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masibus ®
Advanced Automation - Sure Solutions
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Loop Powered Humidity cum Temperature Transmitter

- **HT7S00:Humidity Transmitter**
- **HT7S10 : Humidity Transmitter with Pt100 Passive Output**
- **HT7S11 : Humidity cum Temperature Transmitter**
- **HT7S11-Y : Humidity cum Temperature Transmitter with Common Power**

HT7S series loop Powered transmitter series are designed for highly accurate Humidity and temperature measurement for industrial, pharmaceutical and building automation applications. They are available as wall mount, duct mount and flame proof versions.

HT7S series transmitters provides linear output signals proportional to relative humidity and temperature. HT7S series device are designed to provide better than 2% RH accuracy and Class A RTD with excellent long term stability.

Loop Powered 4-20mA DC output signals enables long distance remote display, recording, controlling or easy interface to PLC/DCS systems. Two-wire connections allow easy installation directly into air ducts or within a controlled area. The right choice of the filter cap enables usage in harsh environmental conditions.

The model HT7S series uses capacitance based sensor for humidity measurement, that is unaffected by high humidity, dust, fog etc. A rugged weather proof enclosure is available to monitor space humidity and temperature.

FEATURES

- Measuring range 0-100 % RH
- Linearised analog 4-20mA signal output (2wire loop powered)
- Replaceable humidity sensor assembly
- Wide range of models to suit many applications
- Class-A RTD Pt 100 sensor used for temperature measurement
- High Accuracy
- Excellent long-term stability

APPLICATION

- Pharmaceutical Labs/Industry
- HVAC application
- Building automation
- Energy management
- Research Laboratories
- Weather telemetry

