

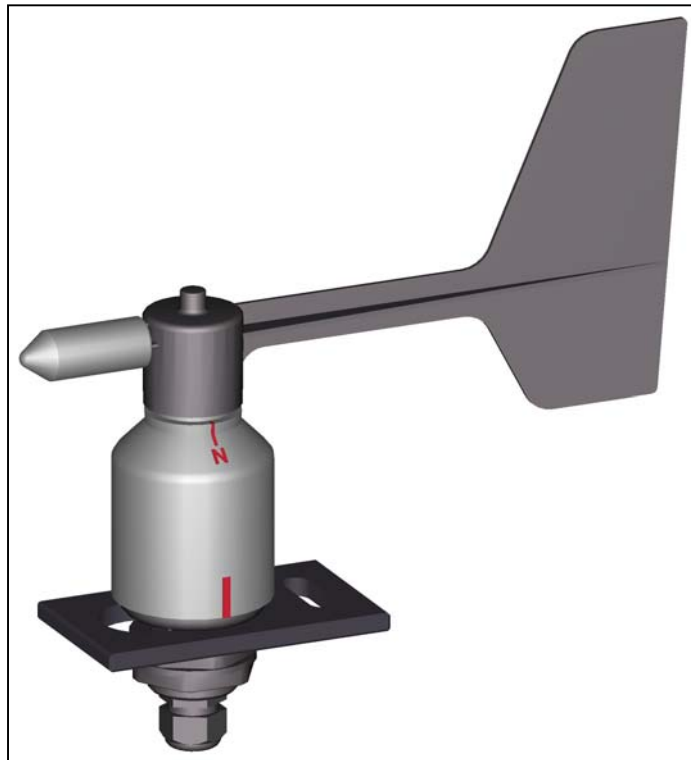
## Instruction for Use

021542/06/05

### ***Wind Direction Transmitter - compact***

**4.3129.03.141**

**4.3129.53.141**



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## **Contents**

1	Models available .....	2
2	Application .....	2
3	Construction and Mode of Operation .....	3
4	Recommendation Side Selection / Standard Installation .....	3
5	Installation.....	4
5.1	Mechanical Mounting .....	4
5.2	Electrical Mounting .....	5
6	Maintenance .....	5
7	Connecting Diagrams .....	5
8	Technical Data.....	6
9	Dimensional Drawing.....	7
10	Accessories .....	8

## **Figures**

Figure 1: Dimensional drawing with cable.....	7
Figure 2: Dimensional drawing Brace.....	7

## **Tables**

Table 1: Electrical Output.....	6
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## **1 Models available**

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<b>Order-No.</b>	<b>Meas. range</b>	<b>Electr. Output</b>	<b>Heating</b>	<b>Connection</b>
4.3129.03.141	0 ... 360°	4 ... 20 mA	20 W	12 m cable LiYCY 6 x 0,25 mm <sup>2</sup>
4.3129.53.141	0 ... 360°	4 ... 20 mA	20 W	15 m cable LiYCY 6 x 0,25 mm <sup>2</sup>

## **2 Application**

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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

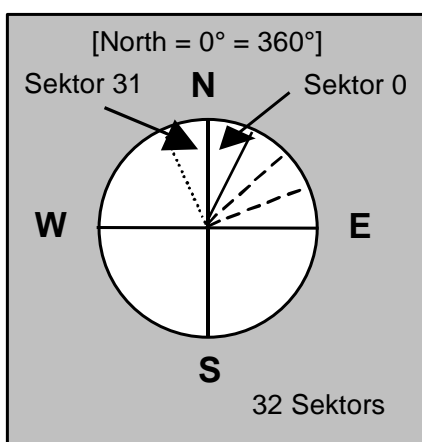
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The outer parts of the instrument are made of corrosion-resistant material ( aluminum, stainless steel, plastic ). The aluminum parts are additionally protected by means of an anodic coat. Labyrinth sealing protects sensitive parts inside the instrument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

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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

