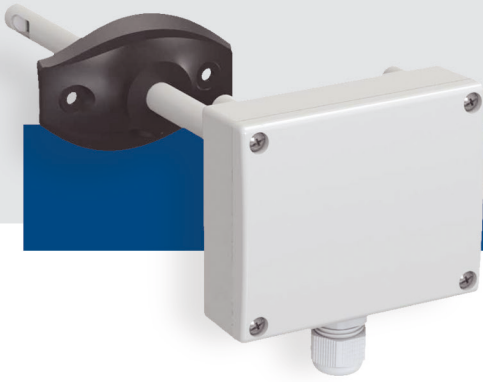


# DSC

## Duct CO<sub>2</sub> sensor



The DSC series are duct CO<sub>2</sub> sensors which measure the concentration of CO<sub>2</sub> in ducts. Four pre-defined ranges provide ideal measurement windows with one user-definable range. The implemented NDIR sensor is self-calibrating and maintenance-free. These units are equipped with Modbus RTU (RS485) communication and have an analogue output.

### Key features

- Microcontroller based design
- 1 analogue output
- Modbus RTU (RS485) communication
- Multiple ranges as measurement windows available
- Innovative self-calibrating algorithm
- Long-term stability and accuracy

### Technical specifications

|                                 |  |                            |
|---------------------------------|--|----------------------------|
| Outputs                         | 1 analogue output (0–10 VDC / 0–20 mA)                     |                            |
| Power consumption               | No load: maximum 50 mA<br>Full load: maximum 70 mA         |                            |
| Load resistance                 | 0–10 VDC mode > 500 Ω<br>0–20 mA mode < 500 Ω              |                            |
| Sensor ranges                   | 450–1.850 ppm<br>0–1.000 ppm<br>0–1.500 ppm<br>0–2.000 ppm |                            |
| Sensor range (Modbus selection) | 0–2.000 ppm, free selectable                               |                            |
| Accuracy                        | 30 ppm CO <sub>2</sub> ± 5% (0–2.000 ppm)                  |                            |
| Protection standard             | Enclosure; IP54, probe: IP20                               |                            |
| Ambient conditions              | Temperature  | 0–50 °C                    |
|                                 | Rel. humidity  | < 95 % rH (non-condensing) |



### Article codes

|              | Supply                        | Connection |
|--------------|-------------------------------|------------|
| <b>DSC-G</b> | 15–24 VAC ± 10 %<br>18–34 VDC | 3-wire     |
| <b>DSC-F</b> | 18–34 VDC                     | 4-wire     |

### Area of use

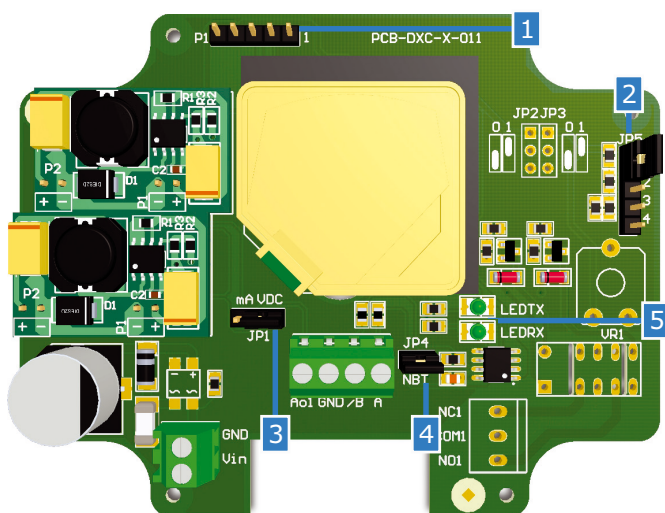
- Maintaining and monitoring of CO<sub>2</sub> level in duct systems
- Air, non-aggressive, non-combustible

### Wiring and connections

|             |   |
|-------------|---|
| Vin         | Positive DC voltage / AC ~                    |
| GND         | Ground / AC ~                                 |
| A           | Modbus RTU (RS485) signal A                   |
| /B          | Modbus RTU (RS485) signal /B                  |
| Ao1         | Analogue output (0–10 VAC / 0–20 mA)          |
| GND         | Ground  |
| Connections | Cable cross section: max. 1,5 mm <sup>2</sup> |

**Caution:** If an external AC / DC powered unit (G-series) is using the same safety transformer as a DC powered unit (F-series), a **SHORT CIRCUIT** in the source may result when connecting 3-wire applications (common ground)!

