

PRODUCT DESCRIPTION

Programmable interior transmitters with RS232 or RS485 output are designed for measurement of CO₂ concentration in air and for measurement of air temperature in exacting interiors in building energy management and HVAC systems.

The CO₂ concentration is measured using the dual wavelength NDIR sensor with multiple point adjustment. This principle compensates aging of the sensing elements and guarantees outstanding high reliability and long-term stability of the measurement.

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. Devices support Modbus RTU protocol, protocol compatible with standard Advantech-ADAM and protocol ARION. For setting of all device parameters use *Tsensor* software (can be free downloaded from www.cometsystem.cz).

Transmitters are designed for easy installation on ordinary KU68 wiring boxes with using two enclosed mounting screws.

type *	output	measured values	construction	mounting
T8348	RS232	T + CO ₂	ambient air	wall
T8448	RS485	T + CO ₂	ambient air	wall

* models marked TxxxxZ are custom - specified devices

T...temperature, CO₂...concentration of CO₂ in air

INSTALLATION AND OPERATION

For correct function there is necessary to find proper device place. It shouldn't be placed at places where it can be affected by sunshine, near radiators, heating elements and other heat sources, air handlers, windows, doors, into racks and shelves and similar places. For buildings with less thermal insulation there is not suitable to place them on external walls of building. If there are communication conductors placed into conduit, there is strongly recommended make it caulk, to restrict air flow around device.

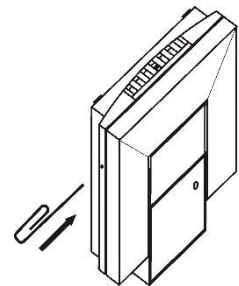
Firstly mount back part of device onto wiring box with two holding screws. Connect cables to terminals and finally insert front part of device (installation procedure see next page). For transmitters with RS485 interface it is recommended to use shielded twisted cable with a length up to 1200m, for devices with RS232 interface is maximum cable length 15m. All cables should be located as far as possible from potential interference sources.

After powering on the device starts the internal test. During this time 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.

INFO MODE

The device address can be verified without a use of the computer by pressing button on the left side of the device (see picture). For button pressing use thin instrument (paper clip etc.). At first you open jumper (it is accessible after removing the front part of the device), and than shortly press button. Actual adjusted address of the transmitter is displayed on LCD display at decimal base. Next press of button exits info mode and actual measured values are displayed.



COMMUNICATION PROTOCOLS AND ERROR STATES

Description of communication protocols is available at www.cometsystem.cz (see appropriate transmitter pages). Device setting from the manufacturer is **ModBus RTU**, address **1**, communication speed **9600 Bd** (no parity, 2 stop bits).

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

Err 2 - CO₂ concentration or temperature measurement error occurred

Err 0, Err 1, Err 3 and Err 4 - it is a serious error, please contact distributor of the device

SAFETY INSTRUCTIONS



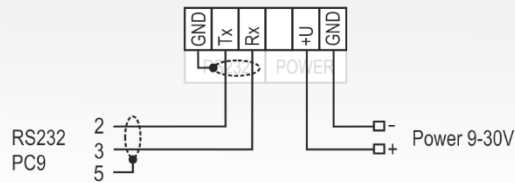
- Don't connect or disconnect transmitter while power supply voltage is on.
- Don't use the device in an explosive environment.
- Devices are not designed for locations with chemically aggressive environment.
- Installation, electrical connection and commissioning should be performed by qualified personnel only.
- Devices contain electronic components, it needs to liquidate them according to currently valid conditions.
- **To supplement the information** provided in this data sheet, use the manuals and other documentations which are available at www.cometsystem.cz.

