

# TEMPERATURE AND HUMIDITY TRANSMITTERS with 4-20mA output

temperature \* relative humidity \* dew point temperature \* absolute humidity \* specific humidity \* mixing ratio \* specific enthalpy



Programmable temperature and humidity transmitters are equipped with temperature and relative humidity sensors. Measured values are also converted to other humidity interpretation - dew point temperature, absolute humidity, specific humidity, mixing ratio or specific enthalpy. Degrees Celsius and Fahrenheit are user selectable. Transmitters are available in wall-mount, duct-mount and bar types. Also types with T+RH probe on a cable are available. Transmitter contains a microprocessor based control circuitry in a durable plastic case with connection terminals and sensors in a stainless steel mesh filter. Humidity transmitters are also available with two galvanic isolated 4-20mA outputs. Configuration of outputs and output range are user adjustable. Computerized design ensures temperature compensation of the humidity sensor and fail indication. State-of-the-art capacitive polymer sensor ensures excellent calibration long term stability, inertia against water and condensation.

TECHNICAL PARAMETERS	
Relative humidity operating range:	0 to 100%
Accuracy of relative humidity output:	±2.5% relative humidity from 5 to 95% at 23 °C
Accuracy of temperature output:	±0.4 °C from -30 to +100 °C, ±0.4% from reading over +100 °C
Accuracy of temperature output of T4111:	±0.15 °C + 0.1% from adjusted output span (without temperat. probe)
Accuracy and range of dew point temperature output:	±1.5 °C at ambient temperature < 25 °C and RH>30%, range -60 to +80 °C
Accuracy and range of absolute humidity output:	±3g/m <sup>3</sup> at ambient temperature T < 40 °C, range 0 to 400 g/m <sup>3</sup>
Accuracy and range of specific humidity output:	±2g/kg at ambient temperature T < 35 °C, range 0 to 550 g/kg
Accuracy and range of mixing ratio output:	±2g/kg at ambient temperature T < 35 °C, range 0 to 995 g/kg
Accuracy and range of specific enthalpy output:	± 3kJ/kg at ambient temperature T < 25 °C, range: 0 to 995 kJ/kg
Temperature operating range of the case:	-30 to +80 °C
Temperature operating range of the LCD display:	readable to +70 °C, recommended to switch off LCD over +70 °C
Range of temperature compensation of RH sensor:	-30 to +125 °C
Current outputs - two-wire connection:	4-20mA, galvanic isolated with dual-output models
Configuration of outputs and output range:	user adjustable from the PC
Filtering ability of sensor cover:	0.025mm
Power:	9-30Vdc
Dimensions of the case with electronics (W x H x D):	89 x 73 x 39.5 mm
Protection of the case with electronics:	IP65 electronics, IP40 sensors

Pxxxx Txxxx

# TEMPERATURE AND HUMIDITY TRANSMITTERS with 4-20mA output

TRANSMITTERS ARE AVAILABLE IN THE FOLLOWING MODELS:

MODEL	MEASUR. VALUE	MAXIMUM RANGE OF TEMPERATURE MEASUREMENT	STEM LENGTH	OUTPUT 1 <sup>2)</sup>	OUTPUT 2 <sup>2)</sup>	NOTE
T1110	RH	-30 to +80 °C	75mm	0-100%RH <sup>2)</sup>	-	outdoor and indoor use
T3110	RH+T	-30 to +80 °C	75mm	0-100%RH <sup>2)</sup>	-30 to +80 °C <sup>2)</sup>	outdoor and indoor use
T3113	RH+T	-30 to +125 °C <sup>1)</sup>	150mm	0-100%RH <sup>2)</sup>	-30 to +125 °C <sup>2)</sup>	duct mount, versions - T3113, T3113D
T3117	RH+T	-30 to +125 °C <sup>1)</sup>	700mm	0-100%RH <sup>2)</sup>	-30 to +125 °C <sup>2)</sup>	bar type
T3111	RH+T	-30 to +105 °C <sup>1)</sup> probe including cable	probe cable 1,2,4m	0-100%RH <sup>2)</sup>	-30 to +105 °C <sup>2)</sup>	T+RH probe with 1m cable. Diameter 18mm, length 90mm. Cable lengths 2m or 4m available.
T3111P	RH+T up to 25bars	-30 to +105 °C <sup>1)</sup> probe including cable	probe cable 1,2,4m	0-100%RH <sup>2)</sup>	-30 to +105 °C <sup>2)</sup>	Compressed air up to 25 bars. T+RH metal probe with 1m cable. Cable lengths 2m or 4m available. Diameter 18mm, length 110mm, thread G1/2.
T0110	T	-30 to +80 °C	53mm	-30 to +80 °C <sup>2)</sup>	-	outdoor and indoor use
T4111	T	-200 to +600 °C	-	-200 to +600 °C	-	transducer for external Pt1000 probes, output range adjustable by the user

