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

PROTRONIX

SENSE & EASY
User manual

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

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 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
〉 IQRF wireless communication
〉 maintenance during operation is not required
〉 long life and stability

Sensor type / order code	RH output	T output	SIM slot	IQRF module
NLII-RH+T-IQRF	0-10 V/0-20 mA/4-20 mA[1)]	0-10 V/0-20 mA/4-20 mA[1)]	*	–
NLII-RH+T-IQRF+	0-10 V/0-20 mA/4-20 mA[1)]	0-10 V/0-20 mA/4-20 mA[1)]	*	*

1) It is possible to select the desired type of analog output by a jumper on the electronics board.

Contents

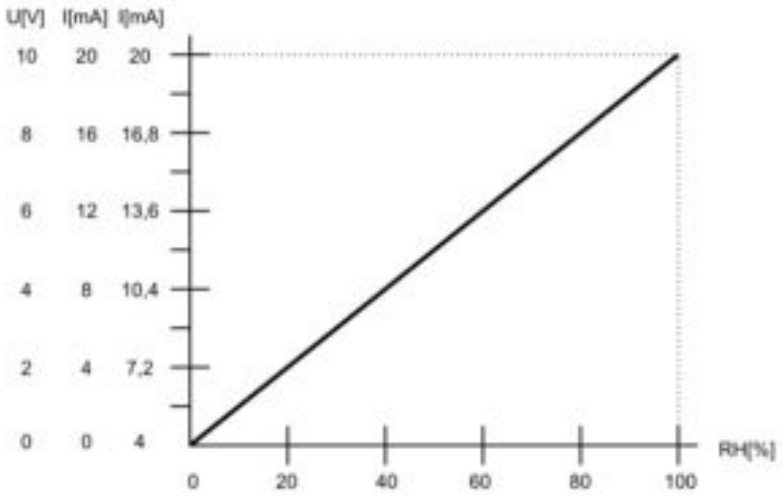
Description

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.
So the sensor efficiently manages ventilation and heat recovery units, based on current room 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 necessary to achieve a sense of well-being and at the same time optimal energy costs for heating, ventilation, or air conditioning.
For detailed information about IQRF, use the document NLII-IQRF-Communication. For information on the communication protocol, use the document NLII-Modbus-Communication.
Explanation of abbreviations and technical terms can be found on our website in the Glossary section.

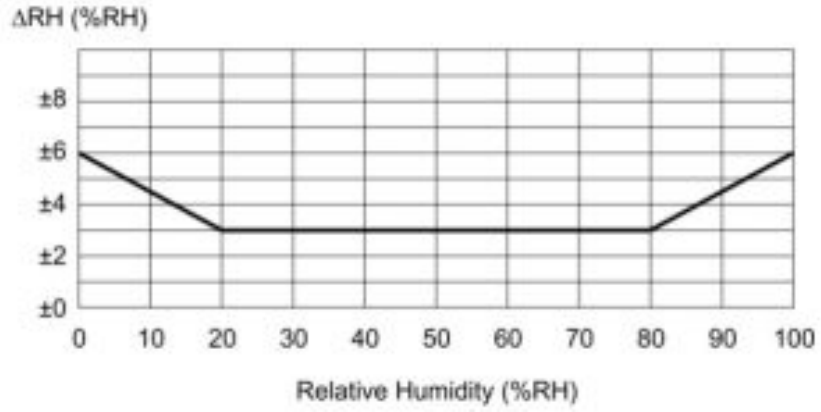
Technical data

Parameter	Value	Unit
Supply voltage range	12 – 35 12 – 24	V DC V AC
Average consumption	0,2	W
RH measuring range	0 – 100 %	RH
RH accuracy 20 – 80 %	± 3 %	RH
RH accuracy 0 – 100 %	± 6 %	RH
T measuring range	0 – 50	°C
T accuracy	± 0,4	°C
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	90x80x31	mm

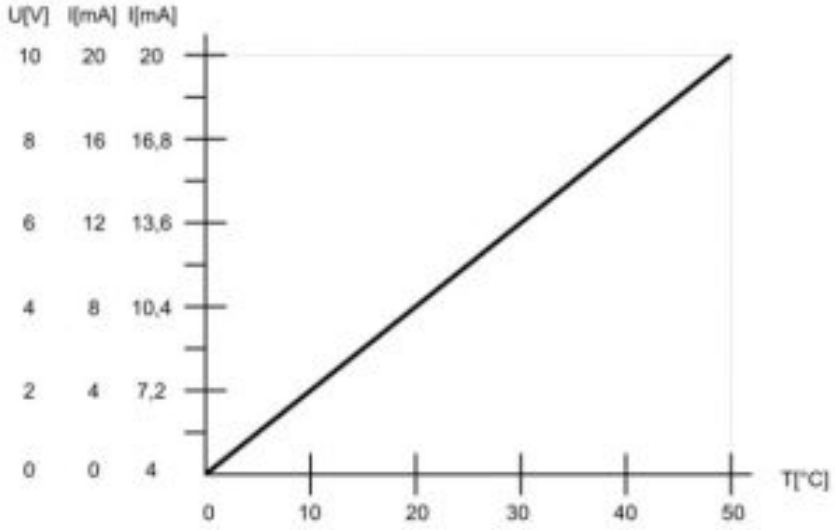
Analog output values versus actual RH



Typical RH measurement accuracy at 25 °C



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 – the 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
– the 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

