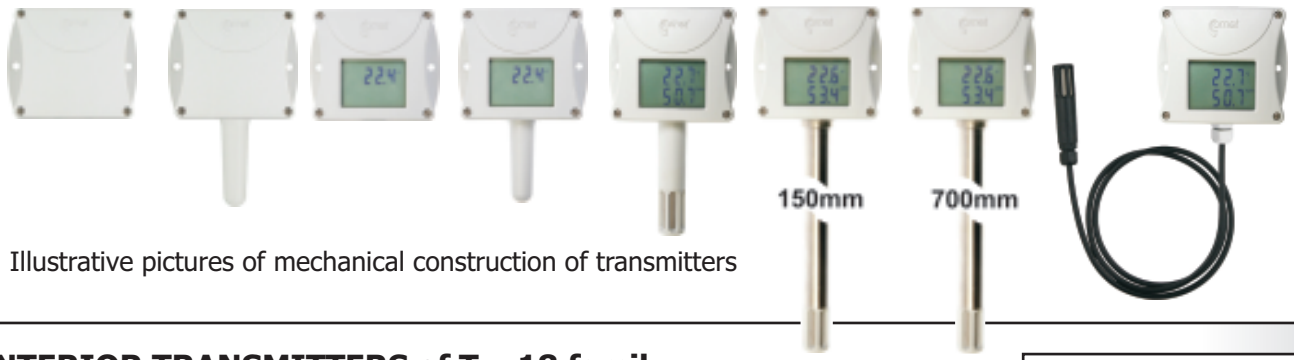
INDUSTRIAL TRANSMITTERS of Txxxx, Pxxxx family:

MEASURED VALUE /OUTPUT	4 to 20mA	0 to 10V	RS485	RS232	Ethernet
temperature	**P0120** figure 2 page 42	**T4211** figure 3 page 47	**T0410** figure 4 page 49	**T0310** figure 4 page 51	**P86xx** figure 2 page 53
	Px1x1 figure 1 page 42		**T4411** figure 3 page 49	**T4311** figure 3 page 51	**P85xx** figure 2 page 55
	T0110 figure 4 page 43				**T0510** figure 4 page 57
	T4111 figure 3 page 43				**T4511** figure 3 page 59
humidity	**T1110** figure 5 page 43				
atmospheric pressure	**T2114** figure 3 page 45	**T2214** figure 3 page 45	**T2414** figure 3 page 49	**T2314** figure 3 page 51	**T2514** figure 3 page 59
temperature+humidity	**T3110** figure 5 page 43	**T0210** figure 5 page 47	**T3411** figure 5 page 49	**T3311** figure 5 page 51	**T3510** figure 5 page 57
	T3113 figure 6 page 43	**T0213** figure 6 page 47	**T3413** figure 6 page 49	**T3313** figure 6 page 51	**T3511** figure 8 page 59
	T3117 figure 7 page 43	**T0211** figure 8 page 47	**T3417** figure 7 page 49	**T3319** figure 8 page 51	
	T3111 figure 8 page 43		**T3419** figure 8 page 49		
temperature+humidity +atmospheric pressure			**T7410** figure 5 page 49 **T7411** figure 8 page 49	**T7310** figure 5 page 51 **T7311** figure 8 page 51	**T7510** figure 5 page 57 **T7511** figure 8 page 59
CO_2	**T5140** figure 3 page 46 **T5141** figure 8 page 46	**T5240** figure 3 page 47 **T5241** figure 8 page 47	**T5440** figure 3 page 49 **T5441** figure 8 page 49	**T5340** figure 3 page 51 **T5341** figure 8 page 51	**T5540** figure 3 page 57 **T5541** figure 8 page 59
temperature+humidity+ CO_2			**T6440** figure 5 page 49	**T6340** figure 5 page 51	**T6540** figure 5 page 57

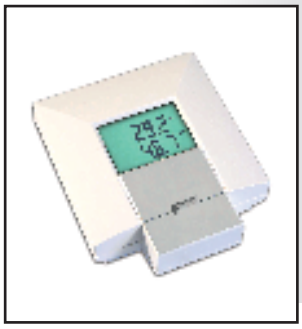
figure 1 figure 2 figure 3 figure 4 figure 5 figure 6 figure 7 figure 8