HT7S Series Transmitter
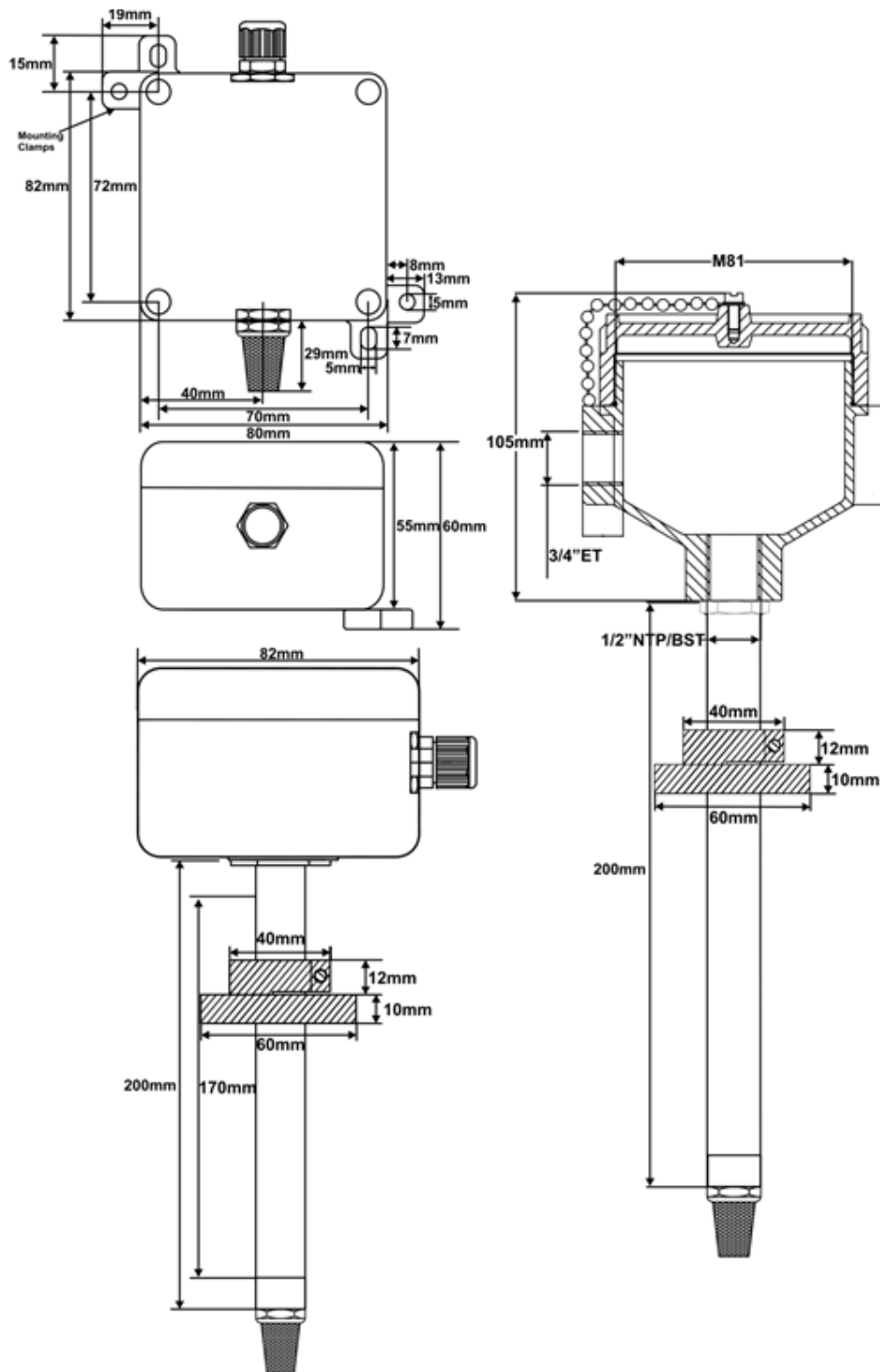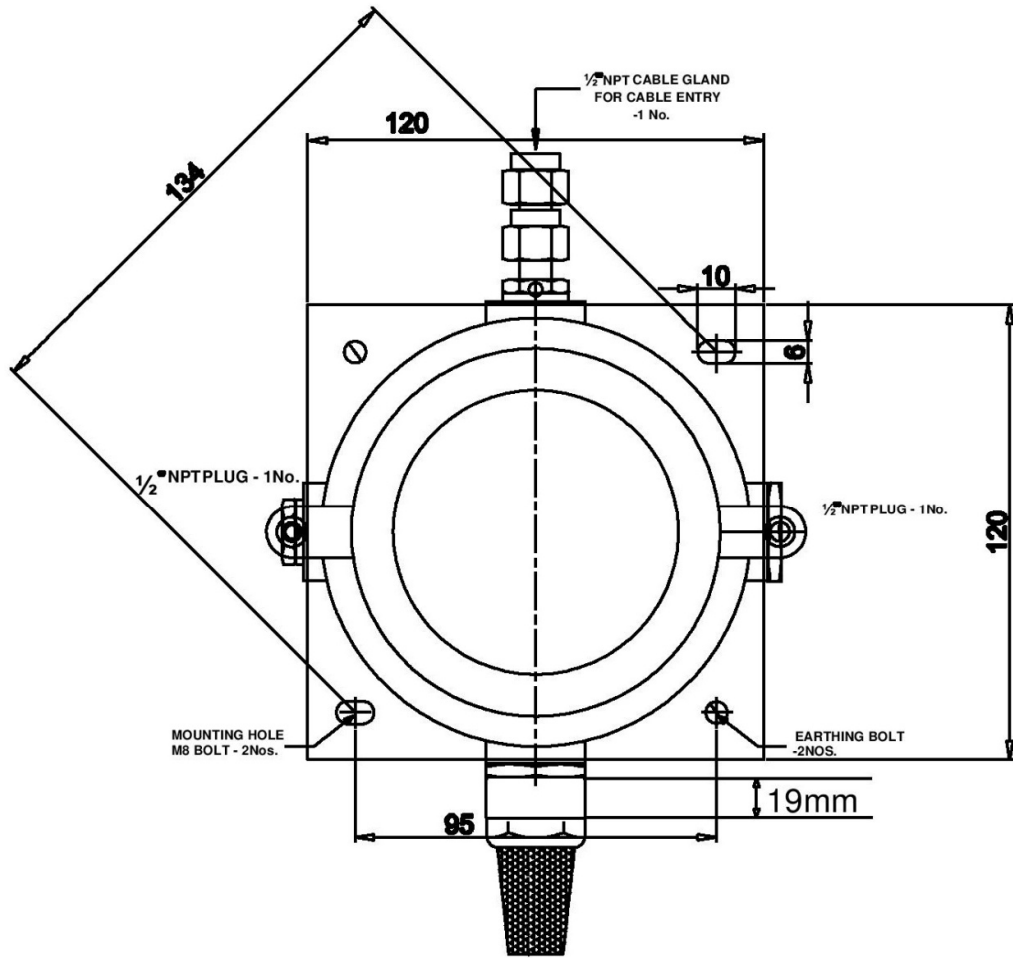