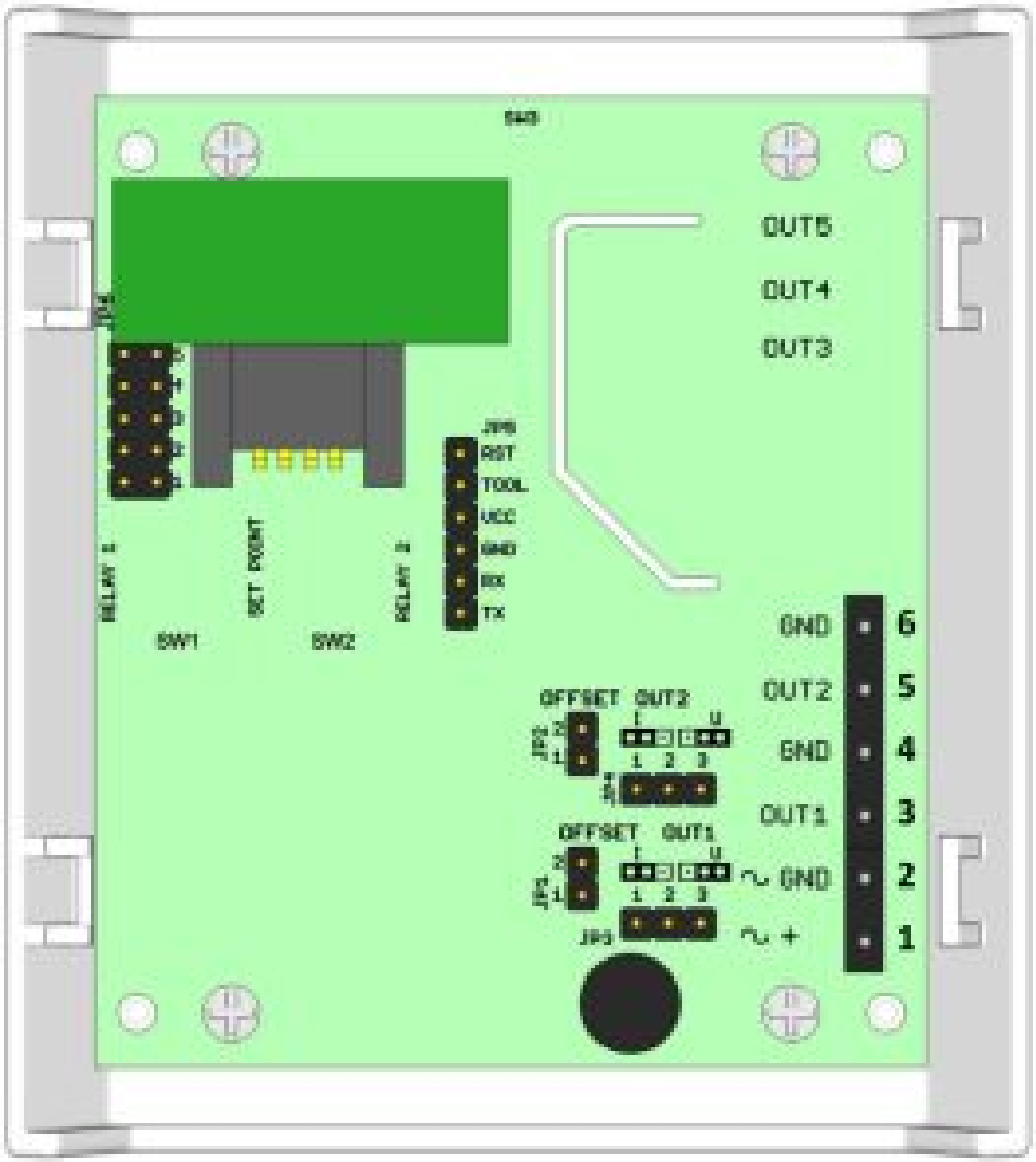
– higher temperature T – the high temperature can cause fatigue, restlessness, headache, and feel hot

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.

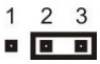
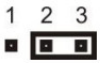
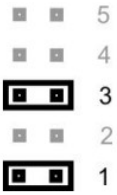
CAUTION:
Warm-up: operational after 1 minute since power on.
The declared accuracy is reached after 4 days of continuous power supply.
It is necessary to avoid the severe mechanical shock of the sensor.

