4M300 / 4M320 User Guide

Test Block System

relay monitoring systems pty ltd

Advanced Protection Devices

User Guide

Test Manual

4M320 Test Plug Depicted

4M300 User Guide

About This Manual

This User Guide covers all 4M300 Test Blocks manufactured from April 2009. Earlier test blocks & plugs do not necessarily incorporate all the features described. Our policy of continuous may means that extra features & functionality may have been added.

The 4M300 / 4M320 User Guide is designed as a generic document to describe the common operating parameters for all relays built on this platform. Some relay applications are described but for specific model information the individual “K” number Product / Test manuals should be consulted.

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To download a PDF version of this guide:
http://www.rmspl.com.au/userguide/4m300_user_guide.pdf

To download the model specific Test Manual:
http://www.rmspl.com.au/search.asp

How this guide is organised

This guide is divided into five parts:

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Part

1

Test Manual

This User Guide covers all 4M300 / 4M320 Test Block versions & describes the generic features & attributes common across all versions.

Different relay versions are required to cater for varying customer requirements such as auxiliary voltage range, I/O configuration, case style, relay functionality etc.

The product ordering code described in the Technical Bulletin is used to generate a unique version of the relay specification & is called a type number. The type number takes the form 4M300Kxx where the Kxx is the "K" or version number.

Refer to: *www.rmspl.com.au/handbook/PARTA3.pdf*
for a complete description of the RMS "K" number system.

Each 4M300 version has a specific Test Manual which provides details on the unique attributes of the relay. Each Test Manual includes the following information:

- Test Certificate
- Specific technical variations from the standard model if applicable
- Test & calibration record
- Wiring diagram

A Test Manual is provided with each relay shipped.

If you require a copy of the Test Manual for an RMS product the following options are available:

- Check the RMS web site at: *www.rmspl.com.au/search.asp*
- RMS CD catalogue select: *List all Product/Test Manuals* under *Technical Library*
- Contact RMS or a representative & request a hard copy or PDF by email.

Part

2

Mechanical Configuration

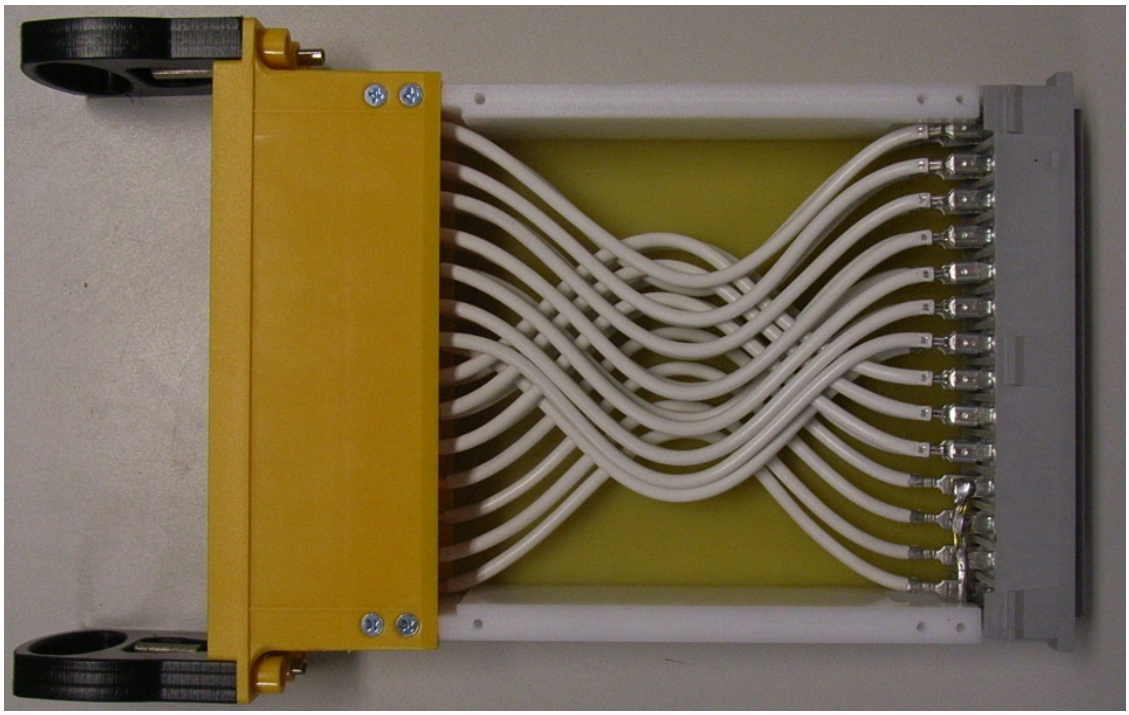
Great care has been taken to design a rugged, cost effective & flexible mechanical solution for the *MATRIX* range of RMS protection relays. The *MATRIX* range provides a compact draw out case solution with M4 screw terminals:

- 2M28 Size 2 with 28 terminals
- 4M28 Size 4 with 28 terminals
- 4M56 Size 4 with 56 terminals

Complete details & attributes for the M (MATRIX) cases & accessories may be found at:

http://www.rmspl.com.au/mseries.htm

The 4M300 & 4M320 is configured to suit the 2M28 case format & the following image depicts the general mechanical configuration. It should be noted that re-usable JIS plastic threading (PT type) screws are used to bind the draw out relay module.



