



inSIGHTTM
Data Monitoring

Environmental Monitor HBLE306H000 Installation Manual

Version 1.0



Temperature



Humidity

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OVERVIEW

The Hubbell Environmental Monitor (HBLE306H000) provides an easy to-implement wireless environmental monitoring solution. Each HBLE306H000 monitor will accommodate six external temperature probes.

Environmental Monitor

Model	Relative Humidity	Temperature Probe or Dry Contact
HBLE306H000	Internal to device	Up to six inputs and one internal temperature monitor ¹

¹**INTERNAL TEMPERATURE PROBE:** The HBLE306H000 module includes an internal temperature sensor located inside the monitor. This is not intended to provide an accurate ambient temperature but rather a reference temperature that will be slightly higher than the ambient temperature.

LCD DISPLAY

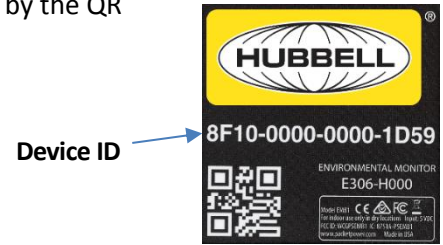
The HBLE306H000 monitor includes a local LCD display that will indicate the device status, and input measurements in a rotation indicated in the chart below:

Display	Description	Display
COM:	Communications status (indicates if the device is properly communication with the gateway)	[NONE] / [OK]
0:	Internal temperature sensor	[XX.X C]... [XX.X F]
1-6:	Probe 1-6 status; either temperature measurement or dry contact status when used as dry contact input	[XX.X C]... [XX.X F] OR [OPEN] OR [CLOSED]
RH:	Relative humidity (only on monitors equipped with relative humidity)	[XX %]



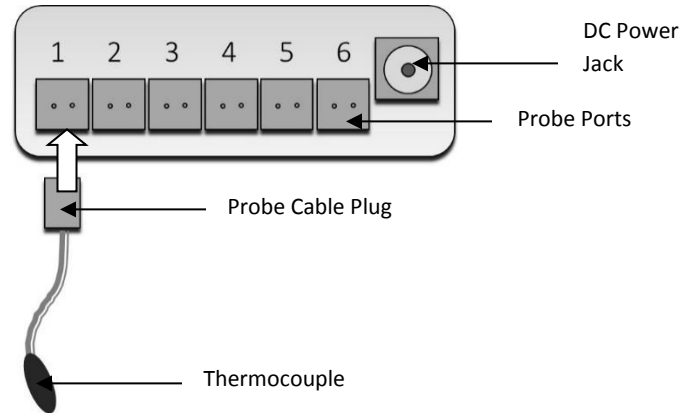
HBLE306H000 NODE ID

Each monitoring node is equipped with a device ID code marked on the top of the monitor. This device ID code will also be transmitted electronically and can be obtained by the QR code printed on the device label.



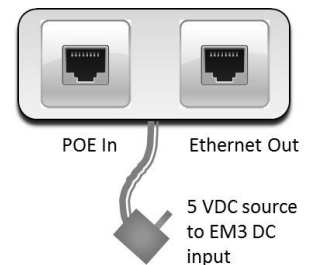
DEVICE INSTALLATION

The HBLE306H000 requires a 5VDC source which can be provided from the universal power supply included with the device or from a 5 VDC Power over Ethernet (PoE) source.



USING PoE:

The HBLE306H000 and the Gateway module can be powered by a PoE source using a standard PoE splitter. The PoE source should have a 5VDC output (not 12 VDC). The HBLE306H000 and Gateway consume 0.5W and 0.7W respectively making it ideal for PoE applications.



The temperature probe receptacles are numbered 1 to 6 on the back of the unit. It is suggested that you label probes to make it easier to know which probe goes where.

TEMPERATURE PROBES

Each HBLE306H000 monitor can accommodate up to six external temperature probes. Temperature probes consist of a small epoxy-coated thermistor at the end of a light gauge wire. Each probe wire has a plug in connector that can be inserted into any of the six probe receptacles.



AVAILABLE PROBE LENGTHS

Probes are available in 1-, 2-, 3- and 4-meter lengths in 3-probe packages. Contact Hubbell if longer probe lengths are needed.

TEMPERATURE PROBES

Model	Length (meters)
HBLTPP3001M	1 m
HBLTPP3002M	2 m
HBLTPP3003M	3 m
HBLTPP3004M	4 m

TEMPERATURE PROBE PLACEMENT

Ideal temperature placement is a function of rack type, appliance type, air flow and specific appliance location and density. As a general rule the hottest point in enclosed racks (i.e. solid doors) is on the “hot” side at the top of the rack. In open or perforated style doors the hottest point will typically be at the exhaust point of the hottest appliance.

ATTACHING THE PROBES

The best means of attaching a probe to your cabinet or enclosure depends on the type of cabinet. In cabinets with mesh grilles, it is common to use light weight cable ties. On glass front cabinets, small hooks that mount with clear adhesive pads or suction cups are often used. When placing probes in the back of cabinets, try not to place the probe directly in front of an exhaust fan.

HUMIDITY SENSING

HUMIDITY: HBLE306H000 monitors equipped with the humidity sensing option can sense relative humidity. The humidity sensor is embedded inside the HBLE306H000 monitor. Placement of monitor should be in an open, non-enclosed environment. Humidity is measured from 0 to 100% Relative Humidity at $\pm 2\%$ RH at 0.1% resolution.

