

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

Ex tb

M-0



M-0 series control, monitoring and signalling devices are installed as external accessories on manufacturer '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 IIC Db IP66 | | | |
| Certification: | ATEX | CML 17 ATEX 3111U | All IEC Ex certification data contact comm@antideflagranti.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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| | |
|---------------------------------|--|
| 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: | Snaps 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 |

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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 | |
| Short-circuit protection | |
| 16A gG time-delay fuses as per IEC 269.1 and 269.3 | |

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) |

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 |



ILLUSTRATION

DIMENSIONS mm

DESCRIPTION

CODE

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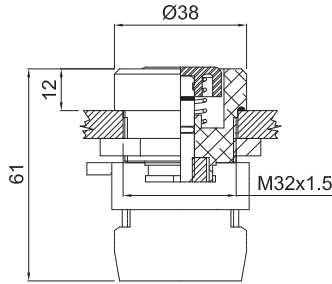


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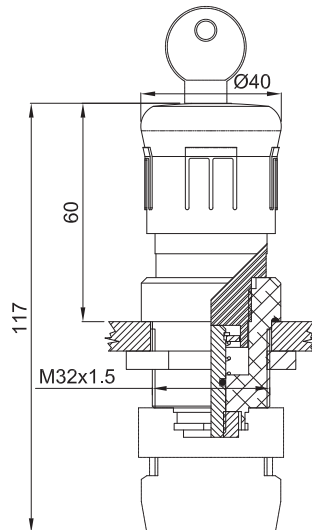


Normal push-button with standard 10A 600V
1NO+1NC contacts.
Button comes in choice of six colours.

| | |
|------------|---------------|
| 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

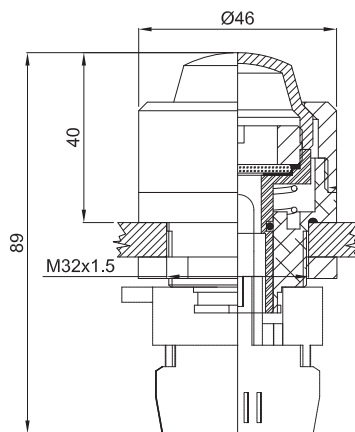
Note:
For the padlockable push-button add
CODE + L (e.g. M- 0639/RL)



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 |
|--------------|---------------|-------------|------|
|--------------|---------------|-------------|------|

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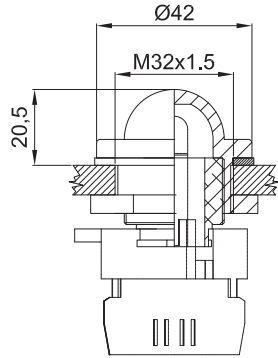


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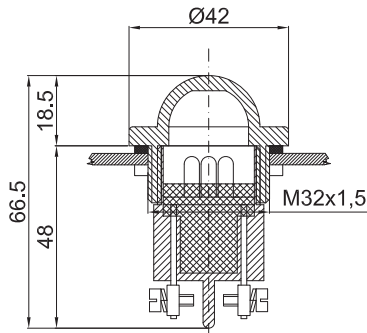
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Indicator light with 3W lamps (on request*),
12/240 Vac/dc.
Lens comes in choice of five colours.

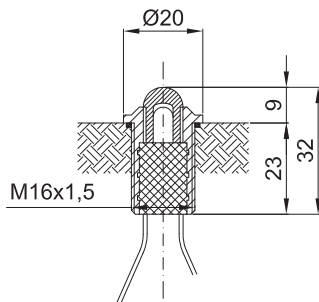
| | | |
|--------|-------|---------------------|
| Blue | | M-0636/B |
| Yellow | | M-0636/G |
| White | | M-0636/I |
| Red | | M-0636/R |
| Green | | M-0636/V |
| * lamp | 12V: | LAMPBA9S12V |
| | 24V: | LAMPBA9S24V |
| | 110V: | LAMPBA9S110V |
| | 240V: | LAMPBA9S240V |



