

ENVIRONMENTAL SYSTEMS CORPORATION

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FAX TO: Steven Schultz

Royal Oak Mines

FROM:

Steve Drevik

DATE:

9/25/98

PROJECT #:

41-8041

FAXED BY:

FAX #: (867) 669-3824

NUMBER OF PAGES FAXED (INCLUDING THIS PAGE):

MESSAGE

Dear Mr. Schultz:

I am sending you information about our Model 8816 Data Logger / CEM Controller and our Digi-Trend for Windows software. Please call if you have any additional questions.

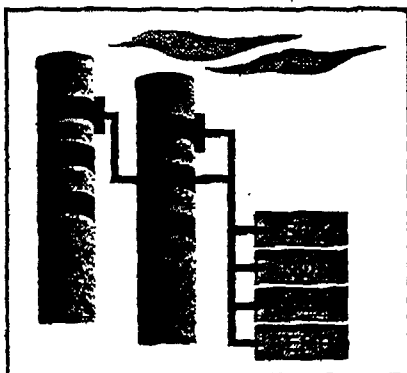
Sincerely,

ENVIRONMENTAL SYSTEMS CORPORATION

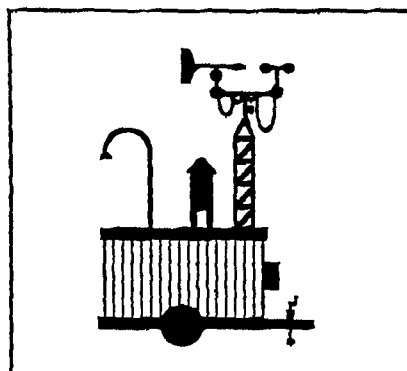
Steve Drevik

Senior Marketing Manager

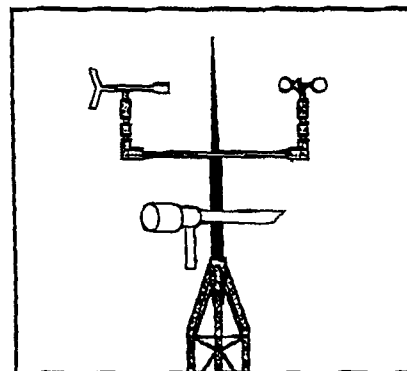
APPLICATIONS:



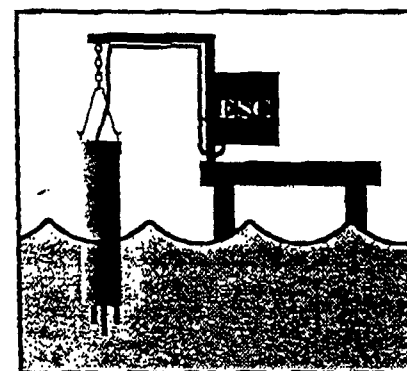
Continuous Emissions Monitoring



Ambient Air Monitoring



Meteorological

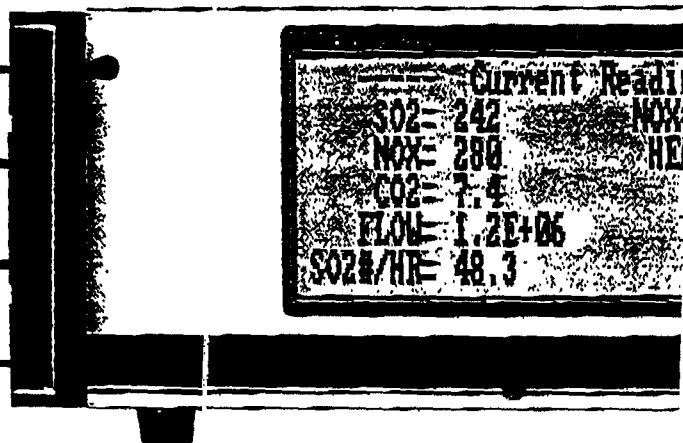


Water Quality

The ESC 8816 Data Logger/Controller is the instrument of choice for many companies today for several reasons. First, it was designed specifically for the task - Continuous Emissions Monitoring (CEM) and air quality meteorological monitoring. The Model 8816 hardware/software capabilities far exceed those of more expensive PLC's or PC platforms and no customer software programming is needed, only menu selections of the many available functions. The Model 8816 interfaces with virtually any analog sensor output (voltage or current) and is readily adapted to the newest generation of serial-based analyzers including stack gas monitors, opacity instruments and gas chromatographs. Representing the culmination of over 15 years of ESC experience in the field of microprocessor-based data acquisition components, the 8816 is also backed by ESC's reputation for uncompromising quality, reliability and customer service.

