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# Model 1535 Monitor/Alarm System

A Thermo Electron business

**Thermo**Forma

- **Enviro-Scan®**  
Microprocessor continuously updates and displays conditions on a 2 line, 40 character LCD readout.
- **Programmable audible/visual alarms** alert you to deviations in equipment status.
- **Built-in dot matrix printer** records date, time, unit number (1-24), channel status, and designator.
- **Printing intervals are programmable** from 1 minute to 24 hours in specified increments.

Thermo Forma Model 1535 interfaces with as many as 24 products (channels) to monitor laboratory equipment conditions up to 2,000 ft. (609.6 m) away. Audible/visual alarms alert you to deviations in equipment status, providing added confidence and peace of mind.



Model 1535 shown with optional converter modules (No. 190456, 190457, 190458, 190459)

## How the Model 1535 System Works

Each channel processes information from a converter module installed on the equipment being monitored. Model 1535 provides power for all modules. The converter modules accept analog signals (0-1V DC), RS-232\*, or have their own RTD temperature probe and convert the input signal to RS-485. The RS-485 signal is transmitted to the Model 1535 through a twisted pair wire. All wiring is daisy chain or Y-tap connected from one unit to the next. One cable containing two twisted pair (four wires) connects the modules to the Model 1535, eliminating the need for separate wires to and from each location.

## Convenient Setup and Continuous Monitoring

- Enviro-Scan's six button touchpad and menu prompting guide you through programming steps.
- Access to the setup function and programming the microprocessor may be protected through the use of a personal code, providing additional security.
- Parameters are retained in non-volatile memory in the event of power outage so you don't have to reprogram settings.
- Standard RS-232 interface provides an easy link to an external printer.

*\*Thermo Forma products only*

# Convenient Setup and Continuous Monitoring (continued)

- Alarm delays can be programmed to avoid “nuisance alarms”. Alarms can be temporarily silenced but will ring back at a time interval you specify.
- An automatic printout is generated when monitored equipment goes in or out of alarm.

## Converter Modules

Converts RTD temperature probe (cryogenic) to RS-485, includes an RTD probe with a 6 ft. (1.8 m) lead and one set of dry contacts, temperature range -200C to -90C (-328F to -130F) . . . . . 190456

Converts RTD temperature probe to RS-485, includes an RTD probe with a 6 ft. (1.8 m) lead and one set of dry contacts, temperature range -90C to 70C (-130F to 158F) . . . . . 190457

Converts RS-232\* to RS-485, monitors one RS-232 port and one set of dry contacts. . . . . 190458

Converts analog to RS-485, monitors four analog signals (0-1V) and two sets of dry contacts . . . . . 190459

## Floppy Disk Drive

Factory installed, optional front loading floppy disk (3.5"/1.44MB) records data in table or line format for easy use with a spreadsheet program, disables RS-232 . . . . . 190477

\*Thermo Forma products only

# Specifications

### Communications—Monitoring

Format . . . . . ASCII using an RS-485 link  
 Capacity . . . . . Up to 6 data inputs from 24 channels, scan rate of 2 channels/sec.  
 Distance . . . . . Up to 2,000 ft. (609.6 m), total wire  
 Memory . . . . . Microprocessor retains all programming in non-volatile memory  
 Display . . . . . 2 line, 40 character alpha-numeric LCD

**Communications—Status** . . . . . Standard RS-232 interface for data storage to printer, standard remote alarm contacts for use with a Sensaphone or alarm monitor

**Alarms** . . . . . Programmable high/low temp, CO<sub>2</sub>, O<sub>2</sub>, RH, contact closure

### Printing

Interval . . . . . 1 min. to 24 hrs. in specified increments  
 Printer . . . . . Dot matrix, red and black permanent ink  
 Recorded data . . . . . Date; time; channel number, status, and designator; alarm conditions

## Sensaphone® Telephone Dialing Systems

Customer installed system interfaces with any standard touch-tone phone system to provide remote monitoring of equipment. Model 1535 forwards an alarm signal to the Sensaphone, which continuously dials four or eight specified telephone numbers in sequence until the call is received and acknowledged (preset number is pressed).



Sensaphone



Accommodates up to four input channels . . . . . 400047  
 Accommodates up to eight input channels . . . . . 400134

## Other Accessories

Uninterruptible power supply (UPS); 120V, 60 Hz; runs approximately one hour with full load . . . . . 270078

Four-wire cable for power and signal transmission, consists of two 18 gauge wires and two 22 gauge wires in one ft. (0.3 m) increments. . . . . 430222

Wall mounting bracket for Model 1535 . . . . . 190470

Remote alarm; audible signal; 115V, 60 Hz. . . . . 400011

Remote alarm; audible/visual signal; 115V, 60 Hz . . 400040

Self-stripping electrical connector . . . . . 210012

Ten rolls of paper for dot matrix printer . . . . . 197019

### Electrical\*\*

Model 1535 . . . . . 90-125V, 50/60 Hz, 0.7 FLA or 180-250V, 50/60 Hz, 0.35 FLA

Modules . . . . . Maximum 26V DC, fused in the Model 1535

Cord Set and Plug . . . . . 8 ft. (2.4 m) with IEC 320 female plug (cabinet interconnect) and country-specified plug

### Exterior Dimensions

Model 1535 . . . . . 14.0"W x 6.0"H x 13.8"F-B (35.6cm x 15.2cm x 35.1cm)

Modules . . . . . 4.1"W x 1.5"H x 6.5"F-B (10.4cm x 3.8cm x 16.5cm)

### Ambient Conditions

Temperature . . . . . 5C to 40C (41F to 104F)

Humidity . . . . . 10% to 80% up to 31C (87.8F), then decreasing linearly to 50% at 40C (104F), non-condensing

### Shipping Weight

Model 1535 . . . . . 29 lbs. (13.2 kg)

Modules . . . . . 4 lbs. (1.8 kg)

Continuing research and improvements may result in specification changes at any time.

\*\*Power/communication cables meet all Class 2 specifications (type NEC CL2) for low voltage direct current and are flame retardant. Maximum data line voltage is 26V, and the current is limited to 1 Amp.





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