

Wind speed activated relay

Instruction manual

Version 1 - 25-8-2021



1 Technical specifications

Input voltage	9 Vdc to 24 Vdc
Power consumption	<0.5 W @12 V , 2 W with active outputs.
Cup anemometer output type	With reed contact, or NPN (switch to ground), or line drive (0 to 50V).
Maximum input frequency	500 Hz
Nominal output current	5 A (10A for short time)

2 Product description

This circuit read the frequency of the pulses coming from a cup anemometer with pulse output (reed contact), converts it into your preferred measurement unit (m/s, km/h, mph, knots....) and shows it on the display. The relay K1 is activated when the 10 minute average wind speed exceeds threshold “VmaxAvg”, or when the 4 seconds average wind speed exceed “VmaxGust”.

The relay K1 is deactivated when the 10 minute average wind speed falls below “VminAvg”, if the timer has counted to the “minimum activation time”. K2 is activated with 5s delay.

3 Wiring

Follow the silk screen above the terminal blocks.

4 How to change the configuration

The configuration menu is pretty simple.

At the page zero (P0) the display shows the wind speed.

With the up/down buttons you browse through the parameters (P1, P2 P3...). Refer to the table in chapter 6 to understand their meaning.

To enter the “edit mode” of a parameter, press Enter.

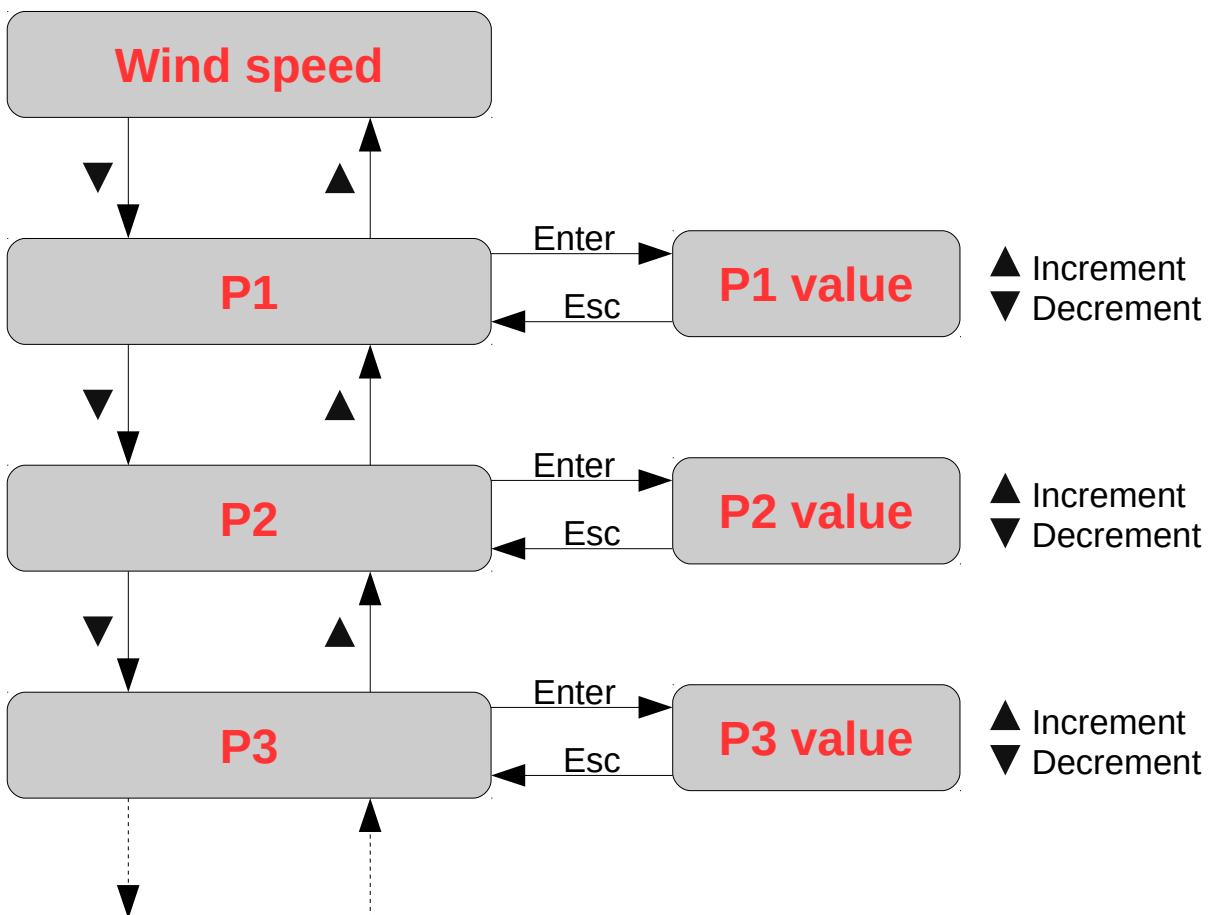
Use **Up/Down** to increment/decrement the value of a parameter (hold pressed for fast auto increment/decrement).

Press **Esc** to go back to the list of parameters.

To go back to the homepage (display showing the wind speed) press Up several times.

The settings are saved in the EEPROM when you go back to the homepage.

5 Menu structure



6 Configuration parameters table

Param.	Description	Default	Meaning
	Home page (wind speed display)		Homepage showing the wind speed in the units you have chosen.
P1	Vmax	10 m/s	If the average (10 minutes) wind speed exceed this value the relay K1 goes On.
P2	VmaxGust	16 m/s	If the instantaneous (4s average) wind speed exceed this value, the relay K1 goes On.
P3	Vmin	6.5 m/s	If the average wind speed is below this and the Timer has elapsed, the relay K1 goes Off.
P4	Minimum alarm time	30 minutes	This is the minimum amount of time the relay must stay On after the wind speed exceeds the threshold P1 or P2. Timer starts when the relay K1 goes On.
P5	Calibration speed	6.7 m/s	Set this two parameters to match the characteristic of your cup anemometer.
P6	Calibration frequency	10 Hz	
P7*	Wind vane offset	0	Degrees
P8*	Modbus address	4	
P9*	Modbus speed		0 – 9600 bps 1 – 19200 bps 2 – 57600 bps
P10*	K2 relay behaviour		0 - not used 1 - delayed with respect to K1 2 – wind speed relay (with P9, P9, P10, P11 values).
P11*			
P12*			

*=not implemented.

7 Anemometer calibration (P5/P6)



The electronic card will measure the frequency of the pulses in Hz. It will then apply the following equation to determine the wind speed in engineering units.

$$U = f \cdot \frac{P_5}{P_6} \quad (1)$$

You need to set the P5 and P6 values appropriately for your model of cup anemometer and the unit of measurement that you want to use for display and thresholds.

P5 is always in Hz.

P6 is in the corresponding wind speed, in the **measurement unit** that you want to use for the display and the thresholds.

				Different anemometer
P6	10 Hz	P6	21 Hz	Refer to the data-sheet to know the relation between frequency and wind speed.
P5	6.7 m/s	P5	5.7 m/s	
	24.0 km/h		20.6 km/h	
	14.9 miles/hour		12.8 miles/hour	
	13 knots		11.1 knots	

If you want to read Hz on the display, use P5=1 and P6=1. If you want to read RPM use P5=60, P6= the number of pulses in one rotation.

8 Technical support

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