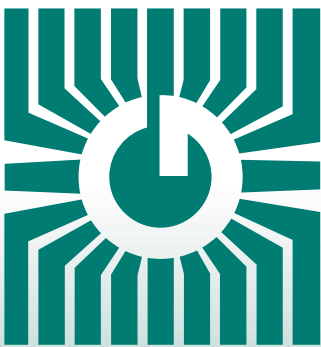


# GREYSTONE ENERGY SYSTEMS INC



## ROOM TEMPERATURE /HUMIDITY SENSOR w/ BACnet® or Modbus Communication NTRC Series



### Precision temperature/humidity control/sensing

#### FEATURES:

- BACnet® or Modbus communication
- LCD display
- Temperature and RH monitoring
- Optional override w/ LCD indication
- Optional setpoint adjustment
- Optional fan speed switch
- Optional on-board relay

*Peace of mind  
through reliable  
temperature/humidity  
monitoring*

GREYSTONE HAS AN ISO 9001 REGISTERED QUALITY SYSTEM

The NTRC Series Network Sensor 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 fan speed switch.

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

## SPECIFICATIONS:

### General Specifications:

Power Supply .....	20-28 Vac/dc (non-isolated half-wave rectified)
Consumption .....	35 mA max @ 24Vdc
Protection Circuitry.....	Reverse voltage and over voltage protected
Operation Conditions .....	0-50 °C (32 -122 °F), 0-95% RH, non-condensing
Wiring Connections.....	Screw terminal block (14 to 22 AWG)
External Dimensions .....	84 W x 119 H x 29 D mm (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
Network 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)

### Optional LCD Display:

Resolution .....	0.5° or 1°C/F (selectable), 1% RH
Size.....	38.1 mm W x 16.5 mm H (1.5" x 0.65"), 3 digit
Backlight.....	Auto-dimming, enable/disable via jumper
Displayed Values.....	Temperature Only, RH Only or Alternating Temperature/RH ( .....RH requires optional RH Signal)

### Temperature:

Sensing Element .....	10K thermistor, ±0.2°C (±0.4°F)
Range .....	0 - 35 °C (32 - 95 °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 Override Switch:

User Interface.....	Front panel push-button available via BACnet® or Modbus
Override Status .....	Via BACnet® or Modbus. "OCC" segment lights on LCD

### Optional Setpoint Control:

User Interface.....	Front panel push-buttons available via BACnet® or Modbus
Setpoint Mode.....	Temperature (°C/°F) or RH, menu selectable (Factory default is Temperature & ° C)
Adjustable Setpoint Range.....	10 - 30 °C, 50 - 86 °F or 10 - 80% RH, menu selectable (Factory default is 18 to 24 °C)
Minimum Span.....	4°C/°F or 10% RH
Temperature Setpoint Resolution .....	0.5° or 1°, menu selectable (Factory default is 1°)

### Optional Fanspeed Switch:

User Interface .....	Side panel, 5 position switch available via BACnet® or Modbus
Indication .....	Off, Auto, Low, Mid, High switch position

### Optional Relay Output:

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

## BACnet® COMMUNICATION

BACnet® is a data communication protocol for building automation and control networks. The detectors communicate on a standard 2-wire RS-485 MS/TP network designed to run at speeds from 9600 to 76800 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 BACnet® 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 the RTU (Remote Terminal Unit) transmission mode. The hardware interface is RS-485. Select the parameters using the Configuration Menu.

## PRODUCT ORDERING INFORMATION:

MODEL	Description
<b>NTRC</b>	Room Network Sensor

CODE	LCD Display
<b>N</b>	Concealed
<b>L</b>	Viewable

CODE	Configurations
<b>T</b>	Temperature Only
<b>RH</b>	Temperature & Humidity

CODE	Setpoint Adjustment
-	No Setpoint Adjustment (Leave blank)
<b>P</b>	Setpoint Adjustment

CODE	Momentary Override
-	No Override (Leave blank)
<b>S</b>	Override Switch

CODE	Fan Speed Switch
-	No Fan Speed Switch (Leave blank)
<b>F</b>	5 Position Fan Speed Switch

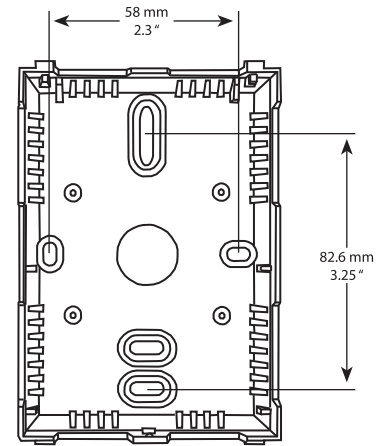
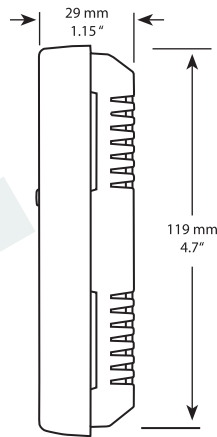
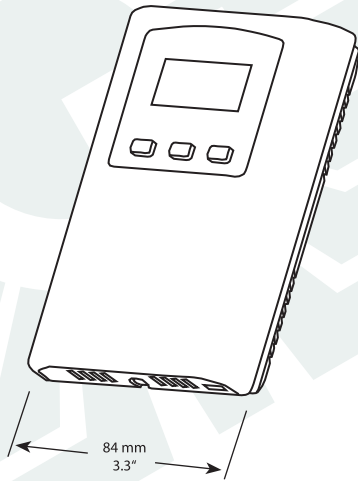
CODE	Relay Output
-	No Relay (Leave blank)
<b>R</b>	Relay

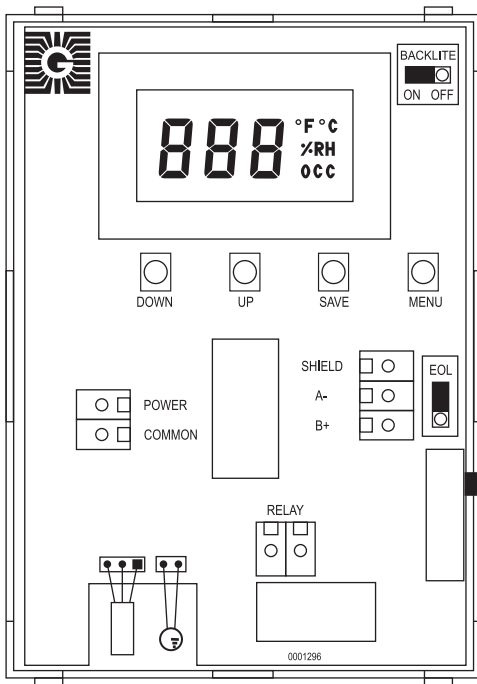
<b>NTRC</b>	<b>L</b>	<b>RH</b>	<b>P</b>	<b>S</b>	-	-
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Greystone Energy Systems Inc. reserves the right to make design modifications without prior notice.

## DIMENSIONS



## PCB/WIRING INFORMATION



### Terminal

POWER  
COMMON  
B +  
A -  
SHIELD  
RELAY

### Function

From +20-28 Vac/dc of controller or power supply  
To GND or COMMON of controller  
To + of communications bus  
To - of communications bus  
To communications bus shield  
To digital input of controller

Some models do not have all of these features