NLII-RH+T-SX | Combined RH/temperature sensor with SIGFOX

Room sensor NLII-RH is used to continuously monitor the air quality inside buildings and then control ventilation (HVAC) systems according to current levels of air pollution. The sensor measures the relative humidity (RH) and temperature (T). It is suitable for living rooms, bathrooms, warehouses, ateliers etc.

- measures RH and temperature
- 2x analog voltage/current output
- SIGFOX wireless communication
- maintenance during operation is not required

Description

Measurement of the relative humidity is based on the principle of capacitive polymer sensor.
The sensor has built-in two separate analog outputs - one for the actual temperature and the other for the actual relative humidity.
Sensor can efficiently manage ventilation and heat recovery units, based on current air quality.
The current air quality can easily be determined by looking at the three LED indicators. The ***eco*** level means good indoor air quality that is needed to achieve a sense of well-being and at the same time optimal energy costs for heating or air conditioning.
For detailed information on the communication protocol, use the document NLII-Sigfox-Communication.

Technical data

Parameter	Value	Unit
Supply voltage range	12 – 35 12 – 24	V DC V AC
Average consumption	0,2	W
RH measuring range	0 – 100 %	RH
RH accuracy 0 – 90 %	± 5 %	RH
RH accuracy 90 – 100 %	± 6 %	RH
T measuring range	0 – 50	°C
T accuracy	± 0,4	°C
Output [1)]	0-10 V / 0-20 mA / 4-20 mA	
Working temperature	0 to +50	°C
Working humidity non condensing	0 – 90 %	RH
Storage temperature	-20 to +60	°C
Expected lifetime	min. 10	years
Ingress protection	IP20	
Dimensions	110x158x31	mm

[1)] It is possible to select the desired type of analog output by a jumper.

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

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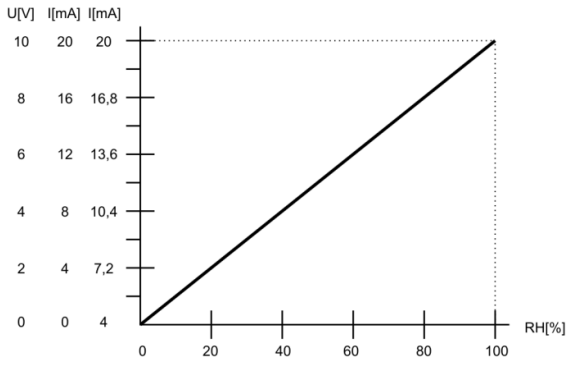
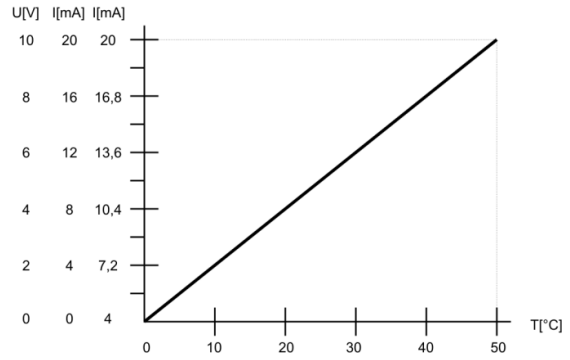
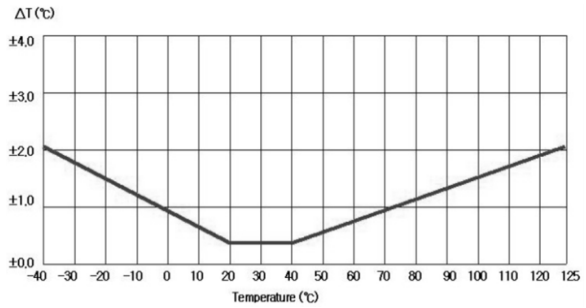
Analog output values versus actual RH



Analog output values versus actual T



Typical T measurement accuracy



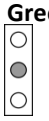
LED indication description

White LED lights:

Less than 40 % RH or less than 18 °C.
(according to the quantity selected for indication)

- low concentrations of RH. Too dry air feels cooler as compared to equally hot but more humid air – risk of drying of the mucous membranes - respiratory problems
- low temperature and its higher fluctuation is not economically profitable

