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***Combined Wind Transmitter***

**4.3323.60.000**



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# Contents

1	Models .....	2
2	Range of application .....	3
3	Mode of Operation .....	3
4	Recommendation Site Selection / Standard Installation .....	3
5	Installation.....	4
5.1	Mounting the Cup Star .....	4
5.2	Electrical Mounting .....	5
5.2.1	Plug Mounting .....	5
5.3	Mounting the Wind Transmitter .....	5
6	Maintenance .....	6
7	Wiring diagram.....	6
8	Technical Data.....	7
9	Dimension .....	8
10	EC-Declaration of Conformity .....	9

## 1 Models

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<b>Order-No.</b>	<b>Meas. range</b>	<b>Electr. Output</b>
4.3323.60.000	Wind velocity : 0,3 ... 75 m/s Wind direction : 0...360°	3 - 1563 Hz 0 – 10 V 0,27 V @ 170° (right) 5,00 V @ 0° (south) 9,72 V @ 170° (left)

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## 2 Range of application

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The combined wind transmitter is designed to detect the horizontal components of wind speed and wind direction. The measured values are available as digital signal (wind speed) and analogue signal (wind direction) on the output.

For winter time use the wind transmitter is equipped with an electronically regulated heating, which guarantees the smooth-running of the ball bearing, and prevents ice forming in the space between the external rotation parts.

## 3 Mode of Operation

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A light metal low-inertia cup anemometer running in ball bearings begins to rotate when the wind blows. The rotations are scanned opto-electronically, producing a pulse frequency which is used for digital data processing.

The axis of the wind vane is running in ball bearings and carries a magnet at the inner end. The angle position of the axis is scanned contact-free by a magnetic angle sensor through the position of the magnet field. The connected electronics calculates the angle position of the axis and provides the respective analog output signal.

The housing, cup star and wind vane are made of aluminum, die the surfaces are anodized. The bow consists of stainless steel. Labyrinth seals and o-rings protect the sensitive internal parts from precipitation. The instrument is designed for mounting to a mast tube; the electrical plug connection is situated in the transmitter shaft.

The Combined Wind Transmitter is shipped in parts to avoid damage during transport and to reduce the size of the container.

The shipment includes the following parts:

- 1 Comb. Wind Transmitter, pre-mounted
- 1 cup anemometer
- 1 wind vane
- 1 connecting plug

## 4 Recommendation Site Selection / Standard Installation

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In general, wind measurement instruments should be able to detect wind conditions over a broad range. In order to obtain comparative values of the surface wind, measurements should be taken at a height of 10m above a flat, open terrain. Open terrain means that the distance between the wind transmitter and an obstacle is at least 10 times greater than the height of the obstacle itself. If this requirement cannot be fulfilled, then set the wind transmitter up at a height where the influence of local obstacles on the measured values is minimal (about 6-10 m above the level of the obstacle). If the wind transmitter is set up on a flat roof, then place it in the center of the roof and not at the edge in order to avoid 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.*

### **Remark:**

*A **Lightning Rod** Order-No. **4.3100.99.000** is recommended if the instrument is to be used in areas with considerable lightning activity.*

