kintech engineering

DATASHEET

THIES FIRST CLASS

WIND VANE (TMR)

The Thies First Class wind vane (TMR version) is one of the most common wind vanes used in wind resource assessment to determine the wind direction.

THIES FIRST CLASS TMR | WIND VANE

DESCRIPTION

The Thies First Class wind vane wind (TMR – Tunnel Magneto Resistance) serves for the detection of the horizontal wind direction and is one of the most common sensors used in the industry for wind resource assessment.

Having accurate wind direction data is a very important part of any wind development project. Studies show that even small wind direction measurement errors can have a very negative impact on the total wind farm power output.

Special characteristics:

- High level of measuring accuracy and resolution
- High damping ratio at a small delay distance
- Low starting threshold

Heated version: The Thies First Class wind vane can be supplied in a heated version to improve performance under cold climate conditions.

Note: Given the impact incorrect wind direction measurements have, the recently updated IEC61400.12.1 (2017) now requires complete assessment of wind direction measurement uncertainties. By adding a Geovane to your wind measurement campaign (in combination with either a Thies First Class or a Thies Compact wind vane) you are guaranteed to get the most accurate wind direction data available on the market.

APPLICATIONS

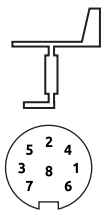
Wind resource assessment, solar resource assessment, site calibration, power performance studies, solar monitoring and meteorology.

FEATURES

Technical Data	
Measuring range	0…360°
Measuring accuracy	1°
Survival speed	85 m/s up to 30 minutes
Permissible ambient conditions for operation	-50...+80 °C All occurring situations of r.h. including dew moistening
Electrical outputs resolution analogue (10 bit)	0...5 V at 1 kΩ
Starting threshold	<0.5 m/s at 10° amplitude (acc. to ASTM D 5366-96) <0.2 m/s at 90° amplitude (acc. to VDI 3786 Part 2)
Delay distance	<1.8 m (acc. to ASTM D 536696)
Damping ratio	D>0.3 (acc. to ASTM D 536696)
Quality factor	K>1 D = damping ratio ω0 = angular frequency of undamped oscillation p = air density u = wind speed
Heating	Surface temperature of housing neck >0 °C at 20 m/s up to –10 °C air temperature. At 10 m/s up to –20 °C using the THIES icing standard 012002 on the housing neck heating regulated with temperature sensor
Electrical supply for electronics (galvanic isolation) 4.3151.x0.173	12...24 VDC ca. 4.5 mA + Iout
Electrical supply for heating	Voltage: 24 V AC/DC, 45…65 Hz (galvanic isolation from the housing) Capacity: 25 W
Connection	8-pole plug connection for shielded cable in the shaft
Weight	ca. 0.7 kg
Protection	IP 55 (DIN 40050)

THIES FIRST CLASS TMR | WIND VANE

SENSOR WIRING TABLE

Sensor Model	Sensor Pin		Kintech Cable Colors		Orbit 360			EOL Zenith	
					Section	Terminal	Type	Section	Terminal
	1	Signal	○	White	Analog Channels	48 52 56 60 65 69 73 77 81 84 85 86 90 91 92	Signal	DIR Analog Inputs	SIG SIG 1 2 3 4 5
	2	GND	●	Brown	Analog Channels	47 51 55 59 64 68 72 76 80 87	(-)	DIR Analog Inputs	− − − −
	3	Us (+)	●	Green	Analog Channels	49 53 57 61 66 70 74 78 82 88	*(+)	BAT	+
	4		Do not connect						
	5		Do not connect						
	6	Reference	●	Yellow	Analog Channels	47 51 55 59 64 68 72 76 80 87	(-)	DIR Analog Inputs	− − − −
4.3151.x0.173	Shield		●	Yellow Green	Power Input	⏚		BAT	⏚
	7	Heating (+)	●	Brown	Independent power supply 24 AC/DC				
	8	Heating (-)	●	Blue					

Note: *Base sensor view / Soldering connector view.*
**(+) = Bat+ with current limited (12mA). Only 1 sensor must be powered.*

HOW TO CONFIGURE IN ATLAS

Open Atlas and go to the data logger you are working on. Scroll to the “channels” section and select the following type and model:

- Group: Analog channels
- Sensor Type: Windvane
- Sensor Model : **OUTPUT 0-5V: THIES TMR / K360V**

HOW TO CONFIGURE IN EOL MANAGER

Open EOL Manager and go to the data logger you are working on. Open the “inputs” tab and select the following type and model:

- Group: Wind Vanes / Analog Inputs
- Type: Windvane
- Model: **Output 0-5V**

Last modified: 04.12.2019