RVDSAFE
A SafelecTechnology Initiative

RVD-EMR Specification sheet

The Residual Voltage Detection Unit (RVD-EMR) is designed for use in TN (M.E.N)/TT electrical earthing systems to enhance electrical protection to any electrical distribution system already protected by an RCD/RCBO.

The RVD-EMR provides two (2) additional layers of electrical protection:

1. The RVD-EMR provides an additional layer of electrical protection overcoming conventional issues with protective devices usually caused by environmental factors including high impedance environments such as sandy, hard rocky soils, wet electrical areas, unearthed electrical supplies, portable generators and power inverters in all applications but specifically in Recreational Vehicles where confinement of use with multiple appliances occur..
2. Detects and trips the RCD/RCBO when the Supply Neutral and Active are swapped which is represented by the letter "R" signifying Reverse Polarity Protection.

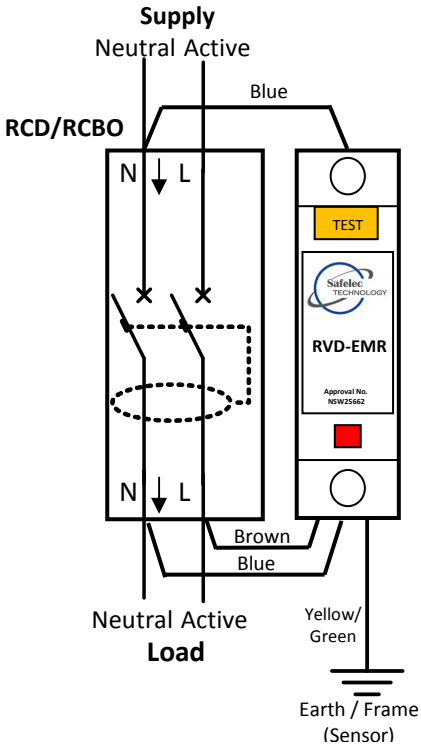
If the RCD/RCBO does not detect and trips on an earth leakage fault, if the earth fault leakage voltage / leakage current between the Active and the RVD-EMR Sense line (earth/frame) is above the specifications detailed below, RVD-EMR will automatically trip the electrically connected RCD/RCBO and isolate the supply voltage to the load.

Physical Data

Dimensions: 18mm W, 78mm H and 65mm D,
DIN rail mountable,
Connections are:

- Neutral line-side - Blue
- Active load-side - Brown
- Neutral load-side – Blue
- Earth/Frame (Sensor) - Green/Yellow

The device will in no way impede or interfere with the normal operation of an RCD/RCBO.



Technical Data

- Certified to AS/NZS3190 and exceeds the requirements of AS/NZS3000,
- Compliance Approval No: NSW25662,
- Voltage detection: approximately 43 volts (below 'touch potential' level),
- Trip Current: approximately 25mA,
- Trip time: approximately 20mSec,
- Associated RCD/RCBO actuating current imbalance trip level: 30mA
- Voltage rating: 220 to 240VAC, or 110 to 120VAC
- Frequency: 50Hz,
- Unit operates alongside most brands and current rated RCD/RCBOs,
- Enhances RCD/RCBO operation in TN(MEN), TT earthing environments
- Reverse Polarity detection and isolation for TN(MEN) systems
- Red LED indication on fault detection

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Installation Procedure

Please note:

The specific RVD-EMR units are designed for final sub-circuit protection in low voltage installations including (220 to 240VAC) and (110 to 120VAC).

Step 1: 

Ensure Power is isolated to RCD/RCBO electrical circuit and that the RCD/RCBO is turned off. Please ensure the site standard correct isolation and lock-out procedures are followed.

Step 2: 

Please note that in switchboards where the RVD-EMR does not need to sit alongside the RCD/RCBO, cables will need to be run from the RVD-EMR unit to the associated RCD/RCBO. Give consideration to this during 'planning' for the installation so that we can supply cable lengths to suit the specific application. The following installation tips are more relevant to those types of installations, but as Recreational Vehicles (RVs) are supplied complete with the RCBO with connected leads other than the earth sense line which is to be connected to the earth returns from the sockets no cutting is required.

1. Mount the RVD-EMR unit where required on the Din Rail,
2. Yellow/Green Earth/Frame cable is terminated in earth link or equipment frame,
3. Line Side Blue Neutral cable is terminated in the RCD/RCBO Line-side/Supply Neutral terminal,
4. Load Side Brown Active cable is terminate in the RCD/RCBO Load-side Active terminal,
5. Load Side Blue Neutral cable is terminated in the RCD/RCBO Load-side Neutral terminal,

All terminations should be tightened to a torque of 2Nm or RCD/RCBO manufacturers specified torque setting.

Step 3: 

Check installation connections are correct and then follow site standard procedures to reconnect power to RCD/RCBO power circuit. Turn on RCD/RCBO and check load supply voltage is present and then follow the monthly test instructions below.

RCD/RCBO / RVD-EMR Monthly Test Instructions

The following test instructions should be carried out monthly or in accordance with site standards.

1. First press the test button on the RCD/RCBO. To reset, reposition the RCD/RCBO to the 'on' position.
2. Test the RVD by pressing the orange test button. The RCD/RCBO should isolate. To reset, turn the RCD/RCBO to the 'on' position.
3. If the RVD does not isolate or allow RCD/RCBO to reset, and after verifying that there is no earth fault is present, then the unit may be faulty. Discontinue use, if applicable return to Safelec Technology Pty Limited for repair.

GENERAL INSTRUCTIONS

1. When Active to Earth faults occurs the RCBO should trip at 30mA, once the fault has cleared simply turn RCBO to the on position.
2. When an Active to Frame voltage fault (43Volts) occurs, the RVD should trip at 25mA. Once the fault clears, reset the RCD/RCBO to the 'on' position.
3. Total current of protected circuits must not exceed maximum current rating of the RCD/RCBO.
4. Fixed appliances such as ovens and hot water services should be connected on individual circuits as RCD/RCBO's can be sensitive with these products.
5. To ensure operation of the RCD/RCBO ensure the 'Main Earth' and 'Main Neutral' are in good condition.
6. Always follow the RCD/RCBO manufacturer's instructions, the RVD instructions are to be used in addition to those instructions.
7. Please contact Safelec Technology Pty. Limited if further assistance is required.

WARRANTY

1. The benefits conferred herein are in addition to, and in no way shall be deemed to derogate; either expressly or by implication, any or all other rights and remedies in respect to this Safelec Technology Pty Limited Product, which the consumer has under the Trade Practices Act or any other similar State or Territory Laws.
2. The Warrantor is Safelec Technology Pty Limited Lot 25 Macwood Road, Smiths Lake NSW 2428.
3. This product is guaranteed against faulty workmanship and materials for a period of twelve months from the date of installation.

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