HW PROTOCOL SERIES
Modbus and BACnet Protocol Communication

HWLP

HW Protocol Series Deluxe humidity transmitters provide an ideal solution for measuring relative humidity in all conditions. All devices are equipped with a thin-film capacitive sensor that is easily replaceable in the field. These sensors are calibrated to NIST standards, with certificates available.

The HWLP features embedded BACnet and Modbus communication protocols with humidity and temperature sensing capability. The setpoint slider and pushbutton override options offer additional local control.

The wall-mounted HWLP features a low-profile housing with an LCD display for local indication. All models come with a standard five-year warranty. †

BACnet & Modbus

Embedded BACnet and Modbus communication protocols… compatible with many existing control systems

RH & temperature

Humidity and temperature sensors in one device at one address… provides more information and maximizes system capacity

Sensor element

Thin-film capacitive sensor element recovers from 100% saturation

Local control

Pushbutton override capability to the building control system… local control in individual rooms to maximize comfort

Self-calibration algorithm

Innovative self-calibration algorithm…maximizes performance. Field calibratable.

Multiple baud rates

Configurable to many baud rates

APPLICATIONS
- Office buildings, schools, or other systems utilizing BACnet or Modbus protocol

SPECIFICATIONS

INPUT POWER

Voltage Model	Class 2; 12 to 30 Vdc, 24 Vac; 100 mA max.
Housing	
Material	High-impact ABS plastic , UL 94 VO

COMMUNICATION

Protocol	BACnet or Modbus (selectable)
Connection	2-wire RS-485
Data Rate	9600, 19200, 38400, 57600 (Modbus), bps (selectable); 9600, 19200, 38400, 76800 (BACnet), bps (selectable)
Parity	None/Odd/Even (selectable-Modbus); None (BACnet)
Address Range	1 to 127

HUMIDITY

HS Element*	Replaceable digitally profiled thin-film capacitive; (32-bit mathematics); U.S. Patent 5,844,138
Accuracy**	±2% from 10 to 80% RH; NIST traceable multi-point calibration
Reset Rate***	24 hours
Stability	±1% @20°C (68°F) annually for two years
Hysteresis	1.5% typical
Operating Humidity Range	0 to 100% RH non-condensing
Operating Temp. Range	10 to 35 °C (50 to 95 °F)

Temperature Coefficient	±0.1% RH/°C above or below 25 °C (typical)

OPERATING ENVIRONMENT

Operating Temp. Range	10 to 35 °C (50 to 95 °F)

TEMPERATURE TRANSMITTER OPTION

Sensor Type	Solid-state, integrated circuit
Accuracy	±0.5 °C (±0.9 °F) typical
Resolution	0.1 °C (0.2 °F)
Range	10 to 35 °C (50 to 95 °F)
Setpoint Slider Resolution Option	1% full scale
Override Button Option	Remotely readable and resetable

