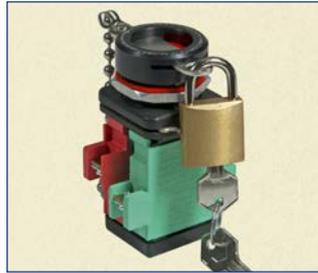


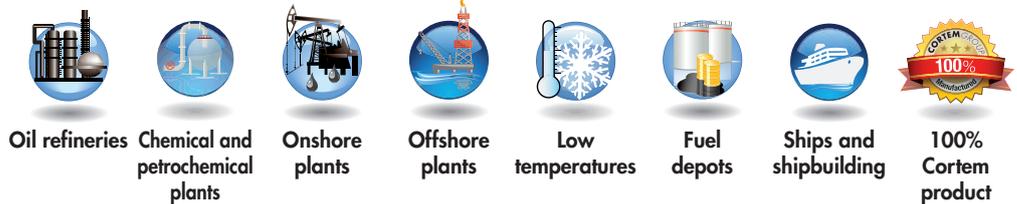
M-0... series control, monitoring and signalling devices

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 IIC 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 www.cortemgroup.com | | |
| | 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 | | | |

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

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 www.cortemgroup.com | |
| | TR CU | AVAILABLE | All TR CU certification data can be downloaded from www.cortemgroup.com | |
| 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 Ex 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 www.cortemgroup.com | |
| | TR CU | AVAILABLE | All TR CU certification data can be downloaded from www.cortemgroup.com | |
| 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 www.cortemgroup.com | |
| | TR CU | AVAILABLE | All TR CU certification data can be downloaded from www.cortemgroup.com | |
| 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

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

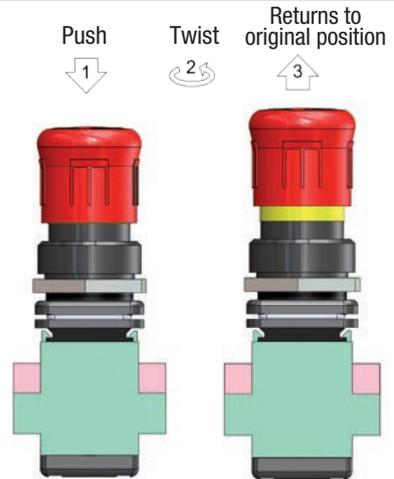


Selector **M-0604** features twist operation.

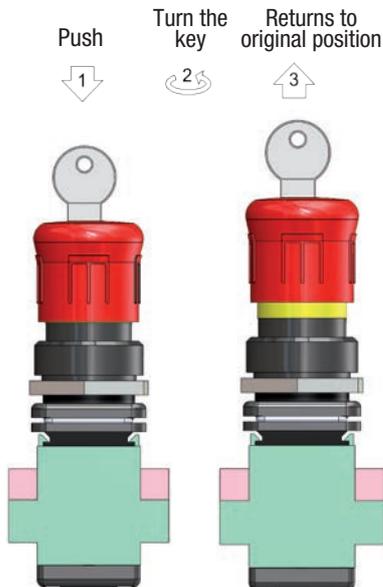
Twist



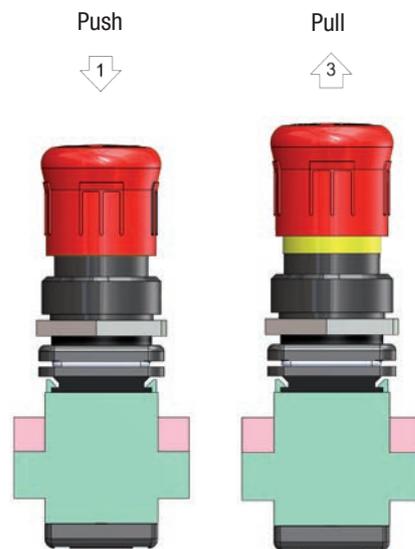
Emergency stop push-button **M-0605** features linear push-to-close operation. To release, twist clockwise and the button automatically returns to its original position.



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.



