

DOL 19 CO₂ Sensor 0-10,000 PPM

EN

TECHNICAL USER'S GUIDE



For **other language variants** of this document we refer to www.dol-sensors.com or your local dealer.

PRODUCT DESCRIPTION

DOL 19 is a carbon dioxide/CO₂ sensor that is intended for measurement in live-stock house and industrial environments. The sensor's measuring range has been selected both to care for the animals' comfort and also to monitor potential error conditions in livestock houses with direct combustion.

The sensor is protected by a sturdy casing, and lies behind a carefully selected filter. The sensor ships with a connector and cable solution that makes it simple to remove the sensor for cleaning and disinfection of e.g. livestock houses.

The sensor is placed in the middle of the house.

USER GUIDE

After connection, the sensor has to warm up for five minutes.

MAINTENANCE

Clean DOL 19 using water and a brush. Do not use:

- High-pressure cleaner
- Highly compressed air
- Solvents
- Corrosive/caustic agents
- Alcohol-based disinfectants

Remove the sensor before cleaning and disinfection. Remember to attach the sealing plug to the connector when then sensor has been removed.



Sensor measurements can be verified when the livestock house is empty. This is done by letting the ventilation system run for at least 20 minutes with 100 % exhaustion and 100 % open inlets. The reading of current CO₂ level should lie between 400 and 500 ppm (same value as atmospheric air). For industrial applications the area is ventilated as much as possible until an atmospheric level is obtained. A potential offset in sensor measurement can be adjusted with the controller or climate controller used. The measured CO₂ level should be adjusted to 450 ppm.