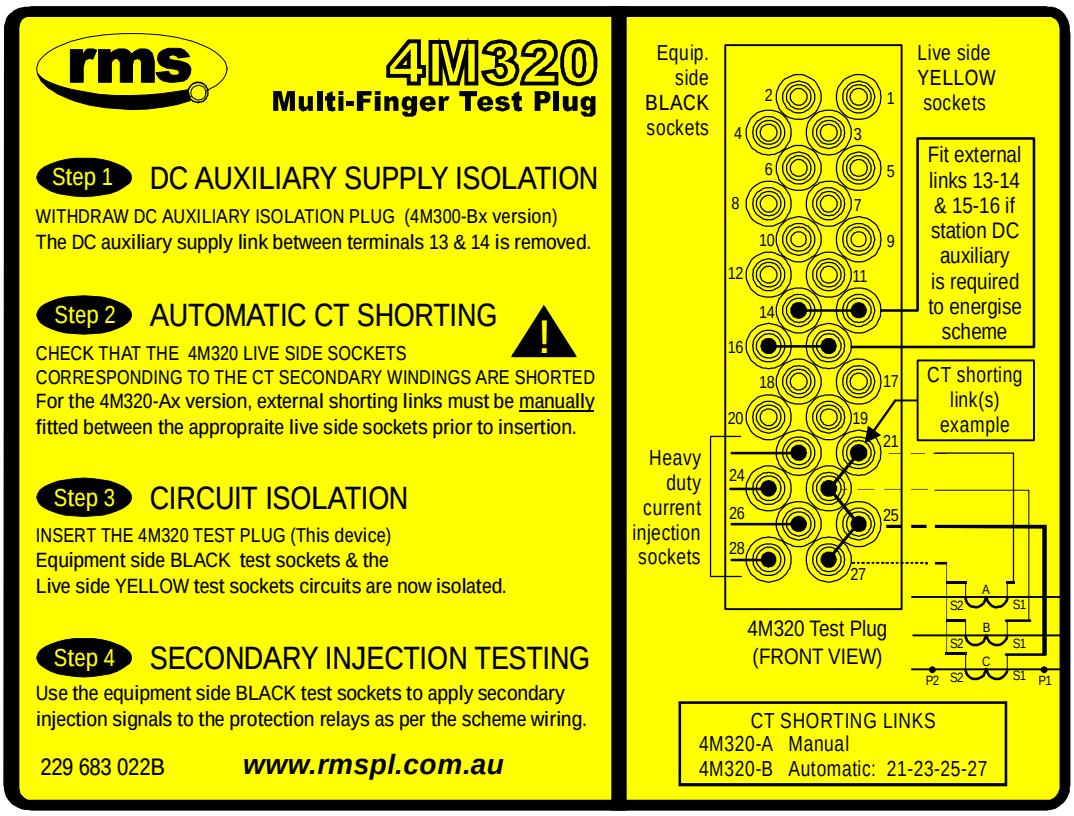
Internal view of 4M320 Test Plug showing heavy duty wiring.

Test lead set supplied with each Test Plug

3x 75mm & 3x 180mm leads

Front view showing terminals

21-23-25-27 shorted



View of instruction label attached to the side of the 4M320 Test Plug

Part

3

Technical Bulletin

The detailed technical attributes, functional description & performance specifications for the 4M300 are described in the attached Technical Bulletin. For the most up to date version go to:

www.rmspl.com.au/handbook/4m300.htm

For any specific attributes of a particular version refer to the Test Manual for that type (K) number.

The order of precedence for technical information is as follows:

- Test Manual
- Technical Bulletin
- User Guide

Technical Bulletin

4M300

Test Block System

Features

- Colour coded ‘finger safe’ test sockets suit standard or shrouded type 4mm banana plugs
- 14 independent circuits suitable for CT or VT connections
- Test plug available with automatic CT shorting option
- Test plug fitted with insertion handles & locking screws
- Side label instructions on changing from normal service condition to the test condition
- Optional automatic DC auxiliary isolation function
- High current / voltage rating
- Compact & economic design
- Made in Australia

Figure 1:
4M320-A 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 4M300 Test Link Panel has been designed as a general-purpose isolation & test signal injection point. Standard 4mm diameter sockets are employed so that common banana plugs may be used to short CT inputs & connect test equipment.

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

Description

Made in Australia

The ***Test Block*** type 4M300 comprises fourteen (14) test circuits, each of which is connected to a separate pair of terminals at the rear of the case. During the normal operation of the associated protection equipment, each pair of terminals are connected together by a circuit-shorting link. Changing the 4M300 Test Block from the normal service condition to the test condition is described below & depicted in figure 3:

Test Circuit Access

Access to the circuits, for testing purposes, is gained by first removing the front cover. For the 4M300-B model the ***Isolation Plug*** is withdrawn & the circuit between terminals 13 & 14 interrupted. By routing the main DC supply to the protection scheme or relay through this circuit, removal of the Isolation Plug will thereby prevent inadvertent tripping of the protection during the ensuing tests.

Test Plug Insertion

Insertion of the ***Test Plug*** type 4M320, isolates the live side circuits from the equipment side. The Test Plug carries 28 4mm ‘finger safe’ test sockets. These sockets are suitable for shrouded or standard 4mm banana plugs. 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. The test socks are colour coded - BLACK to indentify the equipment side sockets & YELLOW to identify the live side sockets.

RECOMMENDED WIRING LAYOUT

It is recommended that the Test Block is always wired with connections to the protective relay or scheme made to the EVEN numbered equipment side terminals. Connections to other equipment, e.g. CT's , VT's & DC supplies, should be made to the ODD numbered live side terminals on the Test Block. This ensures that when the Test Plug is used, the BLACK sockets of the Test Plug are the isolated relay circuits & the YELLOW sockets on the Test Plug are connected to the potentially live supplies as shown in figure 8.

Test equipment can be connected to the relay or scheme using the BLACK sockets in the Test Plug, & operation of contacts can be monitored. When using the 4M300-B Test Block, the DC supply may be used during testing by linking across sockets 13/14 & 15/16 of the Test Plug.

CT SHORTING – MANUAL (External)

It is essential that the sockets of the 4M320 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 ensures that the current transformer secondary windings are not open circuited when they are isolated from the protection relay scheme.

This may be achieved using external shorting links to ensure that the 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 4M300 test block.

CT SHORTING – AUTOMATIC (Internal)

The 4M320 may be ordered with internal CT shorting links fitted to pre-designated positions as follows:

4M320-B	Internal links between terminals 21-23-25-27 Refer figure 8

Where these 4M320 test plug versions are employed it is essential that the CT circuits are wired to the 4M300 test block in the matching positions.

