DOL 119 CO2 sensor

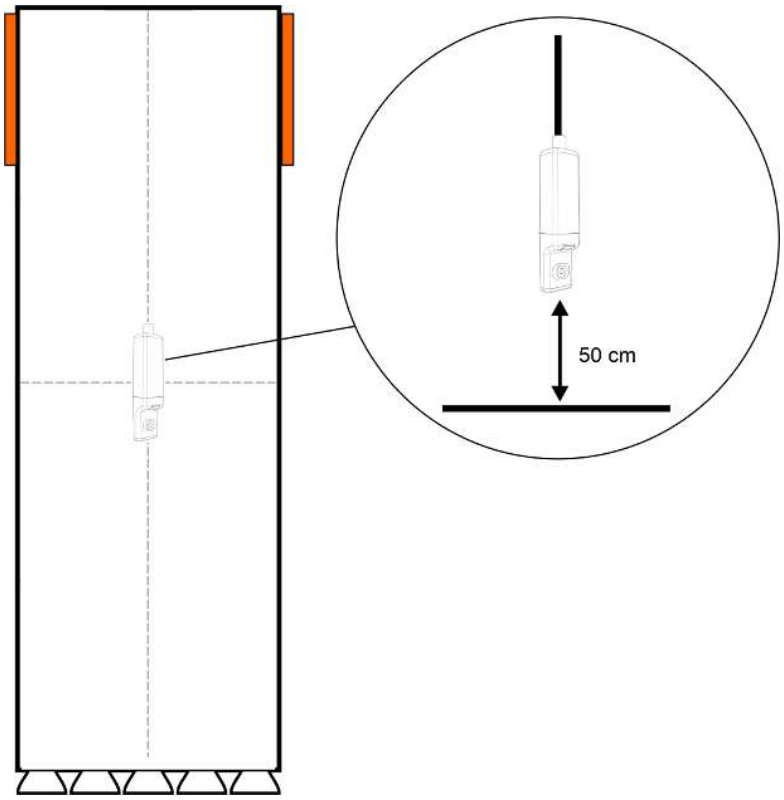
4-20 mA

1 Product description

DOL 119 is a sensor for measuring carbon dioxide/CO2. The sensor is intended for measurement in live-stock houses and industrial environments.

The measurement range of the sensor has been selected to support monitoring of the animal comfort area and fault conditions, if any, in livestock houses heated by direct combustion.

The sensor is protected by a sturdy casing and behind a carefully selected filter. The sensor is supplied with cable and a cap for protection of the sensor during washing and disinfection.



The sensor must be placed in the middle of the house.

The distance from the floor must be at least 50 cm. However, the sensor must be placed out of reach of the animals.

Figure 1: Placement of the sensor in the livestock house. To the left: example of house seen from above. To the right: height of sensor placement.

2 Product survey

140331 DOL 119 CO2 sensor 5000/10000 ppm

Sensor for measuring the CO2 content in the air. Supplied with a M12 plug and sealing plug as well as protection cap for DOL 119.

140330 DOL 119 CO2 sensor med adapter cable

Sensor for measuring the CO2 content in the air. Supplied with a M12 plug and sealing plug as well as protection cap for DOL 119, also including adapter cable for fast replacement of DOL 19 with DOL 119 0-10V.

140332 DOL 119 CO2 sensor 4-20 mA

Sensor for measuring the CO2 content in the air. Supplied with a M12 plug and sealing plug as well as protection cap for DOL 119.

2.1 Accessories

140261 DOL 119/139 Protection cap plug 5 pcs.

Protection cap for DOL 119/139 for protection of the sensor during, for example, cleaning.

140269 Cable 2 m M12 plug incl. sealing plug

2 meter cable with M12 plug and sealing plug.

When replacing DOL 19 with DOL 119, the cable must be replaced or the connection must be moved.

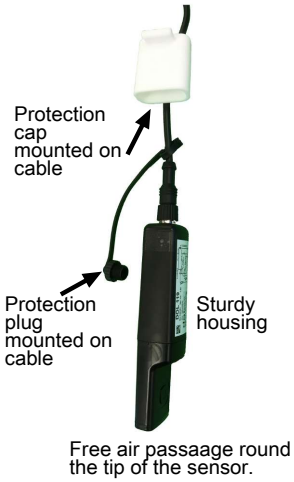
140329 Adapter cable for DOL 119

Adapter cable is used when replacing DOL 19 with DOL 119 in an existing installation.

3 Installation

The sensor must be mounted freely hanging in the cable.

! Remember that the protection cap must be mounted on the cable before the cable is mounted.



Free air passage around the tip of the sensor.

Mount the sensor so it is not exposed to direct sunlight, as this would affect the measurement.

The sensor must warm up for 10 minutes after power on to ensure correct measurement.

