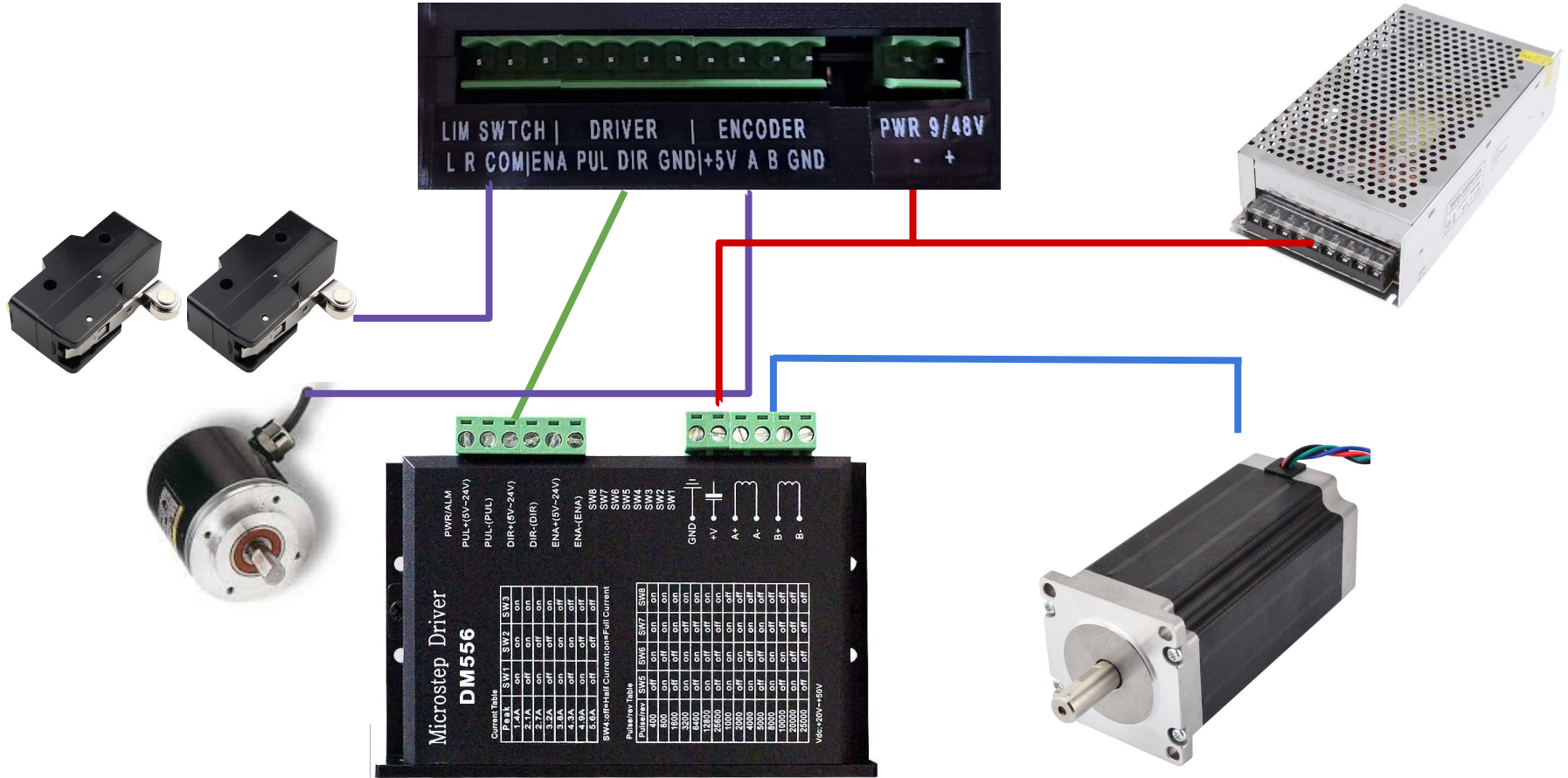


electronicleadscrew.eu



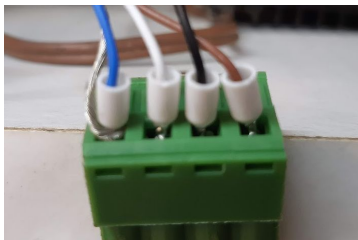
Wiring



Wiring details

The encoder

It is very important to connect the shield with the ground, or you could lose precision at high speed



The limit switches

They are simple contact switches. One for left, on the spindle side, one for the right on the tailstock side. When the switches are triggered, it either stop the lead screw or make it turn on the other way.



