



CO2RT-R

CO₂-sensor with built-in relay

CO2RT-R is a room sensor for measuring carbon dioxide levels in air. It has a built-in relay with switching output.

- Built-in relay
- CO₂-level 0...2000 ppm

- Excellent long term stability
- Snap-in cover

Regin's CO2RT series with patented auto calibration process sets new standards in CO₂ measuring for HVAC applications. In the same casing, the CO2RT series combines measuring of CO₂-level, temperature and optional relative humidity.

The sensor is mounted in the cover-part of the casing. The cover is easy to detach from the back by means of snap-in grips and detachable terminals. This makes mounting easier. Furthermore, no cables have to be disconnected, which simplifies service and replacement.

Measuring principle

The CO₂-concentration is measured by means of infrared light, a technique that measures the absorption in gases. It has a reference measuring system that compensates values in relation to changes in light intensity.

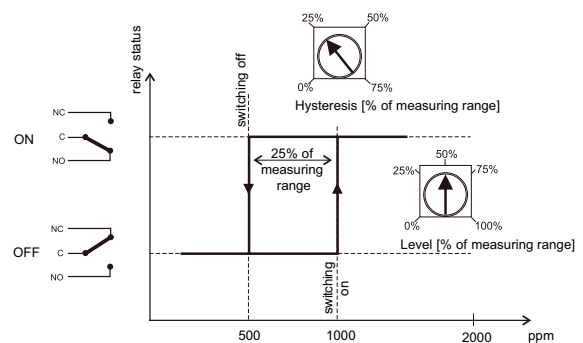
The method gives several advantages:

- Very high accuracy
- Exact identification of the detected gas
- Low risk for contamination
- Short response time
- High long term stability
- Long calibration interval (>5 years)

Applications

The CO₂-level gives a direct indication of the indoor air quality. With this basic information, the ventilation can be controlled with high precision and the air quality improved. At the same time, the supply air will only be increased when necessary and the energy costs will thereby be reduced.

Hysteresis and level



Technical data

Supply voltage	24 V AC +/- 15%, 50...60 Hz or 15...35 V DC
Power consumption	3 W
Ambient temperature	-5...+55°C
Ambient humidity	0..90% RH, not condensating
Temperature dependance	typ. 2 ppm CO ₂ /°C
Storage temperature	-40...70°C
Long term stability	typ. 20 ppm / year
Response time	< 90 s
Warm-up time	< 5 min
Protection class	IP30
Measuring principle	NDIR (Non-Dispersive Infrared Technology)
Working range CO ₂	0...2000 ppm
Accuracy CO ₂ (at 20°C)	< ± (50 ppm +2% of measuring value)
CE	This product conforms with the requirements of European EMC standards CENELEC EN 61000-6-1 and EN 61000-6-3 and carries the CE mark.

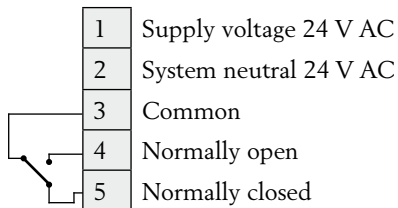
Switching output

Max. switching voltage	50 V AC / 60 V DC
Max. switching load	1 A at 50 V AC, 1 A at 30 V DC
Min. switching load	1 mA at 5 V DC
Contact material	Ag+Au clad

Calibration

Calibration interval	More than five years. No calibration necessary at installation.
Calibration	The sensor is calibrated by Regin

Wiring



Screw terminal: Max. 1.5 mm²

Dimensions



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REGIN

THE CHALLENGER IN BUILDING AUTOMATION



CO2DT-DR is a duct transmitter for measuring levels of carbon dioxide. It has measuring system with infrared light source and a reference chamber which ensures excellent long term stability.

- * Output signal 0....10 V or 4....20 mA
- * Option of window display showing current readings
- * High degree of accuracy
- * Only one measuring tube in the duct
- * Good long term stability and short reaction time
- * Easy to calibrate

Function

CO2DT-DR is a duct transmitter for measuring the concentration of carbon dioxide in air ducts.

The transmitter consists of a measuring system with an infrared light source where the output signal is translated into an analogue output signal by means of built-in electronics. The CO₂ transmitter is also available for wall mounting, see CO2RT.

