

Instruction for Use

021488/02/06

Wind Direction Transmitter - compact

- GMR, analogue output -
4.3129.60.xxx



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1 Models available

Order-No.	Meas. range	Electrical Output	Heating	Operating voltage	Connection
4.3129.60.140	0 ... 360°	0 ... 20 mA	20 W	15...30 V DC or 24 V AC	12 m cable LiYCY 6 x 0,25 mm ²
4. 3129.60.141	0 ... 360°	4 ... 20 mA	20 W	15...30 V DC or 24 V AC	12 m cable LiYCY 6 x 0,25 mm ²
4. 3129.60.161	0 ... 360°	0 ... 10 V	20 W	15...30 V DC oder 24 V AC	12 m cable LiYCY 6 x 0,25 mm ²
4. 3129.60.167	0 ... 360°	0 2 V	20 W	8...30 V DC or 24 V AC	12 m cable LiYCY 6 x 0,25 mm ²
4. 3129.60.173	0 ... 360°	0 5 V	20 W	8...30 V DC or 24 V AC	12 m cable LiYCY 6 x 0,25 mm
4.3129.60.740	0 ... 360°	0 ... 20 mA	20 W	15... 30 V DC or 24 V AC	7 pole plug
4.3129.60.741	0 ... 360°	4 ... 20 mA	20 W	15...30 V DC or 24 V AC	7 pole plug
4.3129.60.761	0 ... 360°	0 ... 10 V	20 W	15...30 V DC or 24 V AC	7 pole plug
4.3129.60.767	0 ... 360°	0 2 V	20 W	8...30 V DC or 24 V AC	7 pole plug
4.3129.60.773	0 ... 360°	0 5 V	20 W	8...30 V DC or 24 V AC	7 pole plug

2 Application

The wind direction transmitter is designed for the acquisition of the horizontal wind direction. The measuring values are output as electrical analogue signals. The measuring data available are ideally adapted to the supply in display instruments, recording instruments, datalogger, as well as process control systems.

For winter operation the instruments are equipped with an electronically regulated heating in order to guarantee a smooth running of the ball bearings, and to avoid ice-formation at the slot of the outer rotation parts. The electrical supply of wind transmitter heating is carried out, for ex., by our power supply unit, order-no. 9.3388.00.000.

3 Construction and Mode of Operation

The outer parts of the instrument are made of corrosion-resistant material (aluminum, stainless steel, plastic). The aluminum parts are additionally protected by means of an anodic coat. Labyrinth sealing protects sensitive parts inside the instrument against humidity.

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 scanned contact-free by a magnetic angle sensor, which gives two sinus- and cosines-dependent voltages as output signals.

From this, a micro-controller calculates the wind direction, and the linear relationship between the angle and the analogue output.

4 Recommendation Side Selection / Standard Installation

In general wind measurement instruments should be able to detect the wind conditions of a large area. In order to obtain comparable values when determining the surface wind, measurements should be taken at a height of 10 meters over an even unobstructed area. An unobstructed area means that the distance between the wind transmitter and an obstacle should be at least 10 times the height of the obstacle (s. VDI 3786). If it is not possible to fulfil this condition, then the wind transmitter should be set up a height where local obstacles do not influence the measured values to any significant extent (approx. 6-10 m above the obstacle).

The wind transmitter should be set up in the centre of flat roofs and not on the roof side in order to avoid bias in the direction (privileged directions).

5 Installation

Attention:

Storing, mounting and operation under weather conditions is permissible only in vertical position, as otherwise water can get into the instrument.

Remark:

When using fastening adapters (angle, traverses, hangers etc.) please take a possible effect by turbulences into consideration.

5.1 Mechanical Mounting

The mounting of the transmitter could be done for example at a traverse with a boring of PG 21 or on hangers with a boring of 29 mm \varnothing . (for ex. traverse *compact*, order-no. 4.3171.30.000). The connection cable or connecting plug is passed through the boring, and the wind direction transmitter is fixed with hexagonal nut (SW36) after the north alignment.

