

Introduction

The FE-813-USB module is for use with the Fylde FE-MM4 4 channel Micro-Analog 2 signal conditioning system. It provides the power supply for the signal conditioning modules, an auto-zero system for FE-366-TA bridge amplifier modules, and four channels of USB data acquisition. Data acquisition software for Windows operating systems is provided.

Power Supply : Specification

Outputs	Bridge Supplies Module Supplies	± 5.00 V (factory set $\pm 0.2\%$ and $+2.50$ V (factory set $\pm 0.2\%$). ± 12.6 V DC ± 120 mV.
Load	Maximum Current	170 mA at $+2.5$ V (will power 4 x 120 Ω transducers @ $+2.5$ V). 170 mA at $+5$ V (will power 4 x 120 Ω transducers @ $+5$ V). 130 mA at $+10$ V (will power 4 x 350 Ω transducers @ $+10$ V). ± 100 mA at ± 12 V. Will power any combination of up to 2 <i>micro analogue 2</i> signal conditioning modules.
	Noise and ripple	<5 mV pk-pk (Bandwidth 50 kHz)
	Line Regulation	Better than 0.1 %
	Load Regulation	Better than 0.5 %
	Indication	Power On (Continuous) Overload (Flashing)
	Protection	Continuous Short Circuit.
Input DC Power	Range	11 to 36 V DC.

USB Interface : Specification

Analogue Inputs	Quantity	4 signals from two dual channel transducer interface modules.
	Operating Range	± 10 V relative to Analogue 0 V. Note that these inputs signals remain available as system analogue outputs on the 9 way D connector at the rear of the FE-MM4.
Digital Outputs	Function	Shunt Calibration for FE-366-TA channels.
A to D Conversion	Resolution	16 bits
	Range	± 10 V
	Sampling Rate	Maximum 4 x 100 000 samples per second.
	Offset	< ± 5 mV
	Noise	< 2 mV pk-pk
	Crosstalk	-95 dB at 50 kS/s with 5k Hz sine wave input
	Absolute Gain Error	< 0.25 % (See Note 2)

Auto-Zero : Specification

Control	Card Edge Pushbutton	Operating card edge pushbutton will auto-zero all channels.
	Remote Signal	Between $+5$ V and $+12$ V applied to pin 6 of the rear panel connector will auto-zero all channels.
	USB (See Note 1)	Individual channels can be enabled or disabled for auto-zero. Auto zero for all channels with result (success of fail) for each channel.
Auto_Zero	Accuracy	± 5 mV at the output of FE-366-TA.
	Range	± 5 V at the AZ input of the FE-366-TA
	Memory	AZ correction is restored after external DC power is restored.
	Indication	Auto-zero in progress is indicated on a card edge LED.

General : Specification

Environment	Temp. Range	0°C to 50°C operating.
Electrical	Power dissipation	6 W
Standards	USB	Universal Serial Bus Specification Revision 2.0
	EMC	The complete system complies with the requirements of the EMC directive 89/336/EEC ; the applicable standard is EN 61326.
	Safety	The completed system complies with the protective requirements of Low Voltage Directive 73/23/EEC and Amending Directive 93/68/EEC ; the applicable harmonised standard is EN 61010-1 (Industrial Equipment).

Note 1. If USB connection to host is not made, the auto-zero function is available except for USB control.

Note 2. The FE-813-USB holds calibration data for A to D converter gain accuracy in an on board EEPROM. User software should use this calibration data to ensure accuracy of data conversion. The supplied MADAQ software has conversion accuracy within +/- 0.05% using the calibration data.

Host Device Driver Software.

Host Device Driver Software is compatible with the Microsoft Windows 2000 or later operating systems. The supplied driver is the FTDI D2XX driver (see: <http://ftdichip.com/drivers/d2xx.htm> for full details of compatibility with operating systems.

Host Application Software.

Fylde MADAQ software (see separate data sheet) is supplied free of charge with each USB system.

Data Acquisition Package Support.

A LabView driver is supplied. In addition a DLL to allow application programmers to link to the device is provided together with a sample program.