

INSTALLATION

The RHT-DM (Duct Mount) model transmitter should be installed with a flange. This flange is first screwed onto the duct wall and the transmitter probe is then inserted into the flange central hole and locked. Figure 04 below shows flange dimensions and holes. Available in stainless steel or polyamide 6.6.

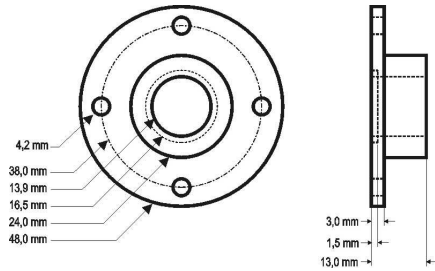


Figure 04 – Mounting flange for RHT-DM.

The probe is made in stainless steel, with standard lengths of 150 mm and 250 mm.

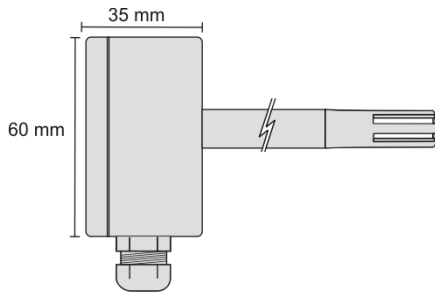


Figure 05 – Model RHT/DM dimensions.

The model RHT/WM (Wall Mount) was designed to be mounted directly onto a wall. With the cover off, the user can access the 2 fixing points and the signal connector, as shown in Figure 06. The transmitter sensor capsule must be placed faced down in order to assure the specified accuracy and protection level.

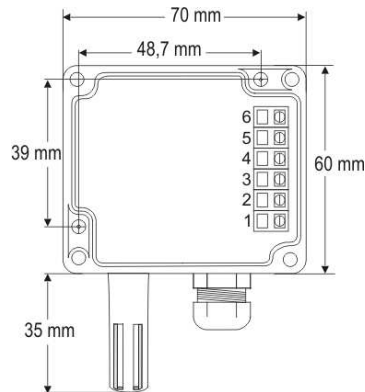


Figure 06 – RHT/WM fixing holes and housing dimensions.

ELECTRICAL CONNECTIONS

The transmitter can be ordered as 4-20 mA current output or 0 to 10 Vdc voltage output. The output signal is defined on purchase and can not be later changed.

Variables can be monitored together or separately. Combinations of mobile jumpers **J4** and **J5** within the transmitter case define how variables will be used. The jumpers also define the transmitter terminals with available output signals.

Jumper J5	Jumper J4	OUT1	OUT2
Position A	Position A	Temperature	Humidity
Position A	Position B	Temperature	Off
Position B	Position A	Humidity	Off
Position B	Position B	Humidity	Temperature