### 5.1 Mounting the Cup Star

#### Tools

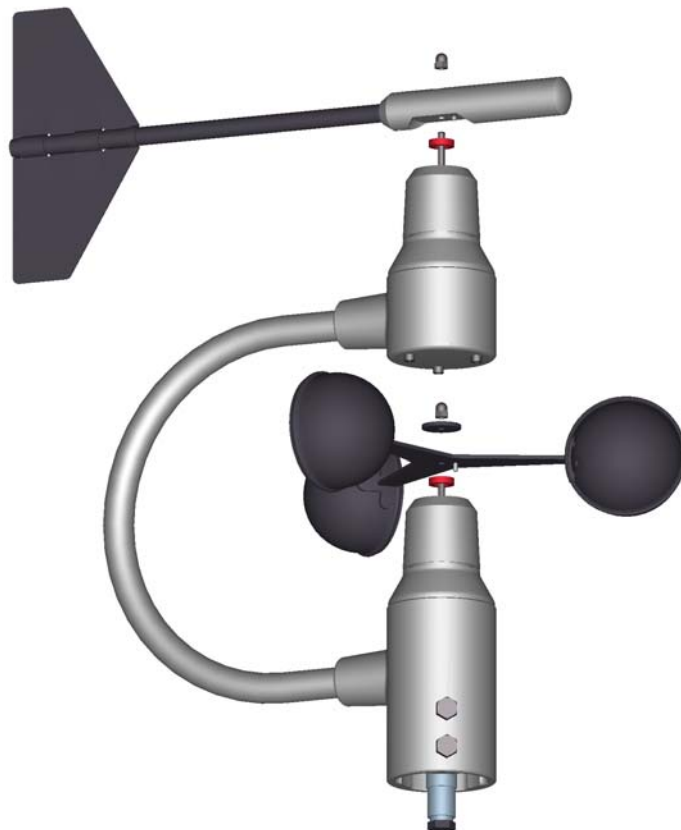
- Screw wrench SW 8

#### Mounting of wind vane

1. Remove wind transmitter housing and wind vane from the packing.
2. Screw off cap nut (SW 8)  
The gasket remains in the protective cap
3. Mounting of wind vane acc. to figure.  
The dowel at the wind vane must catch the notch of the protective cap. The cap nut is to be screwed tightly.

#### Mounting of Cup Star

1. Remove cup star from the packing.
2. Screw-off cap nut (SW 8) and remove disc. .  
The gasket remains in the protective cap.
3. Mounting of cup star acc. to figure.  
The dowel at the cup star cross must catch the notch of the protective cap. The cap nut is to be screwed tightly.



## 5.2 Electrical Mounting

Solder a shielded cable with diameter 7-8 mm and a core cross-section of 0,5...0,75 mm<sup>2</sup> to the enclosed coupling socket.

- The number of necessary wires is given in the connection diagram (chapter 7).

### 5.2.1 Plug Mounting

Coupling socket 211 194 (Binder, Serial 423), EMC with cable clamp

<ol style="list-style-type: none"> <li>Stringing parts on cable acc. to plan given above.</li> <li>Stripping cable sheath 20 mm Cutting uncovered shield 15 mm Stripping wire 5mm.</li> </ol> <p><i>Cable mounting 1</i> Putting shrink hose or insulating tape between wire and shield.</p> <p><i>Cable mounting 2</i> If cable diameter permits, put the shield backward on the cable sheath.</p> <ol style="list-style-type: none"> <li>Soldering wire to the insert, positioning shield in cable clamp.</li> <li>Screwing-on cable clamp.</li> <li>Assembling remaining parts acc. to upper plan.</li> <li>Tightening pull-relief of cable by screw-wrench (SW16 und 17).</li> </ol>	<p><i>Cable mounting 1</i></p> <p>View X</p> <p>wire      Cable clamp      shield      Cable shield</p>
	<p><i>Cable mounting 2</i></p> <p>View X</p>

