

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

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



Pin Assignment

USB-2401

| | | | |
|------|----|----|------|
| GPO0 | 20 | 40 | GPO1 |
| GPI1 | 19 | 39 | GPI3 |
| GPI0 | 18 | 38 | GPI2 |
| NC | 17 | 37 | DGND |
| GND1 | 16 | 36 | GND3 |
| SCI- | 15 | 35 | SC3- |
| SCI+ | 14 | 34 | SC3+ |
| EXCI | 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+ |

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 | $\pm 25\text{ V}, \pm 12.5\text{ V}, \pm 2.5\text{ V}, \pm 312.5\text{ mV}$ | $\pm 25\text{ V}, \pm 12.5\text{ V}, \pm 2.5\text{ V}, \pm 312.5\text{ mV}$ |
| | Current | $\pm 20\text{ mA}$ | $\pm 20\text{ mA}$ |
| | 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 (120 Ω , 350 Ω) | Max. 30 mV/V | 78.125 mV |
| | Full-Bridge (120 Ω , 350 Ω) | Max. 30 mV/V | 78.125 mV |
| 2-Wire Resistance | 25 k Ω | 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.