

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

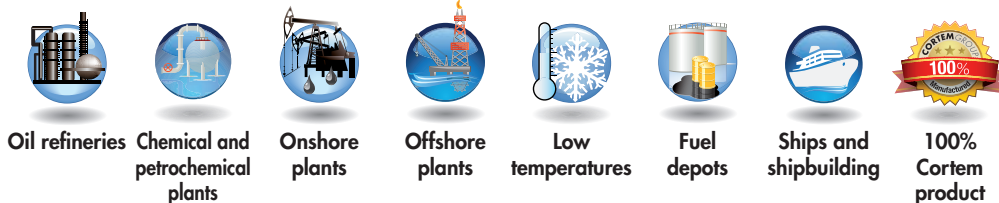
Ex e

# M-0





The new Cortem M-0 series control, monitoring and signalling devices are installed as external accessories on 'Ex e' enclosures and boards 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 e' 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 rating.

## Application sectors:




## CERTIFICATION DATA FOR CONTROL DEVICES M-0603, M-0604 and M-0605

Classification:	Group II	Category 2GD		
Installation: EN 60079.14	zone 1 - zone 2 (Gas)	zone 21 - zone 22 (Dust)		
Marking:	CE 0722 Ex II 2GD Ex e IIC Gb; Ex tb IIIC Db IP66			
Certification:	ATEX	CESI 09 ATEX 075U		
	IEC Ex	CES 11.0029U	All IEC Ex, TR CU and INMETRO certification data can be downloaded from <a href="http://www.cortemgroup.com">www.cortemgroup.com</a>	
	INMETRO	DNV 17.0138U		
	TR CU	AVAILABLE		
Standards:	CENELEC EN 60079-0: 2012, EN 60079-7: 2007, EN 60079-31: 2009 and EUROPEAN DIRECTIVE 2014/34/UE IEC 60079-0: 2007-10, IEC 60079-1: 2008, IEC 60079-7: 2006-07			
Operating temperature:	 -40°C  +90°C (control and signalling devices are installed together with other certified products)			
Degree of protection:	IP66			

## CERTIFICATION DATA FOR CONTACT BLOCK M-0530 and M-0531

Classification:	Group II	Category 2GD		
Installation: EN 60079.14	zone 1 - zone 2 (Gas)			
Marking:	CE 0722 Ex II 2G Ex de IIC Gb			
Certification:	ATEX CESI 09 ATEX 016U			
	IEC Ex CES 11.0031U	All IEC Ex certification data can be downloaded from <a href="http://www.cortemgroup.com">www.cortemgroup.com</a>		
	TR CU AVAILABLE	All TR CU certification data can be downloaded from <a href="http://www.cortemgroup.com">www.cortemgroup.com</a>		
Standards:	CENELEC EN 60079-0: 2012, EN 60079-1: 2007, EN 60079-7: 2007 and EUROPEAN DIRECTIVE 2014/34/UE IEC 60079-0: 2007-10, IEC 60079-1: 2007-04, IEC 60079-7: 2006-07			

## INDICATOR LIGHT M-0612/3

Classification:	Group II	Category 2GD		
Installation: EN 60079.14	zone 1 - zone 2 (Gas)	zone 21 - zone 22 (Dust)		
Marking:	CE 0722  II 2G Ex db eb IIC Gb; Ex tb IIIC Db IP66			
Certification:	ATEX	CESI 00 ATEX 060U		
	IEC Ex	CES 11.0030U	All IEC Ex certification data can be downloaded from <a href="http://www.cortemgroup.com">www.cortemgroup.com</a>	
	TR CU	AVAILABLE	All TR CU certification data can be downloaded from <a href="http://www.cortemgroup.com">www.cortemgroup.com</a>	
Standards:	CENELEC EN 60079-0: 2012+A11:2013, EN 60079-1: 2014, EN 60079-7: 2015, EN 60079-31: 2014 and EUROPEAN DIRECTIVE 2014/34/UE IEC 60079-0: 2011, IEC 60079-1: 2014-06, IEC 60079-31: 2013, IEC 60079-7: 2015			
Degree of protection:	IP66			

## AMMETER B-0140A, VOLTMETER B-0140V

Classification:	Group II	Category 2GD		
Installation: EN 60079.14	zone 1 - zone 2 (Gas)	zone 21 - zone 22 (Dust)		
Marking:	CE 0722 Ex II 2G Ex e IIC Gb; II 2D Ex tb IIIC Db IP66			
Certification:	ATEX CESI 04 ATEX 128U			
	IEC Ex CES 12.0022U		All IEC Ex certification data can be downloaded from <a href="http://www.cortemgroup.com">www.cortemgroup.com</a>	
	TR CU AVAILABLE		All TR CU certification data can be downloaded from <a href="http://www.cortemgroup.com">www.cortemgroup.com</a>	
Standards:	CENELEC EN 60079-0: 2012, EN 60079-1: 2007, EN 60079-7: 2007, EN 60079-31: 2009 and EUROPEAN DIRECTIVE 2014/34/UE IEC 60079-0: 2011, IEC 60079-31: 2008, IEC 60079-7: 2006-07			
Degree of protection:	IP66			

