

Instruction Manual

Anemometer model WS-MM-067-D(H)32

May 2004



Table of contents		page
1.	Summary	3
2.	Anemometer Model WS-MM-067-D(H)32	4
2.1	Principle of Operation	4
2.2	Weather Resistance	4
2.3	Installation	4
2.4	Connection Anemometer Model WS-MM-067-D32	5
2.5	Connection Anemometer Model WS-MM-067-D(H)32	5
2.6	Specifications Anemometer model WS-MM-067-D(H)32	6
3.	Grounding	7
4.	Maintenance	7
5.	Drawings	8

1. SUMMARY

This manual describes sensors which are developed for measuring wind speed under extreme circumstances (e.g. for wind turbines). The output is a pulse of 0-15VDC. They are shockproof and are optionally equipped with a heater which keeps the rotating parts free of ice down to -40°C

2. ANEMOMETER MODEL WS-MM-067-D(H)32

2.1 PRINCIPLE OF OPERATION

A cage with 4 evenly distributed slots is mounted to the anemometer axis. This cage revolves between the LED and the transistor of a photo interrupter. The revolving motion of the axis generates a pulse train which is proportional to the wind speed

The electronics also stabilize the supply voltage, and they contain a transient protection circuit.

2.2 WEATHER RESISTANCE

The cap and the bearing housing of anemometer WS-MM-067-D(H)32 have been designed to withstand temperatures of -20 to $+60^{\circ}\text{C}$ easily.

If an anemometer is equipped with optional heater, it has a better resistance against extreme climate conditions, such as heavy glaze, severe snow storms, and prolonged rimeing. The solid state heating has a maximum power of 100W, can be adjusted continuously and is built into the sensor. The temperature range for a sensor with built-in heating is -40 to $+60^{\circ}$ Celsius. The model number for a anemometer with heating is WS-MM-067-D(H)32.

The instrument has a weather resistance rating of IP-65.

2.3 INSTALLATION

The anemometer should be mounted on a pipe with $\frac{3}{4}$ " gas thread (male). It is important to ensure that there are as few obstacles as possible in the immediate vicinity that could affect the readings. The anemometer does not need positioning.

Note that the cable should be connected after the sensor has been installed on the pipe, to avoid twisting the cable.

2.4 CONNECTION ANEMOMETER MODEL WS-MM-067-D32

Colour	Signal
Brown	+24 V
Green	GND
White	Pulse out

Pulse out 0-1903 Hz @ 0-75m/s

2.5 CONNECTION ANEMOMETER MODEL WS-MM-067-D(H)32

Colour	Signal
Brown	+24 V
Green	GND
White	Pulse out
Yellow	+24 V Heater
Gray	GND Heater

2.6 SPECIFICATIONS ANEMOMETER MODEL WS-MM-067-I(H)

Performance:

Operating range	:	0,75...75m/s,
Maximum wind load	:	Cup assembly tested to 75 m/s
Inaccuracy	:	< 0,8 m/s for a range of 0...30 m/s < 0,5 m/s for a range of 3...30 m/s
Output signal	:	Pulse out 0-1903 Hz @ 0-75 m/s

Physical:

Dimensions	:	265 x 300, ø 53 mm
Weight	:	0,7 kg
Material	:	aluminium 51ST(anodized, 20µm)
Material cups	:	glass-fiber reinforced Polycarbonate
Operating temperature	:	-20...+60°C (without heater) -40...+60°C (with heater)
Protection	:	Sealed to IP-65

Installation:

Mounting	:	¾" female gas thread
Connection	:	5 - wire (0,34mm ²) shielded cable, ø 6 mm. Sensor supplied with 5-meter cable

Electrical:

Supply voltage	:	24 VDC, 50 mA (without heater)
Static discharge	:	The instrument is protected against outside inductive interference up to a discharge power of 1500 Watt
Heating	:	If required the sensor can be provided with internal heater
Warranty	:	1 year

Specifications optional heater (model WS-MM-067-D(H)32)

Control	:	A solid state circuit controls the internal sensor heater
Power	:	0 < P < 100W, internally analogue regulated
Operating temperature	:	-40...+60°C
Supply voltage	:	24VDC unregulated, separate supply for heater
Connection	:	wires included in the sensor cable
Power consumption	:	Approx. 4A

3. GROUNDING

The sensors are electronically protected against outside inductive interference in accordance with international standards. However, the effectiveness of the transient protection largely depends on proper grounding.

That is why we recommend connecting the shielding to an appropriate "ground" at the connection point of the wind sensor cable.

4. MAINTENANCE

To ensure a life span of 20 years and measuring values that remain correct throughout this period, it is recommended that the wind sensors are serviced once every two years.

If the sensors are installed near the coast or on locations with severe air pollution, maintenance on an annual basis is recommended.

The maintenance consists of replacing the bearings and O-rings, and removing any dirt that may have accumulated between the bearing housing and the cap. Mechanical parts that show signs of extreme wear should be replaced. Maintenance includes the sensors being disassembled to a large extent, after which they are cleaned and subjected to visual inspection. After replacement of the relevant parts, the sensors should be reassembled and adjusted with the utmost accuracy and care. Therefore it is recommendable to have the supplier perform the maintenance.

5. DRAWINGS

Number	Description
23356	Anemometer model WS-MM-067-D(H)

Anemometer model WS-MM-067-D(H)32