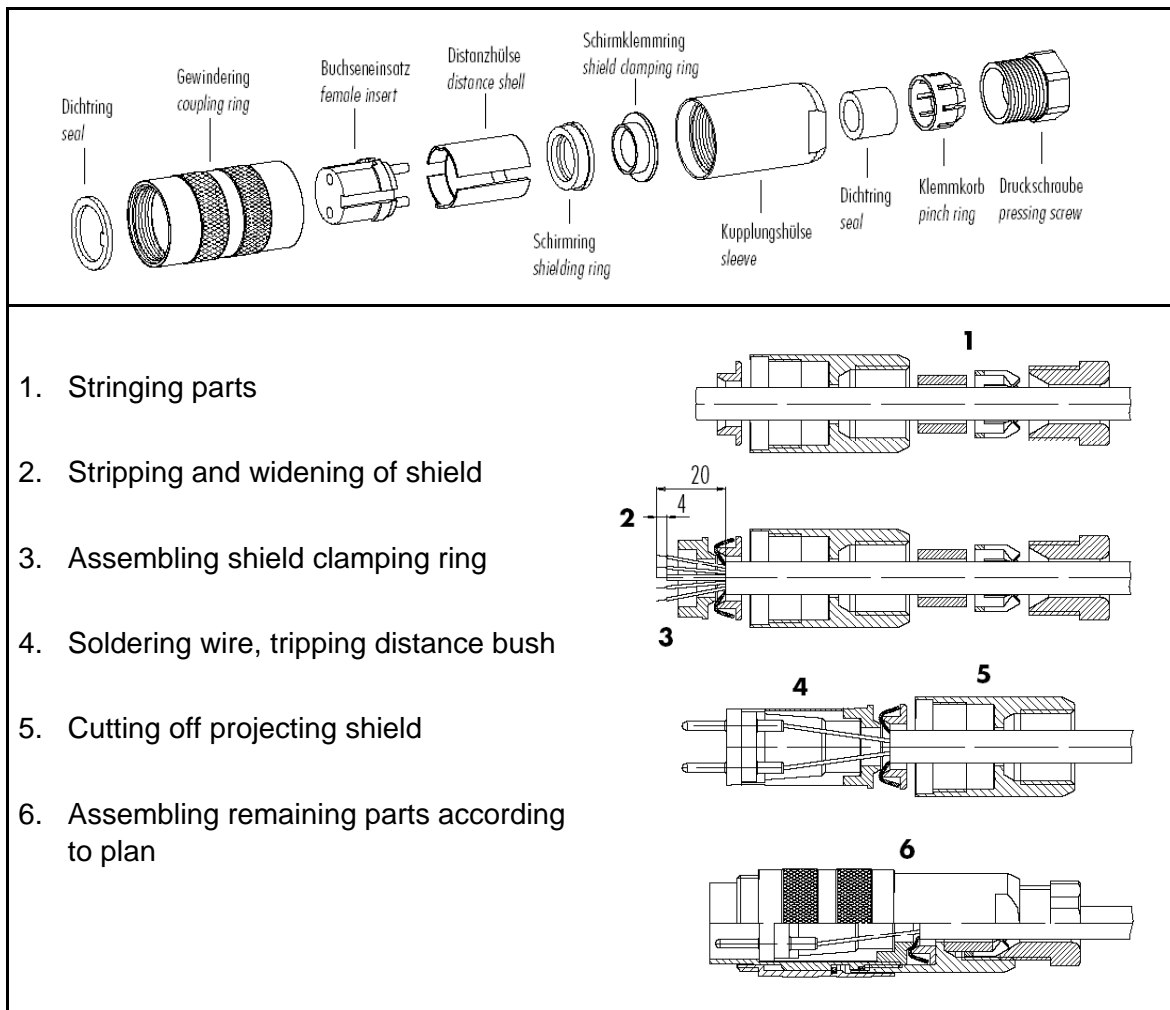
North Alignment

Rotate the case markings (north marking) on the shaft and on the protective cap until they are aligned. Then select an obvious point in a northerly direction in the surroundings (a tree, a building etc.) with the aid of a compass. Take a bearing on this point over the wind vane and the counter weight of the wind direction transmitter, and when these coincide screw the wind transmitter into place. (the north marking must indicate to the geographic north).

