

DOL 114 Humidity and Temperature Sensor

A 2-in-1 high-precision sensor for measuring both relative humidity and temperature.

Avoid extreme heat temperatures, livestock stress, and poor production

Temperature is without question the single most important parameter to monitor when it comes to optimum conditions in livestock production.

The DOL 114 is a high-precision sensor for measuring both relative humidity and temperature simultaneously.

It is engineered and build for livestock houses but is also well suited for several industrial applications. The sensor has the same excellent properties as the DOL 104 digital humidity sensor.

Prevents formation of mold and ammonia

By monitoring both humidity and temperature, the DOL 114 ensures that the air is optimized for breathing and the formation of mold and ammonia is avoided.

Accurate sensor

DOL 114 is a very accurate humidity and temperature sensor. For the 10V variant the sensor has an accuracy of + 2%RH (40 – 85 %) + 3%RH (10-95%) at 0-40°C for the humidity measurement and an accuracy of +10 °C – 40 °C: + 0.5 °C. - 30 °C – 60 °C: + 1.5 °C for the temperature measurement.

Benefits

- Avoid extreme temperature swings in the barns, keeping a more consistent environment
- Avoid livestock stress and poor production
- Prevent ammonia and mold formation

Advantages

- High-precision 2-1 sensor
- Available in various output versions, such as 0-5V, 0-10V and 4-20mA
- Protective cap to be used during cleaning, therefore removal is not necessary
- Highly durable and well-tested



DOL 114 4-20 mA Humidity and Temperature Sensor



DOL 114 is a high-precision humidity sensor for measuring relative humidity and temperature. It is intended for application in livestock houses but is also well suited for a number of industrial applications.

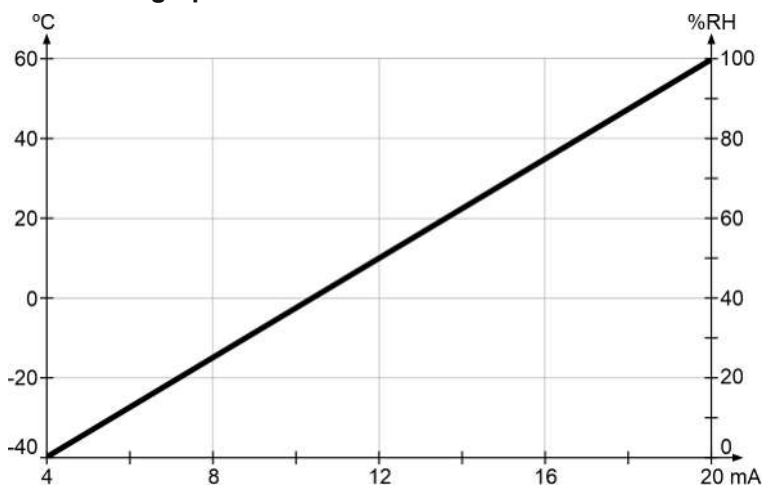
The sensor has two 4 to 20 mA outputs with a very low output resistance and full protection against short circuits and wiring failures.

The special sensor element and the built-in filter enable application in livestock houses with constantly high humidity. The sensor is available with built-in connector or cable according to requirement.

The sensor is microprocessor-controlled and has a two-color light emitting diode (LED) to communicate the operation status and the error diagnostic.

Sensor can be supplied with blinded LED for applications where this is needed.

Functional graph



Product survey



140262 DOL 114 humidity and temperature sensor 4-20 mA

The DOL 114 is a dual-purpose temperature and humidity sensor that can be used to regulate the livestock house relative air humidity and temperature.

The DOL 114 is a high-quality sensor which is especially useful under particularly harsh conditions and in areas of high air humidity.

The DOL 114 comes with a protective cap.



140298 DOL 114 protective cap (5 pcs).

Kit including extra protection caps. Used for DOL 114 and DOL 104.

In connection with cleaning and disinfection of the livestock house, the sensor must be protected by a protection cap.



380101 Bracket for DOL 16/104/114

Mounting brackets are used if the sensor is to be mounted in an accurate position.

Technical data

		Humidity measurement	Temperature measurement
Specifications			
Measurement range		0 - 100% RH	- 40 °C – 60 °C
Accuracy		± 2 % RH (40–85 %) ± 3 % RH (10-95 %) at 0-40 °C	± 0.5 °C (10 – 40 °C) ± 1.5 °C (- 30 °C – 60 °C)
Output signal		0.16 mA/% RH	0.16 mA/°C; 0°C at 10.4 mA
Time constant T ₆₃		20 s at 0.5 m/s air speed	6 min. at 0.5 m/s air speed
Common			
Electrical			
Supply voltage	V DC	11 - 30	
Current	mA	55	
Load	kΩ	490 – 1 at 24 V DC supply voltage	
Recommended load	Ω	500	
Max. output current	mA	20	
Mechanical			
Cable dimensions	AWG	2 m 4 x 22 AWG / 0.34 mm ²	
Max. cable length	m	200 m at 1.50 mm ²	
Environment			
Temperature, operation and storage	°C	- 40 °C – 60 °C	
Protection class	IP	67	
Shipment			
Packing dimensions H x W x D	mm	275 × 200 × 20	
Shipment weight ex. connector	g	150	

Dimensions

Dimensions in mm.



