PROTRONIX
SENSE & EASY

NL-ECO-RH-230 | Relative humidity sensor 230V

Room sensor NL-ECO-RH-230 is used to monitor the air quality inside buildings and effectively control ventilation (HVAC) systems according to current levels of air pollution. The sensor measures the relative humidity (RH) of air. Sensor is suitable for bathrooms, kitchens, restaurants, laundries and wherever you need to monitor and control air humidity.

〉 measures relative humidity
〉 LED indication with automatic turn off at night
〉 analog voltage output 0-10V
〉 output relay NO/C
〉 maintenance or calibration not required during operation
〉 long life time and stability

Description

Measurement of the relative humidity is based on the principle of capacitive polymer sensor.

The sensor has one analog output for the actual concentration of RH.
Ventilation, air conditioning and heat recovery units can be directly controlled based on the output signal of the sensor in very efficient way.

The trigger level of RH output relay can be set by a rotary element.
Current humidity can be easily checked by three LED indicators. When ambient light is dimmed, the indicators turn off automatically to not disturb you when falling asleep.

Technical data

| Parameter	Value	Unit
Power supply	230	V AC
Power consumption	max 1,5	W
RH measuring range	0 – 100 %	RH
RH accuracy[1] 0 – 90 %	± 3 %	RH
RH switching hysteresis	5 %	RH
Voltage output	0 – 10	V DC
Max. switching voltage	250/30	V AC / V DC
Max. switching current	5/5	A AC / A DC
Working humidity non condensing	0 – 90 %	RH
Working temperature	0 to +50	°C
Storage temperature	-20 to +60	°C
Expected lifetime	min. 10	years
Ingress protection	IP20	
Dimensions	90x80x31	mm

[1] At ambient temperature of 25 °C.

Explanation of abbreviations and technical terms can be found on our website in the Glossary section.

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Voltage output versus RH level
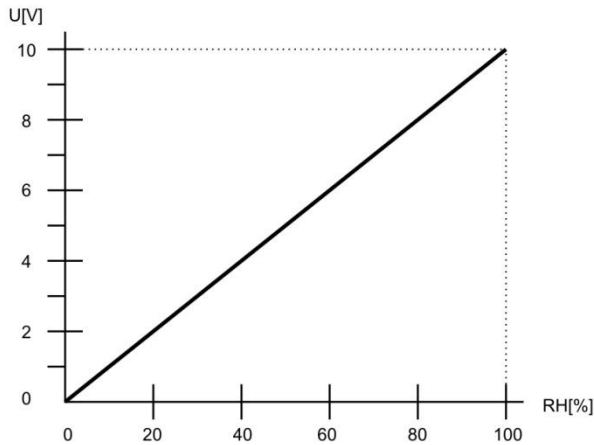
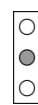## LED indication description

White LED lights:

Less than 40% RH.

− Too dry air is perceived as colder compared to the air with higher relative humidity at the same temperature. Risk of drying out the mucous membranes - respiratory problems.

Green LED lights:

More than or equal to 40% RH and less than or equal to 60% RH.

− Optimal relative humidity to human stay.

Yellow LED lights:

More than 60% RH.

− Too high humidity, the risk of mold growth and associated health complications.

