



Reyrolle Test Block

Catalog Reyrolle 7XG222 · Edition 1

Digital Grid Reyrolle Test Block (7XG222) Catalog

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Devices and Application

7XG222 2RMLG Test Block and 2RLMB-R Test Plug

1.1

Description

The 7XG222 range of test blocks, housed within an Epsilon enclosure, offers facilities for monitoring and secondary injection testing of power system protection schemes in conjunction with the appropriate multi-fingered test plug.

The 2RMLG Test Block has 14 pairs of spring loaded contacts which are linked to a terminal block positioned at the rear of the enclosure.

The 2RMLG07 is coded to only accept the 2RLMB-R7 Test Plug which has connection terminals 21, 23, 25, and 27, internally.

The 2RMLG08 is coded to only accept the 2RLMB-R8 Test Plug which has internal pairs 1 and 3, 5 and 7, 9 and 11, and 15 and 17, shorted together internally.

The 2RMLG09 is coded to only accept the 2RLMB-R9 Test Plug which has terminals 1-3-5-7, 9-11, 17-19 & 21-23-25-27 shorted together internally..

Each pair of contacts is normally closed completing the circuit through the test block when the associated protection equipment is in use.

For testing purposes the test block can be accessed by removing the front cover. The 2RMLG01 has a metallic probe attached to the front cover assembly which when withdrawn open circuits the 2 contacts at position 13 and 14.

The main DC auxiliary supply to the protection scheme or relay can be wired to this circuit to prevent inadvertent tripping of the protection circuit after removal of the cover and during the test procedure.

The 2RMLG02/07/08/09 do not include the above facility and contacts 13 and 14 are normally closed. These contacts must not be used for current circuits, as the relevant contact finger on the 2RLMB-R test plug is shorter in this position.

The short test finger in position 13 and 14 on the 2RLMB-R will open contacts 13 and 14 in the test block after the other fingers have made contact in all other positions.

It is important that the sockets in the test plug which correspond to the current transformer secondary windings are linked prior to the test plug being inserted into the test block.

This will ensure that the current transformer secondary windings are short circuited prior to disconnection from the protection scheme or relay. If the DC auxiliary supply is to be used during testing it can be linked using the sockets in the test plug.

Operation of the contacts can be monitored by connecting the test equipment to the protection scheme or relay with the even numbered sockets of the test plug. If a number of 2RMLG test blocks are connected to a relay it is recommended that the DC supply be routed through each of them to safeguard against inadvertent operation.

Benefits

The features of the Test Block are:

- Finger safe design
- Finger safe test leads
- Various scheme configurations
- Retention fixings on test plugs



[sc_7XG22, 1, --, --]

- 7XG222 Suitable for vertical or horizontal mounting
- Standard 4U case design
- Coded test plugs prevent incorrect insertion

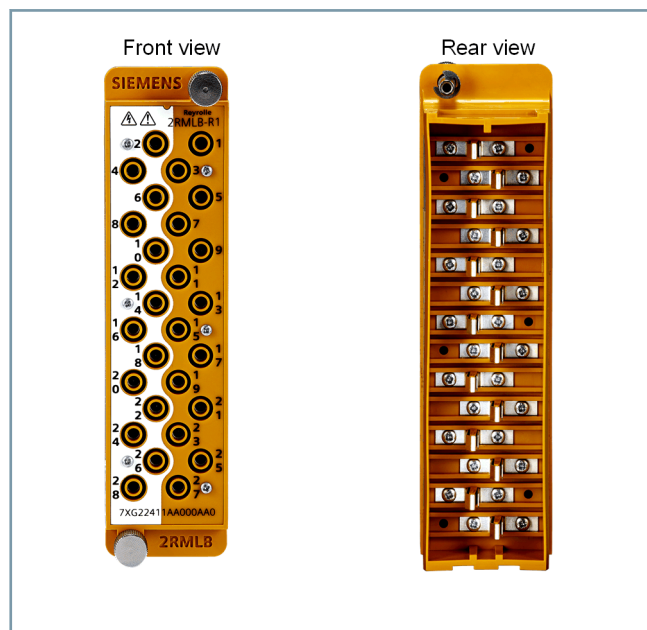
Hardware Construction

The 2RMLG is a size E2 unit in the Epsilon range of enclosures. The rear terminal block has 28 terminals each with an M4 screw outlet for the attachment of external wiring, fitted with 'L' shaped pre-insulated ring tongue terminations.



[sc_7XG22_2RMLG, 1, en_US]

Figure 2.1/1 2RMLG



[sc_7XG22_2RMLB, 1, en_US]

Figure 2.1/2 2RMLB

2RMLB-R Series Multi-Fingered Test Plugs

The 2RMLB-R series is inserted into the 2RMLG test socket and is securely retained by means of two knurled screws. The 2RMLB-R1 test plug incorporates 28 test sockets, each socket accepting a shrouded or plain 4 mm diameter plug.

