Test Block & Plug

ERMLG & ERMLB

Product Overview

The test block allows for safe, straightforward testing of secondary equipment by isolating it completely from primary field components, minimizing risks to the user.

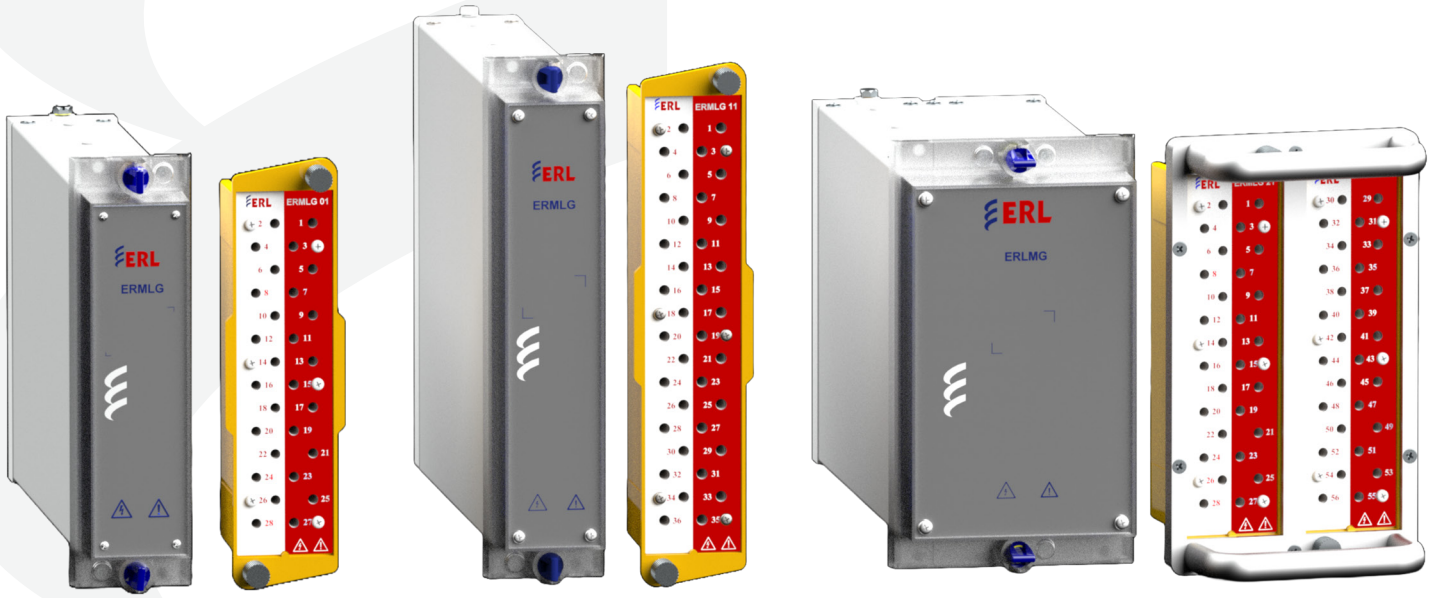
Main Features

- Suitable for various scheme configurations
- A single Test plug compatible with various test block variants
- Secure connection and safe isolation of primary equipment and trip circuits
- Horizontal and vertical mounting type
- Manual or Automatic CT shorting
- Automatic DC auxiliary supply isolation
- Compact and economic desing
- Finger safe test sockets

Application

The ERMLG Test Block provides facilities for secondary injection testing of any power system protection or metering scheme, when used with the multi-fingered test plug type ERMLB.

It safely isolates the primary equipment and provides access to the protective relay inputs for secondary injection testing.



Features & Benefits

Description

ERMLG Test Block removes the need to disturb protective system wiring for testing. It is housed in a well-designed enclosure and has 14/18/28 pairs of spring-loaded contacts which are linked to a terminal block positioned at the rear of the enclosure. Each pair of contacts are normally closed, completing the circuit through the test block when the associated protection equipment is in use.

