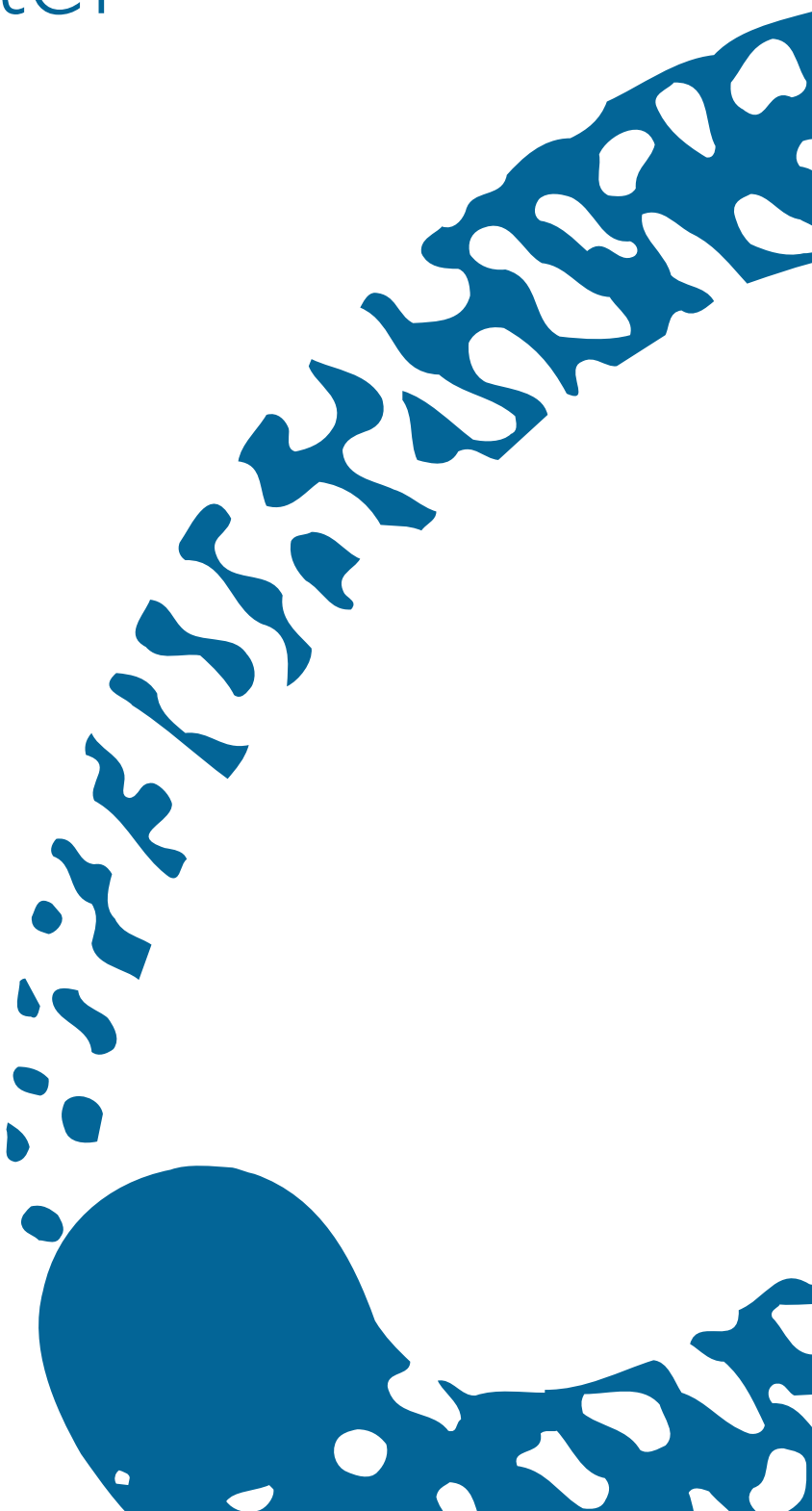
Anemometer

420-1

Datasheet



Version 1.1

Key Features

- Opto-electrical sensor
- PNP digital output
- Robust and long-term durability performance (brass/stainless steel)
- Prepared for heating unit
- Short circuit protected

Anemometer

Orbitals wind turbine anemometer is designed in 1990. The anemometer gives you the best and most stable wind speed measurements. It also secures reliable data transfer to our TMC controller or any other wind turbine controller in order to optimize performance of the wind turbine.