To Reiterate: The 4M320 requires the **USER** to ensure that the necessary shorting links - manual or automatic – are fitted prior to plugging into the 4M300 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. 2.5mm^2 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.

Insertion of the 4M320 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.

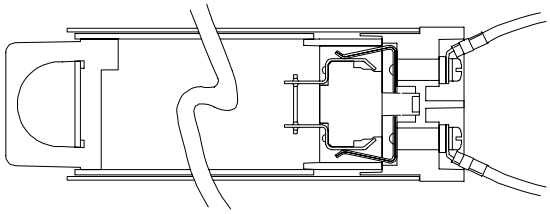
FINGER SAFE TEST SOCKETS

BLACK	- even numbered	- equipment side sockets
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

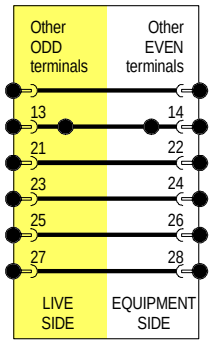
Changing the 4M300 Test Block system from the normal service condition to the secondary injection test condition is achieved in three steps shown in figure 3 below:

NORMAL SERVICE CONDITION



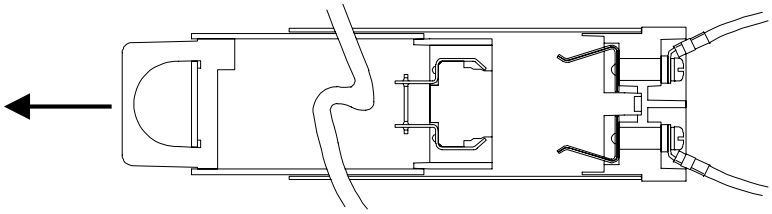
TOP VIEW
Shown with isolation plug fitted to short terminals 13 & 14 (4M300-B model only)

4M300-B Test Block Terminal Status

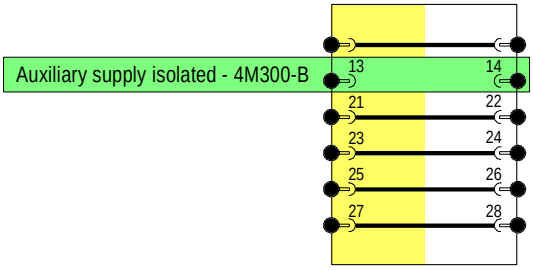


REAR VIEW

Step 1 - DC AUXILIARY SUPPLY ISOLATION

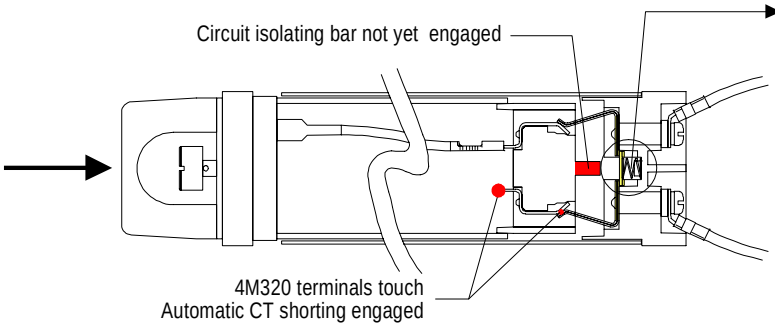


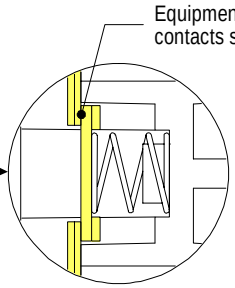
WITHDRAW DC AUXILIARY ISOLATION PLUG (4M300-B model only)
DC auxiliary supply link between terminals 13 & 14 is removed

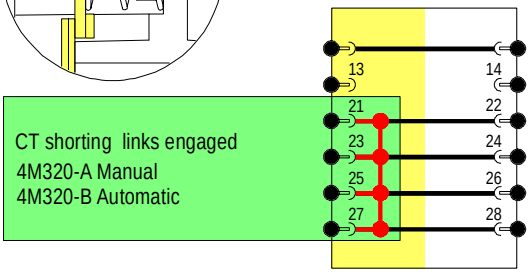


Step 2 - AUTOMATIC CT SHORTING

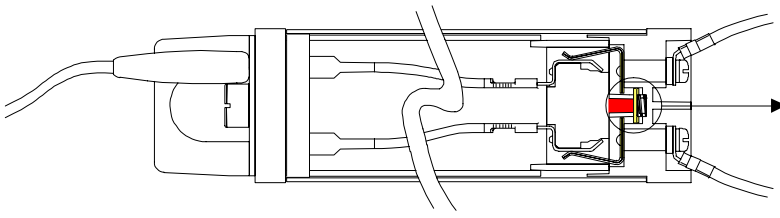
INSERT 4M320[B] TEST PLUG
Automatic shorting of CT's wired to terminals 22, 24, 26 & 28



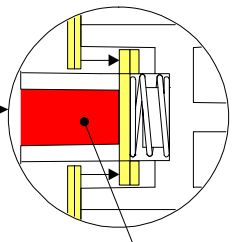


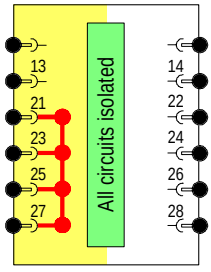


Step 3 - CIRCUIT ISOLATION



4M320[B] Test Plug fully inserted





SECONDARY INJECTION TEST CONDITION

Circuit isolating bar engaged
Equipment side circuits isolated from live side circuits

Test Leads

SHROUDED TEST LEADS
Three types of shrouded 'finger safe' test leads are available:

Part Number	Description	Quantity supplied per 4M320
310-230-075-1	Two ended test lead - 75mm	3
310-230-180-1	Two ended test lead - 180mm	3

Wire type: 2.5mm^2 multi-strand wire with yellow PVC insulation

TEST LEAD PLUGS
Two types of shrouded plug are employed on each test lead as depicted in figure 4.