WARRANTY

Limited Warranty	5 years †

AGENCY APPROVALS

CE ††

† The HS sensing element has a 1-year warranty. The element is not a part of the 5-year product warranty.
†† The CE mark indicates RoHS2 compliance. Please refer to the CE Declaration of Conformity for additional details.
*The HS sensing element has a 1-year warranty. The element is not a part of the 5-year product warranty.
** Specified accuracy with 24 Vdc supplied power with rising humidity.
*** Reset rate is the time required to recover to 50% RH after exposure to 90% RH for 24 hours.
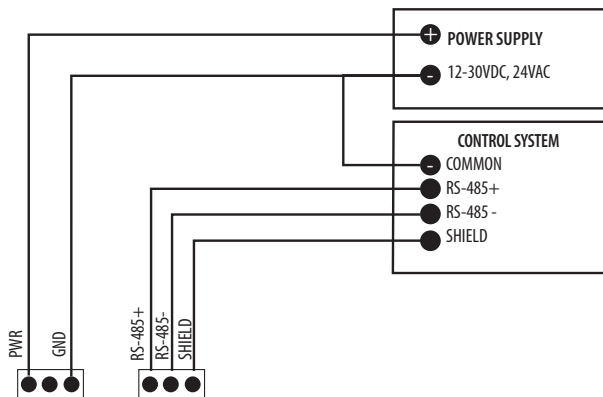Note: RTD/Thermistors in wall packages are not compensated for internal heating of product.
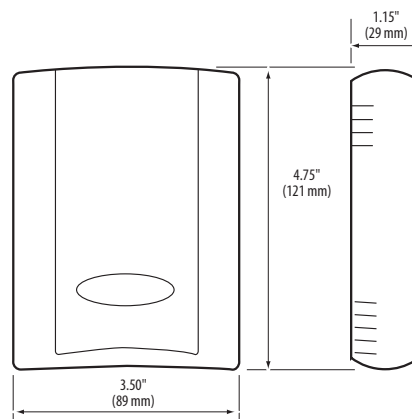EMC Conformance: Low voltage directive 2014/35/EU & EMC directive 2014/30/EU.
EMC Special Note: Connect this product to a DC distribution network or an AC/DC power adaptor with proper surge protection (EN 61000-6-1 specification requirements)

WIRING DIAGRAM

DIMENSIONAL DRAWING

BACNET DESCRIPTIONS

Standard Object Types Supported

OBJECT TYPE	SUPPORTED OPTIONAL PROPERTIES	WRITABLE PROPERTIES
Analog Input -- AI	Description,† Reliability	
Analog Value -- AV	Description†	Present_Value
Binary Value – BV	Description†	Present_Value
Device -- DEV	Description,† Location	APDU_Timeout, Description, Location, Max_Master, Object_Identifier, Object_Name

† Description is the same as the Object_Identifier. Reliability is "No Sensor" if no sensor is installed (applies to humidity, temperature, and slider).

Device Objects Table

OBJECT NAME	TYPE & INSTANCE	OBJECT PROPERTY	DESCRIPTION
HWxPxxx	Device 133nnn	Object_Identifier (R/W)	Unique value where nnn initially is MS/TP
		Object_Name (R/W)	Unique name, initially a combination of model and serial number. Maximum length is 64 characters
		APDU_Timeout	Default is 3000, maximum value is 60000
		Max_Master	Default is 127
		Description	Maximum length is 64 characters
		Location	Maximum length is 64 characters

Objects Table

OBJECT NAME	TYPE & INSTANCE	DESCRIPTION OF PRESENT_VALUE PROPERTY
Humidity	AI 1	Humidity in percent
Temperature	AI 2	Temperature in Fahrenheit or Celsius
Slider	AI 3	Slider position in percent.
Device_Instance	AV 1	Alternative way to change object_identifier property of device. A negative value will restore the default device instance (133nnn). Fractional values are truncated.
Temp_Offset	AV 2	Temperature offset. Value rounded to nearest tenth of a degree. Units are current units. Initial value is 0.
RH_Offset	AV 3	Relative Humidity offset. Value rounded to the nearest tenth of a percent. Initial value is zero.
Fahrenheit	BV 1	1 if temperature in Fahrenheit, 0 if in Celsius. Initially 1.
Override	BV 2	1 if override button pressed. Store 0 to reset. Initially 0. Volatile.

ORDERING INFORMATION

Local Display
HW □
L = LCD
X = No Display

Protocol
P □
= Protocol

RH Option
□
1 = RH 1% NIST
2 = RH 2% NIST
H = RH 2%

Temp. Option
□
X = No temp.
T = Temp. transmitter

Temp. Cal. Cert.
□
X = None
1 = 1 pt. cal. cert.‡
2 = 2 pt. cal. cert.‡

Option
□
Blank = None
1 = Pushbutton override
2 = Set point slider
3 = Pushbutton override + set point slider

Housing
□
Blank = Cloud white
B = Black

Example:
HW L P H T X 3

‡ Only available if temperature option is selected.