

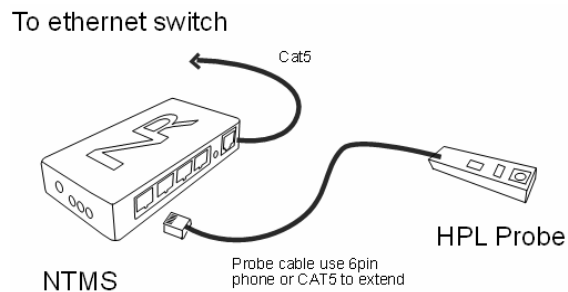


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Digital Humidity Probe, HPL-1 (#30009)

The Networked Robotics HPL1 Digital Humidity Probe enables the remote data collection and monitoring of relative humidity and temperature via standard computer networks. The HPL1 is designed to be used in conjunction with the Networked Robotics NTMS (Network Telemetry Monitoring System) hardware and Networked Robotics Tempurity™ System software. The Tempurity System is designed for data collection and monitoring in FDA-regulated environments including pharmaceutical, medical, and food industries.



Description

The digital HPL1 indicates at-a-glance the state of the operation of the humidity probe to the network. The view window shows as blue when connected normally and flashes green when data is being collected from Networked Robotics' network hardware. The probe can be extended to up to 300 feet from the NTMS network hardware and probes can be patched into NTMS units mounted in network closets. Industrial Dual-lock® is used to attach the probe to a substrate so installation is quick and easy. The advanced Sensirion® integrated circuit in the HPL1 is accurate to 2% error between 10 and 90 percent relative humidity.

Packing List

This package includes the basic hardware you will need to connect the HPL1 probe to the NTMS.

- (1) HPL1 Humidity Probe
- (1) RJ-45 Coupler for extensions

Hardware Installation

There are three major steps in the installation of this hardware

- 1) Physical installation
- 2) Configuration of the Networked Robotics NTMS hardware to which the HPL-1 is attached
- 3) Manual testing of data collection via the network

Each of these steps should be performed successfully before attempting to configure and monitor real-time humidity via the Tempurity System. Detailed information on configuring data

collection in Tempurity is available in the Tempurity Systems User's Guide (Networked Robotics document number "Tempurity-04-0006.5)" on the Networked Robotics web site.

1. Physical Installation

Probe Location

The placement of the sensor can have a significant effect on the reading. The white plastic tip of the probe must not be blocked in any way. The white membrane allows humid air to reach the integrated circuit that is responsible for the humidity measurement. Avoid the use of solvent vapors or other contaminants, such as plastic parts around the sensor as these may deposit over the HPL1's internal sensor over time and affect the reading.

The electronics of the unit are protected from high humidity and may the sensor may be mounted outside however the HPL1 is not waterproof and must not be submerged in any liquid. Total liquid immersion will irreversibly damage the HPL1.


Room Humidity and Measurements via Wall Plates


In offices or laboratories that are well populated with network jacks, humidity and room temperatures from every room in the entire building can be visible to anyone on the network within just a few hours. Using this method of installation, NTMS units are mounted on rack hardware and shelves in network closets. Each NTMS port is patched to an HPL1 via a network wall plate. The HPL1 can be attached directly to the wall plate using its Dual Lock backing. This method allows very quick connect-time, but is best implemented in offices or laboratories that are well-populated with wall plates and RJ-45 jacks.

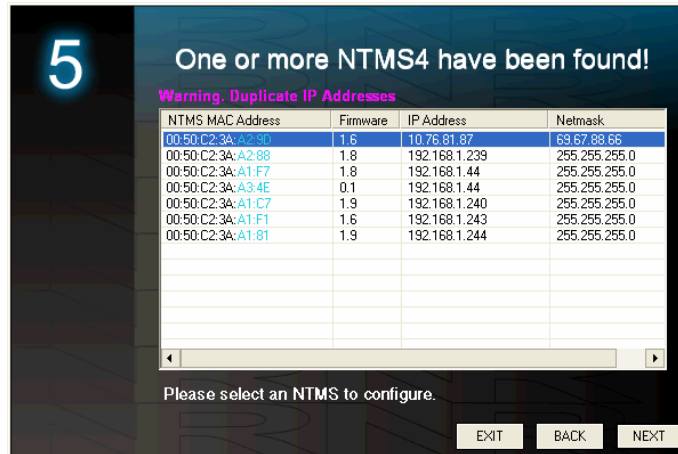
Attaching the HPL1 Probe to the Inside of a Refrigerator or Freezer

1. To apply a Networked Robotics HPL1 digital temperature probe to the wall of your refrigerator or freezer first ensure that the freezer wall is dry. (If frost or condensation has built up on the wall, use a paper towel to dry it. In some cases you may want to briefly apply a gloved hand to the wall where the dual-lock will be affixed.)
2. The 6-pin wire used disturbs more of the door seal than does the Networked Robotics TPL3 probe. You may wish to use plumbers putty to block any potential disruptions in the door seal.

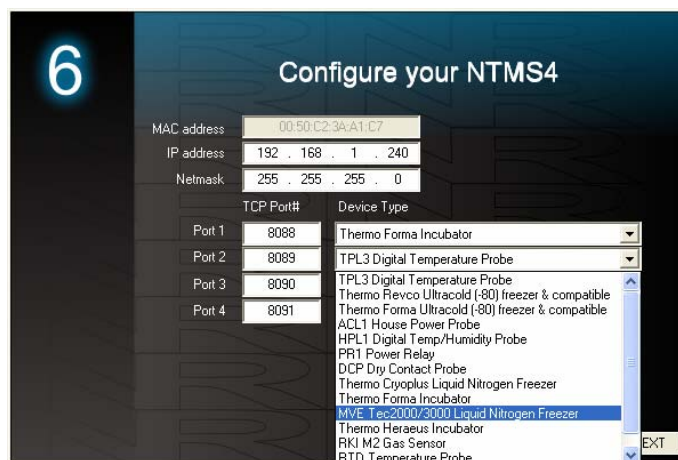
2. Configuring the NTMS

Configure the NTMS data collection jack for the HPL1 probe type. This is done by running the latest version of the NTMS Configuration Wizard  from any PC on the same subnet as the NTMS to be configured. You can obtain the configuration wizard from the download section of the Networked Robotics website. New probe types are added periodically to the wizard and the screens below may change.