Model 8816 Software Capabilities

Features needed specifically for CEM and ambient monitoring are built in. For example, the 8816 computes and stores block and rolling averages (up to 3 user-selectable averages per parameter), as well as more complex mathematical functions (lbs/mmBTU, sensor linearizations, standard deviation, etc.) using built-in MATH-PAC equations. It detects and reports alarms based on digital inputs, min/max analog input levels, or logger computed parameters. Tabular reports of



ESC Model 8816 I

FF

- **VERSATILE I/O:** To meet all A ing, up to 96 I/O points per encl
- **INTEGRATED, MENU-DRIVE** accommodates multiple 8816s
- **ULTRA RELIABLE:** Optically
- **HIGH DATA STORAGE CAPA** data points - battery backed
- **POWER AND VERSATILITY:** environmental monitoring requ

on Solution Available For Environmental Applications!

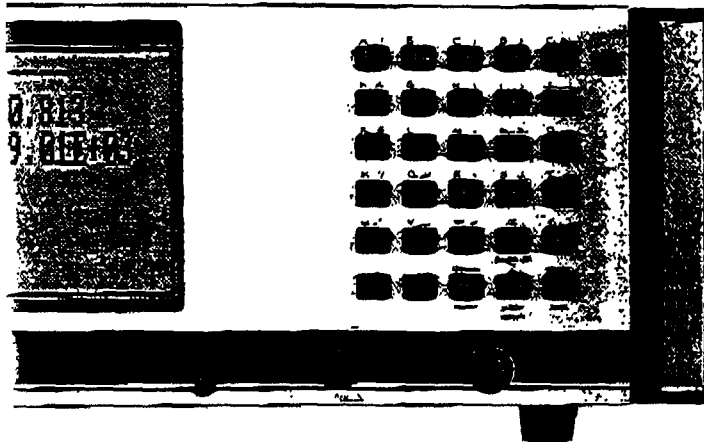
averaged or historical data may be printed or displayed on the front panel 80 character x 25 line LCD display in tabular or graphical form.

Model 8816 Hardware, I/O

The Model 8816 hardware is likewise optimized for CEM and ambient monitoring applications. The flexibility of the 8816 is based on a series of rear-mounted 8-channel I/O cards. Up to 12 I/O cards (96 total points) may be installed in any combination to tailor the Model 8816 for specific applications. These I/O cards accept analyzer analog outputs, digitally control solenoids and multi-point calibrators; supply analog output signals (instantaneous, averaged or computed) to a DCS, strip-charts, or other plant systems. Further, a hardware MODBUS interface permits bi-directional data transfer of plant operational parameters between the Model 8816 and the plant DCS.

The Model 8816 can be used as a stand-alone logger or as a node in a multi-station monitoring system where it can be used with ESC's PC-based data management software packages - E-DAS CEM, E-DAS Ambient- to simplify real-time and historical data management reporting that meets US EPA 40CFR60, 40CFR75, Part 503, etc., as well as most international regulatory requirements for stack emissions and ambient air quality monitoring.

Please contact ESC for more information on the Model 8816 and our PC-based software packages.



Logger/Controller

RES

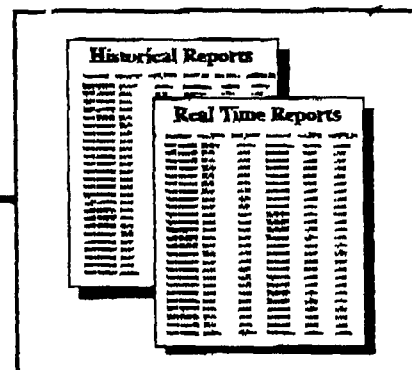
1 Digital I/O needs for CEM and ambient monitor-