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 o r 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

Jumpers on the electronics board

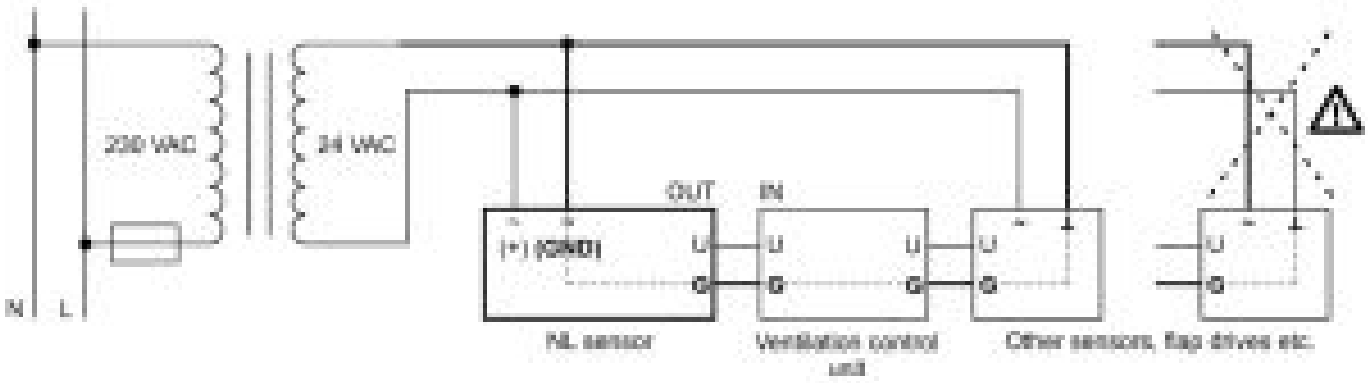
Mark	Description	Settings	Meaning
JP1	**Current output offset RH** – shift quiescent current from 0 mA to 4 mA		current output RH 0-20 mA
			current output RH 4-20 mA
JP2	**Current output offset T** – shift quiescent current from 0 mA to 4 mA		current output T 0-20 mA
			current output T 4-20 mA
JP3	**Voltage/current output T** – select the type of analog output – if voltage output T is selected, JP2 must n ot 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 **JP6 – 3**	**LED indication** **LED signalization by VOC or RH** – LED indication according to ambient light – when ambient light is dimmed (at night), L ED indicators to turn off automatically. – factory setting is an indication by VOC		LED indication by VOC LED indication according to ambient ligh t
			LED indication by RH permanent LED indication enabled
JP6 – 2 **JP6 – 4** **JP6 – 5**	**These positions are not intended for use r settings.**		

Factory settings

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

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 the GND wiring of all analog inputs and outputs, as well as power wires.



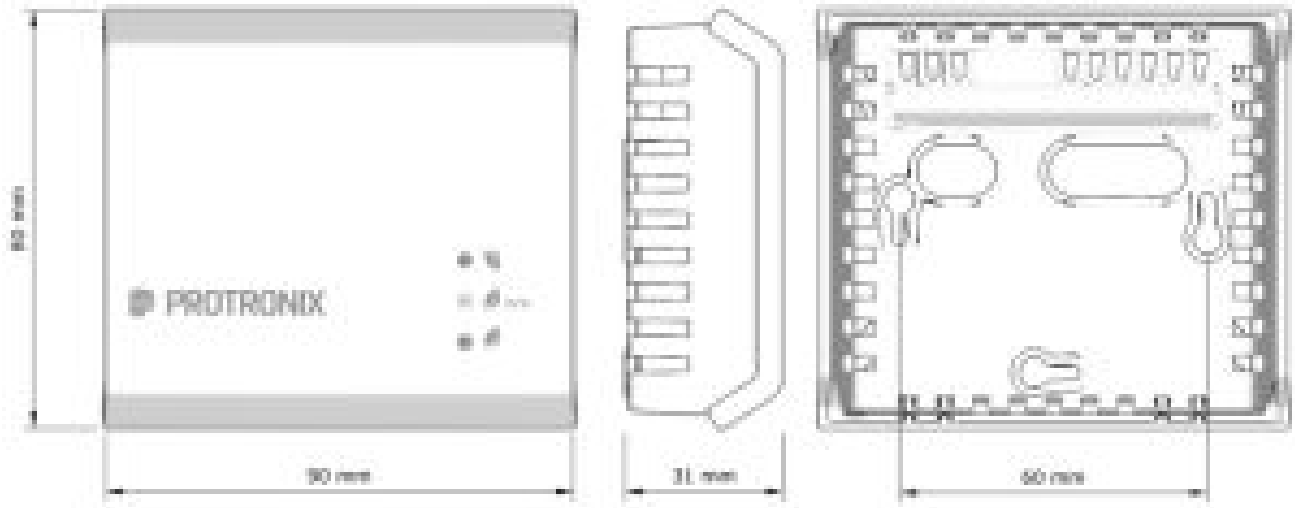
Sensor assembly

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 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.

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

Documents / Resources

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

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