USB-2401

4-CH 24-Bit Universal Input USB DAQ Modules

Features

- USB 2.0 High-Speed
- USB bus powered
- 4-CH simultaneous-sampling analog input
- Built-in signal conditioning for high voltage/current/ thermocouple/ RTD/strain gauge/load cell measurement
- Up to 2kS/s analog input rate
- Removable screw terminal on module
- Lockable USB cable for secure connectivity
- Ready-to-use testing application (U-Test) provided

Introduction

The USB-2401 is a 24-Bit, 4-channel simultaneous-sampling universal input USB DAQ modules featuring built-in signal conditioning circuitry, providing direct measurement of commonly used sensors including current output transducers, thermocouple, RTD, load cell, strain gauge, and others. Individual channels can be programmed to measure different signal types.

The USB-powered USB-2401 is equipped with removable screw-down terminals for easy device connectivity, and the included multi-functional stand fully supports desktop, rail, or wall mounting.

The USB-2401 is suitable for basic measurement applications requiring high resolution and accuracy, laboratory research and material testing environments, and industrial temperature measurement. U-test, a free ready-to-use testing program is included to enable operation or testing of all ADLINK USB DAQ series functions with no programming requirement.

Supported Operating System

- Windows 7/8 x64/x86

Driver and SDK

- LabVIEW, MATLAB, C/C++, Visual Basic, Visual Studio.NET

Software Utility

- U-Test

Ordering Information

- **USB-2401**
  4-CH 24-Bit Universal Input USB DAQ

Optional Accessories

- **RST-20P**
  One pair of 20-pin removable screw terminals
- **USB-2M-L**
  2 M USB Type A to USB Mini-B cable with lockable connector

Specifications

Model Name	USB-2401		
Analog Input			
Number of channels	4 differential		
Resolution	24-Bit		
Measurement types	Voltage, current, thermocouple, RTD, half-bridge, full-bridge, resistance		
Maximum sampling rate	2 kS/s		
Input ranges	**Mode**	**Input range or supporting type**	**Actual Range**
	Voltage	± 25 V, ± 12.5 V, ± 2.5 V, ± 312.5 mV	± 25 V, ± 12.5 V, ± 2.5 V, ± 312.5 mV
	Current	± 20 mA	± 20 mA
	Thermocouple	K, J, N, R, S, B, T, E	78.125 mV
	RTD (3-wire, 4-wire)	Pt 100, Pt 1000	2.5 V
	Half-Bridge (120Ω, 350Ω)	Max. 30 mV/V	78.125 mV
	Full-Bridge (120Ω, 350Ω)	Max. 30 mV/V	78.125 mV
	2-Wire Resistance	25 kΩ	2.5 V
Input coupling	DC		
FIFO size	4k samples		
Data Transfer	Programmed I/O, continuous (USB bulk transfer mode)		
Function I/O			
Number of channels	4 inputs and 2 outputs		
Compatibility	5V/TTL		
Support modes	Digital I/O General timer/counter: One 32-Bit; base clock 80 MHz, external to 10 MHz PWM: One channel, modulation frequency: 0.01 Hz to 5 MHz; duty cycle: 1%-99%		
Data Transfer	Programmed I/O, continuous (USB bulk transfer mode)		
General Specifications			
I/O connector	Two 20-pin removable screw terminals		
Operating temperature	0 to 55°C (32°F to 122°F)		
Storage temperature	-20 to 70°C (-4°F to 158°F)		
Power requirements	5V @ 400 mA (USB powered)		
Dimensions	114 (H) x 156.5 (L) x 41 mm (W) (4.5" x 6.16" x 1.63") (without connector and stand)		
Relative humidity	5% to 95%, non-condensing)		

Note: Function I/O shares the same I/O pins. Only one of these modes can be selected.

Pin Assignment

USB-2401

GPO0	20	40	GPO1
GPI1	19	39	GPI3
GPI0	18	38	GPI2
NC	17	37	DGND
GND1	16	36	GND3
SC1-	15	35	SC3-
SC1+	14	34	SC3+
EXC1	13	33	EXC3
CI1-	12	32	CI3-
CI1+	11	31	CI3+
AI1-	10	30	AI3-
AI1+	9	29	AI3+
GND0	8	28	GND2
SC0-	7	27	SC2-
SC0+	6	26	SC2+
EXC0	5	25	EXC2
CI0-	4	24	CI2-
CI0+	3	23	CI2+
AI0-	2	22	AI2-
AI0+	1	21	AI2+