Illustrative pictures of mechanical construction of transmitters

INTERIOR TRANSMITTERS of Txx18 family

MEASURED VALUE / OUTPUT	4 to 20mA page 63	0 to 10V page 63	RS485 page 65	RS232 page 65
temperature	T0118	T0218	T0418	T0318
atmospheric pressure	T2118	T2218		
temperature + humidity	T3118	T3218	T3418	T3318
temperature + humidity + atmospheric pressure			T7418	T7318



TEMPERATURE AND HUMIDITY TRANSMITTERS with 4-20mA output

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

Transmitter T3113,length 150mm
Transmitter T3117,length 700mm

Transmitter T1110, T3110

Transmitter T3111, T3111P

Transmitter T3113D - duct mount

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^3 at ambient temperature T < 40°C, range 0 to 400 g/m^3
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 the humidity 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

TEMPERATURE AND HUMIDITY TRANSMITTERS with 4-20mA output

TRANSMITTERS ARE AVAILABLE IN THE FOLLOWING MODELS:

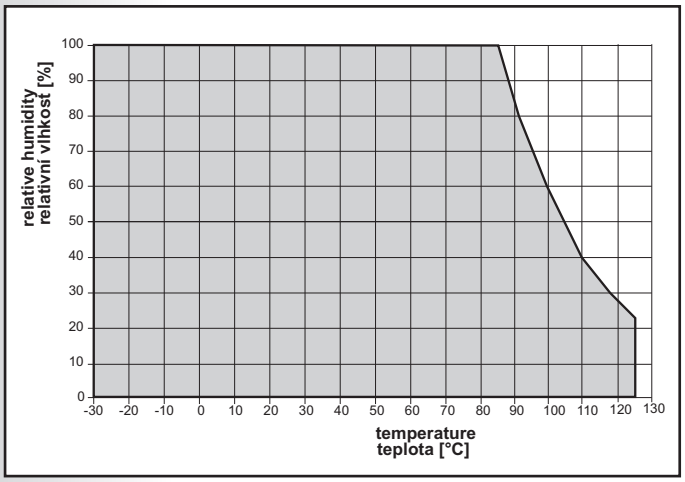
MODEL	MEASUR. VALUE	MAXIMUM RANGE OF TEMPERATURE MEASUREMENT	STEM LENGTH	OUTPUT 1[2)]	OUTPUT 2[2)]	NOTE
T1110	RH	-30 to +80°C	75mm	0-100%RH[2)]	-	outdoor and indoor use
T3110	RH+T	-30 to +80°C	75mm	0-100%RH[2)]	-30 to +80°C[2)]	outdoor and indoor use
T3113	RH+T	-30 to +125°C[1)]	150mm	0-100%RH[2)]	-30 to+125°C[2)]	duct mount, versions - T3113, T3113D
T3117	RH+T	-30 to +125°C[1)]	700mm	0-100%RH[2)]	-30 to+125°C[2)]	bar type
T3111	RH+T	-30 to +105°C[1)] probe including cable	probe cable 1,2,4m	0-100%RH[2)]	-30 to+105°C[2)]	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[1)] probe including cable	probe cable 1,2,4m	0-100%RH[2)]	-30 to+105°C[2)]	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[2)]	-	outdoor and indoor use
T4111	T	-200 to +600°C	-	-200 to+600°C[2)]	-	transducer for external Pt1000 probes, output range adjustable by the user

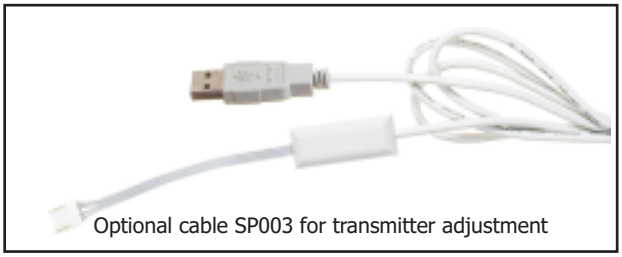
1) Maximum temperature only at the measuring end with sensors. Maximum temperature +105°C for T3111 with cable probe is allowed also for the cable. Near plastic case with electronics maximum temperature is +80°C. Humidity at temperature over +85°C is limited - see the graph below.