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

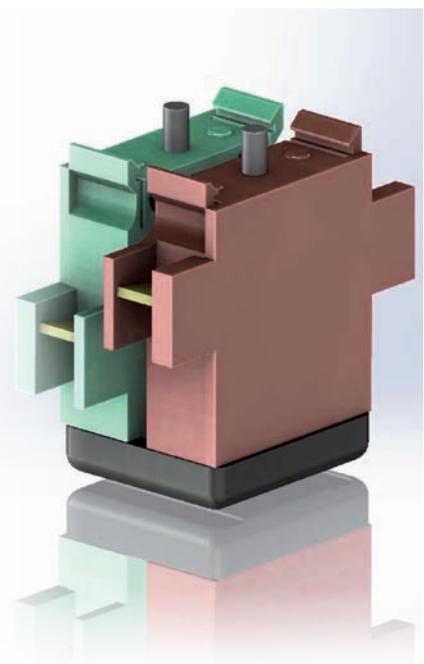


CONTACT FEATURES

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 mm²
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

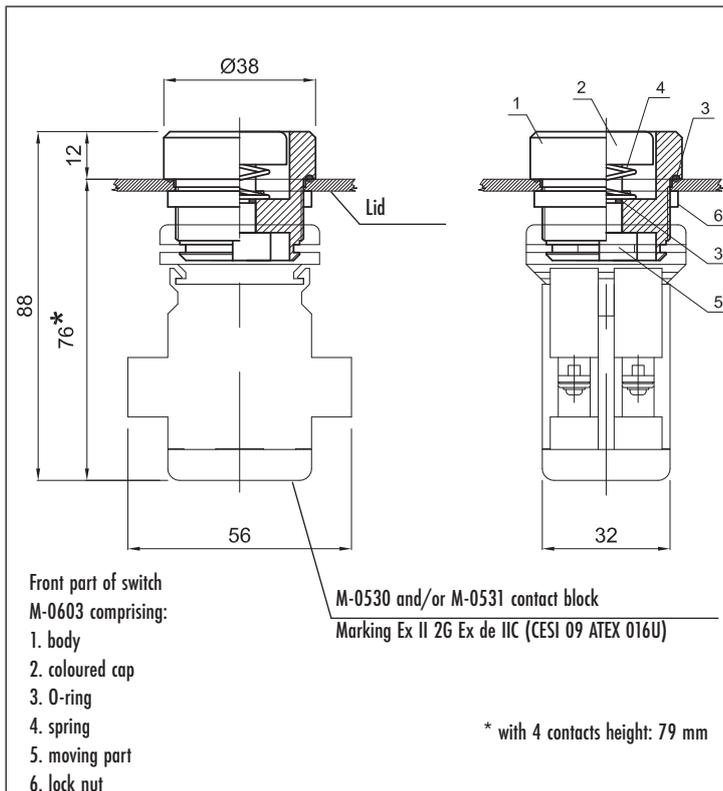
- Padlocking system for selector (codes **M-962** and **M-963**)
- Padlocking system for push-button (code M-0603/..L)
- Padlocking for mushroom-head push-button (code **M-0615**)
- Black mushroom-head push-button (code M-0605/N)
- Earthing ring for installing control and signalling devices on polyester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

