

The DAQ504 is a complete 4-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 fully enclosed chassis weighs only 1.13kg (2.5lbs), making it suitable for in-vehicle applications.

**FREE VersaDAQ
Demo Software**

APPLICATIONS

In-vehicle testing

- Automotive 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.)

Tests using bridge-type sensors

DAQ504

4 Channel Signal Conditioning System with 16-Bit ADC, Network Connectivity and Bridge Sensor Support



The DAQ504 provides complete data acquisition in an ultra-compact chassis.

FEATURES

- 4 Bridge signal conditioning channels with programmable gain and filters accommodate 1, 2 or 4 active bridge arms
- 2 Additional frequency measurement channels
- 10BaseT Ethernet connectivity to your PC or laptop for setup, data display and processing
- Wireless Ethernet available
- 16-bit analog-to-digital converter resolution
- Maximum sampling rate of up to 50k samples/second
- 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 DAQ504 is a complete 4-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 67.7mm (2.64”) high, 112mm (4.41”) wide, 220mm (8.66”) deep fully enclosed chassis weigh only 1.13kg (2.5lbs), making it suitable for in-vehicle applications. The DAQ504 chassis can be powered from DC voltage sources ranging from 10-18 volts. Power consumption is 18 watts for typical configurations. 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 quick and easy process.

Signal conditioning consists of 4 bridge signal conditioning channels that can accommodate 1, 2 or 4 active bridge arms. These channels provide programmable gain from 1 to 1000 with pre-filter gains of 1,10,100 and 1000 as well as post-filter gains of 1,2,5 and 10. Each channel also includes a programmable Butterworth filter with cutoff frequencies of 10, 50 and 500 Hz. Each filter can also be bypassed.

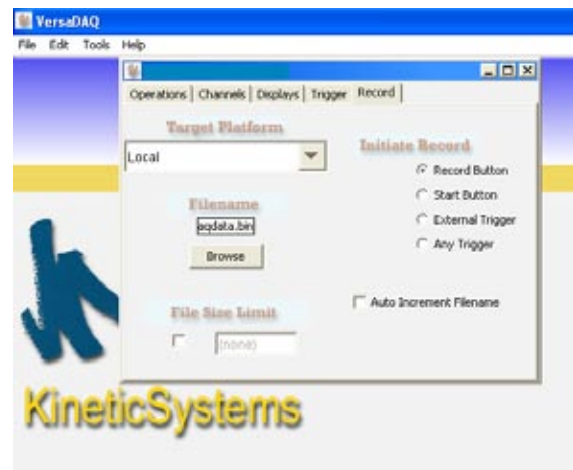
Two channels of TTL level frequency measurement are provided. These channels alternately be configured as counter inputs. An external trigger input is provided as well.

Each of the bridge signal conditioning channels are connected via a 15-contact “D” connector. Frequency measurement channels are also connected via a 15-contact “D” connector.

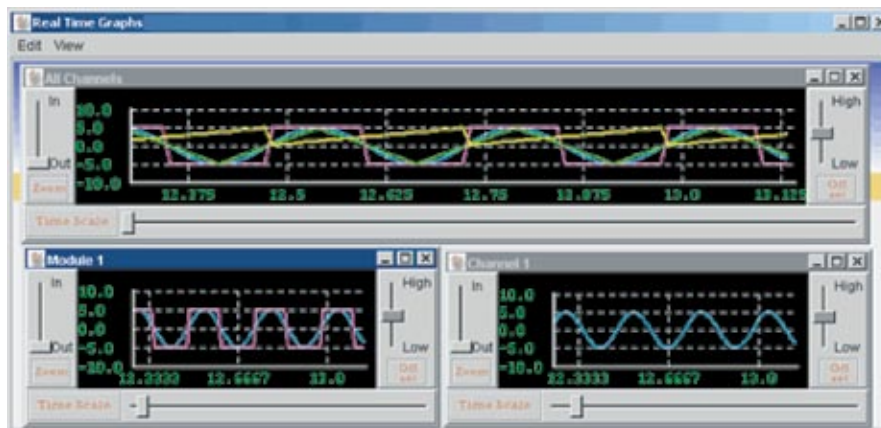
VersaDAQ software manages and controls the DAQ504 operations including setup, data acquisition, and data recording. VersaDAQ runs on a PC/laptop and connects to a DAQ504 Series chassis via the 10 BaseT Ethernet connection. VersaDAQ’s simple user interface configures channels, sample rate, record mode and calibration.