2RMLB-R7 with Shorting Contacts

The 2RMLB-R7 is similar to the 2RMLB-R1 with shorted contact pairs 21-23-25-27 and is coded to be used with the MMLG07 Test Socket only.

2RMLB-R8 with Shorting Contacts

The 2RMLB-R8 is similar to the 2RMLB-R1 with shorted contact pairs 1-3, 5-7, 9-11, 15-17 and is coded to be used with the 2RMLG08 Test Socket only.

2RMLB-R9 with Shorting Contacts

The 2RMLB-R9 is similar to the 2RMLB-R1 with shorted contact pairs 1-3-5-7, 9-11, 17-19, 21-23-25-27 and is coded to be used with the 2RMLG09 Test Socket only.



NOTE

BEFORE inserting a Test Plug into a Test Socket carrying current transformer secondary circuits ensure that the test plugs corresponding to the current transformer circuits are short-circuited.

This is to ensure the current transformer secondary circuits are not inadvertently open-circuited during insertion of the last plug.



NOTE

BEFORE inserting a Test Plug to measure current ensure that the ammeter is on the correct range and that it is connected to its test leads.

The connections will depend upon the scheme and details must be obtained from the appropriate diagrams. If it is necessary to use the DC auxiliary supply during testing, then a test link may be fitted across the sockets in the Test Plug.

Test Block Information

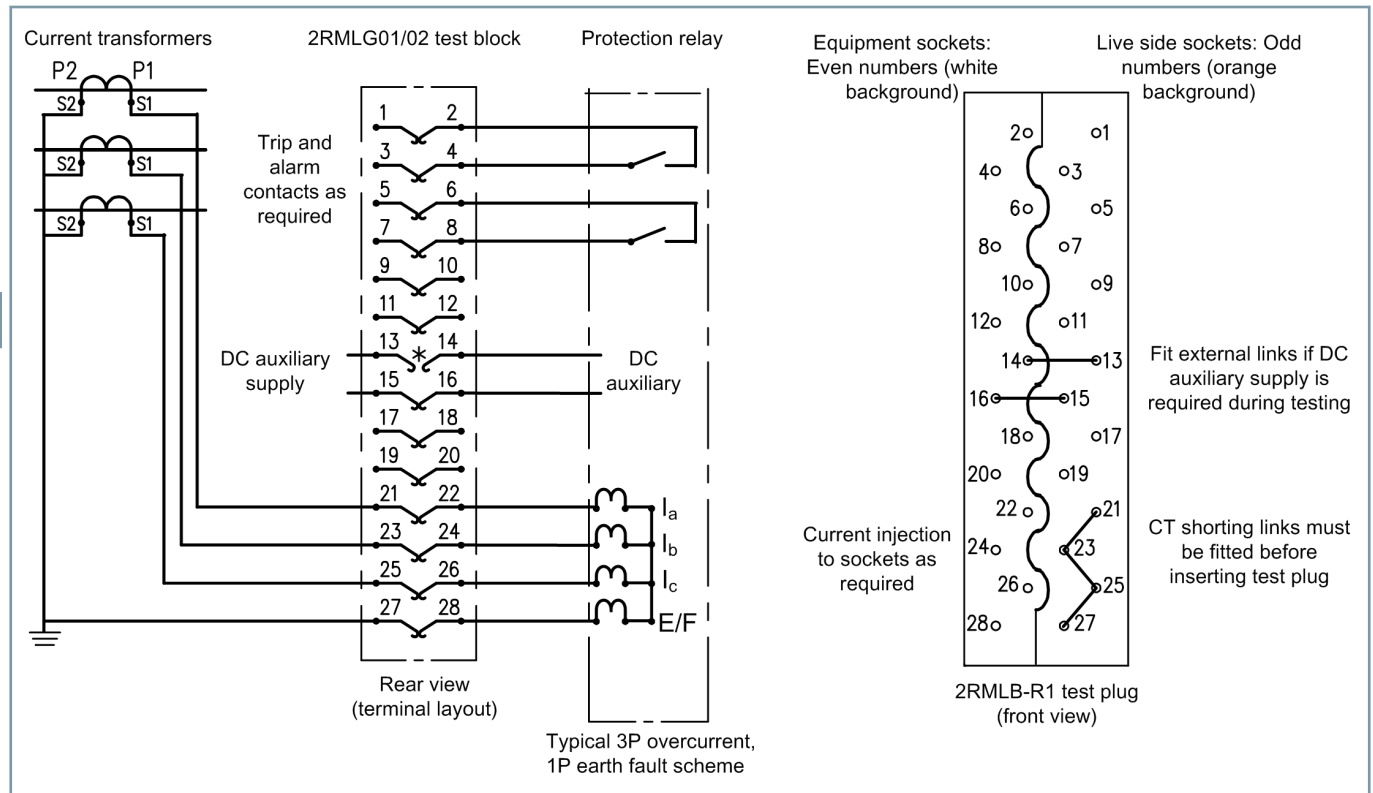
The device terminal label displays the MLFB code, serial number, relay description, terminal contact details, and safety symbols.