Push-button M-0603

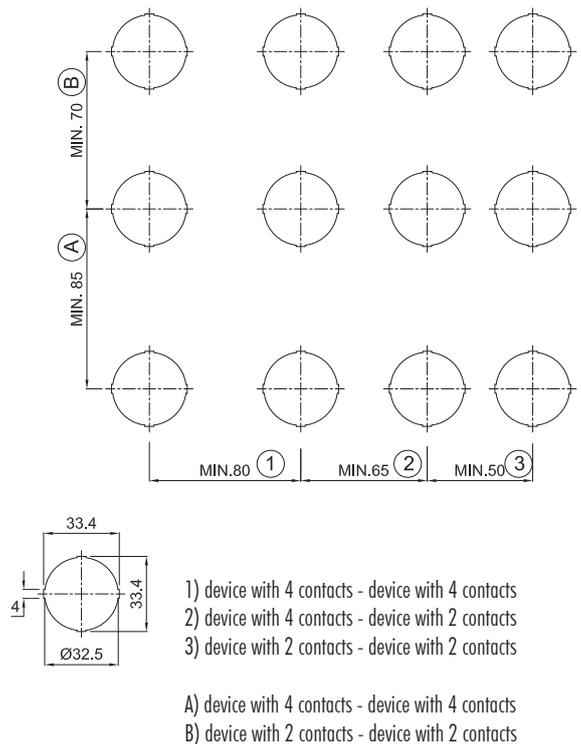


Range of push-buttons designed to allow installation of a high number of lid-mounted control and signalling devices. Available with caps made from polyamide 6 in different colours and in padlockable version. Option, for all control and signalling devices, of attaching nameplates on the lid with size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

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



Hole drilling arrangement (minimum distances)

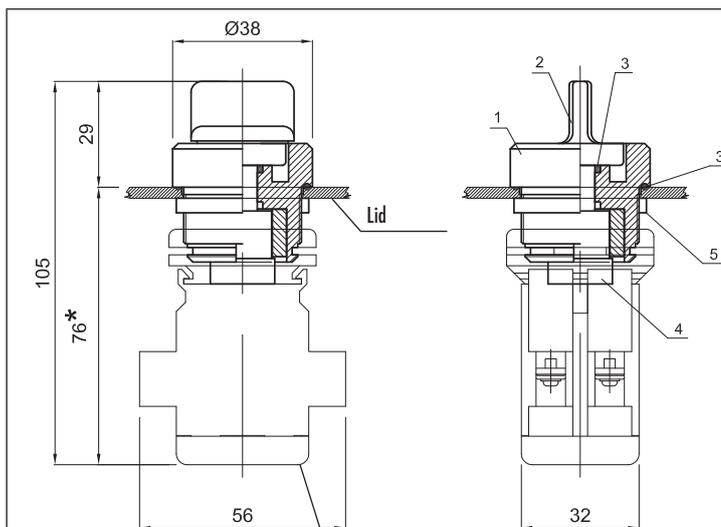


Selector M-0604



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

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



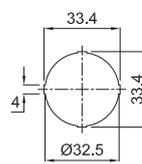
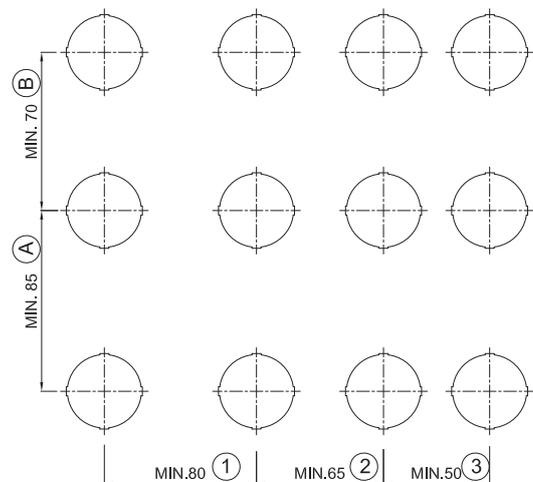
Front part of switch M-0604 comprising:

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

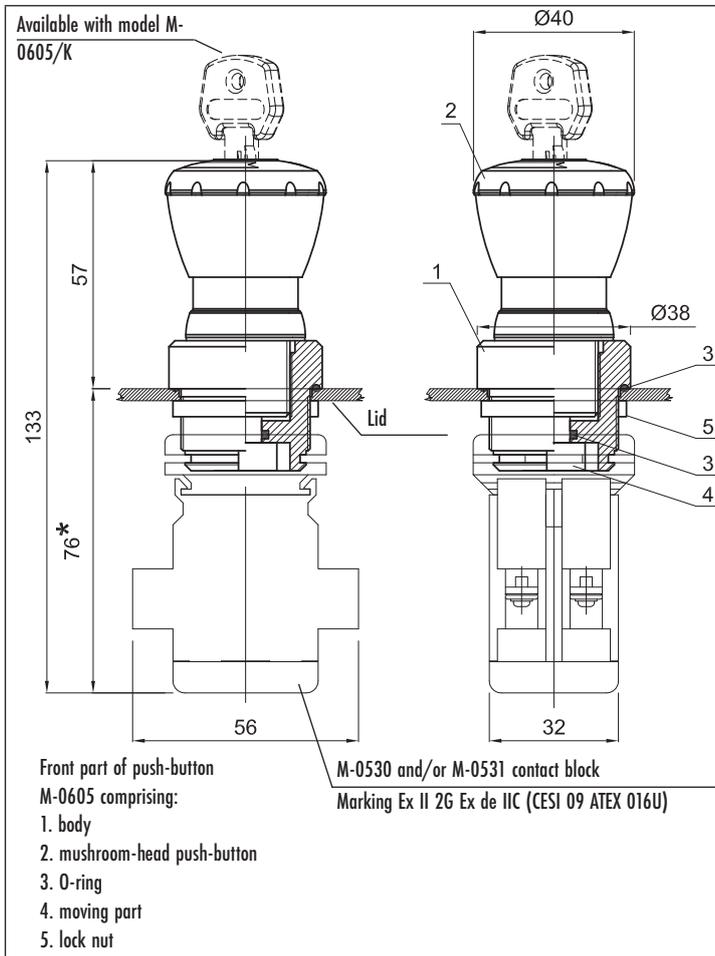
- A) device with 4 contacts - device with 4 contacts
B) device with 2 contacts - device with 2 contacts

Emergency stop push-button M-0605

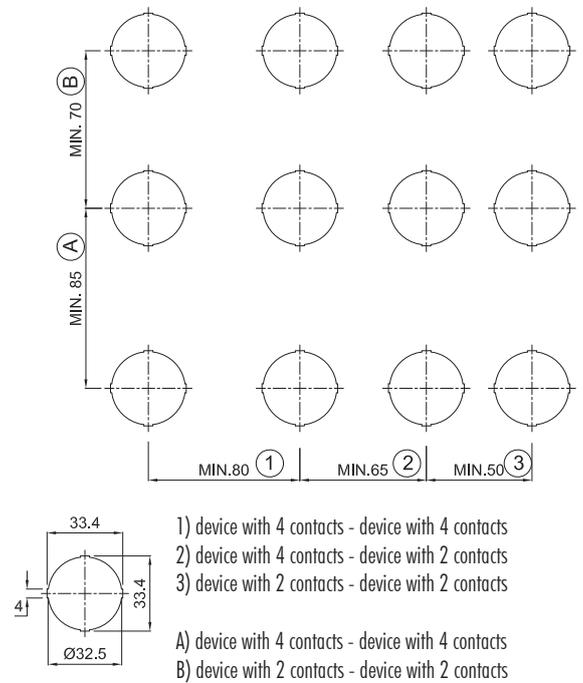


The emergency stop push-button allows operators to stop machinery safely by pushing the button. Model M-0605/K comes with 2 keys, allowing you to lock the push-button in place.

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



Hole drilling arrangement (minimum distances)



