

Anemometer Thies Compact

S12100H
(P6140H)

- Opto-electronic wind speed sensor
- “Low Power” - Frequency output signal
- Range 0.5 ... 50 m/s
- Resolution < 0.1 m/s



Measurement principle

The cup star is set into rotation by the wind. An opto-electronic speed scanning produces a frequency, which is, proportional to the wind speed, available as output signal.

The anemometer is equipped with an electronically regulated heating system in order to prevent ice from the bearings.

Mounting

When using fastening adaptors please notice that turbulences could possibly influence the characteristic curve. You should use a tube with a length of 350 mm, an outer diameter of 35 mm and a wall thickness of 5 mm. Cut an inner thread (PG 21) in the upper end of the tube (min. 13 mm). For mounting leave one hexagonal nut (SW36) at the anemometer and pass the cable through the tube. The thread of the anemometer has to be screwed into the tube until there is still enough free space to fix it with the nut.

When mounting the sensor please note that you never turn the sensor at the aluminium tube because this can be opened. To fix and to loosen the lock nut the sensor must be hold with a screw spanner (SW 22) above the thread!

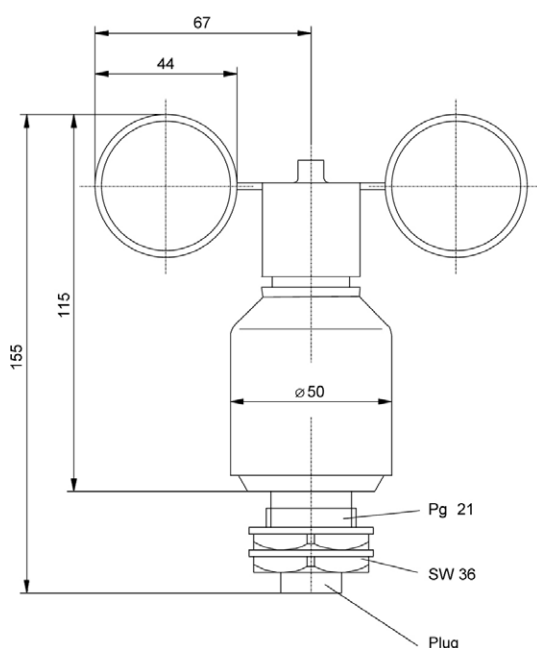
The anemometer should be mounted principally at the top of a mast to be free in all directions. Only a lightning protection rod mounted below must overtop the sensor. If an anemometer has to be mounted on a traverse the length must be at least 7 times the length of the mast diameter.

Maintenance

When mounted properly, the anemometer operates almost maintenance-free. Dust or dirt may clog the space between the rotating parts and the shaft.

Please check for plausibility of measurement results at regular terms and clean the device if necessary. In true long-term operation (years) the bearings may be subject to wear and tear showing delayed start-up behaviour or even stand-still of the anemometer. Should such a defect occur we would recommend that you return the instrument for repairs.

Dimensional Drawing



Characteristic	Description / Value
Measurement principle	Opto-electronic (slotted disc)
Measurement range	0.5 ... 50 m/s (2 ... 630 Hz)
Slope	0.07881 m
Offset	0.32 m/s
Accuracy	± 3 % of meas. value, however ≥ 0.5 m/s
Resolution	< 0.1 m/s
Starting velocity	0.5 m/s
Survival wind speed	max. 80 m/s (30 min)
Material	Aluminium and synthetic
Operating voltage	3.3 ... 42 VDC (current consumption < 1 mA)
Heating	24 V AC/DC max. 20 W
Ambient temperature	-40 ... +70 °C
Weight without cable	approx. 0.7 kg
Model	Thies 4.3519.00.700

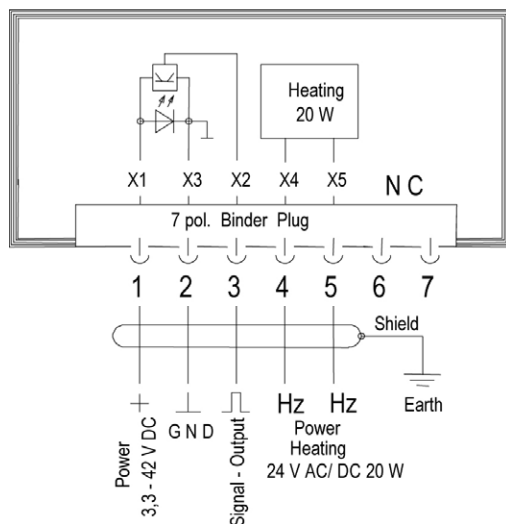
Calibration

Frequency output is determined by a linear function of the wind speed:
(Recommended calibration using mounting tube)

$$\text{wind speed [m/s]} = \text{slope [m]} \times f \text{ [Hz]} + \text{offset [m/s]}$$

Specifications according to manufacturer Thies:

slope = 0.07881m
offset = 0.32 m/s



For measurement campaigns with extremely crucial requirements an individual calibration of each anemometer in a wind tunnel test may be worthwhile to achieve optimum accuracy and precision.

Sensor Connection

Sensor	Plug Pin No.	Ammonit Cable Wire Colour	Meteo-40 Counter	Supply Sensor
Wind speed Pulse output	3	white	CNT	
Supply	1	red		12V
Ground	2	black		Main Ground
Heating	4	orange, orange		24V AC/DC
	5	violet, violet		

Connect the shield logger-sided to Ground (GND)

Cable type without heating: LiYCY 3 x 0.25mm²

Cable type with heating wires: LiYCY 7 x 0.25mm²

Last Modification: 24 July 2012