Combined Wind Transmitter

Instruction for use 4.3155.21.000 / ...002 / ...018

1. Range of application

The combined wind transmitter is used for the registration of the horizontal component of the wind speed and the wind direction. The measuring values will be placed at the output as analog signals. The signals can be given to display instruments, recording instruments, datalogger as well as process wise systems.

The combined wind transmitter is equipped with an electronically regulated heating system in order to prevent ice and frost from the ball bearings and the outer rotation parts (please refer to instrument models).

Power supply unit, Order no. **9.3388.00.000** provides the transmitter and the heating system with current. It is advisable to attach **Lightning rod,** Order no. **4.3100.99.000** in areas with considerable lightning activity.

2. Set up and mode of operation

A light metal low-inertia cup anemometer running in ball bearings begins to rotate when the wind blows. The axis of the cup star is coupled with a generator, which supply a current output proportional to the wind wind speed.

The light-metal wind vane which also runs in ball bearings is deflected by the wind. This deflection is scanned by a potentiometer corresponding to the wind direction is available as output signal.

The outer parts of the instrument are made of corrosion-resistant parts and they are protected through a varnish. The sensitive parts inside of the instrument are protected from precipitation through labyrinth seals and o-rings. The instrument is designed to be mounted onto a mast, the electrical connection is located in the stem of the transmitter.

The combined wind transmitter is shipped in a semi-mounted state in order to avoid transport damage and to keep the package small.

It consists of the following parts:

1 Combined wind transmitter
1 Cup star
1 Wind vane
1 Connection plug

3. Models available

Order no.	Wind speed		Wind direction	
	Measuring range	Electr. output	Measuring range	Electr. output
4.3155.21.000	0,5...35 m/s	0...4,67mA DC, linear Ra = 400 Ω	0...360°	3x120°, 2000Ω
4.3155.21.002			0...360°	400Ω, jump at N
4.3155.21.018			0...358°	400Ω, jump at S

4. Technical Data

Wind speed

Starting speed	: 0,5 m/s
Accuracy	: 0,5 m/s resp. 2 % from measuring range
Distance constant	: 5 m

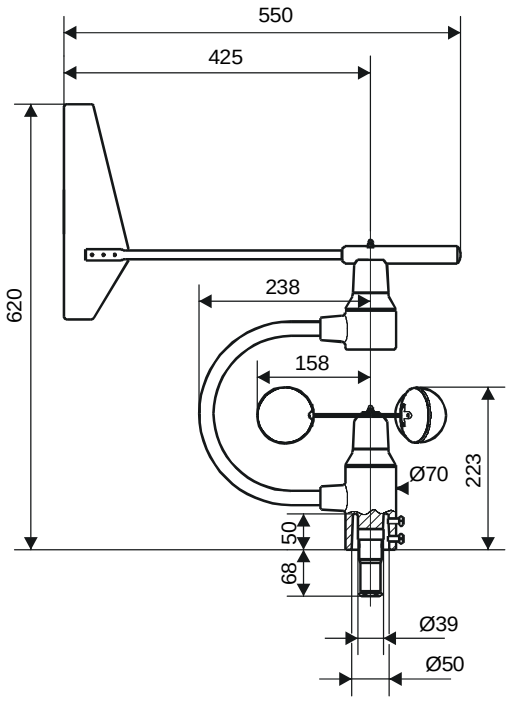
Wind direction

Sensitivity of response	: 0,5 m/s at 90°
Accuracy	: 2°
Damping constant	: > 0,3

Genaral

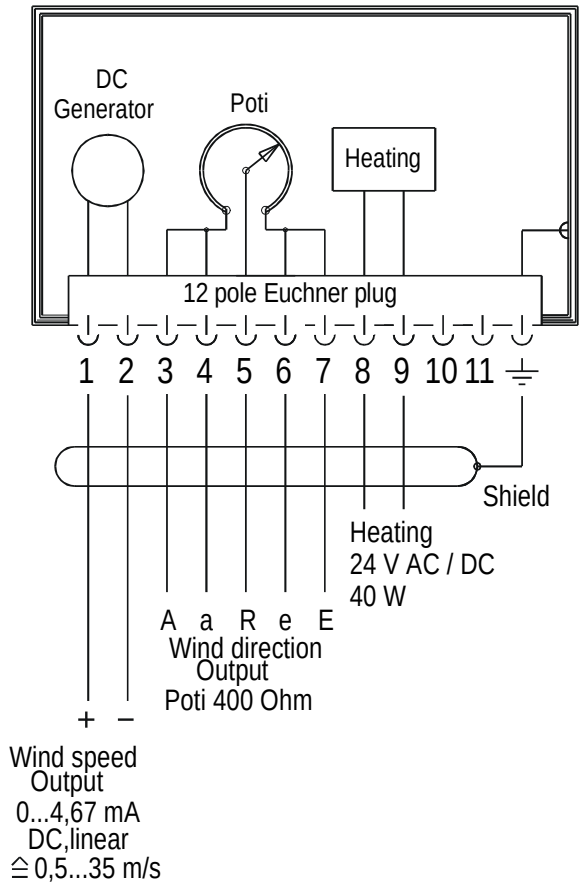
Max. Wind load	: 60 m/s
Ambient temperature	: -35...+80°C
Operating voltage	: 12 V DC for model ...21.000
Heating	: 24 V DC/AC, approx. 40 W, regulated electronically
Wind load at 35 m/s	: approx. 50 N
Mounting	: onto a mast tube 1 ½“, z.B. DIN 2441
Connection	: 12-pole plug
Weight	: 3,4 kg

