WD150- Wind Direction Sensor Datasheet & Installation Guide

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WD150 Introduction

This Wind Speed direction Sensor/ Potentiometer is designed with rugged components stand up to Might Wind to light breeze. It includes sealed bearings for long life.

Working Principle

The wind direction sensor is a physical device that measures and transmits wind direction information. It works through the rotation of a wind vane arrow and transmits its measurement information to the coaxial encoder board, and at the same time outputs the relevant value of the wind direction.

Specifications

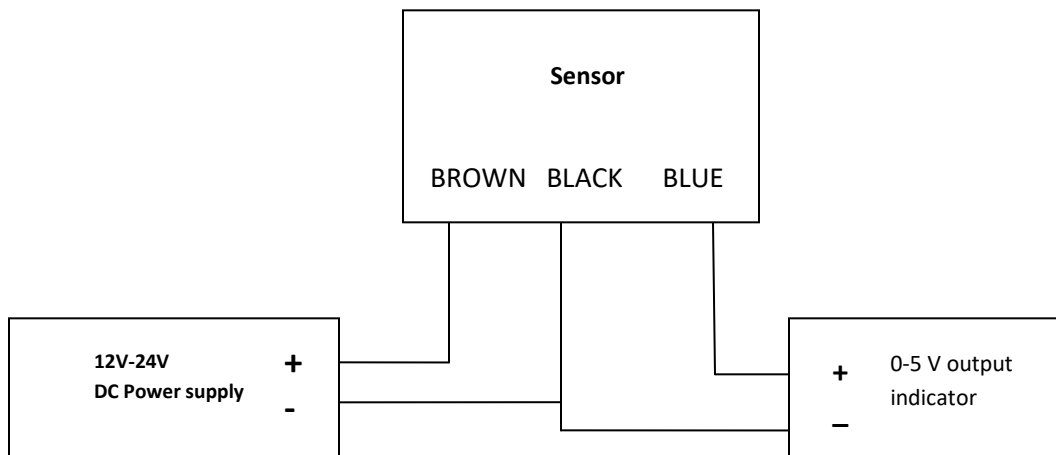|	
Sensor Type	Wind Vane Potentiometer
	Type Material Control Head UV-resistant ABS
MAKE	Sivara
Wind Vane	Polycarbonate Range 0 to 360 deg
Potentiometer Range	20 kΩ Accuracy ± 3% in standard conditions

Output (either of one)

1) Pulse output (Default) –
2) Current Output - 4-20 mA
3) Voltage Output -   0-5 Volts
4) Rs485 - MODBUS output   - (Optional, Need Additional Converter)

Operating Temperature   - 40 ~ 75 ° C
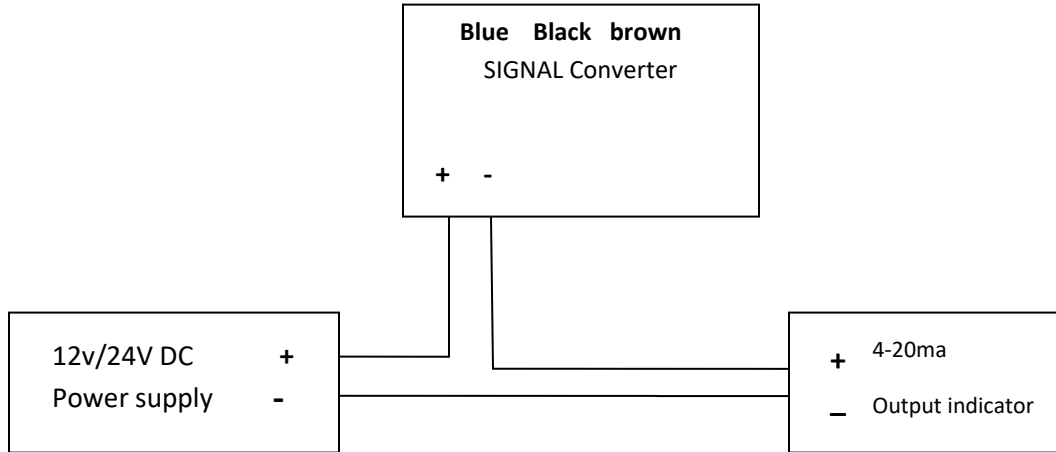
Wiring Diagram

