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Humidity and temperature transmitter HTT-22

Instruction manual

Version 24.11

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1. Safety regulations

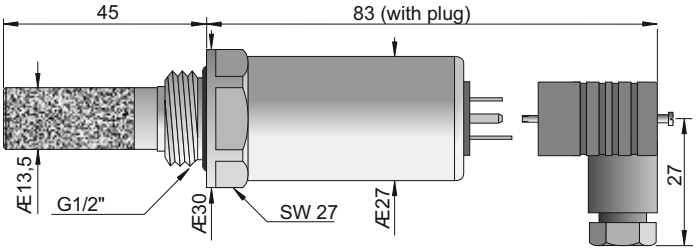
- before using a device it is obligatory to read this manual
- before powering up make sure that all cables are properly connected
- you should provide proper working conditions according to the device specifications (maximum gas pressure, powering conditions, humidity, temperature)

2. Device description

HTT-22 transmitter is an electrical device that measures temperature and relative humidity of an air or other gasses and converts that measurements to a standard process control signals of 4...20mA. A device is configurable with a PC and a **IF2013U** interface that should be connected to USB port and **E-config** program (version 2.2 or newer). Instead of a signal that is proportional to a relative humidity it is possible to chose an output that is proportional to a dew point temperature. It is also possible to change the range of converting measured data.

3.Specifications.

Relative humidity range	programmable, max 0%...100% (up to down ≥ 10%)
Dew point temperature range	programmable, max –40°Cdp... ... 80°Cdp (up to down ≥ 10°Cdp)
Temperature range	programmable, max –40°C ... ... +100°C (up to down ≥ 10°C)
Output signal	4...20mA
Accuracy, Relative humidity	2% for RH ≤ 80% and 3% for RH > 80%
Accuracy, Temperature	0,5 °C
Power supply	12 ... 36 V DC / 50 mA
Operating ambient temperature T_o	–40°C...+60°C
Maximum operating pressure	3 MPa
Case / filter material	stainless steel / 5 µm sinter of acid - resistant steel
Protection type	Ip65
Process connector	external thread G1/2"
Sealing	oring 22x2 VITON



Weight	150 g
Accessories (ordered additionally):	1) **IF-2013U-DPT** interface

4. Installation

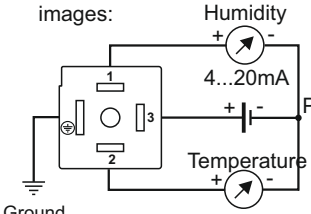
4.1. Cable connection

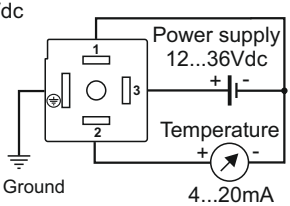
Number of wires of connection cable depends on whether one or two current outputs are in use and if the device is grounded through the cable.

Maximum diameter of a single wire is 0,75 mm^2. Outside diameter of a cable should be within 4,5 do 6,0 mm.

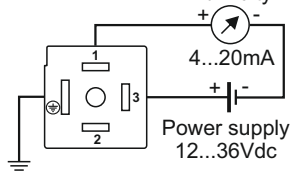
To connect the cables of a current loop and grounding cable to the device you should:

1. Unscrew the central screw holding the cable connector and remove the connector from the seating.
2. Pull the screw out of the the connector.
3. Using a narrow screwdriver pry the terminal block at point, where there is a widened gap between the block and a connector case and slide the terminal block out of the case.
4. Drag the cable through the hole in the case sealing. External isolation must be removed on the length of about 20 mm, isolation of individual wires must be removed on the length of about 5 mm. The end of copper wires should be galvanized.
5. Connect wires with terminals inside the block according to below images:





c) using temperature output.
The humidity output must be connected to the negative pole of the power supply.



b) using humidity output

6. Push the terminal block inside the case of the connector carefully laying wires of the cable and tighten a sealing by screwing it in. It is recommended to execute this operation after installing the device, because the terminal block can be placed in the case in 4 different ways (by 90°), which allows for directing the sealing in chosen direction.