Dimension



5. Connecting diagram

4.3155.21.002
4.3155.21.018



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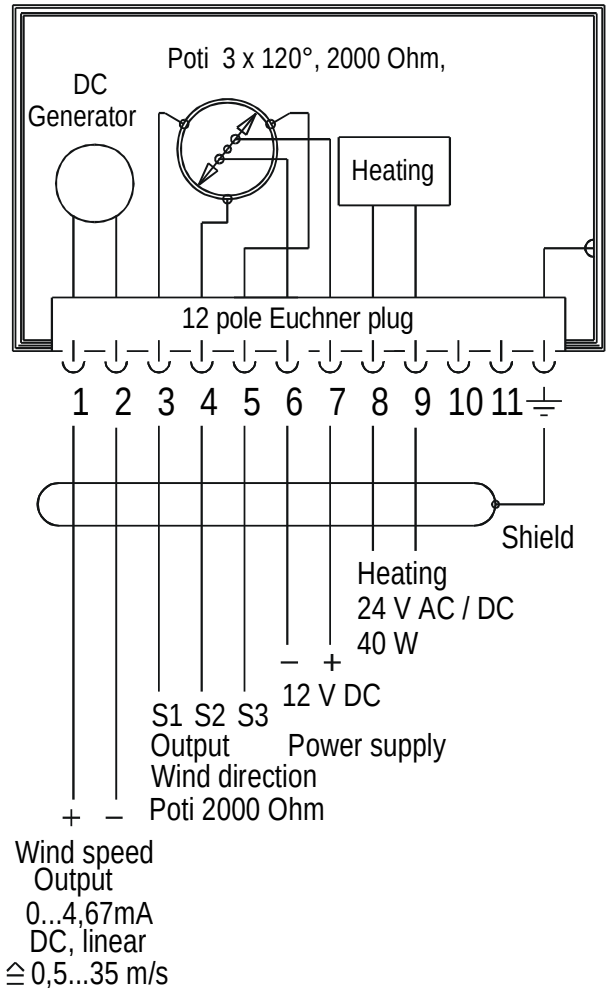


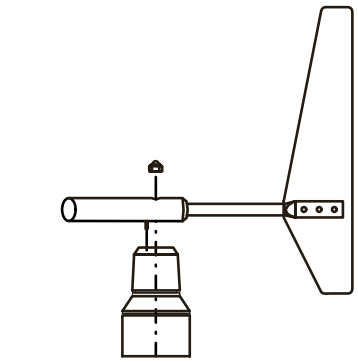
6. Preparation for use

6.1 Selecting the site

In general, wind measuring instruments should be able to detect wind conditions over a broad range. In order to obtain comparative values for the surface wind, measurements should be taken at a height of 10 m above a flat, open terrain. Open terrain means that the distance between the wind measuring 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 is the center of the roof and not ant the edge in order to avoid privileged directions

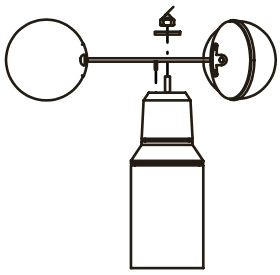
6.2 Mounting the cup star

Unscrew the cap nut (SW 8) from the case of the speed transmitter and remove the disk. The rubber gasket remains in the protection cap. Place the cup anemometer such that the set pin on the cup anemometer catches in the notch of the protective cap. Replace the disk and rescrew the cap nut. Make sure you hold the transmitter on the protective cap not on the cup anemometer



6.3 Windfahnenmontage

Mount the wind vane is the same way as the cup anemometer (s.6.2). The only difference is that there is no disk.



6.4 Mounting the wind transmitter

The wind transmitter can be mounted to a 50 mm long piece of pipe (R 1 ½“ (∅ 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. Solder a flexible control line LiYCY with the appropriate number of cores of 0,5 mm^2 each to the enclosed plug Once the transmitter has been connected electrically, set it onto the pipe and align it with the marking on the case to north. The bow of the case is also aligned to north. Fix the instrument into position with the two hexagonal screws on the shaft

7. 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 occur, we recommend that you return the instrument for repairs.

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