

Multi-Finger Test Plug

- > Colour coded 'finger safe' test sockets suit standard or shrouded type 4mm banana plugs
- > Compatible with industry standard 14 circuit test blocks e.g. Siemens 2RMLG / 7XG22 & Areva MMLG
- > Clear & concise front panel circuit identification
- > Test block obviates the need to disturb protective system wiring for testing purposes
- > Available with internal automatic CT shorting links
- > High current / voltage rating
- > Compact & economic design



2RMLB-S1 Multi-Finger Test Plug



Description

The 2RMLB-S Multi-Finger Test Plug is an evolution of the popular test plug employed with Reyrolle & Areva test blocks. The primary difference is the incorporation of 'finger safe' test sockets which allow the use of shrouded 4mm banana plugs.

Insertion of the 2RMLB-S Test Plug into the Test Block first connects & then open circuits each pair of contacts which connected to the rear terminals.

The 2RMLB-S test plug locates securely into the test block & can be retained by two knurled screws.

The 28 'finger safe' test sockets on the 2RMLB-S are divided into two groups of 14:

- > 14 even numbered equipment side **BLACK** test sockets
- > 14 odd numbered live side **YELLOW** test sockets

Each of these 28 test sockets accepts a 4mm shrouded or standard type test plug.

Application

Test links are an important accessory for protection, metering & control panels. They enable test technicians to quickly & safely isolate protection relays so that test signals may be injected & system performance verified.

There are a number of advantages in performing injection tests at the protection relay panel:

- > Reduction in down time of the equipment under test
- > Testing does not cause disturbance to wiring, terminals or equipment settings
- > Existing auxiliary supply to the equipment under test may be isolated

The 2RMLB-S Multi-Finger Test Plug been designed as a general-purpose isolation & test signal injection point. 'Finger safe' sockets are employed to improve operator safety & suit 4mm shrouded 'finger safe' type banana plugs.

Equipment under test need only be removed for servicing if problems are detected.

Finger Safe Test Sockets

Note the black - even numbered - equipment side sockets.

Note the yellow - odd numbered - live side sockets.



Figure 2: Close up view of the 'finger safe' test plug sockets that accept standard 4mm shrouded test plugs.

CT Shorting – Manual (External)

It is essential that the sockets of the 2RMLB-S Multi-Finger Test Plug which correspond to the current transformer (CT), secondary windings are linked prior to the test plug being inserted into the test block.

This may be achieved using external shorting link lead to ensure that CT secondary windings are short circuited before they are disconnected from the protection relay or scheme, thereby avoiding dangerously high voltages.

The continuity of the shorting plug / wire links & their state of insulation should be checked prior to into the 2RMLG test block.

The 2RMLB-S1 Test Plug is for use with the 2RMLG-01 Test Block.

CT Shorting – Automatic (Internal)

The 2RMLB-S may be ordered with internal CT shorting links fitted to pre-designated positions as follows:

2RMLB-S7 Can only be used with 2RMLG-07 test blocks

Internal shorting links between contacts:

21-23-25-27

2RMLB-S8 Can only be used with 2RMLG-08 test blocks

Internal shorting links between contacts:

1-3, 5-7, 9-11, 15-17

2RMLB-S9 Can only be used with 2RMLG-09 test blocks

Internal shorting links between contacts:

1-3-5-7, 9-11, 17-19, 21-23-25-27

Where these 2RMLB-S test plug versions are employed it is essential that the CT circuits are wired to the 2RMLG test block in the matching positions.

To Reiterate: The 2RMLB-S requires the **USER** to ensure that the necessary shorting links - manual or automatic – are fitted prior to plugging into the test block.

Test Lead Insertion

Before use the insulation of the flying leads should be visibly checked for damage.

Flexible banana test leads with shrouded plugs are recommended for operator safety. 2.5mm² multi-strand wire with PVC insulation is recommended for adequate current rating and flexibility.

Test Plug Insertion



To avoid high voltage shock hazard external CT circuits must NOT be open circuited. Shorting links must be in position BEFORE test plug insertion.

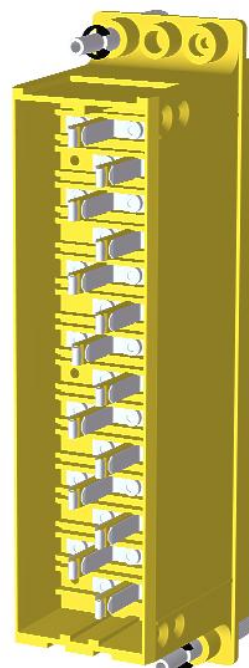


Figure 2: Rear view of the 2RMLB-S1 showing connection fingers that interface with the 2RMLG-01 test plug.