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

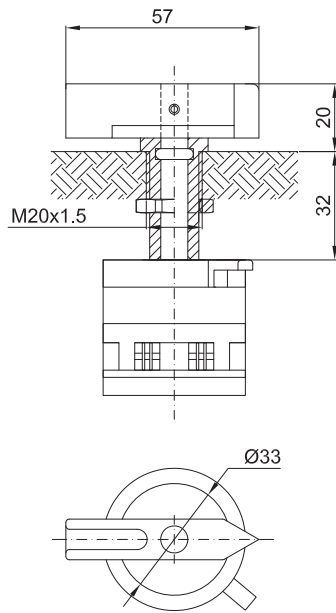


Indicator light with one high-brightness LED, for a consumption of 20 mA and estimated life of around 50,000 hours. LED in 5 colours available. Complete with locknut.

| 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 |



| ILLUSTRATION | DIMENSIONS mm | DESCRIPTION | CODE |
|--------------|---------------|-------------|------|
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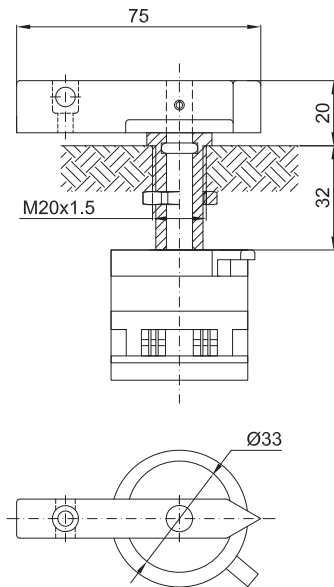


Quick-connect handle for cam or rotary switch.
Fixed pin length.
Complete with locknut.

M-0634/10..

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

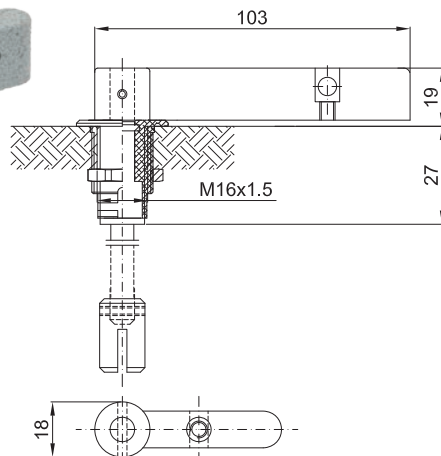


Quick-connect padlockable handle for cam or rotary switch.
Fixed pin length. Complete with locknut.

M-0634/10L..

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



Padlockable handle for cam switch. Complete with locknut.

Fixed pin length

M-0634../11F

Variable pin length

M-0634../11V

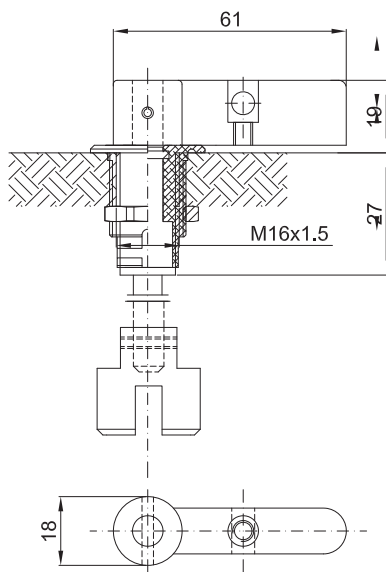
Add **IN** for stainless steel body and handle



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|--------------|---------------|-------------|------|
|--------------|---------------|-------------|------|

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Padlockable handle for special switches. (3RV motor protectors). Complete with locknut.