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

## MECHANICAL FEATURES

<b>Body:</b>	Aluminium with black anodic oxide finish.
<b>Pin and spring:</b>	Stainless steel
<b>Gasket:</b>	Acid-, hydrocarbon- and high temperature-resistant silicone, located between body and lid.
<b>Coloured cap on push-button and emergency stop push-button:</b>	Polyamide 6
<b>Selector lever:</b>	Aluminium with black anodic oxide finish
<b>Bolts and screws:</b>	Stainless steel

Control devices can be used to close or open various electrical or mechanical devices fitted inside the enclosures. Relevant technical features are given in detail below.

Push-button **M-0603** features linear push operation.

Push



Selector **M-0604** features twist operation.

Twist

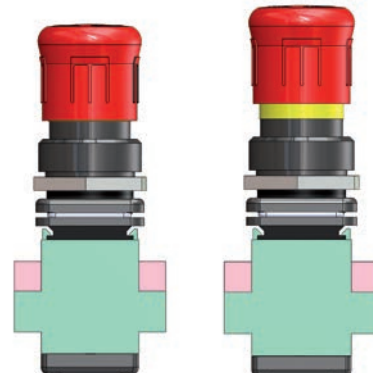


Emergency stop push-button **M-0605** features linear push-to-close operation. To release, twist clockwise and the button automatically returns to its original position.

Push  
1

Twist  
2

Returns to original position  
3

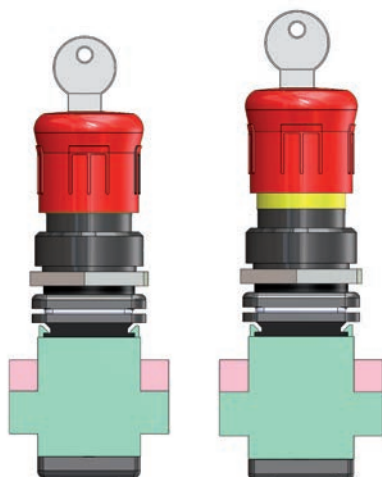


Emergency stop push-button **M-0605/K** features linear push-to-close operation. To release, turn the key clockwise and the button automatically returns to its original position.

Push  
1

Turn the key  
2

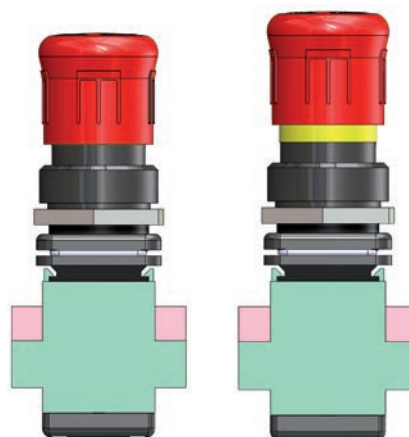
Returns to original position  
3



Emergency stop push-button **M-0605/P** features linear push-to-close operation. Pull the push-button to release.

Push  
1

Pull  
3

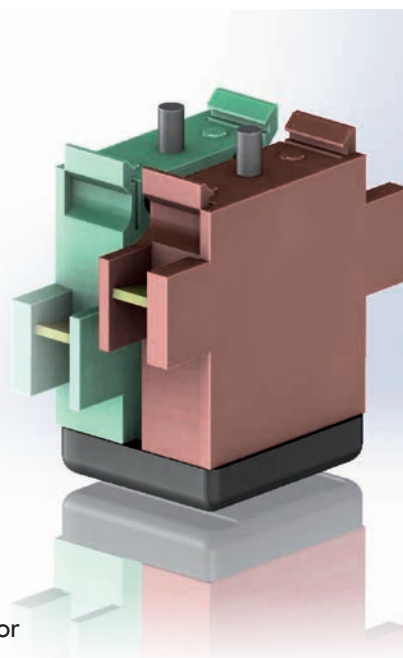


## CONTACT FEATURES

**Rated voltage:** 690 V  
**Frequency:** 50/60 Hz  
**Capacity:** 10 A

Rated operating voltage							
400 V	500 V	690 V	400 V	400 V	400 V	48 V	230 V
Utilization category							
AC-15	AC-15	AC-15	AC-1	AC-2	AC-3	DC-13	DC-13
Rated operating currents							
10 A	4 A	2 A	16 A	6 A	2,4 A	10 A	0,5 A