The insertion of the ERMLB test plug into the ERMLG assembly open circuits the contact pairs.

The ERMLB has test points, each position being identified by a number which corresponds with the terminations on the ERMLG. It is recommended that the protection scheme or relay is wired to the even numbers of the test modules.

To ensure the scheme wiring is routed logically, it is recommended that the ERMLG is always positioned on the right-hand side of the relay, when viewed from the front. In the case of horizontal mount it shall be below the relay.

The connections to the relay are wired from even numbered terminal and connections to other equipment such as CTs, VTs, and DC supplies should be made to the odd numbered terminals indicated on the ERMLG.

This will ensure that on connection of the test plug ERMLB, the sockets on the even numbered side of the test plug will isolate relay circuits and the sockets on the odd numbered side are connected to the potentially live supplies.

Testing of the protection scheme or relay can be made by connecting the secondary injection test with the even numbered sockets of the test plug.

If multiple ERMLG test blocks are connected to a relay, route the DC supply through each test block to prevent inadvertent operation. They are identified by a number which corresponds with the terminations on the ERMLG.

The rear terminal block terminals each with an M4 screw outlet for the connection of external wiring, fitted with 'L' shaped pre-insulated ring type termination.

Insert the ERMLB test plug into the ERMLG test block and secure it with the two knurled screws. The ERMLB test plug sockets, each can accept a 4mm diameter plug.

The Test Plug employs 'finger safe' test sockets. This allows the use of shrouded banana plugs to greatly reduce the possibility of an operator coming into contact with any part of the test circuit.

The test blocks are available with different types *(see ordering table information).*

Automatic DC Isolation

For testing purposes, the test block can be accessed by removing the front cover. The ERMLG has a metallic probe attached to the front cover assembly which, when withdrawn, open circuits the 2 contacts at position 13 and 14. This is only available when DC isolation option is selected while ordering.

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

The test finger of the ERMLB will open contacts 13-14 in the test block after the other fingers have made contact in all other positions.

If the DC auxiliary supply is to be used during testing it can be linked using the sockets in the test plug.

Manual / Automatic CT Shorting facility

Automatic CT shorting: (Internal shorting)

When the test plug is connected, the protection relay is ready for injection tests.

These tests won't affect the rest of the system since it's safely isolated. current circuits will short automatically, and voltage and digital circuits will open.

Thus, there is no need to manually connect CT shorting links in the test plug during insertion.

The test plug has automatic shorting links for fixed terminals 21, 23, 25, and 27 in ERMLB02/12 model and 21, 23, 25, 27 & 49, 51, 53, 57 in ERMLB22 model. Ensure that the wiring in the test block aligns with these positions for automatic CT shorting to function correctly.

Manual CT shorting: (External shorting)

Make sure the sockets of the ERMLB Test Plug that match the CT secondary windings are linked before inserting the plug into the test block.

This prevents the CT secondary windings from being open circuited when isolated from the protection relay scheme.

Use external shorting links to short circuit the CT secondary windings before disconnecting them, avoiding dangerously high voltages.

BEFORE inserting a test plug into a test block carrying current transformers secondary circuits, ENSURE that the test plugs corresponding to the current transformer's circuits are short circuited. This is to ensure the current transformer secondary circuit is not inadvertently open-circuited during insertion of the test plug.

