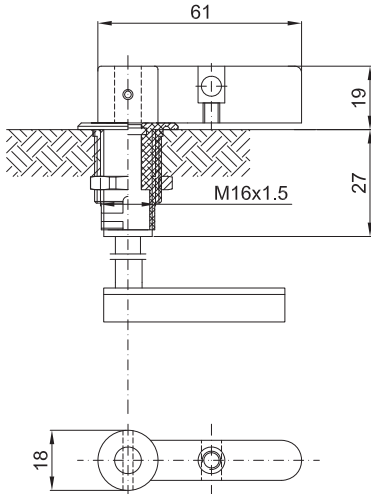
ILLUSTRATION	DIMENSIONS mm	DESCRIPTION	CODE
		Padlockable handle for special switches. (3RV motor protectors). Complete with locknut.	
		Variable pin length	M-0634../12V
		Fixed pin length	M-0634../12F
		Add IN for stainless steel body and handle	
		Padlockable handle for switches with Ø6 shaft. Complete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


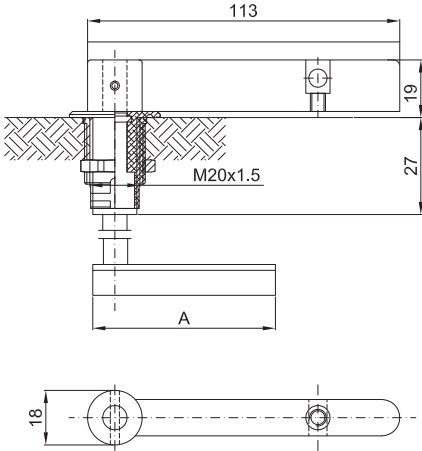

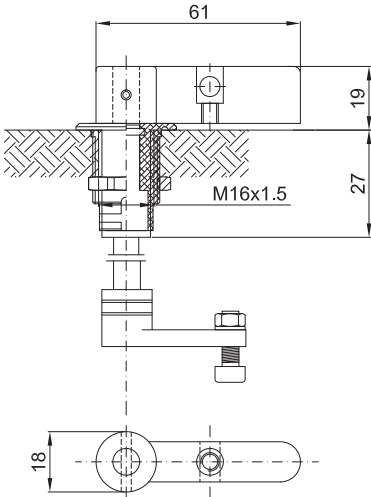

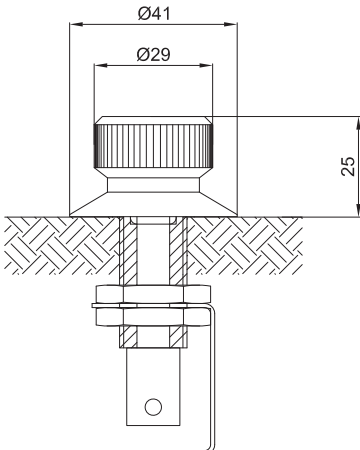

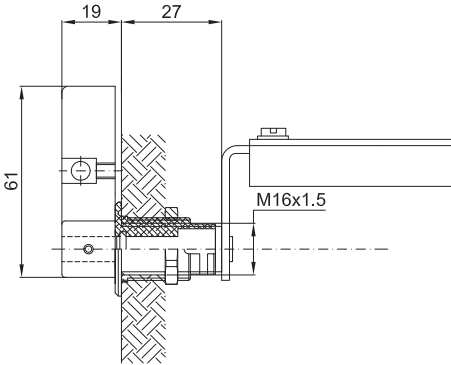

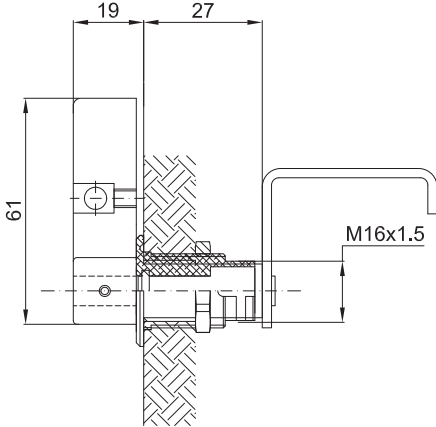
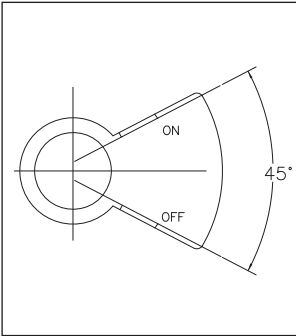
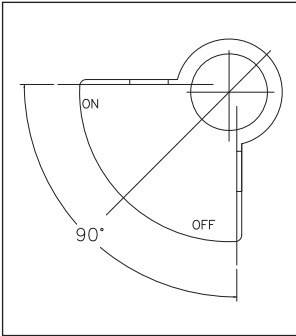
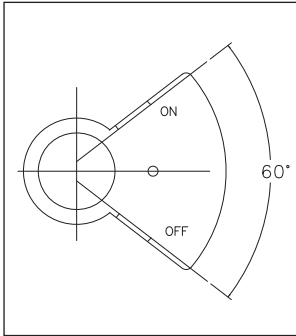
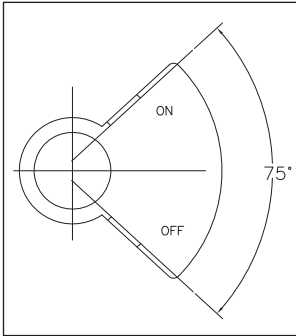
ILLUSTRATION	DIMENSIONS mm	DESCRIPTION	CODE
		Padlockable handle for heavy-duty series enclosed circuit breakers. Complete with locknut.	
		Variable pin length	M-0634../01V
		Fixed pin length	M-0634../01F
		Add IN for stainless steel body and handle	
		Padlockable handle for modular circuit breakers.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

ILLUSTRATION	DIMENSIONS mm	DESCRIPTION	CODE
		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

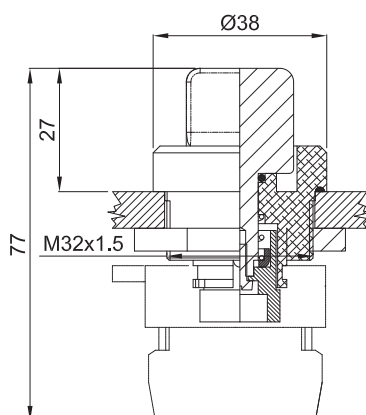
			
Code M-698/5	Code M-698/6	Code M-698/7	Code M-698/8

ILLUSTRATION

DIMENSIONS mm

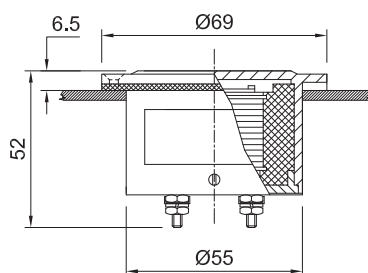
DESCRIPTION

CODE



Selector with OA 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