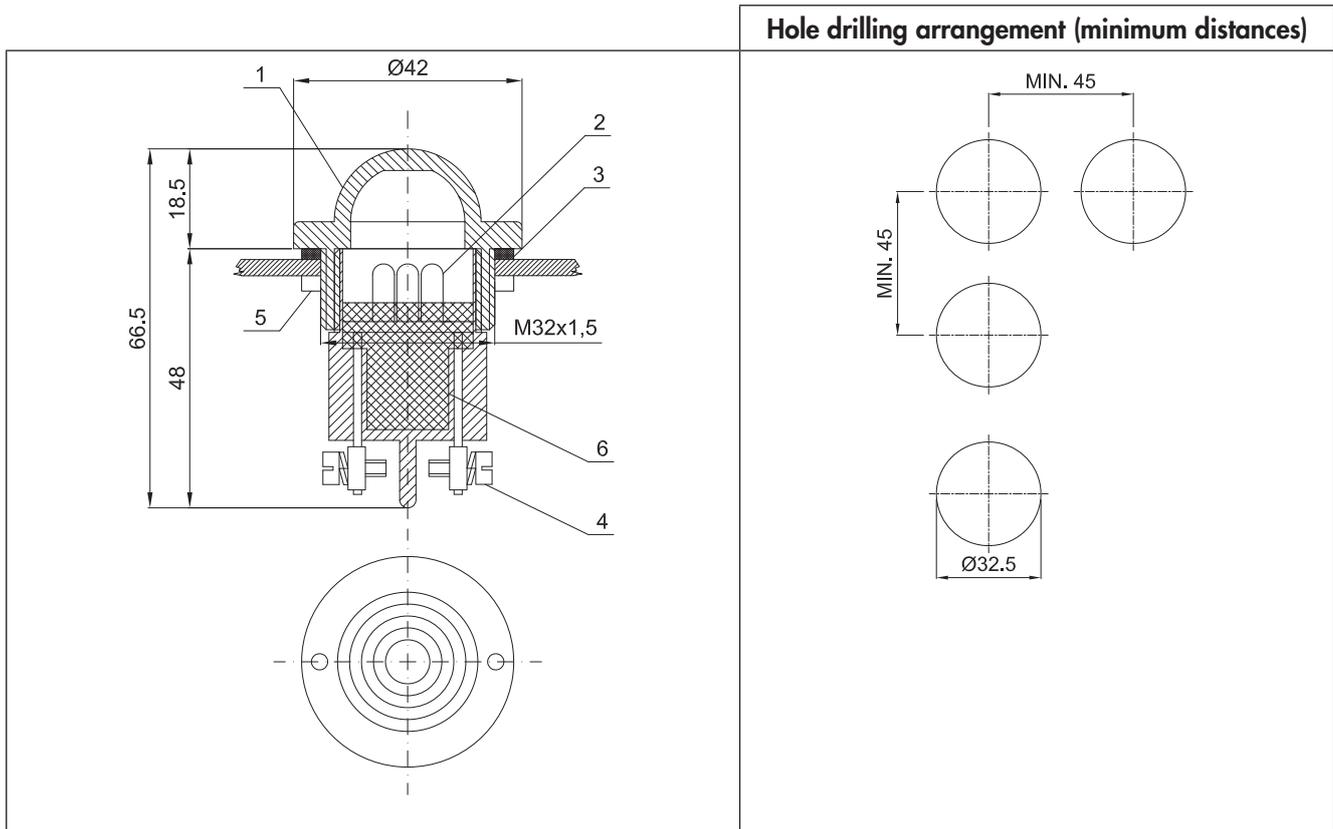
* Standard drilling layout.
Option of using up to 2 contacts per device for emergency stop push-button M-0605.

Multi-LED indicator M-0612/3



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

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.