Technical specifications

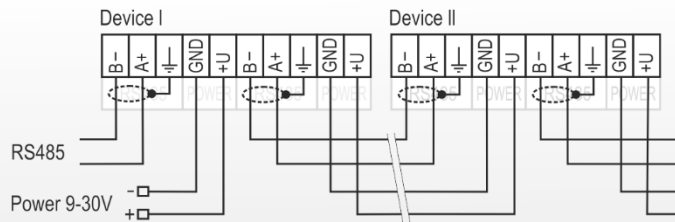
Device type	T8348	T8448
Serial interface	RS232	RS485
Supply voltage	9 - 30 Vdc	9 - 30 Vdc
Power consumption / max. power consumption (for 50 ms with 15 s period)	0.5W / 3W	0.5W / 3W
Temperature measuring range	-10 to +50°C	-10 to +50°C
Accuracy of temperature measurement	± 0.5°C	± 0.5°C
CO ₂ concentration measuring range *	0 to 5000 ppm	0 to 5000 ppm
Accuracy of CO ₂ concentration measurement at 25°C and 1013 hPa	± (50ppm+3% of measured value)	± (50ppm+3% of measured value)
Temperature dependence of CO ₂ concentration measurement at -20 to 45°C	± (1+CO ₂ [ppm]/1000) ppm/°C	± (1+CO ₂ [ppm]/1000) ppm/°C
Recommended calibration interval - temperature / CO ₂	2 years / 5 years	2 years / 5 years
Protection class of the case with electronics	IP20	IP20
Temperature operating range of the case with electronics	-10 to +50°C	-10 to +50°C
Humidity operating range (no condensation)	5 to 95%RH	5 to 95%RH
Atmospheric pressure operating range	850 to 1100 hPa	850 to 1100 hPa
Storage temperature range (5 to 95%RH, pressure 700 to 1100 hPa)	-30 to +80°C	-30 to +80°C
Electromagnetic compatibility according to	EN 61326-1	EN 61326-1
Weight	150 g	150 g

Electrical wiring

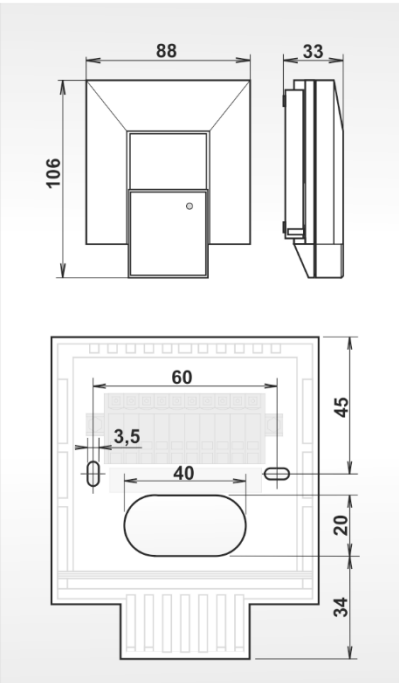
Typical application wiring - RS232



Typical application wiring - RS485

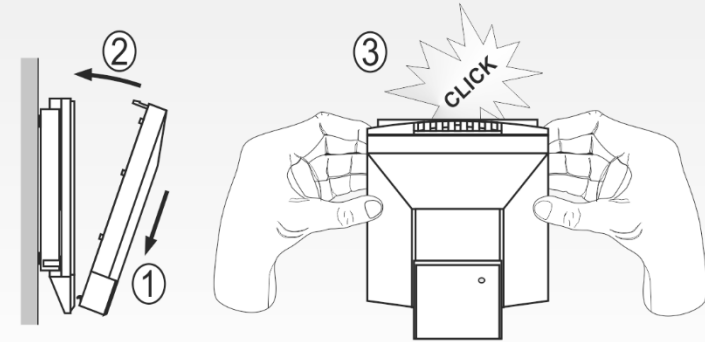


Dimensions

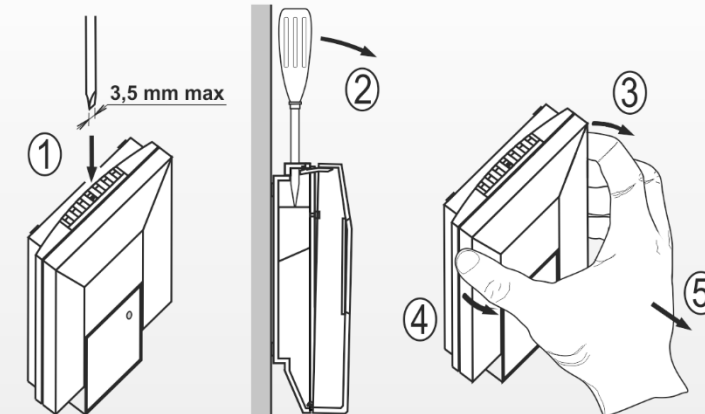


Device installation

Device mounting



Device demounting



* LED indication (preset by manufacturer): **green** (0 to 1000 ppm), **yellow** (1000 to 1200 ppm), **red** (1200 to 5000 ppm)