

DOL 139

CO₂, humidity and temperature sensor



1 Product description

DOL 139 is a sensor for measuring carbon dioxide/CO₂, relative humidity and temperature. The sensor is intended for measurement in live-stock houses and industrial environments.

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.

2 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.



301241 Cable 2m 5xAWG 22 UL2464, M12 female plug

2m cable for sensor mounting.

3 Installation

The sensor must be placed in the middle of the house. The sensor must be mounted freely hanging in the cable.



Remember that the protection cap must be mounted on the cable before mounting the sensor.



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.

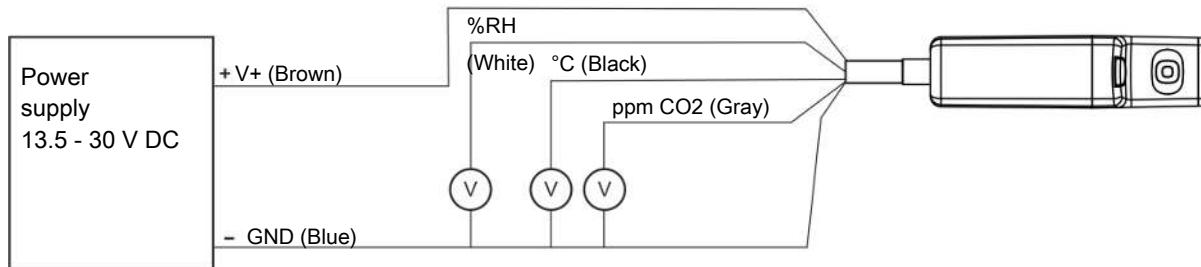
After the sensor has been exposed to water and condensation or high humidity for a long period of time, it requires a period where the relative humidity is lower than 80% in order for it to measure correctly.

Free air passage round the tip of the sensor.

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.



Name	Wire color	M12 pin	
24 V	Brown	1	
Relative humidity (%RH)	White	2	
Temperature (°C)	Black	4	
CO ₂ (ppm)	Gray	5	
GND	Blue	3	

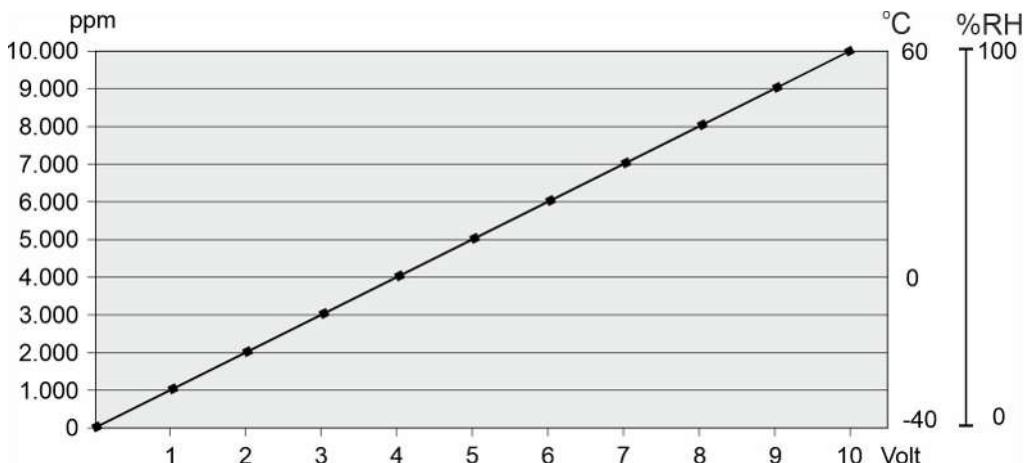
4 3

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1 2

DOL 139		DOL 119		DOL 114
Brown=13.5 - 30 VDC	→	Brown=13.5 - 30 VDC	→	Brown=11 - 30 VDC
White=0-10V/%RH	→	White=0-10/ppm CO ₂	→	White=0-10V/%RH
Black=0-10V/°C	→	Black=0-5V/ppm CO ₂	→	Black=0-10V/°C
Blue=GND	→	Blue=GND	→	Blue=GND
Gray=0-10V/ppm	→	No input	→	No input

5 Functional graph



6 LED indication

LED indication	Sensor status
GREEN ON	Operation OK
GREEN flashes	Outside normal range (Below 0 °C or above 50 °C) (Below 10%RH or above 95%RH)
RED ON	Connection error Load < 500 Ω
RED flashes	Sensor defective Over/under voltage alarm Overload

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 139 0-10V	
Specification		Parameter	Unit
Output	Voltage range	0 - 10	VDC
	Limited output power per port	20	mA
	Output impedance	<1	Ω
	Recommended load impedance	>100	kΩ
	Load impedance	>0.5	kΩ
Relative humidity	Measuring range	0-100	%RH
	Resolution	0.1	V/%RH
	Accuracy +10 °C - +40 °C (40-80% RH)	+/-3	%RH
	Accuracy 10%RH - 95%RH	+/-3 \pm 2% of measured value	%RH
	Time constant: T63	4 min. at 0.5 m/s air speed	
Temperature	Measuring range	-40 - +60	°C
	Resolution	0.1	V/°C
	Accuracy +10 °C - +40 °C	+/-0.75	°C
	Accuracy 0 °C - +60 °C	+/-1.5	°C
	Time constant T63	7 min. at 0.5 m/s air speed	
CO ₂	Measuring range	0-10000	ppm
	Resolution	0.001	V/ppm
	Accuracy 400 - 10000	50 \pm 5% of measured value	ppm
	Time constant T63	2 min. at 0.5 m/s air speed	
Supply voltage		13.5 - 30	VDC
Supply current	No load	9	mA
	Max. load	105	mA
Temperature, operation CO ₂		0 - +50	°C
Temperature, operation		-40 - +60	°C
Temperature, storage		-40 - +70	°C
IP classification		IP67 (DIN 40050-9)	
		NEMA 1, 3, 4, 6	
Cable length		2	m
Cable conductor size		5 x 0.34 (5 x AWG22)	mm ²
Max. Cable length at 0.75 mm ²		100	m
Max. Cable length at 1.50 mm ²		200	m
Dimensions (diameter/width)		33.3	mm
Dimensions (length)		128.3	mm
Weight (sensor and cable)		243	g
Approvals		CE	

8.1 Dimensions

Dimensions in mm.