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### **Attention:**

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

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### **Remark:**

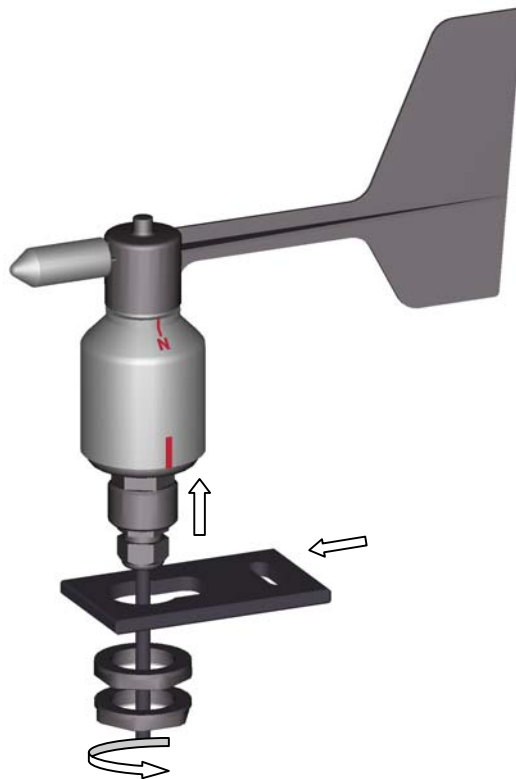
*When using fastening adapters (angle, traverses, hangers etc.) please take a possible effect by turbulences into consideration.*

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### 5.1 Mechanical Mounting

Mounting can be carried out, for ex. on a traverse with a bore hole of  $\varnothing$  29 mm. In doing so, the counter bracket shall be put above the hexagon of the sensor in a way, that the north mark indicates to the long side of the counter bracket.

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

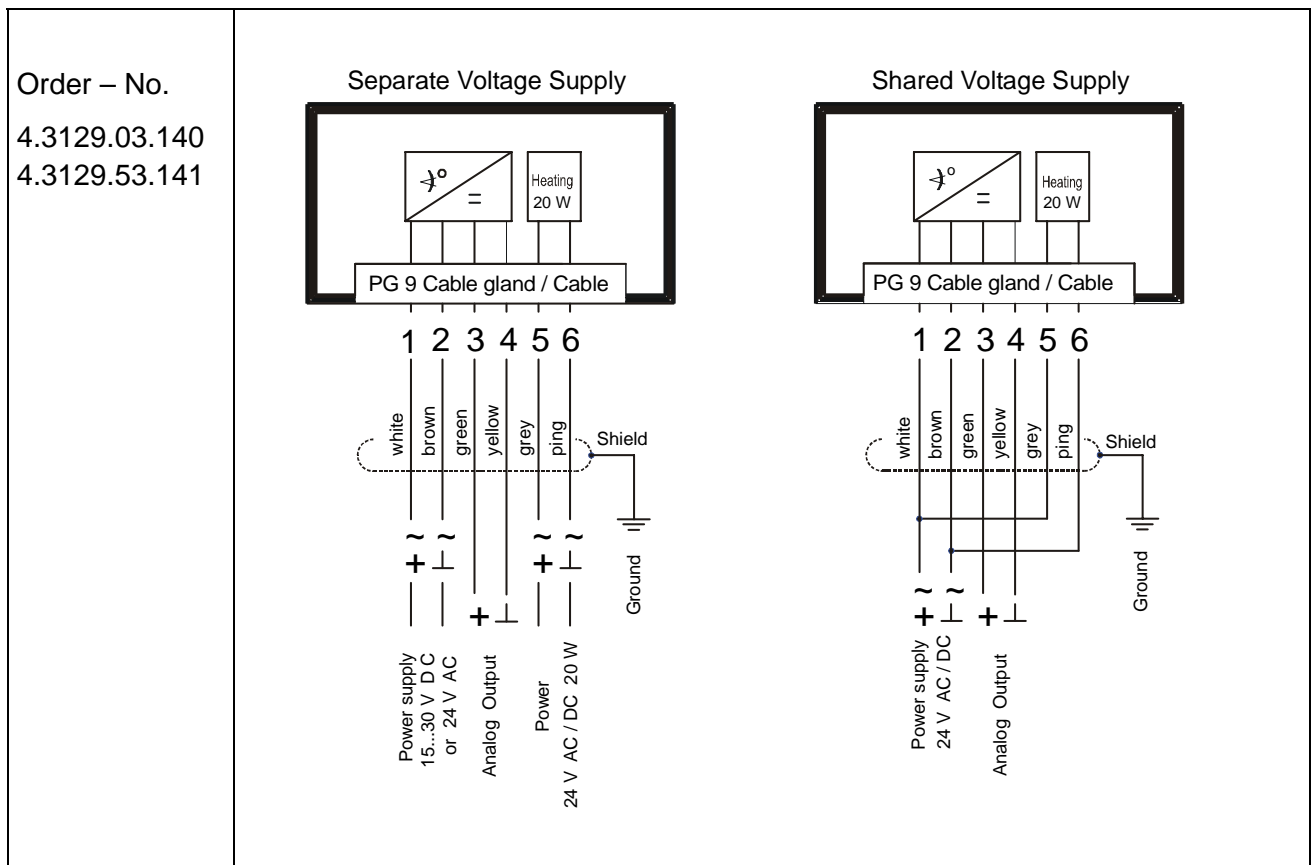
For electrical connection please refer to the connecting diagram.

