

Wind Vane Thies First Class POT

S21210 / S21210H

سنسور جهت باد (بادمٔا) - تیس کلاس یک پتانسیومتر

کد سفارش: هیتردار / معمولی

- **New and improved version of First Class wind vane**
- **Robust wind vane for highest demands**
- **Potentiometric wind direction sensor (0 ... 2 k Ω)**
- **Full Range 0 ... 360°, no North gap**

Measurement principle

With the help of a potentiometer the physical property is converted into an analogue resistor output signal. At zero the transducer has to pass the „north transition“ between the margins of zero and 2 k Ω . Ammonit data loggers consider this speciality for data processing of the wind direction signal. The wind vane is available with an electronically regulated heating system in order to prevent ice from the bearings. To use this heating the connection cable must have additional cores and you should provide a sufficient power supply (mains connection).

Heating

The surface temperature of housing neck is >0 °C at 20 m/s up to -10 °C air temperature. At 10 m/s up to -20 °C the Thies icing standard 012002 on the housing neck is applied. The heating is regulated with a temperature sensor.

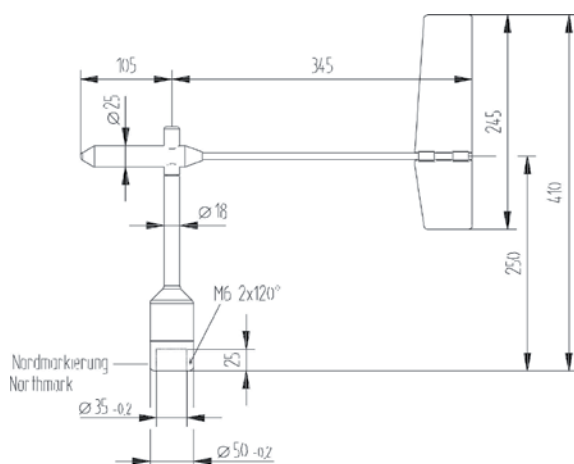
Mounting

Mount the wind vane onto a pipe socket of 1" (\varnothing 33.4 mm) and a length of at least 25 mm. The pipe socket must have an inner diameter of at least 25 mm depending on the plug. The wind vane is connected electrically with a plug. Set the sensor onto the pipe socket, and fix it on the mast or tube (2x M6 Allen head screws, female hexagon).

To avoid damage due to lightning, a protection rod, adapters of POM for isolated mounting and proper grounding of all metal parts is recommended.

Refer to the next page for connection recommendations for the cable shield.

Dimensional drawing



Maintenance

When installed properly, the wind vane operates almost maintenance-free thanks to its integrated ball bearings. Dust or dirt may clog the space between the rotating parts and the shaft. Therefore you should check the plausibility of your measurements at regular terms and clean the device, if necessary. In long-term operation (years) the bearings may be subject to wear and tear showing delayed start-up behaviour or even stand-still of the vane. Should such a defect occur we recommend returning the instrument for repair.

