PROTRONIX NLII-RH+T-RS485 Combined RH/Temperature Sensor with RS485 User Manual

PROTRONIX
SENSE & EASY

User manual

NLII-RH+T-RS485 | Combined RH/temperature sensor with RS485

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

- measures RH and temperature
- RS485 bus communication with Modbus RTU protocol
- maintenance during operation is not required
- long life and stability

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Description

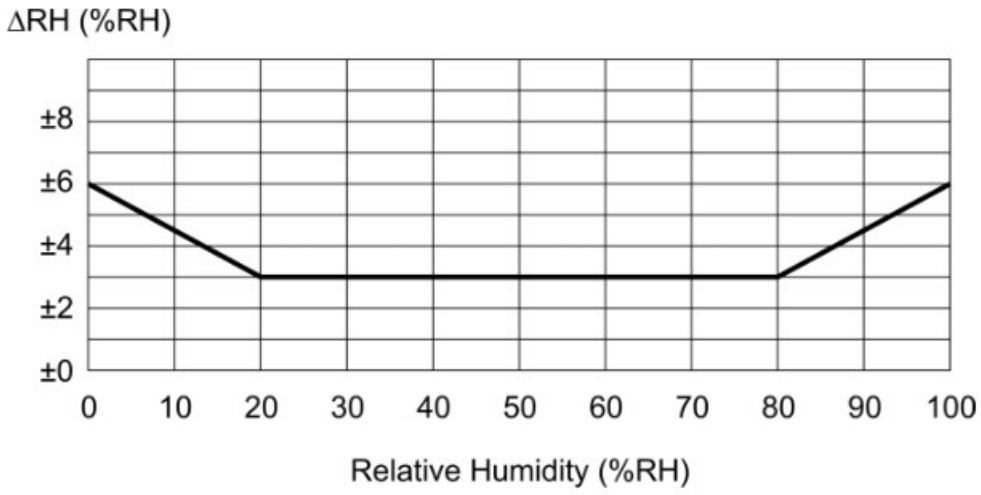
Measurement of the relative humidity is based on the principle of capacitive polymer sensor.
The sensor provides two outputs over the RS485 bus – one for the actual temperature and the other for the actual relative humidity.
Sensors can efficiently manage ventilation and heat recovery units, based on 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 information on the communication protocol, use the document NLII-Modbus-komunikace.

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

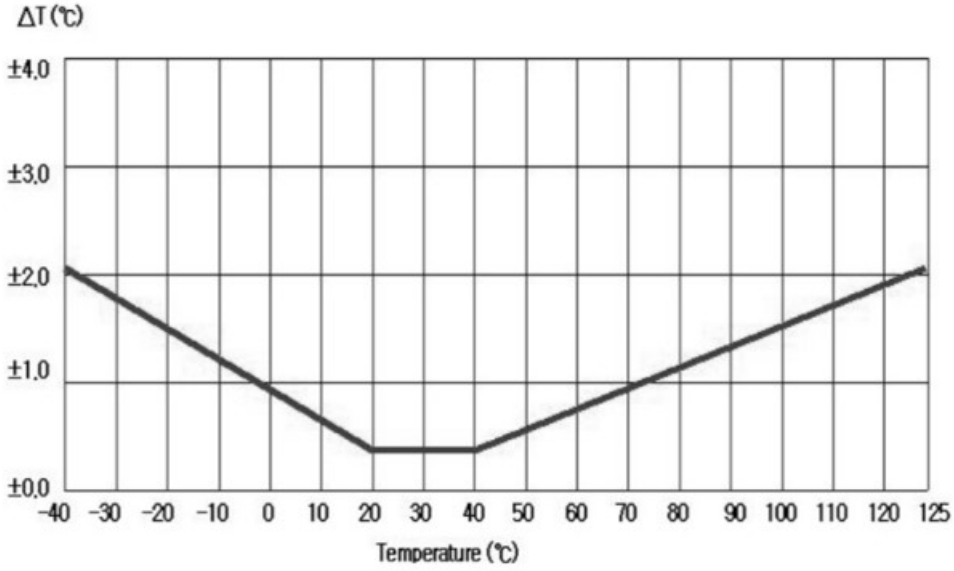
Technical data

Parameter	Value	Unit
Supply voltage range	12 – 35	V DC
Average consumption	12 – 24	V AC
RH measuring range	0,2	W
RH accuracy 20 – 80 %	0 – 100 %	RH
RH accuracy 0 – 100 %	± 3 %	RH
T measuring range	± 6 %	RH
T accuracy	0 – 50	°C
Working temperature	± 0,4	°C
Working humidity	0 to +50	°C
non condensing	0 – 90 %	RH
Storage temperature	-20 to +60	°C
Expected lifetime	min. 10	years
Ingress protection	IP20	
Dimensions	90x80x31	mm
RS485 bus		
A-B voltage difference	max 5	V
A-B common input voltage	-7 to 12	V
A-B common output voltage	max 3	V

Typical RH measurement accuracy at 25 °C



Typical T measurement accuracy



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 the severe mechanical shock of the sensor.