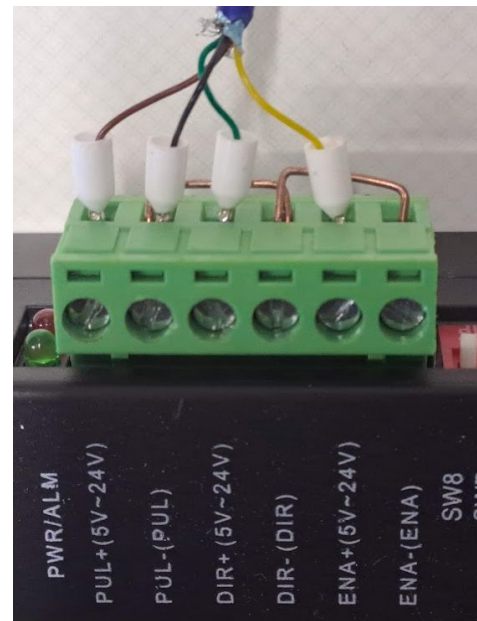
L COM



R COM

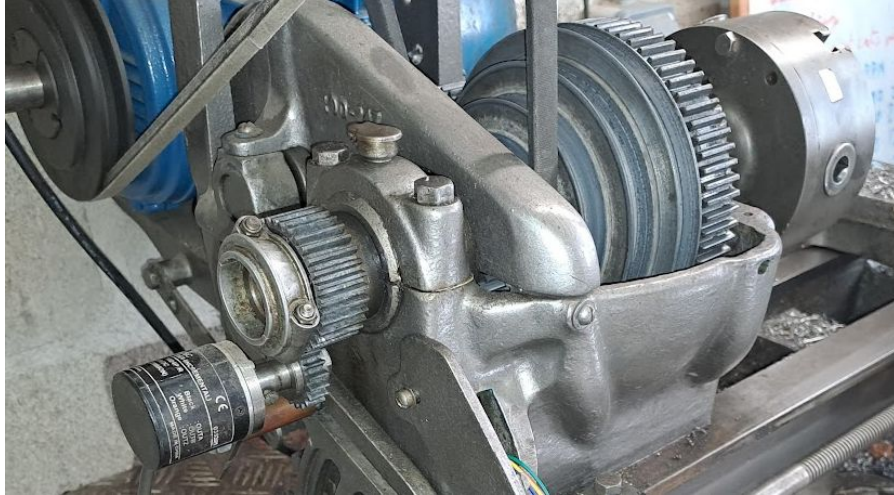
The driver

The ground must be bridged on the driver side



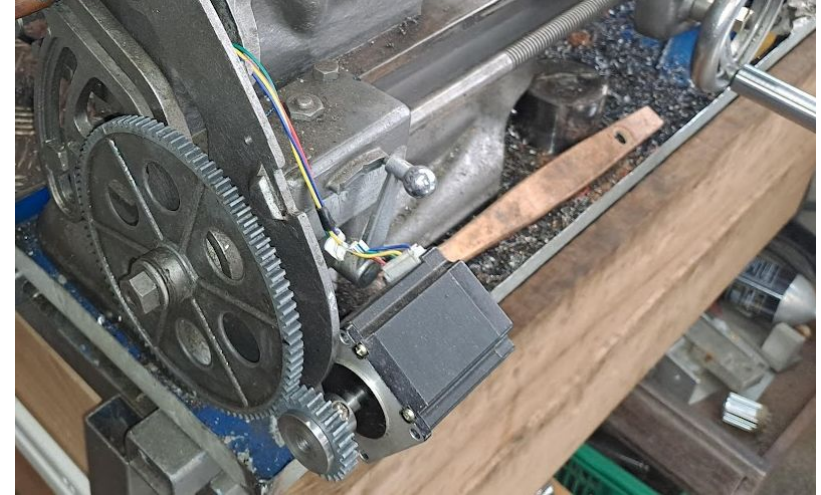
Installation on the lathe

The encoder



The encoder is linked to the shaft with gears or pulleys and belt. Any size of gear is possible but it is better to have a ratio closed to 1.

