

RM3-IV-LPI

4-20mA Loop Powered
Signal Isolators
mA & DC Volts Inputs
Operation and
Instruction Manual

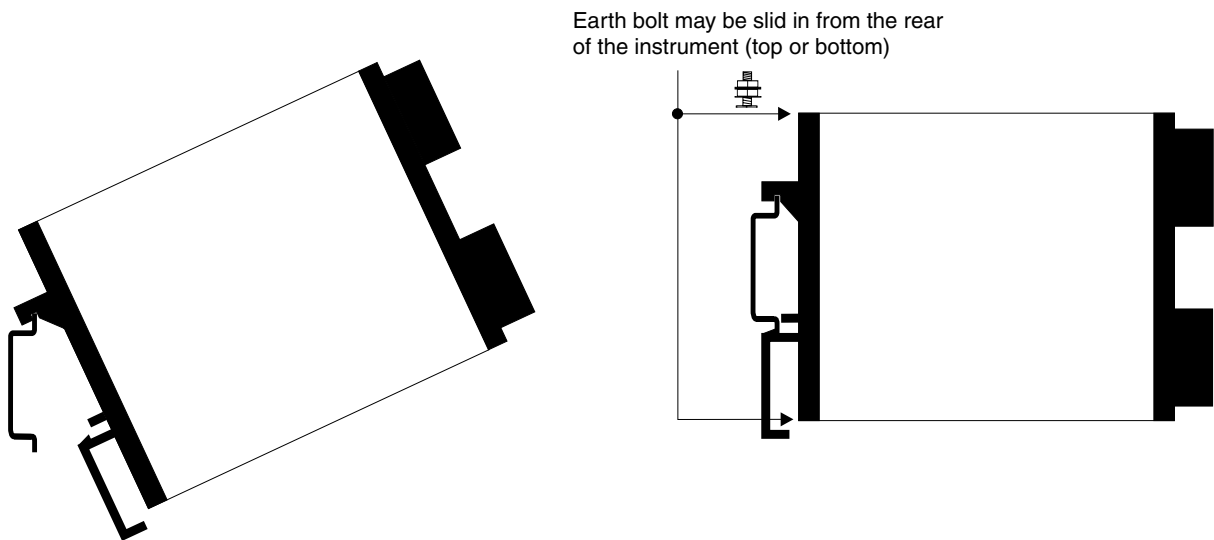


Introduction

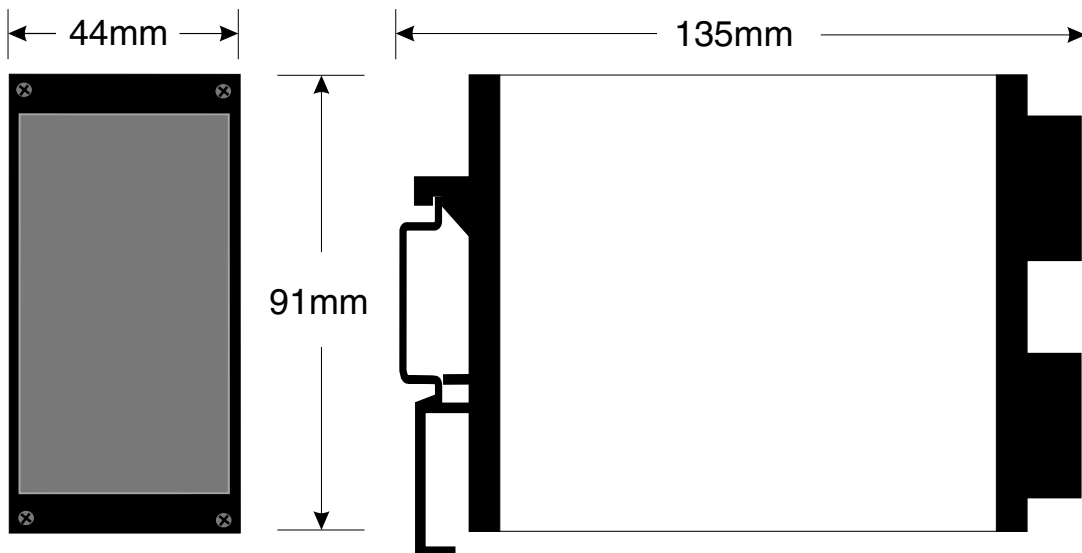
This manual covers the installation and operation of 4-20mA output loop powered signal isolator model. Model RM3-IV will accept 0-20mA, 4-20mA, and voltage ranges from 0-100mV to 0-200V (link selectable). Models are available with one, two, three or four input/output channels. 1kV (DC or RMS) isolation is provided from input to output and from channel to channel. A LED indicator is provided for each channel. The brightness of the LED will vary with output level, 20mA giving the brightest output.