- **Duct and wall type models available**
- **High stability electronics, precision and flexibility**
- **Easy and safe For installation**
- **Stable measurements and reduced Maintenance**

SPECIFICATION

RELATIVE HUMIDITY	
Measurement range	:0-100% RH
Output	:4-20mA (two wire)
Maximum Loop Resistance	:RLoad=((Supply Voltage-12)/0.021)Ohm
Accuracy at 25°C	:± 2%RH (0 to 90%),± 3%RH (90 to 100%)
Hysteresis	:± 1.3%RH of Operating humidity span
Repeatability	:± 0.6%RH
Stability	:± 1%RH typical at 50%RH in 5 years
Sensor	:Capacitive sensor
Sensor response time	:15 sec in slowly moving air at 25°C
TEMPERATURE SENSOR	
HT7S00	:NA
HT7S10	:Passive Pt-100 (Class A) 0 to 50°C
HT7S11, HT7S11-Y	:Pt-100 (Class A) 0 to 50°C
OUTPUT	
HT7S00	:NA
HT7S10	:Pt 100, 3W
HT7S11, HT7S11-Y	:4-20mA (two wire)
Maximum Loop Resistance	:RLoad=((Supply Voltage-12)/0.021)Ohm (Applicable for HT7S11 and HT7S11-Y only)
ACCURACY AT 25°C	
HT7S00	:NA
HT7S10	:± 0.2% of FS
HT7S11	:± 0.2% of FS
POWER SUPPLY	:12 to 36 VDC for Resistive Load
PHYSICAL DIMENSIONS	
Wall Mount	:80 (H)mm x 82 (W)mm x 55(D) mm
Duct Mount	:80 (H)mm x 82 (W)mm x 55(D) mm with ~180mm Duct
Flame Proof Duct Mount	:100(H)mm x 90(W)mm x 106(D)mm with ~180mm Duct
Flame Proof Wall Mount	:120(H)mm x 120(W)mm X 102(D)mm
MOUNTING	:Wall / Duct
WEIGHT	
Wall Mount	:300 gm Approx.
Duct Mount	:500gm Approx.
Flame Proof Duct Mount	:1.1 Kg Approx.
Flame Proof Wall Mount	:1.2 Kg Approx.
Cable gland	
Wall Mount and Duct Mount	:PG 7
Flame Proof Duct Mount	:3/4" ET
Flame Proof Wall Mount	:1/2" NPT
ENCLOSURE	
Wall Mount	:ABS plastic
Duct Mount	:ABS plastic with SS Duct and Nylon Flange
Flame Proof Duct Mount	:Aluminum Alloy (LM-6(A6-M)) with SS Duct and Nylon Flange
Flame Proof Wall Mount	:Aluminum Alloy (LM-6(A6-M)) with SS Sensor Pipe
Sensor protection	:Sintered bronze filter
ENVIRONMENTAL	
TEMPERATURE RANGE	
Operating Temperature	
Wall Mount and Duct Mount	:0 to 50°C
Flame Proof Wall Mount and Duct Mount	:0 to 85°C
Humidity	:0 to 100%(non-condensing)
TERMINALS DETAIL	
Terminal Type	:Screw Type
Connection, single/stranded wires	:≤2.5 mm2, AWG 14
Protection, housing with cover/terminals	:IP 65 For Wall Mount and Duct Mount :IP 66 For Flame Proof Wall Mount and Duct Mount

DIMENSION

½ NPT CABLE GLAND
FOR CABLE ENTRY
-1 No.