The stepper motor

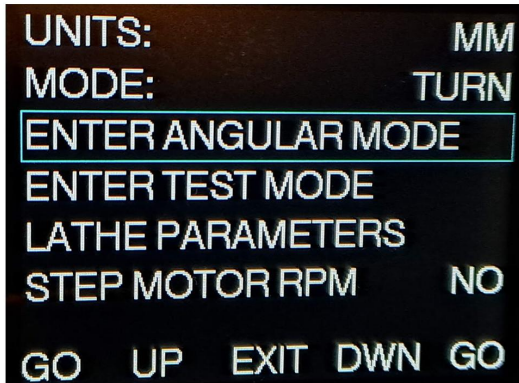


The stepper motor is linked to the lead screw with gears or pulleys and belt. Any ratio can be used but $\frac{1}{3}$ or $\frac{1}{2}$ is a good balance between speed and torque.

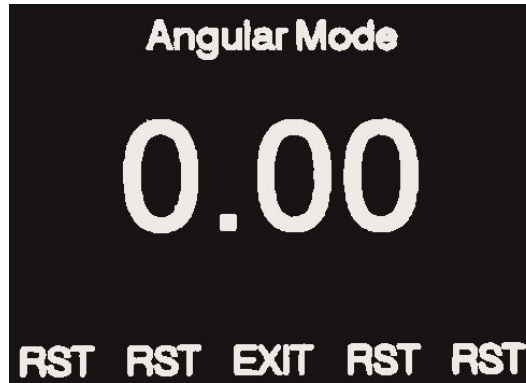
Checking the parameters

The first time you start the ELS, you need to enter all the parameters, check the section “Lathe Parameters” at the end of this document. You just need to do this once. Then you can easily check that everything is ok in 2 steps.

Step 1, check the encoder: MENU->ENTER ANGULAR MODE



UNITS: MM
MODE: TURN
ENTER ANGULAR MODE
ENTER TEST MODE
LATHE PARAMETERS
STEP MOTOR RPM NO
GO UP EXIT DWN GO



Angular Mode
0.00
RST RST EXIT RST RST

Manually move your chuck for 1 turn. The angle should be 360°.
If not, check:

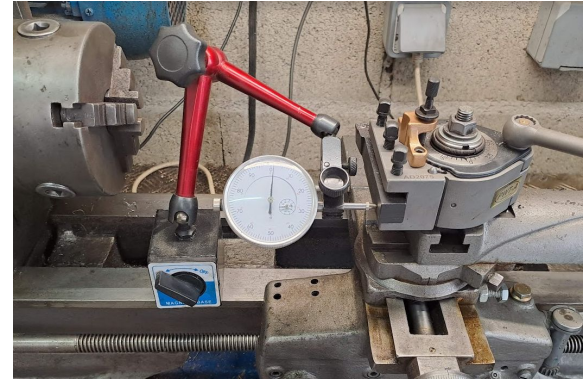
- chuck teeth
- encoder teeth
- encoder steps

Checking the parameters

Step 2, check the motor: MENU->ENTER TEST MODE

```
UNITS:          MM
MODE:          TURN
ENTER ANGULAR MODE
ENTER TEST MODE
LATHE PARAMETERS
STEP MOTOR RPM  NO
GO  UP  EXIT  DWN  GO
```

```
Test Mode
10 MM
< EXIT >
```

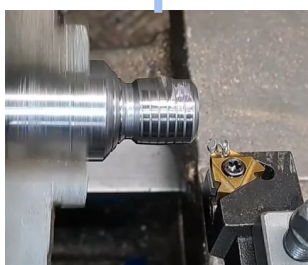
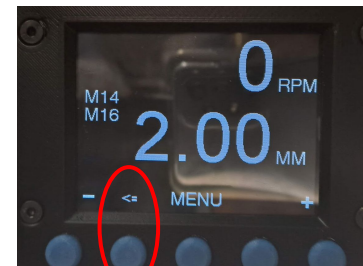
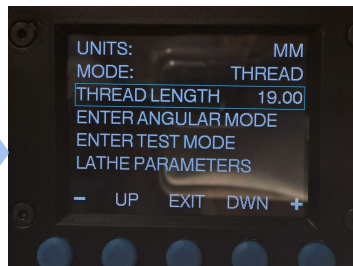


Install a dial indicator, then press on the left or on the right and check the displacement is exactly 10mm or 1" if you use imperial. If not, check:

- motor teeth
- lead screw teeth
- lead screw type
- lead screw step
- driver pul/rev

Automatic threading

Since version 4 of the ELS, it comes with a new feature that makes thread turning very easy and fast. You do not need to stop your motor or use the thread dial indicator. Just adjust the depth of cut at each pass and press the button, it is as easy as this.



