KIMO INSTRUMENTS

TECHNICAL DATA SHEET

CO_2 and temperature transmitter

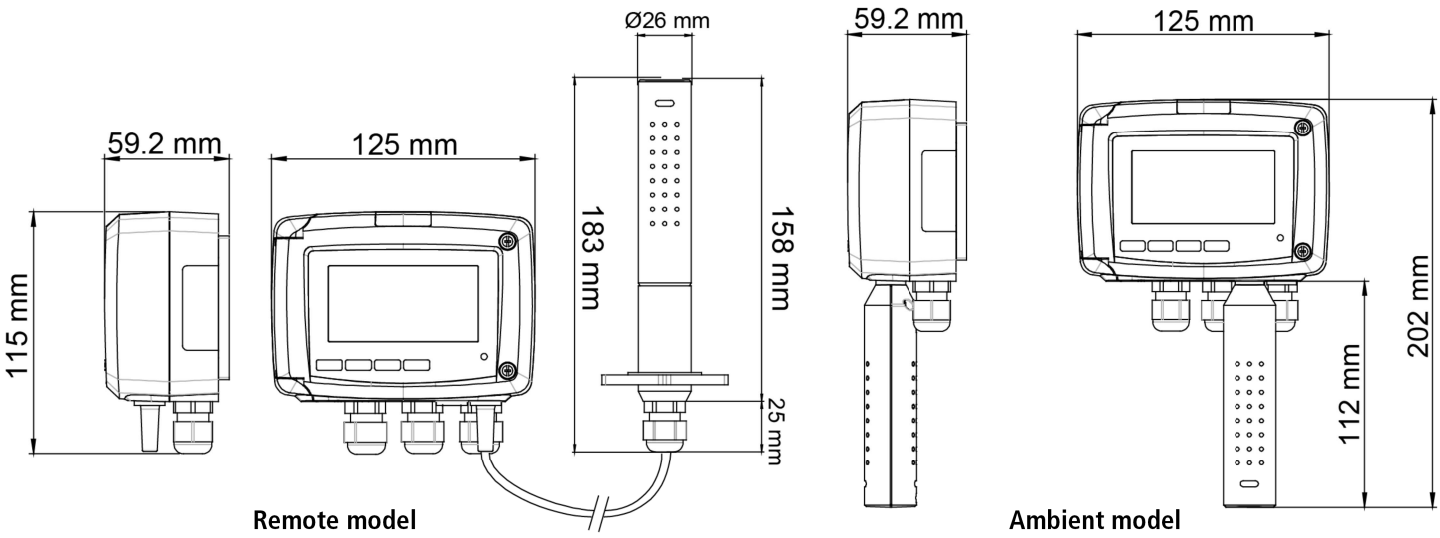
COT 212-R

KEY POINTS

- Configurable ranges from 0 to 5000 ppm* and from 0 to 50°C
- Two 4-wire analogue output 0-5/10 V or 0/4-20 mA
- Power supply 24 Vdc/Vac or 100-240 Vac
- Trend indicator
- ABS V0 IP65 housing, with or without display
- "¼ turn" system mounting with wall-mount plate
- 2 relay outputs

**Other measuring range available on request: 0-20 000 ppm*

FEATURES OF THE HOUSING



Remote model **Ambient model**

Material: ABS V0 as per UL94

Protection: IP65

Display: 75 x 40 mm, LCD 19 digits 2 lines.

Height of digits: Values: 10 mm; Units: 5 mm

Cable gland: For cables Ø8 mm maximum

Weight: 340 g

PART NUMBER

To order, just add the codes to complete the part number:

COT 212 — [ ] — [ ] — [ ] — R

Power supply / Output
B: 24 Vac/Vdc
H: 100-240 Vac

Display
O: with display (only for models with power supply of 100-240 Vac)
N: without display (only for models with power supply of 24 Vac/Vdc)

Type of probe
D: remote
S: ambient

Relay outputs

Important note:
The model with power supply of 24 Vac/Vdc is available only without display.
The model with power supply of 100-240 Vac is available only with display.