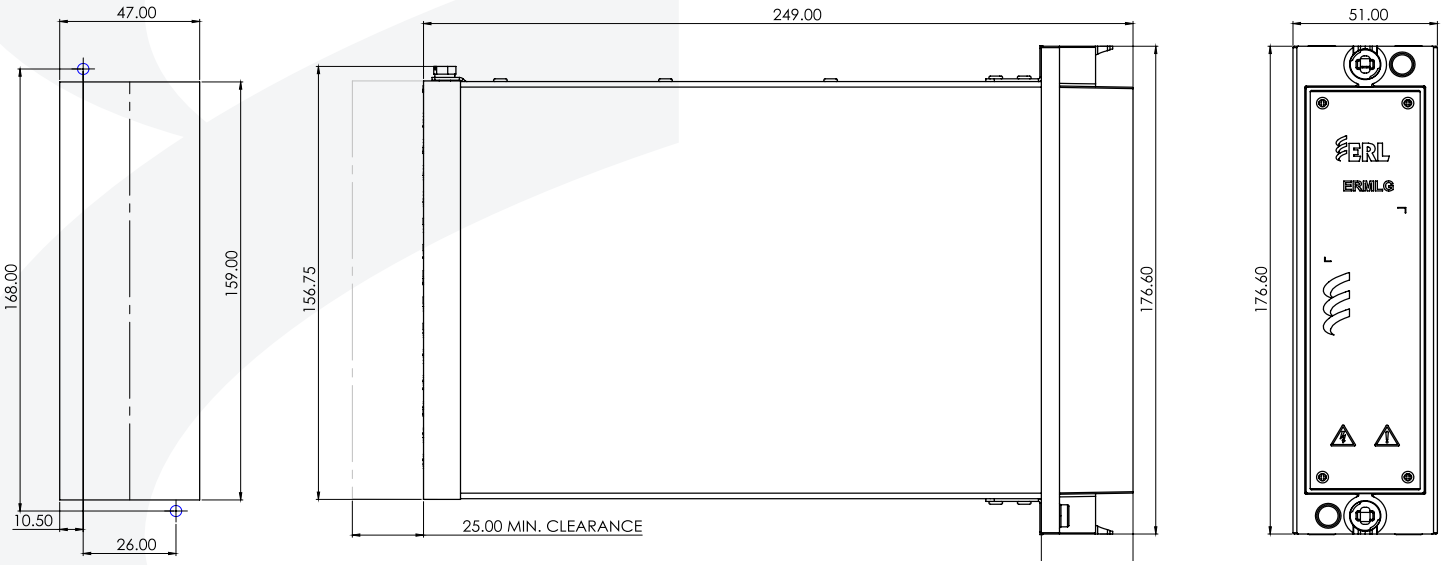
ERMLG/B 14 Contact (ERMLG-01/02/03/04 & ERMLB-01/02)

The test block contains 14 contacts. It is available Manual or Automatic CT shorting with DC or Without DC Isolation options. Also, it is available in vertical or horizontal mounting type.

Vertical type

Horizontal type

Dimension Diagram:



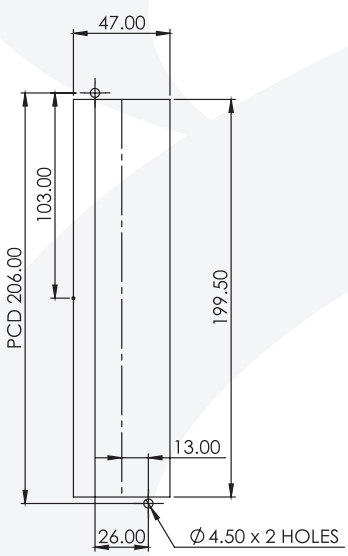
ERMLG/B 18 Contact (ERMLG-11/12/13/14 & ERMLB-11/12)

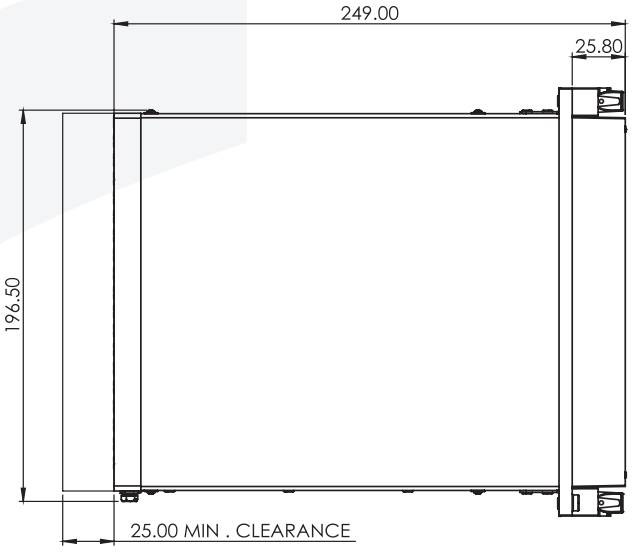
The test block contains 18 contacts. It is available Manual or Automatic CT shorting with DC or Without DC Isolation options. Also, it is available in vertical or horizontal mounting type.

