

Input Isolation Module

Features

- 4-20mA, 0-20mA, 0-5Vdc, or 0-10Vdc input
- 0-10Vdc or 0-5Vdc output
- Full opto-isolation



Specification

Input signal:	
IO-IIM-I	4-20mA
	(can be changed to 0-20mA)
IO-IIM-V	0-10V into 200KW
	0-5Vdc into 100KW
Output signal	
IO-IIM-V	0-10Vdc or 0-5Vdc
IO-IIM-I	0-10Vdc
Output current	>5mA
Supply	24Vac (+15%, -10%)
Typical supply current:	
20mA sensor	100mA
100mA sensor	200mA
Power supply to sensor	24Vdc (±5%)
Max. sensor current	100mA
Accuracy	±0.1%
Isolation:	
DC	±1000V peak
AC	750Vrms
Connections	Rising cage terminals for 0.5-
	2.5mm ² cable
Ambient range	-10°C to +50°C
Dimensions	75 x 102 x 65mm
Country of origin	UK

Product Codes

IO-IIM-I

Input isolation module, 4-20mA input with a 0-10Vdc output

IO-IIM-V

Input isolation module, 0-10Vdc input with a 0-10Vdc output



Technical Overview

The IO-IIM range are Intended for use with BMS controllers where an input signal requires galvanic isolation from power ground. The IO-IIM provides DC isolation from ground and accepts either a current or voltage input. The module is powered by 24Vac and provides a 24Vdc supply up to 100mA for the sensor. The output galvanically isolated with respect to the input/supply ground.

Applications

Intended for applications where the BEMS controller can only accept floating inputs and there are problems with sensor grounding. Also useful for situations where a BEMS system is interfacing to other equipment which requires a floating input. If used on the output of a controller which has a floating ground it is essential that the 24Vac supply to the module is also floating.

Notes:

- 1. The IO-IIM-I provides a 24Vdc supply to the sensor but requires a 24Vac supply itself with one side grounded.
- 2. If the sensor is loop powered, the Sensor Gnd terminal is unused.

Function

The IO-IIM-V and IO-IIM-I modules each provide complete electrical isolation from the supply and sensor input to the output. Each comprises an opto-isolator with an integral power supply which powers the electronics and, if required the sensor.

A controller or an external power supply provides 24Vac power to the IO-IIM, which provides a 24Vdc regulated supply, at up to 100mA. The standard output is 0-10Vdc for an IO-IIM-I and either 0-5Vdc or 0-10Vdc for an IO-IIM-V.

Installation

- 1. The IO-IIM range should only be installed by a competent, suitably trained technician.
- 2. Ensure that all power is disconnected before carrying out any work on the IO-IIM range.
- Maximum cable is 2.5mm², care must be taken not to over tighten terminals.

Installation (continued)

4. When mounting the IO-IIM range care should be taken not to stress the PCB when fitting to the DIN rail. If it is necessary remove the module from the DIN rail, be sure to use a flat bladed screwdriver to release the DIN clips.

Setup

The IO-IIM-I is factory set up so that 4-20mA on the input becomes 0-10Vdc on the output. A special version can be ordered that will provide a 0-5Vdc output (see Product Code section). The unit can also accept a 0-20mA input, but will need re-calibrating (see below).

The IO-IIM-V has two inputs; $\div 1$ and $\div 2$, so that if required a 0-10V signal can be converted to a 0-5Vdc signal by wiring it to the $\div 2$ input. Alternatively, a 0-5Vdc signal can be connected to the $\div 1$ input to give an isolated 0-5Vdc output. The same applies to a 0-10Vdc signal to give a 0-10Vdc output.

If necessary, the factory set up can be repeated or changed to a different range.

Calibrating The IO-IIM-I

- 1. Connect the IO-IIM-I to a suitable 24Vac power supply.
- 2. Connect a Voltmeter between the two output terminals.
- Apply a current of 4mA between the signal input and 0v. Adjust pot VR1 until the output reading is greater than 0V.
- 4. Adjust pot VR1 until the output reading is just 0V. It is important not to overshoot.
- 5. Apply a current of 20mA between the signal input and 0v and adjust pot VR2 to give an output of 10Vdc.
- 6. Apply a current of 12mA and verify that the output is 5.0Vdc.

Different ranges (including 0-20mA) can be set by providing the inputs corresponding to either end of the range and adjusting the two pots as described above.



Calibrating the IO-IIM-V

- 1. Connect the IO-IIM-V to a suitable 24Vac power supply.
- 2. Connect a Voltmeter between the two output terminals.
- 3. Apply a voltage of 0Vdc between the $\div 1$ input and 0v. Adjust pot VR1 until the output reading is greater than 0V.
- 4. Adjust pot VR1 until the output reading is just 0V. It is important not to overshoot.
- Apply a voltage of 10Vdc between the ÷1 input and 0v and adjust pot VR2 to give an output of 10Vdc.
- Apply a voltage of 5Vdc and verify that the output is 5.0Vdc.

Different ranges can be set by providing inputs corresponding to either end of the range and adjusting the two pots as described above.

Connections

IO-IIM-I:





Connections (continued)

IO-IIM-V:

UK Sales Tel: 0845 345 7253

Page 3 of 3

International Tel: +44 1732 861225

For the latest information and product updates, register at www.sontay.com

Whilst every effort has been made to ensure the accuracy of this specification, Sontay cannot accept responsibility for damage, injury, loss or expense resulting from errors or omissions. In the interest of technical improvement, this specification may be altered without notice.