

Sierra Monitor Corporation's Model 2450 Environment Controller is an electronic, microprocessor based module which performs all HVAC controls in remote telecommunications structures including controlled environment cabinets and vaults. The Model 2450 is approved by Bellcore under GR-027-CORE and by Underwriters Laboratories.



FEATURES

Application Specific Software

Designed specifically to execute full HVAC control of structures, the Model 2450 assures a precisely controlled and safe environment for telecommunications equipment and personnel working within the structure. Application specific software is used to collect data from various sensor inputs to make continuous, real time control logic and alarm decisions. The results of the logic are used to operate control outputs, send alarms to telephone company systems and display status and alarm conditions on the front panel of the controller.

The speed, reliability and flexibility of the microprocessor eliminate the manual adjustments, opportunities for error and misadjustments and miscellaneous hardware components associated with electromechanical systems.

Environmental Control Plus Gas Detection

Hazardous gas detection and environmental sensors required for most telecommunications applications are included on the 2450. These include temperature, humidity and up to four gas sensors: combustible gas, carbon monoxide, oxygen and hydrogen sulfide.

Environmental controls include heating and air conditioning with lead/lag and demand logic. Automatic selection of occupied or unoccupied mode of operation allows set points to be expanded to facility safety levels during normal operation and contracted to personnel comfort levels when the structure is occupied.

Operator Friendly Control Panel

Structure temperature and relative humidity are displayed on the front panel vacuum fluorescent display. A VIEW mode also enables the user to display complete status, log, set point and configuration data. "Normal", "Comfort", "Purge" and "Inhibit" modes may be manually selected via the front panel keypad. The selected "Run" mode is clearly displayed on front panel LED's along with status of alarms and controlled devices.

Convenient Computer Interface

A serial port for direct connection to a portable PC or hand held terminal enables the user to view data or change set points. The Model 2450 supports any terminal communication program to enable access to status, log and set point menus with over 70 programmable set points. Menus are easy to read and understand and set point changes may be made without the need for specialized operator training or programming skills. Security against unauthorized changes is enforced through a two level access code.

Remote Communication

In addition to a total of 17 alarm relays to interface with the telephone company's alarm system, an on board modem enables the Model 2450 to dial out automatically in the event of any alarm condition. The user may choose two dial-out numbers, either of which may be a PC or pager. Transmitted data may be the structure phone number, structure location tag and the most recent three entries on the alarm log. The on board modem also enables remote interrogation and set point configuration, significantly reducing the need for and cost of on-site troubleshooting and maintenance.

Packaging Flexibility

Used in conjunction with the Model 2450 is the Model 2490 Interface module which houses the power supply and analog and digital input/output terminations. These may be packaged in compact, space-saving enclosures for cabinet installations or in control panels complete with the necessary circuit breakers, control relays and contactors for larger vault applications.



Specifications:

System:

Power	120 VAC, 50/60/Hz -48 VDC (20-66 VDC) 5 Watts nominal
Microprocessor	Motorola 68HC11 with watchdog timer Clock Speed: 8 MHz 2.5 Kbytes EEPROM 64K bytes EPROM Real Time Clock w/ 30 day backup by a super-capacitor
Modem Software	Hayes Compatible 2400 Baud Supports any terminal communication program via modem or direct serial connection. Over 70 programmable set points and two level access code.

Inputs:

<u>Integral</u>	Temperature Humidity Gas Sensors (4) (Terminals on 2490, controls in 2450)
<u>External</u> Digital	Intrusion Door Open AC Failure Smoke Alarm Duct Sail Switch High Water Alarm Pump On Level Switch Pump Off Level Switch Spares (Qty 9)

Environmental:

Temperature	Operating Range 4° to 122°F (-20° to 50°C) Storage Range -40° to 122°F (-40° to 50°C)	Analog
Humidity	0 - 95% RH	

Total Digital Inputs: 17

(Optional sensors available)
External Temperature
Internal Temperature #1
Internal Temperature #2
External Relative Humidity
0-10 VDC Spare
4-20 mADC Spare

Front Panel:

Display	Vacuum fluorescent alphanumeric (2 rows x 20 characters)
Indicators	4 LED's for run modes 10 LED's for alarm status 14 LED's for control status
Keypad	6 keys for run modes (4) and reset (2)

Total Analog Inputs: 6

Outputs:

<u>Controls</u> (typical)	(Terminals on 2490, controls and relays in 2450) SPST (Form A), 0.5 Amp, 60 VDC or 30 VRMS (AC) Normally open contacts Air Conditioner #1 Air Damper Air Conditioner #2 Dehumidifier Blower #1 Sump Pump Blower #2 Main Lights Condenser #1 Emergency Lights Condenser #2 Green Indicator Heater Red Indicator
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Malfunction

Protection:	Automatically turns on blower, air damper, red indicator and malfunction alarm if system malfunctions
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Interface:

Serial	Serial port for direct connection to portable PC or hand held terminal for viewing data or changing set points.
Front Panel	Keypad selection of operating modes: Run, View, Test, Calibrate, Sensor Mapping

Total Control Relays: 14

Sensor Range:

Temperature	0°F to 221°F (-15°C to 105°C)	<u>Alarms</u> (typical)
Humidity	0-100% Relative Humidity	
Combustible Gas	5,000 PPM (10% LEL)	
Carbon Monoxide	100 PPM	
Oxygen	25% by volume	
Hydrogen Sulfide	100 PPM	

(Relays on 2490 or in separate 2495 Alarm Connection Module, controls in 2450)
SPST (Form A), 0.5 Amp, 60 VDC, 30 VRMS(AC)
Pump Run
High Water Hydrogen Sulfide
High Humidity AC Power Fail
High Temperature Intrusion
Vent Sail Malfunction
Smoke Gas Detection Trouble
Combustible Gas Common Motor
Carbon Monoxide Current Alarm
Oxygen Spare (2)

Mechanical:

Enclosure	NEMA 1 with hinged sensor cover panel
Mounting	Mounts on door of control panel
Dimensions	8.75" x 11.25" x 2" (HWD) (22.2 x 28.6 x 5.1 cm)
Weight	3.2 lbs. (1.9 Kg.)



Total Alarm Relays: 17

Sierra Monitor Corporation

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