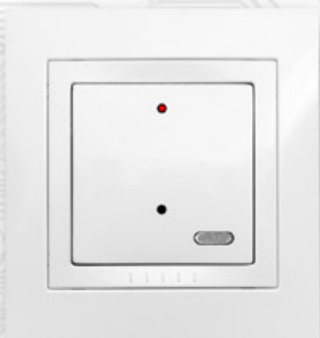


- long-term stability - NDIR sensor
- maintenance-free operations
- measuring the concentration of CO2 with an output signal of 0 ÷ 10V
- measuring temperature with an output signal of 0 ÷ 10V, by a passive sensor or without measuring the temperature
- very compact and a space-efficient design
- easy assembly into air-conditioning ducts



The sensors are designed to measure the concentration of CO2 and the air temperature without aggressive admixtures in the air-conditioning ducts. The output concentration of CO2 is the 0 ÷ 10V voltage signal. The output of the measured temperature may be a voltage signal of 0 ÷ 10V, a passive resistant output (Pt100, Pt1000, Ni1000...) or the instrument may not have the possibility to measure temperature.

The electronics of the controller are made up of two parts. The CO2 sensor is located on the instrument's front cover in the requested design, into which the measured air is supplied by the small opening. The temperature sensor is located in the metal case on the front cover. The sensors must be protected from dirt, excessive dust or direct exposure to water! The main part with the terminals is located in the box that is inserted into the installation box (KU68). Both parts are disconnect ably connected by a flat

List of available types:

Types of outputs	CO2 = 0 ÷ 10V, temperature = 0 ÷ 10V	CO2 = 0 ÷ 10V, temperature = resistance sensor	CO2 = 0 ÷ 10V, temperature = NO
CO2 = 0 ÷ 2000ppm	CTU - 2K	CTU - 2K - x	CNU - 2K
CO2 = 0 ÷ 5000ppm	CTU - 5K	CTU - 5K - x	CNU - 5K
CO2 = 0 ÷ 10000ppm	CTU - 10K	CTU - 10K - x	CNU - 10K

Standard temperature ranges for 0 ÷ 10V output:

- 30 ÷ 60 °C
- 0 ÷ 35 °C
- 0 ÷ 50 °C
- 0 ÷ 100 °C

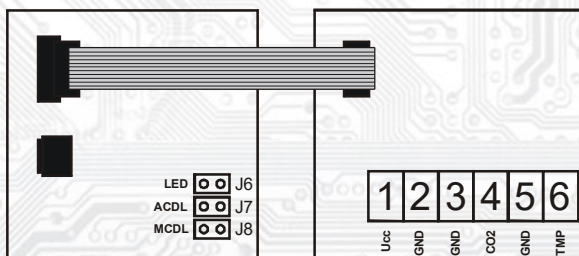
List of type of resistance sensors....x

Type of resistance sensor	Placement after x (eg CTU-2K-PA)
Pt 100 / 3850 ppm	P
Pt 1000 / 3850 ppm	PA
Ni 1000 / 6180 ppm	S
Ni 1000 / 5000 ppm	L
Ni 891 / 6371 ppm	J
Ntc 20kΩ	H

Basic technical parameters:

Supply voltage (Ucc)	15 - 30 VDC
Power consumption/ peak (<200ms)	0,37VA / 3,7VA
Accuracy - CO2 (range 0 - 2000ppm)	±30ppm ±5% of the scale
Accuracy - temperature (temperature = 0 - 10V)	±1% of the scale
Accuracy temperature	Ni: class B; DIN 43760 Pt: class B; EN60751
Recommended/Max. measurement current (Temperature = sensor)	Pt1000, Ni1000 0,1mA / 1mA Pt100 1mA / 5mA
Load impedance of voltage outputs (Rz)	> 50kΩ
Time of stabilization	30 minutes
Galvanic separation of outputs	no
Range of recommended working temp	0 ÷ 50 °C / 0 ÷ 95%RH without condensation
Range of recommended storage temp. / RH	20 ÷ 60 °C / 0 ÷ 95%RH without condensation
Protection type	IP 30
Terminal board	CPP (wires max. 1 mm ²)