Colour Code: Brown:Supply12V DC   Black: Gnd   Blue: output

I/O Specifications for 0-5 V Sensor Output

I/O Specifications for 4-20 mA Output

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                    ┌─────────────────────────┐
                    │  Blue   Black   brown    │
                    │     SIGNAL Converter     │
                    │                          │
                    │      +   -               │
                    └──────┬───┬───────────────┘
                           │   │
┌──────────────────────┐   │   │   ┌──────────────────────┐
│ 12v/24V DC      +     ├───┘   └───┤  +   4-20ma          │
│ Power supply    -     ├───────────┤  _   Output indicator│
└──────────────────────┘           └──────────────────────┘
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INSTALLATION

The wind direction sensor comes in below different parts for assembly.

1) Sensor body,
2) VANE
3) "L" angle with U clamp to mount the sensor body
4) Allen key to mount the vane on the sensor body.

Tools and Materials Needed
Please make sure you have all the necessary material as mentioned below: -
Wire cutters , Pliers and   stripper - Multi meter - Screwdriver
 Electrical tapes and cable ties for wiring

Mounting

The sensor is to be mounted by using the holes in the bottom mounting plates.
And mounting this on any flat LEVEL surface.

Caution:

To prevent damaging the wind vanes, properly mount the sensor/bracket combination on the mast before fitting the wind vane-unit whenever possible.
In areas where icing of vanes is a problem, drip rings deflect water from the joint between moving parts.
Do not try to lubricate the force bearings and Do not Open the sensor bottom. This can permanently damage the sensor
*Wind direction must be calibrated to true North. A compass or GPS is required to calibrate the wind direction*

Orientation: The Sensor should be mounted with its axis as close to vertical as possible to provide for the best measurement of horizontal wind movement and where there is no obstruction for the wind movement.

Steps for Mounting:

1. With the supplied U-bolt, the L angle is to be mounted on a pole or rod , where there is wind flow by placing the two ends of the U-bolt around the pole and through the two holes in the C-shaped bracket on the base.

2. Gently Mount the vane , which has to be leveled in unobstructed air on the north side (in the northern hemisphere) of your PV array and slide it down the stainless steel shaft in sensor body and tighten it using the Allen key provided (DO NOT PUT EXCESS PRESSURE AS THIS CAN DAMAGE THE SENSOR PERMANENTLY)
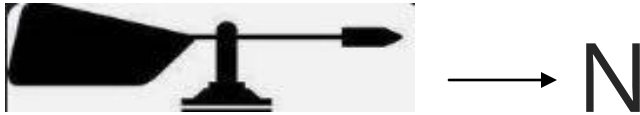
3. Check for the free Spinning of the wind vane. If they do not spin freely, loosen the set screw, then retighten the set screw, repeat the process until the wind vane spin freely

4. After confirming that the sensor is properly oriented, tighten the nuts with a wrench.

Calibration and Reading

SITE Testing: Spinning the wind vane assembly will produce an output. To verify sensor output, monitor this signal with either a data logger or a Multimeter.

In case of Modbus Output, Sensor is pre calibrated and Gives default output.

In case of Analog Output -

Sensor with output Type 0-5V - when pointed towards North reading should be 0 V output reading on a multimeter.

 Reading 0 - 5 VDC (0 to 360 deg)

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 Sensor with output Type 4-20ma - - when pointed towards North reading should be 4 mA output reading on a multimeter.

. **Reading**   4-20mA (0 to 360 deg)

NOTE

There will be some variation in the real vs. expected values as This sensor is a low-cost sensor and does not fall under any class. it's a alternative to the Class 2 sensors of the same type. In case of very accurate data for analytics , its recommended to use Class 1/Class 2 sensor. Warranty of this sensor is as per the terms and conditions of original manufacturer.