Green LED lights:



More than or equal to 40 % RH or 18 °C, less than or equal to 60 % RH or 22 °C.
(according to the quantity selected for indication)

- optimal relative humidity for humans
- optimal balance of air quality and energy efficiency of ventilation and air conditioning

Yellow LED lights:

More than 60 % RH or more than 22 °C.
(according to the quantity selected for indication)

- too high humidity, the risk of mold growth and associated health complications
- higher temperature T - high temperature can cause fatigue, restlessness, headache and feeling hot

Sensor start after power on

All three LEDs flash simultaneously until the first readings are available, but no longer than 10 seconds.

Sensor failure indication

All three LEDs are shining permanently.

CAUTION:

Warm-up: operational after 1 minute since power on.
The declared accuracy is reached after 4 days of continuous power supply.
It is necessary to avoid severe mechanical shock of the sensor.

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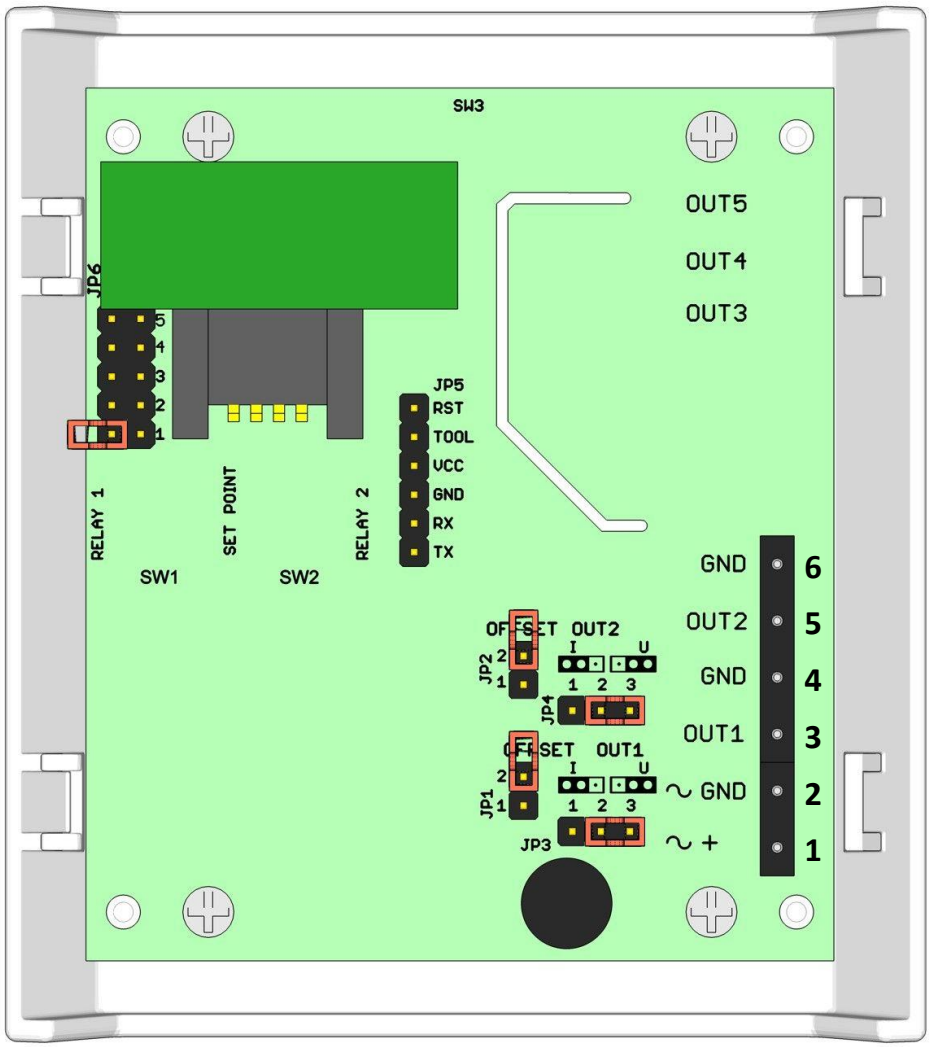
Electronic board controls and terminals