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S21210 / S21210H

Specifications

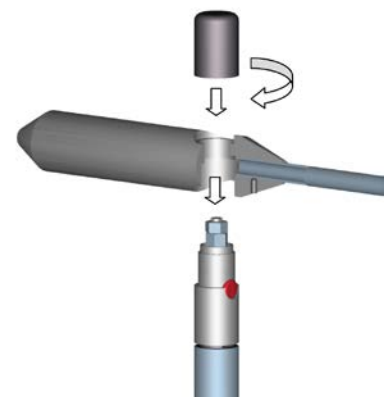
Characteristic	Description / Value
Measuring principle	Potentiometer 2 kΩ
Measuring range	0 ... 360° without north gap
Measuring accuracy	0.25 % (1°)
Survival speed	85 m/s to 0.5 h (without damages)
Linearity	0.25 % (1°)
Starting threshold	< 0.5 m/s at 10° amplitude (acc. to ASTM D 5366-96)
Delay distance	< 1.8 m (acc. to ASTM D 53666-96)
Damping ratio	D > 0.3 (acc. to ASTM D 53666-96)
Quality factor	K > 1
Electr. supply Potentiometer	5 V @ 470 Ω resistor Important: The supply voltage of the potentiometer must show a current limitation of max. 20 mA. An additional protective resistance is strongly recommended. (Voltage U _s : 0 ... 30 VDC acc. to Thies)
Heating	24 VAC/DC (galvanic separation from casing) / Power consumption: 25 W
Ambient temperature	-50 ... +80 °C (all occurring conditions of relative humidity incl. dew moistening)
Connection	8-pole plug connection for shielded cable in the shaft
Mast fixture	Mounting onto mast 1", e.g. DIN 2441 1½ " with separate adapter (optional)
Material	Aluminium
Type of ball bearings	Metallic ball bearings (Recommended exchange approx. every 24 months)
Weight	approx. 0.7 kg
Protection	IP 55 (DIN 40050)
Manufacturer	Thies
Accessories	Module M83200 or M83570

Wind vane assembly

Before the sensor can be installed at its selected site, it has to be assembled.

Tools are not required!

1. Remove the wind vane housing from the packaging
2. Remove cap by counter-clockwise rotation.
3. Remove wind vane from packaging.
4. Assemble the wind vane on the housing as shown in the picture.
5. Wind vane rotate until it falls into the guide.
6. Put the cap on the thread, and tighten it manually by strong clockwise rotation.
Do not use tools!



Remark

The wiring has to be prepared in a way that plug and cable will be pushed through the instrument carrier, mast, traverse etc. and can be connected to the sensor at mechanical mounting.

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S21210 / S21210H

Connection recommendations for the cable shield

Sensor carrier	Sensor	Shielding / Ground
Metallic met mast, grounded	Non-isolated mounting on the met mast (e.g. by using metallic brackets, holders, etc.)	Connect cable shield only at the side of the data logger to ground.
Metallic met mast, grounded	Isolated mounting at the met mast (e.g. by using non-metallic brackets, holder etc. or metallic brackets, holders etc. with isolated plastic adapters)	Connect cable shield at sensor plug and at the side of the data logger to ground.
Metallic met mast, non-grounded	Non-isolated mounting on the met mast (e.g. by using metallic brackets, holders etc.)	

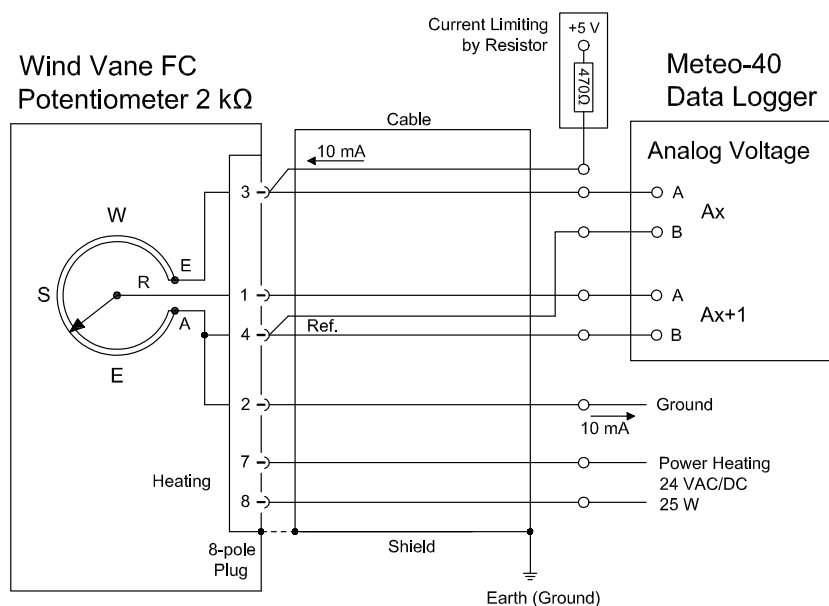
Sensor connection to Ammonit Meteo-40 data logger