Vertical type

Horizontal type

Dimension Diagram:

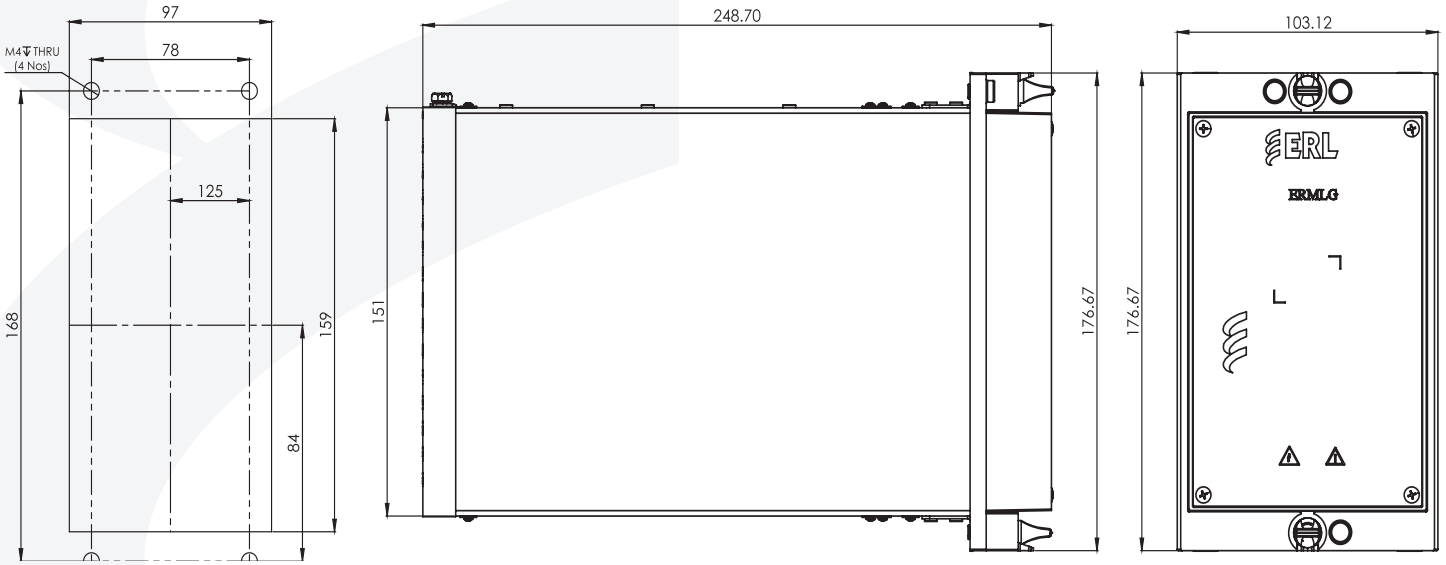




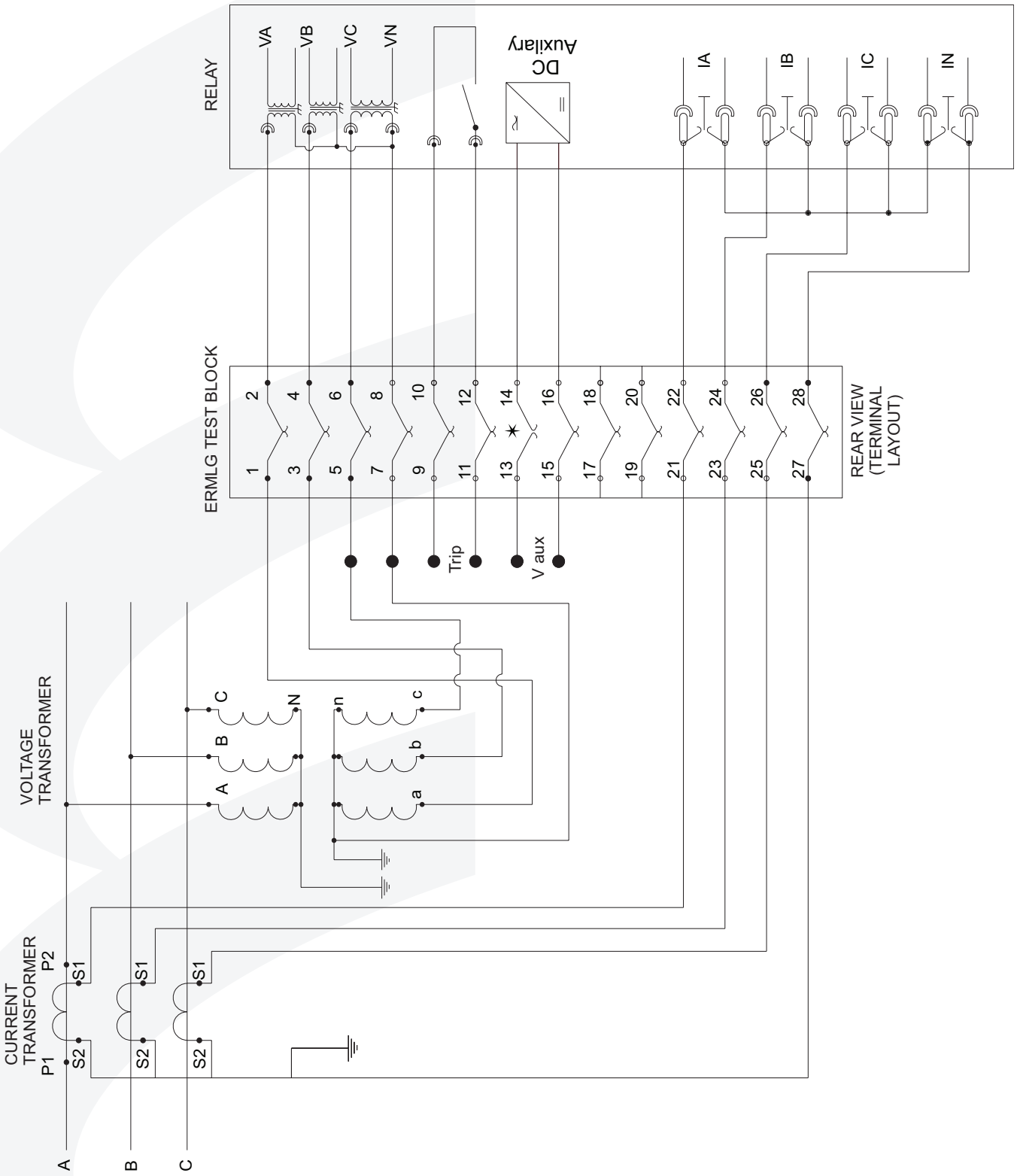
ERMLG/B 28 Contact (ERMLG-21/22/23 & ERMLB-21/22)

The test block contains 28 contacts. It is available Manual or Automatic CT shorting with DC or Without DC Isolation options. Also, it is available in vertical or horizontal mounting type.