7. Increase your depth of cut and repeat from step 4.

6. Press the blinking right button

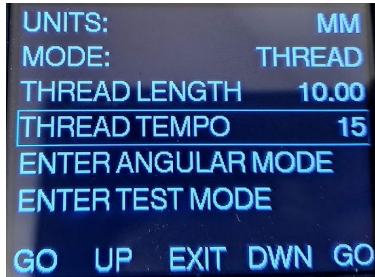
5. When the cut is done, put the tool backward

4. Press the blinking left button

Automatic threading temporisation

Since the version 5 of the ELS, you can activate a temporisation when using automatic threading. In that case, except for the first pass for security reason, you do not need to press the buttons. You just need to wait until the counter drops to 0. You need to enter enough time to be able to adjust the cutting depth.

WARNING: You can easily destroy your work or your tool with this mode, use it very carefully.



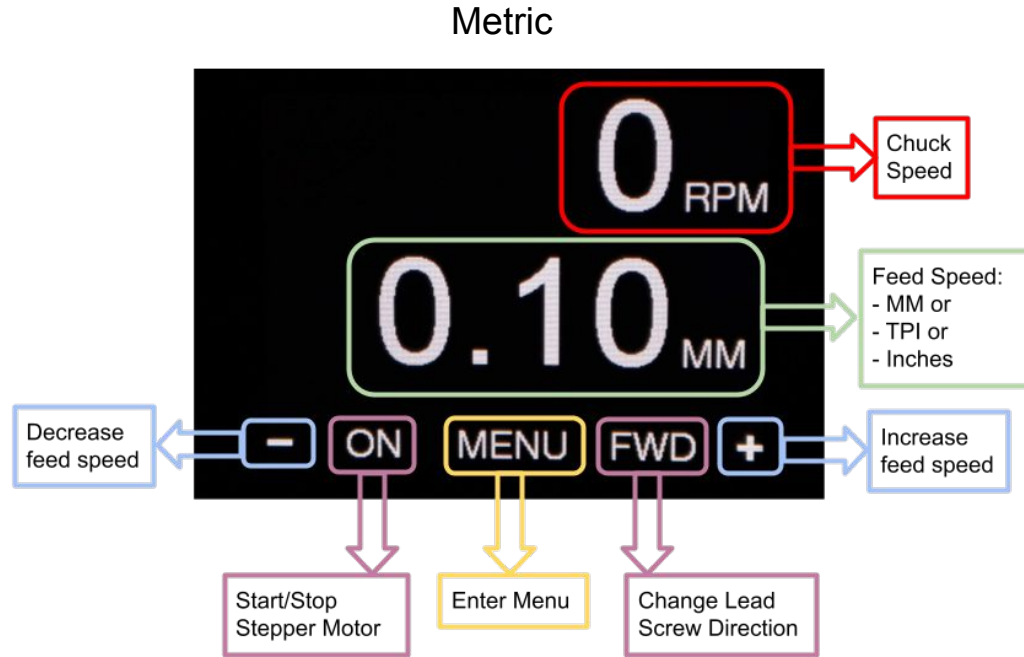
1. Set up the temporisation time, in seconds

2. For the first time, you still need to press the button.

3. At the end of the cut, the temporisation will start. At the end of the counter, the motor will go back to the initial position or make the next cut.