The anemometer is created in high quality brass. It ensures a robust construction designed for longevity. Orbitals anemometer is tested to withstand very high tornado-like wind speeds as well as frequent lightning.

The anemometer can be equipped with a heating unit for sites where de-icing is required.

Specifications

Standards

Area	Standard	Title
	DS/EN 50081-2:1994	Electromagnetic compatibility - Generic emission standard - Part 2: Industrial environment
	DS/EN 61000-6-2:1999	Electromagnetic compatibility (EMC) - Part 6-2: Generic standards – Immunity for industrial environment

Power Specifications

Area	Variable	Value
Power supply	Input voltage	24 VDC
	Input current	0,05 A_{max}
Power consumption		20mA

General

Area	Variable	Value
General	Manufacturer	Orbital A/S
	Module type	Cup Anemometer
	Model type	420-1
	HW-version	2.02
Environment and surroundings	Operating temperature range	-20..+50°C
	Storage temperature range	-40..+70°C
	Start wind speed	1,5 m/s
Sensor principle		Optical
Cable (colour and function)	Interface standard	3-wire shielded cable
	White	+24 VDC (+)
	Brown	Output-signal / High (18V) – Low (floating)
	Green	0 VDC (-)
	(Black)	Shield (is connected inside Anemometer)
Output signal	Output type	PNP
	Number of outputs	1
	Maximum output current	0,020 A_{max}
	Short circuit protected	
	Output Frequency	V [m/s] = 0,183 * f [Hz] + 0,65
		V = wind speed [m/s]
		a = 0,183 *)
		b = 0,65 *)

*) Approximate values. Based on test results.

Mechanical Data

Area	Variable	Value
Materials	Housing	Brass (Cu Zn39Pb3)
	Top	Stainless 18/8 Steel (AISI 304)
	Bearings	Low friction precision steel bearings, on top semi-closed with special seal.
Cable	Cable type	Shielded PVC LIYCH, 3 x 0,25 mm^2
	Cable diameter	4,6 mm
Screwed connection	Material	Stainless 18/8 Steel
	Type	M12, 50.616M/EMV, (EMC)
Weight		0,75 kg
Transport container	Dimensions (L x H x W)	278 x 185 x 217 mm
	Material	Expanded polystyrene
	Total weight	1,15 kg

Installation instruction

Mechanically mounting

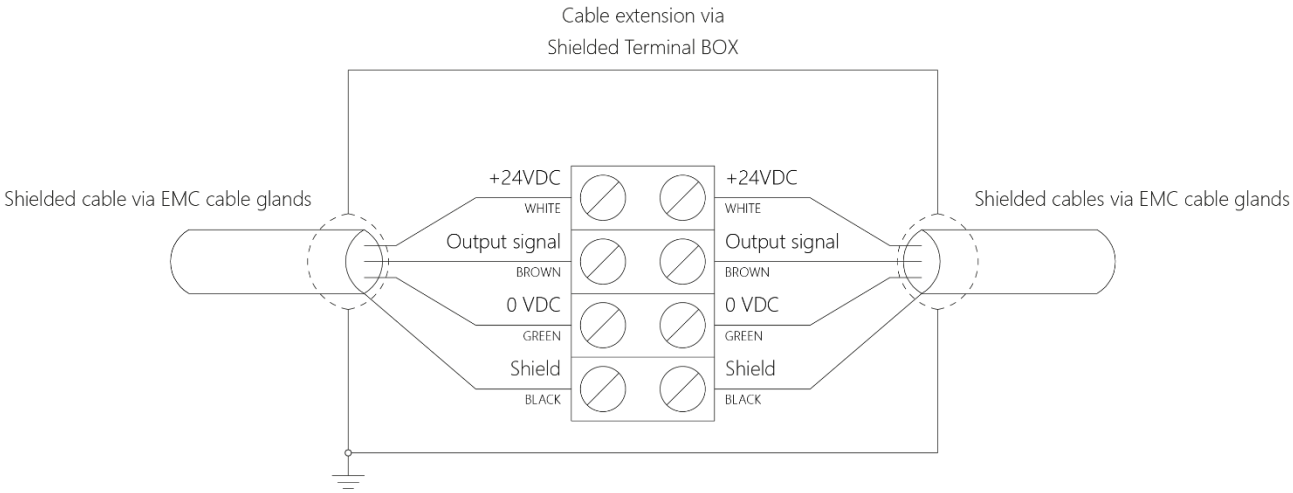
Mounting vertically. (M12 mounting bolt (Stainless steel))

