T3110Ex, T3111Ex and T3113Ex industrial transmitters with 4 – 20 mA outputs

PRODUCT DESCRIPTION

Programmable industrial transmitters T311xEx with 4 - 20 mA outputs are designed for measurement of relative humidity and temperature in a potentially explosive environments.
The identification marking of intrinsically safe transmitters is ⟨Ex⟩ **II 3G Ex ic IIC T6 Gc** and ⟨Ex⟩ **II 3D Ex ic IIIB T85°C Dc**

Digital conception with microprocessor allows to determine the other computed humidity values, like dew point temperature, absolute humidity, specific humidity, mixing ratio and specific enthalpy. Measured and calculated values are displayed on a two-line LCD display. Using TSensor software (see www.cometsystem.com) you can assign to each output measured or computed value and to set its measuring range. For device connection to PC is used USB adapter SP003 (optional accessories).

The transmitter communicates by means two galvanically separated current loop 4-20mA. Each loop has two-wire connection and each loop requires power from evaluation device. It is always necessary to connect loop I1 which is designed for supplying of measuring part of the device.

Durable plastic housing (ASA material) contains electronics and connection terminal.

T3110Ex - ambient temperature and relative humidity transmitter with plastic stem

T3111Ex - temperature and relative humidity transmitter with probe on a cable

T3113Ex - temperature and relative humidity duct mounted transmitter with metal stem

INSTALLATION AND OPERATION

The transmitter **T3110Ex** is designed for wall mounting with two screws or bolts. Working position is with cable gland upwards.

The housing with electronics of **T3111Ex** transmitter is designed for wall mounting with two screws or bolts. Working position is arbitrary. The working position of the probe is arbitrary too. It is not recommended to use the probe for long time under condensation conditions. If this effect may occur, it is necessary to use the probe at operation position with sensor cover downwards

The transmitter **T3113Ex** is designed for air-conditioning duct. Device install by clamping the metal stem into the gland Pg21. The mounting flanges PP4 or PP90 can also be used (optional accessories). **Ground the metal stem electrostatically**. Use the supplied ground clamp with FASTON connector and connect it with a flexible wire. It is necessary to ensure (e.g. with tightening tapes) that the position of the clamp on the stem does not change during operation and that the earth wire does not become disconnected. The working position of transmitter is with the stem facing down, in air-conditioning duct you can place the device in any position.

The connecting terminals are accessible after unscrewing the four screws in the corners of the case and removing the lid. Pass the connecting cable through released gland and connect the wires according to diagram. Tighten gland and screw the lid.

For device connection it is recommended to use a shielded cable (external diameter 4 to 8 mm) with wire cross-section 0.14 to 1.5 mm^2. Maximum cable length of the current loop is 1200 m. When selecting the type of a cable and when choosing a location for its mounting it is necessary to observe the conditions for safe installation in the potentially explosive environments.

Pay attention to the location of the device and probe. Incorrect choice of working position could adversely affect accuracy and long-term stability of measured values.

Devices don´t require special operation and maintenance. It is recommended to keep clean sensor cover and periodically to verify the accuracy of measurement.

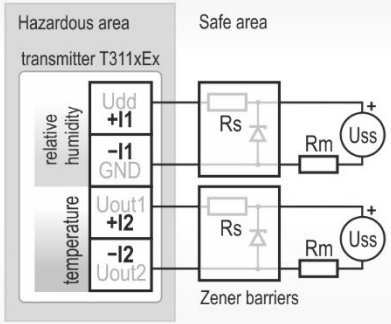
SAFETY INSTRUCTIONS

- Install the transmitter only in non-aggressive environment.
- Under certain extreme circumstances, the plastic enclosure may store an ignition-capable level of electrostatic charge (see the device warning label). The device shall not be installed in a location where the external conditions are conducive to the build-up of electrostatic charge. The equipment shall only be cleaned with a damp cloth.
- Setting the transmitter using a cable SP003 is permitted only in non-hazardous area.
- Ambient temperature of the housing with electronics **must not exceed 60ºC**.
- Humidity and temperature sensors of the transmitter cannot be operate and store without a filter cap.
- Temperature and humidity sensors have not to be exposed to direct contact with water and other liquids.
- It is not recommended to use the humidity transmitters for long time under condensation conditions.
- Don't connect or disconnect cables, if the device is powered.
- Installation, commissioning and maintenance may only be carried out by personnel with qualification by applicable regulations and standards.
- Devices contain electronic components, it needs to liquidate them according to legal requirement.
- **To supplement the information** provided in this data sheet, use the manuals and other documentations which are available at www.cometsystem.com.