Mechanical Installation

The RM3 clips onto a standard 35mm DIN rail as shown below.

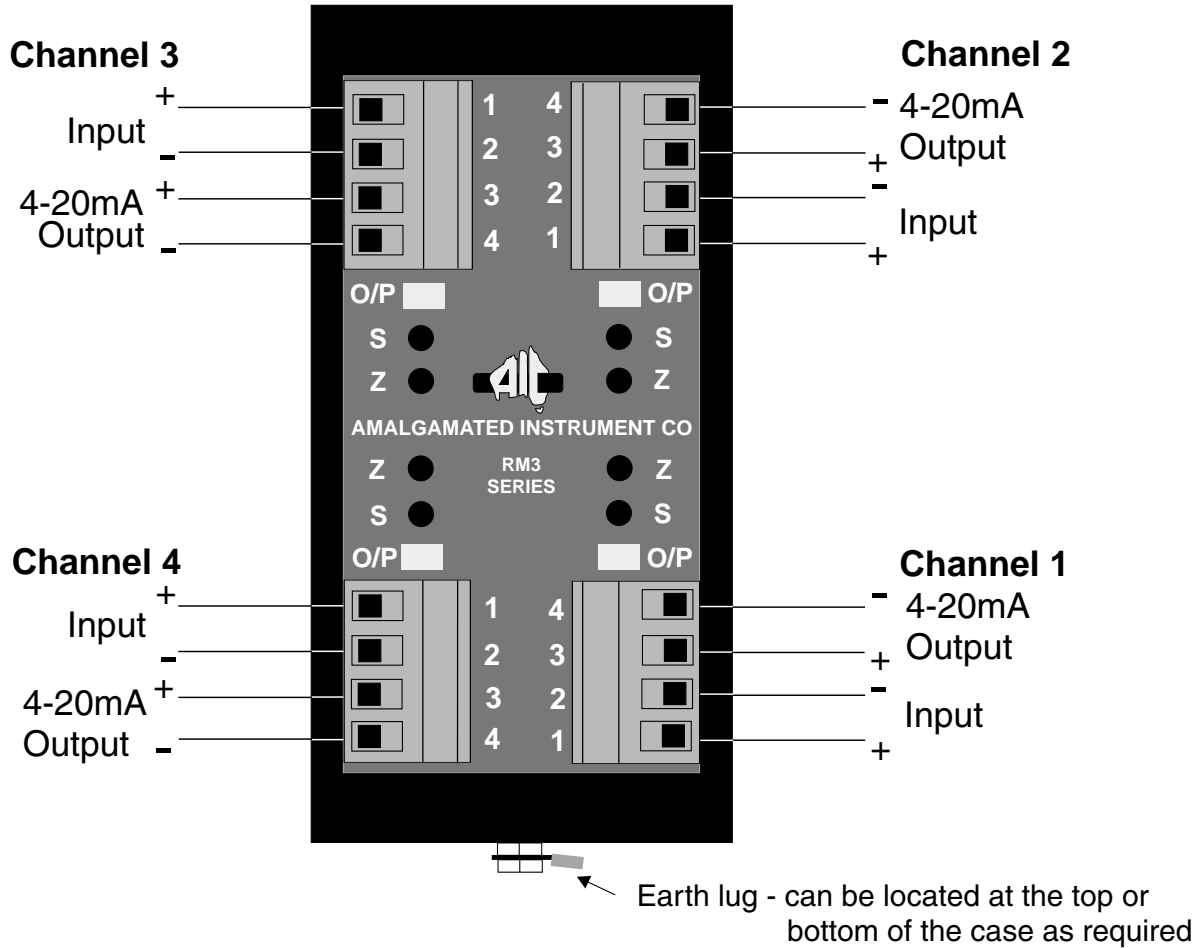


Dimensions

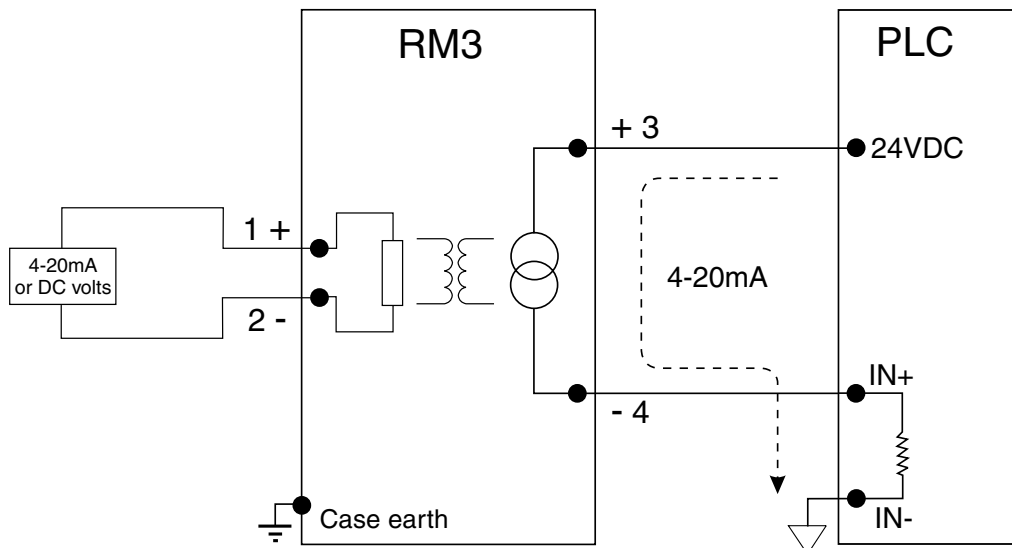


Electrical Installation

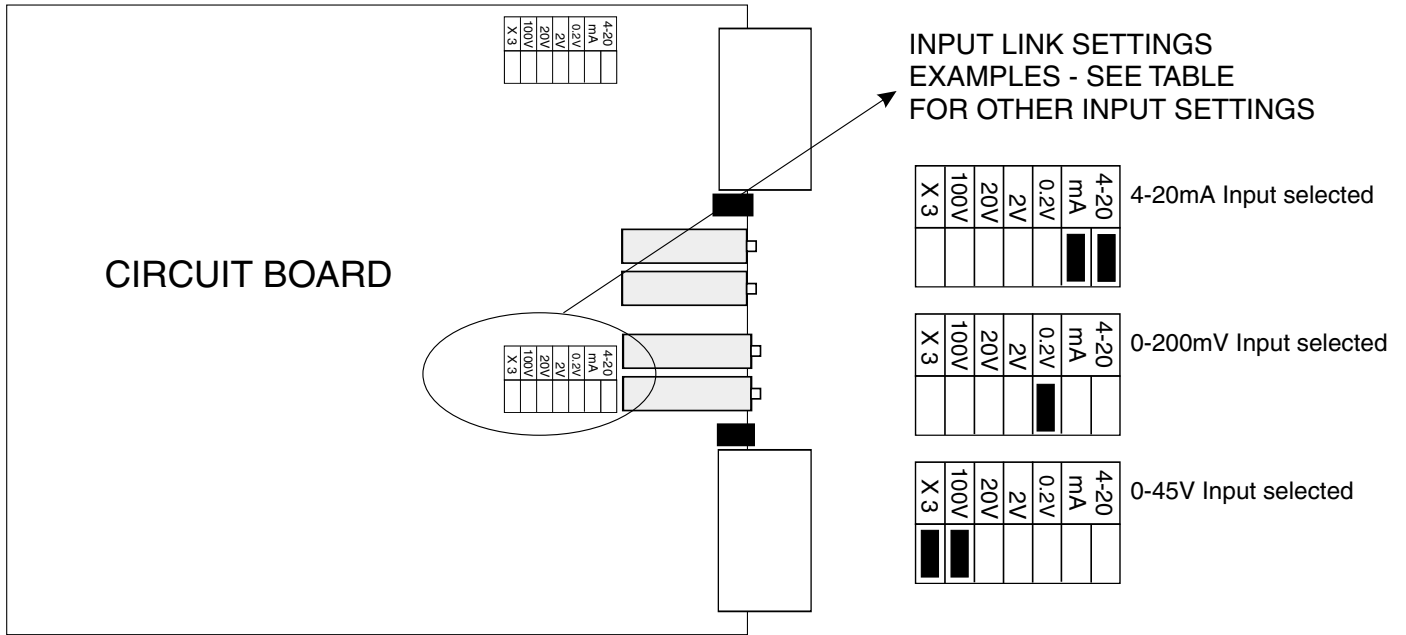
Plug in type screw connector terminal blocks are provided for ease of installation. The terminal blocks allow for wires of up to 2.5mm² to be fitted. Connect the wires to the appropriate terminals as indicated in the diagram below, connections for a 4 channel instrument are shown. For EMC compliance the case of the instrument should be earthed via the case earth lug.