Sensor	Plug Pin No.	Ammonit Cable Wire Colour	Meteo-40 Analog Voltage	Supply Sensor
Supply Sense	3	white	Ax	
Ground	4	blue	Bx	
Wind Direction Data	1	brown	Ax+1	
Ground	4	pink	Bx+1	
Supply	3	red		5 V @ 470 Ω
Ground	2	black		Main Ground
Heating	7	orange, orange		24 VAC/DC
	8	violet, violet		

Cable type without heating: LiYCY 6 x 0.25 mm²

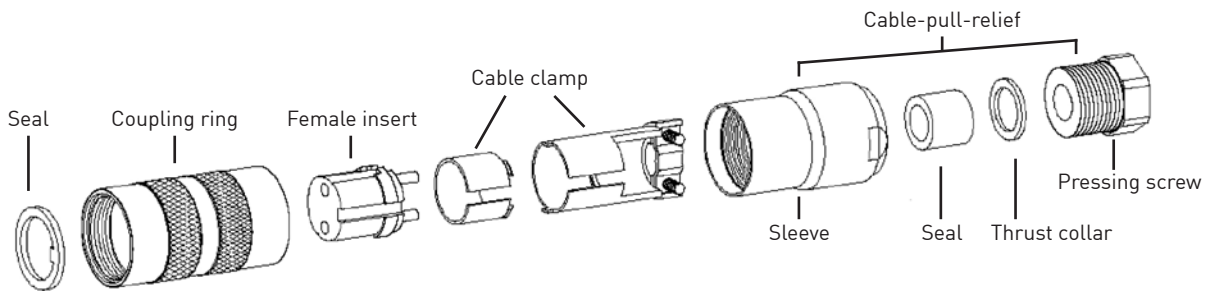
Cable type with heating wires: LiYCY 10 x 0.25 mm²

Sensor connection diagram to Ammonit Meteo-40 data logger



Plug and cable assembly

Coupling socket, Type: Binder, Serial 423, EMC with cable clamp



Cable connection: WITH cable shield

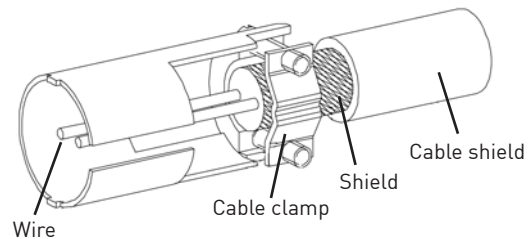
1. Stringing parts on cable acc. to plan given above.
2. Stripping cable sheath 20 mm
Cutting uncovered shield 15 mm
Stripping wire 5 mm

A) Putting shrink hose or insulation tape between wire and shield

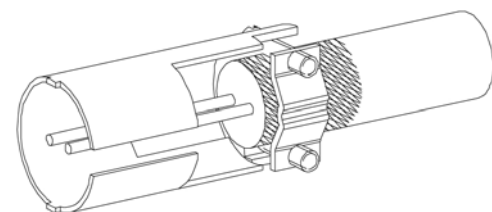
B) If cable diameter permits, put the shield backward on the cable sheath.

3. Soldering wire to the insert, positioning shield in cable clamp.
4. Screwing-on cable clamp.
5. Assembling remaining parts acc. to plan above.
6. Tightening pull-relief of cable by screw-wrench (SW16 and 17).

A)



B)



Cable connection: WITHOUT cable shield

1. Stringing parts on cable acc. to plan given above.
2. Stringing cable sheath 20 mm
3. Cutting uncovered shield 20 mm
4. Stripping wire 5 mm
5. Soldering wire to the insert.
6. Positioning shield in cable clamp.
7. Screwing-on cable clamp.
8. Assembling remaining parts acc. to plan above.
9. Tightening pull-relief of cable by screw-wrench (SW 16 and 17).

