GREYSTONE ENERGY SYSTEMS INC

ROOM TEMPERATURE /RH SENSOR w/ BACnet® or ModBus Communications NTRC Series

The NTRC Series Network features embedded BACnet® and ModBus communication and is available in several configurations for the most efficient monitoring and control solution. The basic unit accurately measures room temperature. Optional features include RH measurement, up/down setpoint control, a local override function, a control relay output and a fan speed switch.

The device connects to an RS-485 MS/TP network to offer a single-point solution for control of indoor air quality and comfort. Features include a back-lit LCD and user menu for easy installation, field-proven sensors and user input controls to add local setpoint and override functions at the same network point.

SPECIFICATION:

Power Supply ..... 20-28 Vac/dc (non-isolated half-wave rectified)
Consumption ..... 35 mA max @ 24Vdc
Protection Circuitry ..... Reverse voltage protected, overvoltage protected
Operation Conditions ..... 0˚-50˚C (32˚-122˚F), 0-95% RH non-condensing
Storage Conditions ..... -20˚-70˚C (-4˚-158˚F),
Sensor Coverage Area ..... 100 m^2 (1000 ft^2) typical
Wiring Connections ..... Screw terminal block (14 to 22 AWG)
External Dimensions ..... 84mm W x 119mm H x 29mm D (3.3" x 4.7" x 1.15")
Enclosure Ratings ..... IP30 (NEMA 1)

Communicatons Interface:
Hardware 2-wire RS-485
Software ..... Native BACnet® or Modbus MS/TP protocol, menu selectable
Baud Rate ..... Locally set from 300 to 76800
MAC Address Range ..... Locally set to 0-127 for BACnet® or 1-255 for Modbus (Factory default is 3), (63 devices max on one daisy chain)

LCD Display:
Resolution ..... 0.5˚ or 1˚C/F selectable, 1% RH
Size ..... 38.1 mm x 16.5 mm (1.5" w x 0.65" h), 3 digit
Backlight ..... Auto-dimming, Enable/disable via jumper
Viewed Values ..... Temperature Only, RH Only or alternating Temperature/RH (RH requires optional RH signal)

Temperature Signal:
Sensing Element ..... 10K thermistor, ±0.2˚C (±0.4˚F)
Range ..... 0˚ to 50˚C (32˚ to 122˚F)

Optional RH Signal:
Sensing Element ..... Thermoset polymer based capacitive
Accuracy ..... ± 2% RH
Range ..... 0 - 100% RH, non-condensing
Resolution ..... 1% RH
Hysteresis ..... ± 3% RH
Response Time ..... 15 seconds typical
Stability ..... ± 1.2% RH typical @ 50% RH in 5 years

Optional Setpoint Control:
User Interface ..... Front panel Up/Down Buttons available via BACnet® or ModBus
Setpoint Mode ..... Temperature (˚C/˚F) or RH, menu selectable. (Factory default is Temperature & ˚C)
Adjustable Setpoint Range ..... 10˚ to 30˚C, 50˚ to 86˚F or 10 to 85% RH, menu selectable (Factory default is 18˚ to 24˚C)
Minimum Span ..... 4˚ C/F or 10% RH
Temp. Setpoint Resolution ..... 0.5˚ or 1˚, menu selectable (Factory default is 1˚)

PART NUMBER SELECTED

PRODUCT SELECTION INFORMATION:

MODEL	Product Description
NTRC	Network Sensor w/ BACnet or Modbus Communications

CODE	LCD Display
N	Concealed
L	Viewable

CODE	Configurations
T	Temperature Only
RH	Temperature & Humidity

CODE	Options (Multiple selections can be made) (Leave blank if no options required)
P	Setpoint Adjustment, 2 button up/down
S	Momentary Override Switch - N.O.
F	Fanspeed Switch, 5 Position
R	Relay Output

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

Optional Override Switch:
User Interface ..... Front panel button available via BACnet® or ModBus
Override Status ..... Via BACnet® or ModBus "OCC" segment lights on LCD

Optional Fanspeed Switch:
User Interface ..... Side panel, 5 position available via BACnet® or ModBus
Indication ..... Off, Auto, Low, Mid, high switch position indicators

