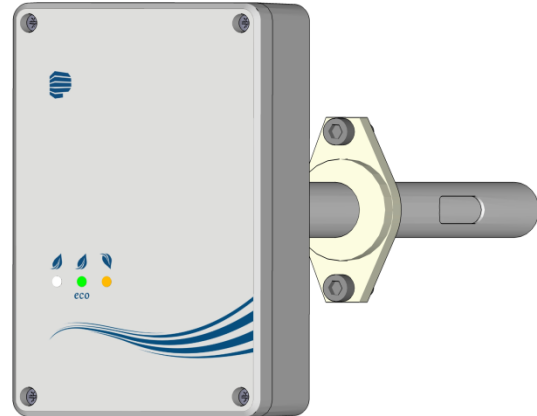


NL-ECO-RH-D | Duct mounted RH sensor

Duct sensor NL-ECO-RH-D is used to monitor relative humidity (RH) inside an air duct and then for effective control of ventilation (HVAC) systems according to actual humidity in the air. The sensor continuously monitors relative humidity in air. It is suitable for effective control of air quality in living rooms, bathrooms, warehouses, ateliers etc.

- > monitors relative humidity in an air duct
- > LED indication with automatic turn off at night
- > analog voltage output 0-10V
- > output relay NO/C
- > easy air duct mounting
- > doesn't need maintenance or calibration during operation
- > long-term stability
- > expected lifetime >10 years



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 over the whole measurement range. Current air quality can be easily checked by three LED indicators with built-in automatic shut-off at night.

Explanation of abbreviations and technical terms can be found on our website in the [Glossary](#) section.

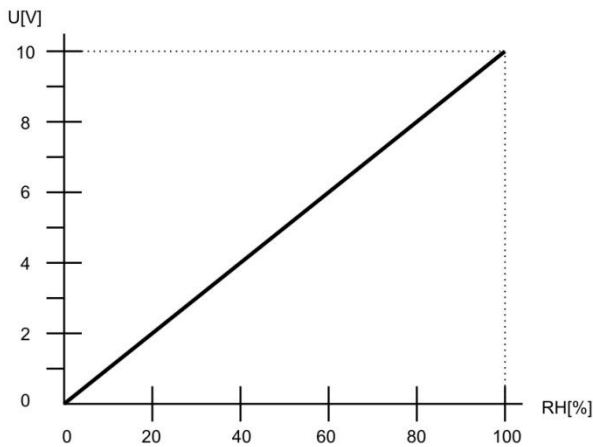
Technical data

Parameter	Value	Unit
Supply voltage range	12–35	V DC
	12–24	V AC
Consumption	max 1,5	W
RH measuring range	0 – 100 %	RH
RH accuracy 0 – 90 %	± 5 %	RH
RH accuracy 90 – 100 %	± 6 %	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	252x120x80	mm



NL-ECO-RH-D | Duct mounted RH sensor

Voltage output versus measured RH value



LED indication description

White LED lights:
Less than 40% RH.

- low concentrations of RH. too dry air feels cooler person perceives as compared to the same hot air with high relative humidity, dryness of 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.

