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The ultra-compact fully enclosed chassis weighs only 1.09kg (2.4lbs), making it suitable for in-vehicle applications.

FREE VersaDAQ Demo Software

APPLICATIONS

In-vehicle testing

Automotive testing

Aircraft engine testing

Motorcycle/ATV testing

Boat/Marine engine testing

Tests using low-level sensors (thermocouples, etc.)

Tests using high-level sensors (battery voltage, steering/throttle position, shock travel, etc.)

DAQ516

16-Channel Signal Conditioning System with 16-Bit ADC and Network Connectivity for In-Vehicle Testing



The DAQ516 is a complete 16-channel data acquisition system in an ultra-compact chassis.

FEATURES

- 16 Differential input analog channels with signal conditioning
- 2 Additional Frequency Measurement channels
- 10 BaseT Ethernet connectivity to your PC or laptop for setup, data display and processing
- Wireless Ethernet available
- 16-bit analog-to-digital converter resolution
- Aggregate sampling rate of up to 32k samples/second (2k sample/channel/second with all channels active) via Ethernet, up to 50k samples/second to CompactFlash™
- Simple user interface allows for quick setup of data collection and storage
- Local data storage via CompactFlash™ module
- Auto-configuration on power-up for stand-alone applications
- External trigger input provided

GENERAL DESCRIPTION

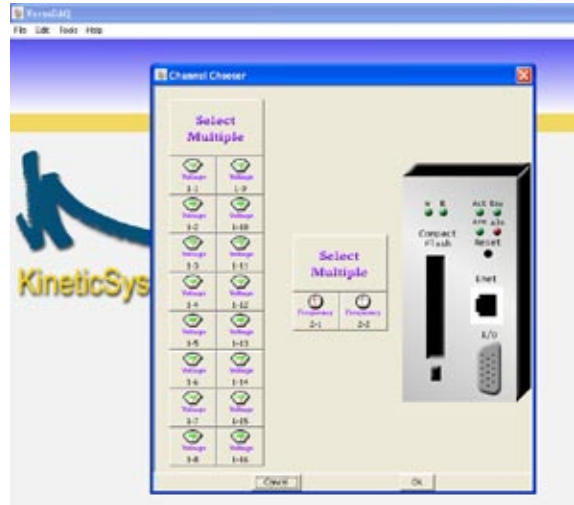
The DAQ516 is a complete 16-channel multiplexed signal conditioning system with a 16-bit resolution ADC and 10BaseT Ethernet connectivity to a PC or laptop for setup, data display and processing. The ultra-compact 57.5mm (2.26") high, 112mm (4.41") wide, 220 mm (8.66") deep fully enclosed chassis weighs just 1.09kg (2.4lbs), making it suitable for in-vehicle applications. The DAQ516 can be powered from DC voltage sources ranging from 10-18 volts. Power consumption is 10 watts for typical configurations, 30 watts maximum. Local data storage is available via a CompactFlash™ module. Auto configuration on power-up provides stand-alone capability and along with the simple user interface makes data collection and storage a two-mouse click process.

The signal conditioning consists of 16 multiplexed differential input analog channels that can be configured with fixed 2-pole filters and fixed gains of 1/5 to 100. Filter options are available in a 1,2,5 progression from 10Hz to 1kHz. Filters and gain are configured in 8-channel groups. Input voltage ranges up to ±30 volts are supported. Channel inputs have over-voltage protection of ±35 volts. End-to-end channel calibration is accomplished by configuring the input multiplexers via software to receive a reference voltage provided by an internal calibrator.

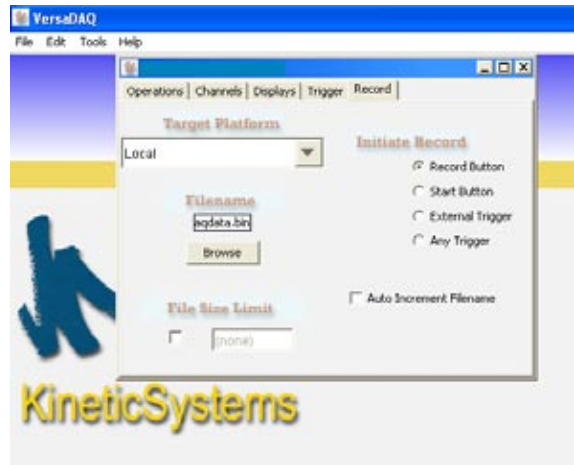
Two channels of Frequency Measurement are provided. These channels can alternately be configured as counter inputs. External trigger input is provided as well. The internal sample clock can be programmed via software for sample rates from 0.0625Hz to 50kHz.

