GREYSTONE ENERGY SYSTEMS INC

Cleanroom Monitor

FEATURES:

- Humidity, Temperature & Pressure
- BACnet®, Modbus or Analog Outputs
- In-room or Remote Monitoring
- Individual alarms for ALL parameters
- Large Easy-To-Read Display

Peace of mind through reliable temperature, humidity & pressure monitoring

GREYSTONE HAS AN **ISO 9001** REGISTERED QUALITY SYSTEM

SPECIFICATIONS:

Temperature Input (CR3A, CR3B models)
Sensor Type ....10KΩ NTC thermistor sensor
Temperature Range..0-50 °C, 32-122 °F
Accuracy..± 0.2 °C (± 0.4 °F) curve matched

Relative Humidity Input (CR3A, CR3B models)
Sensor Type ....Thermoset polymer based capacitive sensor
RH Range..0-100 %RH
Accuracy..± 2 %RH
Hysteresis ....± 1.5 %RH
Stability..± 1.2 %RH typical @ 50 %RH in 5 years

Differential Pressure Input (CR3A, CR3B models)
Sensor Type ....MEMS piezo resistive differential sensor
Pressure Ranges...01 . . . . ± 250 Pa or ± 25 mmWc   02 . . . . ± 500 Pa or ± 50 mmWc
Accuracy..± 0.5 %FS
Stability..± 0.5 %FS max (1 year)
Thermal Effect...< ± 1 %FS, 0 - 70 °C (32 - 158 °F)
Proof Pressure...24.9 kPa (2490 mmWc)
Burst Pressure ....74.7 kPa (7470 mmWc)
Media Compatibility ....Dry air or inert gas

Analog Inputs for Remote Sensors (CR3C version only)
Signal Type...4-20 mA / 0-5 Vdc / 0-10 Vdc selectable
Number of Inputs..3 (Temp, RH, DP)
Input Impedance...250 Ω for 4-20 mA, 10KΩ for voltage
Input Ranges..0-35/0-50 °C, 0-100 %RH, ± 250 Pa/± 500 Pa
Transmitter Power Output ....20 Vdc nominal, 100 mA max

Indication
Temperature Display..3 digit LED as 0.0-50.0 °C or 32.0-122 °F (°C / °F is indicated by an LED)
Relative Humidity Display.....................................3 digit LED as 0.0-99.9 %RH
Differential Pressure Display ....3 1/2 digit LED display as -500-500 Pa or -50.0-50.0 mmWc (Pa / mmWc is indicated by an LED)
Digit Type...7 segment red LED, 0.80" (20.32 mm) high
Alarm Indication ....Low/High alarm red LED for each parameter (T + RH + DP)

User Input
Programming...Menu / Up / Down front panel tactile keys
Alarm Silence ....Silence front panel tactile key

Analog Outputs
Signal Type..4-20 mA (sourcing) and 0-5 Vdc / 0-10 Vdc selectable
Number of Outputs ....3 (Temp, RH, DP)
Output Drive...500 Ω max for 4-20 mA, 10 KΩ minimum for voltage
Output Scales ....0-50 °C, 0-100 %RH, ± 500 Pa

Alarm Outputs
Number of Outputs ....3 (Temp, RH, DP), can assign condition as low/high/both
Output Type ....NO optically isolated solid state FET switch
Contact Rating ....100 mA at 28 Vac / 40 Vdc maximum
Trip Point ....Upper and Lower alarms adjustable over a range
Alarm Delay...0 to 255 seconds (programmable)
Operation..Self-resetting, non-latching
Alarm Buzzer...Internal, operates on any alarm condition
Buzzer Delay...0-255 seconds (programmable)
Operation..Self-resetting, can be silenced via key or disabled remotely

Communication
Hardware ....Isolated 2-wire RS-485 MS/TP
Software ....ModBus RTU or BACnet
Baud Rate..9600, 19200, 38400, 57600, 76800 or 115200
Address Range ....1-255 for ModBus, 0-127 for BACnet

General
Operating Conditions...0 - 50 °C (32 - 122 °F), 0 - 90 %RH non-condensing
Storage Temperature ....-20 - 60 °C (-4 - 140 °F)
Power Supply..24-30 Vdc / 20-26 Vac
Power Consumption ....200 mA max
Wiring Connections...Pluggable screw terminal block (14 to 22 AWG)
Pressure Connections...Port for 1/8" ID tubing
Enclosure..Wall mount enclosure, SS304, suitable for wipe-down
225mm wide x 182.5mm high x 36mm deep. (8.86" x 7.19" x 1.46")
Remote Sensor Plate: ....70mm wide x 115mm high x 45mm deep (2.76" x 4.53" x 1.77")
Weight ....1.3 kg
Certification...CE, RoHS
Country of Origin ....Canada

GREYSTONE ENERGY SYSTEMS, INC.

RoHS COMPLIANT

WHAT IS A CLEANROOM?

A cleanroom is a confined space, such as pharmaceutical labs and hospital isolation units, where provisions are made to reduce the particulate contamination and control environmental parameters like humidity, temperature and pressure within specified limits to achieve a controlled environment for sensitive processes. Generally, the environment is controlled through the controls of an HVAC system, however due to the sensitive nature of clean room activities, facility management teams are seeking a solution that enables them to monitor these spaces not only within the space but also remotely.

DESCRIPTION:

The CR3 Series Cleanroom Monitor, was developed specifically to allow for monitoring of confined spaces with accuracy and reliability. The CR3 allows for either in-room or remote monitoring with three different models; integrated sensors, remote sensors or display only to suit a variety of installation needs. It features a flush fitting stainless-steel front plate that enables the user to wipe-down the unit when necessary.

