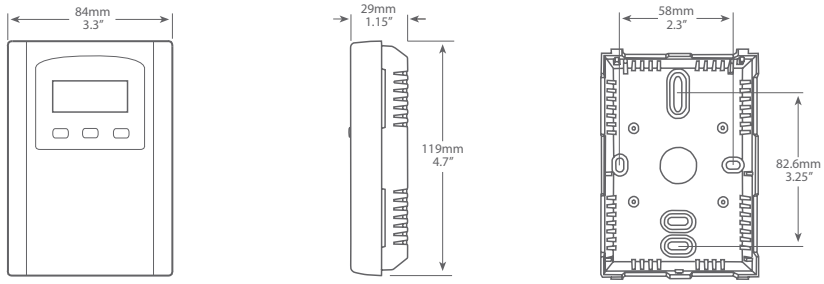
GREYSTONE
ENERGY SYSTEMS INC

ROOM NETWORK TEMPERATURE AND HUMIDITY SENSOR



NTRC SERIES

PRODUCT DESCRIPTION

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 digital input.

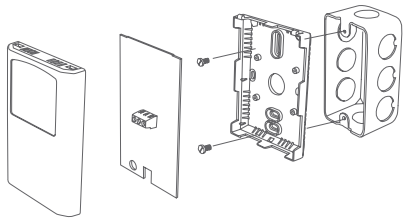
The device connects to an RS-485 MS/TP network to offer a single-point solution for control of indoor air quality and comfort. Features include a back-lit LCD and user menu for easy installation, field-proven sensors and user input controls to add local setpoint, override functions and a digital input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

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.



SPECIFICATIONS

POWER SUPPLY	20-28 Vac/dc (non-isolated half-wave rectified)
CONSUMPTION	35 mA max @ 24 Vdc
PROTECTION CIRCUITRY	Reverse voltage protected, overvoltage protected
OPERATING CONDITIONS	0 to 55°C (32 to 131°F), 0 to 95 %RH non-condensing
STORAGE CONDITIONS	-20 to 70°C (-4 to 158°F)
SENSOR COVERAGE AREA	100 m^2 (1000 ft^2) typical
ENCLOSURE	White ABS, IP30 (NEMA 1)
ENCLOSURE DIMENSIONS	84mm W x 119mm H x 29mm D (3.3" x 4.7" x 1.15")
WIRING CONNECTIONS	Screw terminal block (14 to 22 AWG)
COUNTRY OF ORIGIN	Canada
COMMUNICATION INTERFACE	**Hardware:** 2 wire RS-485 **Software:** Native BACnet® or Modbus MS/TP protocol, menu selectable **Baud Rate:** Locally set from 9600 to 115200 Hz **MAC Address Range:** *Modbus: 1-255 (factory default is 3)* *BACnet®: 0-127 (factory default is 3)* *Locally Set (127 devices max on one daisy chain)*
LCD DISPLAY	**Resolution:** 0.1, 0.5 or 1°C/°F selectable, 1 %RH **Size:** 38.1mm W x 16.5mm H (1.5" x 0.65"), 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:** Bipolar transistor sensor chip **Range:** 0 to 50°C (32 to 122°F) **Accuracy:** ± 0.2°C, ± 0.4°F (Typical)
OPTIONAL RH SIGNAL	**Sensor:** Thermoset polymer-based capacitance sensor chip **Accuracy:** 2 %RH **Range:** 0 to 100 %RH, non- condensing **Hysteresis:** ±0.8 %RH @ 25°C (77°F) **Response Time:** 8 seconds typical **Stability:** <0.25 %RH/year
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 Temp & °C) **Adjustable Setpoint Range:** 10 to 50°C, 50 to 122°F or 10 to 85 %RH, menu selectable (factory default is 18 to 24°C) **Minimum Span:** 4°C/°F for 10 %RH **Temperature Setpoint Resolution:** 0.5° or 1°, menu selectable (factory default is 1°)
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 RELAY OUTPUT	**Contact Ratings:** Form A contact (N.O.), 2 Amps @ 140 Vac, 2 Amps @ 30 Vdc **Relay Activation:** Via BACnet® or Modbus
OPTIONAL DIGITAL INPUT	**Input Type:** Dry-contact only (relay contact), short to COMMON to activate

GREYSTONE
ENERGY SYSTEMS INC

BACnet® COMMUNICATION

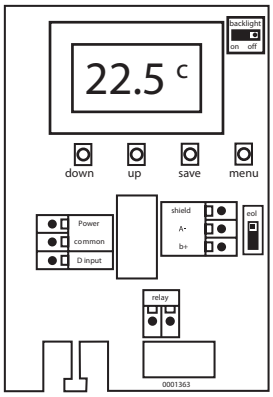
BACnet® is a data communication protocol for building automation and control networks. The sensor communicates on a standard 2-wire RS-485 MS/TP network designed to run at speeds from 9600 to 115200 baud over twisted pair wiring.

BACnet® is a registered trademark of ASHRAE. ASHRAE does not endorse, approve or test products for compliance with ASHRAE standards. Compliance of 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 sensor communicates on a standard Modbus network using the RTU (Remote Terminal Unit) transmission mode. The hardware interface is RS-485.

WIRING INFORMATION



Backlight Jumper

End-Of-Line Jumper

Optional Relay

TERMINAL	FUNCTION
PWR	24 Vdc
COM	Common
SHLD	Shield
B+	B+
A-	A-
N.O.	Digital Output
Relay	Digital Output

ORDERING

			PART NUMBER
PRODUCT	**NTRC**	Room Network Sensor with BACnet® or Modbus Communications	**NTRC**
LCD DISPLAY	**N** **L**	Concealed Viewable	
CONFIGURATIONS	**T** **RH**	Temperature Only Temperature & Humidity	
OPTIONS (MULTIPLE SELECTIONS CAN BE MADE, LEAVE BLANK IF NO OPTIONS REQUIRED)	**P** **S** **R** **D**	Setpoint adjustment, 2 button up/down Momentary override switch - N.O. Relay output Digital input	

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

RoHS COMPLIANT

Greystone Energy Systems, Inc.
150 English Drive, Moncton,
New Brunswick, Canada E1E 4G7

Ph: +1 (506) 853-3057 Fax: +1 (506) 853-6014
North America: 1-800-561-5611
E-mail: mail@greystoneenergy.com

Copyright © Greystone Energy Systems Inc. All Rights Reserved