Typical interconnection diagram



Link settings



Maximum Input Range	Typical Span Adjustment Range	Typical Zero Adjustment Range	X 3 Link	4-20mA Links (2 off)	Voltage Links
0 to 30mA	10 to 30mA	0 to 8mA	Out	In	All Out
0 to 100mV	33 to 100mV	0 to 25mV	In	Out	0.2V
0 to 300mV	100 to 300mV	0 to 75mV	Out	Out	0.2V
0 to 1V	330mV to 1V	0 to 250mV	In	Out	2V
0 to 3V	1V to 3V	0 to 750mV	Out	Out	2V
0 to 10V	3.3V to 10V	0 to 2.5V	In	Out	20V
0 to 33V	10V to 33V	0 to 7.5V	Out	Out	20V
0 to 100V	33V to 100V	0 to 25V	In	Out	100V
0 to 200V Note: 200V is the max. input	100V to 200V	0 to 75V	Out	Out	100V

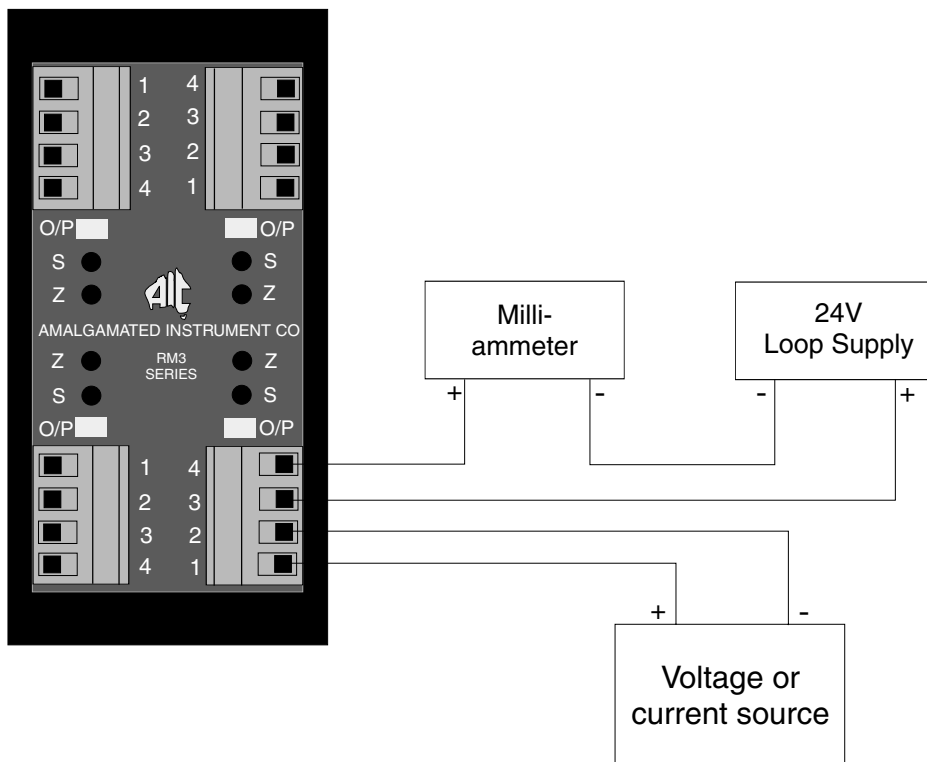
Zero and Span Adjustment

Each channel of the RM3-IV is adjustable for zero and span. Adjustment is via front panel potentiometer. The procedure for zero and span adjustment is given below.

1. Ensure that the input links have been set for the correct input type.
2. Using a simulator live input set the input to the level required for a 4mA output.
3. Measure the output using a milli-ammeter and adjust the zero potentiometer until the output is 4mA.
4. Using a simulator live input set the input to the level required for a 20mA output.
5. Adjust the span potentiometer until the meter reading is 20mA.
6. Repeat steps 2 to 5 until the output at both 4 and 20mA are correct to the required tolerance.

Note: The RM3-IV is able to be spanned over a part of its input range if required. For example, on a 20V input range link setting the 4-20mA output can be spanned over 1-5V. In this case instead of inputting 0V at step 2 you would input 1V and instead of inputting 10V at step 4 you would input 5V. See "Link settings" chapter for a table giving span range for each input.

An example of a typical zero and span adjustment measurement setup is shown below.



Specifications

TECHNICAL SPECIFICATIONS

Input:	4-20mA, 0-200mV, 0-2V, 0-20V or 0-100VDC in link selectable ranges with 3x link to increase sensitivity. Zero and span adjustment allow 4-20mA output for inputs in the ranges of 0-30mA to 0 to 200VDC.
Output:	4-20mA.
Isolation:	1kV DC or RMS, input to output & channel to channel
Supply:	Loop powered.
Loop Supply:	12 to 34VDC max.
Accuracy:	Better than 0.05% of full scale (current & volts) or 0.1% of full scale (100mV range) when calibrated