Attention: Please follow the instructions above. Do NOT remove the anemometer cups from the shaft. Reduced lifetime and bad calibration will be the result.

Mounting base must be connected to earth/chassis.

Electrical mounting

Cable shield must be grounded, i.e. earth connected.

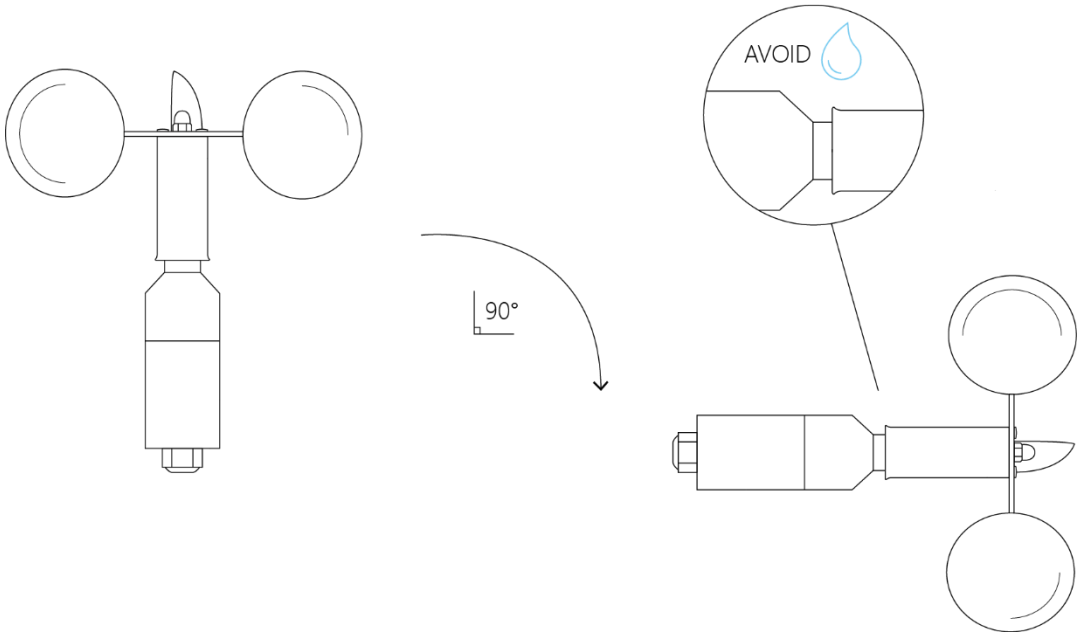


Calibration and test

The calibration is made by: 'Svend Ole Hansen Aps' or 'Force Technology' Copy of general calibration certificate will be forwarded on request. Separately calibrated anemometers can be delivered, with calibration report.