| | |
|--|--|
| | European CE marking |
| | Refer to device documentation |
| | Electrical Hazard |
| | Waste Electrical and Electronic Equipment Directive (WEEE) |
| | Guideline for the Eurasian Market |

Technical Documentation

Connection Diagrams

Connection Diagrams



[dw_7XG22_connection_2RMLG01/02, 1, en_US]

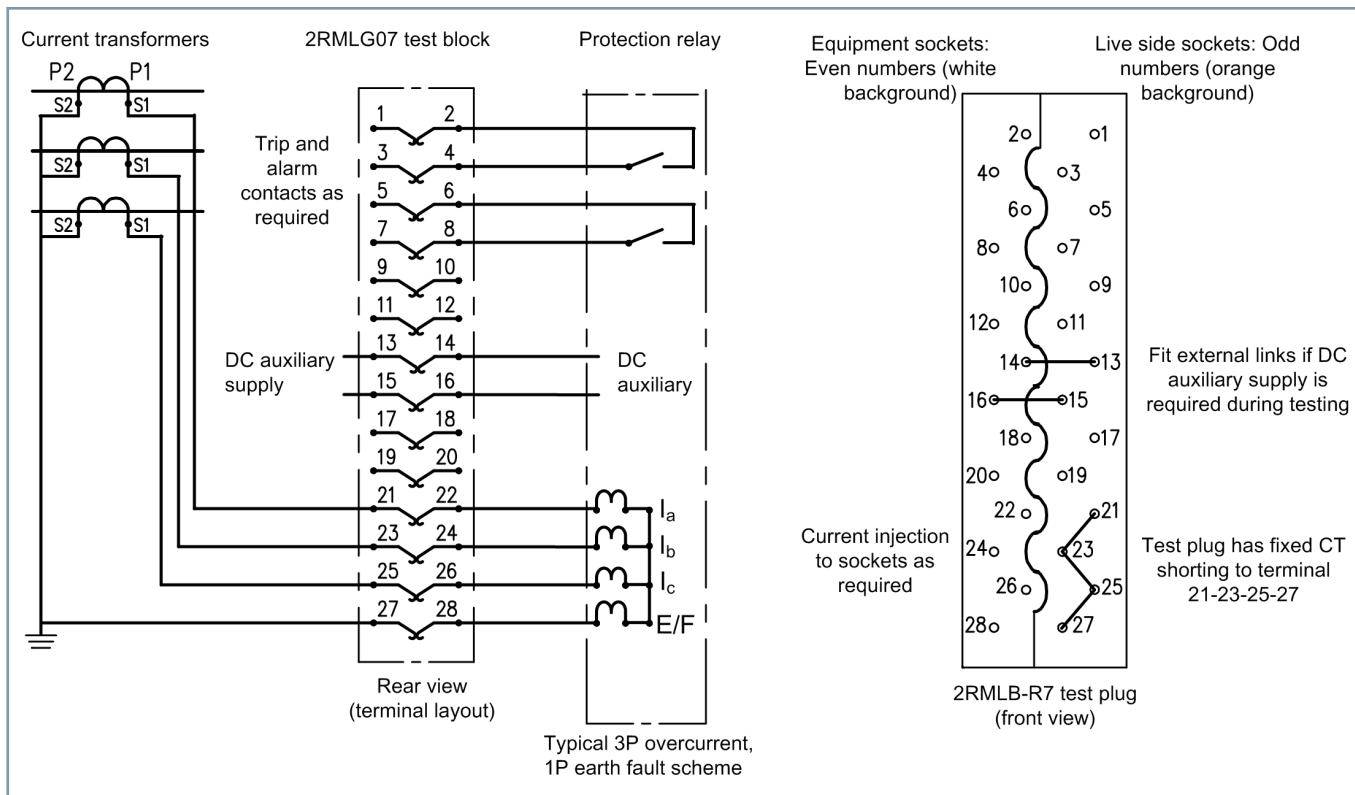
Figure 3.1/1 Typical Application of the 2RMLG01 / 2RMLG02 Test Block and 2RMLB-R1 Test Plug



NOTE

2RMLG01 13/14 open cct when cover is removed and all other positions are connected.

2RMLG02 13/14 connected as in the same way as other positions.



[dw_7XG22_connection_2RMLG07, 1, en_US]