1. Run the wizard from the same local area network as the NTMS and verify that the NTMS is discovered. (NTMS hardware must be running firmware revision 1.6 or higher. If it is not, stop the installation and upgrade your NTMS hardware's firmware with the NTMS Upgrade Wizard  available from the Networked Robotics download-page.)



2. Select the NTMS, and proceed to the “NEXT” screen. (We will assume the IP address information is already set for your NTMS; if not, see the NTMS installation guide.)
3. Click on the NTMS measurement port where the probe is connected, and under the “Device Type” drop down, select “HPL1 Digital Temp/Humidity Probe” as shown.



4. Click “NEXT” to complete the NTMS configuration.

3. Testing Data Collection through the Network

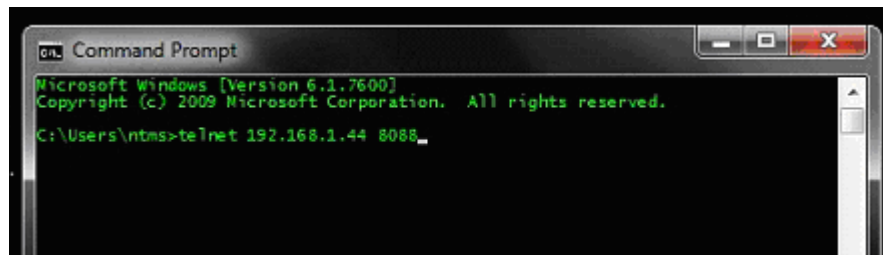
Once the configuration is complete we recommend manually testing the ability to make network temperature measurements by using the “Telnet” utility from any PC. This commonly-used network utility sends simple network commands that will elicit a temperature reading from the TPL3. For more about debugging network connections to probes see the appendix of the Tempurity System User’s Guide.

For use with the Tempurity System, you will need to add the new device to the Tempurity Server configuration. See the Tempurity System User’s Guide and the section on server configuration for more information.

On Windows 7 clients you may need to enable the Telnet utility as follows: 1 Start 2 Control panel 3 Turn Windows Features on or off 4 Check “Telnet Client” 5 Click Ok.

1. From Windows click “START”, then “RUN”, and then type “CMD” and return.

2. At the black screen type "Telnet" (space) IP- address (space) Port (where IP is the IP address and Port is the network port address as selected by your use of the NTMS Configuration Wizard as described above.)



3. If you are successfully connected through the network you will see a blank screen.
4. Type a capital "H"; humidity and the associated checksum value should be returned.

Configuring Data Collection in Tempurity: The Tempurity Server Configuration Utility

In the Tempurity System, you will need to add two new monitored devices to the Tempurity Server configuration, one for temperature data collection and one for relative humidity data collection. See the Tempurity System User's Guide and the section on server configuration for more information. The command character to acquire temperature is "T" and for humidity is "H". The network addresses (IP and network port combination) will be the same for both of these Tempurity System monitored devices.

Operation

During normal operation, the blue LED on the HPL1 will be lit. The green LED will occasionally blink. The blink indicates an active data read by the NTMS. If the blue LED goes out permanently, this is an indication that the probe is not connected properly to the NTMS. If the green light does not blink, then this is an indication that either the NTMS data port is not configured properly for collection from the HPL1 type of "monitored device", or that the cable or other physical connection to the NTMS should be checked.

Regardless of settings in the Tempurity System, the NTMS network hardware continually reads humidity and temperatures from the HPL1 at about 3-second intervals. The most recently collected values are available for network-side-initiated data requests by the Tempurity System.

Reference

Unique IDs

All Networked Robotics hardware holds electronic globally unique IDs. HPL1 probe IDs are of the format:

08:0000:0000:0002

Where 8 indicates the product number, and the other characters indicate the electronic ID of the unit. Electronic IDs can be read through a Windows computer using the "Probe ID Unit" (Networked Robotics part number #30010) hardware through a USB connection.

Communications Specifications

The HPL1 communicates with the NTMS using RS-232 at 1200bps. The HPL1 will accept the following case sensitive commands:

V: Display version info
H: Take combined Humidity, Temperature reading
A: Take readings at 1 second intervals until another key is entered.

Physical Specifications

Weight:	26.9 grams (9.5 ounces)
Length:	76.2 mm (3 inches)
Width:	19.0 mm (.75 inches)
Height:	9.9 mm (.39 inches)

Performance and Accuracy

The HPL1 probe measurement capability is built around the Sensirion SHT15 integrated circuit. Accuracy of the SHT15 is constant at 2% error between 10 and 90 percent relative humidity. The Sensirion chip reports to .1 degrees Celsius and has a distribution of accuracies based on the temperature. The chip has a temperature accuracy of .3 degrees at room temperature and 1.5 degrees Celsius at the maximum ranges of -40C and +125. See the data sheet of the Sensirion SHT15 for more information.

Support

If you need assistance with your HPL1 probe or other products, contact Networked Robotics by phone at 877-FRZ-TEMP (877-379-8367) or by email at support@networkedrobotics.com

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