- Integrated Temperature, Relative Humidity and Dew Point Transmitter. Housed in a rugged stainless steel body offering excellent corrosion protection.
- RH Accuracy at 25 C:: Model 1205 2% typical / 3% maximum; Model 1205HA 1.8% typical / 2% maximum. Please see graphs under Specifications section for more details.
- Electronics are sealed for environmental durability and reliability. Three additional seals at each of the transition points to further prevent water and air flow through the body of the probe ensuring fast accurate measurement.
- Rugged, removable bronze filter protects sensors while providing excellent heat transfer
- Sensor module contains its own calibration and additional protection. It is replaceable.
- ½" NPT thread at sensor end allows duct mounting using a flange.
- ½" NPT thread at wiring end allows use of standard junction boxes.
- Wiring is via flying leads requiring no special connectors or cable assemblies.
- Multiple sensors multiplexed on same wires
- Real-time data and configuration information is exchanged using the LonWorks open communication standard over an **isolated Free Topology, FT-10 Interface**.
- **Operates from 12 VDC, 24VDC, 48VDC and 24VAC power supply rails. Power input is not polarity sensitive**

DESCRIPTION

The Model 1205 is a temperature, relative humidity, and dew point transmitter that is completely self contained. It measures temperature and relative humidity and then calculates the dew point temperature. Depending on the temperature, dew point over ice or over water will be calculated automatically.

The electronics are sealed for long-term resistance to moisture. The temperature / humidity sensor is replaceable without further calibration. The sensor and configuration information is communicated to other devices via the LonWorks communication protocol.

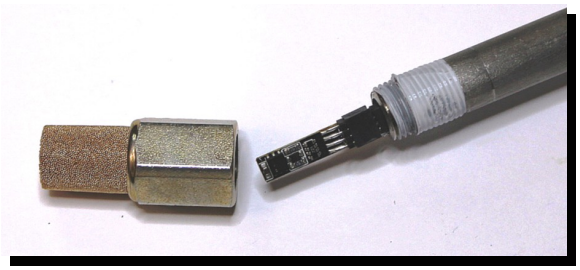
The Model 1205 contains a very flexible power supply input and a robust LonWorks Free Topology, FT-10, communication interface. The network and power inputs are isolated from each other.

The Model 1205 is our standard accuracy version with an RH accuracy of 2% typical and 3% maximum. The Model 1205HA is our high accuracy version with an RH accuracy of 1.8% typical and 2% maximum. Please see the Specification section for more details.

NOTE	This PDF datasheet has attachments. To access them, it may be necessary to use an actual Adobe Reader. since some readers built into internet browsers do not allow access to attachments.

Removable Filter and Replaceable Sensor Module

The bronze filter is removable, has excellent corrosion protection and provides good heat transfer for an accurate measurement.



The sensor module contains a digitally calibrated sensor that is replaceable. The module integrates additional sensor protection to prevent damage in case of reversal while being replaced or serviced.

Power Supply

The Model 1205 features an exceptionally flexible switching power supply. It allows the Model 1205 to be easily integrated into building automation, industrial automation, telecommunication and remote telemetry type systems. It operates from 12 VDC, 24 VDC, 48 VDC and 24 VAC power supply rails with a design margin better than +/-25% to allow for installation variations. A main advantage of the on board power supply is low power consumption. The unit draws 5 mA at 24 VDC. This makes it ideal for low cost battery backup systems if one is desired.

The power supply is well protected against overvoltage spikes via solid state transient voltage suppressors. It is additionally protected against over current conditions via fuses on both voltage input lines. On board thermal fuses do not have to be replaced. They will simply recover when the fault condition is corrected. Input voltage is polarity insensitive.

High and Low Temperature, Humidity and Dew Point Alarms

The Model 1205 has high and low temperature, humidity, and Dew Point alarm setpoints, which trigger output network variables for communicating the alarm conditions to other LonWorks products. Alarm deadbands, nciTempAlmDb, and nciRhAlmDb implement hysteresis on temperature and humidity alarm setpoints respectively.

The nvoTempHiAlm is set to ON when nvoTemp is larger or equal to nciTempHiAlmSp and turn off when nvoTemp is below nciTempHiAlmSp - nciTempAlmDb. nvoTempHiAlm is set to NUL if hardware problems are detected.

The nvoTempLoAlm is set to ON when nvoTemp is lower or equal to nciTempLoAlmSp and turn off when nvoTemp is above nciTempLoAlmSp + nciTempAlmDb. nvoTempLoAlm is set to NUL if hardware problems are detected.

The nvoRhHiAlm is set to ON when nvoRh is larger or equal to nciRhHiAlmSp and turn off when nvoRh is below nciRhHiAlmSp - nciRhAlmDb. nvoRhHiAlm is set to NUL if hardware problems are detected.