Menu Description

Main Screen, turning mode



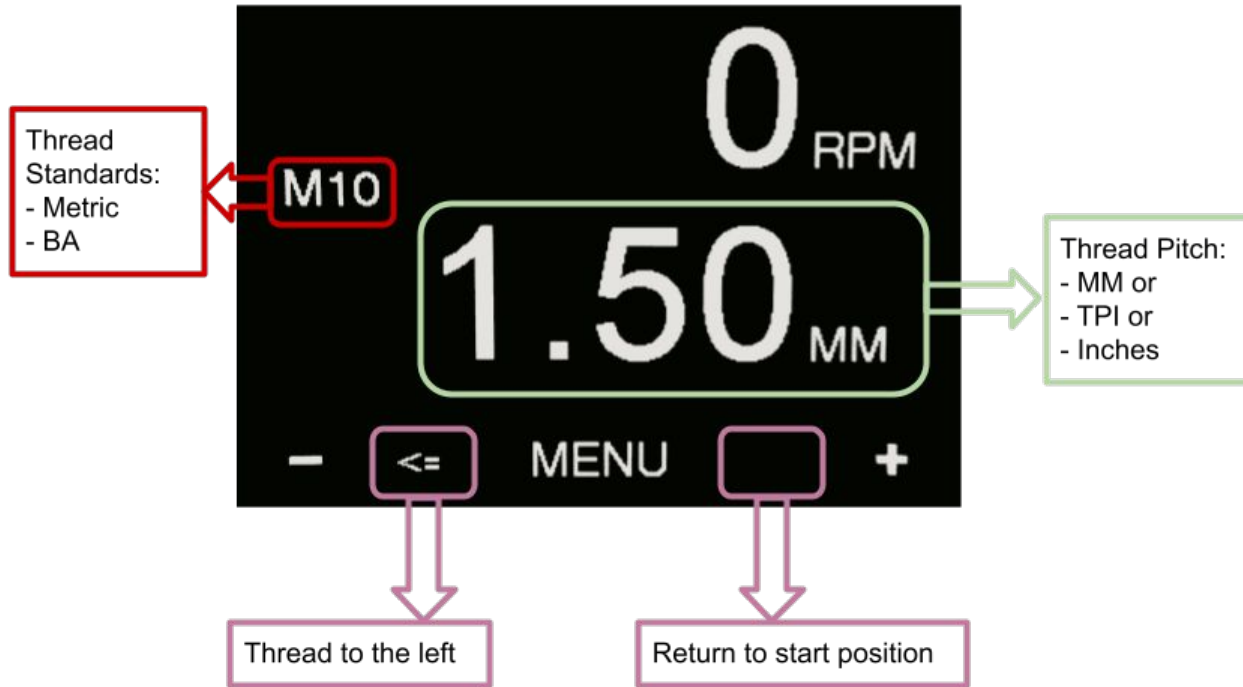
Inches



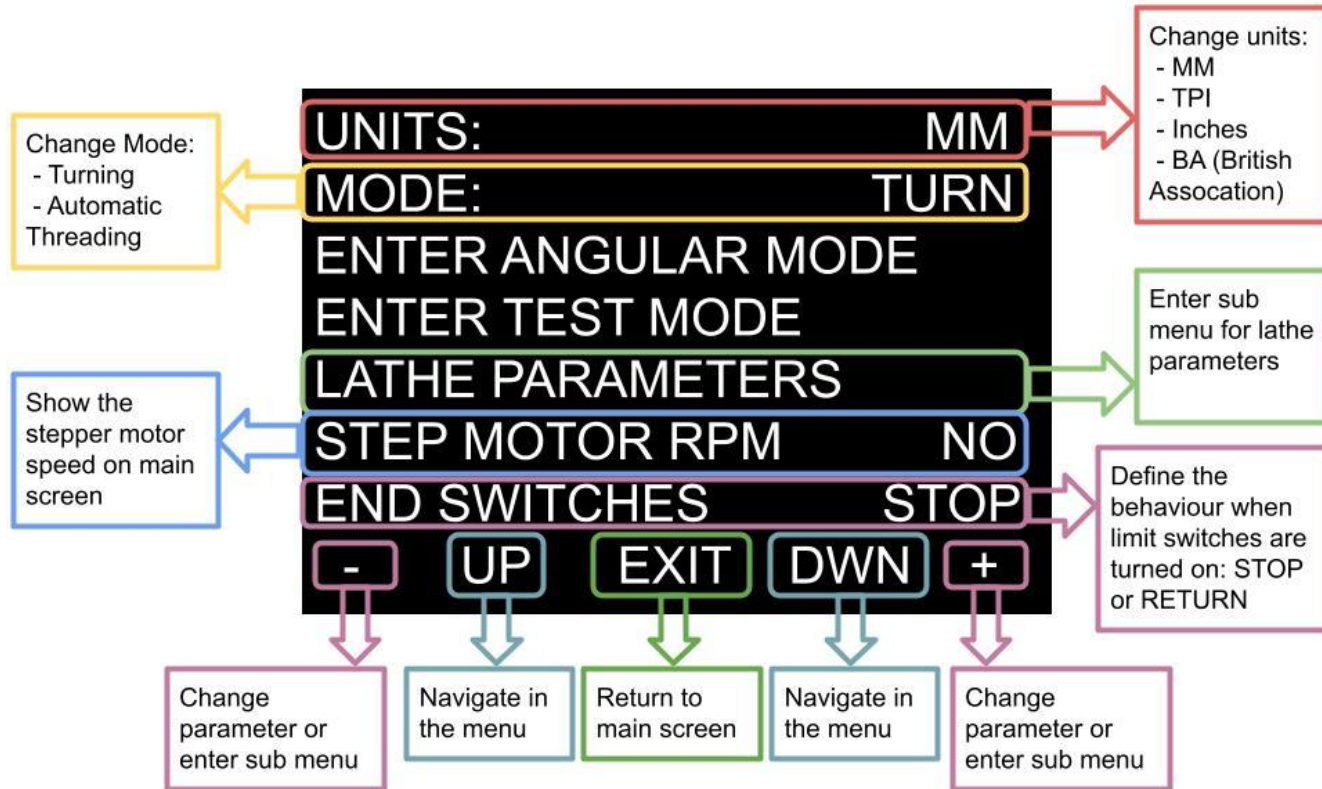
TPI



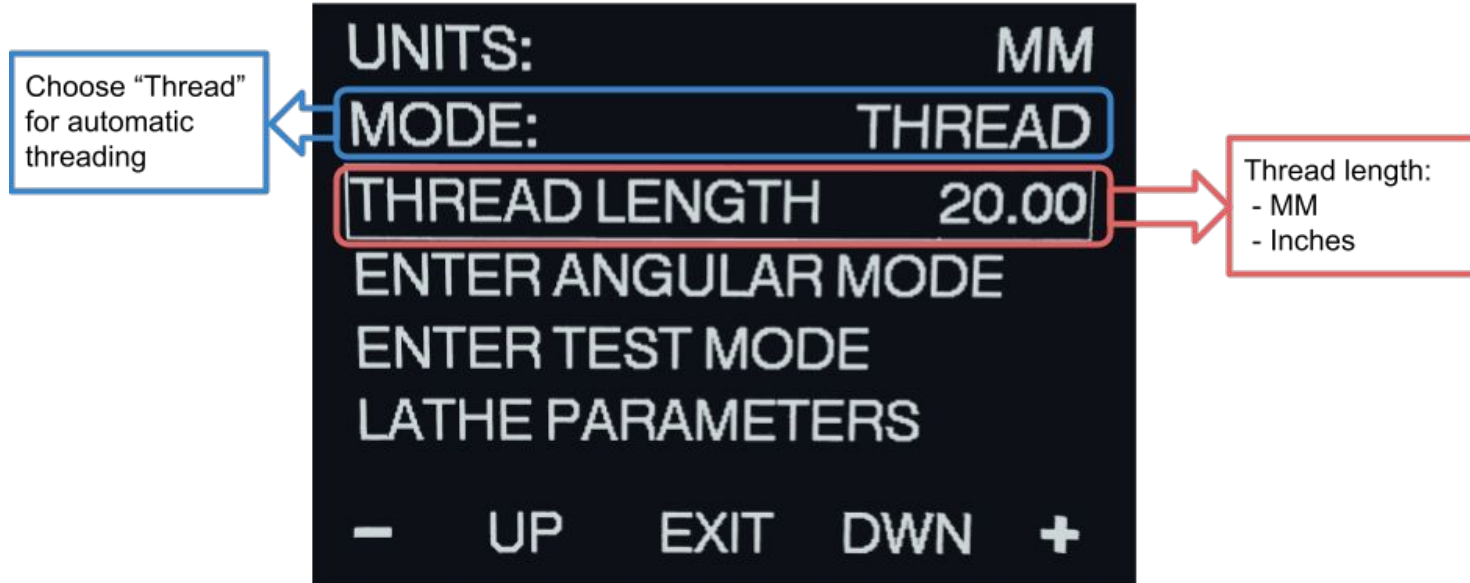
Main Screen, automatic threading



Menu



Menu automatic threading



Lathe Parameters



Number of
teeth on the
gear or pulley
connected to
the shaft

INVERT DIRECTION: YES

Change
default lead
screw direction

CHUCK TEETH: 8

ENCODER TEETH: 5

Number of
teeth on the
gear or pulley
on the encoder

MOTOR TEETH: 28