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 4M320. The lead emerging from the dual plug should face out from center of the 4M430 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.

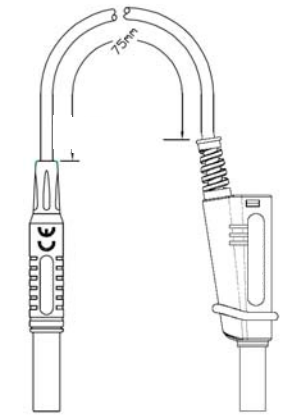


Figure 4: Two ended test lead - short

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

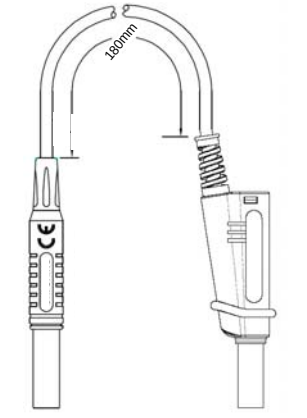


Figure 5: Two ended test lead - long

P/N 310-230-180-1 180mm wire length version depicted

Technical Data

Figure 6
4M300-B Test Link Plug
Depicted in the normal service condition
with the isolation plug installed

4M300-A TEST BLOCK (Isolating Plug not fitted)
14 Equipment side terminals (Even terminal numbers).
14 Live side terminals (Odd terminal numbers).
14 Live side to equipment side shorting links.

This arrangement provides for up to 14 independent circuits to be connected.

An isolating circuit is not provided on this model.

4M300-B TEST BLOCK (Includes Isolating Plug)
14 Equipment side terminals (Even terminal numbers).
14 Live side terminals (Odd terminal numbers).
13 Live side to equipment side shorting links.
1 Isolating circuit between terminals 13 & 14

This arrangement provides for up to 12 independent circuits to be connected.

An additional DC auxiliary circuit is provided with an isolating link across terminals 13 &14. This circuit is automatically opened when the Isolation Plug is removed.

4M320 TEST PLUG
28 test sockets suitable for 4mm banana plugs.
Securing screws to retain the Test Plug during testing operations.

CURRENT RATINGS

All CT circuits & terminals:	20A	continuous
(Terminal 1 to 28)	400A	1s

VOLTAGE RATINGS

All circuits & terminals:	600V AC	continuous
	350V DC	continuous
System auxiliary voltage:	40V DC	minimum

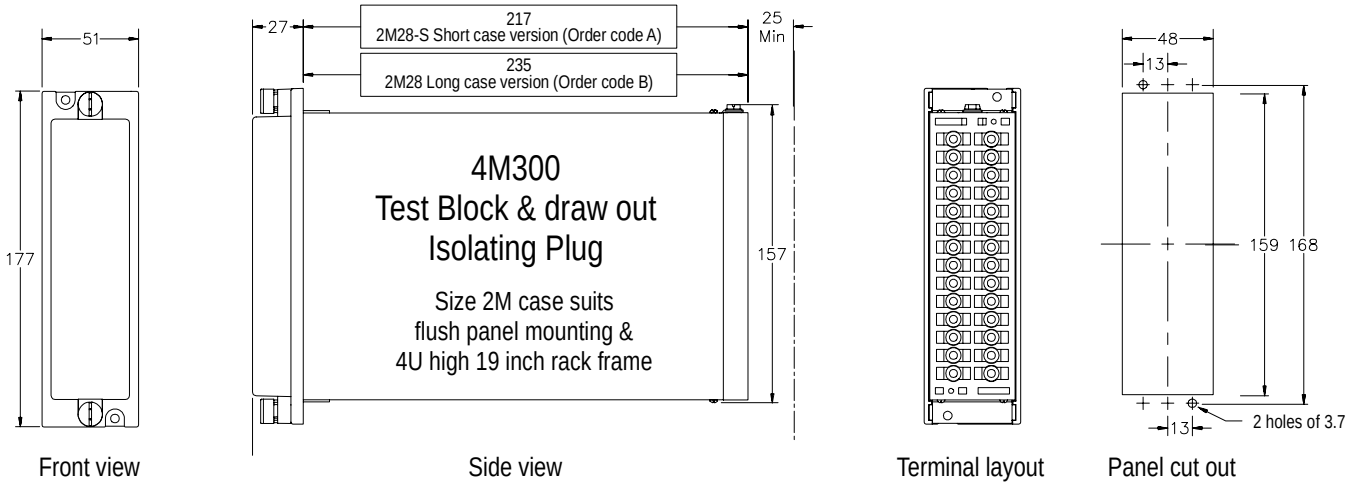
CASE TYPE
2M28 Size 2 28 terminals

INSULATION WITHSTAND

All Models
In accordance IEC 255-5:
2KV RMS for 1 min. between all terminals & all terminals & frame.
1.2/50 5KV impulse between all terminals & all terminals & frame.

4M300-B Test Block & 4M320 Test Plug only
In accordance IEC 255-5:
1KV RMS for 1 min. between terminals 13 & 14 when the isolation plug is removed (e.g. opening the auxiliary supply or trip circuit)

AMBIENT OPERATING TEMPERATURE RANGE
-5 to 55 degrees C.