**Connection:** max. 2.5 mm<sup>2</sup>  
**Rated impulse withstand voltage:** 4 kV  
**Pollution degree:** 2  
**Conditional short-circuit current:** 1 kA  
**Maximum use of short-circuit protection devices:** one 10A 500V gG fuse on each conductor  
**Minimum travel for positive opening:** 3 mm  
**Minimum actuation force required to achieve positive opening of all opening contacts:** 5 N  
**Maximum travel (+ overtravel):** 4.75 Hz  
**Body:** Polyamide  
**Contacts:** Brass  
**Pins, springs and screws:** Stainless steel  
**Weight:** 40 g



The new slot-in adapter system makes light work of fitting contacts in control panels with walls up to 7 mm thick. In addition, with the mushroom-head push-button having a smaller diameter thread (M32x1.5), the lid can accommodate a larger number of control and signalling devices than with the previous version.



Option of using up to 4 contacts per device for push-button M-0603 and selector M-0604. Option of using up to 2 contacts per device for emergency stop push-button M-0605.

## ACCESSORIES AVAILABLE ON REQUEST/ SPECIAL REQUESTS

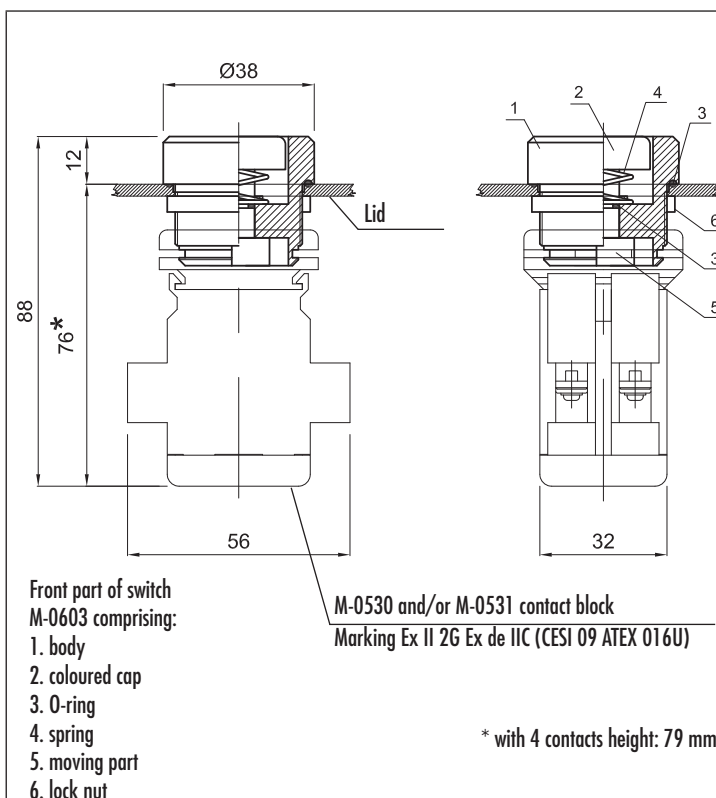
Padlocking system for selector (codes **M-962** and **M-963**)  
 Padlocking system for push-button (code M-0603/.L)  
 Protection against accidental contact for mushroom-head push-button (code **M-952**)  
 Padlocking for mushroom-head push-button (code **M-0615**)  
 Black mushroom-head push-button (code M-0605/N)  
 Earthing ring for installing control and signalling devices on polyester lids (code **A331IB**)

## Push-button M-0603

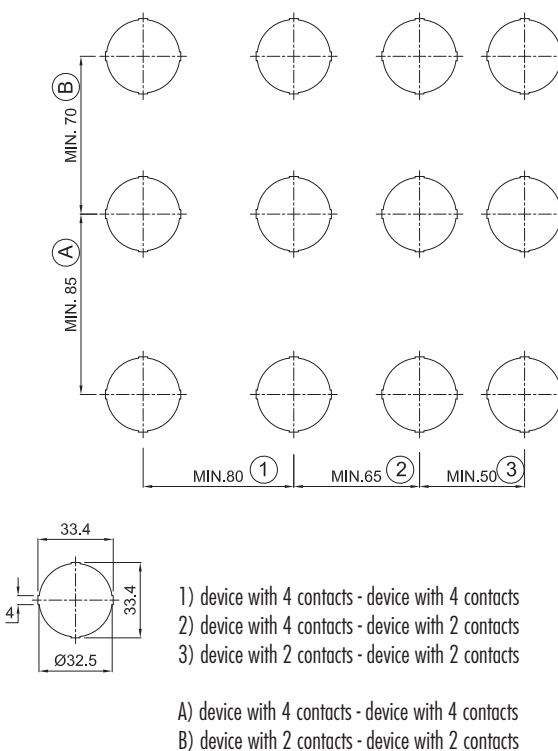


Range of push-buttons designed to allow installation of a high number of lid-mounted control and signalling devices. Available with caps made from polyamide 6 in different colours and in padlockable version. Option, for all control and signalling devices, of attaching nameplates on the lid with size and wording produced to customer specifications.

