Wind Vane Thies Compact TMR

TMR wind direction sensor

Description

- TMR wind direction sensor
- Output: 10-bit serial-synchronous (compatible with Ammonit Meteo-40 data loggers)
- Measurement range 0 ... 360°
- Accuracy ±1°

The wind direction is detected by a low-inertia wind vane. The axis of the wind vane is running in ball bearings and carries a diametrically magnetized magnet at the inner end.

The angle position of the axis is canned contact-free by a magnetic angle sensor, (TMR = Tunnel Magneto Resistance) which gives two sinus- and cosinus-dependent voltages as output signal.

A connected micro-controller calculates from this voltages the wind direction in 1024 sectors (0.35°/sector). Related to sector 1 is the wind direction 0°-35°, sector 1024 corresponds to the wind direction 359.65°-360°.

Specifications

Characteristic	Description / Value
Measurement principle	Magnetic
Measurement range	0 ... 360°
Accuracy	± 1°
Resolution	0.35°
Starting threshold	< 1 m/s according to ASTM-Standards D5366-96
	< 0.4 m/s according to VDI-Standard 3786 Part 2
Output	10-bit serial-synchronous (compatible with Ammonit Meteo-40 data loggers)
Survival speed	max. 80 m/s, 30 min
Operating voltage	3.3 ... 30 VDC / 24 VAC
Operating voltage heating	24 V DC/AC, max. 20 W
Ambient temperature	-40 ... +70 °C

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Characteristic	Description / Value
Connection	7-pole plug
Material	Aluminum, stainless steel and plastic (Housing and wind vane)
Type of ball bearings	Metallic ball bearings
Weight	approx. 0.4 kg
Protection	IP 55
Manufacturer	Thies

Sensor connection diagram

Sensor	Plug Pin No.	Ammonit Cable Wire Color*	Meteo-40 Digital	Supply Sensor
Wind Direction Data	3	white	IN	
Clock	4	blue	CLK	
Supply	1	red		12 V
Ground	2	black		Main Ground
Heating	5	orange, orange		24 V AC/DC
	6	violet, violet		

Cable type without heating: LiYCY 4 x 0.25 mm²
Cable type with heating wires: LiYCY 8 x 0.25 mm²
Connect the shield logger-sided to Ground (GND)

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Meteo-40 Data Logger

Digital Serial

Wind Vane Compact TMR	Pin		Meteo-40 Data Logger
Data	3		D IN
Clock	4		CLK
Ground / Ref.	2		Ground
Supply	1		Supply 3.3 ... 30 VDC
Heating	5		Power Heating 24 VAC/DC
	6		20 W

Cable

7-pole Plug

Shield

Earth (Ground)