Front view | Side view | Terminal layout | Panel cut out

Figure 7: Case details

Ordering Information

Generate the required ordering code as follows: e.g. 4M300-BA

4M300 [1] [2] **TEST BLOCK (SOCKET)**

1 AUXILIARY SUPPLY ISOLATING LINK

A	Not required	(Isolation Plug not supplied)
B	Required	(Test Block supplied with Isolation Plug)

2 CASE LENGTH (Match to 4M320 case length)

A	Short	Default
B	Long	

Generate the required ordering code as follows: e.g. 4M320-BA

4M320 [1] [2] **TEST PLUG**

1 CT SHORTING LINKS

A	Manual	(External links to be fitted by operator)
B	Automatic	(Internal links fitted between terminals 21, 23, 25 & 27)

2 CASE LENGTH (Match to 4M300 case length)

A	Short	Default
B	Long	

TYICAL APPLICATION OF 4M300 TEST BLOCK & 4M320 TEST PLUG

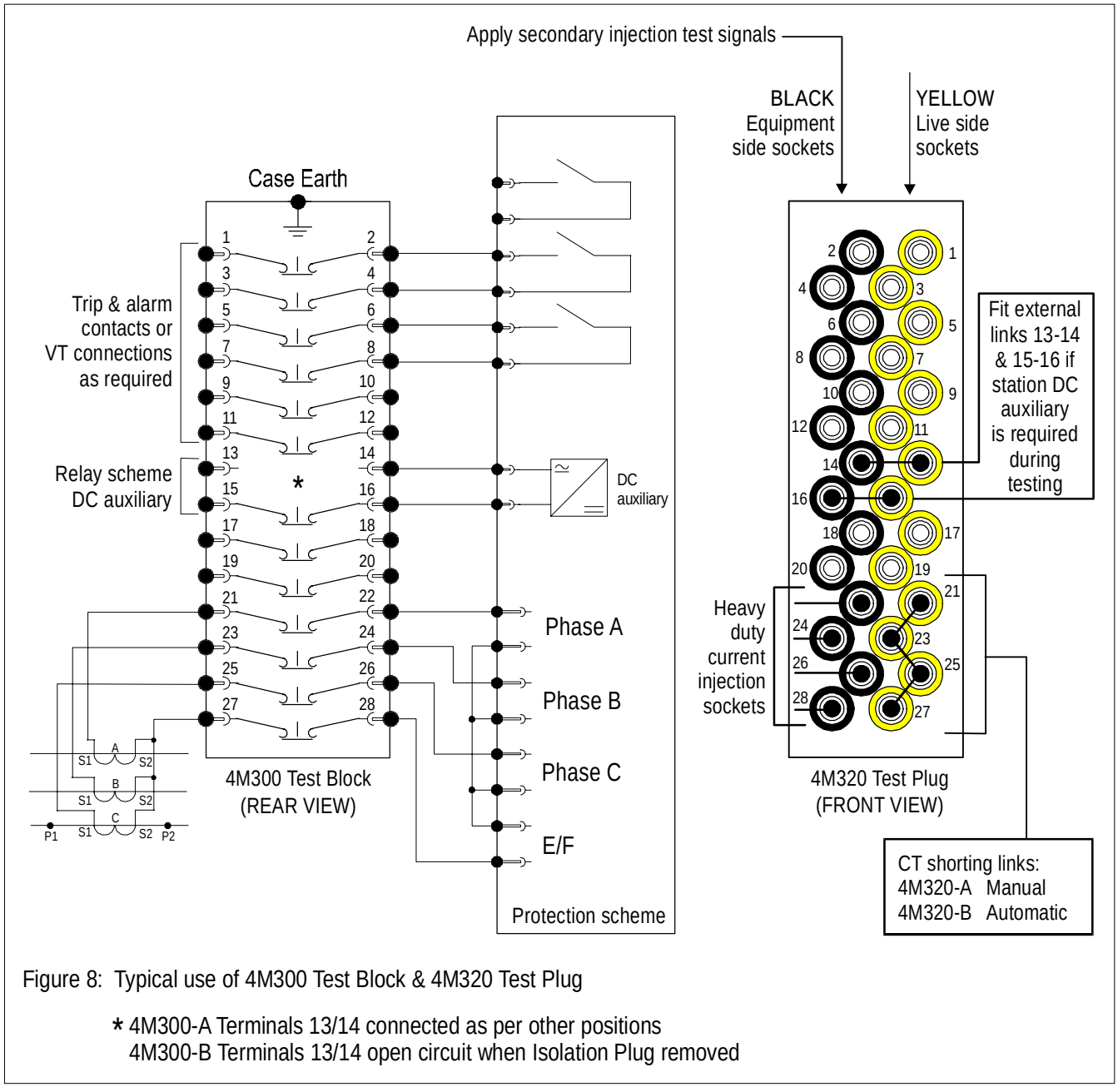


Figure 8: Typical use of 4M300 Test Block & 4M320 Test Plug

* 4M300-A Terminals 13/14 connected as per other positions
4M300-B Terminals 13/14 open circuit when Isolation Plug removed

Part

4

Installation

Handling of Electronic Equipment

A person's normal movements can easily generate electrostatic potentials of several thousand volts. Discharge of these voltages into semiconductor devices when handling electronic circuits can cause serious damage, which often may not be immediately apparent but the reliability of the circuit will have been reduced.

The electronic circuits of Relay Monitoring Systems Pty Ltd products are immune to the relevant levels of electrostatic discharge when housed in the case. Do not expose them to the risk of damage by withdrawing modules unnecessarily.

Each module incorporates the highest practicable protection for its semiconductor devices. However, if it becomes necessary to withdraw a module, the following precautions should be taken to preserve the high reliability and long life for which the equipment has been designed and manufactured.

1. Before removing a module, ensure that you are at the same electrostatic potential as the equipment by touching the case.
2. Handle the module by its front-plate, frame, or edges of the printed circuit board.
3. Avoid touching the electronic components, printed circuit track or connectors.
4. Do not pass the module to any person without first ensuring that you are both at the same electrostatic potential. Shaking hands achieves equipotential.
5. Place the module on an antistatic surface, or on a conducting surface which is at the same potential as yourself.
6. Store or transport the module in a conductive bag.

If you are making measurements on the internal electronic circuitry of an equipment in service, it is preferable that you are earthed to the case with a conductive wrist strap.

Wrist straps should have a resistance to ground between 500k – 10M ohms. If a wrist strap is not available, you should maintain regular contact with the case to prevent the build up of static.

Instrumentation which may be used for making measurements should be earthed to the case whenever possible.

Safety Section

This Safety Section should be read before commencing any work on the equipment.

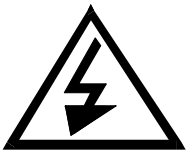
The information in the Safety Section of the product documentation is intended to ensure that products are properly installed and handled in order to maintain them in a safe condition. It is assumed that everyone who will be associated with the equipment will be familiar with the contents of the Safety Section.