Signal conditioning channels are connected via a 44-contact "D" connector (two 44-contact "D" connectors for 32-channel option). Frequency Measurement channels are connected via a 15-contact "D" connector.

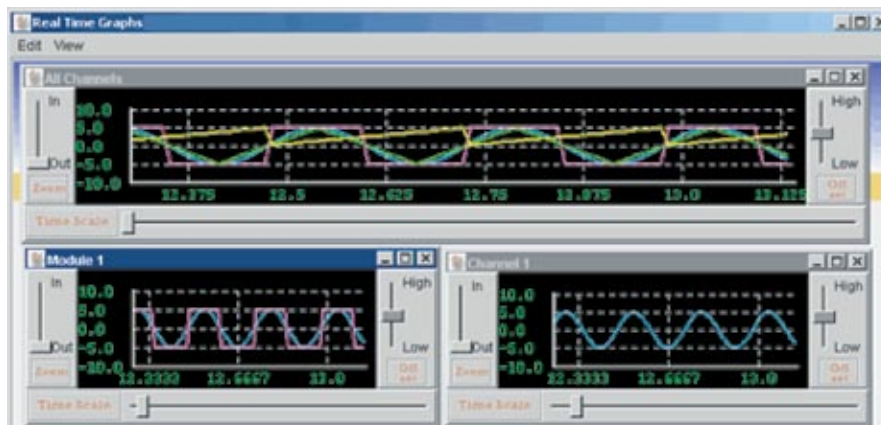
Included VersaDAQ software manages and controls DAQ516 operations including setup, data acquisition, and data recording. VersaDAQ runs on a PC/laptop and connects to a DAQ516 chassis via the 10 BaseT Ethernet connection. VersaDAQ's simple but powerful user interface configures channels, sample rate, record mode, calibration, and all other DAQ516 functionality with a few mouse clicks and pull-down menus.