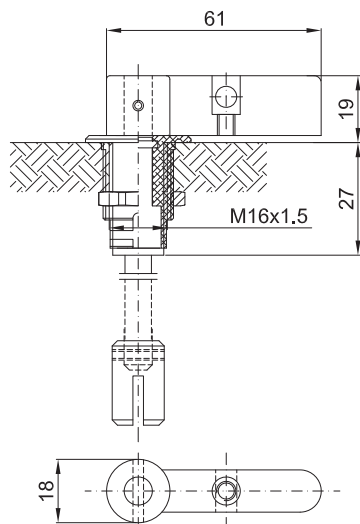
M-0634../12V

Variable pin length

M-0634../12F

Fixed pin length

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

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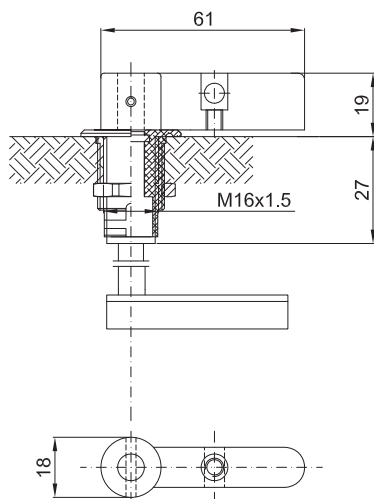


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Padlockable handle for enclosed circuit breakers. Complete with locknut.

Variable pin length
(size to order)

M-0634../14V

Fixed pin length

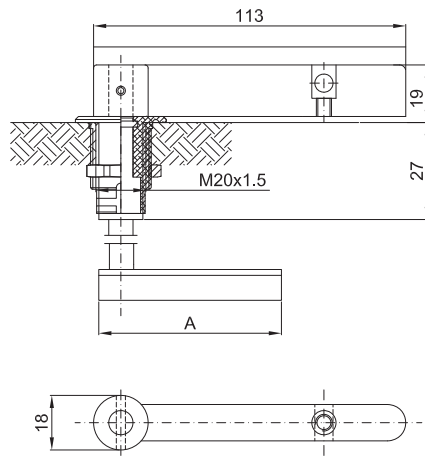
M-0634../14F

Add **IN** for stainless steel body and handle

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| 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

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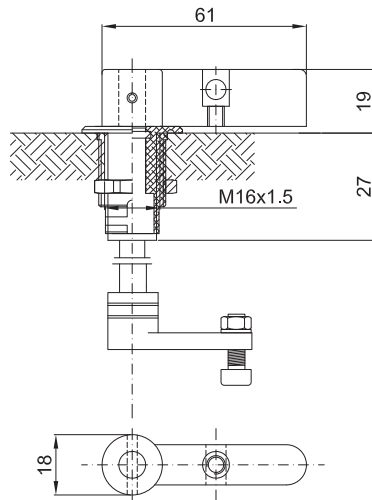


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Padlockable handle for modular circuit breakers. Complete with locknut.

Fixed pin length M-0634../04F

Variable pin length M-0634../04V

Add **IN** for stainless steel body and handle

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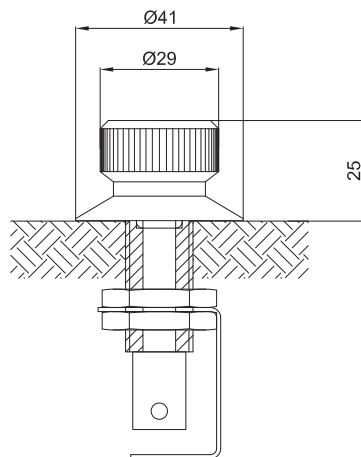


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Knob for potentiometers with Ø6 shaft M-0634/06

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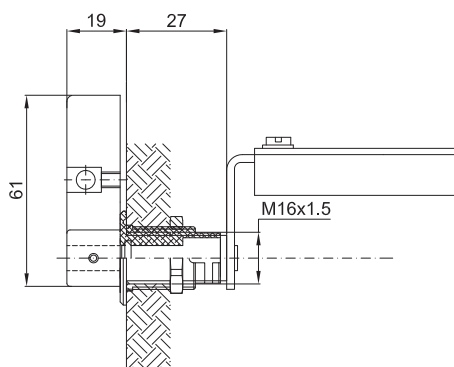