Terminals

1. ~ +	supply AC or DC (+) plus pole
2. ~ GND	supply AC or DC (-) minus pole, GND
3. OUT1	T sensor analog output, 0-10 V or 0-20 mA or 4-20 mA
4. GND	T sensor output GND
5. OUT2	RH sensor analog output, 0-10 V or 0-20 mA or 4-20 mA
6. GND	RH sensor output GND

Jumpers

JP1 – Current output offset RH
JP2 – Current output offset T
JP3 – Voltage/current output T
JP4 – Voltage/current output RH
JP6 – LED indication settings

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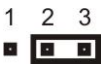
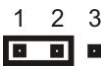
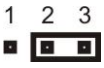
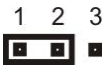
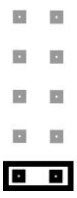
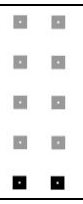
Jumpers on the electronics board

Mark	Description	Settings	Meaning
JP1	**Current output offset RH** - shift quiescent current from 0 mA to 4 mA		current output RH 0-20 mA
			current output RH 4-20 mA
JP2	**Current output offset T** - shift quiescent current from 0 mA to 4 mA		current output T 0-20 mA
			current output T 4-20 mA
JP3	**Voltage/current output T** - select the type of analog output - if voltage output T is selected, JP2 must not be shorted		voltage output T
			current output T
JP4	**Voltage/current output RH** - select the type of analog output - if voltage output RH is selected, JP1 must not be shorted		voltage output RH
			current output RH
JP6 - 1	**LED indication** - LED indication according to ambient light - when ambient light is dimmed (at night), LED indicators turn off automatically.		permanent LED indication enabled
			LED indication according to ambient light

Factory settings

LED indication:	by RH, indication turns off when ambient light dims
T analog output:	voltage output
RH analog output:	voltage output

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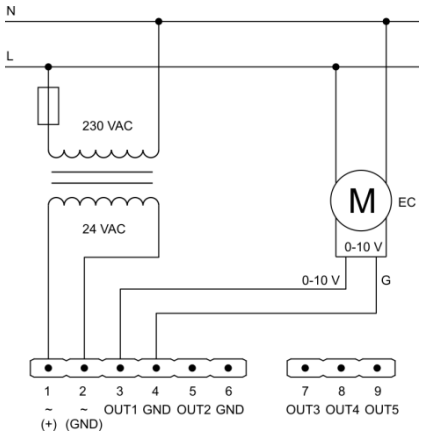
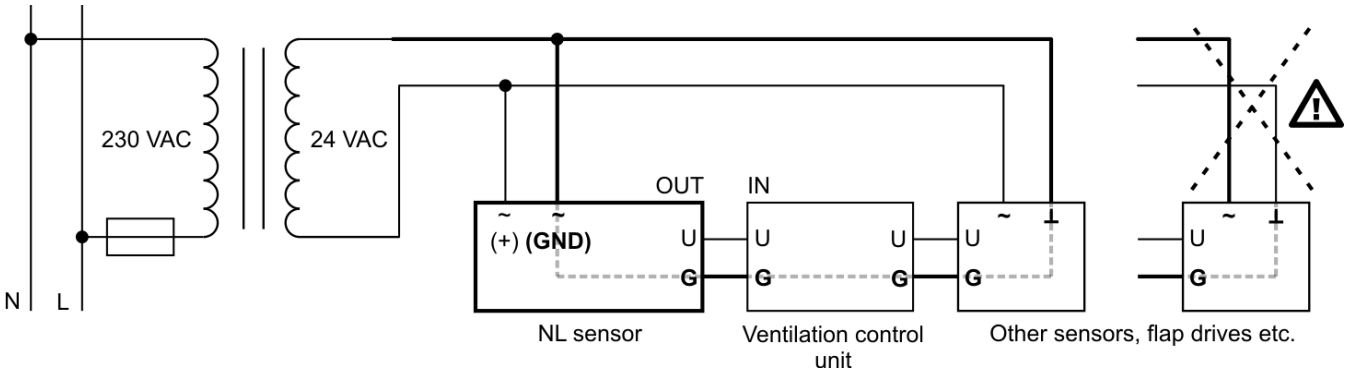
Example of RH sensor connection for direct EC motor control using 0-10 V signal



If you connect other devices 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.