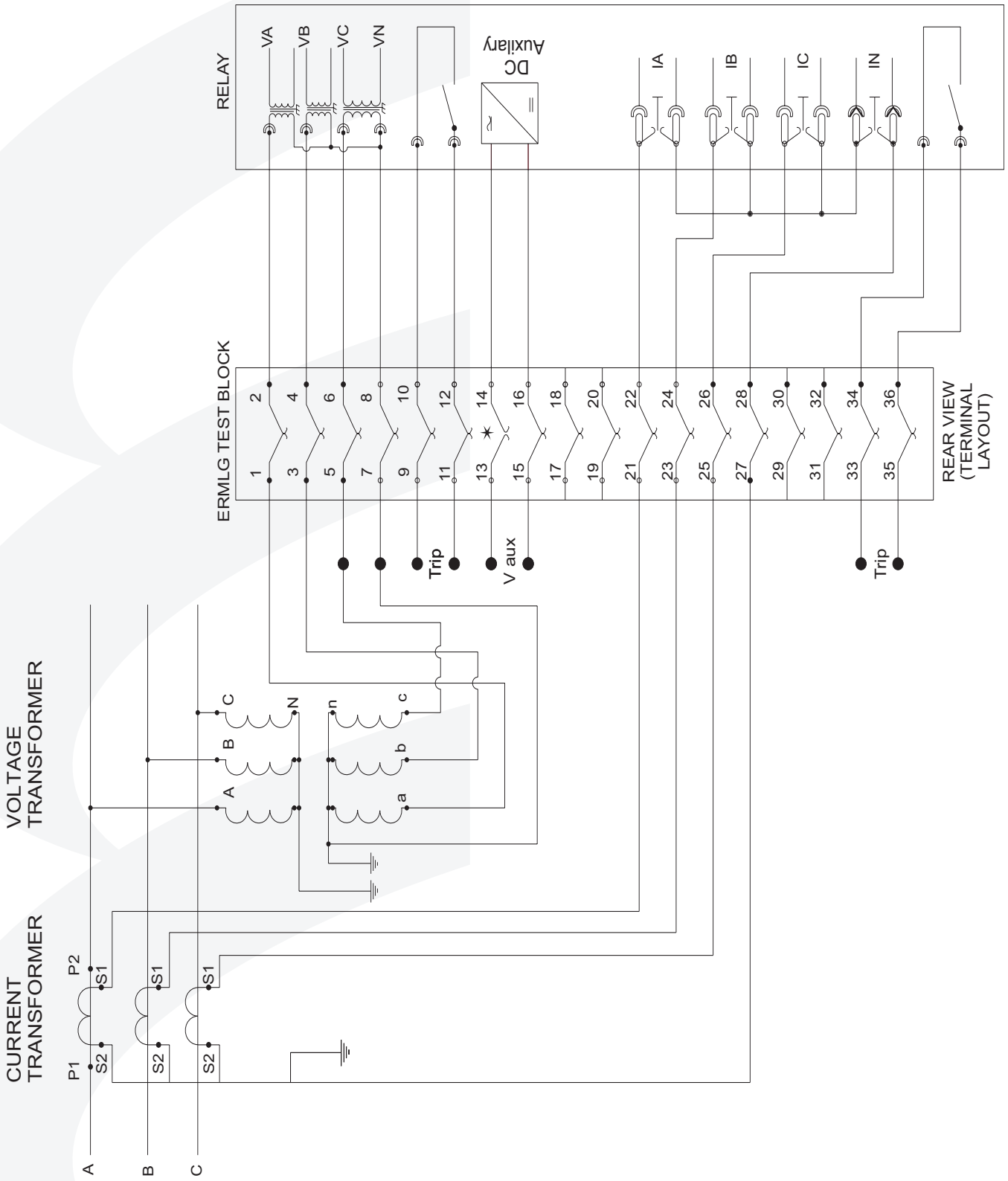
Dimension Diagram:



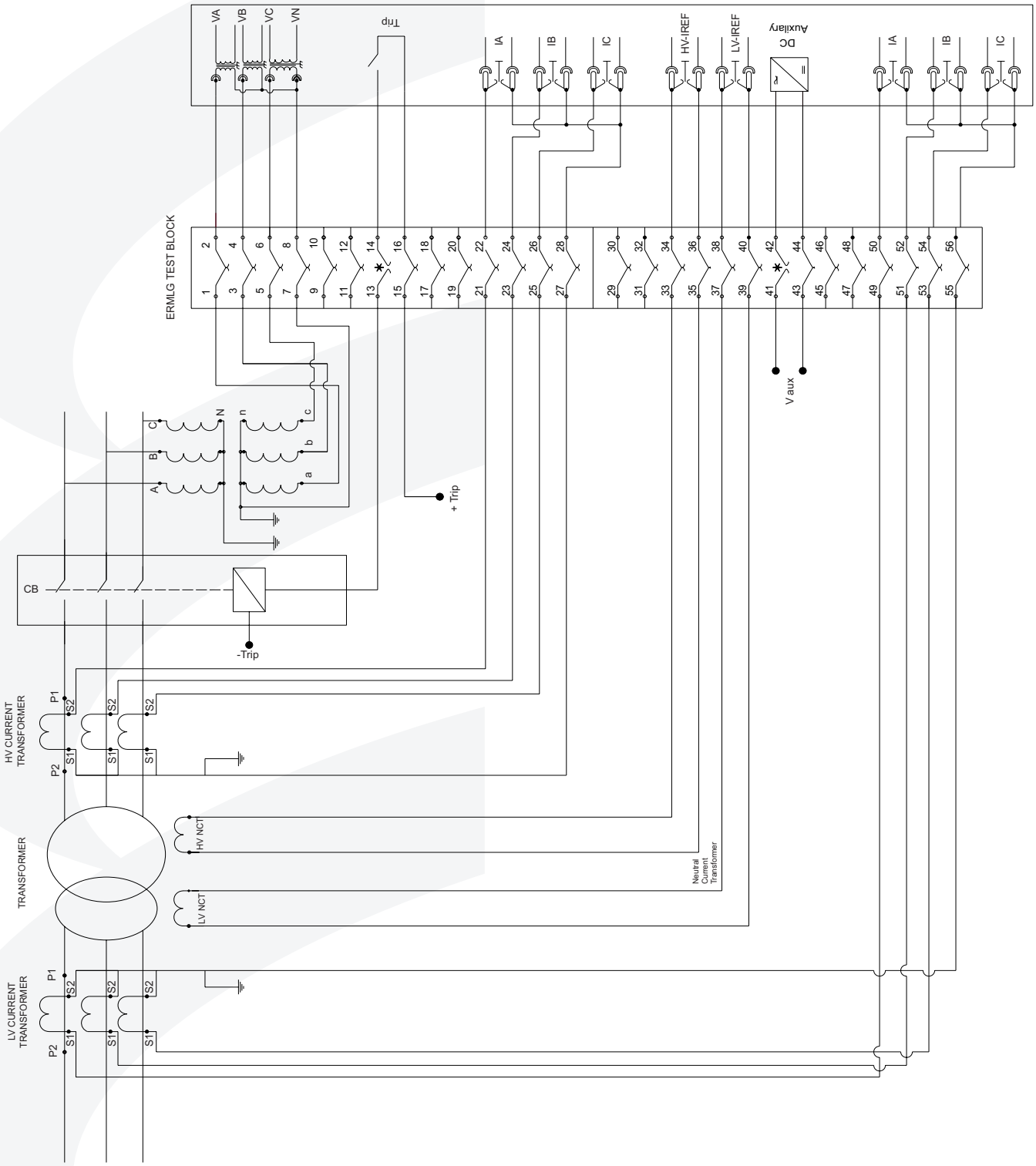
Connection Diagram: (ERMLG 14 contact)



Connection Diagram: (ERMLG 18 contact)



Connection Diagram: (ERMLG 28 contact)