Example: COT212 – BNS – R
Temperature and CO_2 transmitter, 24 Vac/Vdc power supply, without display, with ambient probe and relay outputs

TECHNICAL FEATURES IN TEMPERATURE

Measuring range	From 0 to +50°C
Unit of measurement	°C / °F
Accuracy*	±0.3°C
Response time	T_{90} = 0.9 second for V_{air} = 1 m/s
Resolution	0.1°C
Type of sensor	NTC
Type of fluid	Air and neutral gases

TECHNICAL FEATURES IN CO_2

Measuring range	From 0 to +5000 ppm Other available range: from 0 to 20 000 ppm
Unit of measurement	ppm
Accuracy*	From 0 to 5000 ppm: ±3% of the measured value ±50 ppm From 0 to 20 000 ppm: ±5% of the measured value ±100 ppm
Response time	T63 = 35 s
Resolution	1 ppm
Type of sensor	Infrared sensor
Type of fluid	Air and neutral gases

**All the accuracies indicated in this technical datasheet were stated in laboratory conditions, and can be guaranteed for measurements carried out in the same conditions, or carried out with calibration compensation.*

TECHNICAL FEATURES OF THE PROBES

- Ambient probe

Size	Length: 112 mm; diameter: 26 mm
Material	Polycarbonate

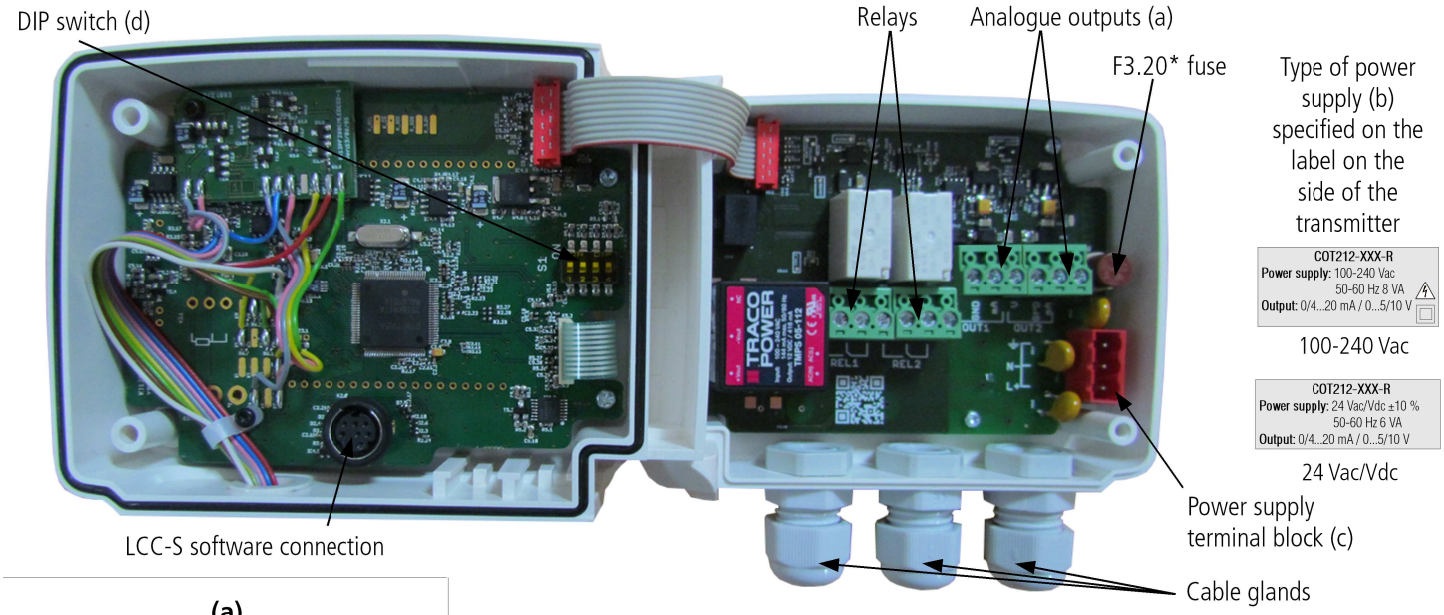
- Remote probe

Size	Length: 158 mm (without cable gland), 183 mm (with cable gland); Diameter: 26 mm
Material	Polycarbonate
Cable	Length: 2 m; diameter: 4.8 mm