The nvoRhLoAlm is set to ON when nvoRh is lower or equal to nciRhLoAlmSp and turn off when nvoRh is above nciRhLoAlmSp + nciRhAlmDb. nvoRhLoAlm is set to NUL if hardware problems are detected.

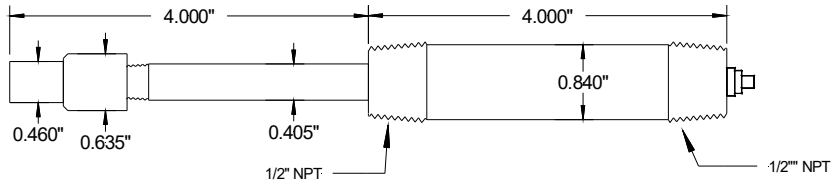
The nvoDpTempHiAlm is set to ON when nvoDpTemp is larger or equal to nciDpTempHiAlmSp and turn off when nvoDpTemp is below nciDpTempHiAlmSp - nciTempAlmDb. nvoDpTempHiAlm is set to NUL if hardware problems are detected.

The nvoDpTempLoAlm is set to ON when nvoDpTemp is lower or equal to nciDpTempLoAlmSp and turn off when nvoDpTemp is above nciDpTempLoAlmSp + nciTempAlmDb. nvoDpTempLoAlm is set to NUL if hardware problems are detected.

LonWorks Physical Interface

The physical communication interface is implemented using an isolated Free Topology LonWorks transceiver, FT-10,. The LonWorks communication lines are isolated from the power supply input lines. Connection to the LonWorks network is via 2 wires that are not polarity sensitive. The network interface has DC blocking capacitor so it can also be directly connected to LPT-10 networks. For maximum protection, the network input has additional external clamps relative to each other to limit surge voltages.

Wiring and Installation



Features / Dimensions

The Model 1205 may be mounted in a large variety of ways. In its most basic form the entire probe can be simply fastened into any 1/2 inch NPT port with access to the process being measured. The probe can also be used with an optional flange for duct mounting or suspended from a conduit box fastened at the wiring end. In application such as outdoors, where the sensor may be subject to water droplets or severe condensation it must be mounted with the probe tip pointed down.

Power & LonWorks, FT-10 Communication Wiring	
(2) White Wires	Polarity insensitive power supply connection
(2) Blue Wires	Polarity insensitive LonWorks Network connection.

For outdoor applications please consider our Model 40A which is a rain and sun guard.

The Model 1205 is supplied with four flying leads to connect to the LonWorks network and power supply. The tables below define the connections by wire color. Power and network connections are NOT polarity sensitive.

Before the Model 1205 can be used, it must first be installed into a LonWorks network. This procedure is slightly different for each system. It often involves telling the system to add a new device. The system will then ask the user to press the Service switch on the device. When pressed, the Model 1205 will transmit its unique physical Neuron ID. The System then assigns a logical address to the unit and then data from the device is available. The s\Service switch and LED are located at the wiring end of the Model 1205.

NETWORK DATA INTERFACE

The sensor data and configuration is available using Standard Network Variable formats that have been defined by the LonMark Association. The Model 1205 has self documentation of the network interface enabled and it can be uploaded by the installation tool. Additionally, an XIF is also attached to this PDF datasheet.

NOTE	This PDF datasheet has attachments. To access them, it may be necessary to use an actual Adobe Reader. since some readers built into internet browsers do not allow access to attachments.

Configuration Network Variables

Configuration network variables are input network variables that are non-volatile and retained when power is lost. If using the Echelon LonMaker software, simply use the Browser to view and edit the following values.

Network Variable	Format	Default	Description
nciTempOffset	SNVT_temp_diff_p	0.0 C	Offset for temperature calibration. This value is added to nvoTemp
nciTempDelta	SNVT_temp_diff_p	0.3 C	Minimum change required temperature network output update.
nciRHOffset	SNVT_lev_percent	0.0%	Offset for temperature calibration. This value is added to nvoTemp
nciRHDelta	SNVT_lev_percent	1.0%	Minimum change required for nvoRH network output update.
nciMinSendT	SNVT_time_sec	5.0 seconds	Minimum time between temperature and humidity network output updates even if nciTempDelta or nciRHDelta are met.
nciMaxSendT	SNVT_time_sec	30.0 seconds	Maximum time between network variable updates whether or not changes occur. This is sometimes called heartbeat.
nciSwMinSendT	SNVT_time_sec	0.5 seconds	Minimum time between alarm and switch related output network variables whether or not a change occurred. Applies to both switch inputs
nciTempHiAlmSp	SNVT_temp_p	100.0 C	High temperature alarm setpoint.
nciTempLoAlmSp	SNVT_temp_p	-100.0 C	Low temperature alarm setpoint.
nciDpTempHiAlmSp	SNVT_temp_p	100.0 C	High dew point temperature alarm setpoint.
nciDpTempLoAlmSp	SNVT_temp_p	-100.0 C	Low dew point temperature alarm setpoint.
nciTempAlmDb	SNVT_temp_diff_p	1.0 C	Temperature alarm deadband. Controls temperature and Dew Point Temperature alarm hysterisis.
nciRhHiAlmSp	SNVT_lev_percent	100.0 C	High humidity alarm setpoint.
nciRhLoAlmSp	SNVT_lev_percent	-100.0 C	Low humidity alarm setpoint.
nciRhAlmDb	SNVT_lev_percent	1.0 C	Humidity alarm deadband. Controls humidity alarm hysterisis.