Measuring system

The CO₂ concentration is measured using a technique involving the infrared absorption capacity of different gasses. This method offers considerable advantages compared with other measuring principles. It is able more exactly to identify the gas detected, is less susceptible to pollution and has a high degree of accuracy.

Reference measuring system

The transmitter has a reference measuring system which compensates the measurement for changes in intensity in the light source thus ensuring long term measurement stability and minimizing the need for regular calibration.

Supply voltage and output signal

The supply voltage is 24V AC and the standard output signal is 0....10 V or 4....20 mA. The transmitter is supplied with the cable already mounted to facilitate installation.

Relay contact

CO2DT-DR and CO2DT-DR5 have a relay contact for direct control of a damper or to give an alarm signal etc.

Display

CO2DT-DR and CO2DT-DR5 also have a display (LCD) showing the current readings and the setting of the relay's change-over point.

Applications

Measuring the level of carbon dioxide in a room gives an indication of the quality of the air and on the basis of this information steps can be taken to adjust the ventilation accordingly. If the ventilation is increased only when necessary energy consumption can be kept to a minimum.

CO2DT-DR is used in cinemas, theatres, airports, hospitals, schools, auditoria, conference halls etc.

Calibration and maintenance

Calibration every three years is recommended to maintain a high level of accuracy and reliability. CO2DT-DR contains its own built-in calibration programme, all that is needed is a calibration kit consisting of a reference gas and a valve. See accessories below. No computer is required.

Models

CO2DT-DR **Measuring range 0...2000 ppm. With display and extra relay contact.**
CO2DT-DR5 **Measuring range 0...5000 ppm. With display and extra relay contact.**

Technical data

Supply voltage 24 V AC +/- 15%, 50-60 Hz or 18...40 V DC
Power consumption 3 W
Ambient temperature 0...50°C
Storage temperature -20...70°C
Ambient humidity 5...95%RH, not condensated
Form of protection IP54



This product conforms with the requirements of European EMC standards CENELEC EN 50081-1 and EN 50082-1 and carries the CE-mark.

Measuring principle NDIR (infrared)
Measuring range 0...2000 ppm or 0...5000 ppm
Accuracy 0...1500 ppm: +/- 75 ppm.
 above 1500 ppm: +/- 5% of value.

Repeatability +/-8 ppm
Calibration interval Every three years is recommended. No calibration needed on installation.
Time constant Less than 30 s
Warm-up time Less than 90 s
Calibration Use calibration kit below. Can be done on site or in a workshop.
Display window 2 line LCD-display

Output

Output signal 0...10 V DC (version with 4...20 mA output signal can be ordered)
Relay contact Single pole closing, 24 V AC/DC 0,5 A (only CO2DT-DR5)
 Switching point can be set in steps of 100 ppm between 300 and 2000 (5000) ppm.

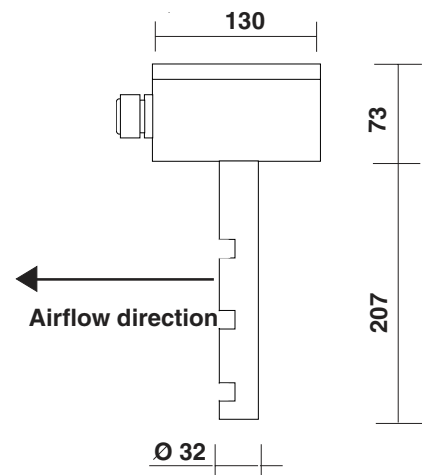
Accessories

CAL-B-KIT-5 Complete calibration kit with carrying case, two disposable bottles of calibration gas (17 liter, approx. 5 calibrations capacity), preset regulator, keypad and tubing.
CAL-A-0-5 Zero gas bottle, high pressure, disposable 17 liter size.
CAL-A-800-5 Span gas bottle, high pressure, disposable 17 liter size.

Wiring and dimensions

1	Supply voltage 24 V AC
2	System neutral 24 V AC
3	Relay contact
4	Relay contact (Closing between 3 and 4)
5	Output signal 0...10 V
6	Signal neutral

System neutral, terminal 2 and Signal neutral, terminal 6 are internally connected.



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THE CHALLENGER IN BUILDING AUTOMATION



AVDT25 is a duct sensor for measuring air velocity in HVAC-systems.

