ANEMOMETER

Vaisala WAA252

KINTECH ENGINEERING

ANEMOMETER | Vaisala WAA252

SIGNAL OUTPUT	ELECTRICAL SUPPLY	HEATING SUPPLY	MODEL IN EOL MANAGER
0...750 Hz square wave	5...15 VDC 10mA typ.	24 VDC <3.2 A	**VAISALA WAA252**

CONSTRUCTION AND MODE OF OPERATION

The heated Anemometer Vaisala WAA252 can be a choice when a non-freezing gauge is required. It offers the linearity and sensitivity of a well-designed cup anemometer plus the advantage of heating carried out right where it is needed (in the cups). Foil heaters are inserted in each cup and in the cup wheel hub. For easy maintenance the cup assembly is removable, with a 2-pin connector for heating electricity.

The transmission of heating power to this anemometer's rotor is contactless, with no slip rings or brushes. This feature completely eliminates sparks and excessive friction or wear. Power to the heaters is supplied via a rotary transformer, with 26 kHz low-EMI sine wave. An intelligent heating control circuitry is included, with integral sensors for both ambient and internal temperature. Therefore, there is no need for a separate temperature sensor in the system.

Power consumption, typically 72 W, is very low considering the heating efficiency and the protection against freezing provided. Approximately 50 W of the power is on the cup wheel, 12 W on the shaft and bearings, and 10 W on the body. Hence also the sensor body is kept free of ice, which is important for maintaining the gauge's aerodynamic performance.

A single 24 VDC (3.5 A) power supply is able to feed the whole device, including the transducer. The Anemometer Vaisalar WAA252 can even deliver an isolated 12 V excitation to a separate wind transmitter, if needed. Thus one power supply is enough for the whole sensor system.

TECHNICAL DATA

CHARACTERISTIC	DESCRIPTION / VALUE
Measuring range	0.4...75 m/s
Starting threshold	<0.5 m/s
Distance constant	2.7 m
Transducer output (for wind speeds 0...75 m/s)	0...750 Hz square wave
Characteristic transfer function (R=o/p pulse rate, Uf=wind speed)	U_f=0.24+0.0979*R
Accuracy (within 0.4...60 m/s) with characteristic transfer function with transfer function U_f=0.1*R	±0.17 m/s –0.3/+1.0 m/s
Input power	24 VDC ±10 %, 3.2 A maximum
Typical power consumption (U_{in}=24 VDC)	72 W <+2 °C (heating on) 1 W >+6 °C (heating off)
Transducer output high level (with I_{out}<+5 mA)	>11 V
Transducer output low level (with I_{out}>–5 mA)	<1.5 V
Output power for wind xmitters	13 ±1 VDC, 75 mA maximum
Operating temperature	–55...+55 °C
Storage temperature	–60...+70 °C
Housing material	AlMgSi, gray & black anodized
Cup material	PC reinforced with black glass fiber
Dimensions	264 (h) × 90 (Ø) mm, swept radius of cup wheel (91 mm)
Weight	800 g

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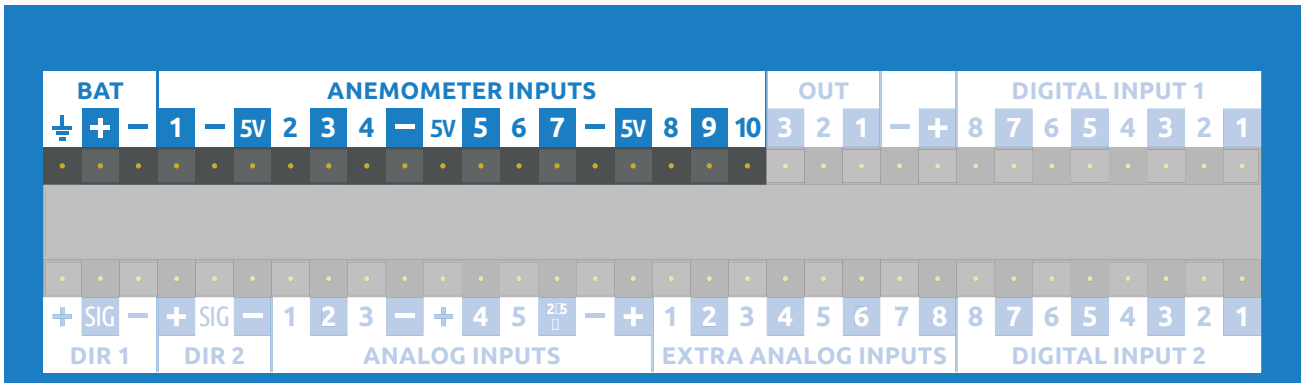
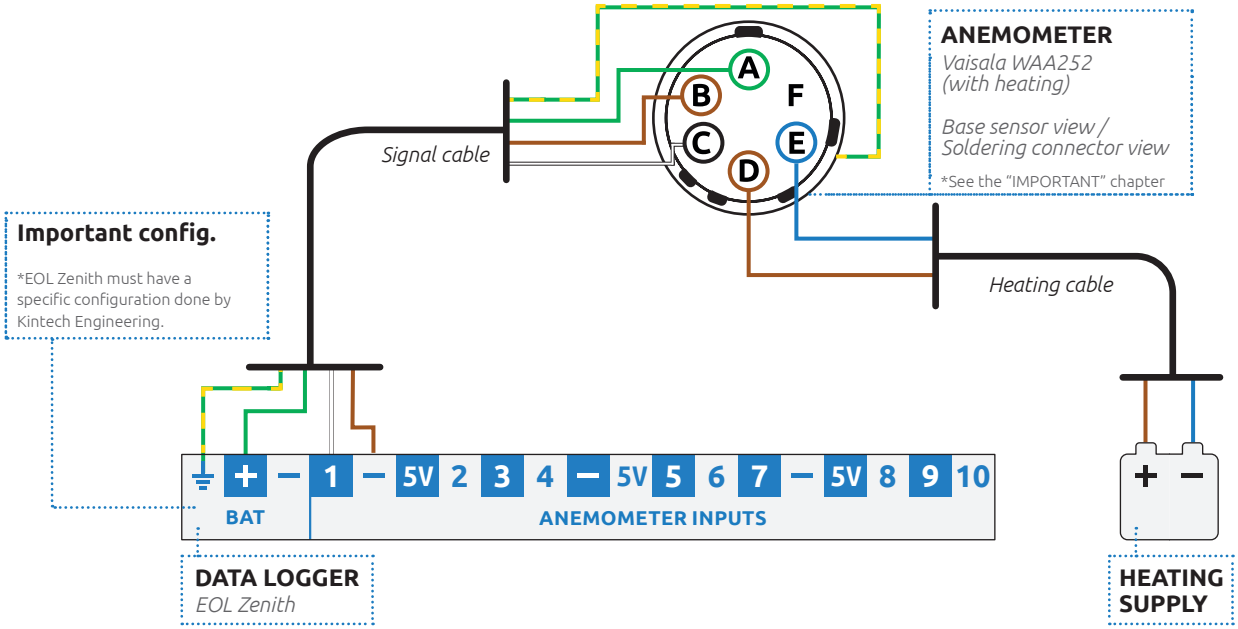
INSTRUCTIONS

