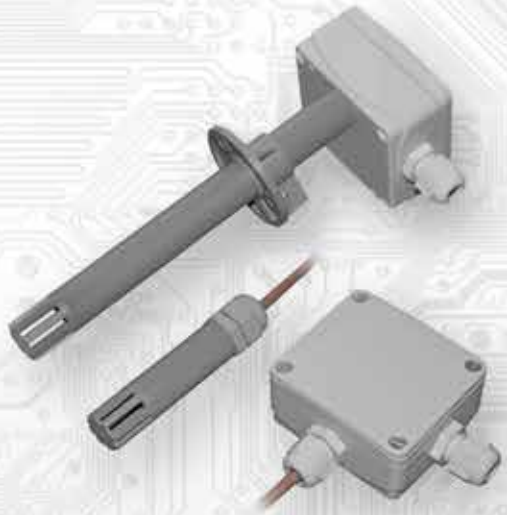
Duct temperature and humidity sensors - PHNU, PHTU



These sensors are intended for general-purpose application in control and regulation systems for the temperature and humidity measurement in airflows. The output of relative air humidity (hereinafter referred to as RH) is a voltage signal of 0 ÷ 10V. The output of the measured temperature is a voltage signal of 0 ÷ 10V, or the device may be without the possibility of measuring temperature. Alternatively is possible a combination of active voltage or current output for humidity measurement and passive resistance output for temperature measurement (Pt100, Pt1000, Ni1000, NTC ...). The actual temperature and relative humidity sensor is located in a plastic ABS stem, which is terminated by a dust filter. The electronics with terminal blocks are located on a printed circuit board inside a plastic head made of gray polycarbonate. The air conditioning sensors include a plastic center bracket used to attach the sensor to the wall of the air conditioning duct.

List of available types

Type / outputs	RH = 0 ÷ 10V temperature = 0 ÷ 10V	RH = 0 ÷ 10V temperature = NO	RH = 0 ÷ 10V temp. = resistance sensor
Outside/interior	**PHTU111**	**PHNU111**	**PHTU111-x**
Duct	**PHTU12-L1**	**PHNU12-L1**	**PHTU12-x-L1**
Cable sensor	**PHTU18**	**PHNU18**	**PHTU18-x**

Standard length L1

180 mm
240 mm

The standard cable length for types PHTU18 and PHNU18 is 2m

List of type of resistance sensors....x

Type of resistance sensor	Placement to x (eg. PHTU12-PA)
Pt 100 / 3850 ppm	**P**
Pt 1000 / 3850 ppm	**PA**
Ni 1000 / 6180 ppm	**S**
Ni 1000 / 5000 ppm	**L**
Ni 891 / 6371 ppm	**J**
Ntc 20kΩ	**H**

Basic technical parameters

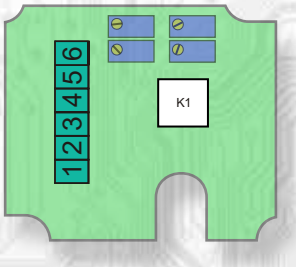
Supply voltage **PH….DC** (eg. PHTU111DC)	15 ÷ 30VDC
Supply voltage **PH….AC** (eg. PHTU111AC)	24VAC ±10%
Max. consumption	10mA
Range of measurement RH (RH = 0 ÷ 10V)	0 ÷ 100%
Accuracy - humidity	±3% (10 ÷ 90%)
Standard temperature ranges (temp. = 0 ÷ 10V)	0 ÷ 35 °C 0 ÷ 50 °C -30 ÷ 60 °C
Accuracy - temperature	±1% from range 0 ÷ 10V) resistance sensors,... according to accuracy class
Load impedance of voltage outputs (Rz)	> 50kΩ
Galvanic separation of outputs	no
Range of recommended working temp. [1]	-30 ÷ 60 °C / 0 ÷ 99 %RH (non condensing)
Range of recommended storage temp. / RH	-20 ÷ 60 °C / 20 ÷ 80 %RH (non condensing)
Protection type of head	IP65
Protection type of sensor	IP40, filter 100µm
Terminal board	COB (wires max. 1,5 mm^2)
Cable gland / Max. Ø of cable	PG9 / 8 mm

Operating conditions of the SHT40l sensor:

The sensor operates steadily in the recommended measuring range, which is 5 ÷ 60 °C and 20 ÷ 80% RH. Long-term exposure to high humidity, especially> 80% RH, resulting in gradually increasing deviation reading RH (+ 3% RH after 60 hours> 80% RH). After returning to the normal range, the RH will slowly return to the calibrated values.
Long-term exposure to extreme conditions can accelerate the aging of the sensor.

