Mierij Meteo
METEO SYSTEMS

Instruction Manual

MW 36 Wind Vane

Rev. 1. May 2010

IMPORTANT USER INFORMATION

Reading this entire manual is recommended for full understanding of the use of this product.

Should you have any comment on this manual we will pleased to receive them at:
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Mierij Meteo reserve the right to make changes to the specifications without prior notice.

WARRANTY AND LIABILITY

Mierij Meteo guarantees that the product delivered has been thoroughly tested to ensure that it meets its published specifications. The warranty included in the conditions of delivery is valid only if the product has been installed and used according to the instructions supplied by Mierij Meteo.

Mierij Meteo shall in no event be liable for incidental or consequential damages, including without limitation, lost profits, loss of income, loss of use and other related exposures, however caused, arising from the faulty and incorrect use of product.

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1. INTRODUCTION

This Instruction sheet describes the mounting and connection of the MW 36 Wind Vane. This wind vane has been developed for measuring wind direction under extreme environmental conditions, such as installation on wind turbines. All MW 36 Wind Vanes are supplied with an embedded heater and have selectable outputs.

The MW 36 Wind Vane has a wide power supply of 12 - 24 VDC. The embedded heater for operation to –40°C needs 24 VDC (50W)

The available outputs are 4 - 20 mA / 0 – 10 V / Frequency or Serial data (RS 485).

The MW 36 Wind Vane is shock and vibration proof.

IMPORTANT NOTE: The current models are pre configured ex factory and cannot be changed by user! This feature will become available soon.

2. INSTALLING THE WIND SENSORS

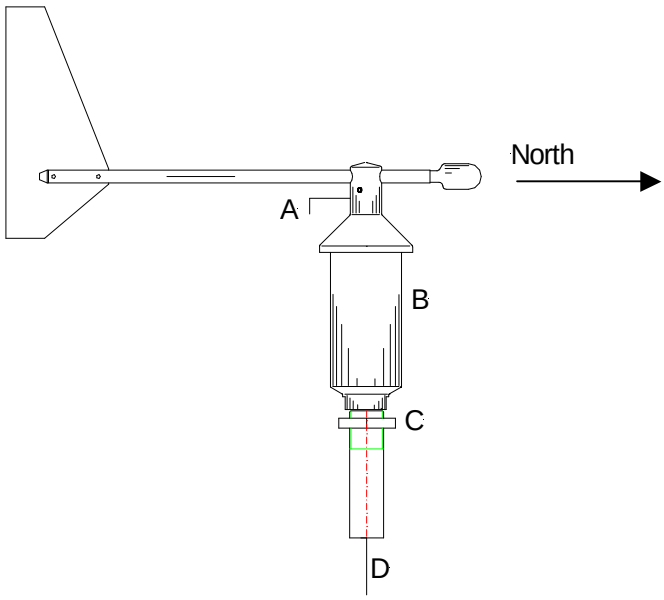
2.1 SITING

The MW 36 Wind Vane should be installed vertically and free from obstacles to avoid disturbance and turbulences.

2.2 INSTALLATION

The MW 36 Wind Vane should be mounted vertically on top of a pipe with a ¾″ male gas thread. As option you can use Mierij Meteo MW 83 Mounting Bracket. Connect the wires after fixing and aligning the MW 36 Wind Vane. Check the correct wiring of the MW 36 Wind Vane in the tables below depending to the output signal you use.

2.2.1 Aligning the MW 36 Wind Vane (to the north)



- Screw the wind vane to a pipe with ¾" gasthread , and do not tighten the lock nut yet. Do not connect the wires (D) yet, to avoid twisting them.
- Use a compass to determine the north.
- Insert the stop (A) into the wind vane to lock it.
- Now turn the wind vane (B) until the counterbalancing weight points north.
- Tighten the lock nut (C) with a 36mm open-end wrench.
- Ensure that the counterbalancing weight is still pointing north.
- Remove the stop (A) from the wind vane.
- Connect the wires (D) according to the table.

2.3 CONNECTIONS OF MW 36 WIND VANE

As the MW 36 Wind Vane has selectable outputs please use the connection table with the output for your application.

