

Instruction for Use

021454/06/05

Wind Direction Transmitter - compact

4.3129.09.141



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1 Models available

Order-No.	Meas. range	Electr. - Output	Heating	Operating- Voltage	Connection
4.3129.09.141	0 ... 360°	4 ... 20 mA	20 W	15...30 V DC oder 24 V AC	12 m Cable LiYCY 6 x 0,25 mm ²

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.

An electronically-regulated heating system has been installed for wintertime use, in order to prevent a blocking of the gap between the external rotation parts by ice aggregation.

Power for the heating system could be provided for instance by our Power Supply Unit, Order No. 9.3388.00.000.

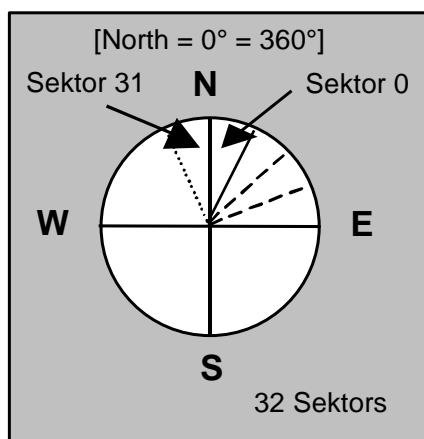
3 Construction and Mode of Operation

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 means of a low-inertia wind vane, the ball bearing axis of which is connected to a code disc. This code disc is coded with a 5-Bit Gray-code which is scanned opto-electronically. The 5-Bit Code is converted to an analog signal via an integrated D/A-converter.

The code disc resolves the wind direction into 32 sectors (11,25°/ sector). The analogue output signal is proportional to the 32 sectors (see chapter 9, table 1).

The sectors start at wind direction N (North) with sector 0, and end with sector n (see drawing).



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

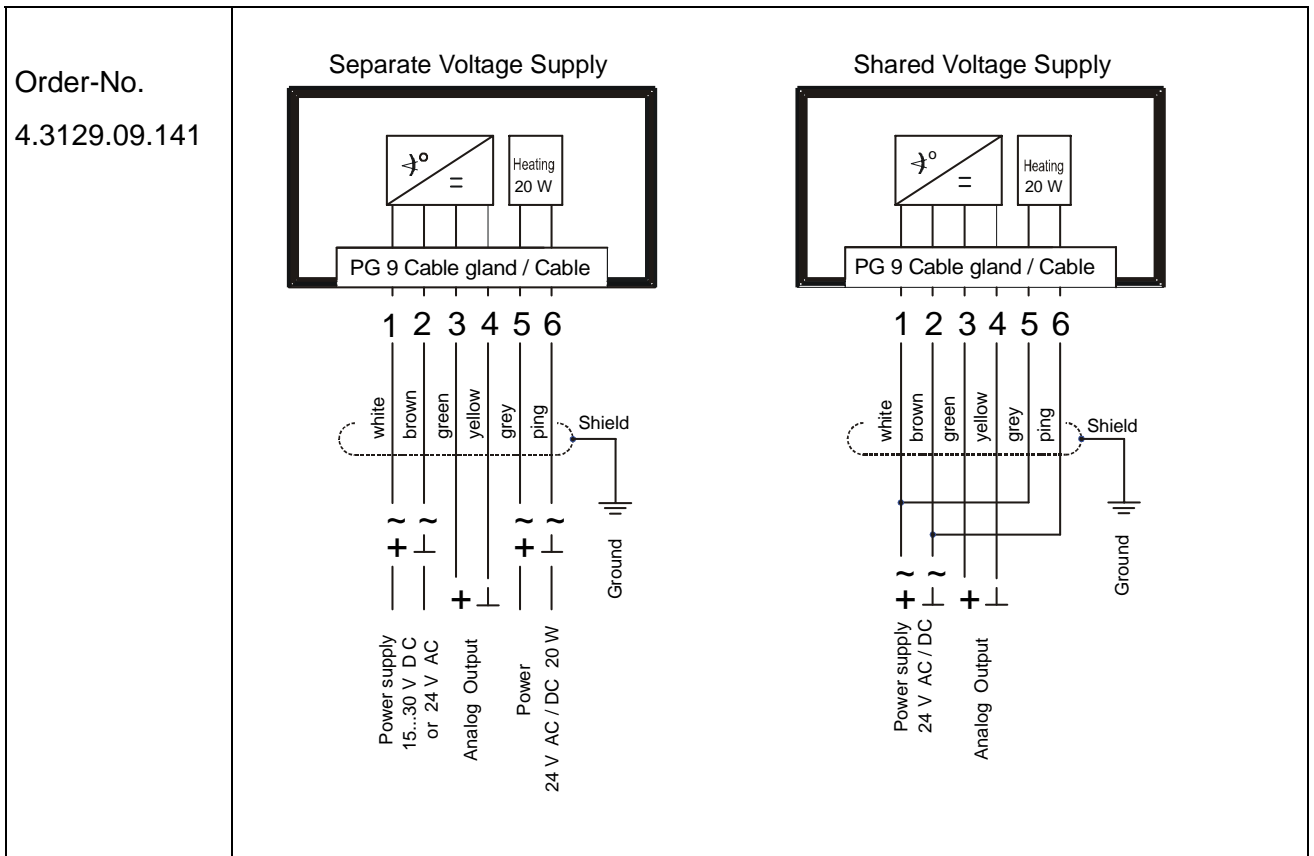
For electrical connection please refer to the connecting diagram.

