0228

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Environment · Measurement · Systems

Cup Anemometer *First Class Advanced*

Description

Rugged and precise sensor for the measurement of the horizontal component of the wind speed.

Driven by the flow, the cups are set into rotation. A light barrier scans an optical disc in the interior of the sensor and provides a frequency linearly dependent on the wind speed.

A built-in electronical heating prevents the bearings and the rotating part of the sensor from being blocked by icing.

The sensor meets the latest requirements of MEASNET and IEC 61400-12 for the assessment of wind resources and wind turbine power characterics.

Technical Data

Sensor

Sensing element	Cup rotor
Transducer	Optoelectronical transmitter with frequency output
Output signal	0..50 m/s = 0..1000 Hz
Pulse level	LO = < 0.5 V HI = V_{Supply} (max. 15 V)
Resolution	0.05 m wind run
Accuracy	0..15 m/s ± 0.3 m/s > 15 m/s ± 2% of reading
IEC 61400-121-CD classification	The anemometer meets in flat terrain all aspects of the requirements for a Class 1 anemometer.
Starting threshold	0.3 m/s

Rotor

Type	3 conical cups
Material	Plastic
Outside diameter	ø240 mm
Distance constant	< 3 m (for 63% recovery)
Bearings	Stainless steel ball bearings

Power Supply

Operating voltage	3.3..42 VDC
Current consumption	0.5 mA typical at 5 V, unloaded
Power-up time	50 ms

Heating

Heating power ..... 25 W, electronically controlled
Supply voltage ..... 24 VAC/DC

Casing

Material ..... anodized aluminium
Protection class ..... IP 55 in upright position
Dimensions ..... ø50 x 290 mm
Weight ..... 0.5 kg (cable exclusive)
Mounting ..... the sensor mounts on a standard one inches pipe with ø34 mm outside diameter and >ø25 mm inside diameter
Wind drag ..... approx. 100 N at 75 m/s

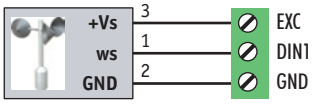
Electrical connection

Connector (at the sensor) ..... 8 pin circular connector
Connector (to data logger **wilog303/306**, opt.) ..... 6 pin circular connector DIN 45322
Cable ..... 10 x 0.25 mm², shielded

Wiring

8 Pin Connector	6 Pin Connector	Wire	Function
3	2	white	(+) power supply
2	6	brown	ground
1	3	green	output signal
6 + 7	5	red+pink+violet	(+) heating
5 + 8	4	blue+black+grey	(–) heating
casing	casing	yellow/green and shield	cable shield

Connection to Data Logger blueberry COMPACT



Output Signal
0..50 m/s = 0..1000 Hz

Standard Setup
Input: **DIN1**
Functions: **vThiFc1 (m/s) = Frequency TTL * 0.046 + 0.2**
(replace slope and offset by individual data from calibration sheet)

Environmental Conditions

Operating temperature ..... –50..+80 °C
Relative humidity ..... 0..100%
Maximum wind speed ..... 85 m/s

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