1) Maximum temperature only at the measuring end with sensors. Maximum temperature +105 °C for T3111 with cable probe is allowed also for the cable. Near plastic case with electronics maximum temperature is +80 °C. Humidity at temperature over +85 °C is limited - see the graph below.

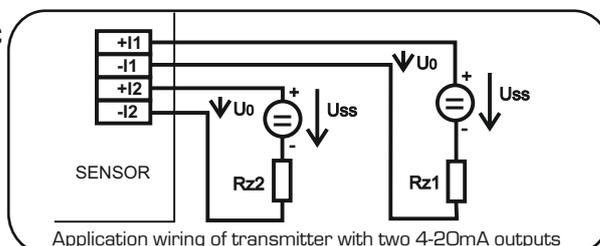
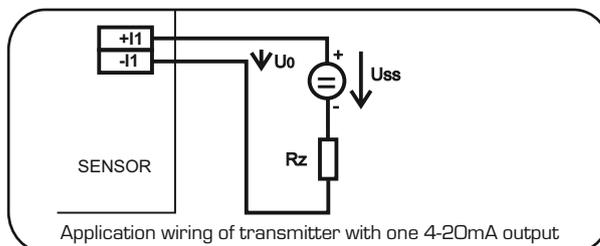
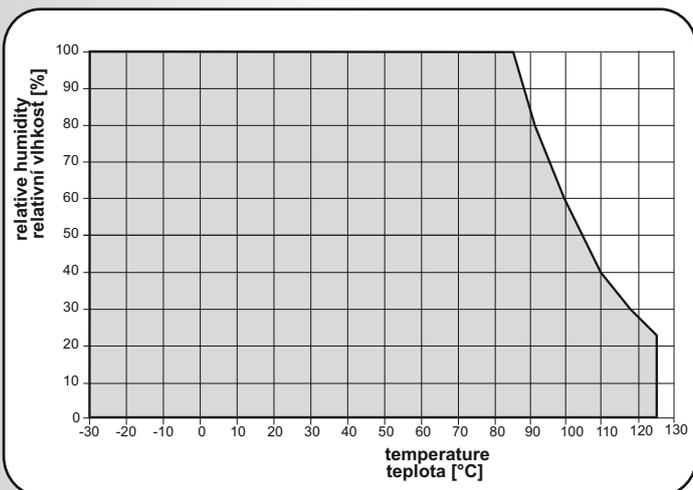
2) Any value - temperature, relative humidity, dew point temperature, absolute humidity, specific humidity, mixing ratio or specific enthalpy can be assigned to each output of dual output transmitters. Also identical value can be assigned to both outputs. The T1110 transmitter has only relative humidity output.

Outputs are adjusted to maximum range from the manufacturer. Output range is user adjustable from the PC by means of the optional cable SPO03 - see photo. Free configuration program TSensor for transmitter adjustment is ready to download anytime from [www.cometsystem.cz](http://www.cometsystem.cz).

If different adjustment of outputs and output ranges are required, please specify required output values (RH, T, Tdp, ...) and required ranges.

**Ordering example:** Transmitter T3110, output 1: RH 10 to 90%, output 2: temperature 0 to 35 °C

**Ordering example:** Transducer T4111, output: -100 to +30 °C



**Included accessory:** Traceable calibration certificate from the manufacturer, instruction manual. Calibration certificate with declared metrological traceability of etalons is based on requirements of EN ISO/IEC 17025 standard.

Free program TSensor for configuring of the transmitter is ready to download from [www.cometsystem.cz](http://www.cometsystem.cz).

Comet probes with Pt1000 sensors are directly connectable to T4111 transducer - see further. There is a symbol /O behind probe name.

**Other optional accessory:** see further

Transmitters are directly compatible with sixteen channel Comet data acquisition system MSx.