Table 1 – Configuration of OUT1 and OUT2 outputs

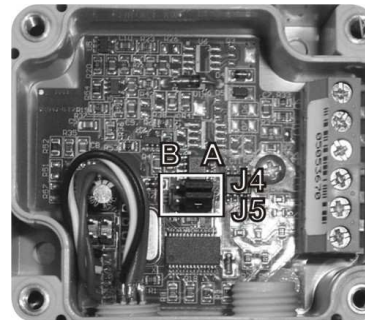


Figure 07 – J4 and J5 position within the transmitter

Figures 08 and 09 show the required electrical connections

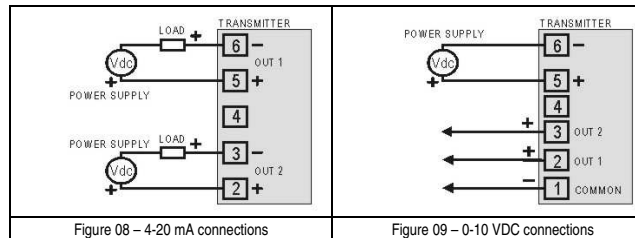


Figure 08 – 4-20 mA connections

Figure 09 – 0-10 VDC connections

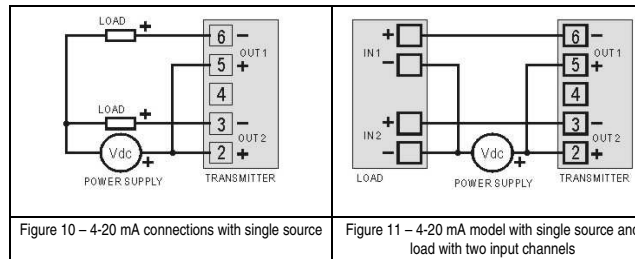


Figure 10 – 4-20 mA connections with single source

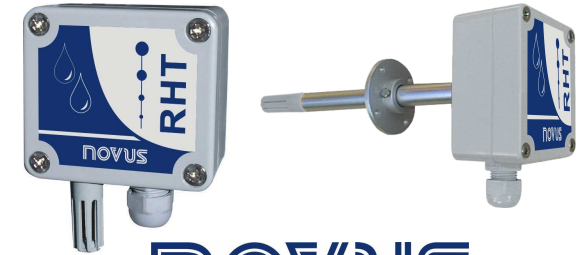
Figure 11 – 4-20 mA model with single source and load with two input channels

LOAD represents the output signal measurement equipment (controller, register, etc). The connection wires go inside the transmitter through to the cable gland mounted in the transmitter case.

HUMIDITY AND TEMPERATURE TRANSMITTER

RHT-WM and RHT-DM

OPERATING MANUAL



NOVUS
www.NovusAutomation.co.uk

WARRANTY

NOVUS Electronics provides the original purchaser of this instrument a one (1) year warranty against defects in material and workmanship under the following terms:

- The one year warranty begins on the day of shipment as stated on the sales bill.
- During the warranty period all costs of material and labor will be free of charge provided that the instrument does not show any evidence of misuse.
- For maintenance, return the instrument with a copy of the sales bill to our factory. All transportation and insurance costs should be covered by the owner of the equipment.
- Should any sign of electrical or mechanical shock, abuse, bad handling or misuse be evident the warranty voids and maintenance costs will be charged.

INSTALLATION RECOMMENDATIONS

- Conductors of small electrical signals must be distant from activation or high-tension/current conductors, preferably passing through grounded conduits.
- A specific electrical power supply network should be provided for instruments use only
- In controlling and monitoring applications, possible consequences of any system failure must be considered in advance.
- RC filters (47 R and 100 nF, serial) in inductor charges (contactors, solenoids, etc.) are recommended.

ATTENTION

The calibration of the humidity sensor may change in case it is exposed to contaminating vapors or to high humidity and temperature conditions for extended periods.

In order to speed up the calibration restoration, proceed as described below:

- Remove the sensor from the capsule.
- Wash it with water in case there are solid particles on it.
- Place it within a 80 °C (+10 °C) oven for 24 hours
- Place it for 48 hours in a place with a temperature between 20 and 30 °C and humidity over 75 % RH.
- Place the sensor back in the capsule.

PRESENTATION

The Relative Humidity and Temperature Transmitters RHT-WM and RHT-DM are microprocessed-based instruments that incorporate high-accurate and stable sensors whose information is converted to linear 4-20 mA or 0-10 Vdc.

As they are microprocessed equipment, they can be totally configured through the communication interface TxConfig and TxConfig software.

The humidity output can be configured to represent the Relative Humidity measured or the temperature value at dew point.

The RHT-WM model is intended for wall mounting. The RHT-DM comes with a probe tip for duct or wall mounting.

SPECIFICATIONS

Humidity measurement:

- Accuracy:** Refer to Figure 01;
- Repeatability:** $\pm 1\%$ RH;
- Hysteresis:** $\pm 1\%$ RH;
- Non-linearity:** $\ll 1\%$ RH;
- Stability:** $< 1\%$ RH / year;
- Span:** any value between 0 and 100 % RH or -40 and $100\text{ }^{\circ}\text{C}$ for dew point;
- Response time:** 4 seconds in slow moving air.