Configuring DAQ504 Series Channels

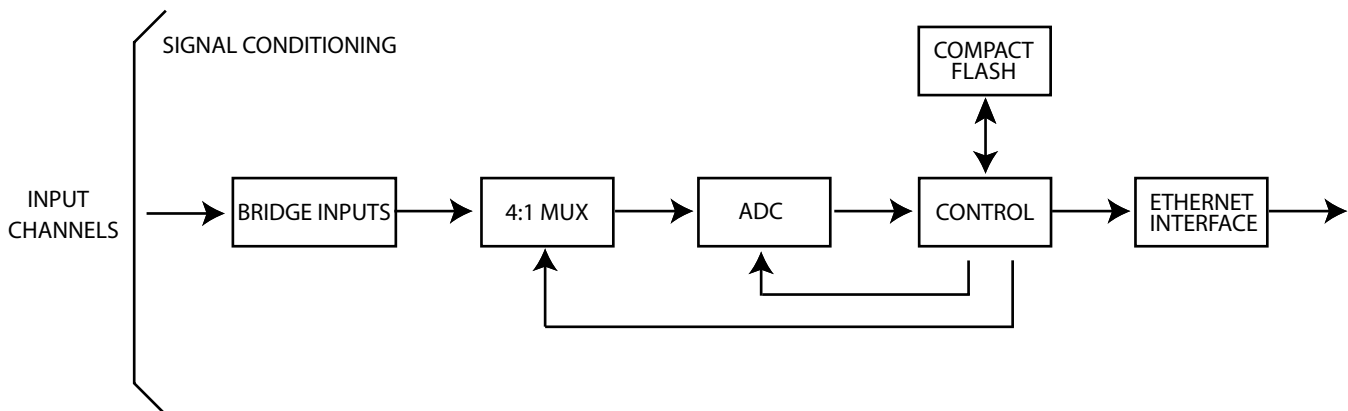


Configuring Data Record Parameters



Monitoring Live Data Real-time Graphs

Items	Specifications																												
4 Bridge Signal Inputs																													
Input range Common mode: Differential:	± 10 V standard ± 10 V standard																												
Input protection	± 40 V																												
Input impedance	1 M Ω																												
Gain Selection	Pre-filter gain: 1, 10, 100, 1000; post-filter gain: 1, 2, 5, 10; Maximum overall gain: 1000																												
Gain/Offset Accuracy Referred to input (RTI) -after automatic calibration	<table border="1"> <thead> <tr> <th>Gain</th> <th>Accuracy</th> <th>Gain</th> <th>Accuracy</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>$\pm(1.2 \text{ mV} + 0.025\% \text{ of reading})$</td> <td>100</td> <td>$\pm(13 \text{ } \mu\text{V} + 0.025\% \text{ of reading})$</td> </tr> <tr> <td>2</td> <td>$\pm(600 \text{ } \mu\text{V} + 0.025\% \text{ of reading})$</td> <td>200</td> <td>$\pm(8 \text{ } \mu\text{V} + 0.025\% \text{ of reading})$</td> </tr> <tr> <td>5</td> <td>$\pm(250 \text{ } \mu\text{V} + 0.025\% \text{ of reading})$</td> <td>500</td> <td>$\pm(5 \text{ } \mu\text{V} + 0.025\% \text{ of reading})$</td> </tr> <tr> <td>10</td> <td>$\pm(120 \text{ } \mu\text{V} + 0.025\% \text{ of reading})$</td> <td>1000</td> <td>$\pm(5 \text{ } \mu\text{V} + 0.025\% \text{ of reading})$</td> </tr> <tr> <td>20</td> <td>$\pm(60 \text{ } \mu\text{V} + 0.025\% \text{ of reading})$</td> <td></td> <td></td> </tr> <tr> <td>50</td> <td>$\pm(25 \text{ } \mu\text{V} + 0.025\% \text{ of reading})$</td> <td></td> <td></td> </tr> </tbody> </table>	Gain	Accuracy	Gain	Accuracy	1	$\pm(1.2 \text{ mV} + 0.025\% \text{ of reading})$	100	$\pm(13 \text{ } \mu\text{V} + 0.025\% \text{ of reading})$	2	$\pm(600 \text{ } \mu\text{V} + 0.025\% \text{ of reading})$	200	$\pm(8 \text{ } \mu\text{V} + 0.025\% \text{ of reading})$	5	$\pm(250 \text{ } \mu\text{V} + 0.025\% \text{ of reading})$	500	$\pm(5 \text{ } \mu\text{V} + 0.025\% \text{ of reading})$	10	$\pm(120 \text{ } \mu\text{V} + 0.025\% \text{ of reading})$	1000	$\pm(5 \text{ } \mu\text{V} + 0.025\% \text{ of reading})$	20	$\pm(60 \text{ } \mu\text{V} + 0.025\% \text{ of reading})$			50	$\pm(25 \text{ } \mu\text{V} + 0.025\% \text{ of reading})$		