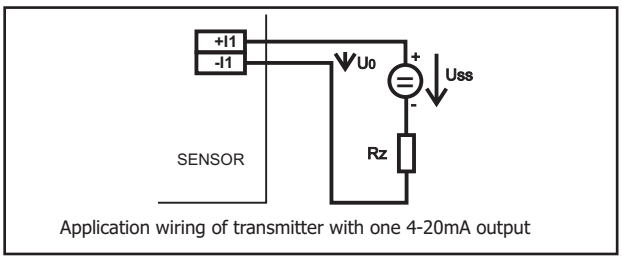
2) Any value - temperature, relative humidity, dew point temperature, absolute humidity, specific humidity, mixing ratio or specific enthalpy can be assigned to each output of dual output transmitters. Also identical value can be assigned to both outputs. The T1110 transmitter has only relative humidity output.
Outputs are adjusted to maximum range from the manufacturer.
Output range is user adjustable from the PC by means of the optional cable SP003 - see photo. Free configuration program TSensor for transmitter adjustment is ready to download anytime from 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


Transducer T4111

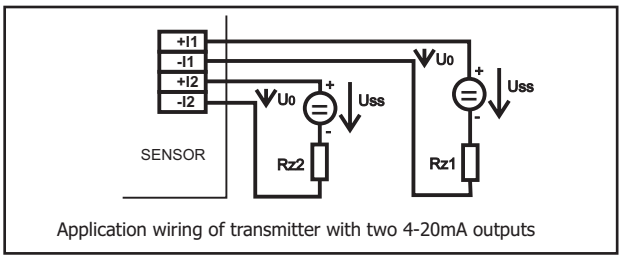

Thermometer T0110




Optional cable SP003 for transmitter adjustment



Application wiring of transmitter with one 4-20mA output



Application wiring of transmitter with two 4-20mA outputs

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.
Comet probes with Pt1000 sensors are directly connectable to T4111 transducer - see further. There is a symbol /0 behind probe name.

Other optional accessory: see further
Transmitters are directly compatible with sixteen channel Comet data acquisition system MSx.

BAROMETER with 4-20mA or 0-10V output

APPLICATIONS - measuring of barometric pressure at:

- warehouses
- manufacturers
- air-conditioned rooms
- weather stations

Transmitter is equipped with absolute pressure sensor of high accuracy. Transmitter contains a microprocessor based control circuitry in a durable plastic case with connection terminals and sensors. Output range is user adjustable. Large dual line LCD is an advantage. Display is possible to switch off. Computerized design ensures temperature compensation of the pressure sensor and fail indication. State-of-the-art absolute pressure sensor ensures excellent long term stability.
Display reading and pressure output is user selectable in these units: hPa, kPa, mbar, mmHg, inHg, inH_2O, PSI, oz/in^2.

TECHNICAL PARAMETERS

Maximum measuring range:	600 to 1100 hPa
Output setting from the manufacturer:	800 to 1100hPa
Accuracy:	±(1.3hPa+0.06% from adjusted output span) at 23°C from 800 to 1100hPa
Operating temperature range:	-30 to +80°C
Operating temperature range of LCD display:	readable to +70°C, it is recommended to switch OFF the LCD over +70°C
Output range:	user adjustable from the PC
Power:	9-30Vdc transmitter with 4-20mA output 15-30Vdc transmitter with 0-10V output, maximum consumption 20mA
Dimensions (W x H x D):	89 x 98 x 39.5 mm
Protection:	IP54
Warranty:	two years

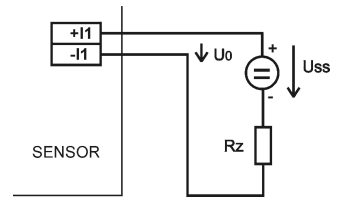
AVAILABLE BAROMETER MODELS:

- **T2114** - barometric pressure sensor with 4-20mA output
- **T2214** - barometric pressure sensor with 0-10V output

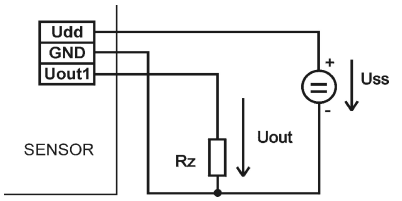
Output is adjusted to 800-1100hPa range from the manufacturer. Output range is user adjustable from the PC by means of the optional cable SP003 - see below. Free configuration program for transmitter adjustment is ready to download anytime. If different adjustment of output range is required, please specify required range.