If an AC power supply is used with any of the units in a Modbus network, the GND terminal should **NOT BE CONNECTED** to other units on the network or via the CNVT-USB-RS485 converter. This may cause permanent damage to the communication semiconductors and / or the computer!



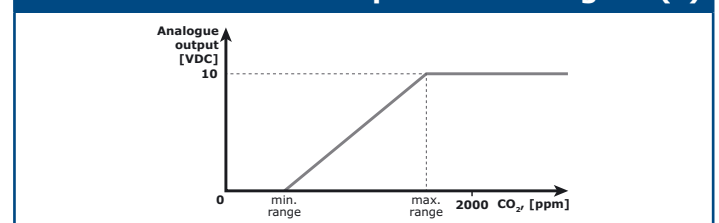
### Modbus registers

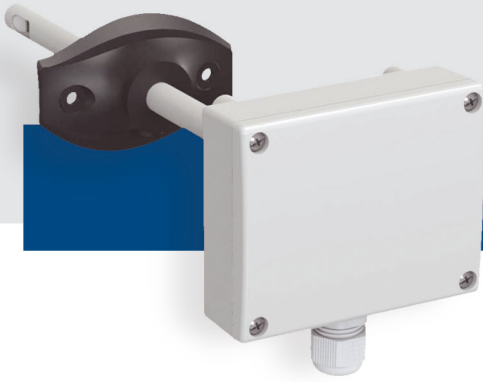


The parameters of the unit can be configured through the 3SMobus software platform. You can download it from the following link:  
<http://www.sentera.eu/english/hvac-software-downloads.html>

You can find register maps in the mounting instructions. Download them from:  
<http://www.sentera.eu>

### Operational diagram(s)





### Settings

|                                       |                |                                       |
|---------------------------------------|----------------|---------------------------------------|
| 1 – Modbus settings reset jumper (P1) |                | Put and hold for 20 seconds           |
| 2 – Sensor range selection JP5        |                | 450–1.850 ppm                         |
|                                       |                | 0–1.000 ppm                           |
|                                       |                | 0–1.500 ppm                           |
|                                       |                | 0–2.000 ppm                           |
| 3 – Analogue output selection JP1     |                | 0–10 VDC                              |
|                                       |                | 0–20 mA                               |
| 4 – Network bus resistor JP4 (NBT)    |                | The DSC is the first or the last unit |
| 5 – Modbus communication indication   | Blinking green | Transmitting                          |
|                                       | Blinking green | Receiving                             |

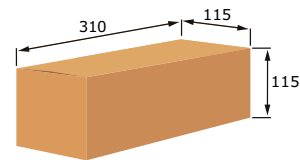
( indicates the position of the jumper.)

### Standards

- Low Voltage Directive 2006/95/EC
- EMC Directive 2004/108/EC: EN 61326
- WEEE Directive 2012/19/EC
- RoHS Directive 2011/65/EC



### Packaging



| Article | Packaging     | Length [mm] | Width [mm] | Height [mm] | Net weight | Gross weight |
|---------|---------------|-------------|------------|-------------|------------|--------------|
| DSC-G   | Unit (1 pc.)  | 310         | 115        | 115         | 0,16 kg    | 0,30 kg      |
|         | Box (20 pcs.) | 590         | 380        | 505         | 3,26 kg    | 7,29 kg      |
| DSC-F   | Unit (1 pc.)  | 310         | 115        | 115         | 0,16 kg    | 0,30 kg      |
|         | Box (20 pcs.) | 590         | 380        | 505         | 3,26 kg    | 7,29 kg      |

### Fixing and dimensions