4.2. Transmitter instalation

Transmitter can be installed with a flow sampling block (additionally ordered), or directly in a pipeline or a duct filled with gas, which humidity is to be measured. Recommended gas flow through processing unit is between 0,5 and 5 Nl/min. In case of installation directly in a pipeline, gas flow rate should be between 0 and 10 m/s.

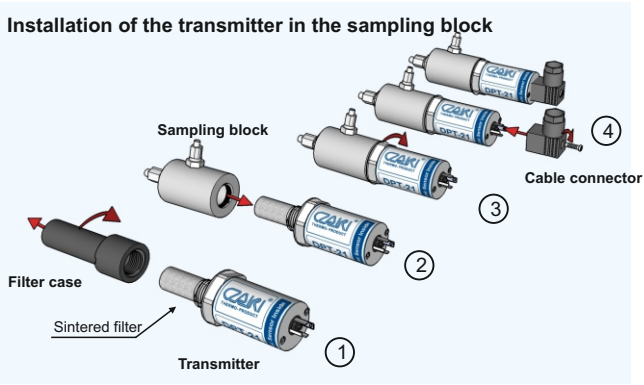
To install HTT-22 transmitter in HTT-SB sampling block::

1. unscrew the filter case containing pastille with humidity absorbent. Case should be kept in case of later protection of the transmitter for the time of storage or transport. It is prohibited to touch the filter surface.
2. insert the protective filter of detector inside the hole of a sampling block equipped with proper stub end. O-ring seal 18 x 2,5 mm is provided with transmitter.
3. Gently screw the transmitter in with hand, and then tighten it with wrench with a torque of 30 Nm. You should use 27 mm open-ended wrench or 27 mm ring wrench putting it on a hexagonal part of a transmitter.
4. Put the cable connector on a pins of a transmitter socket, remember about a flat sealing between a connector and a metal case. You can check the proper connector position by locating a wider ground pin. Tighten the central screw mounting calbe connection.

The same procces applies for installing the transimtter inside of a duct. The transmitter should not be placed near the bottom or an elbow of the pipe, because accumulating drops may cause saturation of the gas sample and false indication.

The pipe should have a threaded opening with flat and smooth surface allowing the seal of connection.

Stub end of the transmitter has an external G1/2" thread.



5. Maintenance

5.1. Calibration

HTT-22 transmitter does not require periodic calibration.

5.2. Replacement of the protective filter

Transmitter is equipped with a filter made form a sinter from a acid-resistant steel. Its purpose is protection of the sensor from a mechanical damage and contamination. Filter, in which pores were clogged with a solid particles has to be disassembled in order to clear or change for the new one. During unscrewing and screwing the filter you have to wear clean protective gloves.

It is prohibited to touch the detector circuit soldered to a PCB of a sensor.

A new filter can be ordered in a Czaki Thermo-Product company by ordering a replacement part DPT-FTR.

6. Programming

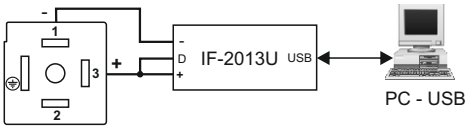
To change the transmitter setting you need:

1. A PC with a Windows® operating system and a USB port.

2. **HTT-IF2013U** interface produced by CZAKI THERMO-PRODUCT that is included with a software with proper drivers **E-config** program.

Cables required for a connection of the interface with a PC and a transmitter are provided in a set with an interface.

Connection diagram is shown below:



During programming transreceiver is powered form an interface with a voltage of about 20VDC.

Description of a software installation and DPT-config program usage is included in the IF2013U interface manual.

7. Package contents

1. Complete HTT-22 transmitter
2. Manual with a warranty certificate

Serial number	Technical inspection