

**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 ± 0.2% and +2.50 V (factory set ±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 350Ω 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 Load Regulation	Better than 0.1 % 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 Operating Range	4 signals from two dual channel transducer interface modules. ±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 Absolute Gain Error	-95 dB at 50 kS/s with 5k Hz sine wave input < 0.25 % (See Note 2)

**Auto-Zero : Specification**

Control	Card Edge Pushbutton	Operating card edge pushbutton will auto-zero all channels.
	Remote Signal	Between +5V and +12V 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 Range Memory Indication	+/- 5 mV at the output of FE-366-TA. +/- 5V at the AZ input of the FE-366-TA AZ correction is restored after external DC power is restored. 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.