

USB-2019/S

USB I/O Module with 8-ch Universal AI
with High Voltage Protection

Features

- 8 Differential Universal Analog Input Channels
  - Thermocouple
  - Voltage
  - Current
- 240 Vrms Overvoltage Protection
- Thermocouple and 4~20mA current input provide Open Wire Detection
- Individual Channel Configuration
- USB 2.0 Full-Speed (12 Mbps)
- USB Bus Powered
- Lockable USB cable
- Driver Free

Introduction

The USB-2019 provided by ICP DAS is a new solution for data acquisition. It provides easy USB plug-and-play operation and equips accurate measurement for all kinds of automation applications. Compared with the traditional PC-based card like PCI, PC/104 and ISA cards, users can achieve data acquisition easier and quicker via USB-2019. The USB-2019 is an 8-ch universal analog input module and provides the following features. First, it supports the over-voltage protection of up to 240 Vrms. Second, it has voltage and current input types. Third, it widely supports thermocouple devices with J, K, T, E, R, S, B, N, C, L, M and $L_{DIN43710}$ types. Fourth, it provides extremely accurate thermocouple measurement and automatically cold-junction compensation for each channel. Fifth, it features open wire detection for thermocouple and 4 ~ 20 mA inputs for each channel. Besides, through ICP DAS USB I/O Uility, users can configure and test USB-2019 directly and easily without any coding. The friendly API library is also provided for users to develop own USB application.

Applications

- Building automation
- Machine automation
- Factory automation
- Data acquisition and control
- Environment control and monitoring
- Laboratory equipment & research

System Specifications

USB	
Specification	USB 2.0 Full-Speed (12Mbps)
Software	
OS Support	Windows XP (32/64 bit), Windows 7 (32/64 bit)
CPU Module	
Watchdog Timer	1 Hardware watchdog (1.6 second) 1 Software watchdog (Programmable)
Isolation	
Intra-module Isolation	3000 V_{DC}
EMS Protection	
ESD (IEC 61000-4-2)	4 kV contact for each terminal 8 kV air for random point
LED Indicators	
Status	3 x Power and Communication
Power	
Consumption	1.7 W Max.
Mechanical	
Dimensions (mm)	USB-2019/S: 33 x 107 x 118 (W x L x H) CN-1824: 30 x 84 x 43 (W x L x H)
Environmental	
Operating Temperature	-25 ~ +75 °C
Storage Temperature	-40 ~ +85 °C
Humidity	10 ~ 95% RH, Non-condensing

I/O Specifications

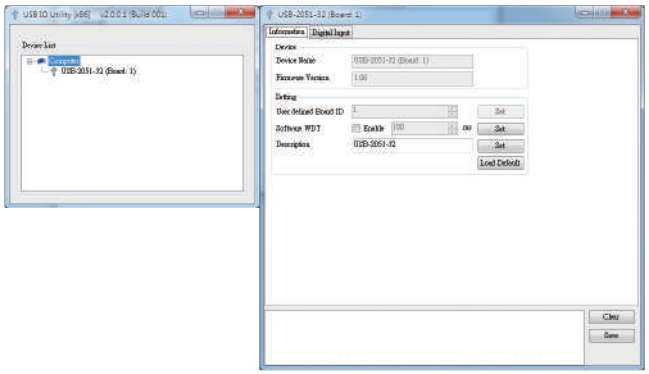
Analog Input		
Channels		8 Differential
Type		Voltage, Current, Thermocouple
Range	Voltage	±15 mV, ±50 mV, ±100 mV, ±150 mV, ±500 mV, ±1 V, ±2.5 V, ±5 V, ±10 V
	Current	±20 mA, 0 ~ 20 mA, 4 ~ 20 mA
	Thermocouple	J, K, T, E, R, S, B, N, C, L, M and $L_{DIN43710}$
Resolution		16-bit
Accuracy		±0.1% FSR
Sampling Rate		10 Hz (Total)
Input Impedance	Voltage Input	> 400 kΩ
	Current Input	125 Ω (An external resistor is required)
Common Mode Rejection		86 dB Min.
Common Voltage Protection		100 dB
Overvoltage Protection		240 Vrms
Individual Channel Configuration		Yes
Open Wire Detection		Yes (Software programmable)
Zero Drift		±20 μV/°C
Span Drift		±25 ppm/°C

