Quantity: Description:

4 **DATA SYSTEM CONTROLLER** (Data logger)

General Description:

Microprocessor based data acquisition system to acquire, process, store, report, and telemeter data in a multitasking environment. Base unit shall be self-contained with onboard all function keypad and color LCD display. Unit must be fully compatible with ADEM's current polling software, *E-DAS Ambient for Windows version 5.52* produced by:

Environmental Systems Corporation
200 Tech Center Drive
Knoxville, TN 37912
(865) 688-7900

Specifications:

- The data logger must have a minimum of sixteen analog voltage input channels.
  - A. Each analog input must be differential with programmable gain amplifier.
  - B. Analog inputs must have 14 bit resolution or better.
  - C. Analog input front-to-back accuracy must be +/-0.05% of full scale or better at normal room temperature (20 degrees C); +/- 0.10% of full scale or better over the full temperature range.
  - D. Analog inputs must offer, as a minimum, full scale ranges of +/-100mV, +/-1V, +/-5V, and +/-10V.
  - E. Analog input impedance must be greater than 10 megaohms.

- The data logger must have at least sixteen digital output channels to furnish switch (on command of logger software or operator instruction) closures for extra-logger applications.
  - A. Relay output channels shall use latching-coil relays with a rated load of at least 5 amps at 250VAC or 5 amps at 30VDC.

- The data logger must have at least eight digital input channels to sense contact closures (relay) or voltage-to-ground transitions (to 24V).

- The data logger must have at least two RS232 (DB9) serial I/O ports.
  - A. One optically isolated serial I/O port shall be configured as an external modem port.

B. Baud rate must be software selectable from 300 to 115.2k baud.

- Data format shall be 8-bit word, even, odd, or no parity, full duplex; 7-bit word, even, odd, or no parity, full duplex.

- The data logger CPU must be 50 MHz or faster.

- The data logger shall have a scan rate of 32 per second or better.

- The data logger shall have at least 512KB of EPROM for boot program storage.

- The data logger shall have at least 2MB of SRAM for configuration and long-term data storage.

- The data logger shall have at least 32MB of DRAM for operational data and code execution.

- The data logger shall have at least 4MB of Flash memory for program code storage.

- The data logger shall have at least 8KB of EEPROM for system settings storage.

- The data logger shall have at least one internal PCMCIA slot to support an optional extended configuration and long term data storage card.

- The data logger shall have a TCP/IP Ethernet port, 10Mbps or better.

- The data logger shall have capability to direct link (using serial connection) remote user to Thermo Environmental Instruments Corporation's C and/or I-series analyzers using "TEI for Windows" software.

- The data logger shall be capable of digital communications with Thermo Environmental Corporation's C and/or I series gaseous analyzers and R&P TEOM and MetOne BAM continuous particulate monitors to facilitate air quality data downloading as well as instrument diagnostic information.

- The data logger shall have an integral 16 color liquid crystal display.
    A. Display size shall be 80 characters by 25 lines or larger.
    B. Display resolution shall be 640 X 240 or better.

- The data logger shall have an integral multifunction keypad for direct operator access.
    A. Data logger shall also have a port available for connecting a full function external keyboard.

- The data logger shall operate on 115VAC and have a battery backup to retain configurations and stored data for a minimum of 30 day in the event of an AC power failure.

- The data logger shall be capable of operating within a temperature range of 0 and 40 degrees Celsius and humidity range between 0 and 95% (noncondensing).

- The data logger must be 100% compatible with the Alabama Department of Environmental Management's existing central data polling/handling system. This system utilizes the Environmental Systems Corporation E-DAS AMBIENT for WINDOWS™, Version 5.52 software.

Environmental Systems Corporation model 8832 or equivalent.