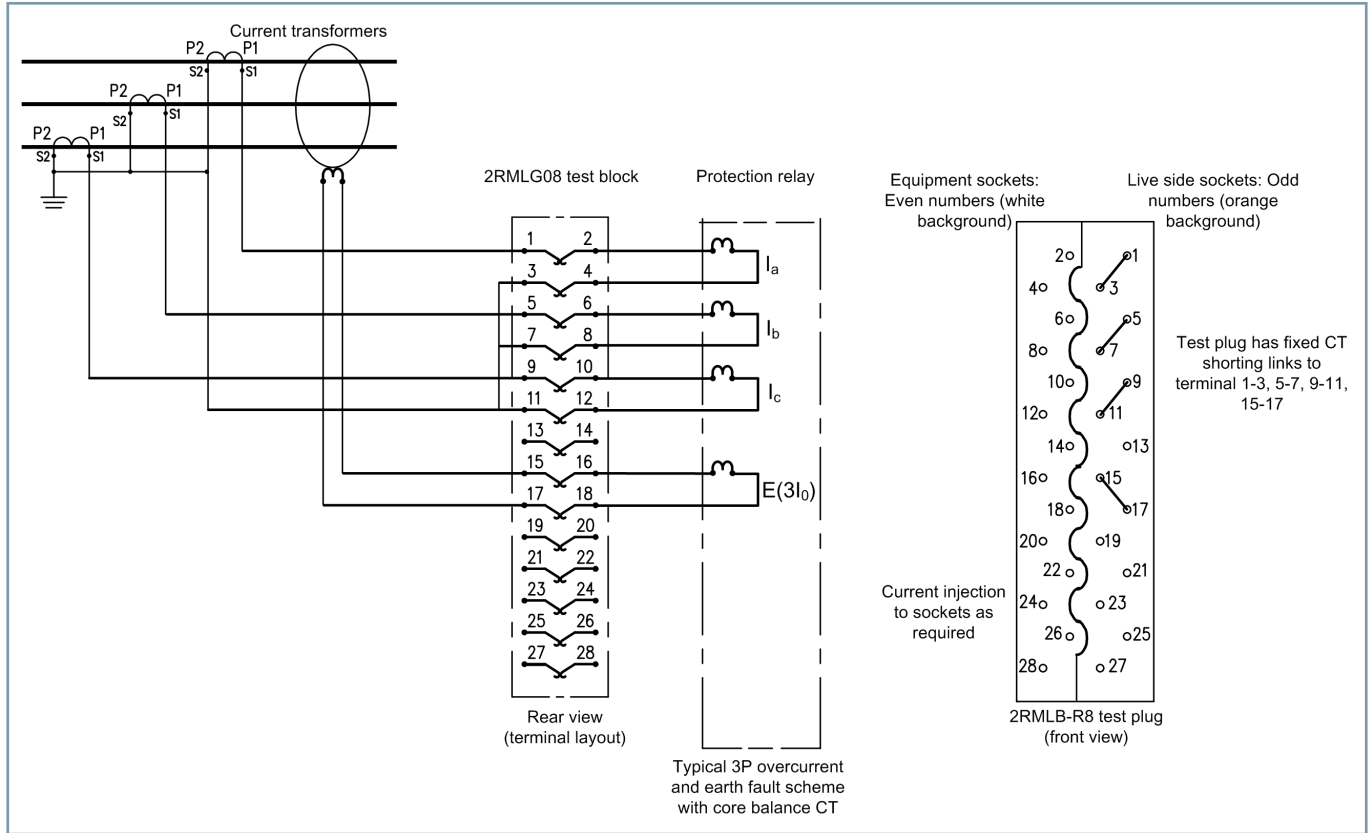
Figure 3.1/2 Typical Application of the 2RMLG07 Test Block and 2RMLB-R7 Test Plug