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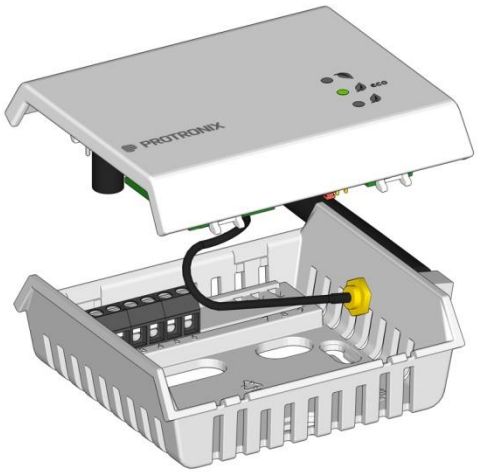
Sensor assembly



Box color

Front: White - RAL9016
Base: gray - RAL7035

Way to use

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

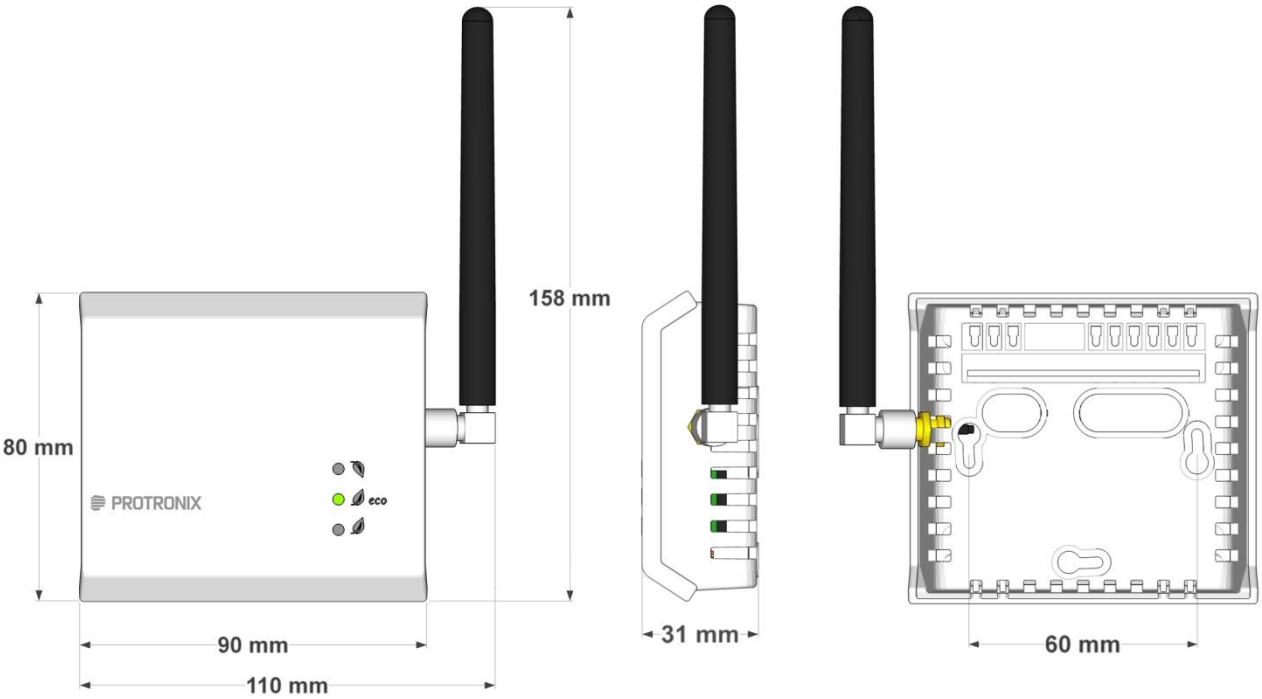
End of product life

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

Disassembly

When disassembling, be careful not to rip-out the antenna cable. It connects the antenna in lower part of the sensor with the electronics in the upper part.

Dimensions



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