## 5.3 Mounting the Wind Transmitter

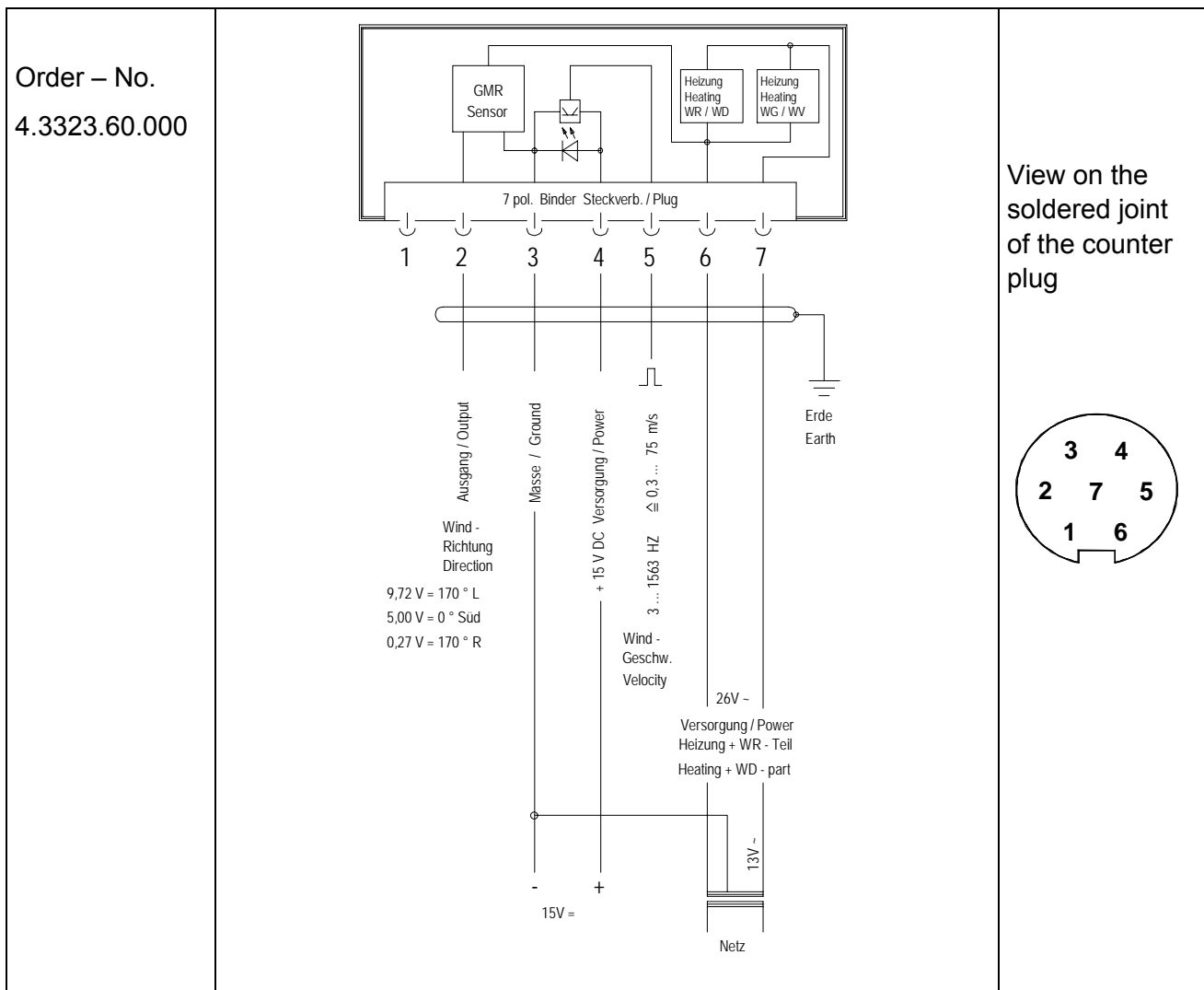
The wind transmitter can be mounted to a 50 mm long piece of pipe (R 1 1/2" (φ 48,3 mm)). The internal diameter of the pipe must be at least 40 mm as the transmitter is connected from below with a plug. Once the transmitter has been connected electrically, set it onto the pipe and align it with the marking (dash) on the case to "south". The bow of the case is aligned to "north". Fix the instrument into position with the two hexagonal screws (SW 13) on the shaft.

## 6 Maintenance

If the instrument has been properly mounted, no maintenance is required. Heavy pollution can clog the slits between the rotating and stationary parts of the instrument. These slits must always be clean and unclogged.