2.3.1 MW 36 Wind Vane with 4-20 mA output

The table below shows the connection for the MW 36 Wind Vane with 4-20 mA output. The default range is 4-20 mA @ 0 – 360°

The “Shield” of the cable should be mounted to an appropriate within maximum 5 meters of the MW 36 Wind Vane for the best protection against static discharge.

Wire Colour	Function
White	+12....24 VDC
Brown	0 V / GND
Grey	I out (4-20 mA)
Red	Heater + (24 VDC)
Blue	Heater – (0V / GND)
Shield	Shield/Ground

2.3.2 MW 36 Wind Vane with 0-10V output

The table below shows the connection for the MW 36 Wind Vane with 4-20 mA output. The default range is 0-10V @ 0 –40 m/s.

The “Shield” of the cable should be mounted to an appropriate within maximum 5 meters of the MW 36 Wind Vane for the best protection against static discharge.

Wire Colour	Function
White	+12....24 VDC
Brown	0 V / GND
Pink	U out (0-10V)
Red	Heater + (24 VDC)
Blue	Heater – (0V / GND)
Shield	Shield/Ground

2.3.3 MW 36 Wind Vane with Frequency output

The table below shows the connection for the MW 36 Wind Vane with Frequency output. The default range is 0 - 100 Hz @ 0 – 360°

The “Shield” of the cable should be mounted to an appropriate ground within maximum 5 meters of the MW 36 Wind Vane for the best protection against static discharge.

Wire Colour	Function
White	+12....24 VDC
Brown	0 V / GND
Grey	F out (0-100Hz)
Red	Heater + (24 VDC)
Blue	Heater – (0V / GND)
Shield	Shield/Ground

2.3.4 MW 36 Wind Vane with Serial Output (RS-485)

The table below shows the connection for the MW 36 Wind Vane with Serial RS-485 output. The output protocol is described in chapter 2.3.4.1.

The “Shield” of the cable should be mounted to an appropriate ground within maximum 5 meters of the MW 35 Anemometer for the best protection against static discharge.

Wire Colour	Function
White	+12....24 VDC
Brown	0 V / GND
Yellow	RS 485 A (+)
Green	RS 485 B (-)
Red	Heater + (24 VDC)
Blue	Heater – (0V / GND)
Shield	Shield/Ground

2.3.4.1 Output Protocol According to NMEA 0183:

The output protocol of the MW 36 Wind Vane is according to NMEA 0183:

NMEA A	= YELLOW
NMEA B	= GREEN
Baud rate	= 4800
Data bits	= 8
Stop bits	= 1
Parity	= none

Format: $WIMWV,ddd,R,ss.s,M,A<CR><LF>

Description:

$	= Start of sentence
WI	= Device type: Weather Instruments
MWV	= Wind speed and direction
ddd	= Wind direction value [0..360] °
R	= Relative to the vessel (not applicable)
ss.s	= Wind speed value *(not used / always 0 for MW 36 Wind Vane)*
M	= Unit for wind speed [m/s]
A	= Data always valid for MW 36 Wind Vane

3. GROUNDING

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

Therefore we recommend connecting the shielding to an appropriate "ground" at the end of the wind sensor cable (5 meter). Even when larger cable lengths have to be applied we recommend a proper grounding at max. 5 meter.

For most effective protection against static discharge we recommend to use our MU 45 Junction Box with static discharge protection as an option.

4. MAINTENANCE

The MW 36 Wind Vane have been assembled very accurate and high quality bearings are used. The cup assembly has a special design to prevent the bearings against dust or other small particles. This results in a large maintenance intervall. Depending to the circumstances on site we recommend a maintenance interval of 7-10 years. After this interval bearing should be replaced.