Combined RH/temperature sensor with RS485

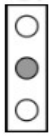
LED indication description

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 the efficiency of ventilation and air conditioning

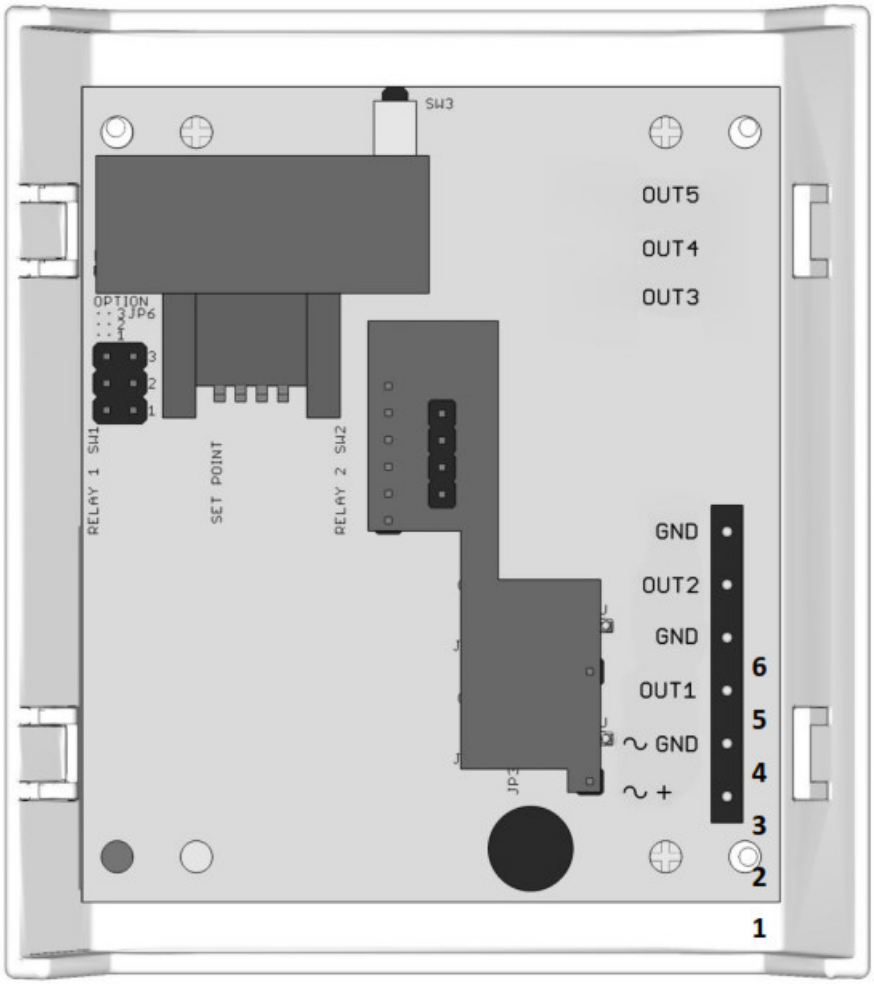
Yellow LED lights:

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.

Electronic board controls and terminals



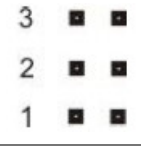
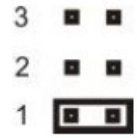
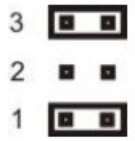
Terminals

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

3. OUT1 RS485 bus – signal line B
4. GND GND
5. OUT2 RS485 bus – signal line A
6. GND GND

Jumpers
JP6 – LED indication settings

Jumpers on the electronics board

Mark	Description	Settings	Meaning
JP6 – 1 JP6 – 3	Enabling LED indication and selecting t he quantity for indication(factory setting is RH)		LED indication disabled
			LED indication enabled, indication by RH
			LED indication enabled, indication by T

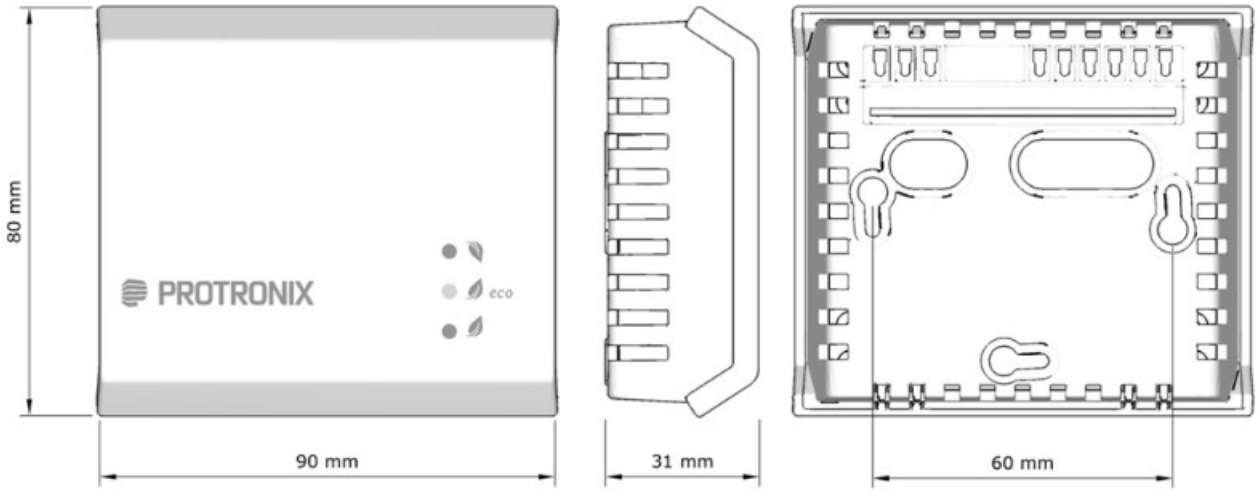
Sensor assembly

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.

Dimensions



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

www.protronix.cz/en/ www.careforair.eu/en/

Documents / Resources

	PROTRONIX NLII-RH+T-RS485 Combined RH/Temperature Sensor with RS485 [pdf] User Manual NLII-RH T-RS485, Combined RH Sensor with RS485, Temperature Sensor with RS485