After years of use, the ball bearings can suffer from wear and tear. This is expressed in a higher starting torque respectively in the fact that the cup anemometer does not start rotating. If such a defect occurs, we recommend that you return the instrument to the factory for repair.

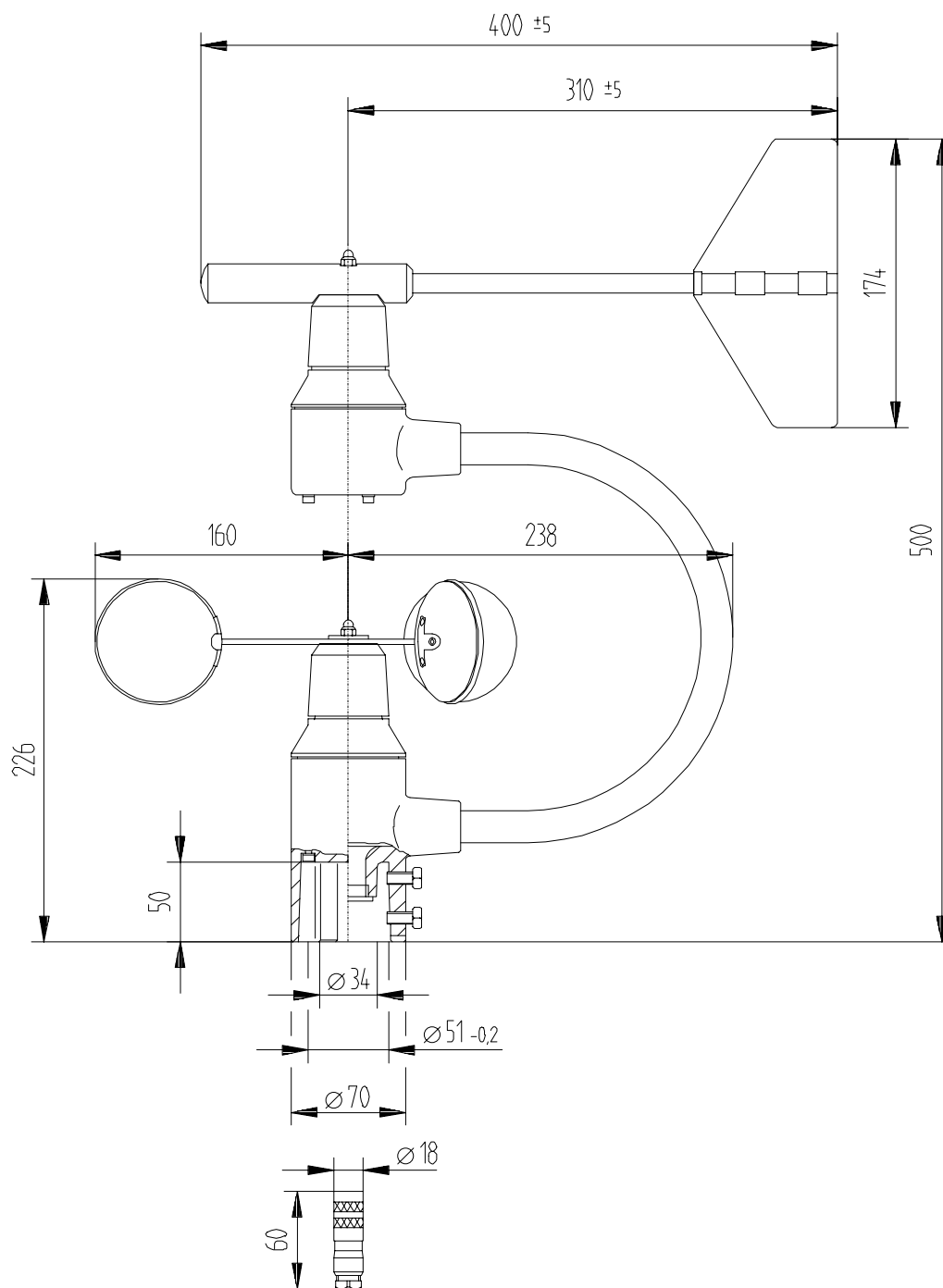
## 7 Wiring diagram



## 8 Technical Data

<b>Wind Velocity</b>	
Measuring range	0,3...75 m/s
Starting speed	0,3 m/s
Accuracy	$\pm 0,3$ m/s approx. $\pm 2$ % of meas. value
Electrical output	Frequency 3... 1563 Hz (1042 Hz @ 50 m/s) Form rectangle Load $R > 3$ k $\Omega$
Output signal ( $U_{low}$ , $U_{high}$ ) unloaded	$U_{low} \approx 1$ V $U_{high} \approx U_B$ $U_{high} = \text{max. } 15$ V DC
Linearity	$r > 0,999978$
Resolution	0,05 m wind run
Delay distance	$< 5$ m
<b>Wind direction</b>	
Measuring range	0...360°
Electrical output	170° (left) @ 9,72 V DC 0° (south) @ 5,00 V DC 170° (right) @ 0,27 V DC
Deflection velocity	$< 0,6$ m/s @ 90° vane deflection
Damping coefficient	$> 0,25$
<b>General</b>	
Max. wind velocity	80 m/s
Wind load at 35 m/s	ca. 50 N
Ambient temperature	-35...+80 °C
Operating voltage ( $U_B$ )	
Wind Velocity	15 V DC $\pm 15\%$
Wind Direction	15 V AC $\pm 15\%$
Heating	24 V AC $\pm 15\%$ , 40 W, electronically-regulated
Power consumption (unloaded)	ca. 25 mA (w/o heating)
Mounting	onto mast tube 1 ½", for example DIN 2441
Connection	7 pole plug
Protection	IP 55
Dimension	see chapter 9
Weight	approx. 2,6 kg

## 9 Dimension



# 10 EC-Declaration of Conformity

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Document-No.: **000437**

Month: 06 Year: 08

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Description of Product: **Combined Wind Transmitter**

Article No. **4.3323.51.600** **4.3323.60.000**

specified technical data in the document: **021520/03/07; 021557/06/08**