4.1 SPARE PARTS

60900010	Vane for MW 36 Wind Vane

5. TECHNICAL SPECIFICATIONS

5.1 SPECIFICATIONS MW 36 WIND VANE

Operating range	0 – 360°
Resolution	8-bit (internally)
Starting speed	< 0,8 m/s
Maximum wind load	80 m/s
Inaccuracy	< 3°

5.1.1 Electrical

Power supply	10.8 .. 30 VDC
Power consumption (4-20 mA output)	35 mA (12VDC) / 30mA (24VDC)
Power consumption (other outputs):	15 mA (12VDC) / 10mA (24VDC)
Heater (**24 VDC only**)	24 VDC / 50W

5.1.2 Outputs

Analogue	0-10V @ 0-360° (default) 4-20mA @ 0-360° (default)
Frequency (push/pull)	0-100Hz @ 0-360° (default)
Serial	RS-485 / NMEA 0183
Digital	PNP / NPN

5.1.3 Physical

Dimensions	200 x 300 x 50 mm
Weight	1 kg
Material	SST/ anodized aluminium/ABS / polyamide
Operating temperature	-40°C ... +60°C The heater ensures operation to –40°C in icing conditions
Static discharge	Protected against inductive interference up to 1500 W
Protection	IP-65

5.1.3.1 Installation

Mounting	3/4“ female gas thread
Connection	5 meter shielded cable

5.1.3.2 Warranty

Warranty	36 months from date of delivery

6. SUPPORT

For questions about installation or other support

Mierij Meteo Nederland B.V.
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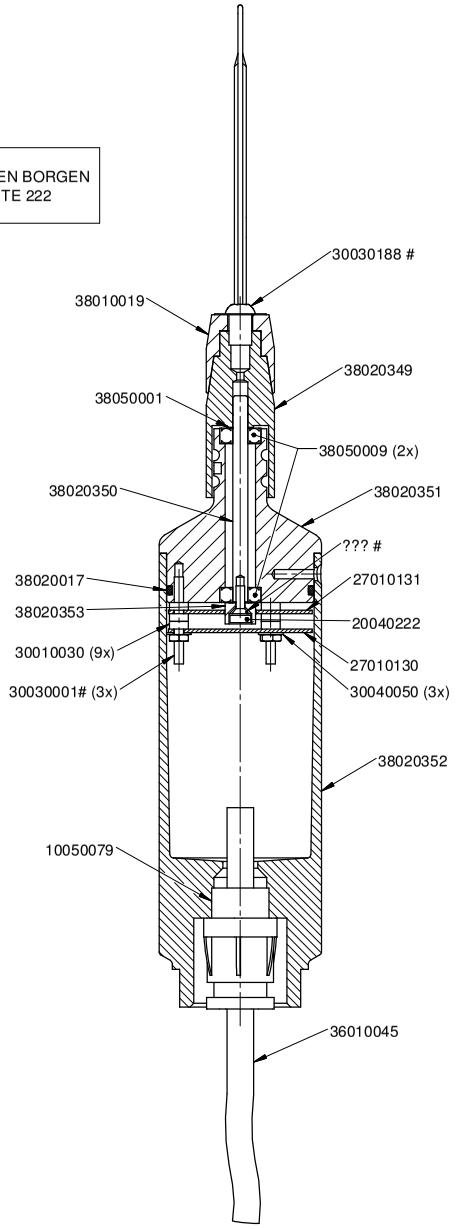
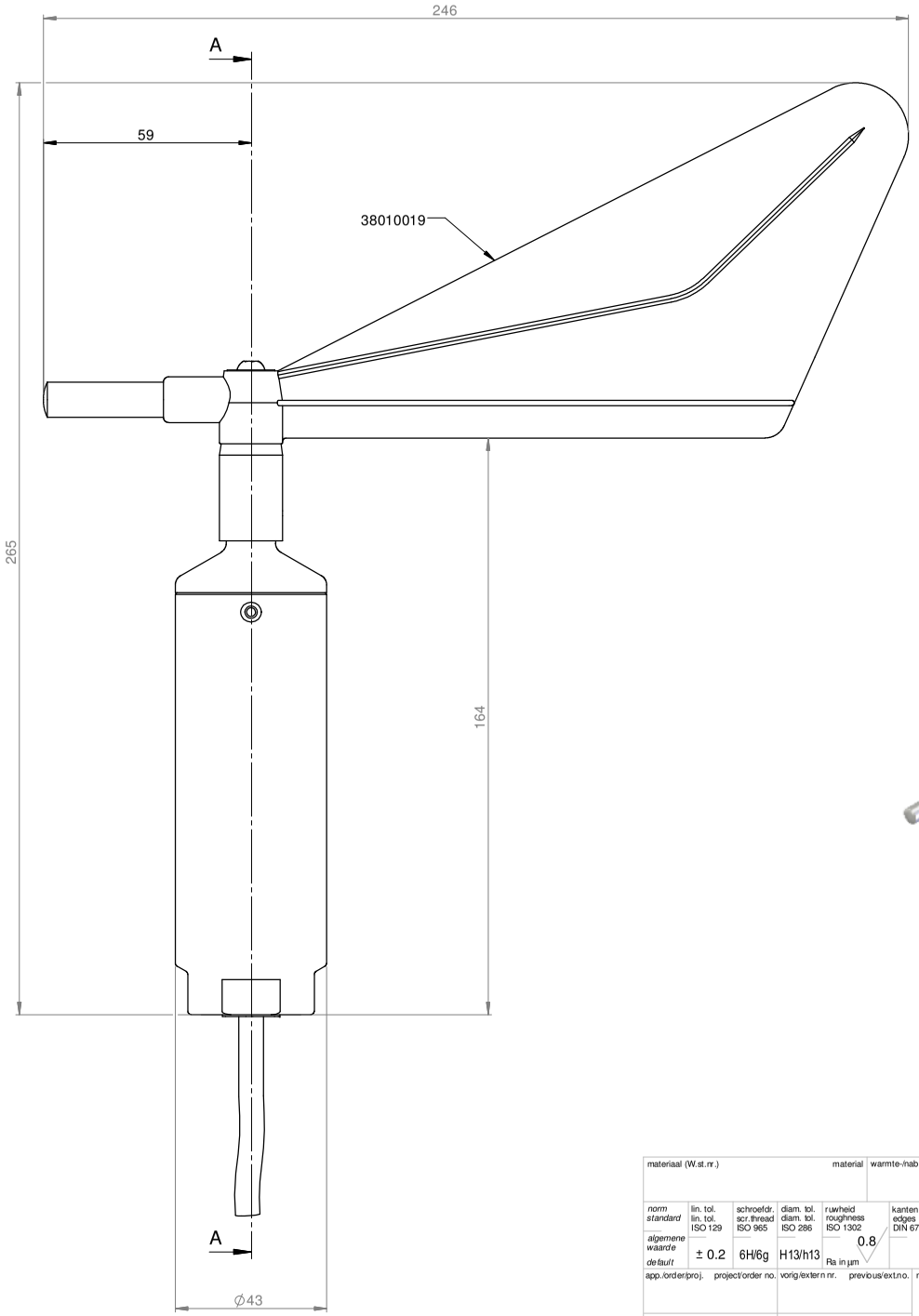
7. DRAWINGS