LEADSCREW TEETH: 30

LEADSCREW TEETH: TPI

- UP EXIT DWN +



Lathe Parameters



Number of
teeth on the
gear or pulley
connected to
the lead screw

INVERT DIRECTION:	YES
CHUCK TEETH:	8
ENCODER TEETH:	5
MOTOR TEETH:	28
LEADSCREW TEETH:	30
LEADSCREW TEETH:	TPI
-	UP
EXIT	DWN
+	

Number of
teeth on the
gear or pulley
on the stepper
motor



Lathe Parameters



Step size of the
lead screw in
TPI or MM

Driver Microstep
Pulse/Rev:
400,800,1000,1600,
2000,3200,4000,
5000,6400*,8000

LEAD SCREW TYPE: TPI
LEAD SCREW STEP: 8
ENCODER STEPS: 1024
DRIVER PUL/REV: 6400
RESET PARAMETERS: NO
VERSION: 4.2
- UP EXIT DWN +

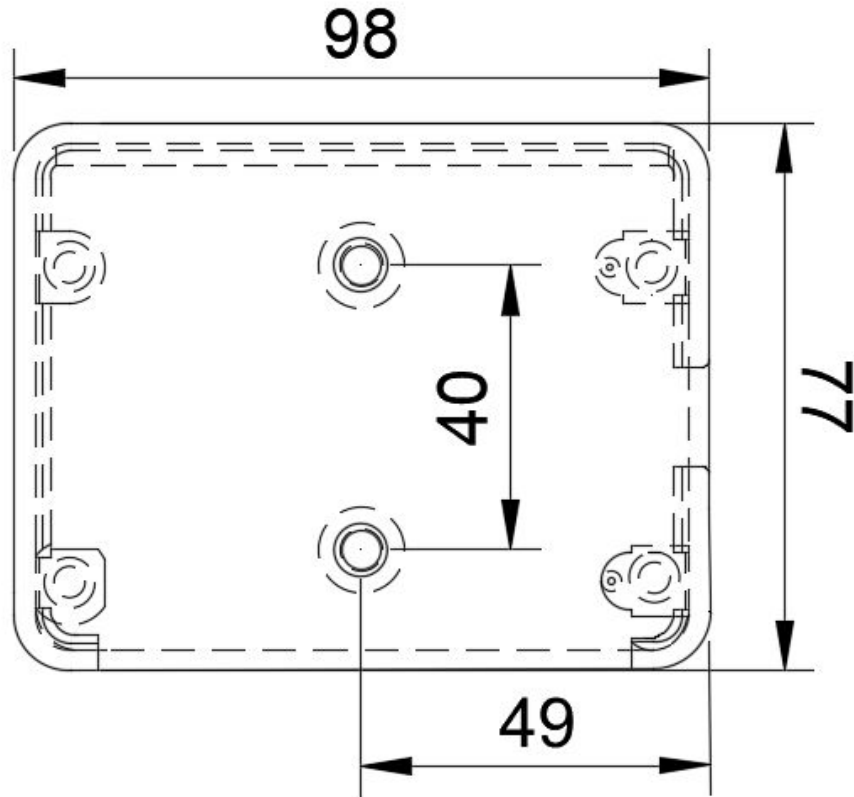
* Recommended

Type of
lead screw:
- MM
- TPI

Encoder Resolution
Pulse/Rev:
360,400,500,600*,
720,1000,1024,1200,1
250,1800,2000,2500



Fixing dimensions



Troubleshooting

1. Everything looks fine but the motor does not move, I have a 5v/24v switch on my driver

On some drivers, like the DM556T, input signals can be 5v or 24v. You need to toggle the switch to 5v.