CODE	DESCRIPTION	NOTES
<b>M-0603/N</b>	Black Ex e push-button without contacts	Add the required contact assembly
<b>M-0603/NL</b>	Padlockable black Ex e push-button without contacts	Add the required contact assembly
<b>M-0603/R</b>	Red Ex e push-button without contacts	Add the required contact assembly
<b>M-0603/RL</b>	Padlockable red Ex e push-button without contacts	Add the required contact assembly
<b>M-0603/V</b>	Green Ex e push-button without contacts	Add the required contact assembly
<b>M-0603/G</b>	Yellow Ex e push-button without contacts	Add the required contact assembly
<b>M-0603/B</b>	Blue Ex e push-button without contacts	Add the required contact assembly
<b>M-0603/BI</b>	White Ex e push-button without contacts	Add the required contact assembly
<b>M-0606/10</b>	1NO contact assembly	
<b>M-0606/01</b>	1NC contact assembly	
<b>M-0606/11</b>	1NO+1NC contact assembly	
<b>M-0606/20</b>	2NO contact assembly	
<b>M-0606/02</b>	2NC contact assembly	



## Hole drilling arrangement (minimum distances)

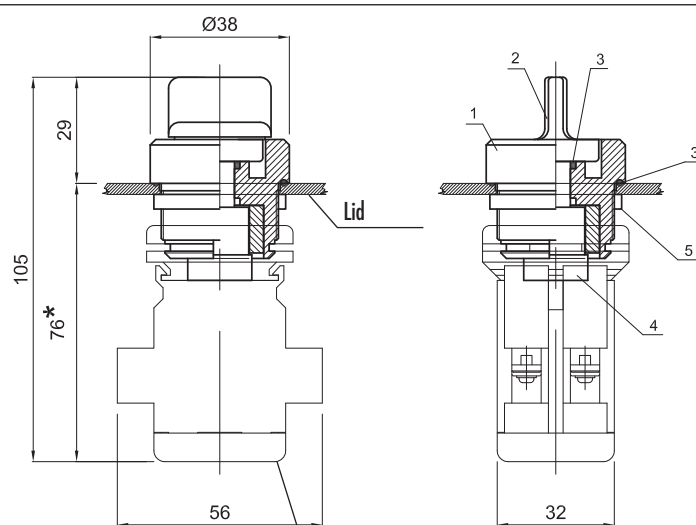


## Selector M-0604



Selector complete with 2 or 4 contacts, available with different wiring arrangements for connections inside board or on machine. Option of padlocking and earthing.

CODE	DESCRIPTION	NOTES
<b>M-0604/X</b>	Ex e selector X arrangement	Selector complete with contacts
<b>M-0604/R</b>	Ex e selector R arrangement	Selector complete with contacts
<b>M-0604/RSX</b>	Ex e selector R left-hand arrangement	Selector complete with contacts
<b>M-0604/1Z</b>	Ex e selector 1Z arrangement	Selector complete with contacts
<b>M-0604/2Z</b>	Ex e selector 2Z arrangement	Selector complete with contacts
<b>M-0604/1I</b>	Ex e selector 1I arrangement	Selector complete with contacts
<b>M-0604/2I</b>	Ex e selector 2I arrangement	Selector complete with contacts
<b>M-0604/3I</b>	Ex e selector 3I arrangement	Selector complete with contacts
<b>M-0604/4I</b>	Ex e selector 4I arrangement	Selector complete with contacts
<b>M-0604/1C</b>	Ex e selector 1C arrangement	Selector complete with contacts
<b>M-0604/2C</b>	Ex e selector 2C arrangement	Selector complete with contacts
<b>M-0604/1W</b>	Ex e selector 1W arrangement	Selector complete with contacts
<b>M-0604/2W</b>	Ex e selector 2W arrangement	Selector complete with contacts
<b>M-0604/1M</b>	Ex e selector 1M arrangement	Selector complete with contacts
<b>M-0606/11</b>	1NO+1NC contact assembly	Replacement part for arrangements: X - R - 1Z - RSX
<b>M-0606/22</b>	2NO+2NC contact assembly	Replacement part for arrangements: 2Z
<b>M-0606/10</b>	1NO contact assembly	Replacement part for arrangements: 1I - 1M
<b>M-0606/20</b>	2NO contact assembly	Replacement part for arrangements: 2I - 2M - 1C - 1W
<b>M-0606/30</b>	3NO contact assembly	Replacement part for arrangements: 3I - 3M
<b>M-0606/40</b>	4NO contact assembly	Replacement part for arrangements: 4I - 4M - 2C - 2W