120

134

10

6

½ *NPT PLUG - 1No.

½ NPT PLUG - 1No.

120

MOUNTING HOLE
M8 BOLT - 2Nos.

EARTHING BOLT
-2NOS.

19mm

95

SAFETY AND WARNING

To avoid Electrostatic Discharge (ESD) to the transmitter, that may cause permanent damage, Operator must operate device using ESD safe tools and clothing.

Before installation or beginning of any troubleshooting Procedures, the power to all equipment must be turned off and isolated. Units suspected of being faulty must be Disconnected and removed first and brought to a properly equipped workshop for testing and repair.

Component replacement and internal adjustments must be done either by Masibus or done under the guidance of Masibus.

Wiring must be carried out by skilled personnel and correct tools.

All wiring must confirm with standards of good practice and local codes and regulations. Wiring must be suitable for voltage, current, and temperature rating of the system. Beware not to over-tighten the terminal screws.
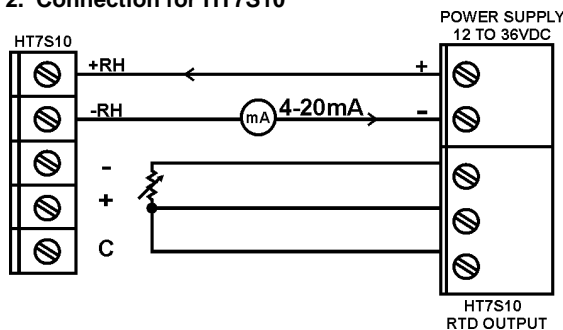
CONFIGURATION AND CONNECTION

HT7S series transmitters contain four variants, configurable as shown in below wiring diagrams.
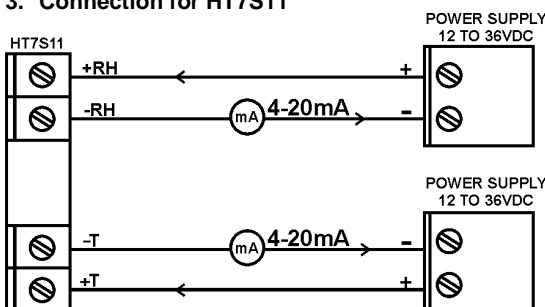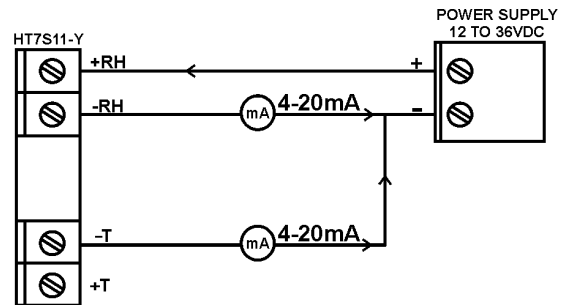
1. Connection for HT7S00
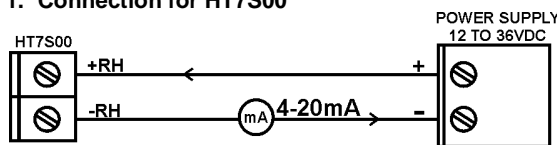
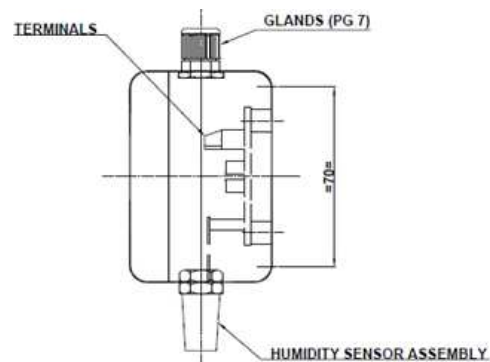**2. Connection for HT7S10**

3. Connection for HT7S11

4. Connection for HT7S11-Y

INSTALLATION

HT7S Series transmitter is available in wall mounting, duct mounting and flame proof duct mounting. Light weight wall anchors and mounting screws are included for wall mounting and a duct mounting kit is also available for duct mount models.