Explanation of Symbols & Labels

The meaning of symbols and labels which may be used on the equipment or in the product documentation, is given below.

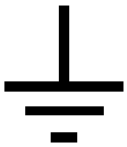
Caution: refer to product information

Caution: risk of electric shock



Functional earth terminal

Note: this symbol may also be used for a protective/safety earth terminal if that terminal is part of a terminal block or sub-assembly eg. power supply.



Unpacking

Upon receipt inspect the outer shipping carton or pallet for obvious damage.

Remove the individually packaged relays and inspect the cartons for obvious damage.

To prevent the possible ingress of dirt the carton should not be opened until the relay is to be used. Refer to the following images for unpacking the relay:

Outer packing carton showing shipping documentation pouch.
Address label on top of carton.

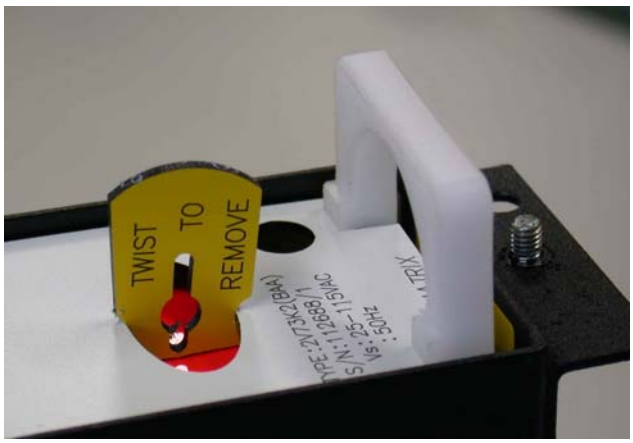
Inner packing carton showing front label detailing the customer name, order number, relay part number & description, the relay job number & packing date.
(Size 2 inner packing carton depicted)

Unpacking (Continued)

Inner packing carton with lid open showing protective foam insert.

CD depicted supplied with digital relay models or upon request at time of order.

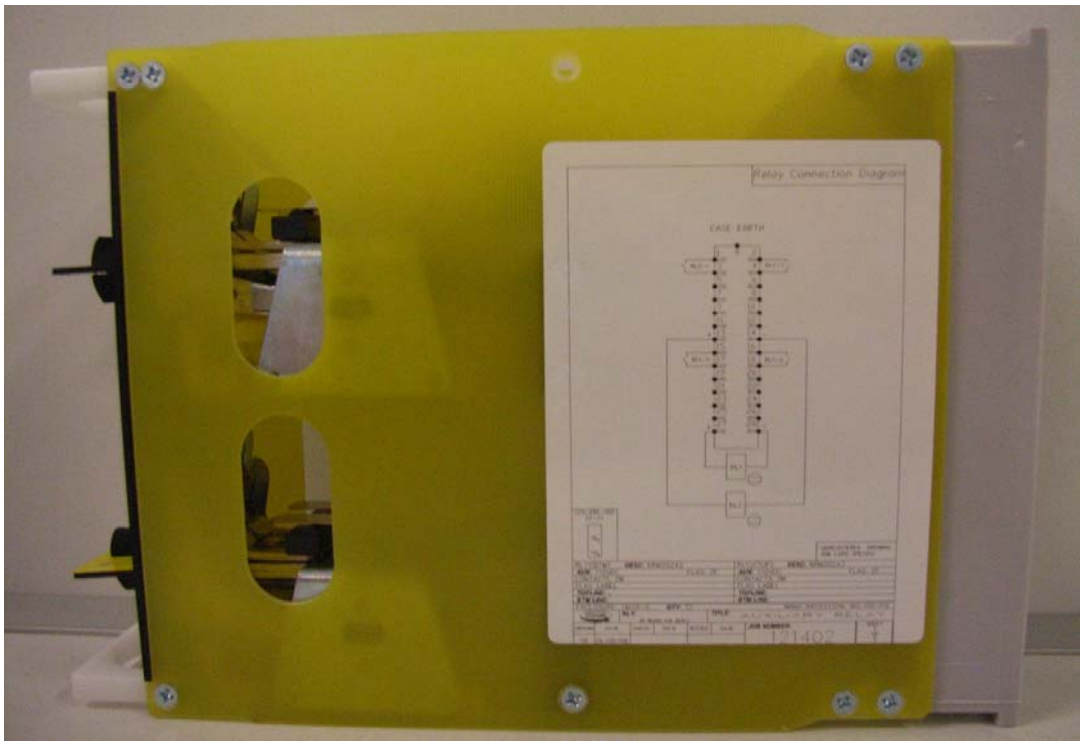
Inner packing carton with protective foam insert removed showing relay location.



Where mechanical flags are fitted the yellow transit wedge must be removed before operation using a gentle twisting action. The wedge should be stored with the original packaging material.

Relay Module Side Label Depicting Product Details

Relay Module Side Label Depicting Wiring Diagram (6R MATRIX relays only)



Accessories Supplied With Each Relay

Self threading M4 mounting screws

M4 terminal screws with captured lock washers

Storage & Handling

If damage has been sustained a claim should immediately be made against the carrier, also inform Relay Monitoring Systems Pty Ltd and the nearest RMS agent

When not required for immediate use, the relay should be returned to its original carton and stored in a clean, dry place.

Relays which have been removed from their cases should not be left in situations where they are exposed to dust or damp. This particularly applies to installations which are being carried out at the same time as constructional work.

If relays are not installed immediately upon receipt they should be stored in a place free from dust and moisture in their original cartons.

Dust which collects on a carton may, on subsequent unpacking, find its ay into the relay; in damp conditions the carton and packing may become impregnated with moisture and the de-humidifying agent will lose is efficiency.

Equipment Operating Conditions

The equipment should be operated within the specified electrical and environmental limits.

Protective relays, although generally of robust construction, require careful treatment prior to installation and a wise selection of site. By observing a few simple rules the possibility of premature failure is eliminated and a high degree of performance can be expected.

