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PANEL MOUNT PWM SIGNAL GENERATOR

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0.0 Safety Statement

All machinery, especially CNC machinery, has inherent dangers and risks. It is the responsibility of the system designer to ensure that any systems built using any Viking Machinery Ltd. products are safe for use. Any technical information is provided as a reference only, and does not constitute a recommendation as to the fitness of use in any particular application.

Viking Machinery Ltd. strongly urges customers to seek expert advice when dealing with potentially dangerous electrical voltages and sources of mechanical energy. Information contained in this document does not constitute a substitute for expert advice.

1.0 Product Overview

- Adjustable PWM signal generator
- Board supply voltage: 5-24V DC
- Maximum output current: 30mA
- Mounting cut out size: 39 x 71.5mm
- Physical Size: 79mm wide x 43mm Tall x 41mm Deep
- Duty cycle range: 0%-100%
- Duty cycle accuracy: +/- 2%
- Frequency range: 1Hz – 150kHz (Coarse Mode) 1Hz – 15kHz (Precise Mode)
- Frequency accuracy: +/- 2% (0.2% in Precise Mode)
- Output voltage: Same as input voltage

2.0 Scope of Document

This document is designed to give an overview of the wiring and control options for the adjustable PWM signal generator.

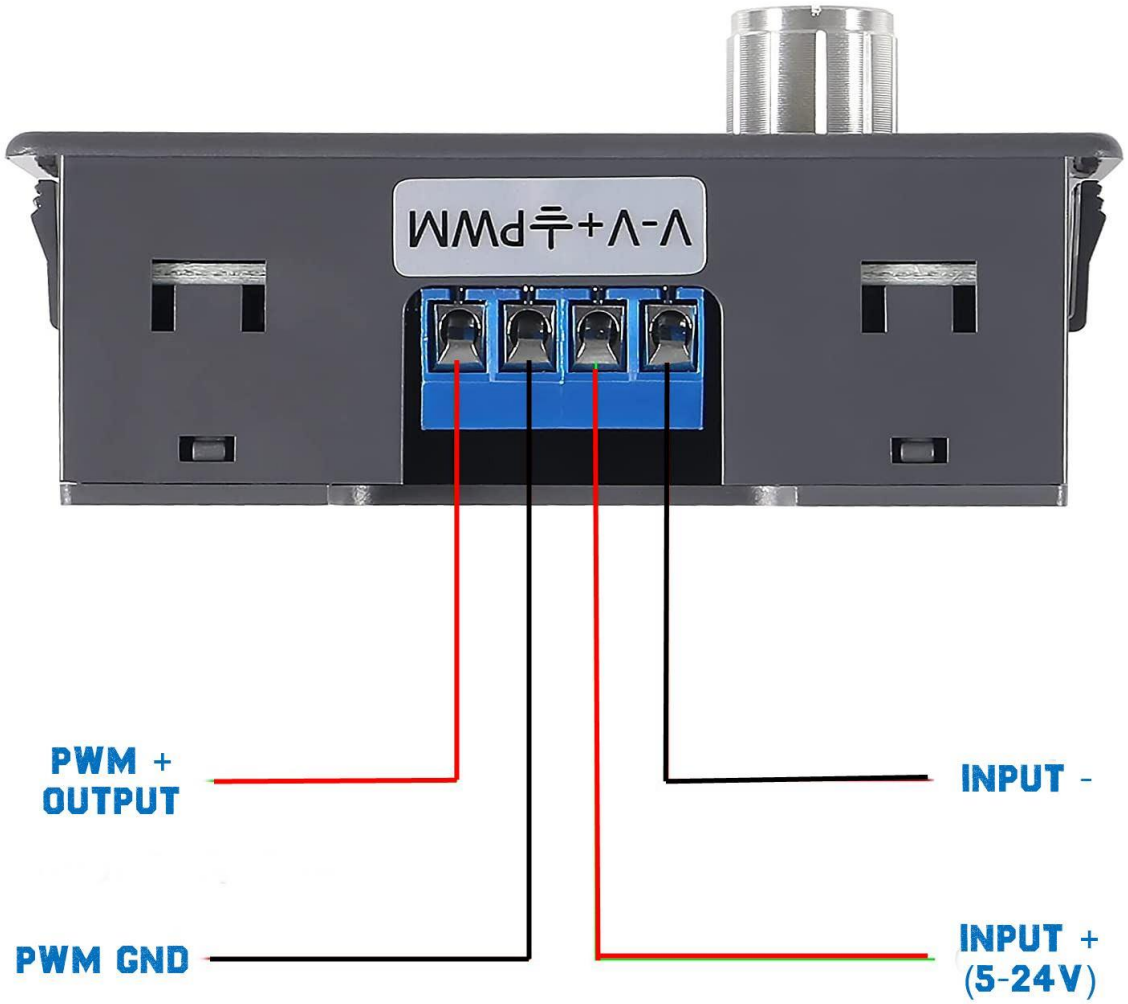
This manual assumes that the user has a basic understanding of electronics, and is confident working with electronics devices that require programming.

