8 Analogue Input Channels
Ranges: 0-20mA, 0-4V, 0-10V
Channels Individually Configured
12 BIT resolution
Better than 0.5% accuracy

Introduction

The 400-8-AI module provides 8 analogue input channels for use within the FMT-400 modular system. A maximum of 32 analogue input channels (four 400-8-AI modules) in main rack are supported by the CPU-400A, 64 analogue input channels (eight 400-8-AI modules) in main or extension racks are supported by the CPU-400B and 256 analogue input channels (thirty two 400-8-AI modules) in main or extension racks are supported by the CPU-400C.
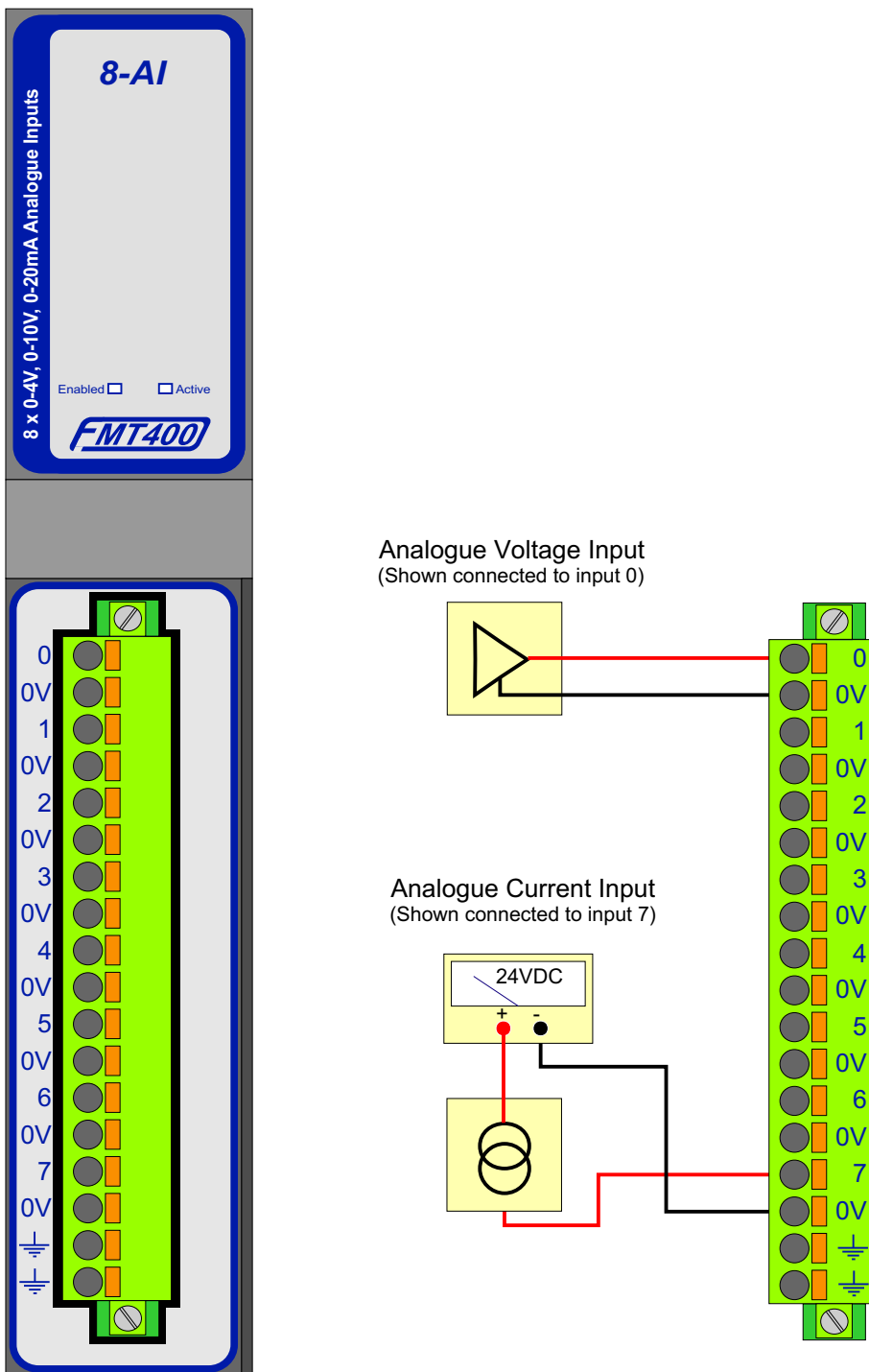(Please see separate data sheet for more information on the CPU modules)

General Specifications

Storage temperature	-20 to +70 $^{\circ}$C
Operating temperature	0 to 55 $^{\circ}$C
Humidity	0-90%
Weight	450g
Dimensions	Standard FMT-400 size single width module
Spring terminal wire gauge	0.2 to 1.5mm csa (24 to 14 AWG), (screw terminal connector available as a cost option)
Current consumed from rack	160mA from rack power supply
Analogue input type	8 channels, 0-20mA, 0-4V or 0-10V (each channel range individually link selectable).
	PLEASE NOTE:
	These channels are not individually isolated from each other. A separate 0V is provided for each channel to maintain the accuracy of the analogue inputs.
Analogue Input Impedance	0-10V range: 5.5k
	0-4V range: >1M
	0-20mA range: 200
Analogue resolution	12 BIT resolution e.g.:
	20mA / 4096 = 4.88µA
	4V / 4096 = 976.56µV
	10V / 4096 = 2.44mV
Analogue accuracy	Better than 0.5%
Analogue Read Time	Minimum 1mS (user definable from within Flex32)

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Connection Details

Connections should be made to the 400-8-AI connector as shown in the following diagram. Note that two earth connections are provided for signal cable screens etc.