Care must be taken when unpacking and installing the relays so that none of the parts are damaged or their settings altered and must al all times be handled by skilled persons only.

Relays should be examined for any wedges, clamps, or rubber bands necessary to secure moving parts to prevent damage during transit and these should be removed after installation and before commissioning.

The relay should be mounted on the circuit breaker or panel to allow the operator the best access to the relay functions.

Relay Dimensions & Other Mounting Accessories

Refer drawing in Technical Bulletin. Relevant Auto Cad files & details on other accessories such as 19 inch sub rack frames, semi projection mount kits & stud terminal kits may be down loaded from:

http://www.rmspl.com.au/mseries.htm

Equipment Connections

Personnel undertaking installation, commissioning or servicing work on this equipment should be aware of the correct working procedures to ensure safety. The product documentation should be consulted before installing, commissioning or servicing the equipment.

Terminals exposed during installation, commissioning and maintenance may present hazardous voltage unless the equipment is electrically isolated.

If there is unlocked access to the rear of the equipment, care should be taken by all personnel to avoid electric shock or energy hazards.

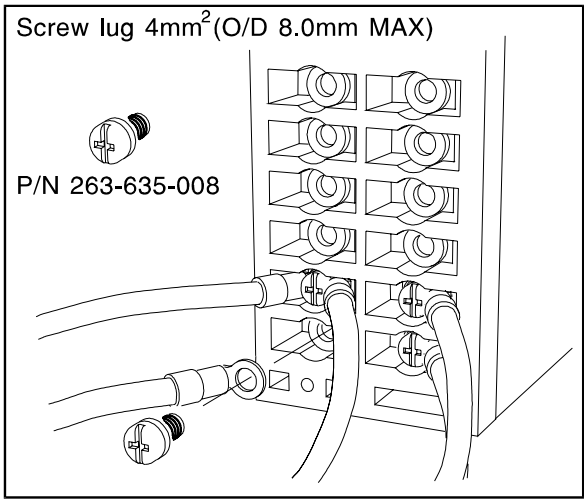
Voltage and current connections should be made using insulated crimp terminations to ensure that terminal block insulation requirements are maintained for safety. To ensure that wires are correctly terminated, the correct crimp terminal and tool for the wire size should be used.

Before energising the equipment it must be earthed using the protective earth terminal, or the appropriate termination of the supply plug in the case of plug connected equipment. Omitting or disconnecting the equipment earth may cause a safety hazard.

The recommended minimum earth wire size is 2.5mm^2, unless otherwise stated in the technical data section of the product documentation.

Before energising the equipment, the following should be checked:

1. Voltage rating and polarity;
2. CT circuit rating and integrity of connections;
3. Protective fuse rating;
4. Integrity of earth connection (where applicable)



Current Transformer Circuits

Do not open the secondary circuit of a live CT since the high voltage produced may be lethal to personnel and could damage insulation.

External Resistors

Where external resistors are fitted to relays, these may present a risk of electric shock or burns, if touched.

Insulation & Dielectric Strength Testing

Insulation testing may leave capacitors charged up to a hazardous voltage. At the end of each part of the test, the voltage should be gradually reduced to zero, to discharge capacitors, before the test leads are disconnected.

Insertion of Modules

These must not be inserted into or withdrawn from equipment whilst it is energised, since this may result in damage.

Electrical Adjustments

Pieces of equipment which require direct physical adjustments to their operating mechanism to change current or voltage settings, should have the electrical power removed before making the change, to avoid any risk of electric shock.

Mechanical Adjustments

The electrical power to the relay contacts should be removed before checking any mechanical settings, to avoid any risk of electric shock.

Draw Out Case Relays

Removal of the cover on equipment incorporating electromechanical operating elements, may expose hazardous live parts such as relay contacts.

Insertion & Withdrawal of Heavy Current Test Plugs

When using a heavy current test plug, CT shorting links must be in place before insertion or removal, to avoid potentially lethal voltages.

Commissioning Preliminaries

Carefully examine the module and case to ser that no damage has occurred during transit. Check that the relay serial number on the module, case and cover are identical, and that the model number and rating information are correct.

Carefully remove any elastic bands/packing fitting for transportation purposes.

Check that the external wiring is correct to the relevant relay diagram or scheme diagram. The relay diagram number appears inside the case.

Particular attention should be paid to the correct wiring and value of any external resistors indicated on the wiring diagram/relay rating information.

Note that shorting switches shown on the relay diagram are fitted internally across the relevant case terminals and close when the module is withdrawn. It is essential that such switches are fitted across all CT circuits.

If a test block system is to be employed, the connections should be checked to the scheme diagram, particularly that the supply connections are to the 'live' side of the test block.

Earthing

Ensure that the case earthing connection above the rear terminal block, is used to connect the relay to a local earth bar.

Insulation

The relay, and its associated wiring, may be insulation tested between:

- all electrically isolated circuits
- all circuits and earth

An electronic or brushless insulation tester should be used, having a dc voltage not exceeding 1000V. Accessible terminals of the same circuit should first be strapped together. Deliberate circuit earthing links, removed for the tests, subsequently must be replaced.

Commissioning Tests

If the relay is wired through a test block it is recommended that all secondary injection tests should be carried out using this block.

Ensure that the main system current transformers are shorted before isolating the relay from the current transformers in preparation for secondary injection tests.

DANGER

DO NOT OPEN CIRCUIT THE SECONDAY CIRCUIT OF A CURRENT TRANSFORMER SINCE THE HIGH VOLTAGE PRODUCED MAY BE LETHAL AND COULD DAMAGE INSULATION.

It is assumed that the initial preliminary checks have been carried out.

Relay CT shorting switches

With the relay removed from its case, check electrically that the CT shorting switch is closed.

Primary injection testings

It is essential that primary injection testing is carried out to prove the correct polarity of current transformers.

Before commencing any primary injection testing it is essential to ensure that the circuit is dead, isolated from the remainder of the system and that only those earth connections associated with the primary test equipment are in position.