The CR3 allows for more efficient measurement of three critical parameters; humidity, temperature and pressure, in one flush mount enclosure. It is equipped with sensors with the best in class accuracies to match cleanroom requirements, and can communicate with the building automation system via Modbus, BACnet® or Analog outputs. It is powered by a standard 24VDC or 24 VAC power supply.

The CR3 features a visual display for each parameter with bright, easy-to-read LED's, which enable users to view from long distances. Each parameter includes an alarm function with programmable setpoints for different application types, and provides both high and low alarm visual indication.

The CR3 is CE and RoHS compliant and comes with a 5-year warranty.

CLEANROOM ORDERING INFORMATION

MODEL	Description
CR3	S/S Clean Room Sensor - Temperature, Humidity & Low Pressure

CODE	LCD Display
A	Integrated Front Plate Mounted Sensors
B	Remote S/S Plate Mounted Sensors
C	Remote Sensor Analog Inputs (Sensors Not Included)

CODE	Pressure Range
01	±250 Pa or ±25 mm WC
02	±500 Pa or ±50 mm WC

CODE	Output
ANA	Analog (3 x)
BAC	BACnet® Communications
MOD	Modbus Communications

CR3	A	01	BAC

Greystone Energy Systems Inc. reserves the right to make design modifications without prior notice.

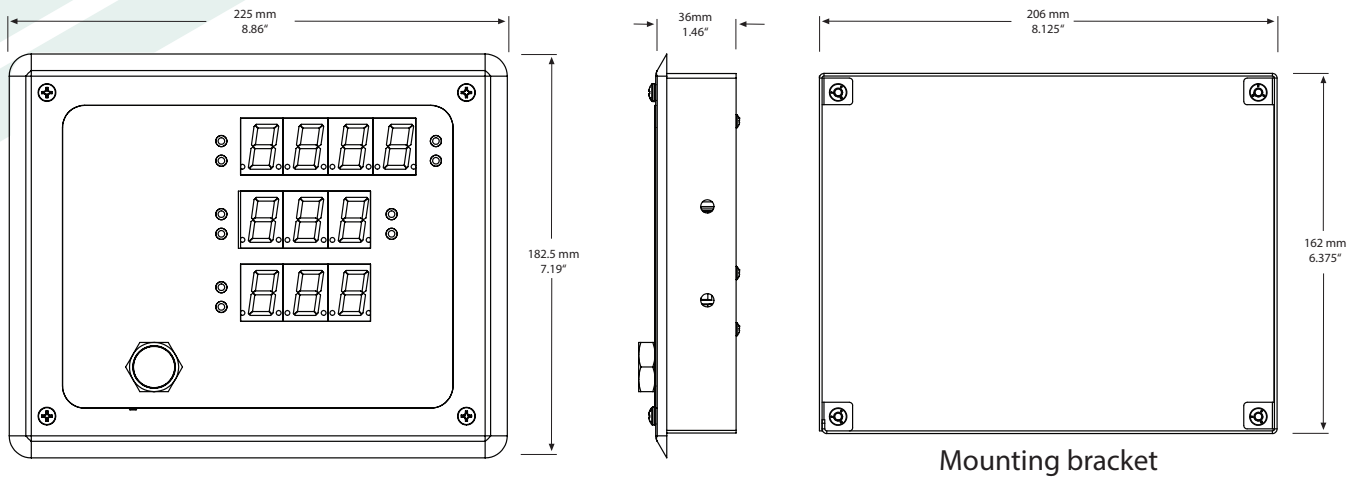GREYSTONE ENERGY SYSTEMS, INC.

RoHS COMPLIANT

BACnet® COMMUNICATION

BACnet® is a data communication protocol for building automation and control networks. The detector communicates on a standard 2-wire RS-485 MS/TP (master-slave/token-passing) network designed to run at speeds from 9600 to 115200 baud over twisted pair wiring.

BACnet® is a registered trademark of ASHRAE. ASHRAE does not endorse, approve or test products for compliance with ASHRAE standards. Compliance of listed products to the requirements of ASHRAE Standard 135 is the responsibility of BACnet International (BI). BTL is a registered trademark of BI.

MODBUS COMMUNICATION

Modbus is a network protocol for industrial manufacturing environments. The detector communicates on a standard Modbus network using RTU (Remote Terminal Unit) mode. The hardware interface is RS-485. Select the network parameters using the Configuration Menu.

DIMENSIONS

Mounting bracket

Remote sensor module for CR3B
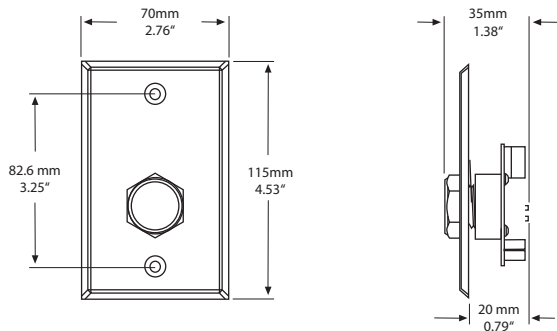
RoHS
COMPLIANT

Greystone Energy Systems Inc. is one of North America's largest ISO registered manufacturers of HVAC/R sensors and transmitters for Building Automation Management Systems. We have conscientiously established a worldwide reputation as an industry leader by maintaining leading-edge design technology, prompt technical support, and a commitment to on-time deliveries. We take pride in our Quality Management System which is ISO 9001 certified, assuring our customers of consistent product reliability.

GREYSTONE HAS AN **ISO 9001** REGISTERED QUALITY SYSTEM