Figure 2.

4 Connection

Installation, servicing and troubleshooting of all electrical equipment must be carried out by qualified personnel in compliance with the applicable national and international standard EN 60204-1 and any other EU standards that are applicable in Europe.

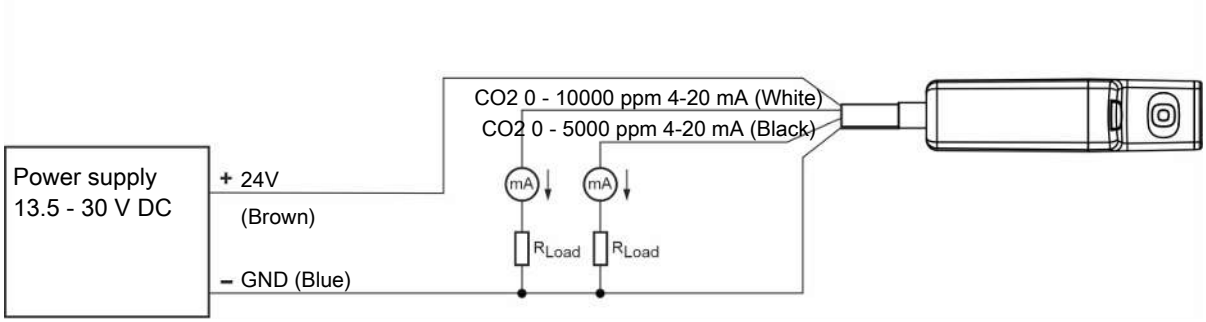


Figure 3.

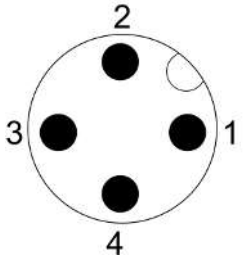
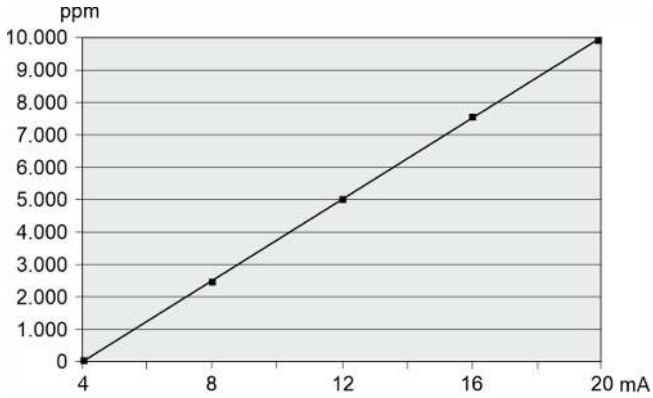
Name	Wire color	M12 pin	
24 V supply voltage	Brown	1	
0 – 10000 ppm	White	2	
0 – 5000 ppm	Black	4	
GND	Blue	3	

Table 1: Connections.

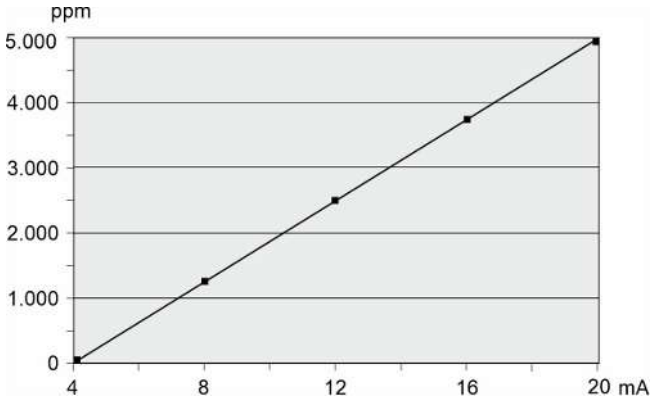
DOL 119		DOL 119 4-20 mA		DOL 19
Brown= 13.5 - 30VDC	→	Brown= 13.5 - 30VDC	→	Brown= 15-35VDC
White= 0-10V /ppm CO2	→	White= 4-20 mA /ppm CO2	→	Blue= 0-10V /ppm CO2
Black= 0-5V / ppm CO2	→	Black= 4-20 mA / ppm CO2	→	No second output
Blue= GND	→	Blue= GND	→	Black/White= GND

Table 2: Signals and wire colors for other products.

5 Functions



Operation curve output 1.



Operation curve output 2.

Figure 4.

6 LED indication

LED indication	Sensor status
GREEN ON	Operation OK
GREEN flashes	Outside normal range (Below 0 °C or above 50 °C)
RED ON	Connection error see load graph
RED flashes	Sensor defective Over/under voltage alarm Overload

Table 3.