DOL 114 0.5-3 V Humidity and Temperature Sensor



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

1 Product description

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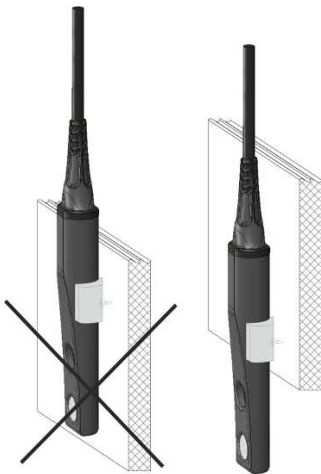
The sensor features two analogue outputs with very low output resistances and full protection against short circuits and wiring failures.

The special sensor element and the built-in filter enable application in livestock houses with constantly high humidity. The sensor ships with a built-in connector or cable, and with a specific adapted specification area - all according to your needs.

The sensor is microprocessor-controlled and has a two-color light emitting diode (LED) to communicate the operation status and the error diagnostic.

Sensor can be supplied with blinded LED for applications where this is needed.

2 Mounting guide



For optimum mounting of the sensor, use mounting clip or mount it free-hanging in the cable.

The sensor element of the sensor requires free air passage.

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



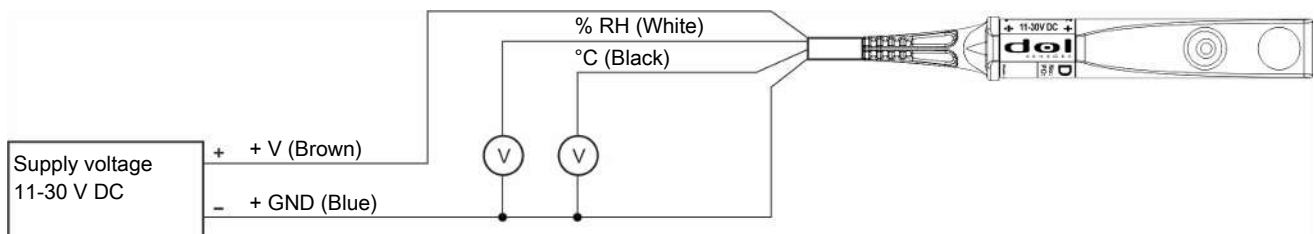
- Remember to put on a protection cap before mounting the cable.

3 Installation guide



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.

3.1 Connection of the sensor

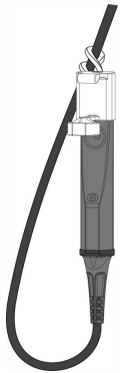


Signals and wire colors

DOL 14		DOL 14 HQ		DOL 114 0-10 V		DOL 114 0.5-3V
(BK) Black = +13-24 V DC	→	(WH) White = +13-28 V DC	→	(BN) Brown = +11-30 V DC	→	(BN) Brown = +11-30 V DC
(BN) Brown = 0...10 V/%RH	→	(GN) Green 0...10 V/%RH	→	(WH) White = 0...10 V/%RH	→	(WH) White = 0.5...3 V/%RH
No temperature output	→	No temperature output	→	(BK) Black = 0...10 V/°C	→	(BK) Black = 0.5...3 V/°C
(BU) Blue = GND (0 V)	→	(BN) Brown = GND (0 V)	→	(BU) Blue = GND (0 V)	→	(BU) Blue = GND (0 V)

LED/LIGHT PROTOCOL			Functional graph
LED		Status	
Green	Red		
ON		Operation OK	
Flash		Outside normal range (below 17 % RH or exceeding 95 % RH)	
	ON	Connection error Load < 500 Ω	
	Flash	Sensor defect Over or under voltage alarm Overload	

4 Maintenance



Clean the sensor with water and a brush without using:

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

During cleaning and disinfection, the sensor should be removed and the sealing plug for the cable should be mounted. Alternatively, the sensor protective cap can be mounted. The sensor must be placed with the tip pointing upwards during disinfection.

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.



Do not bend the sensor as this would inflict permanent damage on the electronics of the sensor.

