## 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 | 8 signals from four dual channel transducer interface modules. |
| | Operating Range | ±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 | 1 signal. |
| | Level | +3V3 nominal @ 2 mA Max. |
| Digital Inputs | Quantity | 1 signals. |
| | Level | +3V3 nominal. |
| Auto Zero | | The FE-356-USB can auto-zero up to 8 channels of bridge amplifiers. Bridge amplifiers are dual channel FE-366-TA modules. |
| Shunt Calibration | | The FE-356-USB can set shunt calibration for up to 8 channels of bridge amplifiers. Bridge amplifiers are dual channel FE-366-TA modules. |
| A to D Conversion | Resolution | 16 bits |
| | Range | ±10 V |
| | Sampling Rate | Maximum 8 x 50 000 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 | < 0.05% (See Note 2.) |
| Environment | Temp. Range | 0°C to 50°C operating. |
| Electrical | Power dissipation | 0.75 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). |

## 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 13 of the rear panel connector will auto-zero all channels. (Pin 14 is the return) |

| Auto_Zero | Accuracy | +/- 5 mV at the output of FE-366-TA. |
|-----------|----------|--------------------------------------|
| | Range | +/- 5V 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. |

Note 1.    If USB connection to host is not made, the auto-zero function is available using the front card edge button or using the remote signal.

Note 2.    The FE-356-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 XP  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.