TECHNICAL SPECIFICATIONS

Power supply	24 Vac / Vdc ±10% 100-240 Vac, 50-60 Hz **Warning: risk of electric shock** 
Output	2 x 4-20 mA or 2 x 0-20 mA or 2 x 0-5 V or 2 x 0-10 V (4 wires) Common mode voltage <30Vac Maximum load: 500 Ohms (0/4-20 mA) / Minimum load: 1 K Ohms (0-5/10 V)
Relay outputs	2 changeover relays 3 A / 230 V
Galvanic isolation	Inputs and outputs (100-240 Vac models) Device fully protected by DOUBLE ISOLATION or REINFORCED ISOLATION  Outputs (24 Vac/Vdc model)
Consumption	COT212-B: 6 VA COT212-H: 8 VA
European directives	2014/30/EU EMC; 2014/35/EU Low Voltage; 2011/65/EU RoHS II; 2012/19/EU WEEE
Electrical connection	Screw terminal block for cable 2.5 mm² Carried out according to the code of good practice
PC communication	USB-Mini Din cable
Environment	Air and neutral gases
Type of fluid	Air and neutral gases
Conditions of use (°C/%RH/m)	From -10 to +50°C. In non-condensing condition. From 0 to 2000 m.
Storage temperature	From -10 to +70°C
Security	Protection class II; Pollution degree 2; Overvoltage category 2 (OVCII)

CONNECTIONS



(a)

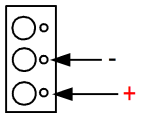
Analogue output 1 (out 1)

0-5/10 V – Voltage
GND – Ground
0/4-20 mA – Current

Analogue output 2 (out 2)

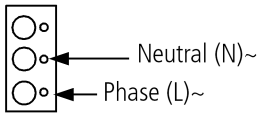
0-5/10 V – Voltage
GND – Ground
0/4-20 mA – Current

(c) For **24 Vdc** power supply models



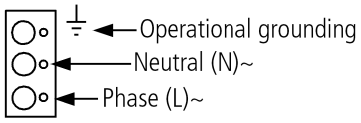
or

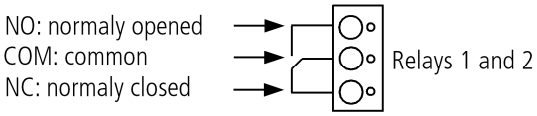
(c) For **24 Vac** power supply models



or

(c) For **100-240 Vac** power supply models



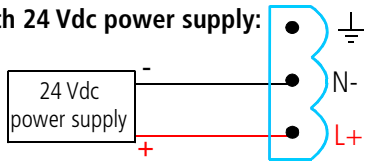


** Fuse present only for 100-240 Vac models.*
Every fuse replacement must be performed witht a power off device using a TR5 630 mA 250 V fuse.

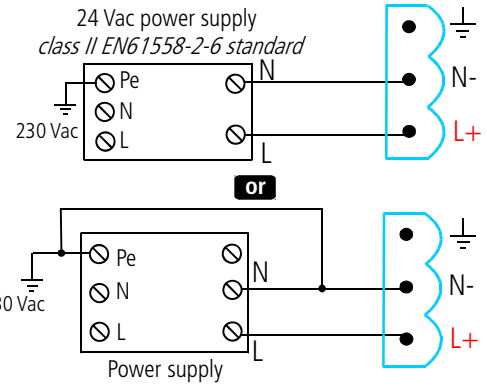
ELECTRICAL CONNECTIONS – as per *NFC15-100 standard*

This connection must be made by a formed and qualified technician. To make the connection, the transmitter must not be energized. Before making the connection, you must first check the power supply indicated on the transmitter board (see (b) on "Connections" part). The presence of a switch and a circuit breaker upstream the device is compulsory

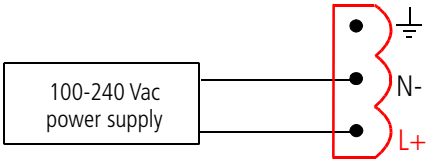
For transmitters with 24 Vdc power supply:



For transmitters with 24 Vac power supply:

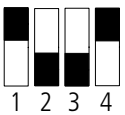
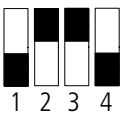


For transmitters with 100-240 Vac power supply:

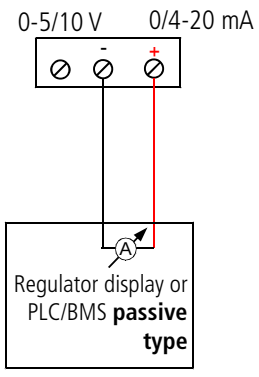


On 100-240 Vac models, if a fuse protection is used for the power line, it is imperative to use delayed-action fuses in order to absorb the surge of current when first turned on the transmitter.