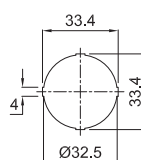
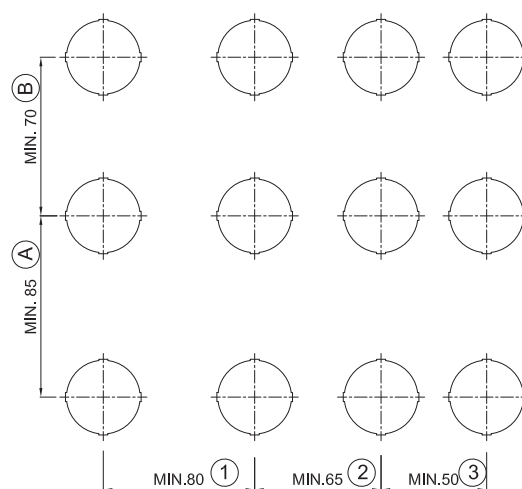
Front part of switch M-0604 comprising:

1. body
2. lever
3. O-ring
4. moving part
5. lock nut

M-0530 and/or M-0531 contact block  
Marking Ex II 2G Ex de IIC (CESI 09 ATEX 016U)

\* with 4 contacts height: 79 mm

### Hole drilling arrangement (minimum distances)



- 1) device with 4 contacts - device with 4 contacts
- 2) device with 4 contacts - device with 2 contacts
- 3) device with 2 contacts - device with 2 contacts

- A) device with 4 contacts - device with 4 contacts
- B) device with 2 contacts - device with 2 contacts

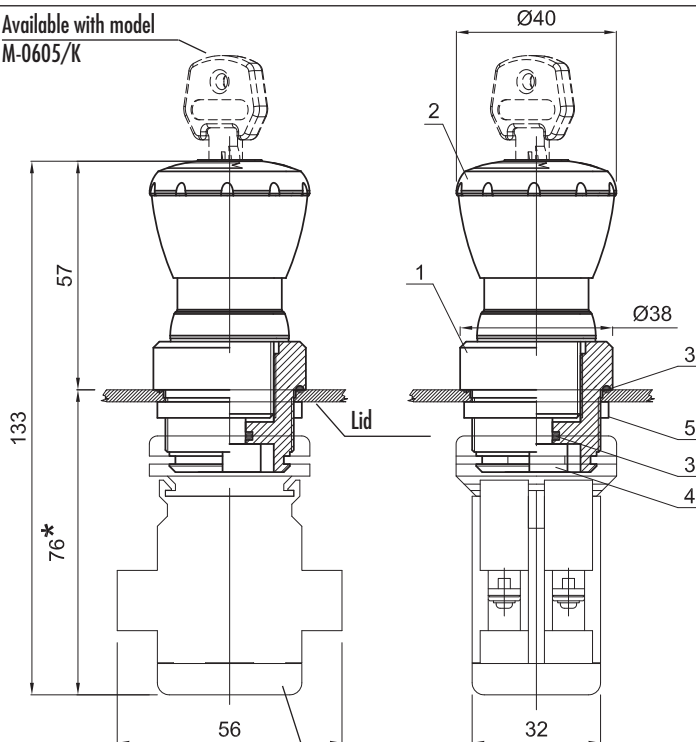
## Emergency stop push-button M-0605



The emergency stop push-button allows operators to stop machinery safely by pushing the button. Model M-0605/K comes with 2 keys, allowing you to lock the push-button in place.

CODE	DESCRIPTION	NOTES
<b>M-0605</b>	Ex e emergency stop push-button with release without contacts	You will need to add required contact assembly
<b>M-0605/K</b>	Ex e emergency stop push-button with key release without contacts	You will need to add required contact assembly
<b>M-0605/P</b>	Ex e push-pull, stop push-button without contacts	You will need to add required contact assembly
<b>M-0606/10</b>	1NO contact assembly	
<b>M-0606/01</b>	1NC contact assembly	
<b>M-0606/11</b>	1NO+1NC contact assembly	
<b>M-0606/20</b>	2NO contact assembly	
<b>M-0606/02</b>	2NC contact assembly	

Available with model M-0605/K

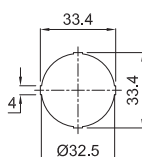
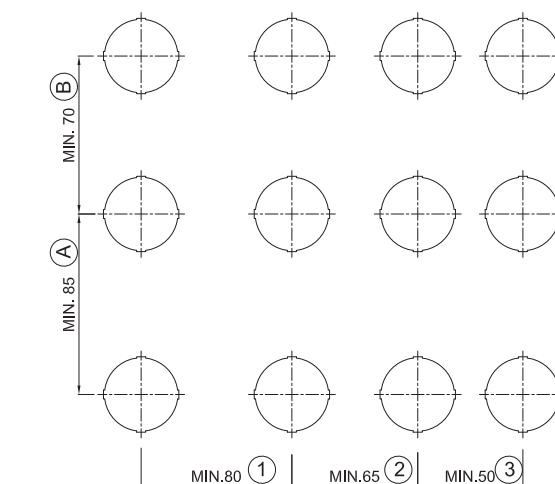