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Filter -3 dB Cutoff Frequency Selection	10, 50, 500 Hz and filter bypass (5 kHz bandwidth)																												
Excitation	Independent excitation for each channel. Each channel provides +/- excitation and sense leads. Excitation voltages of 0 V, 2.5 V, 5 V and 10 V are available. Open sense lines or an over-current condition will shut down the supply automatically and signal the error condition. Excitation calibration is also provided.																												
Line regulation	0.003%																												
Load regulation	0.0025% V/mA																												
Temperature Coefficient	2ppm/ $^{\circ}\text{C}$																												
Bridge Completion	Two channels of bridge completion are provided; $\frac{1}{4}$, $\frac{1}{2}$ and full-bridge configurations are supported ; options with 120, 350 and 1000 Ω completion resistors are available.																												
Shunt Calibration	+/- shunt calibration can be performed on each channel. Switching is performed under software control. Shunt calibration resistors are mounted externally.																												
Bridge Balance	A 12-bit DAC provides the ability to remove bridge offsets of up to ± 70 mV with a 350 Ω bridge																												
Frequency Measurement Inputs	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																												
Counter frequency measurement range:	0.8 Hz to 50 kHz																												
External Trigger:	TTL-level low true pulse (1 second minimum pulse width)																												
Maximum Sampling Rate	50k sample/second																												
Resolution	16-bit, monotonic over operating range																												
DC Power Requirements	10-18VDC (12VDC nominal), 18 watts for typical configurations, 30 watts maximum																												
Chassis Dimensions	67.7mm (2.64") high, 112mm (4.41") wide, 220mm (8.66") deep																												
Weight	1.13kg (2.5lbs)																												



RELATED PRODUCTS

DAQ500-TRIG Push Button Cable Assembly for External Trigger

ORDERING INFORMATION

DAQ504-AA11	4-Channel Bridge Signal Conditioning Chassis with 16-Bit ADC and No Bridge Completion
DAQ504-AB11	Above with 120 Ω Bridge Completion
DAQ504-AC11	Above with 350 Ω Bridge Completion
DAQ504-AD11	Above with 1 K Ω Bridge Completion

Please contact the factory for detailed pricing information.

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