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| ILLUSTRATION | DIMENSIONS mm | DESCRIPTION | CODE |
|--------------|---------------|-------------|------|
|--------------|---------------|-------------|------|



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

M-0634/07

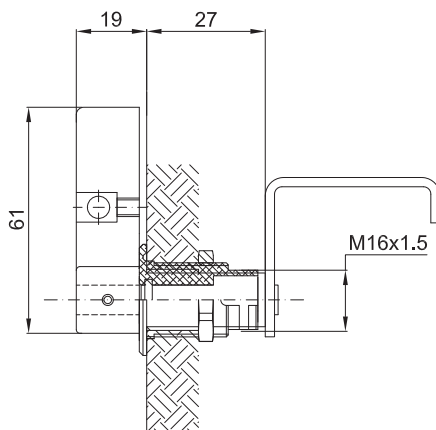
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Handle for modular circuit breakers. Wall mounting. Complete with locknut.

M-0634/09

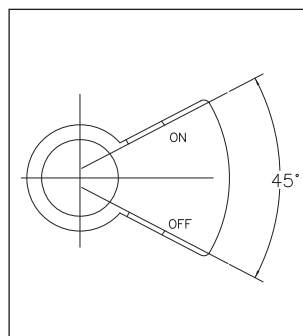
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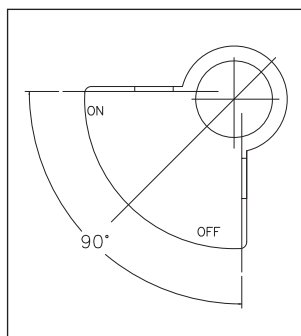
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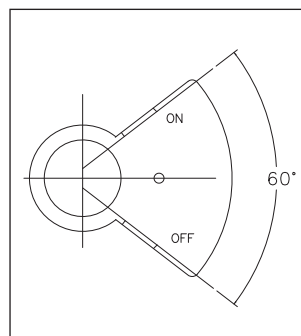
Type of handle padlocking devices



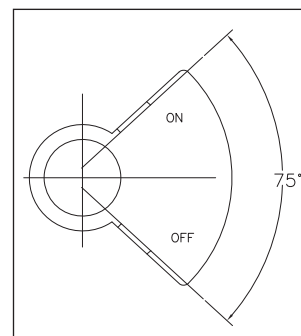
Code **M-698/5**



Code **M-698/6**



Code **M-698/7**



Code **M-698/8**



ILLUSTRATION

DIMENSIONS mm

DESCRIPTION

CODE

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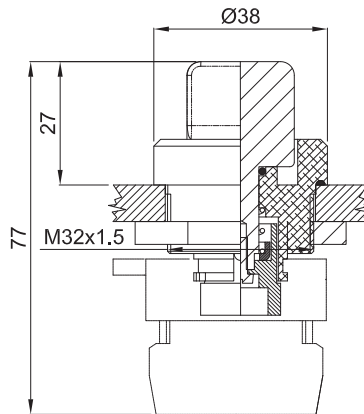


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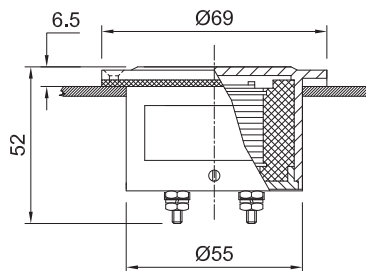
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Selector with 0A 600V 1NO+1NC contacts.

| | |
|-------------------------------|------------|
| 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 |

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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)

| | | |
|------------|-----------|--|
| 0 ÷ 40 mA | 0 ÷ 0.1 A | Measurement range - Direct measurement: |
| 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 |



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