- * Selectable working range 0...10/ 15/ 20 m/s
- * Output signal 0...10 V DC or 4...20 mA
- * Supply voltage 24V AC/DC
- * Adjustable damping time
- * Short reaction time
- * Adjustable probe insertion length

Function

AVDT25 is intended for mounting in ventilation ducts or similar applications.

The air velocity sensor operates on the hot-wire anemometer principle. The sensor element is a specially designed thin film element which is heated. The cooling rate of the element, which depends on the air velocity, is measured and is transformed by the built-in electronics to an analogue output signal proportional to the air speed. The signal is compensated for varying temperature. The very thin measuring element has the advantage of being highly resistant to contamination by dust etc.

Selectable working range

The working range can be set by means of a jumper on the printed circuit board. This facilitates easy adjustment to the correct working range on start up. See overleaf for further information.

Output signal

The sensor output signal is selectable 0...10 V or 4...20 mA.

Sensor casing

The sensor casing has protection class IP65.

Probe length

The sensor can be mounted with stepless insertion length 20...200 mm. See instruction overleaf.

Technical data

General

Supply voltage	24 V AC +/-20% or 24 V DC +20%...-10%
Power consumption	5 VA
Wiring	Screw terminals
Ambient temperature	-10...+50°C
Storage temperature	-20...+60°C
Time constant	1,5 s at 10 m/s
Protection class	IP65



This product conforms with the requirements of European EMC standards CENELEC EN 50081-1 and EN 50082-1 and carries the CE-mark.

Inputs

Sensor element	Thin film element
Working range	0...10 / 0...15 / 0...20 m/s, valbart
Accuracy	Range 0...10 m/s: +/- (0,3 m/s + 3% of value) Range 0...15 m/s: +/- (0,3 m/s + 3% of value) Range 0...20 m/s: +/- (0,3 m/s + 4% of value)
Response time	Selectable 0,2 or 2 seconds

Outputs

Output	0...10 V DC or 4...20 mA, selectable
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Mounting

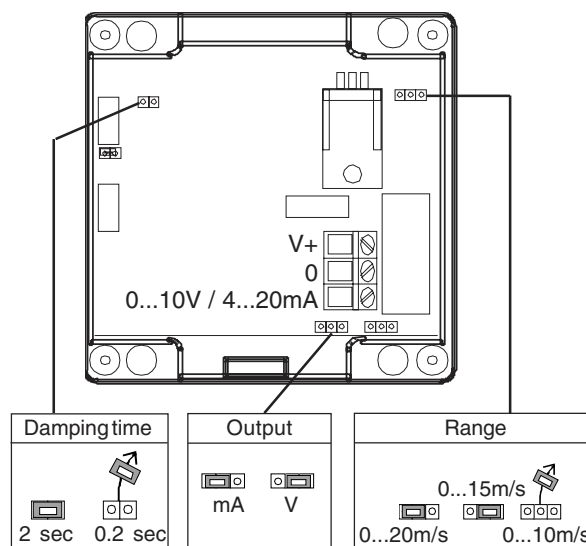
The sensor can be mounted with the whole of the probe length (220 mm) inside the duct. The sensor is then fastened to the bottom of the casing by two screws. If only part of the probe is to be inserted the mounting device is used. This enables the probe to be inserted between 20 and 200mm.

N.B. It is important to mount the sensor so that the direction of air-flow is parallel to the sensor duct.

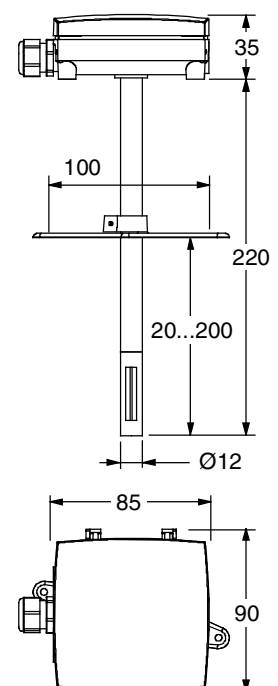
Wiring, settings and dimensions

AVDT25

1	Supply voltage 24 V AC
2	System neutral
3	0...10 V or 4...20 mA



Output signal, working range and response time are selected by jumpers according to the picture



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