

Complete data acquisition software and hardware systems that feature high performance analog-to-digital signal conversion with signal conditioning to allow you to acquire data without programming.

**FREE** VersaDAQ  
Demo Software

### TYPICAL APPLICATIONS

Automotive testing  
Aircraft structural testing  
Fatigue testing  
Tests using bridge-type sensors

## DAQ700 10 Channel Signal Conditioning and ADC System



Complete 10 channel signal conditioning system with a 16-bit resolution ADC and Ethernet connectivity to a PC or laptop.

### FEATURES

- 10 channel data acquisition system with programmable signal conditioning
- 10BaseT Ethernet connectivity to your PC or laptop for setup, data display and processing
- 16-bit analog-to-digital converter resolution
- Aggregate sampling rate of up to 32k samples/second (1k sample/channel/second with all channels active)
- End-to-end calibration supported in hardware and software
- Simple user interface allows for 2 mouse clicks to data collection and storage
- Optional local data storage via CompactFlash™ module
- Auto-configuration on power-up for stand-alone applications

## GENERAL DESCRIPTION

The DAQ700 is a complete 10-channel bridge signal conditioning system with a 16-bit resolution ADC and 10BaseT Ethernet connectivity to a PC or laptop for setup, data display and processing. It is packaged in a compact 3U (5.25") high, 449mm (17.68") wide, 326 mm (12.83") deep chassis that can be configured for table top or rack mount applications. Local data storage is available via an optional CompactFlash™ module\*. Auto configuration on power-up provides stand-alone capability, and the simple user interface makes data collection and storage a two mouse click process.

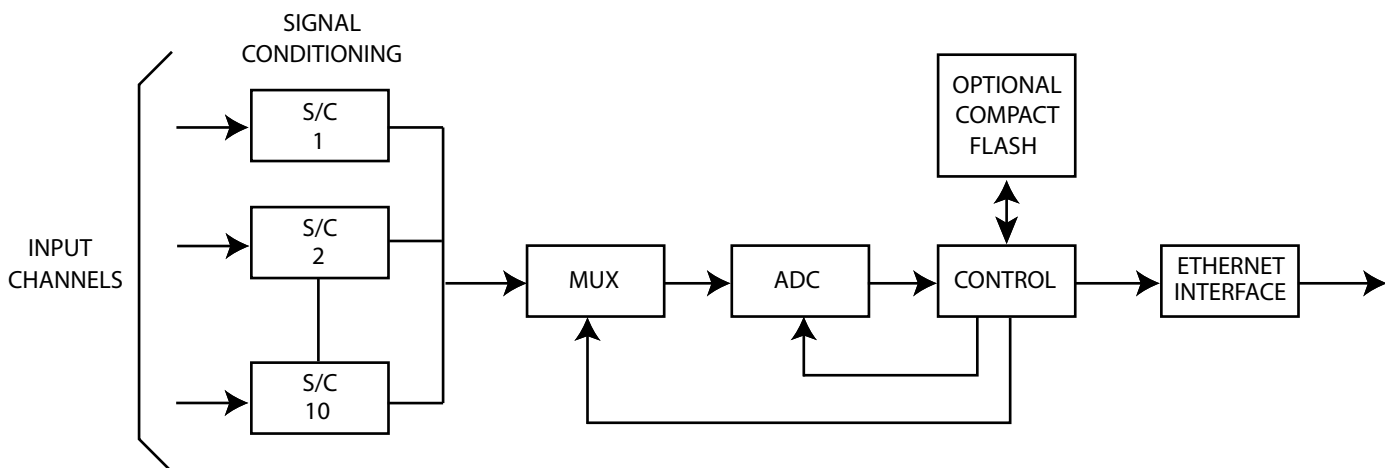
The signal conditioning accommodates transducers that represent 1, 2 or 4 active arms of a bridge circuit. Strain gages, RTDs and other bridge-type sensors can be accommodated. Each DAQ700 channel includes programmable gain from 1 to 1000 with prefilter gains of 1, 10, 100 and 1000 as well as post filter 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. End-to-end channel calibration is accomplished by software configuring the input multiplexer on each channel to receive a reference voltage provided by an internal calibrator.

Options are available with high-precision 120 Ω, 350 Ω and 1000 Ω resistors for on-board bridge completion. Shunt calibration is activated under program control. Shunt calibration resistors are also optionally available to accommodate various bridge requirements. Bridge excitation is programmable, with 0, 2.5, 5 and 10 V selection. The bridge excitation is non-isolated and balanced to ground (e.g., 10 V excitation is supplied to the legs of the bridge as +5 V and -5 V with respect to ground). Each channel contains a regulator for excitation, and individual remote sensing is provided for high excitation stability.

For applications that exhibit high electrical noise, options are available that include a trifilar-wound input transformer. This transformer provides excellent high-frequency common-mode rejection.

Connections are available to provide a full 10-wire bridge hookup. Each of the bridge channels is connected via a 15-contact "D" connector.

\*The CompactFlash™ module option will reduce the signal conditioning channel count to 8 channels.



Item	Specification	
Inputs		
Number of channels	10 (8 when Compact Flash used)	
Filter 3 dB Cutoff Frequency Selection	10, 50, 500 Hz and Bypass	
Excitation	Independent excitation for each channel. Each channel provides $\pm$ 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	2 ppm/ $^{\circ}$ C	
Bridge Completion	10 channels of bridge completion are provided. 1/4-, 1/2- and full-bridge configurations are supported. The completion resistors plug into the PC card. 120, 350 and 1000 ohm resistor kits are available.	
Shunt Calibration	$\pm$ shunt calibration is performed on each channel and is installed on the PC card. Switching is performed under software control.	
Gain Selection	Prefilter gain: 1, 10, 100, 1000; postfilter gain: 1, 2, 5, 10; Maximum overall gain: 1000	
Gain/Offset Accuracy Referred to input (RTI) after automatic calibration at 2 kHz ADC sample rate.	Gain	Accuracy
	1	$\pm$ (800 $\mu$ V + 0.020% of reading)
	2	$\pm$ (500 $\mu$ V + 0.020% of reading)
	5	$\pm$ (200 $\mu$ V + 0.020% of reading)
	10	$\pm$ (100 $\mu$ V + 0.020% of reading)
	20	$\pm$ (50 $\mu$ V + 0.020% of reading)
	50	$\pm$ (25 $\mu$ V + 0.020% of reading)
	100	$\pm$ (20 $\mu$ V + 0.020% of reading)
	200	$\pm$ (20 $\mu$ V + 0.020% of reading)
	500	$\pm$ (20 $\mu$ V + 0.030% of reading)
1000	$\pm$ (20 $\mu$ V + 0.040% of reading)	

#### ORDERING INFORMATION

##### Description

10 channel Data Acquisition System with 16-bit ADC

##### Part Number

DAQ-700

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

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