The indicated products correspond to the essential requirement of the following European Directives and Regulations:

- 2004/108/EC DIRECTIVE 2004/108/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 15 December 2004 on the approximation of the laws of the Member States relating to electromagnetic compatibility and repealing Directive 89/336/EEC
- 2006/95/EC DIRECTIVE 2006/95/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 12 December 2006 on the harmonisation of the laws of Member States relating to electrical equipment designed for use within certain voltage limits
- 552/2004/EC Regulation (EC) No 552/2004 of the European Parliament and the Council of 10 March 2004 on the interoperability of the European Air Traffic Management network (the interoperability Regulation)

The indicated products comply with the regulations of the directives. This is proved by the compliance with the following standards:

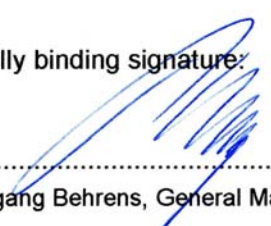
Reference number	Specification
IEC 61000-6-2: 2005	Electromagnetic compatibility Immunity for industrial environment
IEC 61000-6-3: 2006	Electromagnetic compatibility Emission standard for residential, commercial and light industrial environments
IEC 61010-1: 2001	Safety requirements for electrical equipment for measurement, control and laboratory use. Part 1: General requirements

Place: Göttingen

Date: 30.06.2008

Legally binding signature:

issuer:

  
.....  
Wolfgang Behrens, General Manager

  
.....  
Joachim Beinhorn, Development Manager

This declaration certifies the compliance with the mentioned directives, however does not include any warranty of characteristics. Please pay attention to the security advises of the provided instructions for use.



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