7 Maintenance

When cleaning and disinfecting the house, the protective cap must be put on the sensor so that it hangs with the tip up, as shown in the picture.

Alternatively, the sensor must be removed from the house and the cable's M12 sealing plug installed.

Sensor is cleaned with:

- Water and brush
- High-pressure cleaning with cold water (only with attached protective cap)

Avoid using:

- High-pressure cleaning with hot water
- Highly compressed air
- Solvents
- Corrosive/caustic agents
- Alcohol-based disinfectants

After the sensor has been exposed to water and condensation, it requires a period where the relative humidity is lower than 80 %RH in order for it to measure correctly.

8 Technical data

		DOL 119 0-10V	
Specification		Parameter	Unit
Output	Current range (Output 1)	4 – 20	mA
	Current range (Output 2)	4 - 20	mA
	Limited output power per port	20	mA
	Output impedance	See Graph “Load vs. Supply”	
	Recommended load impedance		
	Load impedance		
CO_2 – Output 1	Measuring range	400-10000	ppm
	Resolution	0.0016	mA/ppm CO_2
	Accuracy 400 – 10000 ppm	50 ± 5% of measured value	ppm
	Temperature stability (0-50°C)	± 2.5	ppm/°C
	Time constant: T63	2 min. at 0.5 m/s air speed	
CO_2 – Output 2	Measuring range	400 - 5000	ppm
	Resolution	0.0032	mA/ppm CO_2
	Accuracy 400 – 5000 ppm	50 ± 5% of measured value	ppm
	Temperature stability	± 2.5	ppm/°C
	Time constant T63	2 min. at 0.5 m/s air speed	
Supply voltage		13.5 - 30	VDC
Supply current	No load	8	mA
	Max. load	55	mA
Temperature, operation	CO_2 valid	0 - +50	°C
Humidity, operation		0 – 100 (non-condensing)	% RH
Temperature, storage		-40 - +70	°C
Humidity, storage		0 – 95 (non-condensing)	% RH
IP classification		IP67 (DIN 40050-9)	
		NEMA 1, 3, 4, 6	
Cable length		2	m
Cable conductor size		4 x 0.34 (4 x AWG22)	mm^2
Max. Cable length at 0.75 mm^2		500	m
Max. cable length at 1.50 mm^2		500	m
Dimensions (diameter/width)		33.3	mm
Dimensions (length)		128.3	mm
Weight		243	g
Approvals		CE	

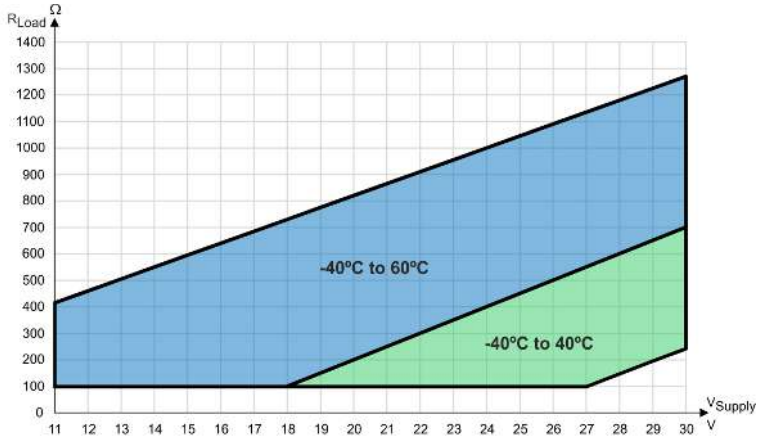
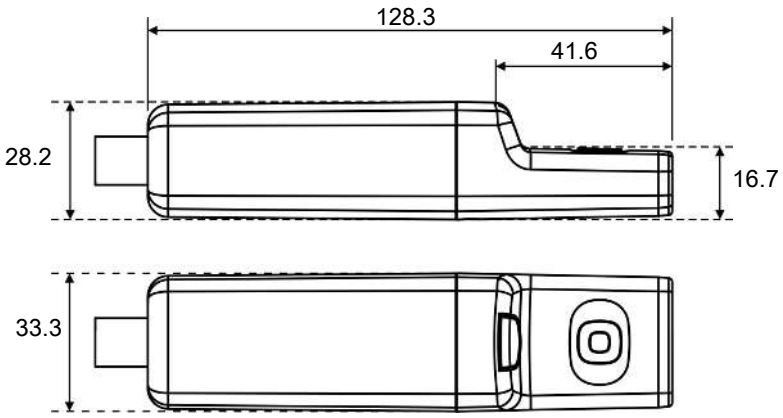


Figure 6. Graph: Load vs Supply.

8.1 Dimensions

Dimensions in mm.



604500 • 2024-08-12 • en-US • Made in Denmark