Linearity:	Better than 0.05 % of full scale (current & volts) or 0.1% of full scale (200mV range) when calibrated
Input Impedance:	10 Ω nominal (current ranges) 1M Ω (mV and Volts ranges)
Response Time:	<0.5 sec to 1%
Protection:	Reverse polarity input/output protection
Maximum Load:	$R_L = \frac{\text{Supply (V)} - 10}{0.02}$ Ohms
Load Effects:	Effect on accuracy of changing load resistance is no greater than 0.05% of full scale
Ambient temp:	0 to 60°C
Humidity:	5 to 95% non condensing

PHYSICAL CHARACTERISTICS

Case size:	44mm x 91mm x 135mm
Mounting:	35mm DIN Rail mount (EN50022)
Connections:	Plug in screw terminals (max 2.5mm ² wire)
Weight:	320 gms for one channel 370 gms for two channels 440 gms for three channels 490 gms for four channels

Specifications are subject to change without notice

Guarantee & Service

The product supplied with this manual is guaranteed against faulty workmanship for a period of 2 years from the date of dispatch.

Our obligation assumed under this guarantee is limited to the replacement of parts which, by our examination, are proved to be defective and have not been misused, carelessly handled, defaced or damaged due to incorrect installation. This guarantee is VOID where the unit has been opened, tampered with or if repairs have been made or attempted by anyone except an authorised representative of the manufacturing company.

Products for attention under guarantee (unless otherwise agreed) **must be returned to the manufacturer freight paid** and, if accepted for free repair, will be returned to the customers address in Australia free of charge.

When returning the product for service or repair a full description of the fault and the mode of operation used when the product failed must be given.

In any event the manufacturer has no other obligation or liability beyond replacement or repair of this product.

Modifications may be made to any existing or future models of the unit as it may deem necessary without incurring any obligation to incorporate such modifications in units previously sold or to which this guarantee may relate.

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the instrument manufacturer
and may not be reproduced in whole or part without the
written consent of the manufacturer.**

This product is designed and manufactured in Australia.