The documentation here covers the standard uses of the device.

3.0 Conenctions

For standard operation, the connections shown below are all that is required.

Please ensure proper polarity of the power supply! Incorrect connection will damaged the board. The correct polarity is marked on the back of the internal PCB to assist with this. (Some units come with an external sticker as well).



4.0 Control Panel Overview

The front panel of the unit houses the standard operating controls for the device. These controls are also used to program the device.

The interface options for normal operation are;

ON/OFF – Turns the output signal on or off

Adjustment Knob – Used to adjust parameters

Frequency Display – Shows the set frequency setting

Duty Cycle Display – Shows the set duty cycle setting

5.0 Operating Modes

This controller supports 2 modes of operation – fine & coarse. To change between modes, long press the encoder knob (approximately 10 seconds). Note – you will not see any indicator that the mode has changed! You will only see this when you adjust the frequency.

Pay attention to the decimal point position – this is how the unit communicates the mode.

These operating modes are;

Coarse Mode

Allows adjustment between 1Hz and 150kHz with an approximate accuracy of +/- 2%.

In coarse mode, the maximum frequency is 150kHZ

Fine Mode

Allows adjustment between 1Hz and 15kHz with an approximate accuracy of +/- 0.2%.

In coarse mode, the maximum frequency is 15kHZ. To go above this, you will need to change into coarse mode.

6.0 Programming

Programming the unit is reasonably simple, but the selection between fine & coarse can be a little confusing.

The settings are accessed and changed via the rotary knob. Clicks of various durations are used to change between the functions, and rotation of the knob changes the values.

NOTE: When the device is outputting, the unit will display “OUT” next to the frequency setting.

Lock / Unlock

A press of approximately 5 seconds will lock or unlock the parameters, preventing accidental alteration of the set data. When going into the lock mode the module will pass through the duty cycle adjustment screen. Don’t worry about this, keep holding the knob in!

When you are locked, you will see two pointers in front of the numbers. When unlocked, there will be no pointers.

Frequncy & Duty Cycle Adjustment

When the unit is unlocked, rotate the knob. This will immediately start adjusting the duty cycle. You will see the pointer in front of the duty cycle field and it will be flashing. Turing the knob clockwise will increase the duty cycle, and counter clockwise will decrease the duty cycle. When you are happy with your setting, do not press any buttons or turn the knob and after a few seconds the pointer will disappear and you will be returned to run mode.

To adjust the frequency, first enter the duty cycle adjustment mode, and then short click the knob. The pointer will move up to the frequency adjustment field. Again, turning the knob clockwise will increase the value, and counter clockwise will decrease it. Remember – the upper limit will be limited to by the fine / coarse mode selection.

When the unit is in adjustment mode, the screen will show “SET”.

Duty Cycle Limit Adjustment

To adjust the duty lower upper limit, press the knob for approximately 2 seconds until the unit displays “dn”. Use the potentiometer to change this value.

To change the duty cycle upper limit, from the lower limit screen short click the knob once more and it will toggle to “UP”. You can adjust the upper limit to the duty cycle here.

Short clicking the knob will allow you to keep toggling between these settings.

When you are happy with your settings, stop touching the controls and after a few seconds the unit will return to the home screen.

Duty Cycle Limit Adjustment

To adjust the duty lower upper limit, press the knob for approximately 2 seconds until the unit displays “dn”. Use the potentiometer to change this value.

On/Off mode adjustment

The ON/OFF button is used to turn the output on & off. A short press will enter the on/off screen, and the display will show the state. Long pressing the button will return to the main screen.

NOTE: This doesn’t power off the unit, it just turns the output on or off.

The unit will remember the current state at start up after the supply power is turned off and back on.

Frequency Display

The range of the frequency setting is shown by the decimal points. These correspond to;

No points (e.g. 100) shows the display is in Hz at a 1:1 scale
One decimal point(e.g. 99.9) shows the unit is in kHz, up to a maximum of 99.9kHz
Two decimal points (e.g. 1.5.0) shows that the unit is in kHz, between 100kHZ & 150kHz

7.0 Reference Links

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