Front part of push-button M-0605 comprising:

1. body
2. mushroom-head push-button
3. O-ring
4. moving part
5. lock nut

M-0530 and/or M-0531 contact block  
Marking Ex II 2G Ex de IIC (CESI 09 ATEX 016U)

## Hole drilling arrangement (minimum distances)



- 1) device with 4 contacts - device with 4 contacts
- 2) device with 4 contacts - device with 2 contacts
- 3) device with 2 contacts - device with 2 contacts

- A) device with 4 contacts - device with 4 contacts
- B) device with 2 contacts - device with 2 contacts

\* Standard drilling layout.

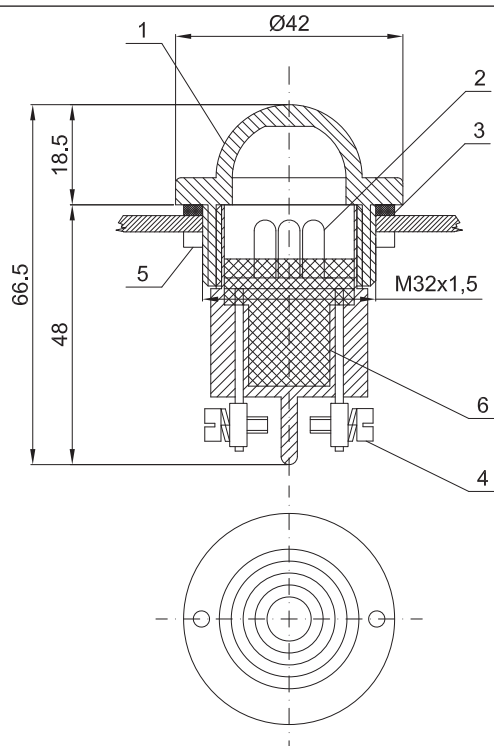
Option of using up to 2 contacts per device for emergency stop push-button M-0605.

## Multi-LED indicator M-0612/3

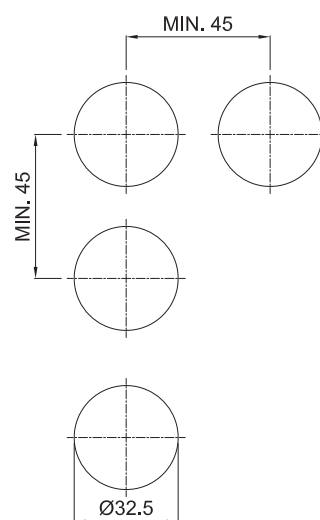


Multi-LED indicators come with lenses in different colours and different voltage options. Easy to install and wire, offering lasting reliability with a LED service life of 50,000 hours.

CODE	DESCRIPTION	NOTES
<b>M-0612/3B110</b>	Blue multi-LED indicator 110Vac/dc	
<b>M-0612/3B12</b>	Blue multi-LED indicator 12Vac/dc	
<b>M-0612/3B230</b>	Blue multi-LED indicator 230Vac	
<b>M-0612/3B24</b>	Blue multi-LED indicator 24Vac/dc	
<b>M-0612/3G110</b>	Yellow multi-LED indicator 110Vac/dc	
<b>M-0612/3G12</b>	Yellow multi-LED indicator 12Vac/dc	
<b>M-0612/3G230</b>	Yellow multi-LED indicator 230Vac	
<b>M-0612/3G24</b>	Yellow multi-LED indicator 24Vac/dc	
<b>M-0612/3I110</b>	Colourless multi-LED indicator 110Vac/dc	
<b>M-0612/3I12</b>	Colourless multi-LED indicator 12Vac/dc	
<b>M-0612/3I230</b>	Colourless multi-LED indicator 230Vac	
<b>M-0612/3I24</b>	Colourless multi-LED indicator 24Vac/dc	
<b>M-0612/3R110</b>	Red multi-LED indicator 110Vac/dc	
<b>M-0612/3R12</b>	Red multi-LED indicator 12Vac/dc	
<b>M-0612/3R230</b>	Red multi-LED indicator 230Vac	
<b>M-0612/3R24</b>	Red multi-LED indicator 24Vac/dc	
<b>M-0612/3V110</b>	Green multi-LED indicator 110Vac/dc	
<b>M-0612/3V12</b>	Green multi-LED indicator 12Vac/dc	
<b>M-0612/3V230</b>	Green multi-LED indicator 230Vac	
<b>M-0612/3V24</b>	Green multi-LED indicator 24Vac/dc	