Barometer enables to measure sea level pressure by setting of correction to altitude above sea level.

Optional cable SP003 for barometer setting



Wiring of barometer with 4-20mA output



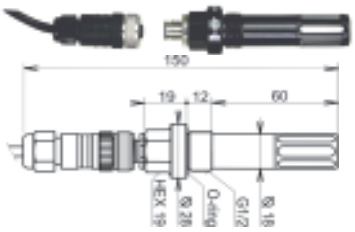
Wiring of barometer with 0-10V output

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.

Optional accessory:
SP003 - cable for transmitter adjustment via USB port
MD036 - self adhesive Dual Lock for easy installation
SP005 - tool for easy wire connection to terminals

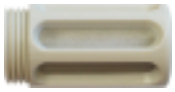
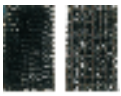
Barometer is directly compatible with sixteen channel Comet data acquisition system MS.

OPTIONAL ACCESSORIES FOR HUMIDITY TRANSMITTERS

New - probe for compressed air	Order code	
	**TxxxxP** **Hxxx1P**	Optional temperature, humidity, dew-point probe designed for compressed air measurement up to 25 bars. Cable lengths 1, 2 or 4m available. Length 110mm, diameter 18mm, G1/2 thread. Available with TxxxxP, HxxxxP transmitters.
	**SH-PP**	Flow chamber for compressed air measurement up to 25 bars - stainless steel DIN 1.430. Inlet and outlet connection - G1/8 thread. Humidity probe connection - G1/2 thread. Screw-coupling not included.
	**TxxxxL** **HxxxxL**	Transmitter version with watertight male connector IP67 Lumberg RSFM4 instead of cable gland for easy connection/disconnection of the output. Specify please your order with letter L behind model code - e.g. T3110L or H3020L
	**K1427**	Female connector ELKA 4012PG7 for TxxxxL, HxxxxL transmitters with male connector Lumberg for easy connection/disconnection of the output. Cable is easily connected to screw terminals of the connector. IP67 protection.
	**without LCD**	Transmitter version with blind lid without LCD. Specify please the requirement in your order.
 	**OEM**	Transmitters are also available without Comet logo as OEM products. Specify please the requirement in your order. Minimum order of OEM transmitters without Comet logo is 100 pcs.
	**F8000**	Solar radiation shield for transmitters with T+RH probe on a cable.

OPTIONAL ACCESSORIES FOR HUMIDITY TRANSMITTERS

Accessories

	Order code	
	F5200	grey sensor cover with filter from stainless steel mesh, filtering ability 0,025mm
	F5200B	black sensor cover with filter from stainless steel mesh, filtering ability 0,025mm
	SP003	Cable for transmitter adjustment via USB port - for models Tx1xx, Tx2xx with analog outputs and models Hx0xx.
	PP4	flat plastic circular flange for duct mounting
	PP90	right-angled stain-less steel flange for wall mounting
	SP004	plastic gland for direct mounting of the humidity probe to a 29 mm diameter hole
	SP005	tool for easy wire connection to WAGO terminals Wago - for transmitters with current and voltage output
	SP006	tool for easy wire connection to WAGO terminals Wago - for Txxxx transmitters with serial output RS485 and RS232 and Hxxxx transmitters
	MD036	self adhesive Dual Lock for easy installation
	A1515	ac/dc adapter 230V-50Hz/12Vdc for Ethernet transmitters Tx5xx, Hx5xx - with co-axial connector
	A1510	ac/dc adapter 230V-50Hz/12Vdc for serial output Txxxx transmitters and Hxxxx transmitters - for connection to terminals
		**ACCESSORIES FOR EASY RELATIVE HUMIDITY CALIBRATION AND ADJUSTMENT**
	MD046	anodized duraluminum vessel for relative humidity calibration and adjustment
	HM023	set of 5 humidity standards 10% RH with 5 application pads
	HM024	set of 5 humidity standards 80% RH with 5 application pads

TR Automatyka Sp. z o. o.
ul. Lechicka 14 ; 02-156 Warszawa
Tel. (+48 022) 886 10 16
Fax. (+48 022) 846 50 37
www.trautomatyka.pl
biuro@trautomatyka.pl