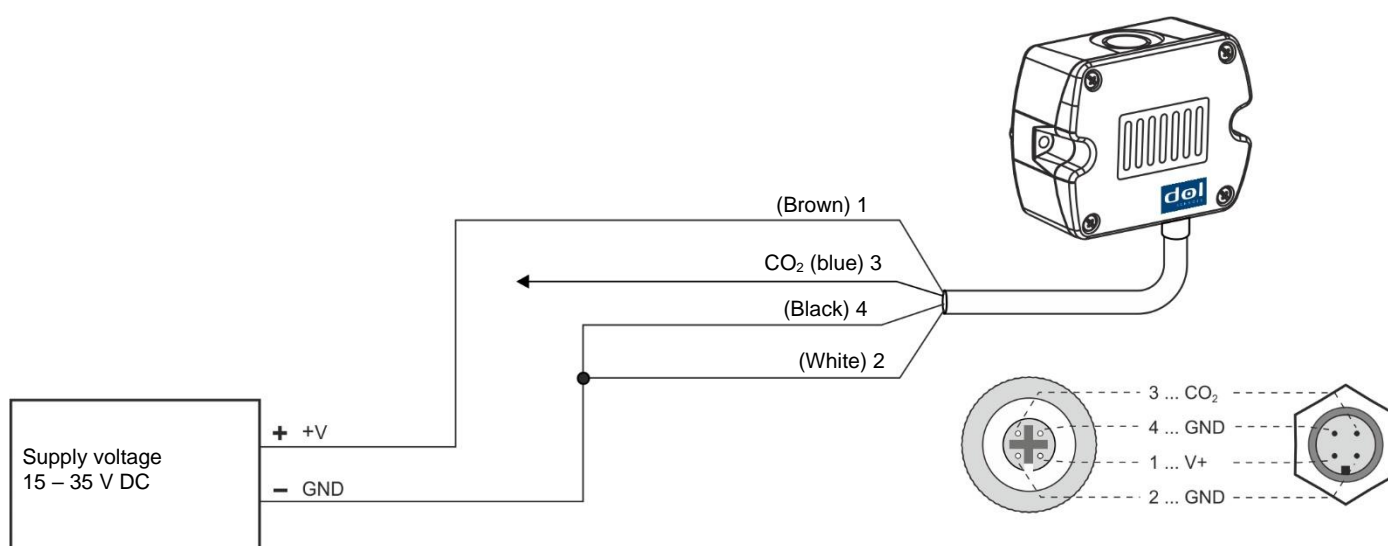


Figure 1: Connection

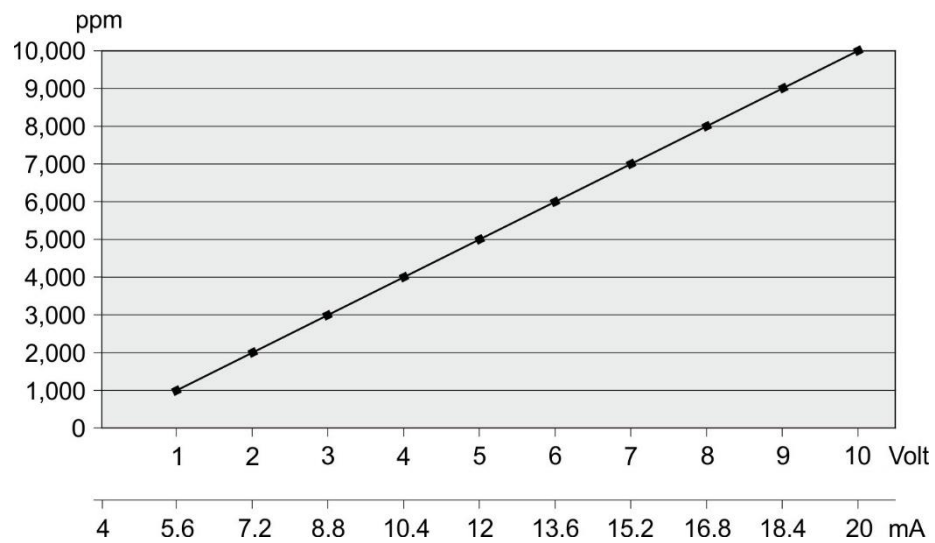
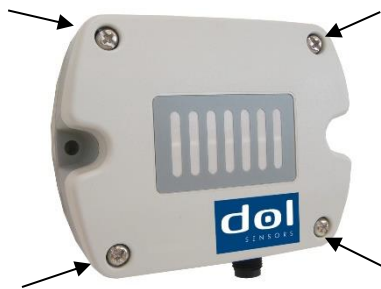


Figure 2: Operation curve

CHANGE OF DOL 19 FROM 0 - 10 V OUTPUT TO 4 - 20 mA



Loosen the four screws by rotating them a quarter of a turn counterclockwise. The front panel can then be removed.



Move the **OUT-CO2** button to position **I**.

Position **I** = 4 – 20 mA

Position **U** = 0 – 10 V

Fit the front panel again. Press down the four screws and rotate them a quarter of a turn clockwise.

TECHNICAL DATA

Measuring values		
Measuring principle	Non-Dispersive Infrared Technology (NDIR)	
Measuring range	0...10,000 ppm	
Accuracy at 25 °C (77 °F) and 1013 mbar	0-7,000: 50 ppm +5 % of measuring value 7,000-10,000: 100 ppm +5 % of measuring value	
Time constant τ_{63} ¹⁾	Typ. 300 s	¹⁾ minimum air velocity 1 m/s (200ft/min.)
Temperature dependence	Typ. 1 ppm CO ₂ /°C (-20...45 °C)	
Sample rate	Approx. 15 s	
Analogue output	Voltage	Current
0...10,000 ppm	0 – 10 V	4 – 20 mA
Load	> 10 k Ω	\leq 500 Ω
Recommended load	\geq 100 k Ω	500 Ω
General		
Supply voltage SELV	15 – 35 V DC SELV = Safety Extra Low Voltage	
Power supply	Voltage output: Typ. 16 mA Max. 0.5 A in 0.3 s	Current output: Max. 36 mA Max. 0.5 A in 0.3 s
Warm up time	< 5 min	
Housing / protection class	Polycarbonate / IP54	
Electrical connection	Cable with M12 plug	
Cable	2 m. 4 x 22AWG / 0.34 mm ²	
Electromagnetic compatibility	EN 61326-1 EN 61326-2-3	
Working temp. and conditions	-20...60 °C (-4...140 °F) 0...100 % RH (non condensing)	
Storage temp. and conditions	-20...60 °C (-4...140 °F) 0...95 % RH (non condensing)	

DIMENSIONAL SKETCH