Configuring DAQ516 Channels



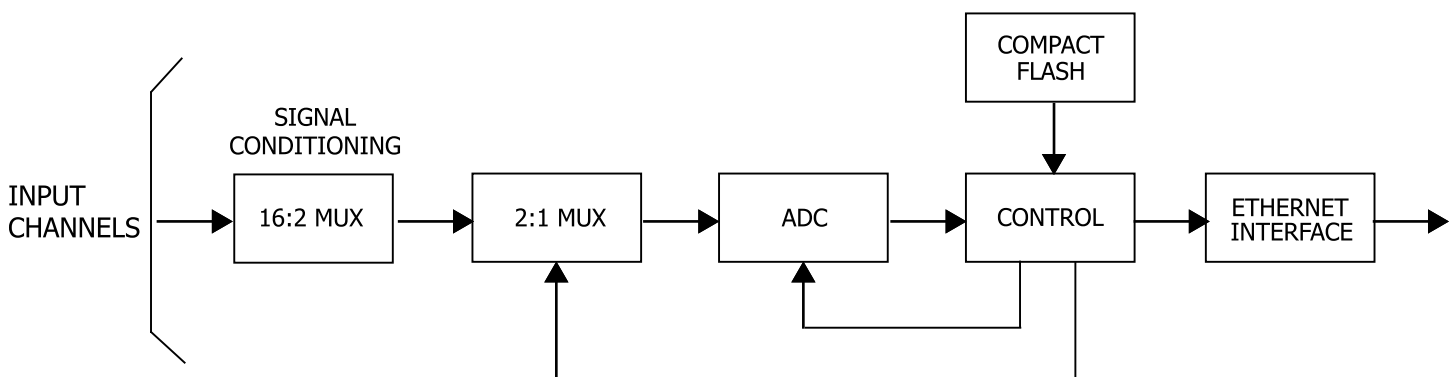
Configuring Data Record Parameters



Monitoring Live Data Real-time Graphs

Items	Specifications
Number of channels	16 differential analog input channels, 2 frequency measurement channels 15 differential analog input channels if channel 16 is configured as an isothermal reference.
Analog Inputs Input range Common mode: Differential: Input protection Input impedance	± 10.48 V standard, ± 30 V optional ± 10.48 V standard, ± 30 V optional ± 35 V 1M Ω
Frequency Measurement Inputs Counter frequency measurement range: External Trigger:	2 single-ended TTL-level inputs that can be used as counters. Digital input 0 can also be used as an external trigger to start a scan 0.8 Hz to 50 kHz TTL-level low true pulse (1 second minimum pulse width)
Available gain ranges (fixed gain in groups of eight channels)	1/5, 1/3, 1, 2, 5, 10, 20, 50, 100
Available filter ranges (fixed cutoff in groups of eight channels)	2-pole RC, 10Hz to 1kHz in a 1,2,5 progression (Gain of 1/3 and 1/5 option is only available with 1-pole RC, 10 Hz Filter)
Aggregate Sampling Rate	32k sample/second (2k sample/ channel/ second with all channels active) via Ethernet, up to 50kHz samples/second recording to CompactFlash
Resolution	16-bit, monotonic over operating range
Accuracy, referred to input, after automatic calibration	0.025% of reading \pm 0.012% of full scale (for gains of 1 – 100) 0.025% of reading \pm 1.00% of full scale (for gain of 1/5 and 1/3)
DC Power Requirements	10-18VDC (12VDC nominal), 10 watts for typical configurations, 30 watts maximum
Chassis Dimensions	57.5mm (2.26") high, 112mm (4.41") wide, 220mm (8.66") deep
Weight	1.09kg (2.4lbs)

DAQ516 Block Diagram



The table below indicates the available signal conditioning/Mux card configurations.

Card Slot Location	Group A (8 Channels)		Group B (8 Channels)	
	Filter (Hz)	Gain	Filter (Hz)	Gain
x	Fxx	Gxx	Fxx	Gxx
		Gain of 1/5 = .2		Gain of 1/5 = .2
1= chan 1-16	10Hz = 11	Gain of 1/3 = .3	10Hz = 11	Gain of 1/3 = .3
	20Hz = 21	Gain of 1 = 01	20Hz = 21	Gain of 1 = 01
	50Hz = 51	Gain of 2 = 02	50Hz = 51	Gain of 2 = 02
	100Hz = 12	Gain of 5 = 05	100Hz = 12	Gain of 5 = 05
	200Hz = 22	Gain of 10 = 11	200Hz = 22	Gain of 10 = 11
	500Hz = 52	Gain of 20 = 21	500Hz = 52	Gain of 20 = 21
	1000Hz = 13	Gain of 50 = 51	1000Hz = 13	Gain of 50 = 51
	No Filter = 00	Gain of 100 = 12	No Filter = 00	Gain of 100 = 12

(Gains of 1/3 and 1/5 option is only available with 1-pole RC, 10 Hz Filter)

RELATED PRODUCTS

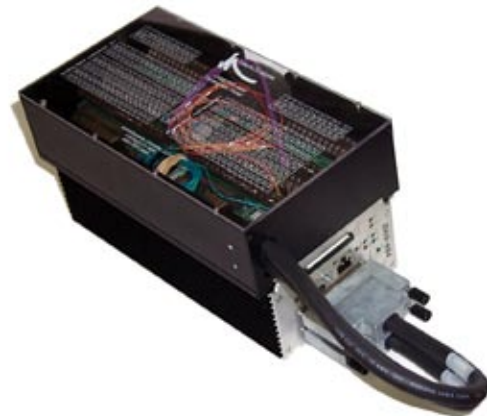
Model DAQ750-516
Isothermal Termination Assembly for the DAQ516



DAQ750 shown with cover removed

The table below shows the corresponding full-scale input voltage range for each gain factor.

Gain	Full-scale Input Range
1/5	±50 volts
1/3	±30 volts
1	±10 volts
2	±5 volts
5	±2 volts
10	±1 volts
20	±0.5 volts
50	±0.2 volts
100	±0.1 volts





Part Number Examples for Signal Conditioning Channels:

1F11G12F00G01 = 16-Channel Signal Conditioning/Mux Card
Group A channels 1-8 configured for 10Hz filter,
gain of 100
Group B channels 9-16 configured for no filter,
gain of 1

Specifications contained within this data sheet are subject to change without notice.

ORDERING INFORMATION

DAQ516-AA11	16-Channel Signal Conditioning Chassis with 16-Bit ADC
DAQ500-TRIG	Push Button Cable Assembly for External Trigger

Refer to available signal conditioning/Mux card configurations in the table above.

Please contact the factory for detailed pricing information.

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