Temperature channel:

- Accuracy:** Refer to Figure 1;
- Repeatability:** $\pm 0.1\text{ }^{\circ}\text{C}$;
- Span:** between -40 and $120\text{ }^{\circ}\text{C}$;
- Response time:** up to 30 seconds in slow moving air.

General specifications:

- Power supply:** 12 Vdc to 30 Vdc (4-20 mA model) or 18 to 30 Vdc (0-10 V model).
- Outputs:** 4-20 mA or 20-4 mA current, 2-wire loop power supply
0-10 Vdc voltage (optional).
- OUT1 output resolution:** 0.006 mA (4-20 mA) or 0.003 V (0-10 V);
- OUT2 output resolution:** 0.022 mA (4-20 mA) or 0.015 V (0-10 V);
- Channel isolation:** the 4-20 mA outputs are isolated from each other. The 0-10 V outputs share a common ground;
- Output Load (RL):** 4-20 mA output: $RL (\text{Ohms max}) = (V_{\text{dc}} - 12) / 0.02$
let $V_{\text{dc}} = \text{Loop power supply (12 to 30 Vdc)}$
0-10 Vdc output: $RL (\text{min}) = 10 \text{ kOhms}$
- Reverse polarity protection:** YES
- Protection:** Electronic circuit case - IP65; Sensors capsule: IP40
- Cable entrance:** Compress fitting PG7;
- Operating limits:** Sensor e probe (RHT-DM): See Figure 01;
Electronic circuit: -10 to $+65\text{ }^{\circ}\text{C}$, 0 to 95 %RH.

IMPORTANT NOTE:

The transmitter sensor may be damaged or loose calibration if it is exposed to aggressive atmospheres with high concentrations as Chloride Acid, Nitride Acid, Sulphuric Acid and Ammonia. Acetone, Ethanol and Propylene Glycol may cause reversible measurement errors.

No accuracy improvement results from narrowing the range for the 4-20 mA output. For example, the 3 %RH accuracy will be achieved for a transmitter configured to a 20-80 %RH or to a 30-40 %RH range.

Shall any error occur in the measures taken by the sensor, they can be corrected with the TxConfig software. The TxConfig interface can be connected to the transmitter even connected to the process and under operation. See Figure 03 and Zero Correction field in the main screen of the TxConfig software.

Measures accuracy and sensor operating limits:

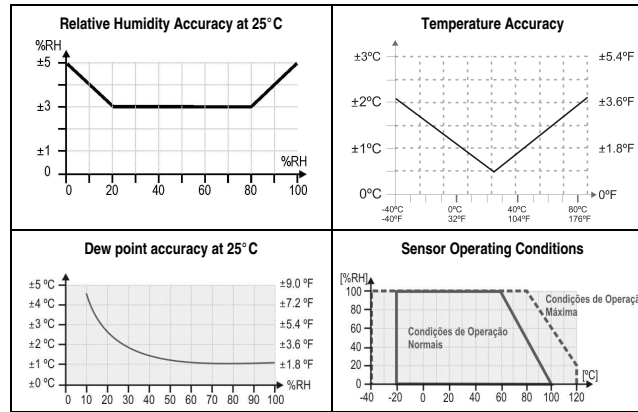


Figure 01- RH and Temperature accuracies.

CONFIGURATION

If the default configuration or the ordered configuration satisfies the application, then no further configuration is necessary and the transmitter is ready to be used. If a new setting is desired, this can be accomplished by the TxConfig and sent to the transmitter through the TxConfig interface.

The TxConfig Interface and Software compose the Transmitter Configuration Kit, which can be purchased separately from Novus or one of its distributors. The latest release of this software can be downloaded from our web site. To install, run the **Tx_setup.exe** and follow the instructions.