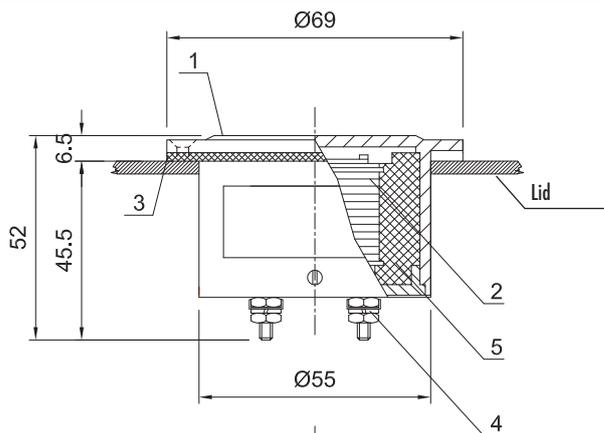
Ammeter B-0140A, voltmeter B-0140V



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

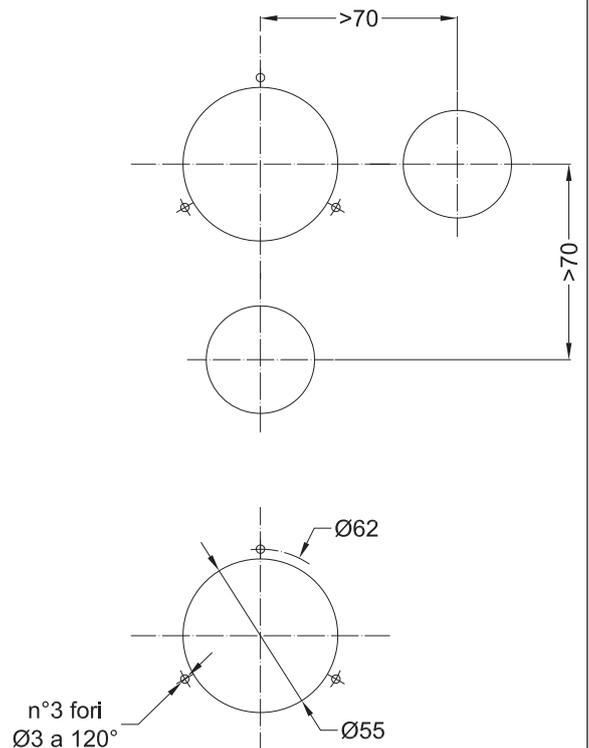
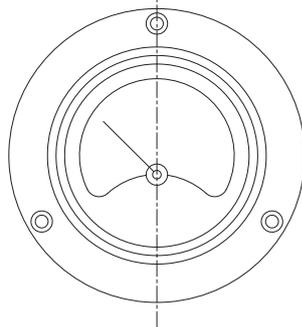


TABLE ILLUSTRATING MAIN WIRING ARRANGEMENTS

| | | |
|---------------------------|---------------------------|---|
| 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 | | <table border="1"> <tr> <td></td> <td>1</td> <td>2</td> </tr> <tr> <td>A</td> <td>CLOSED</td> <td>CLOSED</td> </tr> <tr> <td>B</td> <td>CLOSED</td> <td>OPEN</td> </tr> <tr> <td>C</td> <td>OPEN</td> <td>OPEN</td> </tr> </table> | | 1 | 2 | A | CLOSED | CLOSED | B | CLOSED | OPEN | C | OPEN | OPEN |
| | 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 | | <table border="1"> <tr> <td></td> <td>1</td> <td>2</td> </tr> <tr> <td>A</td> <td>CLOSED</td> <td>CLOSED</td> </tr> <tr> <td>B</td> <td>CLOSED</td> <td>OPEN</td> </tr> <tr> <td>C</td> <td>OPEN</td> <td>OPEN</td> </tr> </table> | | 1 | 2 | A | CLOSED | CLOSED | B | CLOSED | OPEN | C | OPEN | OPEN |
| | 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 | | <table border="1"> <tr> <td></td> <td>1</td> <td>2</td> </tr> <tr> <td>A</td> <td>CLOSED</td> <td>CLOSED</td> </tr> <tr> <td>B</td> <td>CLOSED</td> <td>OPEN</td> </tr> <tr> <td>C</td> <td>OPEN</td> <td>OPEN</td> </tr> </table> | | 1 | 2 | A | CLOSED | CLOSED | B | CLOSED | OPEN | C | OPEN | OPEN |
| | 1 | 2 | | | | | | | | | | | | | |
| A | CLOSED | CLOSED | | | | | | | | | | | | | |
| B | CLOSED | OPEN | | | | | | | | | | | | | |
| C | OPEN | OPEN | | | | | | | | | | | | | |
| Z | 2-position control maintained | | <table border="1"> <tr> <td></td> <td>1</td> <td>2</td> </tr> <tr> <td>A</td> <td>OPEN</td> <td>CLOSED</td> </tr> <tr> <td>B</td> <td>CLOSED</td> <td>OPEN</td> </tr> </table> | | 1 | 2 | A | OPEN | CLOSED | B | CLOSED | OPEN | | | |
| | 1 | 2 | | | | | | | | | | | | | |
| A | OPEN | CLOSED | | | | | | | | | | | | | |
| B | CLOSED | OPEN | | | | | | | | | | | | | |
| I | Control switch | | <table border="1"> <tr> <td></td> <td>1</td> </tr> <tr> <td>A</td> <td>OPEN</td> </tr> <tr> <td>B</td> <td>CLOSED</td> </tr> </table> | | 1 | A | OPEN | B | CLOSED | | | | | | |
| | 1 | | | | | | | | | | | | | | |
| A | OPEN | | | | | | | | | | | | | | |
| B | CLOSED | | | | | | | | | | | | | | |
| C | 3-position control maintained | | <table border="1"> <tr> <td></td> <td>1</td> <td>2</td> </tr> <tr> <td>A</td> <td>CLOSED</td> <td>OPEN</td> </tr> <tr> <td>B</td> <td>OPEN</td> <td>OPEN</td> </tr> <tr> <td>C</td> <td>OPEN</td> <td>CLOSED</td> </tr> </table> | | 1 | 2 | A | CLOSED | OPEN | B | OPEN | OPEN | C | OPEN | CLOSED |
| | 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 | | <table border="1"> <tr> <td></td> <td>1</td> <td>2</td> </tr> <tr> <td>A</td> <td>CLOSED</td> <td>OPEN</td> </tr> <tr> <td>B</td> <td>OPEN</td> <td>OPEN</td> </tr> <tr> <td>C</td> <td>OPEN</td> <td>CLOSED</td> </tr> </table> | | 1 | 2 | A | CLOSED | OPEN | B | OPEN | OPEN | C | OPEN | CLOSED |
| | 1 | 2 | | | | | | | | | | | | | |
| A | CLOSED | OPEN | | | | | | | | | | | | | |
| B | OPEN | OPEN | | | | | | | | | | | | | |
| C | OPEN | CLOSED | | | | | | | | | | | | | |
| M | Control with spring return | | <table border="1"> <tr> <td></td> <td>1</td> </tr> <tr> <td>A</td> <td>CLOSED</td> </tr> <tr> <td>B</td> <td>OPEN</td> </tr> </table> | | 1 | A | CLOSED | B | OPEN | | | | | | |
| | 1 | | | | | | | | | | | | | | |
| A | CLOSED | | | | | | | | | | | | | | |
| B | OPEN | | | | | | | | | | | | | | |