5.2 Electrical Mounting

For electrical connection please refer to the connecting diagram.

6 Plug Mounting



7 Maintenance

After proper mounting the instrument works maintenance free.

Heavy pollution can clog up the slit between the rotating and the stationary parts of the wind transmitter. This slit must be kept clean.

8 Connecting Diagram

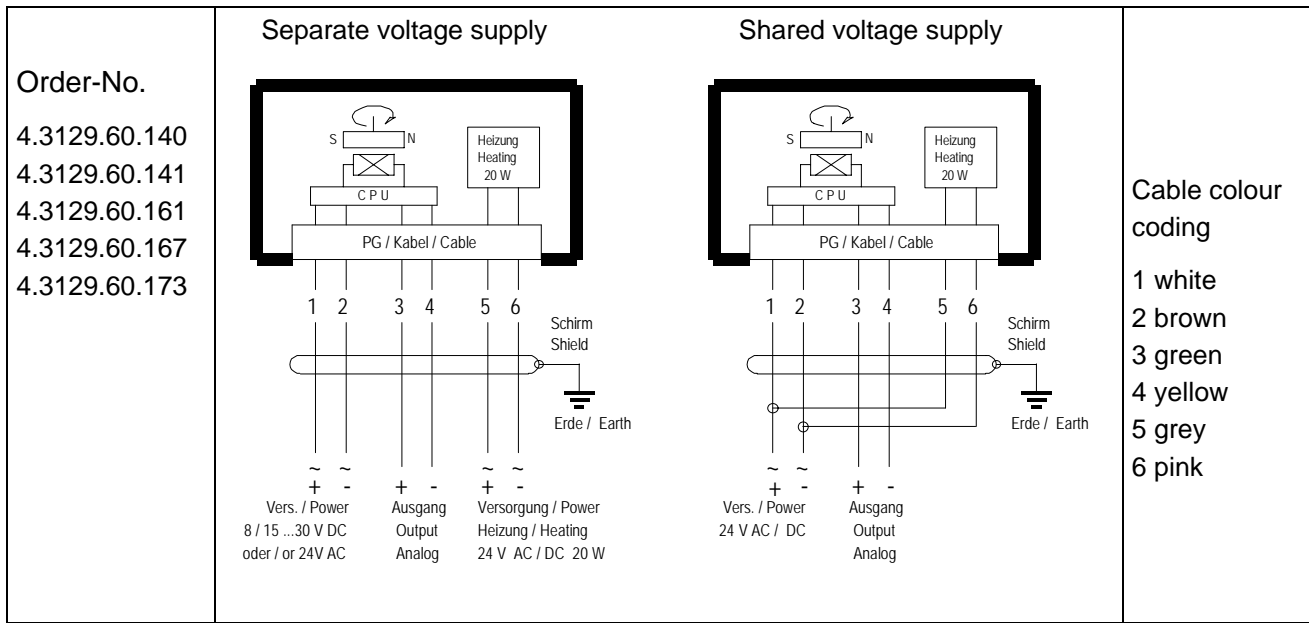


Figure 1: Connecting diagram for models with cable

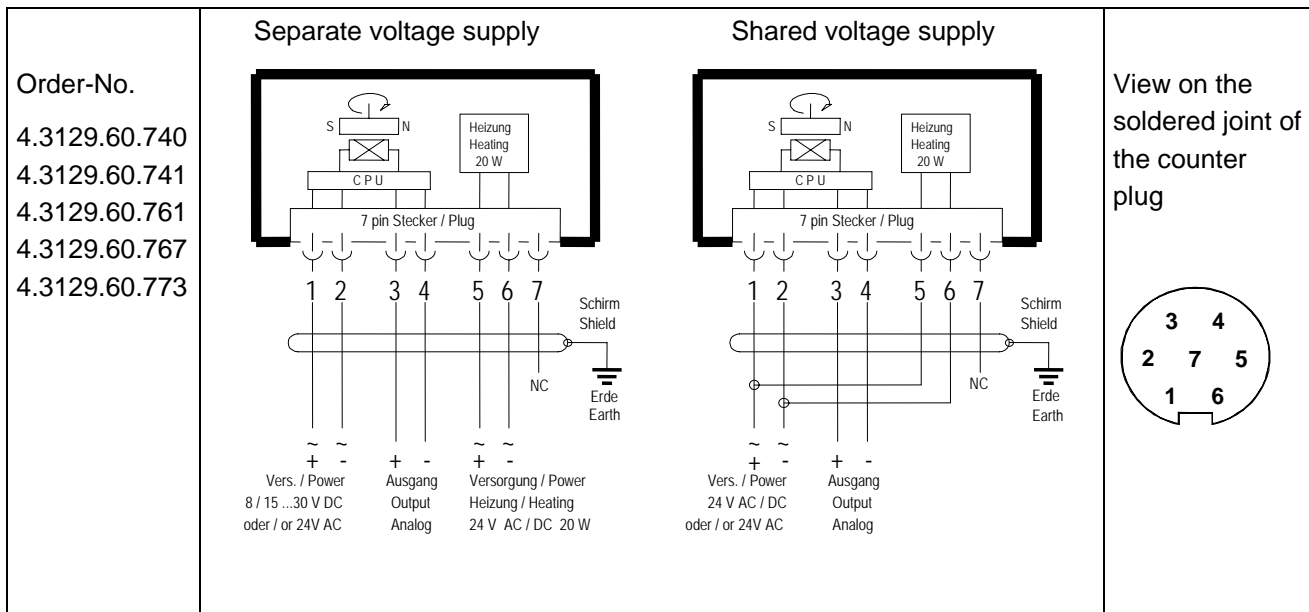


Figure 2: Connecting diagram for models with plug

9 Technical Data

Characteristic	Description / Value
Measuring range	0 – 360°
Resolution	ca. 0,4°
Accuracy	± 2°
Measuring principle	magnetic
Electrical output	See chapter 1 0 ... 20 mA; 4 ... 20mA @ 500Ω, U _B ≥ 12V 0 ... 2V; 0 ... 5V @ 1000Ω 0 ... 10V @ 1000Ω, U _B ≥ 12V
Operating voltage (Vcc)	8 / 15 ... 30 V DC
Current consumption	<10mA + I _{out}
Operating voltage heating	24 V DC/AC, max. 20 W
Ambient temperature	- 40 °C ... + 70 °C
Survival speed	maximally 80 m/s, 30 minutes
Connection	See model (chapter 1)
Dimensions	See dimensional drawing
Mounting	For ex. onto mast tube receptacle thread PG 21 or boring Ø 29 mm
Protection	IP 55, in position of application
Weight	w/o cable ca. 0,3 kg with cable ca. 0,3 kg + 0,075 kg / m cable
EMC	EN 61000-6-2 (immunity) EN 61000-6-3 (interfering transmission)