Sensor start after power on

All three LEDs are shining simultaneously in the meantime, pending the availability of the first measured value. But no longer than 10 seconds.
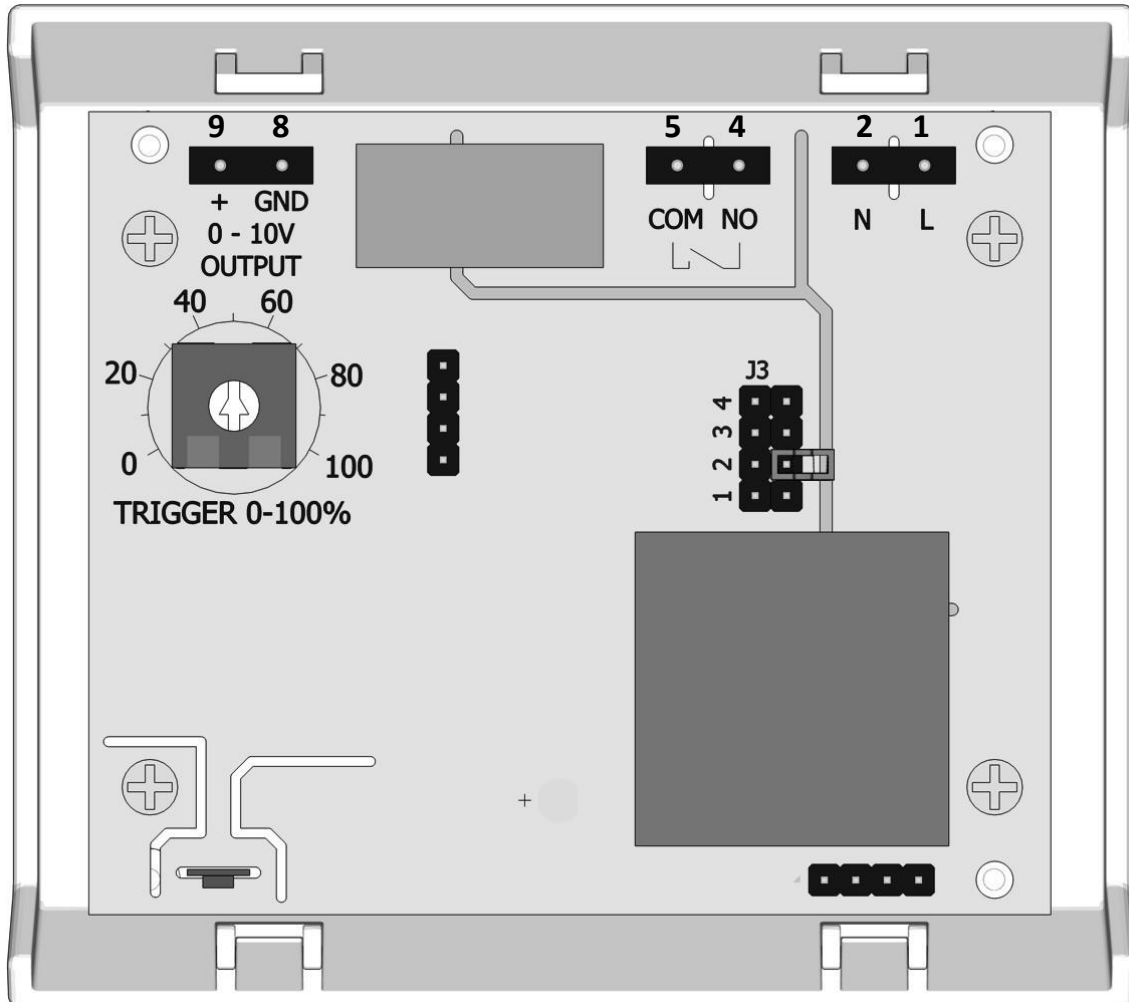
Sensor failure indication

All three LED´s lights up at the same time permanently.

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Electronic board controls and terminals

Terminals

POWER

1. L	supply AC - L
2. N	supply AC - N

4. NO	output relay, normally open contact
5. COM	output relay, common contact

OUTPUT

8. GND	output – minus pole, GND
9. +	analog output 0-10 V

Jumpers J3

jumper	meaning	fitted	not fitted
2	LED indication	always	automatic
3			
4	this position is not for user setting		
1			

Factory setting

LED indication	automatic
Switching level	50%

Protronix s.r.o., Pardubická 177, Chrudim 537 01, Czech Republic   www.protronix.eu   www.careforair.eu

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Setting the relay switching level using rotary selector

The 0 - 100% selector setting corresponds to the value of RH measuring range – see example below.
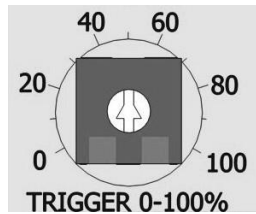

The relay switches on when the level of measured value rises above the level of the rotary selector. The relay switches off when the level measured value falls below the level of the rotary selector minus hysteresis value of 5% from measuring range. Minimal lag between changes in state relays are 2 minutes.
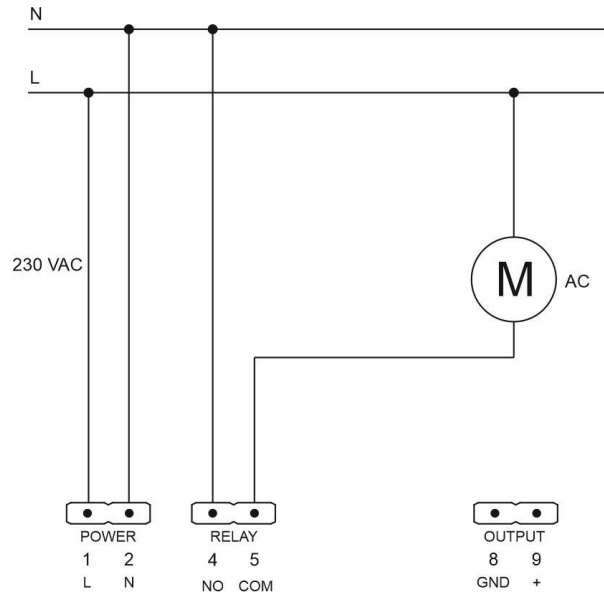
Selector value	RH
0 %	0%
10 %	10 %
20 %	20 %
30 %	30 %
40 %	40 %
50 %	50 %
60 %	60 %
70 %	70 %
80 %	80 %
90 %	90 %
100 %	100 %