Number	Description
115-60010020	MW 36 Wind Vane

- SCHROEVEN BORGEN
MET LOCTITE 222



Section A-A



materiaal (W.st.nr.)			material	warmte-/nabehandeling		treatment/finishing			all dim. in mm	
norm standard	lin. tol. lin. tol. ISO 129	schroefdr. scr. thread ISO 965	diam. tol. diam. tol. ISO 286	ruwheid roughness ISO 1302	kanten edges DIN 6784	0.3 -0.3	vorm-/plaatstol. geom. tolerances ISO 1101		ISO 128	
algemene waarde default	± 0.2	6H/6g	H13/h13	0.8 Ra in µm					schaal scale	1:1
app./order/proj.	project/order no.		vorig/extern nr.	previous/ext.no.		naam title				
						Wind Vane MW 36				
			getekend drawn	J. vd Voort						
Mierij Meteo METEO SYSTEMS			contr. checked			tek.nr.			form.	
			goedk. approved			dwg.no	115-60010020 - 2		00	2010/01/27
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CE

Declaration of Conformity

According to EC guideline 89/336/EEC

we

Mierij Meteo BV

declare under our sole responsibility that the product

Wind Vane type MW 36

to which this declaration relates is in conformity with the following standards

EN 50081-1
EN 50082-1
EN 55022

following the provisions of the directive.

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Research & Development

Ing. A.Hagedoorn