

MODEL: ReadyDAQ

VALITEC ORDER NUMBER: AD2000

**FEATURE SUMMARY**

New Configuration & Analysis V5.0

ReadyDAQ Data Acquisition Unit V1.0

**Application Software**

- Form-based setup for immediate, out-of-box operation
- Sensor database, unlimited scaling/calibration profiles
- Event-based recording
- High resolution graphic plots with scroll & zoom
- Export data & graphs
- Windows 95, 98, & NT/2000

- 0 to 5 volts
- 2 megabytes memory
- 115.2k baud data download
- 12 channels, 8 analog & 4 digital
- Robust electronics
  - Inputs protected to ±20V
  - wide range power supply input for in/on -vehicle use, up to 35 volts with transient and surge protection to 80 volts

**INPUTS**

Analog: 8 channels + 3 common

Input Voltage Range.....	0 to 5V
Resolution.....	20mV
Absolute Accuracy.....	± 10mV
Input Bias Current.....	400 nA

Discrete/Digital: 4 channels + 1 common (±15 volts maximum, no pull-ups)

"Going High" Threshold.....	3.5 V (Maximum)
"Going Low" Threshold.....	1.0 V (Minimum)
Input Bias Current.....	± 10 µA

Connector Type..... Standard DB 25-pin

**OUTPUTS**

- 5V regulated ±3%, up to 70mA
- 5.000V precision reference +/- 1mA (maximum)
- Protected/filtered power, > 200mA
- Unregulated power from battery or DC supply

**DATA ACQUISITION & STORAGE**

Data, Time/Date Stamps	
Data Storage Capacity.....	1,053,776 Samples (separate from time/date stamps)
Max. Sequences .....	117,086 Time/Date -stamped (triggered or manual)
Recording Duration.....	0.002 seconds to years
Sampling Frequency.....	Fast as 500 Hz, Slow as 99 minutes, all channels
Data Memory Battery Life.....	10 years

**OPERATING**

**Voltage**

Battery (included).....	9 volt alkaline
External Battery or AC/DC Adapter....	7 to 15 volts (using AC/DC adapter input jack, AC/DC wall adapter included)
Universal Input (e.g. vehicle power)...	8 to 35 volts (~45mA @ 8 volts, ~ 8mA @ 35 volts)
	• Reverse voltage protection
	• ± 80V transient protection
	• Protected against load dump surge

Current (see above for current using universal power supply input)

Standby.....	520µA typical
Recording.....	23mA typical (only while sampling)
LED Indication (sampling).....	15mA typical (additional, when LED is on - can be disabled)

Battery Life..... Up to 2 months, 9V Alkaline (Up to 4 months, lithium)

Power Adapter (included)..... 110V-9V 200mA AC/DC adapter

**Temperature**

Operating.....	-10 to 60 degrees C
Storage.....	-20 to +70 degrees C

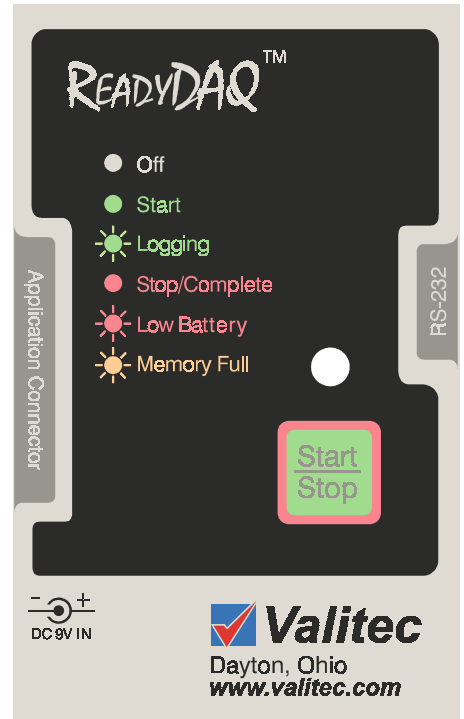
**COMMUNICATION**

RS-232 Interface (configured for use with a "null-modem" cable)