Serial port configuration errors may occur when other software are sharing the same serial port. Close all serial port applications prior to using the TxConfig software.

The TxConfig interface cable is 1.5m long. One extremity is connected to the transmitter. The other extremity has a female connector DB9, which must be connected to the serial port available in the PC.

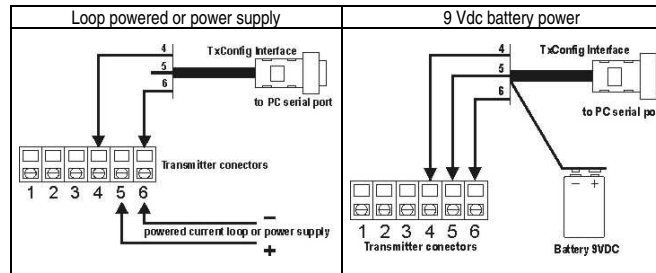


Figure 02 – Connections of theTxConfig Interface

The transmitter requires to be powered during configuration. The TxConfig provides powering, however this depends on the PC used. To assure proper communication, it is recommended to apply external power to the transmitter. A 9V battery connected to the battery socket in the TxConfig interface extremity can be used to power the transmitter during the configuration. Another option is to run the transmitter configuration when it is already connected to the process, using the same power that powers the process. See Figure 02.

After making such connections, users must run the TxConfig software and, if necessary, use the Help to configure the transmitter. Figure 03 shows the TxConfig software main screen.

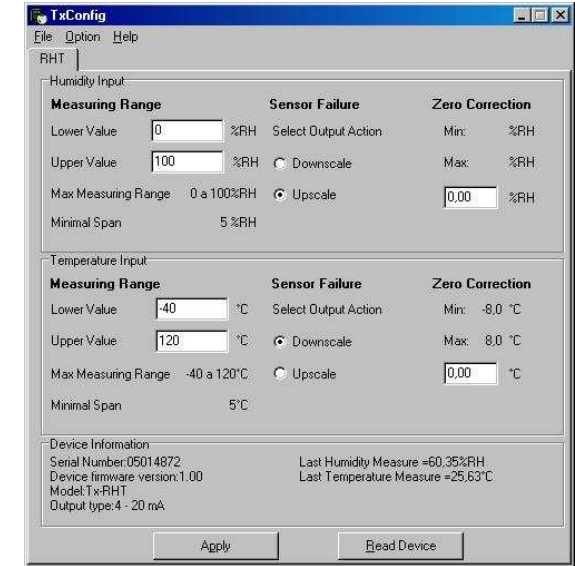


Figura 03 – Tela principal do software TxConfig

The fields in the screen mean:

1. **Measuring range:** Defines the beginning and the end of the transmitter humidity and temperature range.
 - Lower Value:** sets the value of the input signal (RH or temperature) associated to the 4 mA output.
 - Upper Value:** sets the value of the input signal that will correspond to the 20 mA output.
- When the lower limit is defined with a value higher than the Higher limit the output current operates from 20 to 4 mA.
- The values configured in these fields can not be beyond the sensor measuring range. The minimum span value has to be observed as well.
2. **Sensor Failure Detection:** establishes the transmitter output behavior (upscale or down-scale) in the presence of a sensor fail. When Minimum is selected, the output current is < 4 mA (down-scale), typically used for refrigeration. When Maximum is selected, the output current is > 4 mA (up-scale), typically used in heating systems.
3. **Zero Correction:** Allows for small sensor corrections.
4. **Device Information:** Transmitter identification data. These information must be informed when the user contact us.
5. **Read Device:** Brings to the screen the current transmitter parameters configuration.
6. **Send configuration:** Sends a new configuration to the transmitter.

- Note:** The factory default configuration is (unless otherwise specified or ordered):
- Sensor RHT, temperature span 0 to $100\text{ }^{\circ}\text{C}$ and humidity span 0 to 100 %RH;
 - $0\text{ }^{\circ}\text{C}$ of zero correction
 - Upscale when sensor fails.