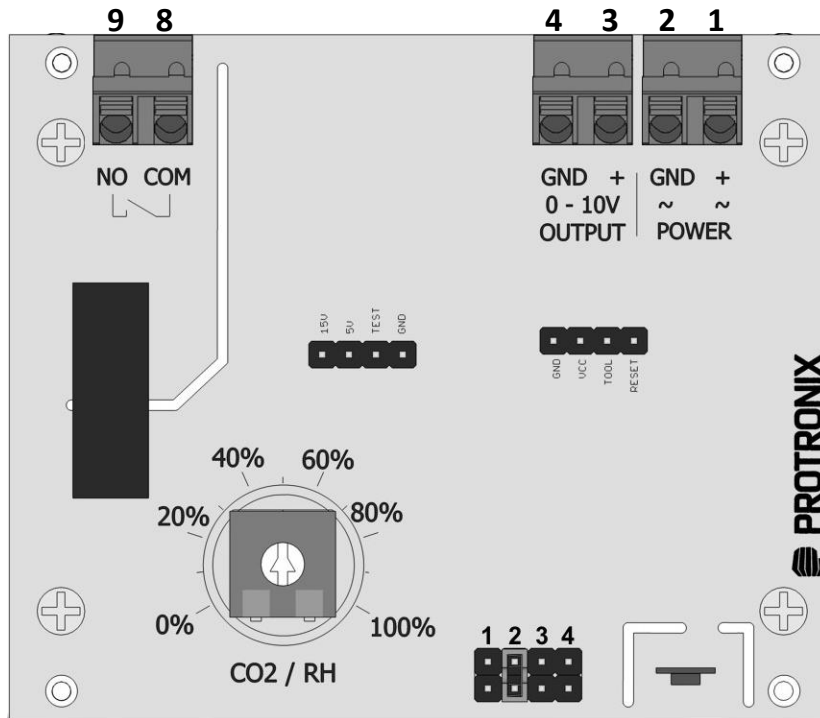
Sensor failure indication

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



NL-ECO-RH-D | Duct mounted RH sensor

Electronic board controls and terminals



Terminals

POWER

1. ~ +	supply AC or DC (+) plus pole
2. ~ GND	supply AC or DC (-) minus pole, GND

OUTPUT

3. +	analog output 0-10 V
4. GND	output – minus pole



8. COM	output relay, common contact
9. NO	output relay, normally open contact

Jumpers

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

Factory setting

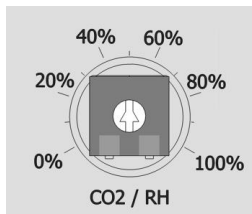
LED indication	enabled
Switching level	50%



NL-ECO-RH-D | Duct mounted RH sensor

Setting the relay switching level using rotary selector

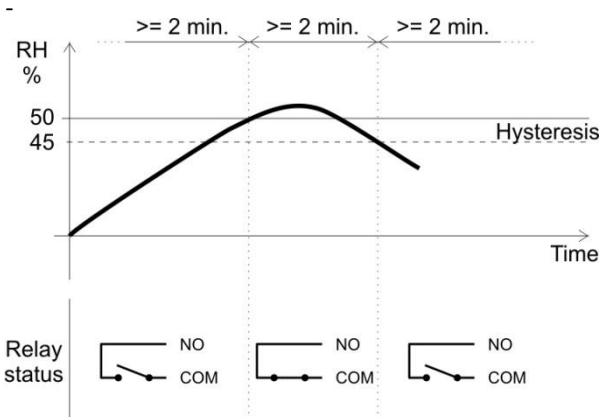
The 0 - 100% selector setting corresponds to the value of RH measuring range – see example below.



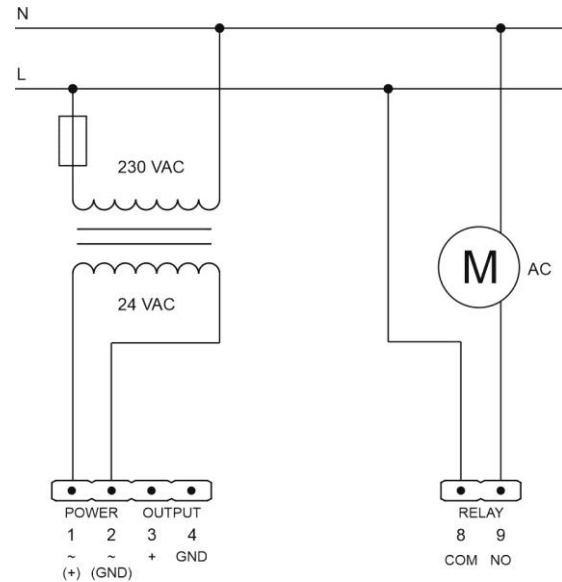
The relay switches on when the level measured value rises above the level of the rotary selector.
The relay switches off when the level measured value falls below the level of the rotary selector minus hysteresis value of 5% from measuring range.
Minimal lag between changes in state relays are 2 minutes.

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 %

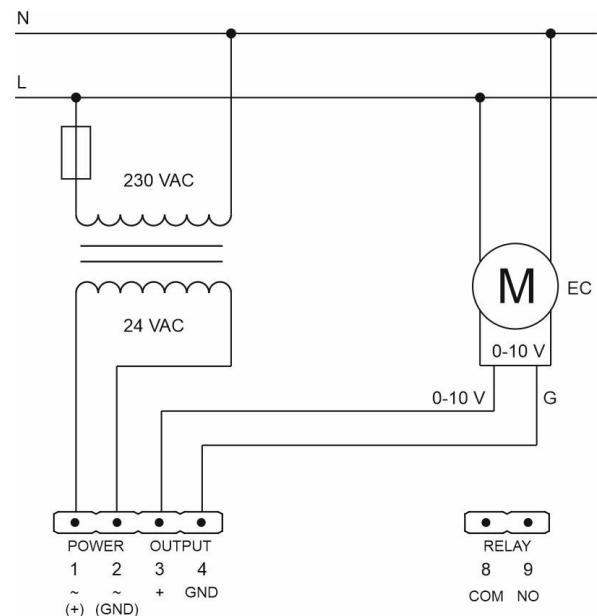
Relay switching example - selected switching level value 50% (correspond to 50% RH), hysteresis 5%