### Hole drilling arrangement (minimum distances)



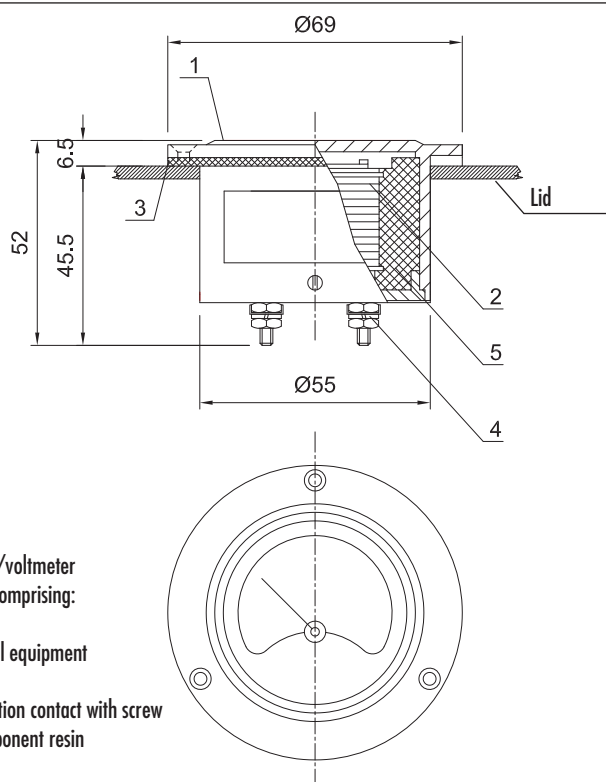
## Ammeter B-0140A, voltmeter B-0140V



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.

CODE	DESCRIPTION	NOTES
B-0140A	Ammeter	*
B-0140V	Voltmeter	
Maximum voltage: 600 V Rated frequency: 40 / 60 Hz Accuracy class: 1.5 Power dissipation: 1.1 VA (B-0140A) 3.0 VA (B-0140V)		
Measuring 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
* For the ammeter mod. B-0140A4 (4-20mA), the impedance is 1200 Ω. In the case that the driver was not compatible with this impedance, we strongly recommend to use the transducer provided by Cortem mod. NI-DT1.		

### Hole drilling arrangement (minimum distances)



Ammeter/voltmeter  
M-0140 comprising:  
1. body  
2. internal equipment  
3. gasket  
4. connection contact with screw  
5. 2-component resin

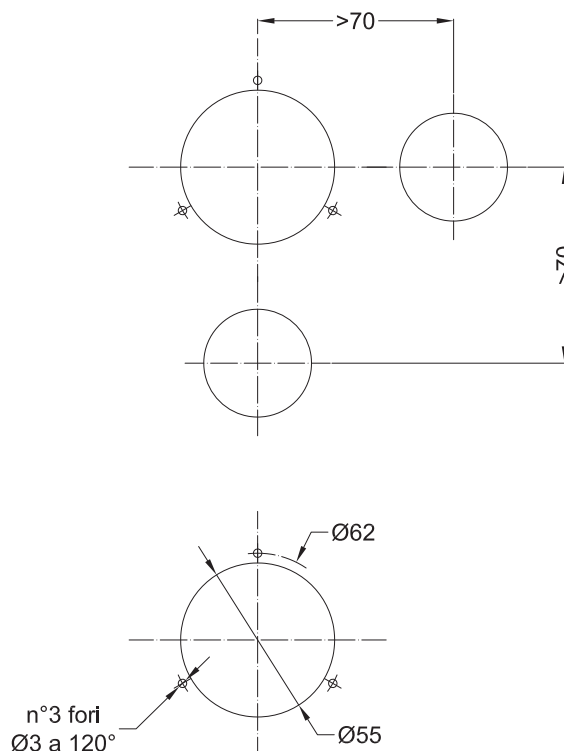


TABLE ILLUSTRATING MAIN WIRING ARRANGEMENTS

Push-button w/ NC contact		Push-button w/ NO contact		Mushroom-head push-button with NC twist release	

Code	Selector				
X	3-position control with spring return to B from both A and C				
			1	2	
			A	CLOSED	CLOSED
			B	CLOSED	OPEN
C	OPEN	OPEN			
R	3-position control with spring return from both A and B and maintained C				
			1	2	
			A	CLOSED	CLOSED
			B	CLOSED	OPEN
C	OPEN	OPEN			
RSX	3-position control with spring return from both A and B and maintained C				
			1	2	
			A	CLOSED	CLOSED
			B	CLOSED	OPEN
C	OPEN	OPEN			
Z	2-position control maintained				
			1	2	
			A	OPEN	CLOSED
			B	CLOSED	OPEN
I	Control switch				
			1		
			A	OPEN	
B	CLOSED				
C	3-position control maintained				
			1	2	
			A	CLOSED	OPEN
			B	OPEN	OPEN
C	OPEN	CLOSED			
W	3-position control with spring return to B from both A and C				
			1	2	
			A	CLOSED	OPEN
			B	OPEN	OPEN
C	OPEN	CLOSED			
M	Control with spring return				
			1		
			A	CLOSED	
B	OPEN				