Type Tests

Test	Description		Test Level
	Type Test	Test Points	
IEC 60255-27:2013 Cl.No.10.6.4.3	AC Dielectric Voltage	Between all case terminal connected together and case earth terminal	5kV
		Between all case terminal 13 and 14 (when the cover is opened)	1kV
		Between incoming and outgoing contacts when ERMLB is inserted	2kV
		Between all case terminal connected together and case earth terminal	5000Vdc > 100MΩ
IEC 60255-27:2013 Cl.No.10.6.4.4	Insulation Resistance	Between all case terminal 13 and 14 (when the cover is opened)	5000Vdc > 100MΩ
		Between incoming and outgoing contacts when ERMLB is inserted	5000Vdc > 100MΩ
IEC 60255-27:2013 Cl.No.10.6.4.2	Impulse Voltage Withstand	Between all case terminal connected together and case earth terminal	5kV, 500Ω
IEC 60255-1:2009	Continuous Current Withstand		20A, 250Vac, +55°C, 5Hrs
IEC 60255-1:2009	Short Time Current Withstand		400A, 1sec, Resistive
IEC 60255-1:2009	Contact Resistance		<100MΩ
IEC 60068-2-1:2007	Cold - Storage		-25°C for 2 Hrs
IEC 60068-2-1:2007	Cold - Operational		-25°C for 2 Hrs
IEC 60068-2-2:2007	Dry Heat - Storage		+70°C for 2 Hrs
IEC 60068-2-2:2007	Dry Heat - Operational		+55°C for 2 Hrs
IEC 60068-2-78:2012	Damp Heat - Operational		+40°C for 12 Hrs, 93%
IEC 60255-1:2009	Ingress Protection		IP 50
IEC 60947-7-1 Cl.No: 8.4.3 a	Impulse Test	Between adjacent terminal block	5kV
		Between all terminals connected and support	5kV
IEC 60947-7-1 Cl.No: 8.4.3 b	Dielectric Tests	Between all terminals connected together and ground	5kV
		Between contact pair and adjacent contact pair	2.5kV
		Between incoming and outgoing contacts when ERMLB Plug inserted	2kV
		Between terminals 13 and 14 when the cover is removed	1kV
IEC 60947-7-1 Cl.No: 8.4.5	Temperature Rise Test		20A
IEC 60947-7-1 Cl.No: 8.4.6	Short Time Withstand Current Test		400A

Ordering Information

ERMLG 14 Contact Test Block & Plug

14 Contact ERMLG Test Block Ordering Codes		
Vertically Mounted Test Block with DC Isolation	ERMLG	01
Vertically Mounted Test Block without DC Isolation	ERMLG	02
Horizontally Mounted Test Block with DC Isolation	ERMLG	03
Horizontally Mounted Test Block without DC Isolation	ERMLG	04

14 Contact ERMLB Test Plug Ordering Codes		
Manual CT Shorting	ERMLB	01
Automatic CT Shorting (Fixed terminals: 21-23-25-27)	ERMLB	02

ERMLG 18 Contact Test Block & Plug

18 Contact ERMLG Test Block Ordering Codes		
Vertically Mounted Test Block with DC Isolation	ERMLG	11
Vertically Mounted Test Block without DC Isolation	ERMLG	12
Horizontally Mounted Test Block with DC Isolation	ERMLG	13
Horizontally Mounted Test Block without DC Isolation	ERMLG	14

18 Contact ERMLB Test Plug Ordering Codes		
Manual CT Shorting	ERMLB	11
Automatic CT Shorting (Fixed terminals: 21-23-25-27)	ERMLB	12

ERMLG 28 Contact Test Block & Plug

28 Contact ERMLG Test Block Ordering Codes		
Test Block with 2 DC Isolation	ERMLG	21
Test Block without 2 DC Isolation	ERMLG	22
Test Block with 1 DC & without 1 DC Isolation	ERMLG	23

28 Contact ERMLB Test Plug Ordering Codes		
Manual CT Shorting	ERMLB	21
Automatic CT Shorting (Fixed terminals: 21-23-25-27 & 49-51-53-55)	ERMLB	22

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