



# 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.
Sensor Coverage Area.....	100 m <sup>2</sup> (1000 ft <sup>2</sup> ) 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)

### Communications 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:

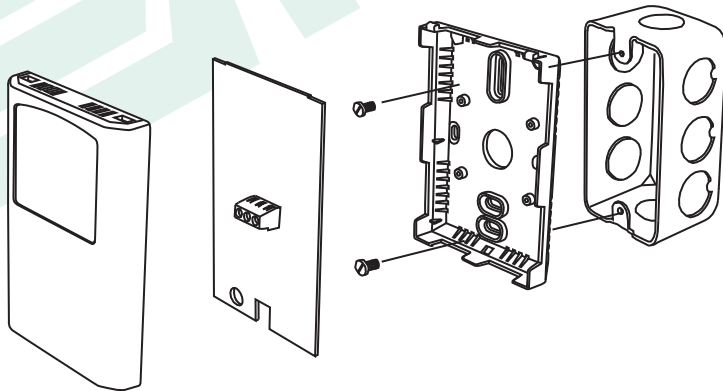
Contact Ratings.....	Form A contact (N.O.), 2 Amps @ 140 Vac, 2 Amps @ 30 Vdc
Relay Activation.....	Via BACnet® or ModBus

## TYPICAL INSTALLATION:

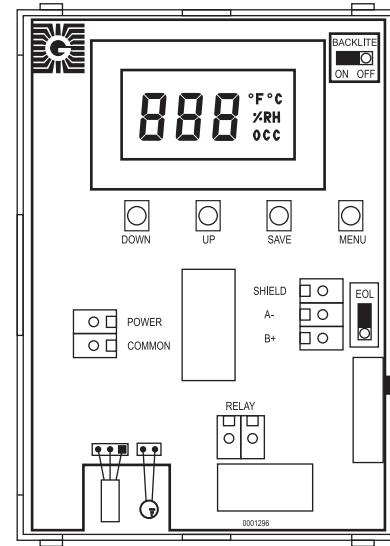
For complete installation and wiring details, please refer to the product installation instructions.

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.



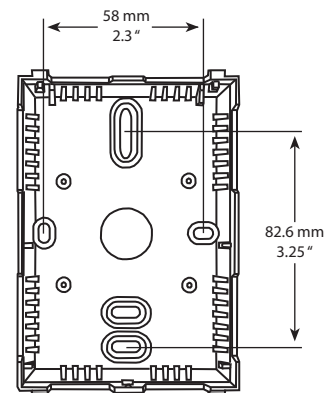
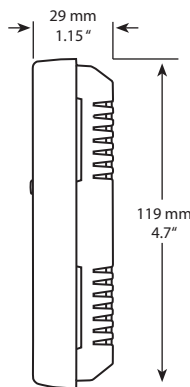
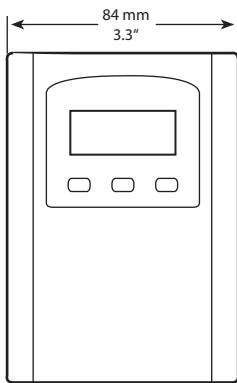
## PCB/WIRING INFORMATION



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