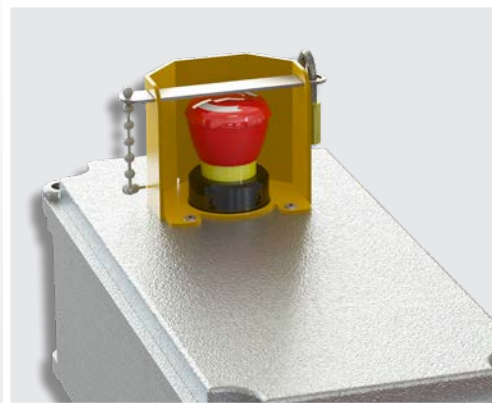
# M-0... series control, monitoring and signalling devices

## PROTECTION AND PADLOCKING SYSTEMS FOR CONTROL AND SIGNALLING DEVICES, ACCESSORIES AND SPECIAL VERSIONS

Padlocking system for selector  
(codes **M-962** and **M-963**)



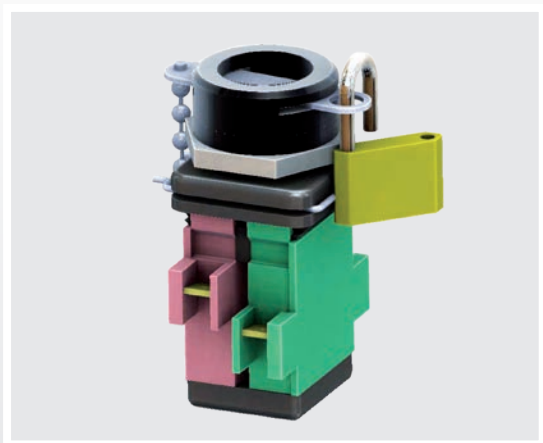
System protecting against accidental operation for  
mushroom-head push-buttons. Code **M-988**



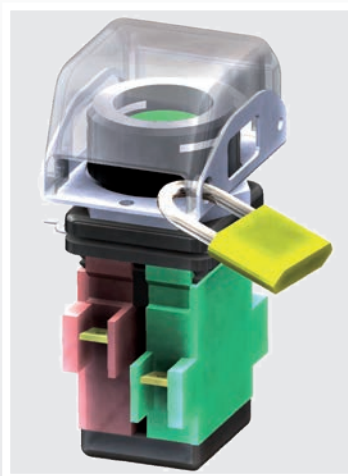
**NEW**

*Assembly comprising stainless steel padlocking bar  
and chain for fastening. **M-0615/1***

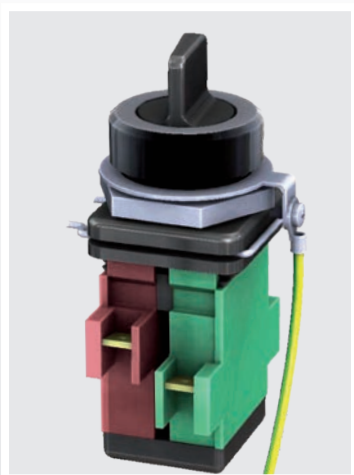
Padlocking system for push-button  
(code **M-0603/..L**)



Padlocking protection  
(code **M-0631**)



Earthing ring for installing control  
and signalling devices on polyester  
lids (code **A3311B**)



Black mushroom-head push-button  
(code **M-0605/N**)



## EXAMPLES OF APPLICATION

### SA302318 Cortem aluminium enclosure complete with:



- 1 x ammeter B-0140A
- 1 x red indicator light M-0612/3R230
- 1 x green indicator light M-0612/3V230
- 2 x selectors M-0604/1Z
- 1 x REVD3IB cable gland
- 11 x CBD2 terminals
- 1 x earth terminal TE60
- 1 x internal mounting plate B32-229
- Outer coating RAL 7035

### SA473018SS Cortem stainless steel enclosure complete with:



- 1 x ammeter B-0140A
- 1 x emergency stop push-button with key release M-0605/K
- 1 x black padlockable push-button M-0603/NL
- 1 x yellow indicator light M-0612/3G230
- 1 x green indicator light M-0612/3V230
- 2 x selectors M-0604/1C
- 6 x REVD2IB cable glands
- 1 x internal mounting plate B47-357