10 Dimensional Drawing

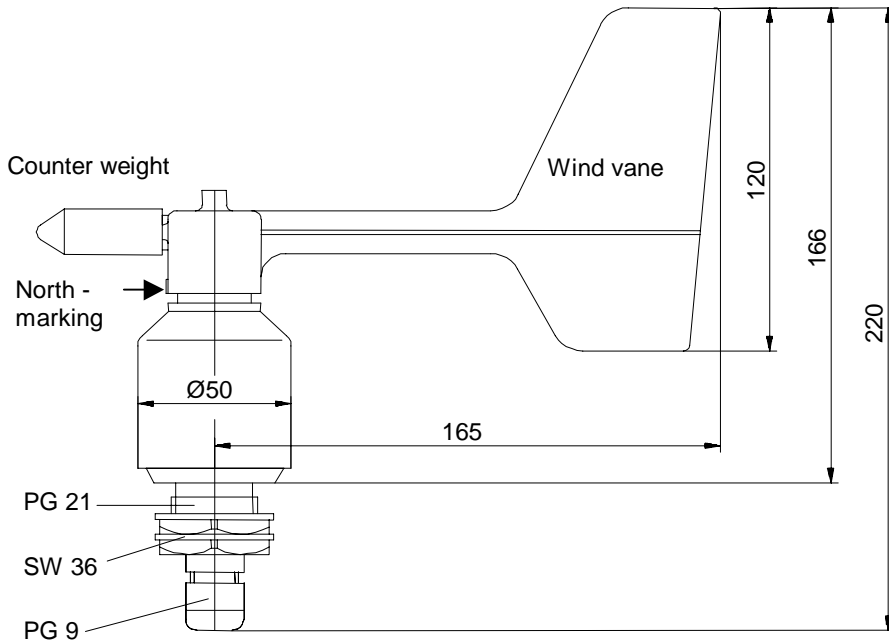


Figure 2: Dimensional drawing with cable

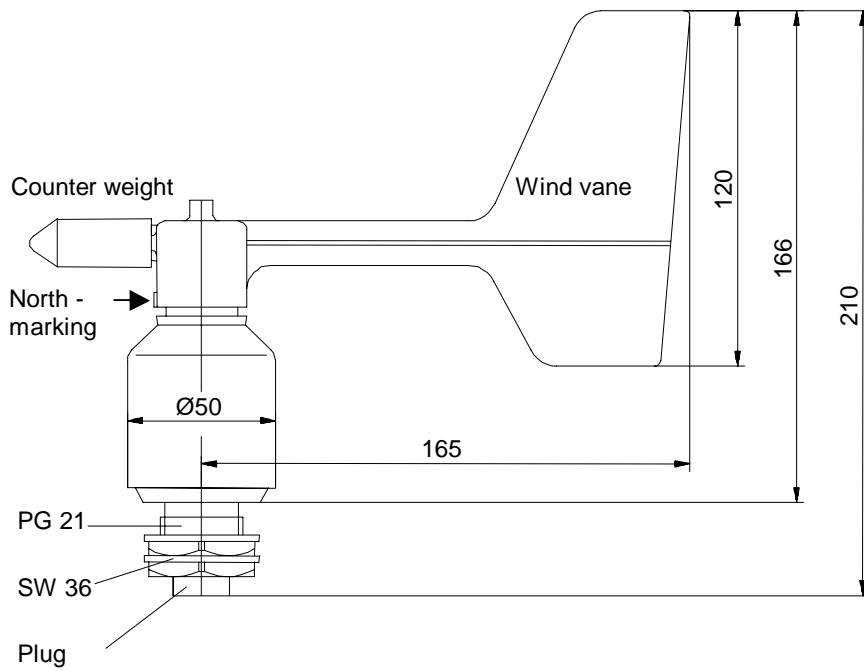


Figure 3: Dimensional drawing with plug

11 Accessories

The following accessories are available for the wind direction transmitter:

Traverse For mounting the wind speed transmitter and wind direction transmitter <i>compact</i> jointly onto a mast.	4.3171.30.000 4.3171.31.000	Clamping range: Ø 48 ... 102 mm Clamping range: Ø 116 ... 200 mm Sensor distance: 0,8 m Material: Aluminum
Traverse, short For mounting the wind direction transmitter <i>compact</i> onto a mast.	4.3171.40.000 4.3171.41.000	Clamping range: Ø 48 ... 102 mm Clamping range: Ø 116 ... 200 mm Length: 0,4 m Material: Aluminum
Lightning rod For mounting the a.m. traverses	506351	Length: 0,56 m Material: stainless steel

Please contact us for other accessories such as cables, power supply units, masts, as well as for additional mast- or system-constructions.



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