Decommissioning & Disposal

Decommissioning: The auxiliary supply circuit in the relay may include capacitors across the supply or to earth. To avoid electric shock or energy hazards, after completely isolating the supplies to the relay (both poles of any dc supply), the capacitors should be safely discharged via the external terminals prior to decommissioning.

Disposal: It is recommended that incineration and disposal to water courses is avoided. The product should be disposed of in a safe manner.

Part

5

Maintenance

Mechanical Inspection

Relay Assembly

Inspect the relay for obvious signs of damage or ingress of moisture or other contamination.

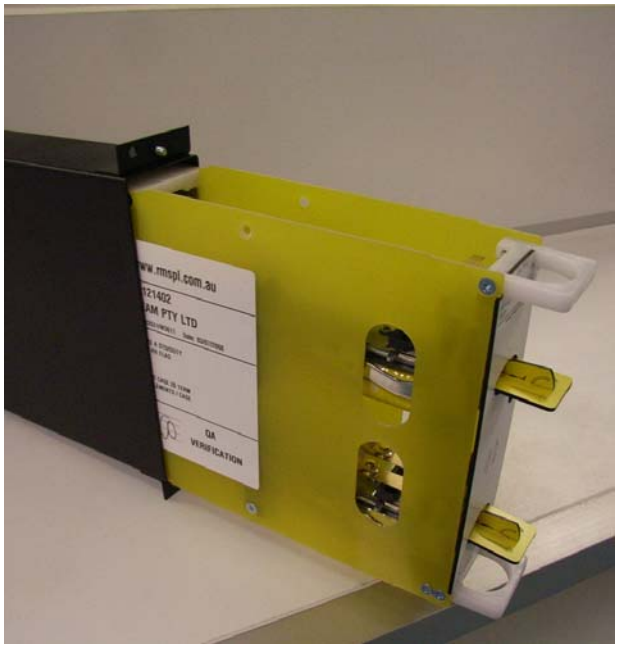
Relay Module

Isolate the relay, remove the front cover & carefully withdraw the relay module from the case.

Care must be taken to avoid subjecting the relay element to static discharge which may damage or degrade sensitive electronic components.

Inspect the relay module for signs of any overheating or burn marks which may have been caused by overvoltage surge or transient conditions on the power supply or digital status inputs.

Inspect the VT & CT stages for degradation of insulation on the terminal wiring & transformer windings.



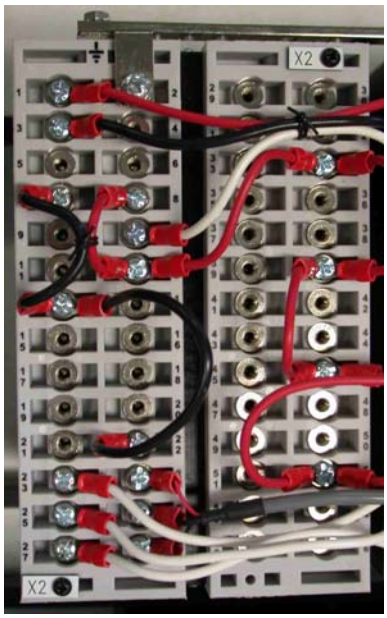
Remove cover by unscrewing black thumb screws & withdraw the relay module from the case.

Relay Case

Inspect the outer terminals checking insulation integrity & tightness.

Inspect inside the case and use a blower to remove dust.

Inspect the inner terminals for worn, distorted or tarnished contacts and if necessary clean the contacts using a brush dipped in a suitable substance.



Case outer terminals


Case inner terminals


Module plug in terminals

Test Intervals

The maintenance tests required will largely depend upon experience and site conditions, but as a general rule it is recommended that the following inspection and tests are performed every twelve months.

- Mechanical Inspection
- Check of Connections
- Insulation Resistance Test
- Fault Setting Tests by Secondary Injection
- Tests using Load Current
- Check the continuity of the neutral CT loop with a bell test set or an ohmmeter

Defect Report Form

Please copy this sheet and use it to report any defect which may occur.

Customers Name & Address:	Contact Name:
	Telephone No:
	Fax No:
Supplied by:	Date when installed:
Site:	Circuit:

When Defect Found

Date:	Commissioning?	Maintenance?	Systems Fault?	Other, Please State:
Product Part No:				Serial Number:
Copy any message displayed by the relay:				
Describe Defect:				
Describe any other action taken:				
Signature:		Please Print Name:		Date:

For RMS use only

Date Received:	Contact Name:	Reference No:	Date Acknowledged:	Date of Reply:	Date Cleared:

Australian Content

Unless otherwise stated the product(s) quoted are manufactured by RMS at our production facility in Melbourne Australia. Approximately 60% of our sales volume is derived from equipment manufactured in house with a local content close to 90%. Imported components such as semi-conductors are sourced from local suppliers & preference is given for reasonable stock holding to support our build requirements.

Quality Assurance

RMS holds NCSI (NATA Certification Services International), registration number 6869 for the certification of a quality assurance system to AS/NZS ISO9001-2000. Quality plans for all products involve 100% inspection and testing carried out before despatch. Further details on specific test plans, quality policy & procedures may be found in section A4 of the RMS product catalogue.

Product Packaging

Protection relays are supplied in secure individual packing cardboard boxes with moulded styrene inserts suitable for recycling. Each product & packing box is labeled with the product part number, customer name & order details.

Design References

The products & components produced by RMS are based on many years of field experience since Relays Pty Ltd was formed in 1955. A large population of equipment is in service throughout Australia, New Zealand, South Africa & South East Asia attesting to this fact. Specific product & customer reference sites may be provided on application.

Product Warranty

All utility grade protection & auxiliary relay products, unless otherwise stated, are warranted for a period of 24 months from shipment for materials & labour on a return to factory basis. Repair of products damaged through poor application or circumstances outside the product ratings will be carried out at the customer's expense.

Standard Conditions of Sale

Unless otherwise agreed RMS Standard Terms & Conditions (QF 907) shall apply to all sales. These are available on request or from our web site.

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