

PRODUCT DESCRIPTION

Programmable transmitters with 4 – 20mA or 0 - 10V output are designed for measurement of CO₂ concentration in air. Devices are available in ambient air version or with probe on a cable and they can be used in a chemical non-aggressive environment.

The CO₂ concentration is measured using the maintenance free sensor. The unique patented auto-calibration procedure compensates aging of the sensing element and guarantees outstanding high reliability and long-term stability.

Measured values are displayed on a two-line LCD display. The device is also equipped with three-color LED for visual indication of the CO₂ concentration. Using *TSensor* software (see www.cometsystem.cz/software.htm) you can set up measuring range of device output, measurement mode of CO₂ concentration and limits of CO₂ LED indication. For device connection to PC is used USB adapter SP003 (optional accessories).

Durable plastic case from ABS contains electronic and connection terminals. For easy connection/disconnection of the output cable is used TxxxxL version with Lumberg connector instead of a cable gland.

type *	output	measured value	construction	mounting
T5140	4 - 20mA	CO ₂	ambient air	wall
T5240	0 - 10V	CO ₂	ambient air	wall
T5141	4 - 20mA	CO ₂	probe on cable	wall
T5241	0 – 10V	CO ₂	probe on cable	wall

* models marked TxxxxZ are custom - specified devices

INSTALLATION AND OPERATION

Attach the transmitter on a flat surface with two screws or bolts. Unpack the external CO₂ probe and connect it to the device. Then place the probe into the measured environment. Pay attention to device mounting, because incorrect choice of working position or measuring point could adversely affect accuracy and long-term stability of measured values.

The connecting terminal is 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 shielded cable (external diameter 4 to 8mm) with wire cross-section 0.14 to 1.5 mm². Maximum cable length of the current loop is 1200m, maximum voltage output cable length is 15m. For TxxxxL devices it is recommended to use shielded cable (external diameter 3 to 6.5 mm) with wire cross-section max. 0.75 mm². All cables should be located as far as possible from potential interference sources.

The internal test starts after switching the device. During this time (about 20 s) LCD display shows **----** instead of CO₂ concentration value.

Devices don't require special operation and maintenance. We recommend you periodic calibration for measurement accuracy validation.

ERROR STATES

Device continuously checks its state during operation and if an error appears, it is displayed relevant code:

Err 2 - CO₂ concentration measurement error occurred

Err 0, **Err 3** and **Err 4** - it is a serious error, please contact distributor of the device

SAFETY INSTRUCTIONS

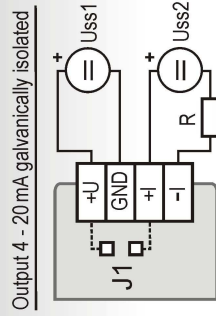


- The device must be turned on for at least 24 hours in order to start the automatic calibration of the CO₂ sensor.
- Don't connect or disconnect transmitter while power supply voltage is on.
- Installation, electrical connection and commissioning should be performed by qualified personnel only.
- Devices contain electronic components, it needs to liquidate them according to legal requirements.
- For more information, please use detailed manuals and other documentation which are available at www.cometsystem.cz/manuals.htm or www.cometsystem.cz/software.htm

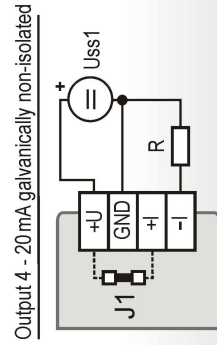
Technical specifications

	T5140	T5240	T5141	T5241
Device type	T5140	T5240	T5141	T5241
Analog output	4 - 20 mA	0 - 10 V	4 - 20 mA	0 - 10 V
Supply voltage / power consumption during normal operation / max. power consumption (for 50 ms with 15 s period)	9 - 30 Vdc / 1W / 4W < 3.8mA or > 24mA	15 - 30 Vdc / 0.5W / 3W < -0.1V or > 10.5V	9 - 30 Vdc / 1W / 4W < 3.8mA nebo > 24mA	15 - 30 Vdc / 0.5W / 3W < -0.1V nebo > 10.5V
Output in case of error	0 to 2000 ppm	0 to 2000 ppm	0 to 10 000 ppm	0 to 10 000 ppm
CO ₂ concentration measuring range *	± (50ppm+2% of measured value)	± (50ppm+2% of measured value)	± (110ppm+5% of measured value)	± (110ppm+5% of measured value)
Accuracy of CO ₂ concentration measurement at 25°C and 1013 hPa	typ. 2 ppm CO ₂ / °C	typ. 2 ppm CO ₂ / °C	typ. 2 ppm CO ₂ / °C	typ. 2 ppm CO ₂ / °C
Temperature dependence of CO ₂ concentration measurement at 0 to 50°C	5 years	5 years	5 years	5 years
Recommended calibration interval	IP30	IP30	IP65	IP65
Protection class of the case with electronics	—	—	IP65	IP65
Protection class of the CO ₂ probe	—	-30 to +60°C	-30 to +80°C	-30 to +80°C
Temperature operating range of the case with electronics	—	—	-40 to +60°C	-40 to +60°C
Temperature operating range of the CO ₂ probe	5 to 95%RH	5 to 95%RH	0 to 100%RH	0 to 100%RH
Humidity operating range (environment without condensation)	850 to 1100 hPa	850 to 1100 hPa	850 to 1100hPa	850 to 1100hPa
Humidity operating range (environment without condensation)	any position	any position	any position	any position
Atmospheric pressure operating range	EN 61326-1, EN 55011	EN 61326-1, EN 55011	EN 61326-1, EN 55011	EN 61326-1, EN 55011
Mounting position	150 g	150 g	250 (280, 340) g	250 (280, 340) g
Storage temperature range (5 to 95%RH, no condensation, atmospheric pressure 700 to 1100 hPa)				
Electromagnetic compatibility according to				
Weight				
Dimensions [mm]				

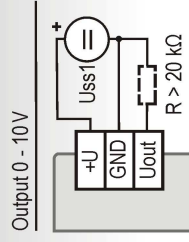
Electrical wiring



$$R_{max[\Omega]} = 50 * U_{ss2[V]} - 450$$



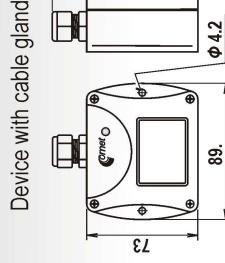
$$R_{max[\Omega]} = 50 * U_{ss1[V]} - 450$$



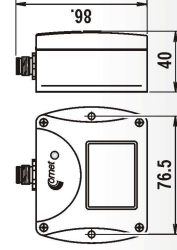
TxxxxL transmitter version
female Lumberg connection



pin	4-20mA	0-10V
1	+U	+U
2	+	Uout
3	-	GND
4	GND	GND



TxxxxL version of device



* LED indication (preset by manufacturer): **green** (0 to 1000 ppm), **yellow** (1000 to 1200 ppm), **red** (1200 to 2000/10000 ppm)