Detailed information on conditions of long-term use of the sensor SHT40 under conditions out of the standard range, especially at the relative humidity >80% RH, are shown directly at the producer´s website at:
http://www.sensirion.com

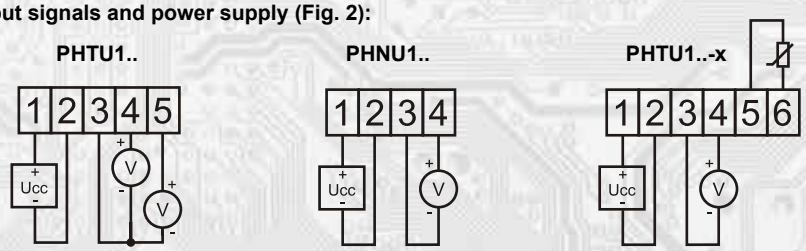
Connection plan (fig.1):



Terminal 1..... + positive pole, PH AC = 24VAC
Terminal 2.....- GND, negative pole
Terminal 3..... common pole of ouputs (GND)
Terminal 4..... positive pole of ouput RH 0 ÷ 10V
Terminal 5..... positive pole of ouput temperature 0 ÷ 10V
Terminal 6..... only for *PHTU…-x* ,temperature sensor (terminals 5, 6)

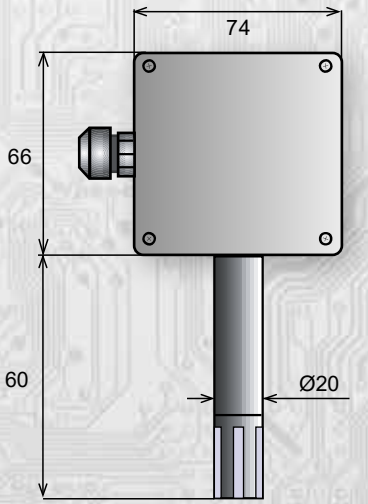
Terminals 2, 3 are galvanically connected (GND).

Connection of output signals and power supply (Fig. 2):

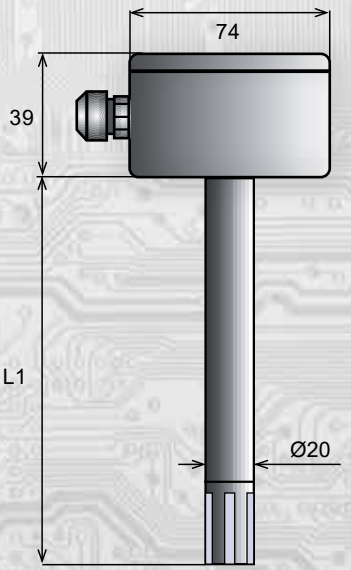


Dimensions and accessories

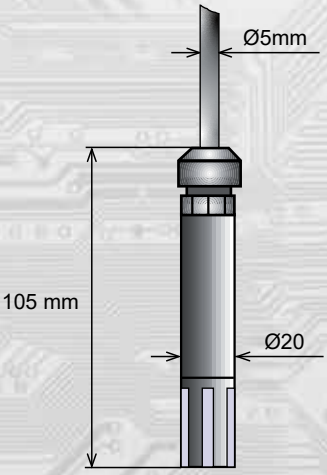
PHTU111

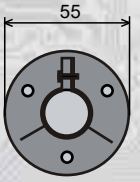


PHTU12



PHTU18





Central holder A to PHTU12

3 holes of 4.5 mm in diameter