USB-2401

4-CH 24-Bit Universal Input USB DAQ Modules



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.

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**

Supported Operating System

- Windows 7/8 x64/x86

Driver and SDK

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

Software Utility

- U-Test

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+

Standard Shipped Accessories

- One pair of 20-pin removable screw terminals



- 2 M USB Type A to USB Mini-B cable with lockable connector



- Module stand



- Rail-mount kit



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

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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.

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