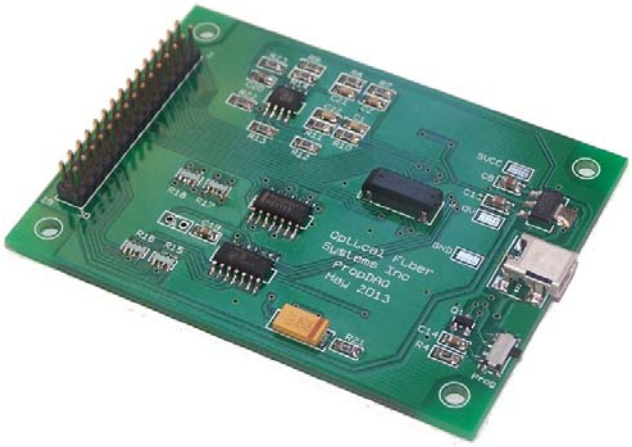
Optical Fiber Systems Inc
829B Turnpike Road, ‘New Ipswich, NH 03071-0186

20 August 2013

PropDAQ OEM PCB

USB Data Acquisition Module



Description

The PropDAQ OEM PCB is a simple PCB version of our PropDAQ module with a single 2-rows 30-pin connector header for all electrical connections and a mini-USB connector for communication with a PC.

It allows interfacing electrical instruments or devices with a computer. It can take up to 4 analog electrical signals (from 0V to 5V) and up to 4 digital electrical signals (0V or 5V), converts them into digital data, and sends that data to a computer. It can also receive commands from a computer to generate up to 2 analog electrical signals (from 0V to 4V) and up to 4 digital electrical signals (0V or 5V).

The PropDAQ module incorporates a programmable controller (Propeller from Parallax) along with a dedicated circuitry to process the different electrical signals and communicate with a computer via a USB link. The module is pre-programmed with a standard firmware and a standard set of instructions, but can also be custom-programmed to perform specific functions or respond to specific commands. The module also comes with a simple data acquisition software that can run on almost any personal computer. This software is written in Python and is offered as Open Source.

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Preliminary hardware specs

All I/O updated at up to 1000 Hz / 1000 updates/sec MAX.

- 4 Analog inputs single-ended
  - 0V to 5.00V
  - 12 bit precision
  - 1000 Samples /sec (Single Channel) [up to 10,000 sa/sec with on-board averaging of 10 samples]
- 2 Analog outputs
  - 0V to 4.0V (10mV to 4.08V)
  - 1/1000 precision
  - 20 Hz Modulation MAX (~ 6.8V/msec)
- 4 Digital Input
  - 0V / 5V (Protected up to 100V)
  - 200 update / sec
  - 10 kOhm impedance
- 4 Digital Output
  - 0V / 5V
  - 1000 update / sec
  - 20mA / channel, 200mA total
  - Unprotected
- No additional power supply needed (powered from USB)
- Works with Windows 98, XP, vista, 7 & 8, Mac OS, Linux
- Includes drivers and OpenSource SimplePyDAQ (python)
- Includes cables and screwdriver

Preliminary PC software specs

Compatible with Windows, MacOS, Linux (written in Python).
Basic software is planned to be released as Open Source.
Saves data in csv (comma separated values) file format.
Main control panel window with all channels.
Data acquisition with timing, sampling rate, averaging, trigger.

Simple display tools:

Large billboard display (numeric value and bar graph)
Simple time graph
Data scan (single point acquisition from push-button or trigger)
Basic function generator (pulse, square wave, saw-tooth, sine wave)

Easily expandable: add your own tools or functions.

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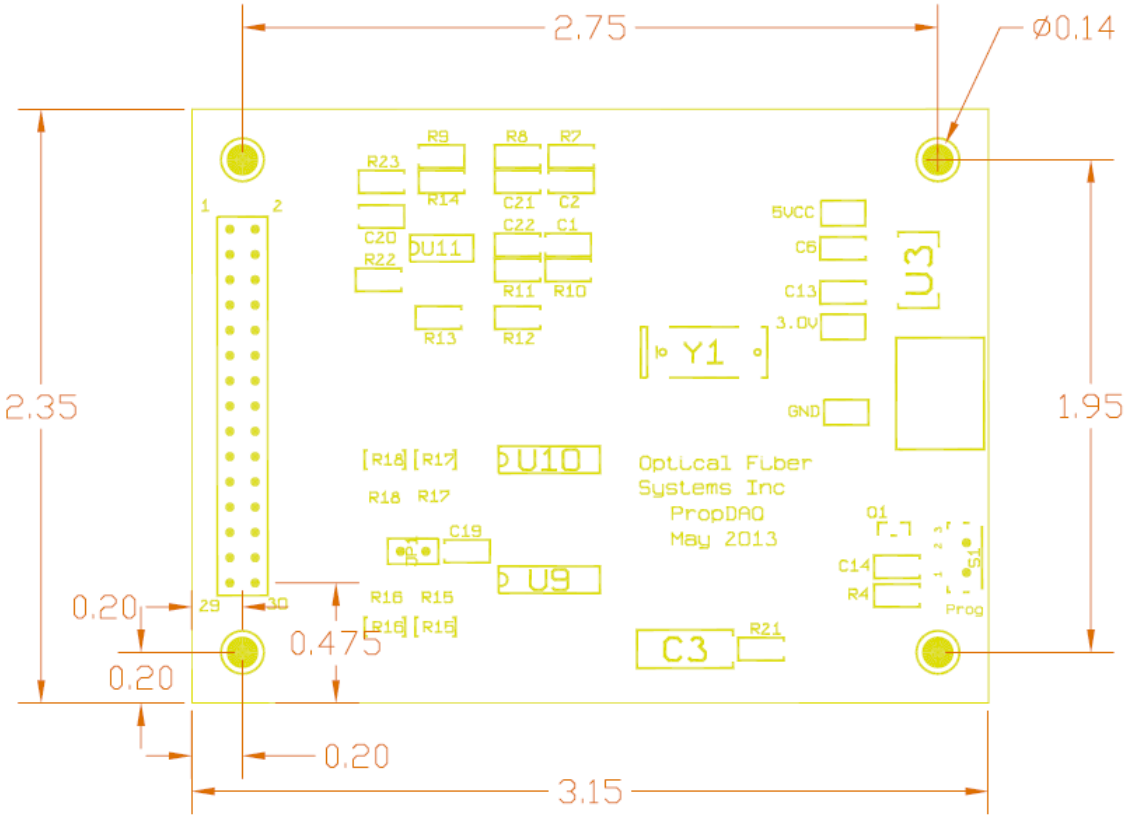
Mechanical Outline



		1	2		
PWM0		3	4		PWM1
		5	6		
		7	8		
		9	10		
		11	12		
DO-0		13	14		DO-1
DO-2		15	16		DO-3
DI-0		17	18		DI-1
DI-2		19	20		DI-3
		21	22		
AI-0		23	24		AI-1
AI-2		25	26		AI-3
AGND		27	28		3.0V
5.0V		29	30		GND

Pinout (referred to our PropDAQ Module)