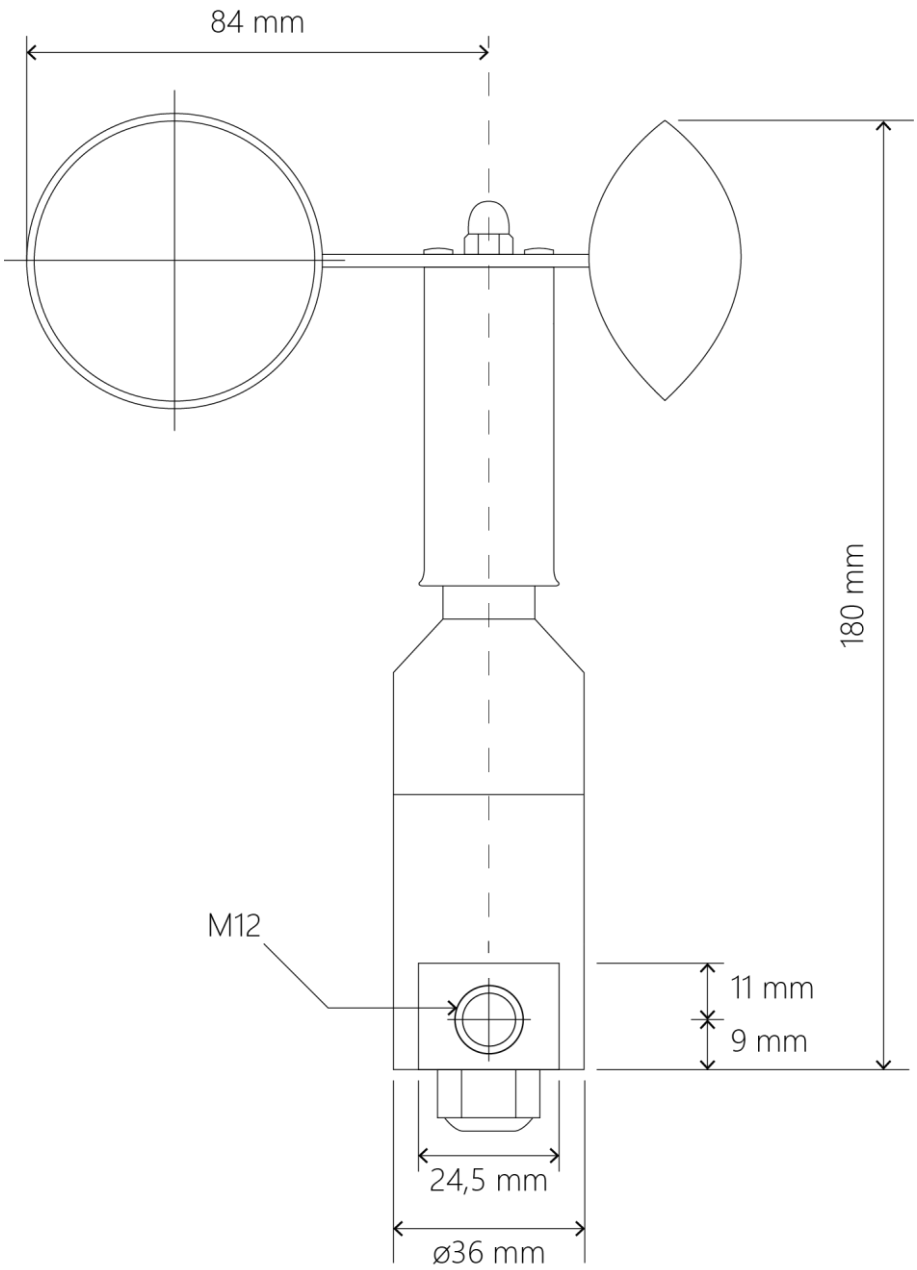
Service instruction

During service it is highly recommended to encapsulate the wind vane to prevent water ingress. The illustration below shows where it is critical if water passes into the enclosure.



Mechanical Dimensions

The following drawing is not shown in the actual scale.



Changelog

Date	Revision	Author	Change
06/03-18	1.1	MKM	Layout change and minor corrections

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This document does NOT include safety or installation instructions. Please see the relevant manuals for further details include safety instructions.

Please note that this document may be changed without prior notice. For newest revision, please contact your wind turbine distributor or contact Orbital A/S directly. Contact details can be found at orbital.dk or see the last section in this document.