

**INSTRUCTION MANUAL**

(translation of the original instructions)



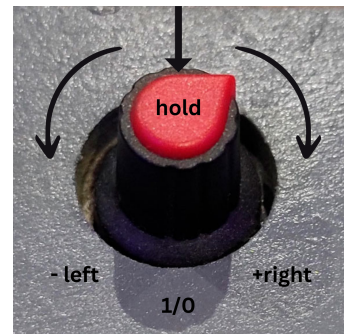
**SAFETY WARNINGS AND SAFETY INSTRUCTIONS**

- Work in a ventilated area.
- Install smoke and carbon monoxide sensors.
- Learn the basics of working with the materials that you recycle.

**OPERATING INSTRUCTIONS**

The controller is controlled by rotating the encoder.

	Action →	→ Result
1	Long press and hold on the encoder button for 3-5 seconds	Transition to the settings and back from the settings to the main screen
	Hold	Enter / exit settings
2	Carried out by pressing and holding the encoder button and turning left and right (hold + turn)	Transition between the parameters in the settings
3	Rotation left / right (rotation)	Changing the parameters of the menu item



The sensor signal trim knob setting is used to adjust the brightness of the laser relative to the brightness of the environment. Before starting, set the signal (raw sensor data) between (1010-900).



**MENU OPTIONS**



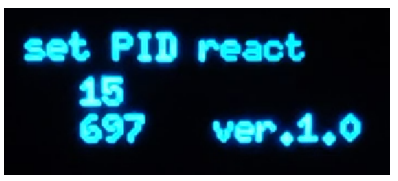
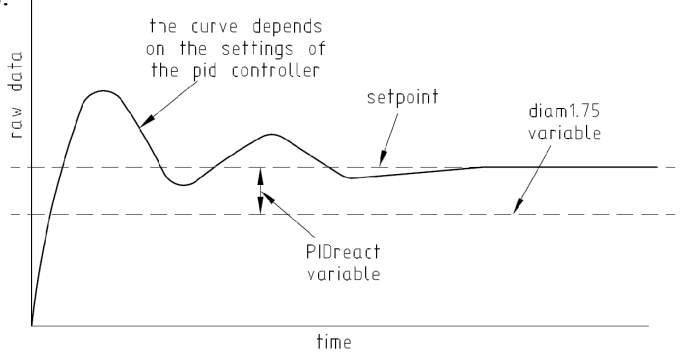


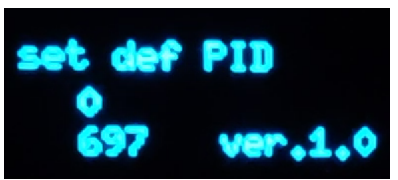
Consists of a graph and three values. The upper value is the PID speed, the middle value is the set speed, the lower value is the raw sensor data.

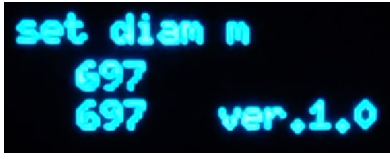
Increase and decrease **the set speed** variable by turning the encoder from ‘Main screen’ clockwise +, counterclockwise -.

By pressing and **holding** the encoder button, you go to the settings.

**SETTINGS**

1		Set P variable (default 8)
2		set I variable (default 2)
3		set D variable (default 0)

<p>4</p>		<p>Set the signal change response parameter (PID React) (default 20). With larger values, it will do less slowdowns during sensor signal drawdowns.</p> 
<p>5</p>		<p>Set the calibration to the diameter (set to diameter 1.75). This function calibrates to a given diameter when installed and when set to 1, the raw sensor data is read and equated to the diameter of the measured bar and automatically the controller thinks that at the moment there is a bar 1, 75. This is affected by the type of filament: white, transparent, gray - they all show through the color of the laser differently, so the data may vary.</p> <p>→<b>When starting work</b>, first of all, perform a <b>calibration</b>. By first placing the desired filament diameter inside the sensor and switching from 0 to 1 and back (maybe it will take about 3 times) until the average value is registered and the diameter display shows 1750.</p> 
<p>6</p>		<p>Set the PID controller default values. When set to 1, all settings will be reset to default parameters (P-15, I-5, D-1, React-20). If this parameter is set to 1, then manual change will not be possible. Reset them back to 0.</p>

7		SET diam M - manual setting of the diameter. Usually it is not used, it is the same function. as set diam 1.75, but any number that is set, it will be equated to 1.75, but manually.
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## TROUBLESHOOTING

For a more accurate diameter reading, try to position the controller probe as close to the extruder as possible. This will reduce the response time to a diameter change.

## SPECIFICATIONS

1. Size 26 cm x 20cm x 5 cm
2. Power 12W 1A