3.1

Technical Documentation

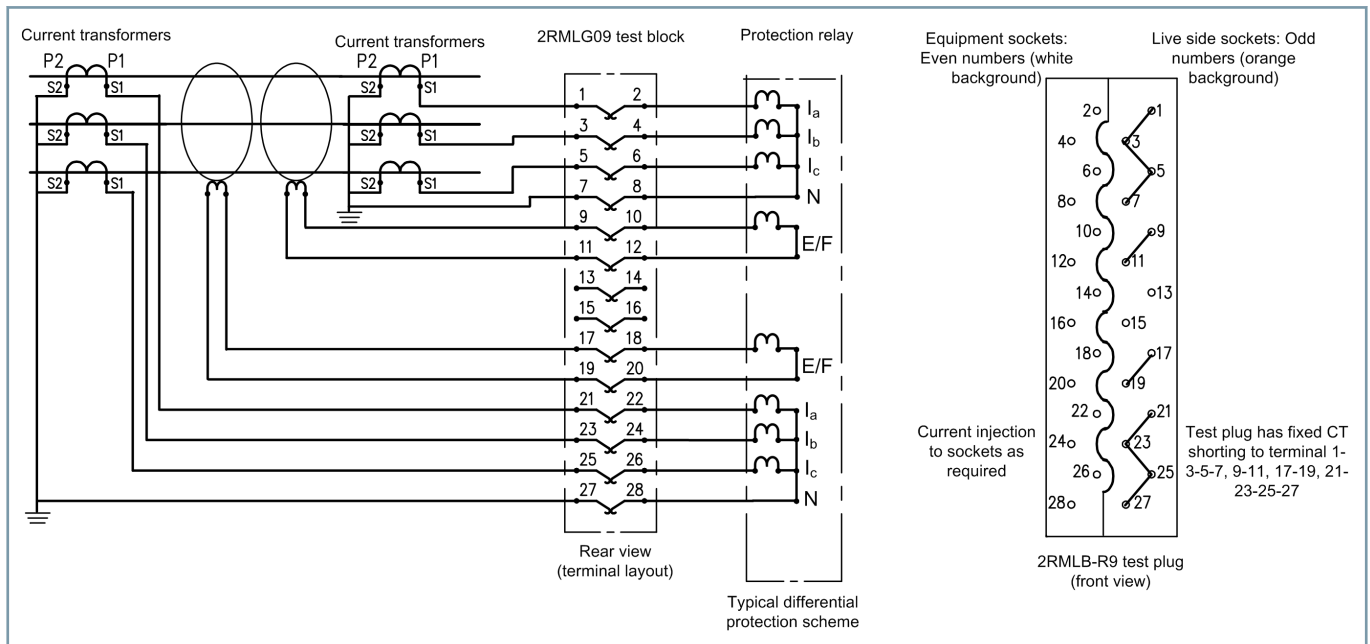
Connection Diagrams

3.1



[dw_7XG22_connection_2RMLG08, 1, en_US]

Figure 3.1/3 Typical Application of the 2RMLG08 Test Block and 2RMLB-R8 Test Plug

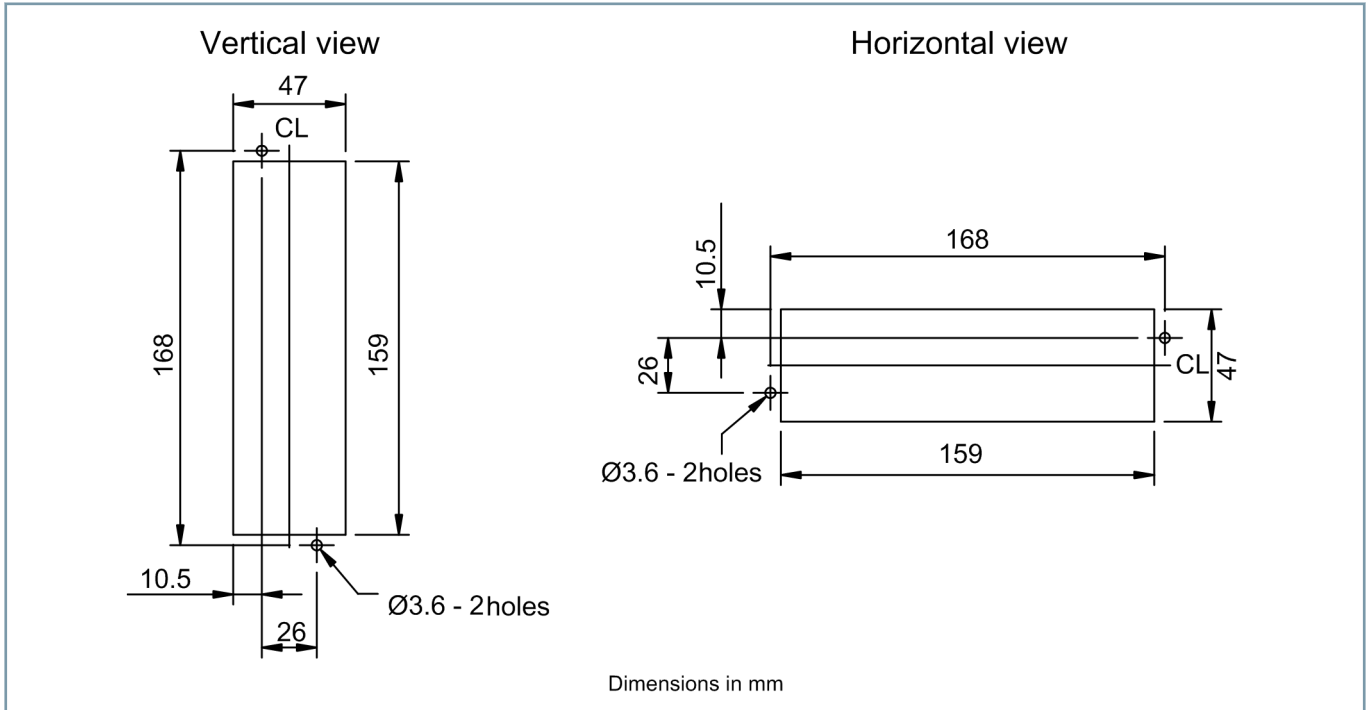


[dw_7XG22_connection_2RMLG09, 1, en_US]

Figure 3.1/4 Typical Application of the 2RMLG09 Test Block and 2RMLB-R9 Test Plug