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Software

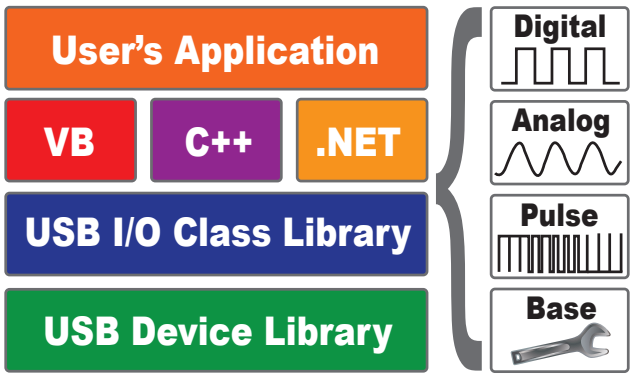
USB IO Utility

USB IO Utility provides a simple way to easily test and instant acquire data for all ICP DAS USB IO series modules without programming.



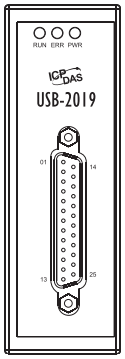
VB/C++/C#.NET/VB.NET/LabVIEW SDK

ICP DAS provides a SDK for USB I/O modules to help user to develop own project easily and quickly. The SDK can be supported in various environments.



Pin Assignments

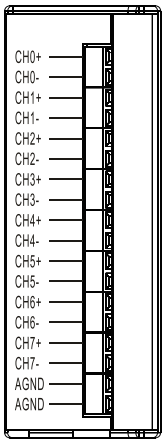
USB-2019



Pin Assignment	Terminal No.		Pin Assignment
+5V	1	14	AGND
CJC	2	15	CH 0+
CH 0-	3	16	CH 1+
CH 1-	4	17	CH 2+
CH 2-	5	18	CH 3+
CH 3-	6	19	CH 4+
CH 4-	7	20	CH 5+
CH 5-	8	21	CH 6+
CH 6-	9	22	CH 7+
CH 7-	10	23	N.C.
N.C	11	24	N.C.
N.C	12	25	N.C.
N.C	13	Shield	F.G.

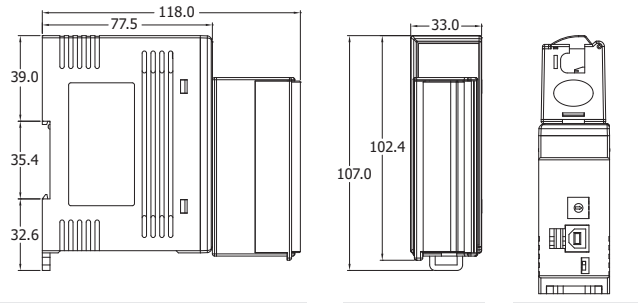
25-pin Female D-sub Connector

CN-1824



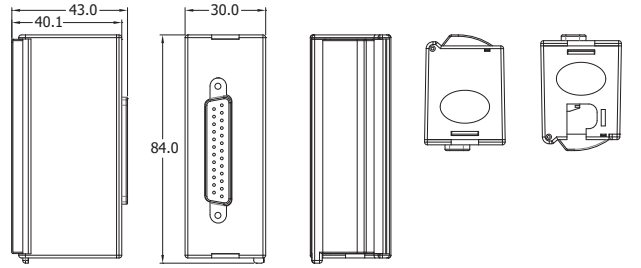
Dimensions (Units: mm)

USB-2019/S



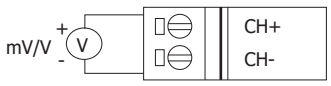
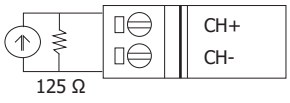
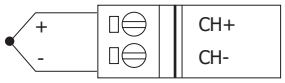
Left View | Front View | Bottom View

CN-1824



Left View | Front View | Rear View | Top View | Bottom View

Wire Connections

Voltage Input	Current Input	Thermocouple Input
		

Note: When connecting to current source, an external 125 Ω resistor is required.

Ordering Information

USB-2019/S CR	USB I/O Module with 8-ch Universal AI with High Voltage Protection (RoHS) Includes CN-1824 Daughter Board and 1.5M USB Cable (CA-USB15)

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