Output Network Variables

The Model 1205 firmware is designed to control output network variable traffic for integration into large LonWorks networks. On power up the unit randomizes the start of network updates. The nciMaxSendT configuration network variable is the send heartbeat for the entire device. Output network variables will be transmitted at least once every nciMaxSendT. To disable this, set nciMaxSendT to 0.

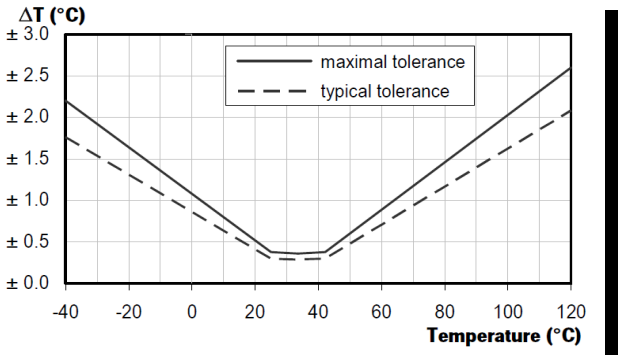
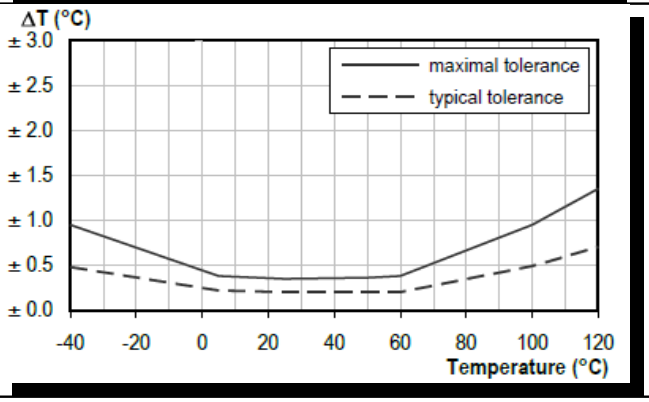
The output network variables nvoTemp, nvoFixPtTemp, nvoFloatTemp, nvoDpTemp, nvoFixPtDpTemp, and nvoFloatDpTemp are only transmitted if there is a minimum of nciTempDelta change form the last transmitted value. The output network variable nvoRH is only transmitted if there is a minimum of nciRHDelta. However, output network variables are only transmitted if nciMinSendT has elapsed since last update. nciMinSendT acts as a throttle to minimize traffic even if the data is changing rapidly.

The nciMinSwSendT is the throttle for nvoTempHiAlm, nvoTempLoAlm,nvoDpTempHiAlm, nvoDpTempLoAlm, nvoRhHiAlm, nvorRhLoAlm, output network variables.