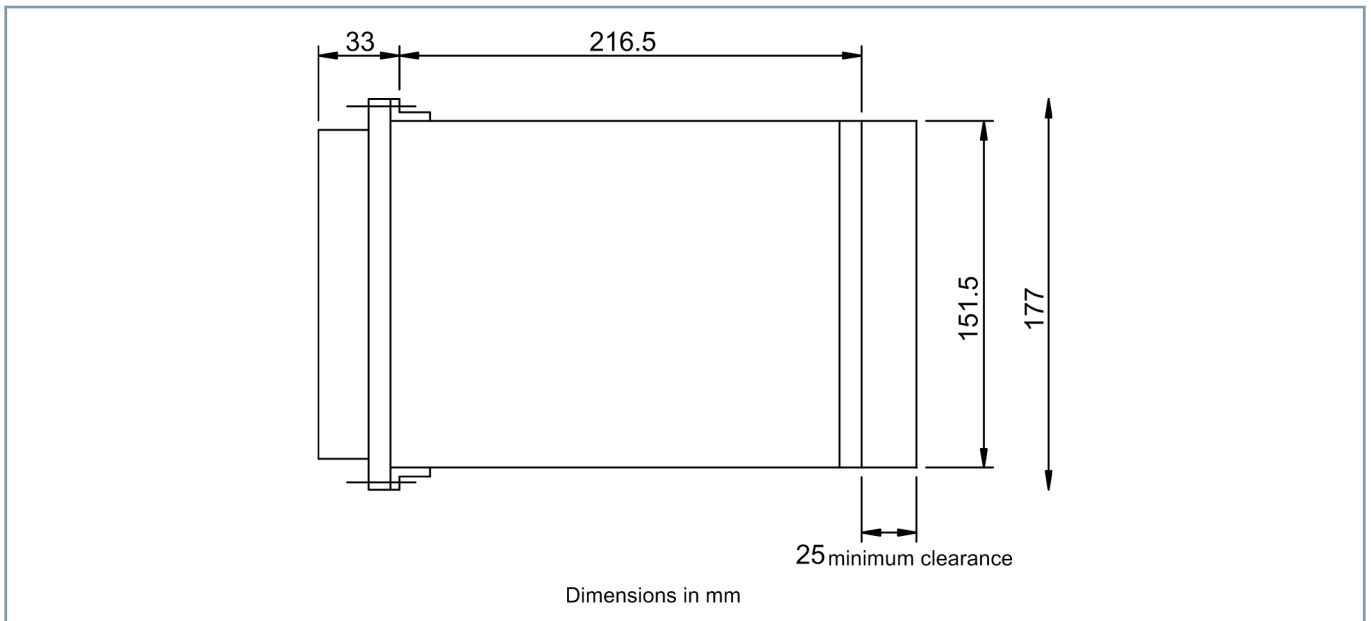
Dimension Drawings

This section displays the different dimensional views of a Test Block.



[dw_7XG22_dimension_panelcutout, 1, en_US]