The selection of the output signal in voltage (0-10 V or 0-5 V) or in current (4-20 mA or 0-20 mA) is made via the DIP switch (d) of the electronic board of the transmitter: put the on-of switches as shown in the table below:

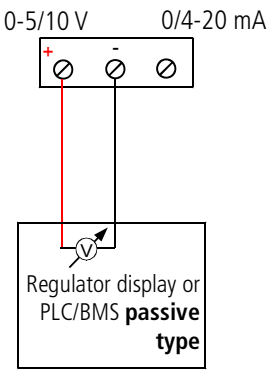
Configurations	4-20 mA	0-10 V	0-5 V	0-20 mA
Combinations				

Connection of the output in current 4-20 mA:



4-20 mA output

Connection of output in voltage 0-10 V:



0-10 V output

CONFIGURATION OF THE TRANSMITTERS

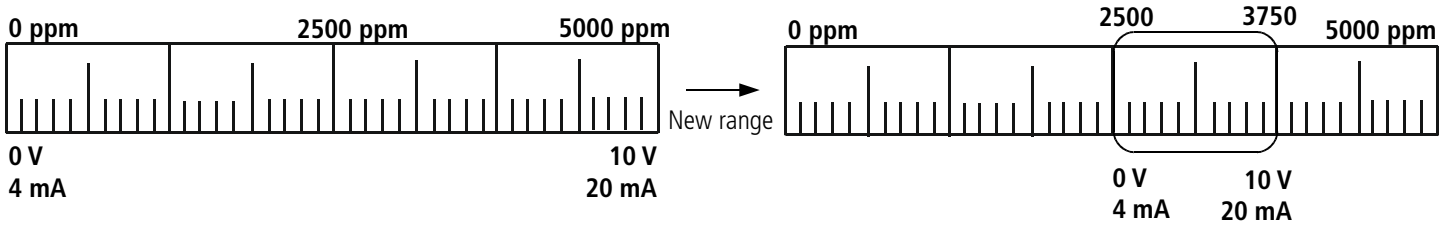
It is possible on the class 210 to configure all the parameters of the transmitter : units, measuring ranges, outputs, channels, calculation functions, etc, via different methods:

- **Keypad** for models with display: a code-locking system allows to secure the installation (See class 210 transmitters user manual).
- **Software** (optional) on all models. Simple user-friendly configuration. See LCC-S user manual.

Configurable analogue output:
It is possible to configure your own intermediary ranges in CO_2 and in temperature.

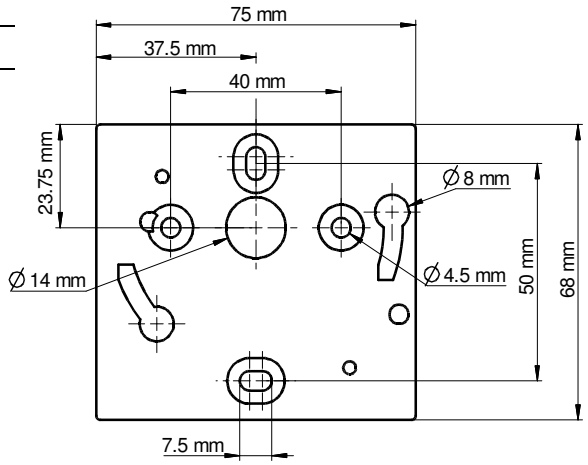
Caution: the minimum difference between the high range and the low range is 20.

Configure the range according to your needs: outputs are automatically adjusted to the new measuring range



MOUNTING

To mount the transmitter, mount the ABS plate on the wall (drilling: Ø6 mm, screws and pins are supplied).
Insert the transmitter on the fixing plate (see A on the drawing beside). Rotate the housing in clockwise direction until you hear a "click" which confirms that the transmitter is correctly installed.



CALIBRATION

Outputs diagnostic: With this function, you can check with a multimeter (or on a regulator / display, or a PLC / BMS) if the transmitter outputs work properly. The transmitter generates a voltage of 0 V, 5 V and 10 V or a current of 4 mA, 12 mA and 20 mA.

Certificate: Class 210 transmitters are supplied with adjusting certificates. Calibration certificates are available as an option.

MAINTENANCE

Please avoid any aggressive solvent. Please protect the transmitter and its probes from any cleaning product containing formalin, that may be used for cleaning rooms or ducts.

OPTIONS AND ACCESSORIES

- **LCC-S:** configuration software with USB cable
- **Calibration certificate**

Only the accessories supplied with the device must be used.

PRECAUTIONS FOR USE

Please always use the device in accordance with its intended use and within parameters described in the technical features in order not to compromise the protection ensured by the device.

Once returned to KIMO, required waste collection will be assured in the respect of the environment in accordance with European guidelines relating to WEEE.

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