Sensor connection using the output relay

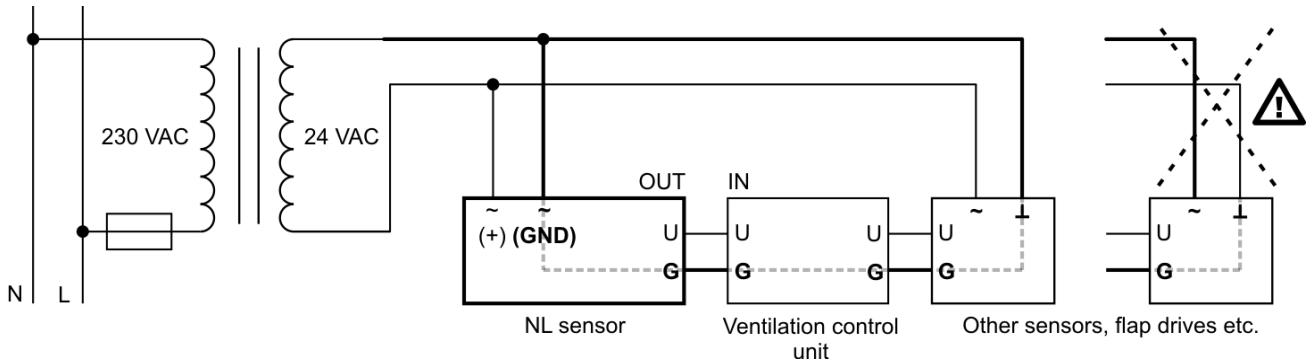


Sensor connection - direct EC motor control using signal 0-10 V

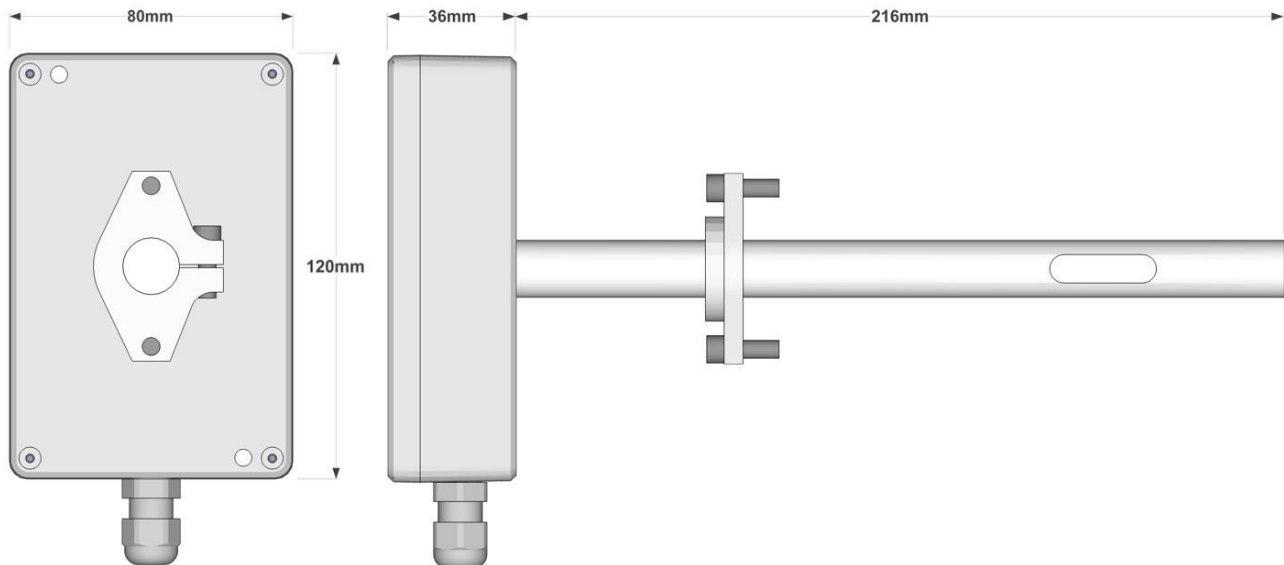


NL-ECO-RH-D | Duct mounted RH sensor

If you connect other devices or more sensors to the same AC power source as the NL sensor, it is necessary to meet GND wiring of all analog inputs and outputs, as well as power wires.



Dimensions



Installation



Way to use

The product is intended for indoor use only.

What to do at the end of lifetime of this product

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

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