Figure 3.2/1 Panel Cut-out View

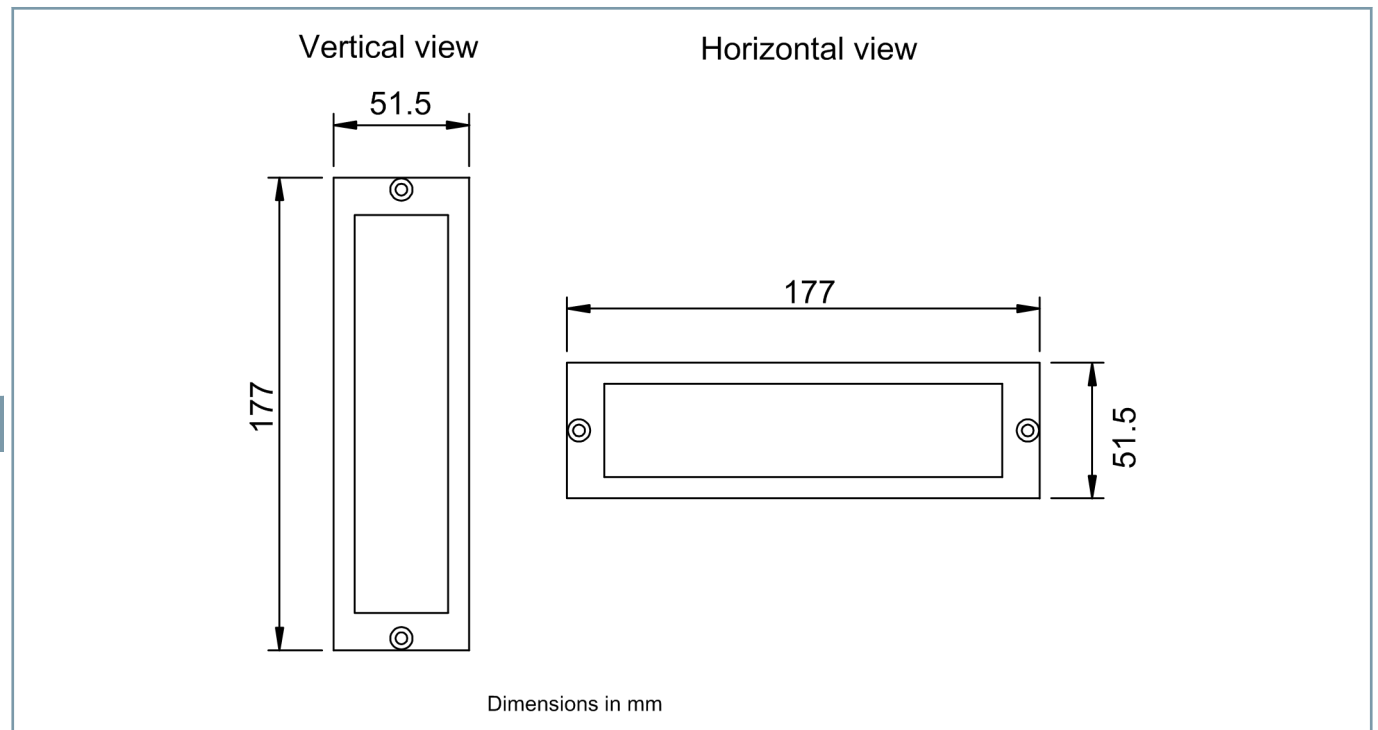


[dw_7XG22_dimension_side, 1, en_US]

Figure 3.2/2 Side View (Vertical) Top View (Horizontal)

Technical Documentation

Dimension Drawings



[dw_7XG22_dimension_top, 1, en_US]

Figure 3.2/3 Front View



NOTE

The $\text{Ø}3.6$ holes are for M4 thread forming (trilobular) screws. These are supplied as standard and are suitable for use in ferrous/aluminum panels 1.6 mm thick and above. For other panels, holes to be M4 clearance (typically $\text{Ø}4.5$) and relays mounted using M4 machine screws, nuts and lockwashers (supplied in panel fixing kit).

Technical Data

Indication of Conformity



This product complies with the directive of the Council of the European Communities on the harmonization of the laws of the Member States relating to electromagnetic compatibility (EMC Directive 2014/30/EU) and concerning electrical equipment for use within specified voltage limits (Low Voltage Directive 2014/35/EU) as well as restriction on usage of hazardous substances in electrical and electronic equipment (RoHS Directive 2011/65/EU).

This conformity has been proved by tests conducted by Siemens AG in accordance of the Council Directive in accordance with the product standard IEC/EN 60255-26 for the EMC directives, and with the standard IEC/EN 60255-27 for the low-voltage directive.

RoHS directive 2011/65/EU is met using the standard EN 50581. The device has been designed and produced for industrial use.

EMC Compliance

| | |
|------------|--|
| 89/336/EEC | These products have been classified as electromagnetically benign and are therefore excluded from the European Community EMC Directive. (89/336/EEC) |
|------------|--|

General Technical Data

High Voltage Withstand

IEC 60255-5

| | |
|----------------------|---|
| 2RMLG 01/02/07/08/09 | 5 kV _{RMS} for 1 minute between all case terminals connected together and the case earth terminal. 5 kV _{RMS} for 1 minute between any contact pair and either adjacent alternate contact pair, provided the intermediate contact pair is not used. 2 kV _{RMS} for 1 minute between any contact pair and either adjacent contact pair. |
| 2RMLG 01 only | 1 kV _{RMS} for 1 minute between terminals 13 and 14 when the cover is removed (e.g. opening the auxiliary supply or trip circuit). |
| 2RMLB-R1 | As 2RMLG 01 plus 2 kV _{RMS} for 1 minute between incoming and outgoing contacts when inserted. |
| 2RMLB-R7 | As above with the exception of terminals 21, 23, 25, and 27 which are permanently shorted together. |

| | |
|----------|---|
| 2RMLB-R8 | As above with the exception of terminal pairs 1-3, 5-7, 9-11, and 15-17 which are permanently shorted together as pairs. |
| 2RMLB-R9 | As above with the exception of terminal pairs 1-3-5-7, 9-11, 17-19, and 21-23-25-27 which are permanently shorted together in groups. |

Transient Overvoltage

IEC 60255-27

| | |
|----------------------|---|
| 2RMLG 01/02/07/08/09 | 5 kV impulse between all case terminals connected together and the case earth terminal. 5 kV impulse between any contact pair and either adjacent alternate contact pair, provided the intermediate contact pair is not used. 2 kV impulse between any contact pair and either adjacent contact pair. |
| 2RMLG 01 only | 2 kV impulse between terminals 13 and 14 when the cover is removed (e.g. opening the auxiliary supply or trip circuit). |
| 2RMLB-R1 | As 2RMLG 01 plus 2 kV impulse between incoming and outgoing contacts when inserted. |
| 2RMLB-R7 | As above with the exception of terminals 21, 23, 25, and 27 which are permanently shorted together. |
| 2RMLB-R8 | As above with the exception of terminal pairs 1-3, 5-7, 9-11, and 15-17 which are permanently shorted together as pairs. |
| 2RMLB-R9 | As above with the exception of terminal pairs 1-3-5-7, 9-11, 17-19, and 21-23-25-27 which are permanently shorted together in groups. |

3.3

Current and Voltage Withstand

| | |
|----------------------------------|---|
| 2RMLG 01/02/07/08 2RMLB-R1-R9 | All contact circuits rated at 20 A continuously or 400 A for 1 s, AC or DC. AC 300 V/DC 300 V maximum service voltage. |
|----------------------------------|---|