5 Technical data

		Humidity measurement	Temperature measurement
Specifications			
Measurement range		16.67 - 100% RH	0 – 60 °C
Accuracy		± 3 % RH (40–85 %) ± 4 % RH (16.67-95 %) at 0-40 °C	± 0.6 °C (10 – 40 °C) ± 1.5 °C (0 – 60 °C)
Output signal		0.03 V/% RH	0.042 V/°C
Time constant T ₆₃		20 s at 0.5 m/s air speed	6 min. at 0.5 m/s air speed
Common			
Electrical			
Supply voltage	V DC	11 - 30	
Current	mA	12 mA no load 35 mA max. load	
Load	Ω	> 500 Ω - < 10 MΩ	

		Humidity measurement	Temperature measurement
Recommended load	Ω	$\geq 100 \text{ k}\Omega$	
Max. output current	mA	20	
Output impedance	Ω	< 1	
Mechanical			
Cable dimensions	AWG	2 m 3 x 22 AWG / 0.34 mm ²	
Max. cable length	m	200 m at 1.50 mm ²	
Environment			
Temperature, operation	$^{\circ}\text{C}$	0 $^{\circ}\text{C}$ – 60 $^{\circ}\text{C}$	
Temperature, storage	$^{\circ}\text{C}$	- 40 $^{\circ}\text{C}$ – 60 $^{\circ}\text{C}$	
Protection class	IP	67	
Shipment			
Packing dimensions H x W x D	mm	275 x 200 x 20	
Shipment weight ex. connector	g	150	

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5.1 Dimensions

Dimensions in mm.



DOL 114 0-10 V

Humidity and Temperature Sensor



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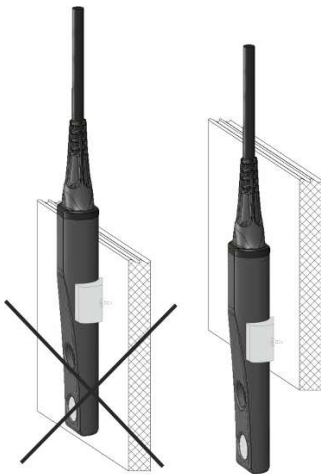
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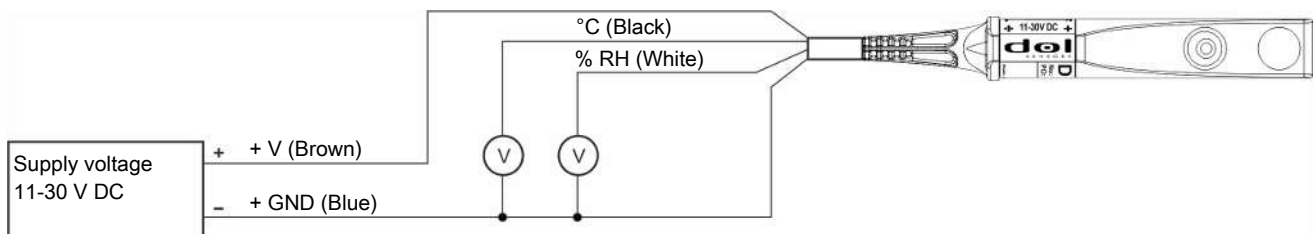
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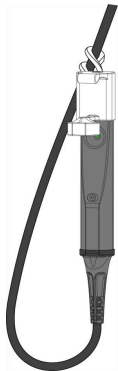


Signals and wire colors

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(BK) Black = +13-24 V DC	→	(WH) White = +13-28 V DC	→	(BN) Brown = +11-30 V DC
(BN) Brown = 0...10 V/%RH	→	(GN) Green 0...10 V/%RH	→	(WH) White = 0...10 V/%RH
No temperature output	→	No temperature output	→	(BK) Black = 0...10 V/°C
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LED/LIGHT PROTOCOL			Functional graph
LED		Status	
Green	Red		
ON		Operation OK	
Flash		Outside normal range (below 10 % RH or exceeding 95 % RH)	
	ON	Connection error Load < 500 Ω	
	Flash	Sensor defect Over or under voltage alarm Overload	

4 Maintenance



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5 Technical data

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Specifications			
Measurement range		0 - 100% RH	- 40 °C – 60 °C
Accuracy		± 2 % RH (40–85 %) ± 3 % RH (10-95 %) at 0-40 °C	± 0.5 °C (10 – 40 °C) ± 1.5 °C (- 30 – 60 °C)
Output signal		0.1 V/% RH	0.1 V/°C at 4 V
Time constant T ₆₃		20 s at 0.5 m/s air speed	6 min. at 0.5 m/s air speed
Common			
Electrical			
Supply voltage	V DC	11 - 30	
Current	mA	12 mA no load 55 mA max. load	
Load	Ω	> 500 Ω - < 10 MΩ	

		Humidity measurement	Temperature measurement
Recommended load	Ω	≥100 kΩ	
Max. output current	mA	20	
Output impedance	Ω	< 1	
Mechanical			
Cable dimensions	AWG	2 m 4 x 22 AWG / 0.34 mm ²	
Max. cable length	m	200 m at 1.50 mm ²	
Environment			
Temperature, operation	°C	0 °C – 60 °C	
Temperature, storage	°C	- 40 °C – 60 °C	
Protection class	IP	67	
Shipment			
Packing dimensions H x W x D	mm	275 × 200 × 20	
Shipment weight ex. connector	g	150	

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5.1 Dimensions

Dimensions in mm.