8-AI

8 x 0-4V, 0-10V, 0-20mA Analogue Inputs

Enabled ☐   ☐ Active

FMT400

| 0 |
| 0V |
| 1 |
| 0V |
| 2 |
| 0V |
| 3 |
| 0V |
| 4 |
| 0V |
| 5 |
| 0V |
| 6 |
| 0V |
| 7 |
| 0V |

Analogue Voltage Input
(Shown connected to input 0)

Analogue Current Input
(Shown connected to input 7)

24VDC
+   -

| 0 |
| 0V |
| 1 |
| 0V |
| 2 |
| 0V |
| 3 |
| 0V |
| 4 |
| 0V |
| 5 |
| 0V |
| 6 |
| 0V |
| 7 |
| 0V |

To insert wires into connector apply downwards pressure on orange tab using a small screwdriver or similar, insert wire then release pressure, the wire will be gripped firmly.

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LED Descriptions

Label	Colour	Description
Enabled	Yellow	When illuminated shows that the module has been correctly set up within your project in Flex32 and that the CPU module has initialised the module. If not illuminated then the module may not have been set up in your project configuration.
Active	Yellow	Indicates activity within the module, this will normally flicker or appear to be constantly illuminated, activity occurs when the CPU module is reading data from the 400-AI.

Analogue Input Range Setting

To set the input range of each channel, the jump link for the relevant channel should be put in one of three positions. The jump links are positioned on the module's PCB and are accessed by removing the module from the rack, the jump links can then be clearly seen.
The picture below shows a view of the PCB and the various positions that the jumper links can be put in.

PCB

I/P RANGES
LINK A-B = 0-20mA
LINK B-C = 0-

CH0 CH1 CH2 CH3 CH4 CH5 CH6 CH7
A B C
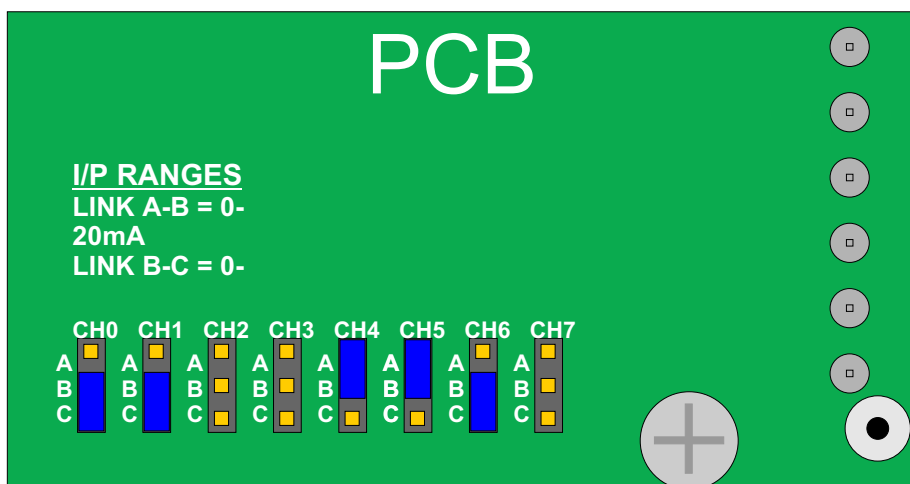
In the above example the inputs have been set in the following ranges:
Channel 0 = 0 - 10V range
Channel 1 = 0 - 10V range
Channel 2 = 0 - 4V range
Channel 3 = 0 - 4V range
Channel 4 = 0 - 20mA range
Channel 5 = 0 - 20mA range
Channel 6 = 0 - 10V range
Channel 7 = 0 - 4V range

EMC Compliance

The FMT-400 system is fully tested and CE marked in accordance with the following standards:

- **BS EN55022 class A 1995   Emisions standard for Information Technology Equipment.**
- **BS EN61000-6-2   1999   Immunity standard for Industrial Environment**
- **BS EN61000-4-2   1995   ESD requirements.**
- **BS EN61000-4-3   1997   Radiated susceptibility.**
- **BS EN61000-4-4   1995   Electrical Fast Transient Burst requirement.**
- **BS EN61000-4-5   1995   Surges requirements.**
- **BS EN61000-4-6   1996   Conducted susceptibility.**
- **BS EN61000-4-11   1994   Voltage Dips and Interruptions.**

Following the provisions of EU EMC Directive (s) 89/336/EEC and 92/31/EEC.

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Date: 11 May 2005

Order Codes

Part Number
400-8-AI

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