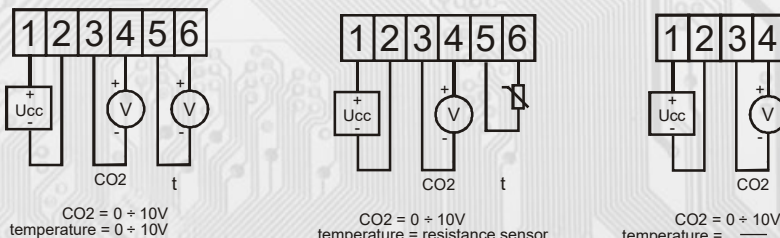
Connection plan (fig. 1):



J6.... LED (Optical signalization increased concentration of CO2)
 J7... ACDL (Automatic Calibration in Dimming Light mode)
 J8... MCDL (Manual Calibration in Dimming Light)

Terminal 1.....+Ucc, positive pole
 Terminal 2.....GND, negative pole
 Terminal 3.....common pole GND of output CO2
 Terminal 4.....positive pole of output CO2 (0-10V)
 Terminal 5.....common pole GND of output temperature or resistance output of sensor
 Terminal 6.....positive pole of output temperature (0-10V) or resistance output of sensor
 Terminal 2, 3 and terminal 5 are galvanically connected

Connection (fig. 2):



The function of the automatic calibration (ACDL) and the manual recalibration (MCDL):

The CO2 sensor contains optical elements, which "age" during operations and the sensor loses its accuracy. In normal living rooms, where occasional complete air exchange of the room is assumed, ageing is compensated by setting the ACDL mode, which is the automatic calibration function. This function is activated by a permanent short-circuit of the J7 connector, when the first automatic calibration takes place after 3 days and then after every week.

In areas, where it is not possible to use the automatic calibration function, it is advisable to occasionally use the manual recalibration function. This is done by placing sensors with a connected voltage supply into the ventilated area, preferably into an outdoor environment (CO2 content = approx. 400ppm) for at least 30 minutes. Then, the J8 connector is short-circuited for 10 minutes. After 10 minutes, the connector is disconnected and the sensor works with modified values. The sensor must be placed in a ventilated area for the duration of the recalibration.

The instrument is supplied calibrated from the manufacturer without any set mode. It is up to the user to choose how the calibration will take place. The majority of the users use the optimal automatic calibration function (ACDL), thereby connected to J7.

Optical signalization increased concentration of CO2:

Closing the J6 connector (LED) activates the function signaling increased CO2 concentration. If this function is active, once CO2 concentration exceeds 1000ppm, the red LED at the top part of the cover lights up and turns off once the CO2 concentration drops below 800ppm.

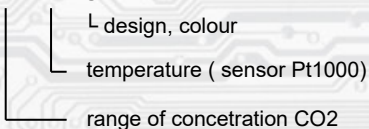
Assembly and connection:

The sensors are designed to be installed into the standard installation boxes (KU68). The electrical connection of the conductors is done on the terminal, which is on the main part of the instrument by a conductor with a maximum cross section of 1mm² according to Fig. 1 and 2. Once the terminal box is connected, the box with the main part of the instrument is inserted into the installation box, where it is advisable to fasten it somehow. Then, screw the frame of the instrument onto the installation box and connect both parts of the electronics by a flat conductor. Insert the front cover into the frame of the instrument. This completes the mechanical installation. For disassembly, proceed in the reverse order

Method of ordering:

State the quantity of pieces and the sensor type in the order .

An example of an order: 5 pieces sensor CTU12 - 2K - PA - Unica Basic white



List of available types:

ABB	Tango, Swing, Levit
LEGRAND	Valena, Cariva,
BTicino	Light, Light Tech, Living, Axolute, Living light
SHNEIDER ELECTRIC	Unica Basic, Unica Colors, Unica Top, Unica Quadro, Unica Plus, Merten Artec, Merten Antique, M-Plan, M-Smart, M-Star, ANYA
EFAPEL	Logus90
GIRA	Systém55, E22
VIMAR	Plana, Idea, Eikon
JUNG	LS990

Temperature sensors:

Pt100, Pt500, Pt1000, Ni1000/6180ppm, Ni1000/5000ppm, Ni891, Ni2226, Ni10000/6180ppm, NTC20kΩ

Examples of embodiments