Optional Relay Output:
Contact Ratings ..... Form A contact (N.O.), 2 Amps @ 140 Vac, 2 Amps @ 30 Vdc
Relay Activation ..... Via BACnet® or ModBus

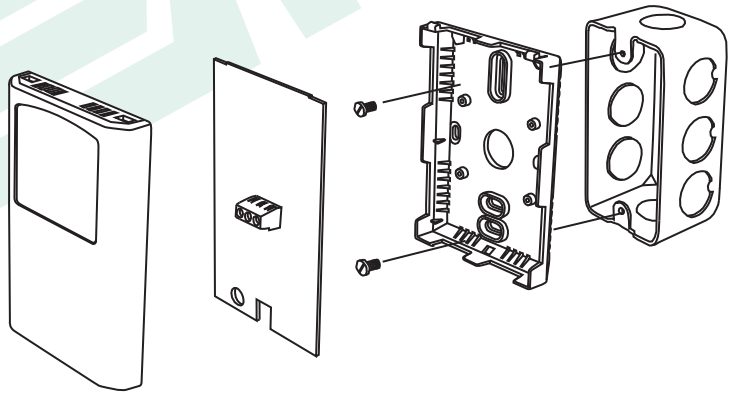
RoHS COMPLIANT

TYPICAL INSTALLATION:

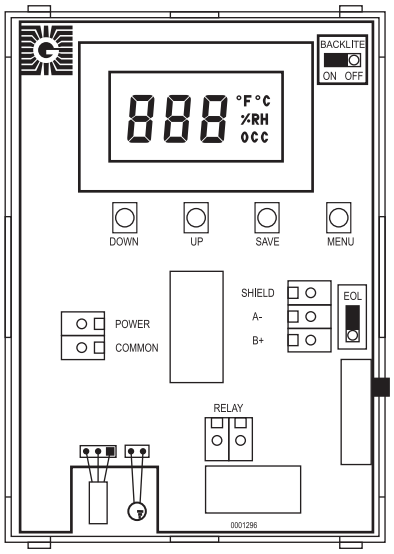
For complete installation and wiring details, please refer to the product installation instructions.

The NTRC series can be mounted directly to a single gang electrical box or directly to a wall. The backplate includes many mounting hole configurations to allow for mounting on a variety of electrical boxes.

The NTRC has a screw block terminal provided for connection to the Building Automation System.



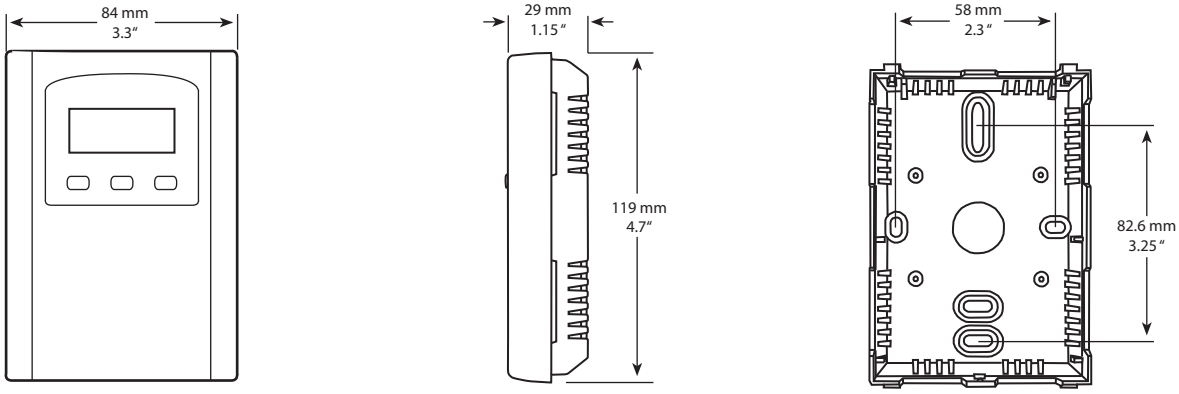
PCB/WIRING INFORMATION



Terminal	Function
POWER	From +20-28 Vac/dc of controller or power supply
COMMON	To GND or COMMON of controller
B +	To + of communications bus
A -	To - of communications bus
SHIELD	To communications bus shield
RELAY	To digital input of controller

* Some models do not have all these features

DIMENSIONS:



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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