Baud Rate.....	9600 to 115.2k bps
Connection.....	9-pin, D-subminiature, Female
Data Format.....	8 data, no parity, 1 stop bit

**DIMENSIONS:** 5.8" x 3.6" x 1.3" (14.7cm x 9.2cm x 3.3cm)

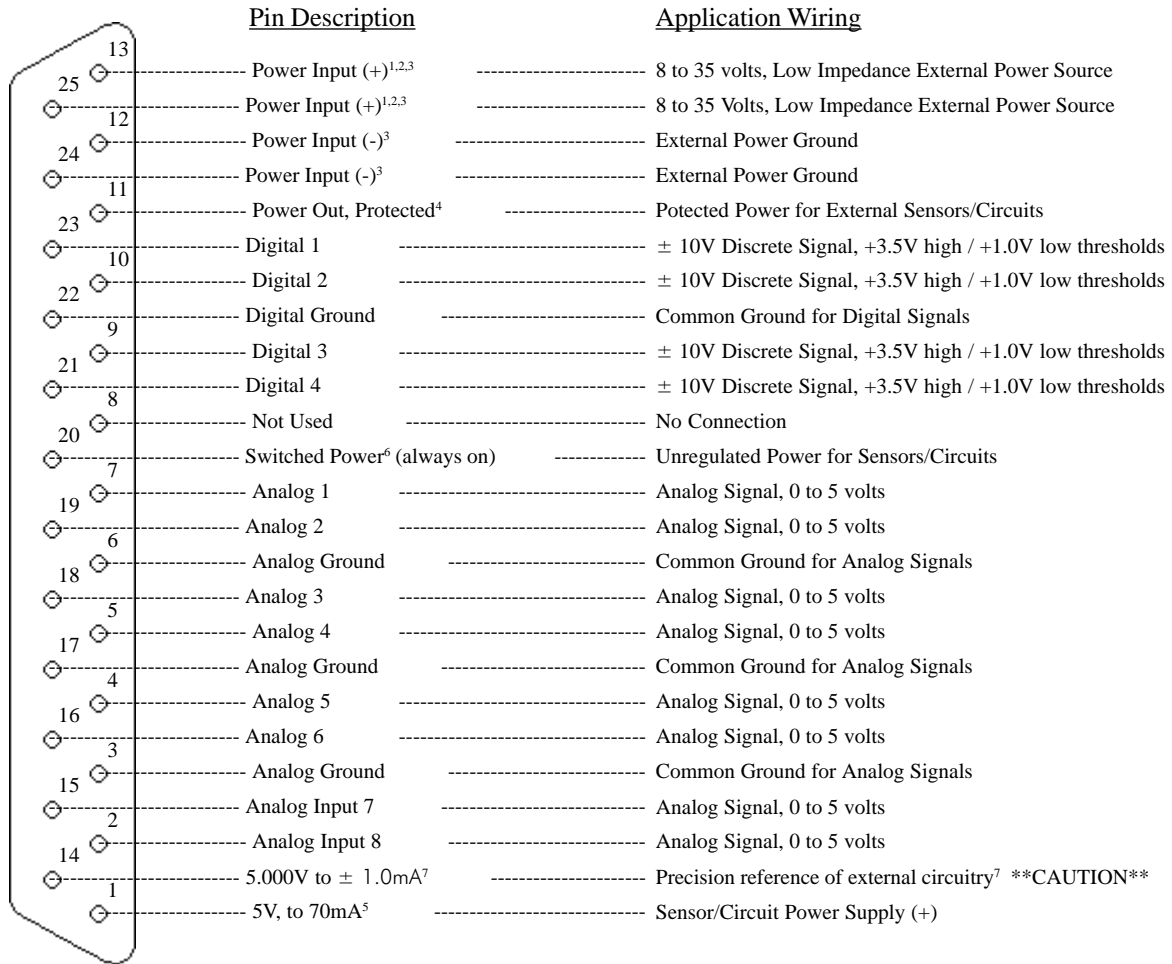
**WEIGHT:** 8 oz. (226 g)