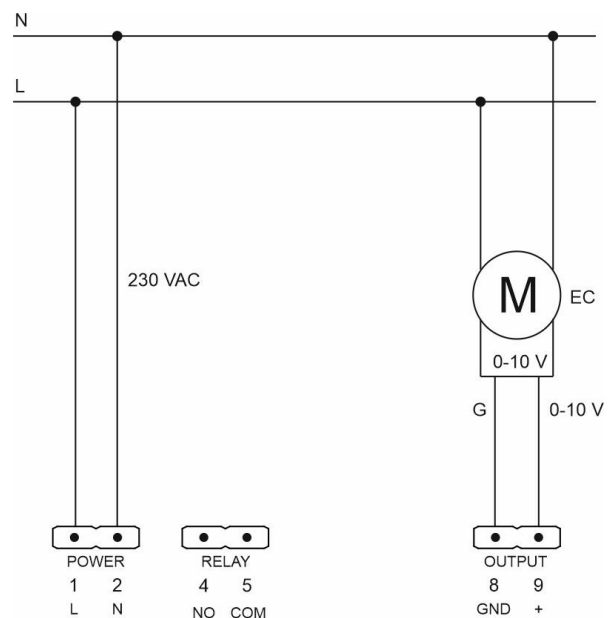**Relay switching example -** hysteresis 5%
- selected switching level value 50% (correspond to 50% RH)
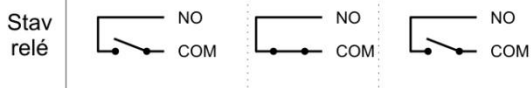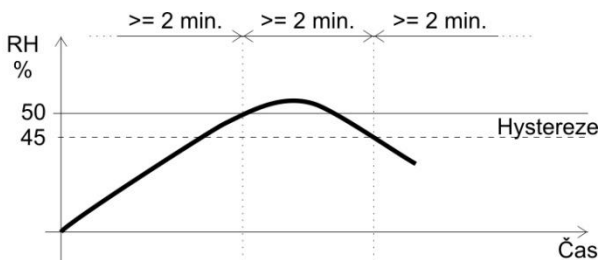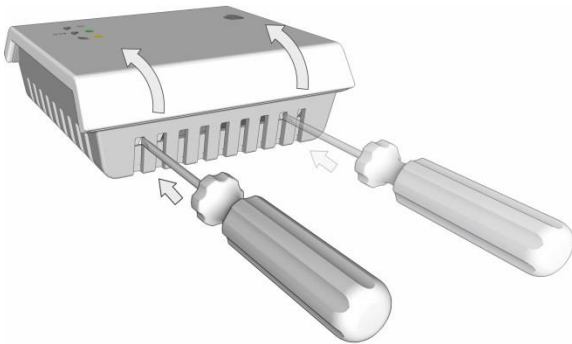

Sensor connection using the output relay

Sensor connection - direct EC motor control using signal 0-10 V
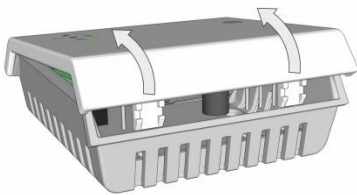
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Sensor box disassembly

Push on the two locks with a flat head screwdriver to release the upper part of the box. Then, tilt it in the indicated direction (see the picture below).

Continue to move the upper part with all the electronics until it is separated from the lower part.

Box color

White - RAL9016.

Way to use

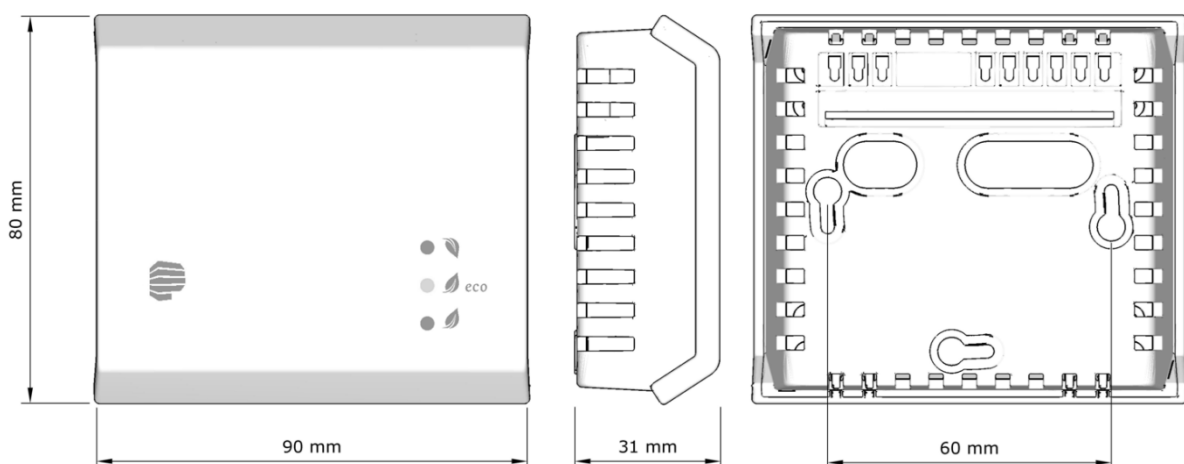The product is intended for indoor use only. You can read the recommendations for sensor placement on our web pages.

CAUTION:
It is necessary to avoid severe mechanical shock of the sensor.

End of product life

Discard the product in according to the electronic waste law and the EU directives.

Dimensions

The producer reserves the right of technical changes in order to product improvements its properties and functions without previous notice.