The 'hook' shape of the odd side connection fingers ensures 'make before break' functionality when inserting into the test block. This function is provided to ensure the continuity of CT circuits is maintained during insertion of the test plug.

Insertion of the 2RMLB-S connects the live side circuits to the YELLOW test sockets on the front panel. The equipment side circuits are connected to the BLACK test sockets on the front panel. Each test socket is identified by a number, which corresponds to the numbered terminal on the rear of the case when the Test Plug is inserted.

Shrouded Test Leads

Two types of shrouded 'finger safe' test leads are available:

Part Number	Description	Quantity supplied per 2RMLB-S
310-230-075-1	Two ended test lead - 75mm	3
310-230-180-1	Two ended test lead - 180mm	3

Wire type: 2.5mm² multi-strand wire with PVC insulation

Test Lead Plugs

Two types of shrouded plug are employed on each test lead as depicted in figure 5 & 6.

Single Plug

The single plug is the most compact & may be plugged into any test socket.

Dual Plug

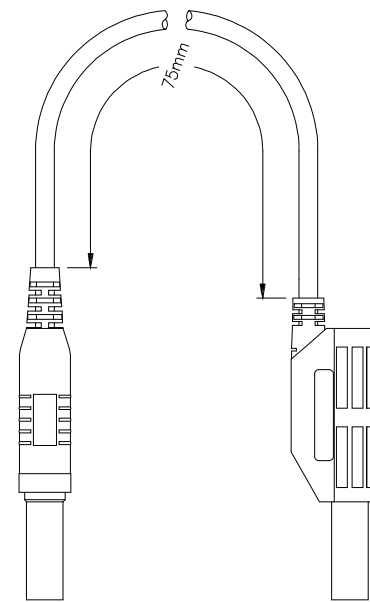
The dual or 'piggy back' plug is larger & should be plugged into the test sockets on the outside edge of the 2RMLB-S. The lead emerging from the dual plug should face out from center of the 2RMLB-S to ensure adequate clearance for other plugs.

Connecting Multiple Test Leads

Test leads may be linked in a daisy chain arrangement to perform manual CT shorting as described on page 2. Three (3) leads are required to short a group of four (4) CT circuits as follows:

1. Connect the first lead between sockets 21-23
2. Connect the second lead between sockets 25-27
3. Connect the third lead to link the dual plugs in sockets 21-25

An additional lead may be fitted into the third lead dual plug for a ground connection where required.

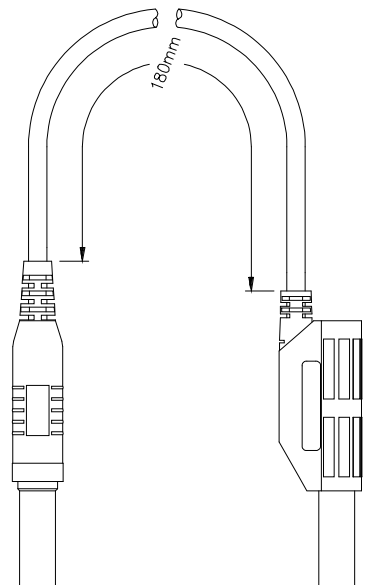


Single plug
spare socket

Dual plug +

Figure 5: Two ended test lead - short

P/N 310-230-075-1 75mm wire length version depicted



Single plug
spare socket

Dual plug +

Figure 6: Two ended test lead - long

P/N 310-230-180-1

180mm wire length version depicted

2RMLB-S Multi Finger Test Plug

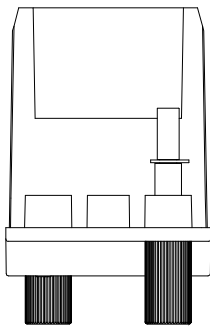
28 test sockets suitable for 4mm shrouded banana plugs.
Securing screws are integrated to retain the Test Plug during testing operations.

Current Withstand

All CT circuits & terminals: 20A continuous
400A 1s

Case Type

Size 2 case 28 terminals



Insulation Withstand

In accordance with IEC 60255-5:
2kV rms for 1 minute between terminals 13 & 14 when plugged into the 2RMLG test block.
2kV rms for 1 minute between any contact pair & either adjacent contact pair.
2kV rms for 1 minute between incoming & outgoing contacts when inserted into the 2RMLG test block.
5kV for 1 minute between any alternate contact pair, provided that the intermediate pair is not used.
5kV rms for 1 minute between all case terminals & the case earth when plugged into the 2RMLG test block.

