USB-1210

4-CH 16-Bit 2MS/s Simultaneous-Sampling USB DAQ Module

Features

- USB 2.0 Hi-speed
- USB bus power
- 500VDC Isolation
- 256M samples FIFO
- 4-CH simultaneous-sampling analog input, up to 2MS/s per channel
- Analog and digital triggering
- Removable screw terminals on module
- Lockable USB cable for secure connectivity
- Analog and digital triggering
- Ready-to-use testing application (U-Test) provided

Introduction

The USB-1210 is a 16-bit high-speed USB 2.0-based DAQ module equipped with 4 analog input channels providing simultaneous sampling at up to 2MS/s per channel. The USB-1210 delivers high accuracy and excellent dynamic performance at maximum sampling rates, and flexible trigger functions. In addition, onboard 256M samples FIFO ensures no data loss during acquisition even when CPU or system loading is heavy.

The USB-1210 is USB bus-powered and equipped with removable screw-down terminals for easy device connectivity. The attached multifunctional stand can be used for desktop, rail, or wall mounting.

Suitable for high-speed data acquisition, laboratory and medical research, the USB-1210 provides a reliable measurement solution at an affordable price.

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-1210**
  4-CH 16-Bit 2MS/s Simultaneous-Sampling Analog Input USB Module

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

Standard Shipped Accessories

- One pair 20-pin removable screw terminals
- 2 M USB Type A to USB Mini-B cable with lockable connector
- Module stand
- Rail-mount kit

Specifications

Model Name	USB-1210
Analog Input	
Resolution	16-Bit
Number of channels	4 differential (simultaneous-sampling)
Maximum sampling rate	2MS/s per channel
Programmable gain	1, 5
Input range (Voltage)	± 10 V, ± 2 V
Offset error	± 1mV (gain=1) ± 0.2mV (gain=5)
Gain error	Typical: ± 0.01% of FSR (gain=1 & 5) Maximum: ± 0.02% of FSR (gain=1 & 5)
-3dB Bandwidth	600 kHz
CMRR (fin=1 kHz)	80 dB (gain=1) 90 dB (gain=5)
SFDR (fin=10 kHz)	98 dB (gain=1 & 5)
SINAD (fin=10 kHz)	89 dB (gain=1 & 5)
THD (fin=10 kHz)	-100 dB (gain=1 & 5)
SNR (fin=10 kHz)	89 dB (gain=1 & 5)
ENOB (fin=10 kHz)	14.3-bit (gain=1 & 5)
FIFO buffer size	256M Samples
Trigger sources	Software, external digital, analog trigger (from one analog input channel)
Trigger mode	Post trigger, pre-trigger, delay trigger, middle trigger, gate trigger, post or delay trigger with re-trigger
External A/D conversion source	Yes (from CONV)
Input coupling	DC
Overvoltage protection	Power on: ± 35 V Power off: ± 15V
Input impedance	1 GΩ
Data transfer	Programmed I/O, continuous (USB bulk transfer mode)
Function I/O	
Mode*	Digital I/O, general timer/counter, pulse generation
Digital I/O	8 DI / 4 DO (TTLLVTTL level)
General timer/counter	Two 32-bit, base clock: 80 MHz, external to 10 MHz
Pulse generation	Two PWM outputs (Modulation frequency: 0.01 Hz to 5 MHz; duty cycle: 1%-99%)
General Specifications	
Interface	USB 2.0 high speed
I/O connector	Two 20-pin removable screw terminals
Operating temperature	0 to 55°C (32 to 131°F)
Storage temperature	-20 to 70°C (-4 to 158°F)
Relative humidity	5 to 95% non-condensing
Power requirements	5V@ 500 mA (USB bus powered)
requirements	114 mm (H) x 156.5 mm (L) x 41.3 mm (W) (4.5" x 6.16" x 1.63") (without connector and stand)

Note: As function I/Os share the same I/O pins, only one of these modes can be selected.

Pin Assignment

USB-1901/1902

IGND	20	40	IGND
GPI0	19	39	GPO0
GPI1	18	38	GPO1
GPI2	17	37	GPO2
GPI3	16	36	GPO3
GPI4	15	35	IGND
GPI5	14	34	CONV
GPI6	13	33	IGND
GPI7	12	32	AITG
IGND	11	31	NC
IGND	10	30	IGND
AI0-	9	29	AI2-
AI0+	8	28	AI2+
IGND	7	27	IGND
AI1-	6	26	AI3-
AI1+	5	25	AI3+
IGND	4	24	IGND
NC	3	23	NC
NC	2	22	NC
CGND	1	21	IGND