Mechanical Tests

| Test | Standard |
|-----------|---|
| Vibration | IEC 60255-21-1, Response and endurance, Class 2 |

Technical Documentation

Technical Data

Climatic Environmental Tests

Temperature

IEC 60068-2-1/IEC 60068-2-2/IEC 60255-6

| | |
|---------------------------------------|------------------|
| Ambient operating temperature | -10 °C to +55 °C |
| Storage temperature (non-operational) | -25 °C to +70 °C |

Humidity

IEC 60068-2-3

| | |
|------------------------------|-------------------------------|
| Damp heat test, steady state | 56 days at 93 % RH and +40 °C |
|------------------------------|-------------------------------|

Enclosure Protection (2RMLG only)

IEC 60529

| |
|-----------------------|
| IP50 (dust protected) |
|-----------------------|

3.3

Ordering Information – 7XG222

| Product Description | Order Number | | | | | | | | | | | | | | | | | |
|--|--------------|---|---|---|---|---|---|---|---|---|----|----|----|---|----|----|----|----|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | - | 8 | 9 | 10 | 11 | 12 | - | 13 | 14 | 15 | 16 |
| Test Modules (2RMLG) | 7 | X | G | 2 | 2 | 2 | 0 | - | □ | □ | A | 0 | 0 | - | 0 | A | A | 0 |
| | | | | | | | | | | | | | | | | | | |
| <u>Category</u> | | | | | | | | | | | | | | | | | | |
| Ancillary equipment | | | | 2 | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | |
| <u>Ancillary Equipment</u> | | | | | | | | | | | | | | | | | | |
| Modular case test components | | | | 2 | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | |
| <u>Test Component Type</u> | | | | | | | | | | | | | | | | | | |
| Test modules (2RMLG) | | | | 2 | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | |
| <u>Component Type</u> | | | | | | | | | | | | | | | | | | |
| Test module (2RMLG01) | | | | | | | | | 1 | | | | | | | | | |
| Test module without open circuit facility between terminals 13 and 14 when cover removed (2RMLG02) | | | | | | | | | 2 | | | | | | | | | |
| Test module with automatic CT shorting (2RMLG07) | | | | | | | | | 3 | | | | | | | | | |
| Test module with automatic CT shorting (2RMLG08) | | | | | | | | | 4 | | | | | | | | | |
| Test module with automatic CT shorting (2RMLG09) | | | | | | | | | 5 | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | |
| <u>Mounting</u> | | | | | | | | | | | | | | | | | | |
| E2 case vertical | | | | | | | | | A | | | | | | | | | |
| E2 case horizontal | | | | | | | | | B | | | | | | | | | |

3.4

Technical Documentation

Ordering Information

Ordering Information – 7XG2241

| Product Description | Order Number | | | | | | | | | | | | | | | | | |
|---|--------------|---|---|---|---|---|---|---|---|---|----|----|----|---|----|----|----|----|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | - | 8 | 9 | 10 | 11 | 12 | - | 13 | 14 | 15 | 16 |
| Test Plugs (2RMLB-R) | 7 | X | G | 2 | 2 | 4 | 1 | - | □ | A | A | 0 | 0 | - | 0 | A | A | 0 |
| | | | | | | | | | | | | | | | | | | |
| <u>Category</u> | | | | | | | | | | | | | | | | | | |
| Ancillary equipment | | | | 2 | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | |
| <u>Ancillary Equipment</u> | | | | | | | | | | | | | | | | | | |
| Modular case test components | | | | 2 | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | |
| <u>Test Component Type</u> | | | | | | | | | | | | | | | | | | |
| Test plugs (2RMLB-R) | | | | 4 | 1 | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | |
| <u>Component Type</u> | | | | | | | | | | | | | | | | | | |
| Multi finger test plug complete with leads (2RMLB-R1) | | | | | | | | | 1 | | | | | | | | | |
| Multi finger test plug complete with leads and internal shorting links (2RMLB-R7) | | | | | | | | | 3 | | | | | | | | | |
| Multi finger test plug complete with leads and internal shorting links (2RMLB-R8) | | | | | | | | | 4 | | | | | | | | | |
| Multi finger test plug complete with leads and internal shorting links (2RMLB-R9) | | | | | | | | | 5 | | | | | | | | | |

3.4

Indication of conformity



This product complies with the directive of the Council of the European Communities on harmonization of the laws of the Member States relating to electromagnetic compatibility (EMC Council Directive 2004/108/EC) and concerning electrical equipment for use within specified voltage limits (Low Voltage Directive 2006/95/EC).

This conformity has been proved by tests performed according to the Council Directive in accordance with the generic standards EN 61000-6-2 and EN 61000-6-4 (for EMC directive) and with the standard EN 60255-27 (for Low Voltage Directive) by Siemens AG. The device is designed and manufactured for application in an industrial environment. The product conforms with the international standards of IEC 60255.

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