**Available Direct, or through Distribution:**

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<b>Davis Instruments</b>	(800) 368-2516

# ReadyDAQ Connection Diagram



1. Only one power supply is required to power the data acquisition unit. This single power supply may be a 9V alkaline, NiMH, NiCd or Lithium battery installed in the battery compartment, an AC wall adapter or other power source connected to the power jack on the side of the unit (7 to 15 volts, center-negative), or any low-resistance power supply (including batteries) connected to the 25-pin D-subminiature applications connector.

A combination of power supplies may be connected such as to provide backup battery operation. In the standard product, power is first drawn from the on-board battery or the power connected to the jack - inserting a plug in the jack switches the on-board battery out of the circuit. When this primary power source is below approximately 6.8 volts, current is then drawn from the D-sub connector pins 13 and 25. A customization can be made available with reduced input power range at the D-sub connector (higher minimum voltage) for applications requiring low-voltage, low-power back-up battery operation. In this case, the on-board battery can be used for backup power (Example: primary power at the D-sub connector, 10 to 35 volts; 9V alkaline backup battery). Please contact customer service for customization requests.

- Input circuitry provides protection against reverse voltage and spikes to ± 80 volts, and noise and ripple filtering to allow the use of relatively long cables in hostile environments (such as automotive and off-road vehicles and industrial sites).
- A low-resistance source is required for powering the data acquisition unit from these pins. Though the on-board switching power supply is very efficient, it does draw significant current at a nominal pulse frequency of 150kHz. It is recommended that power positive (+) be connected to both pins 13 and 25 and power negative (-) to pins 12 and 24, to reduce resistance losses.
- Power is routed to this pin when an external power source is connected to pins 13 and 25. On-board circuitry filters spikes, noise and ripple from the external power source to protect sensitive sensors/circuits and to allow for a cleaner signal for recording.
- Nominal voltage is 5.00V +/- 3%. For  $I_{LOAD} = 1\text{mA}$  to 70mA, regulation is within -0.045 volts (worst case) of nominal over the entire operating temperature range. For precise measurements, the nominal power supply offset may be calibrated by adjusting the channel scaling profile appropriately.
- Power is routed to this pin from the source providing power to the unit. If the power source is an on-board battery or an external source connected to the DC power jack, the unregulated power at this pin will be approximately 0.3 volts lower than the supply (or battery) level, with current limited only by the power supply capacity (or battery resistance). If the source is an external power supply connected to the D-sub connector pins 13/25 (+) and 12/24 (-) the regulated power at this pin will be approximately 6.1 to 6.5 volts, with a current capacity of 200mA. The two alternate power supplies are "ORed" with the use of Schottky diodes on-board, and so the power at this pin will behave accordingly if two power supplies are connected to the logging unit.
- \*\*Caution\*\***: the precision voltage reference is used on-board for the analog-to-digital conversion of analog input signals. It is made available on the connector for special applications requiring its use. In typical use, no physical connection should be made to this pin except a mating connector terminal (with no wire attached). External circuits or wires can introduce voltage noise or current loading, which will degrade the accuracy of measurements and, therefore, recorded information. Loading this signal (sinking current) more than 1mA will cause errors in measurement. Sourcing more current than 1mA can damage the internal circuitry, requiring factory service. As miswiring can damage the data acquisition unit at this input, a request may be made when placing orders for these systems to have this signal permanently disconnected from the connector. (5.000V reference is only switched on when sampling, with a delay of 0.2 seconds prior to sampling when the sample interval is 0.3 seconds or slower, and a delay of 0.005 seconds when the sample interval is 0.01 seconds or slower)