Technical specifications

Device type	T3110Ex	T3111Ex	T3113Ex
Supply voltage	9 to 30Vdc	9 to 30Vdc	9 to 30Vdc
Temperature measuring range	-30 to +80°C	-30 to +105 °C	-30 to +125 °C
Accuracy of temperature measurement	± 0.4°C	± 0.4°C	± 0.4°C
Relative humidity (RH) measuring range *	0 to 100 %RH	0 to 100 %RH	0 to 100 %RH
Accuracy of humidity measurement from 5 to 95 %RH at 23°C	± 2.5 %RH	± 2.5 %RH	± 2.5 %RH
Intrinsically safe parameters	Ui = 30V, Ii = 100mA Pi = 1W, Io = 22mA Ci~0, Li~0	Ui = 30V, Ii = 100mA Pi = 1W, Io = 22mA Ci~0, Li~0	Ui = 30V, Ii = 100mA Pi = 1W, Io = 22mA Ci~0, Li~0
Output in case of error	< 3.8mA or 22mA	< 3.8mA or 22mA	< 3.8mA or 22mA
Recomended calibration interval of the device **	1 year	1 year	1 year
Protection class of the case with elektronics / Protection class of the RH+T probe and measuring end of stem	IP65 / IP40	IP65 / IP40	IP65 / IP40
Temperature operating range of the case with electronics	-30 to +60°C	-30 to +60°C	-30 to +60°C
Temperature operating range of the measuring end of stem	-30 to +80°C	—	-30 to +125°C
Temperature operating range of the RH+T probe	—	-30 to +105°C	—
Humidity operating range (no condensation)	0 to 100%RH	0 to 100%RH	0 to 100%RH
Mounting position	cable gland upwards	any position ***	cable gland upward ****
Storage temperature range (0 to 100%RH, no condensation)	-30 to +80°C	-30 až +80°C	-30 to +80°C
Electromagnetic compatibility according to	EN 61326-1	EN 61326-1	EN 61326-1
Weight	150 g	210 (250, 330) g	230 g
Dimensions [mm]			

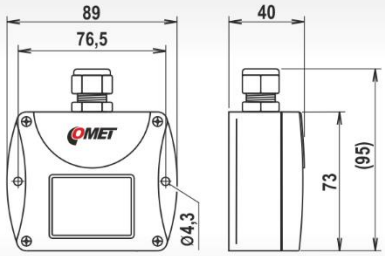
Typical electrical connection



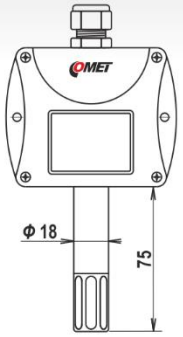
- intrinsically safe parameters of transmitter:
  Ui = 30V, Ii = 100mA, Pi = 1W
  Io = 22 mA, Ci ~ 0, Li ~ 0
- resistance of the current loop:
  Rc[Ω] < 40*Uss[V] - 360
  Rc = Rs + Rm + resistance of the wires

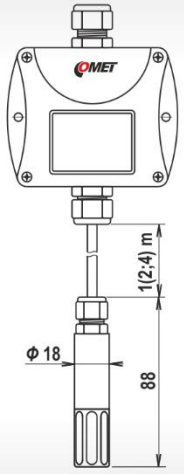
ATEX

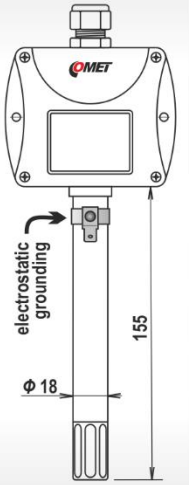
- identification marking
  II 3G Ex ic IIC T6 Gc
  II 3D Ex ic IIIB T85°C Dc
- certificate
  FTZÚ 13 ATEX 0189X
- compliance with standards
  EN IEC 60079-0:2018
  EN 60079-11:2012
- contact
  COMET SYSTEM, s.r.o.
  Bezrucova 2901
  756 61 Roznov pod Radhostem
  CZECH REPUBLIC



- warning label
  (special condition for safe use - sign"X")
  WARNING: POTENTIONAL ELECTROSTATIC CHARGING HAZARD - SEE INSTRUCTION







The resistance between metal stem and ground must be lest than 1MΩ

* The relative humidity measuring range is limited at temperatures above 85°C, see manuals for devices.
** Recomended calibration intervals: relative humidity - 1 year, temperature - 2 years

*** if it can lead to long term condensation of water, it is necessary to use the probe at position with sensor cover downwards
**** mounting position "cable glands upwards" is recomended for free space, in the air-conditioning duct you can place the device in any position