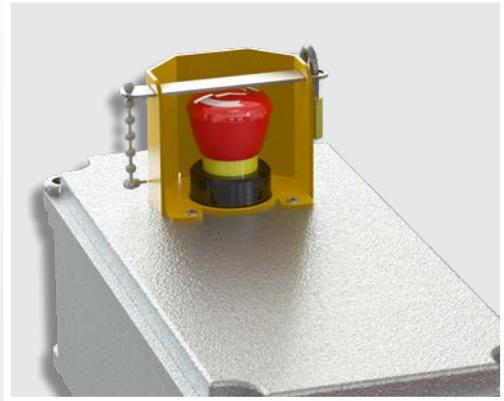
M-0... series control, monitoring and signalling devices

PROTECTION AND PADLOCKING SYSTEMS FOR CONTROL AND SIGNALING 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**

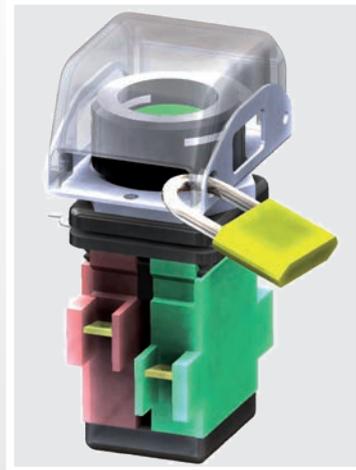


Assembly comprising stainless steel padlocking bar and
chain for fastening. **M-0615/1**

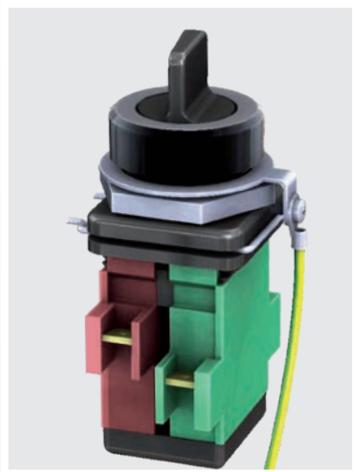
Padlocking system for push-button
(code **M-0603/..L**)



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 NEV32IB 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 NEV25IB cable glands
- 1 x internal mounting plate B47-357