## 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°
Measuring principle	opto-electronic
Electrical output	4... 19.5 mA
Load Current output (mA)	max. 500 Ohm (for > 15 V DC operating voltage)
Operating voltage	15... 30 V DC oder 24 V AC
Operating voltage heating	24 V DC/AC, max. 20 W
Ambient temperature	-30°C ... 70°C
Connection	See models available
Dimensions	see dimensional diagram
Montage	For ex. onto a mast tube with receptacle thread PG 21 or boring Ø 29 mm
Protection	IP 55
Weight	approx. 0.75 kg depending on model

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

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

**Table 1: Electrical Output**

## 9 Dimensional Drawing

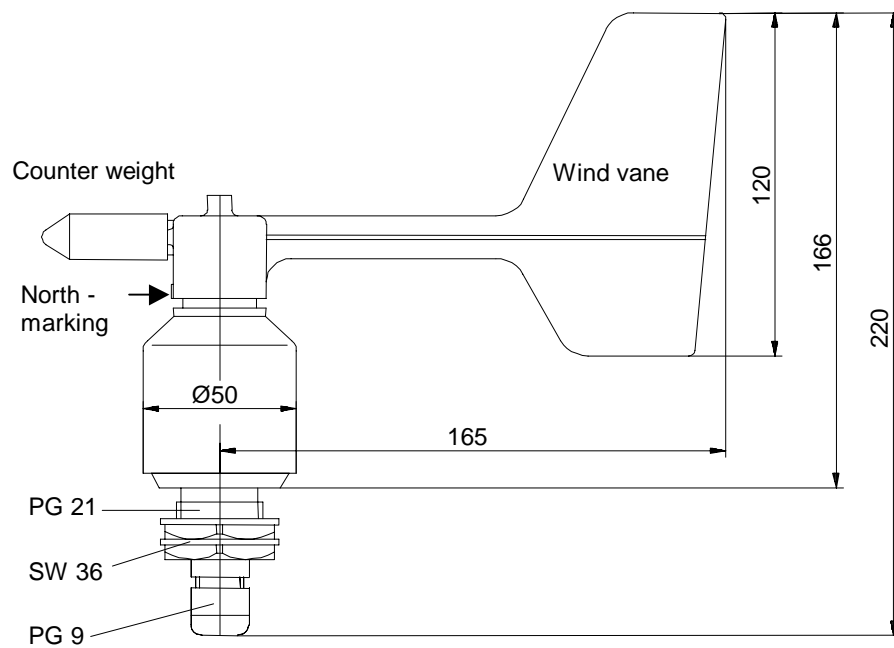


Figure 1: Dimensional drawing with cable

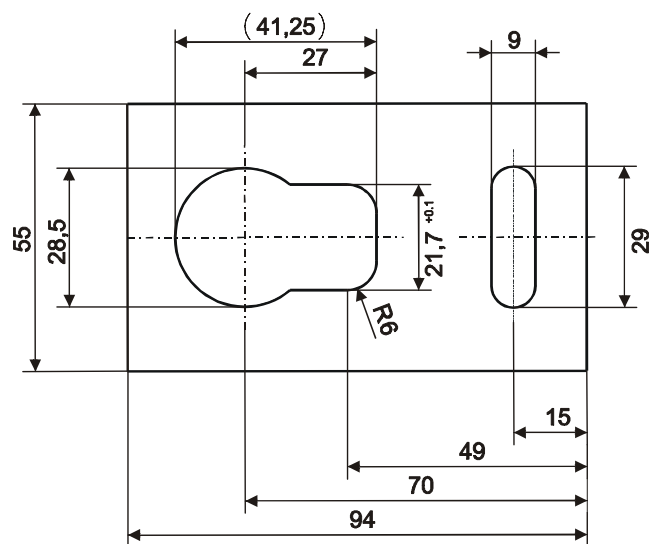


Figure 2: Dimensional drawing Brace

## 10 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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