WARE: Easy setup, no programming required,

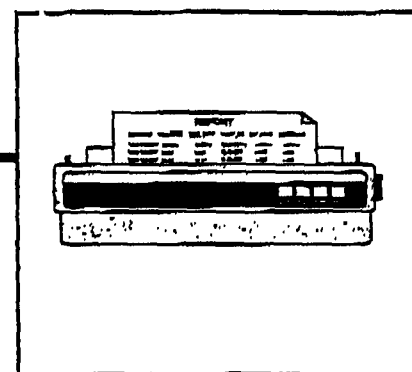
analog inputs, outputs, serial port

more than 40,000 data points, expandable to 200,000

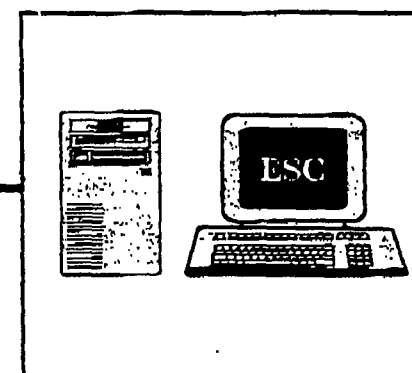
DATA RETRIEVAL TO:



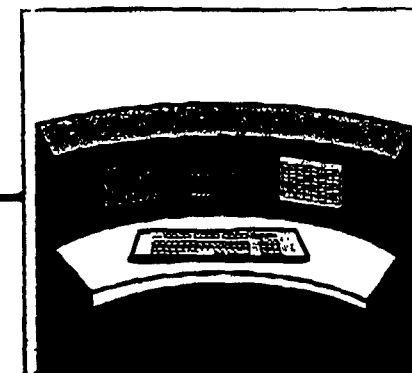
Reports



Printer



Polling Computer



"Digi-Trend" Digital Trending System

The ESC Digital Trending System (*Digi-Trend*) provides a superior digital alternative to conventional strip chart recorders. *Digi-Trend's* software simulates traditional strip chart output and allows the operator to easily scroll through data, forward or backward, or to jump through the data in intervals as large as 24 hours at a time. Data can be graphed in real-time or graphs can be generated from historical strip chart data stored on disk.

The *Digi-Trend* system consists of an ESC Model 8816-DSCR data logger, a standard IBM (or compatible) personal computer with *Digi-Trend* software and optional printer - all at a cost that is comparable to that of good quality, two-channel strip chart recorders. In addition to a competitive initial cost, this "digital" strip chart reduces operating expenses by eliminating costly pens and charts. Electronic storage also means that marking and archiving data are streamlined.

Unmatched data handling reliability is provided by the Model 8816 data logger. Up to two weeks of data, including time tags, are stored in the data logger's internal, battery-backed RAM. There are no moving parts to wear out and no data is lost in the event of a power failure. The basic system supports up to 8 input channels, which can be expanded up to 96 channels to fit your specific needs.

The Windows™ based *Digi-Trend* software is very user-friendly with an easy to use, menu-driven software interface. Data reporting is flexible, intuitive, and can be presented in graphical or tabular formats. A memo capability allows the operator to attach notes to selected data points. The number of memos is limited only by available disk space.

With its high resolution and ability to change ranges, the *Digi-Trend* Digital Trending System offers far greater accuracy, control and convenience than traditional strip charts. The future of strip charts is in digital technology. ESC offers that technology today!

The *Digi-Trend* Digital Trending System offers many advantages over conventional strip chart recorders, including:

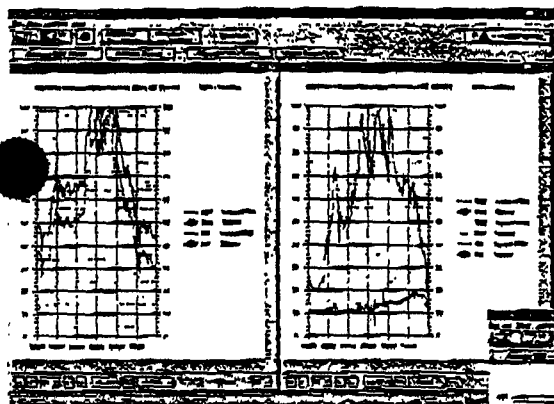
- ◆ **Seamless Integration with Spreadsheets** - Allows operator to put chart data into third-party spreadsheets for additional processing and reporting without stopping "Digi-Trend". Selected data can simply be copied from "Digi-Trend" and pasted into the spreadsheet.
- ◆ **Competitive Cost** - The initial cost is comparable to that of a two-channel strip chart recorder.
- ◆ **Reduced Operating Expenses** - Eliminates replacement parts costs for pens, charts, etc., and streamlines the process of marking and archiving data.
- ◆ **Increased Reliability** - Data, including time tags, is stored in the data logger's internal battery-backed RAM. There are no moving parts to wear out and no data is lost in the event of power failure.
- ◆ **Greater Flexibility** - The basic system supports up to 8 input channels, which can be extended up to 96 channels.
- ◆ **User-Friendly Windows™ Interface** - Combines the power of multi-tasking with the ease of Windows. Allows operator to view one or more charts simultaneously, click the mouse to instantly see a table of the chart data, or generate a printout by simply clicking on the printer icon.
- ◆ **Convenient Memo Capability** - Allows the operator to type in notes and attach them to selected data points.
- ◆ **Logbook** - Operators can keep a log of their activities, with automatic date/time stamping of each entry.
- ◆ **Automatic Alarm Feature** - Flags data during power outages, calibration periods, and high or low set point exceedances, etc.
- ◆ **Simplified Data Viewing** - Easily locate and scroll through any data from one to three parameters at a time and zoom in on points of interest, etc.
- ◆ **Flexible Data Reporting** - Reports can be generated in graphical or tabular formats.
- ◆ **Automatic Functions** - Data retrieval and storage are carried out automatically.
- ◆ **Troubleshooting Capability** - The "Digi-Trend" system can continuously monitor any specific sensor output in real-time.
- ◆ **Greater Security** - Configuration of parameters and displays can be changed only by an authorized user with a valid password.

Digi-Trend

Hardware Features

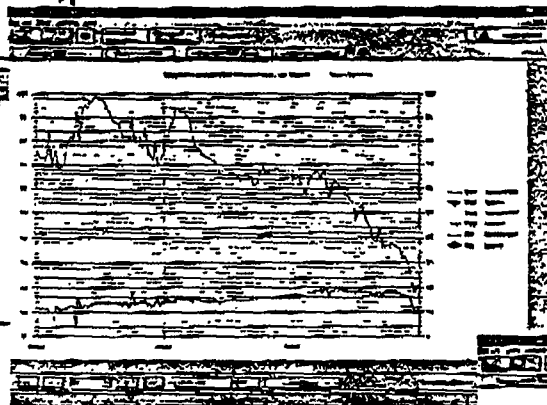
Environmental instrument outputs (either voltage or current) are connected directly to the data logger on-site. The data logger has the following general capabilities:

- Will store multiple average intervals from ten-second to one-day data. Storage time in the hardware can be specified depending on the application.
- Multitasking - Continues data acquisition and storage under all conditions.
- Battery Backup - For stored data and internal clock.
- Menu-driven Interface - Easy setup for PC.
- Configured for environmental monitoring parameters (WS, WD, SO₂, NO_x, Opacity, etc.).
- Accuracy - 0.1% full scale from 0°C - 50°C.

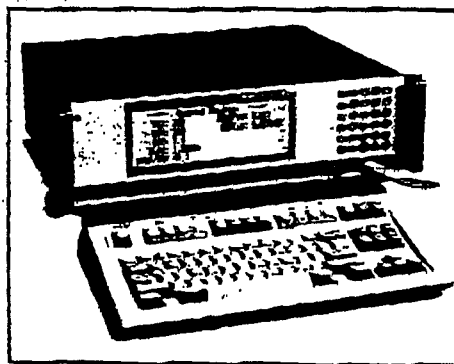


View multiple charts simultaneously

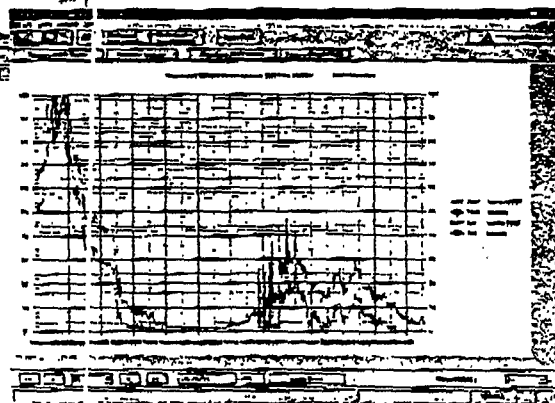
"Digi-Trend," ESC's Digital Trending System, generates graphic charts like these with just a few mouse clicks!



Zoom in for a closer look...



ESC Model 8816 Data Logger



... or zoom out to see an entire day of data at a glance.