

## Introduction

A Micro Analog 2 system comprises a chassis, a backplane and a set of printed circuit card modules (PCBs) which plug into the backplane through the front opening in the chassis. The rear panel carries all system connectors (power, input, output, USB.)

More details of the Micro Analog 2 system can be found on the Fylde web site <http://www.fylde.com>.

A plug in module (FE-366-AZ) which provides the Auto-Zero function for the transducer amplifiers can be replaced with a USB interface module (FE-356-USB). This provides the auto-zero functions of the FE-366-AZ and additionally provides a USB interface function.

## USB Interface Module : Specification

Analog Inputs	Quantity Operating Range	8 signals from four dual channel transducer interface modules. ±10 V relative to Analog 0 V. Note that these inputs signals remain available as system analog outputs on the 15 way D connector at the rear of the FE-MM8.
Digital Outputs	Quantity Level Functions	3 signals. + 5 V nominal @ 2 mA Max. Auto Zero Command, Cal Command, Spare.
Digital Inputs	Quantity Level Functions	2 signals. +5 V nominal. TTL compatible. Auto Zero In progress, Spare.
A to D Conversion	Resolution Range Sampling Rate Offset Noise Crosstalk Absolute Gain Error	16 bits ±10 V Maximum 8 x 50 000 samples per second. < ±5 mV < 2 mV pk-pk -95 dB at 50 kS/s with 5k Hz sine wave input < 0.1%
Environment	Temp. Range	0°C to 50°C operating.
Electrical	Power dissipation	0.75 W
Standards	USB	Universal Serial Bus Specification Revision 1.1
	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).

## USB Interface Module : General Description.

The interface module operates using two 200 k samples per second 16 bit A to D converters controlled by a Digital Signal Processor (DSP.) A separate USB processor reads data acquired by the DSP and transfers it to the Host PC using USB bulk transfers.

Note that 8 channels operating at 50 kS/s and 16 bits per sample is 800 kBytes per second which is approaching the theoretical maximum transfer rate of the USB bus. Most modern PCs and laptops are capable of maintaining this transfer rate to disk without loss of data.

Both processors are "soft" coded which means that their software is loaded from the host PC when the system is powered up. Future enhancements to the USB system will thus be provided entirely through new host software.

### **Host Device Driver Software.**

Host Device Driver Software is compatible with the Microsoft Windows 2000 , NT and XP operating systems. The Host device driver is provided by Cypress semiconductor who are the manufacturers of the USB processor and is shipped free of charge with the system.

The Host Device Driver recognises the USB device as a USB interface device which has not yet received its operating software. It downloads the operating software and then resets the device. The host now recognises the USB device as a USB interface with Fylde FE-356-USB software and allows the transfer of data.

### **Host Application Software.**

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

### **Data Acquisition Package Support.**

Direct support for data acquisition packages such as LabView, DASyLab, Testpoint etc. is available. In addition a DLL to allow application programmers to link to the device is provided. Please contact the factory for the current version information.

It is also possible for application programmers to call the Cypress Device Driver directly, Fylde will provide full documentation on how to do this.