Use the following input channels on the logger to connect this sensor. See highligted input channels marked here below. The wire colors used in the connection diagram below only applies in case the cable is supplied by Kintech Engineering.
For additional wiring & shielding information see the chapter "IMPORTANT" at the end of this dataheet.





SENSOR PIN DESCRIPTION			DATA LOGGER INPUT CHANNEL	
	A	Us (+)	BAT	(+)
	B	GND	Anemometer Inputs	(-)
	C	SIG	Anemometer Inputs	1
	-	Shield	BAT	GND
	D	Heating (-)	Heating Supply	(-)
	E	Heating (+)	Heating Supply	(+)
	F	**Do not connect!**		

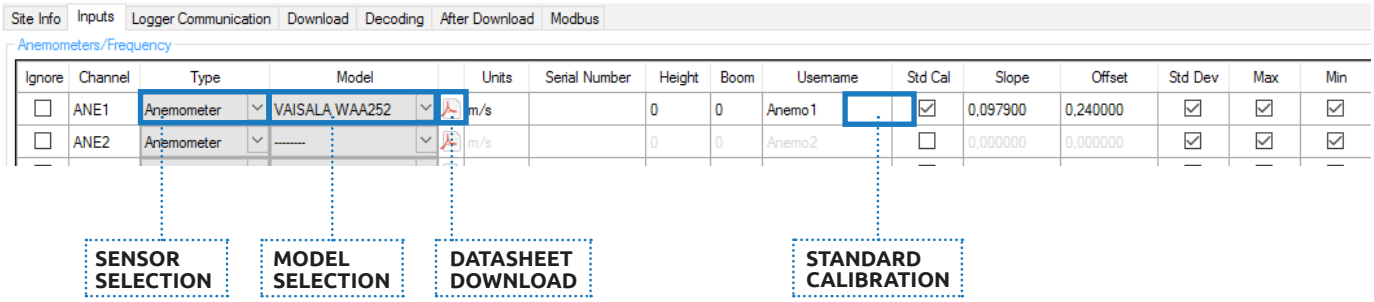
KINTECH COLOR CODES		MANUFACTURER COLOR CODES		
Green		Green		Signal cable
Brown		Brown		
White		Yellow		
Yellow-Green		Yellow-Green		
Blue		Black		Heating cable
Brown		Red		

HOW TO CONFIGURE THIS SENSOR IN EOL MANAGER

Open EOL Manager and go to the data logger you are working on. Open the "inputs" tab and select the following type and model:

- **Section**: Anemometers/Frequency
- **Type**: Anemometer
- **Model**: VAISALA WAA252

Calibration values: Tick the "Std Cal" to use this sensors standard slope and offset. If you have the Measnet calibration certificate for this sensor insert the slope and offset values from this certificate.



IMPORTANT

- After configuring the sensor in EOL Manager make sure to upload the configuration file to your EOL Zenith data logger. See the "Quick User Guide" how to upload configuration files to the data logger.
- All sensor wire shields must be connected to the data logger GND terminal.
- The data logger should always be connected to a separated ground rod. **Not** to the lightning rod of the tower.
- The three 5V power supply outputs are completely independent and not associated to any of the signal inputs. The three 5V outputs can therefore be distributed according to needs.
- To store data such as Std Dev, Max and Min you should tick the corresponding boxes next to each anemometer channel when setting up your site file. Otherwise these parameters will not be stored.
- Before connecting this anemometer to EOL Zenith data logger make sure that the internal variable resistor in the logger needs to be adjust to 2.5 V. Please, request this adjustment on order placement, since this should be done by Kintech Engineering.
- Cable recommendation (up to 150 m cable):

Sensor no heating	Signal cable 3x0.5 mm²
Sensor with heating	Signal cable 3x0.5 mm²
	Heating cable 2x4 mm²

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