SDAQ-216/218

Programmable Smart DAQ with 16/8-ch Voltage/Current Input, 16-bit, 250kS/s, 2-ch AO, 4-ch DI/O



Features

- Standalone Ethernet DAQ enabling edge computing
- RESTful API for periodic machine condition polling
- Supports a C/C#/C++/Python/LabView API for continuous data streaming
- Built-in web console for easy configuration and use as a remote DAQ
- 16-ch 250KS/s voltage input (SDAQ-216)
- 8-ch 250KS/s current input (SDAQ-218)
- Supports iApp deployment for edge data analytics and efficiency at the edge
- Two 1Gb Ethernet ports for daisy chaining to multiple devices
- Supports Modbus RTU Master via RS-485

Introduction

ADLINK's SDAQ-216/218 ultra-compact edge DAQ based on ARM Cortex-A9 processors and featuring built-in 16 or 8 channel, 16-bit, analog voltage or current input, can function as a standalone edge device without a host PC and is ideally suited for 24-hour sensor measurement and condition monitoring IIoT applications. Through Gb Ethernet communication, data can be quickly transmitted to a central hub. Dual Ethernet ports enable daisy-chain connections that reduce the cost of network equipment and extend the communication distance.

Distributed Data Acquisition at the Edge

In order to provide constant remote data acquisition and condition monitoring, a DAQ system composed of an embedded system plus a DAQ card can be deployed at each remote machine site. However, when there are many remote machines spread out geographically, the deployment of DAQ systems at each site becomes prohibitive. The SDAQ-216/218 is a standalone Ethernet DAQ system that is designed specifically to perform the tasks of a DAQ system without requiring the complexity and added cost of an embedded system.

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Data Filtering at the Edge

The signals acquired by sensors are raw data that must be filtered and converted into usable data such as FFT, voltage, or current values. The SDAQ-216/28 standalone DAQ system can be deployed at each field site and perform the task of filtering raw data traditionally done by an embedded system. By converting and transmitting filtered, size-reduced data from the edge to a central hub, network load and processing demands on backend servers are reduced dramatically.

iApp at the Edge

The SDAQ-216/218 offers flexible support options for custom filtering algorithms written in Python. These valuable and confidential algorithms can be deployed and executed at the device as an iApp through iApp Creator contained in the DAQPilot software package. The SDAQ-216/218 enables the migration of iApp, user-defined filtering algorithms, to the edge in a cost-effective manner.

Built-in Web Console

The SDAQ-216/218's built-in web console allows configuration via web browser to make it easy to get started with remote data acquisition operation and eliminate the need for application specific programming. Settings for relevant parameters and data types are presented in an intuitive dashboard format. The SDAQ-216/218 makes it quick and easy to set up remote data acquisition operation.

Software Development Kit

ADLINK provides rich data connectivity to assist users with integrating the SDAQ-216/218 into their system.

- Streaming SDK (with C/C#/C++/Python/LabView sample code)
- RESTful API

Management Utility

ADLINK provides a powerful utility for users to manage devices, create iApps, and deploy them to devices for edge data analytics. For more information, refer to the DAQPilot software package.

Ordering Information

- **SDAQ-216**
  Programmable Smart DAQ with 16-ch Voltage input, 16-bit, 256kS/s, 4-ch DI/O, 2-ch AO
- **SDAQ-218**
  Programmable Smart DAQ with 8-ch Current input, 16-bit, 256kS/s, 4-ch DI/O, 2-ch AO

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Specifications

Model Name	SDAQ-216	SDAQ-218
System Specifications		
Ethernet (1Gb)	2x RJ45 Ethernet ports (1 IP, Ethernet cascade supported)	
MCU	ARM Cortex A9 1.0GHz	
NAND Flash (eMMC)	32GB	
Memory	DDR3 RAM 1GB	
USB	2x USB 2.0 (for Wi-Fi dongle and USB storage only)	
Power Supply	9 to 30V DC power input	
Power Consumption	Max. 8.8W	
Isolation	1.5kV	
Communication Interfaces	Web Console / RESTful API / Streaming SDK / Modbus TCP Server	
Digital Temperature Sensor	-50°C to 150°C (with 3 meter cable)	
Analog Input		
Resolution	16-bit	
Number of Channels	16 SE / 8 pseudo-diff, voltage input	8 current inputs
Maximum Sampling Rate	250 kS/s (multiplexing)	
Input Range	±10V, ±2.5V, ±1.25V, ±312.5mV	0-20 mA
Offset Error	± 0.1 mV (± 10V)	±0.01 mA (typical)
Gain Error	± 0.05% of FSR (± 10V)	±0.05% of FSR (typical)
Analog Output		
Resolution	16-bit	
Number of Channels	2 voltage or current outputs	
Maximum Update Rate	100 KS/s	
Output Range	± 10 V or 0-20 mA	
Digital I/O		
Number of I/O	4 DI and 4 DO	
Digital Type	TTL input: 0-5V for DI / open drain for DO	
Input Logic Level	Logic low: VIL = 0.8 V max. / IIL = 0.2 mA max. / Logic high: VIH = 2.0 V min. / IIH = 0.2 mA max.	
RS-485	Number of Ports -> 1 Function -> Modbus RTU Master	
Overvoltage Protection	± 50V	
Mechanical		
Dimensions	110.5 (L) x 40 (W) x 126.5 (H) mm	
Connectors	2x 14-pin + 2x 6-pin spring-type terminal block	
Front Panel LEDs	4	
Housing	Metal, IP30	
Mounting	DIN rail kit (wall mount kit optional)	
Environmental		
Operating Temperature	0°C to 50°C (32˚F to 122˚F)	
Storage Temperature	-20°C to 70°C (-4˚F to 158˚F)	
Humidity	approx. 95% @ 40°C (non-condensing)	
Vibration	Operating: 5 Grms, 5-500 Hz, 3 axes	
Shock	Operating: 100 G, half sine 11 ms duration	
EMC	EN61000-6-4/EN61000-6-2	
EMI	FCC Part 15B Class A, CISPR 32	
EMS	IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1.0 GHz, 10 V/m IEC 61000-4-4 EFT: Power: 2 kV; Signal 2 kV IEC 61000-4-5 Surge: Power 0.5 kV; Signal 1 kV IEC 61000-4-6 CS: 0.15 MHz to 80 MHz, 10 V IEC 61000-4-8 PFMF	
Safety	IEC 61010-1	

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