GREYSTONE
ENERGY SYSTEMS INC

ROOM NETWORK TEMPERATURE AND HUMIDITY SENSOR

84mm 3.3"
29mm 1.15"
58mm 2.3"
119mm 4.7"
82.6mm 3.25"
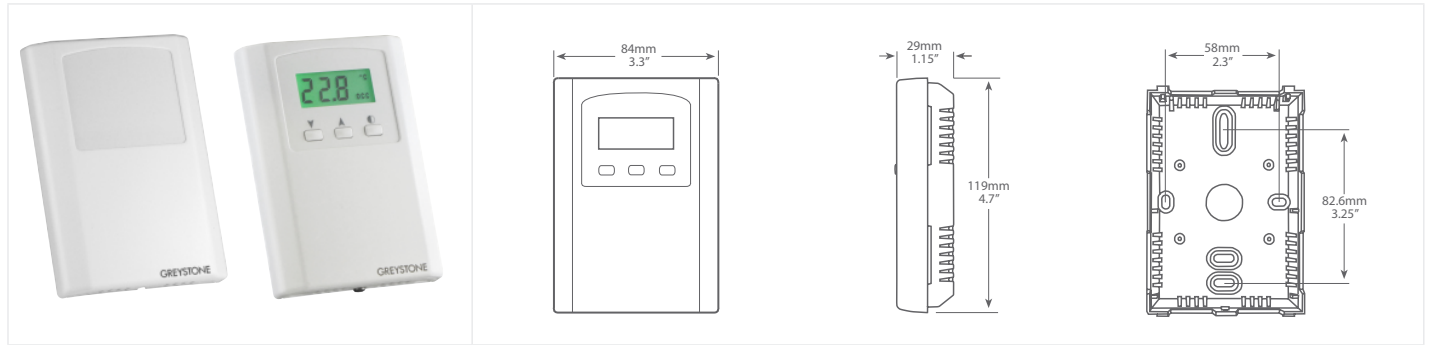
NTRC SERIES

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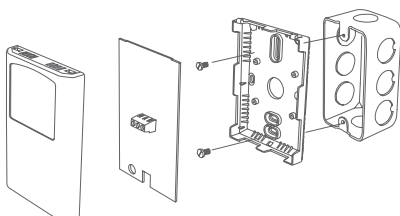
The device connects to an RS-485 MS/TP network to offer a single-point solution for control of indoor air quality and comfort. Features include a back-lit LCD and user menu for easy installation, field-proven sensors and user input controls to add local setpoint, override functions and a digital input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

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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), 0-95 %RH non-condensing
STORAGE CONDITIONS	-20 to 70°C (-4 to 158°F)
SENSOR COVERAGE AREA	100 m² (1000 ft²) 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 300 to 76800 **MAC Address Range:** *BACnet®* - 0-127 *Modbus* - 1-255 (Factory default is 2) (63 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:** 10,000Ω thermistor, ±0.2°C (0.4°F) **Range:** 0 to 50°C (32 to 122°F)
OPTIONAL RH SIGNAL	**Sensing Element:** Thermistor polymer based capacitive **Accuracy:** ±2 %RH **Range:** 0 to 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 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 FANSPEED SWITCH	**User Interface:** Side panel, 5 position available via BACnet® or Modbus **Indication:** Off, Auto, Low, Mid, High switch position indication
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

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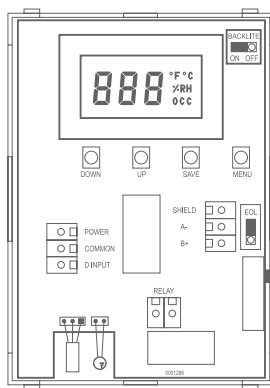
TERMINAL	FUNCTION
PWR	24 Vdc
COM	Common
SHLD	Shield
B+	B+
A-	A-
N.O.	Digital Output
Relay	Digital Output

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 F R D	Setpoint adjustment, 2 button up/down Momentary override switch - N.O. Fanspeed switch, 5 position Relay output Digital input	

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