Maximum Working Voltage

In accordance with IEC 60255-5:
300V ac or dc continuous rating.

Ambient Operating Temperature Range

-5 to 55 degrees

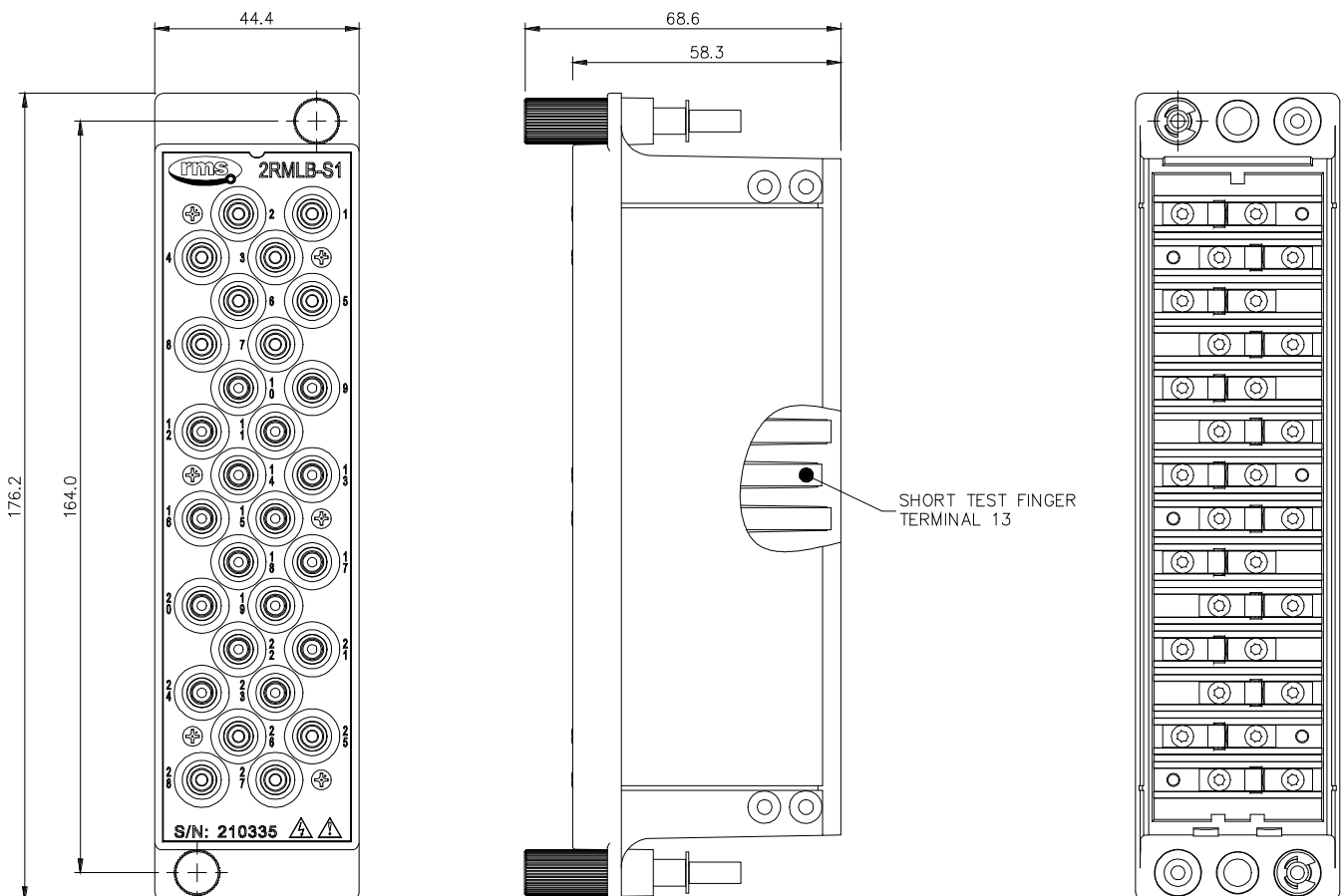


Figure 7: 2RMLB-S dimensions

2RMLB-S Test Plug Order Code

Generate the required ordering code as follows: e.g. 2RMLB-S1

2RMLB -	<input type="text"/>
Automatic CT Shorting Links	S1 External links to be fitted by operator - Manual
	S7 Internal links fitted between contacts 21-23-25-27
	S8 Internal links fitted between contacts 1-3, 5-7, 9-11, 15-17
	S9 Internal links fitted between contacts 1-3-5-7, 9-11, 17-19, 21-23-25-27



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