6 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.

7 Connecting Diagrams



8 Technical Data

Meas. range	0 ... 360°
Resolution	11,25° ; 5 Bit Gray-code (32 sectors)
Accuracy	± 5°
Meas. principle	opto- electronic
Electrical output	mA (see table 1)
Load	
Current output (mA)	max. 500 Ohm (for > 15 V DC operating voltage)
Voltage output (V)	min. 1 K Ohm
Operating voltage	see models available, chapter 1
Operating voltage	24 V DC/AC, max. 20 W
Ambient temperature	-40°C ... 70°C
Survival speed	maximally 80 m/s, 30 minutes
Connection	See models available
Dimensions	See dimensional diagram
Mounting	z For ex. onto a mast tube with receptacle thread PG 21 or boring Ø 29 mm
Protection	IP 55
Weight	ca. 0,60 kg

The electrical output is carried out on the basis of the code-disc resolution (5 bit) in 32 increments.

		4.3129.9x.141
Incr.	[Angle degree]	4 20 [mA]
0	00,00 – 11,25	4,0
1	11,25 – 22,50	4,5
2	22,50 – 33,75	5,0
3	33,70 – 45,00	5,5
4	45,00 - 56,25	6,0
5	56,25 - 67,50	6,5
6	67,50 - 78,75	7,0
7	78,75 – 90,00	7,5
8	90,00 - 101,25	8,0
9	101,25 - 112,50	8,5
10	112,50 - 123,75	9,0
11	123,75 – 135,00	9,5
12	135,00 - 146,25	10,0
13	146,25 - 157,50	10,5
14	157,50 - 168,75	11,0
15	168,75 – 180,00	11,5
16	180,00 - 191,25	12,0
17	191,25 - 202,50	12,5
18	202,50 - 213,75	13,0
19	213,75 - 225,00	13,5
20	225,00 - 236,25	14,0
21	236,25 - 247,50	14,5
22	247,50 - 258,75	15,0
23	258,75 – 270,00	15,5
24	270,00 - 281,25	16,0
25	281,25 - 292,50	16,5
26	292,50 - 303,75	17,0
27	303,75 – 315,00	17,5
28	315,00 - 326,25	18,0
29	326,25 - 337,50	18,5
30	337,50 - 348,75	19,0
31	348,75 – 00,00	19,5

Table 1: Electrical Output

9 Dimensional Diagram

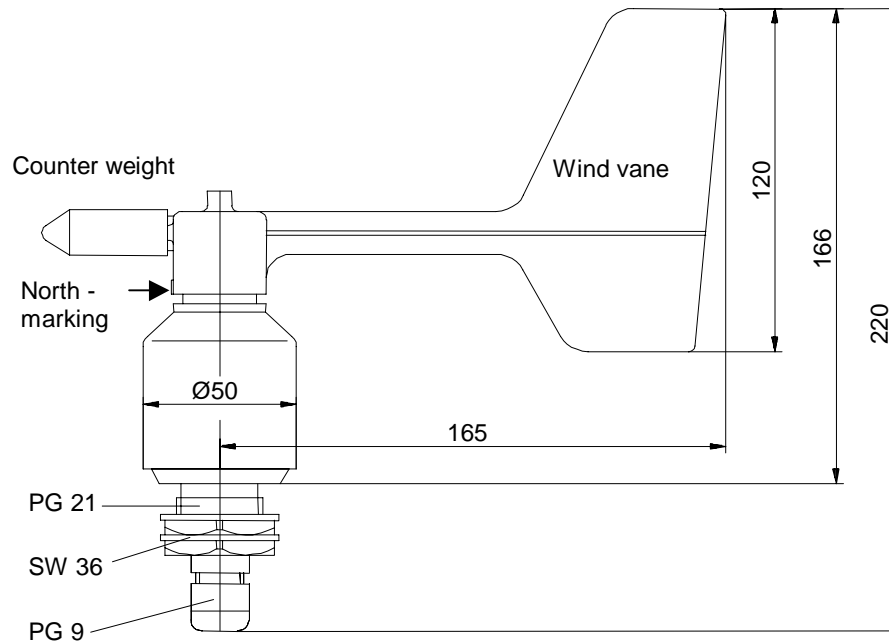


Figure 1: Dimensional Diagram

10 Accuracy

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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