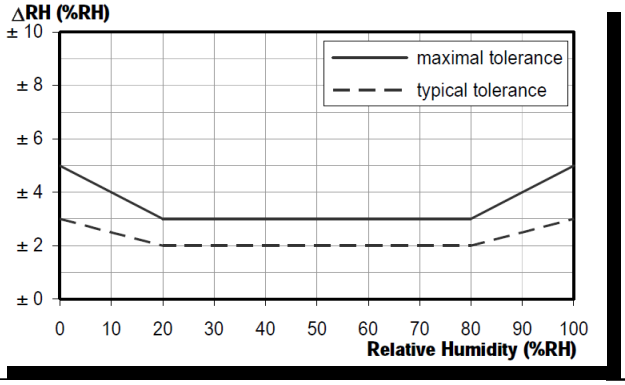
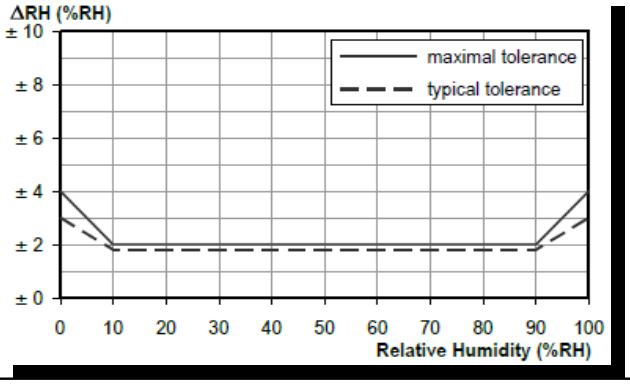
Network Variable	Format	Description
nvoTemp	SNVT_temp_p	Temperature output 0.01 C resolution. Set to 327.67 C on any hardware errors.
nvoFixPtTemp	SNVT_temp	Temperature output. 0.1 C resolution. Set to 6279.5 C on any hardware errors.
nvoFloatTemp	SNVT_temp_f	Temperature in floating point format. Set to 1E38 on any hardware error.
nvoDpTemp	SNVT_temp_p	Dew Point Temperature output 0.01 C resolution. Set to 327.67 C on any hardware errors.
nvoFixPtDpTemp	SNVT_temp	Dew Point Temperature output. 0.1 C resolution. Set to 6279.5 C on any hardware errors.
nvoFloatDpTemp	SNVT_temp_f	Dew Point Temperature in floating point format. Set to 1E38 on any hardware error.
nvoRH	SNVT_lev_percent	Relative Humidity output. 0.005% resolution. Set to 163.835% on any hardware errors.
nvoTempHiAlm	SNVT_switch	High temperature alarm output status. Set to ON when alarm is active, OFF when inactive, and NUL on any hardware error.
nvoTempLoAlm	SNVT_switch	Low temperature alarm output status. Set to ON when alarm is active, OFF when inactive, and NUL on any hardware error.
nvoDpTempHiAlm	SNVT_switch	High dew point temperature alarm output status. Set to ON when alarm is active, OFF when inactive, and NUL on any hardware error.
nvoDpTempLoAlm	SNVT_switch	Low dew point temperature alarm output status. Set to ON when alarm is active, OFF when inactive, and NUL on any hardware error.
nvoRhHiAlm	SNVT_switch	High humidity alarm output status. Set to ON when alarm is active, OFF when inactive, and NUL on any hardware error.
nvoRhLoAlm	SNVT_switch	Low humidity alarm output status. Set to ON when alarm is active, OFF when inactive, and NUL on any hardware error.

SPECIFICATIONS

Temperature

Sensing Element	Solid state
Model 1205 Standard Accuracy	
Model 1205HA, High Accuracy	
Temperature Range	-40 to 85C
Resolution	0.06 C

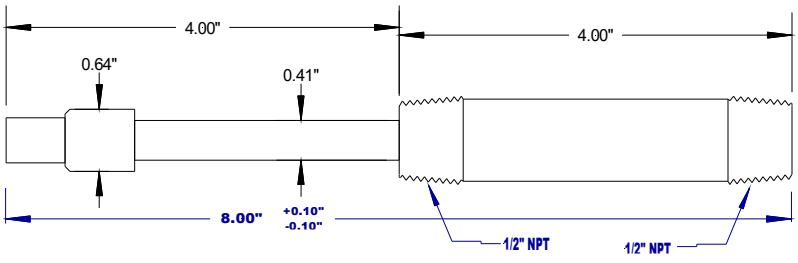
Relative Humidity

Model 1205 Standard Accuracy at 25C	
Model 1205HA, High Accuracy at 25 C	
Resolution	0.05%
Maintenance	No routine maintenance required Bronze filter is removable for cleaning Sensor Module is field replaceable.
Sensor Stability	<0.5% RH typical per year (See notes 1 &2)
Notes	1. Sensor drift and inaccuracies maybe higher if sensor is exposed to high contents of volatile organic compounds. 2. Long term exposure to >80% RH may temporarily offset RH by up to 3% after 60 hours. This recoverable after return to lower RH levels.

Electronics

Operating Environment	-40 to 85C, 0-95% RH non-condensing
Input Voltage Operating	9 to 55 VDC or 18 to 39 VAC at 0.25W maximum.
Input Voltage Maximum	65 VDC / 45 VAC. Please note at this voltage the unit will start to draw more current and may trip the internal thermal fuses but will not be damaged. Normal operation resumes when voltage returns to operationg range.
Input Power Protection	Input power is fused and transient voltage protected. (Fuses do not need to be replaced)

Dimension and Materials

Housing Material	Body and extension tube is 304 stainless steel Filter is Bronze
Duct Mounting Insertion Depth	4 inches
Dimension	

ORDERING INFORMATION

1205	**Model 1205 LonWorks Temp/Rh/ Dew Pt Transmitter (Standard Accuracy)**
1205HA	**Model 1205HA LonWorks Temp/Rh/ Dew Pt Transmitter (High Accuracy)**

LonWorks is a trademark of Echelon Corporation