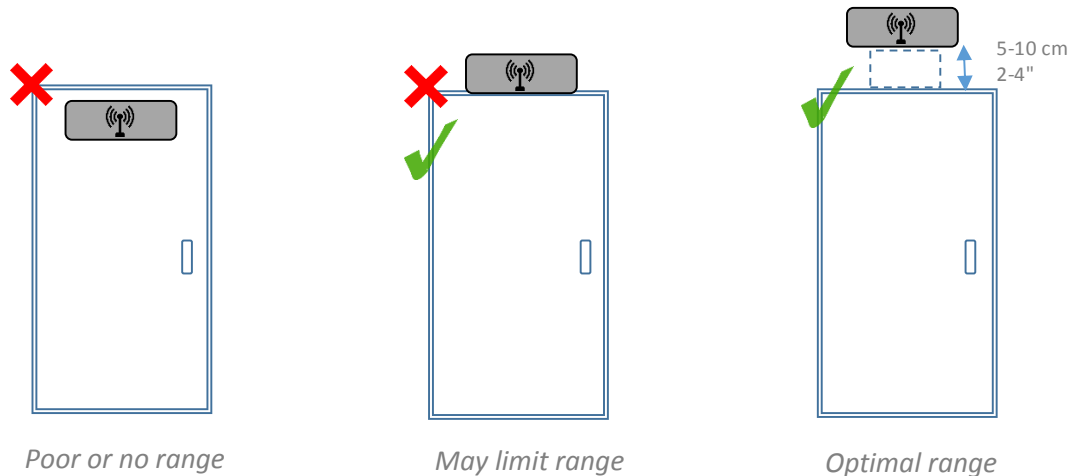
MONITORING DEVICE PLACEMENT

NOTE: As the HBLE306H000 monitor contains an internal radio, signal strength will be affected if the HBLE306H000 is housed in a metallic structure. Always place the monitor on the exterior of the enclosure if possible using the guidelines below.

DEVICE PLACEMENT

- Never inside of a metal structure (exterior of the rack)

- Ideally with-in 30-100 feet of another Hubbell device (gateway or monitoring module)
- 2-4" (5-10 cm) away from a large metallic surface mounted on a non-metallic platform
- Higher is better; always try and locate the monitoring node at the highest point that allows an unobstructed path to another monitoring node or gateway



DEVICE SPECIFICATIONS

MEASUREMENT

Temperature	±0.3°C at 0.1°C resolution with readings in °C or °F Temperature probe range: -34° to 75°C (-31° to 167°F) Internal sensor range: 0° to 50°C (32° to 122°F)
Relative humidity	0 to 100% RH at ±2% RH at 0.1% resolution
Time constant	30 seconds in moving air

COMMUNICATIONS

Operating frequency	860 to 930 MHz and 2.4 GHz (frequencies vary by region)
Wireless network protocol	Frequency hopping self-configuring load-balancing mesh
Data output (Gateway)	SNMP and Modbus TCP/IP protocols with one IP address needed per Gateway. Simultaneous output to EMX cloud or local energy management system
Firmware updates	Wireless
Typical transmission range	10 to 30 meters indoors between any two devices in mesh network
Antenna	Fully enclosed, fixed configuration
Monitoring unit to gateway ratio	Up to 150 monitoring units per gateway with unlimited gateways per site with AC powered devices; up to 25 monitoring units per gateway with battery powered devices
Multi-site support	Yes
Encryption	128-bit encryption
System status	Local LCD display on HBLE306H000 models
Radio Certifications	FCC, Industry Canada and CE / IEC

ENVIRONMENTAL AND MECHANICAL

Operating temperature

Monitoring unit: 0° to 50°C (32° to 122°F)

Operating humidity

Temperature probe: -40° to 90°C (-40° to 194°F)

Water and dust resistance

10% to 90% non-condensing

Module size and weight (HBLE306H000)

Indoor use

External AC power supply

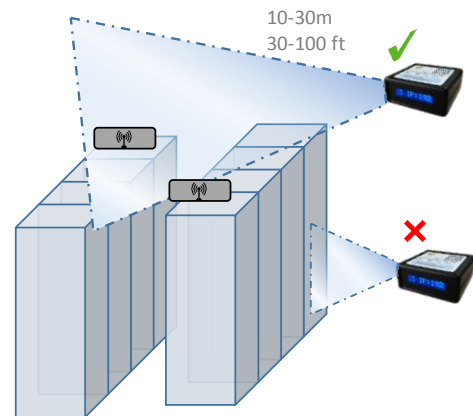
65mm x 65mm x 28mm; 70g

100 to 240V AC input; 50 to 60 Hz (5V DC) output; 0.5W power consumption

HUBBELL ETHERNET GATEWAY

GATEWAY PLACEMENT

- Gateway module(s) should be located 10-30 meters from one or more monitoring nodes (ideally line of site to at least a couple of monitors).
- Use the same guidelines noted in device placement (do not locate inside metallic cabinets or directly on metal surfaces)
- Redundant Gateways are recommended in any critical environment
- One Gateway can support up to 150 Hubbell monitoring devices; additional Gateways will improve polling speeds



Refer to the Gateway Quick Start Guide for setting up Gateway Modules

Growing your system: It is easy to add additional monitoring points. When you add a monitoring unit, it will automatically begin communicating with other Hubbell devices. As you add monitoring units, you may notice an increase in the time it takes to gather data from each unit. If you want to reduce that time, add another Gateway. Once the Gateway is up and running, the system will automatically send it work.

CONNECTIVITY

The HBLE306H000 monitor is designed to interface with the Hubbell Ethernet Gateway module. A Gateway can support many HBLE306H000 monitors; most customers run up to 150 monitoring units per Gateway. Refer to the Ethernet Gateway device manual for information. Depending on the information required two versions of Gateways are available:

The Gateway comes in different models that offer support for several industry standard protocols used by a variety of monitoring and management applications:

- Ethernet/IP
- Modbus TCP/IP
- MTconnect
- Packet Power EMX
- SNMP