1. Wall Mount
With mounting Plates (Provided) attach the wall assembly plate to the wall with two screws.

2. Duct Mount and Flame Proof Duct Mounting
To install these device, loosen up the LNKey screw available on Flange so that Flange moves easily on Duct Pipe. Insert the Duct probe in Duct hole at desired depth and then tighten up the LNKey screw on Flange. After this step fix the Flange on Ducting.

Mechanical Installation
Relative humidity is extremely dependent on temperature. Proper measurement of relative humidity requires that the probe and its sensors be at exactly the temperature of the environment to be measured.

Because of this, the location where you choose to install the probe can have a significant effect on the performance of the instrument.

The following guidelines should guarantee good instrument performance:

Select a representative location: install the probe where humidity, temperature and pressure conditions are representative of the environment to be measured.

Provide good air movement at the probe: air velocity of at least 200 ft/ minute (1 meter/second) facilitates adaptation of the probe to changing temperature.

Immerse as much of the probe as possible in the environment to be measured.

Prevent the accumulation of condensation water at the level of the sensor leads. Install the probe so that the probe tip is looking downward. If this is not possible, install the probe horizontally.

The serial no. & calibration code of the sensor:

The small PCB name called sensor extension card that is placed over the main card or motherboard or signal conditioner card through 2-row 3-pin connector. The serial number and calibration code of the PCB can be seen at the backside of the sensor extension card that have unique 6 digits code for both sensor identification and easy customer calibration of transmitter or signal conditioner card. The first number is sensor serial code and second number is calibration code.

Calibration Code: The first three digit number represents code for 0 %RH value and last three digits number represents code for 75.3 %RH. For eg: Calibration code: **837136**. The actual sensor output voltage at 0 %RH = 0.**837** V (First three Digits: **837**) and at 75.3 % RH = 3.**136** V (Last Three Digits: **136**). Based on the given two points, you can calculate the sensor output voltage at 100 % RH it is approximately 3.891V by extrapolation technique which is used for calibration purpose only. The sensor output voltage will differ from sensor to sensor. Please call factory if you have any doubts.

TROUBLE SHOOTING

⚠ O/P mA Fault

Check the transmitter output connections.

Check the connection between the sensor and the transmitter.

Check the output voltage of the sensor for sensor open /short circuit.

⚠ O/P mA Not Matching to the Required Value

Check whether the sensor is having the same serial number as the transmitter have.

If there is a wide difference, check for any damage on sensor. If a reference sensor is available check it with the transmitter working correctly or not.

If there is calibration doubt, apply known values of Calibration Code and check the Output accordingly.

If still problem persist contact Masibus.

PRECAUTION

Don't remove the sensor card from the signal conditioning card. Don't interchange the sensor card form one unit to other unit directly. Its needs calibration. Contact Masibus for any calibration purpose. Don't touch the RH sensor.

ORDERING CODE

Model	Transmitter Type		Mounting Type		Duct Mounting Flange	
	XX		**XX**		**X**	
HT7S	00	Humidity Transmitter	W0	Wall Mount	N	No
	10	Humidity Transmitter with Pt100 Passive Output	D0	Duct Mount	Y	Yes
	11	Humidity +Temperature Transmitter	DX	Ex.Proof Duct Mount		
	11-Y	Humidity +Temperature Transmitter with common Power Rail	WX	Ex.Proof Wall Mount		

**For other than standard duct size (150 mm) please contact factory