

Hot foil stamping controller



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THIS MANUAL CONTAINS INFORMATION FOR INSTALLING AND OPERATING THE FOLLOWING PRODUCT:

- **HOT FOIL STAMPING CONTROLLER**

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GENERAL DESCRIPTION

Hot Foil Stamper is a programmable controller intended to control the Hot Foil stamping machines.

It can control three motors with independent parameter setting for each like motor speed, acceleration; steps per mm etc are independently configurable.

SPECIFICATIONS

- Supply Voltage: (90V-220V) AC mains supply
- Max Pulse Rate: 30 KHz
- Overall Size: 162 mm x 102 mm x 76mm
- Panel Mounting: 155 mm x 92 mm
- Input: One NPN proxy sensor
- Outputs: Three terminals step pulse each for a motor
- Display: 20x4 line alphanumeric
- Ambient temperature range: 0°-55° C
- Relative humidity: 90% without condensation
- Weight: 100g

LOCATION OF COMPONENTS: Major components of the Indexing Controller



The description of these components is as following:

1. NUMERIC KEYS (0-9)

Numeric keys are used for entering the numeric values in edit mode. In jog mode, some of these serve other functions.

2. NAVIGATION KEYS PANEL (UP, DOWN, RIGHT, LEFT)

In edit and setup modes, these keys are used to navigate the cursor. Use left right navigation keys to move the cursor to each digit place. Use up-down navigation keys to move the cursor from one attribute to other in both modes mentioned above.

Pressing left and right navigation keys long results to enter in different modes. It is discussed further in manual.

3. OK & Esc

Press OK to enter in jog mode. In edit and setup mode, pressing this key saves the modified values in EEPROM. Press Esc to back out of menus/mode, and pressing repeatedly returns the control to the main menu.

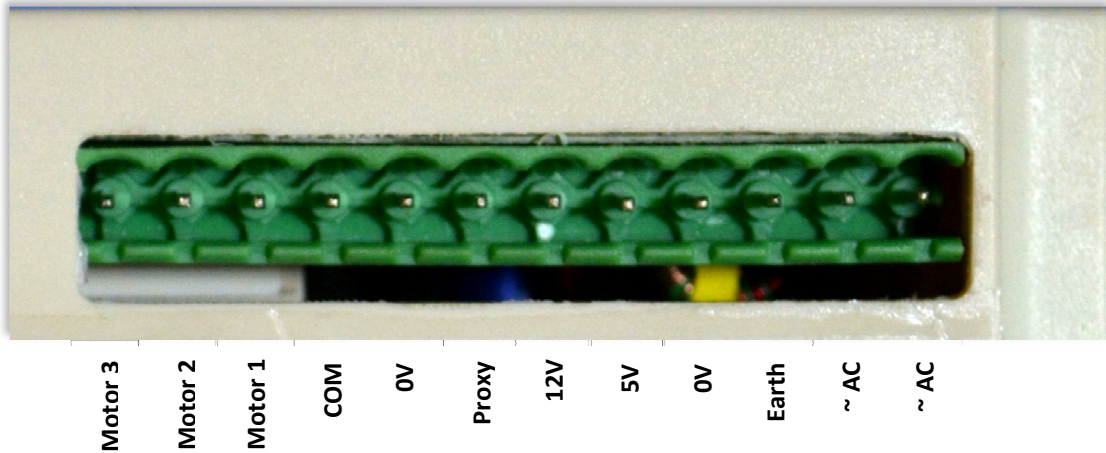
4. LCD DISPLAY (20x4)

This LCD indicates all the information related to MENUS or MODES.

5. LED

This LED indicates the entry of control in a mode when right/ left key is pressed long.

TERMINALS



TERMINALS

1. ~AC (90V to 260V AC 50Hz/60Hz Live, **Handle with care**)
2. ~AC (90V to 260V AC 50Hz/60Hz Neutral, **Handle with care**)
3. **Earth (To Earth Main line, Handle with care)**
4. 0V: Common Ground
5. 5V: 5V output
6. 12V OUT: 12V NPN type proximity switch.
7. Proxy: Connect output of NPN type proximity switch.
8. 0V: 0V NPN type proximity switch.
9. 0V/ COM: Common ground, Connect to Stepper Driver e.g. Tstep-087.
10. M1: Motor1 Step Pulse Output (Connect to Stepper Driver e.g. Tstep-087).
11. M2: Motor2 Step Pulse Output (Connect to Stepper Driver e.g. Tstep-087).
12. M3: Motor3 Step Pulse Output (Connect to Stepper Driver e.g. Tstep-087).

OPERATING HOT FOIL STAMPER

HOME/RUN MODE



*Run Size Step JUMP
Motr1:0010 0010 2000
Motr2:3392 9999 9999
Motr3:0257 0001 0001

When stamping controller in Switched ON, a splash screen showing the name of device. After a few seconds, Home/Run appears. It shows the parameters/ attributes and their values for which controller is in operation.

User can enter in other modes only from Run mode screen by pressing their respective keys.

Whenever any key input is present, each motor moves with their respective **step size** value with **step** number of time and after that it moves with the value of **jump size**. And this process keeps on repeating whenever inputs are present.

For example: If user wants to move the motors 10 mm for 5 times and after that user has to move motor with 7 mm. then he can fill the step size with 10mm, step with 5 and jump size with 7 mm. Steps per mm can be calculated with formula $\text{StpMM} = (\text{no of pulses required for one revolution}) / (\pi * d)$; where $\pi = 22/7$ and d is the diameter of pulley in mm. Spd, StpMM and acceleration of respective motor can be set in set mode.

Note: If in some application, user wants all the motion of the same size, he can fill same value in **step size** and **jump size**. Step can be filled with any value.

JOG MODE



*Jog SLOW FAST
M1-Keys: 1 6
M2-Keys: 2 7
M3-Keys: 3 8

User can enter in jog mode by pressing OK key in RUN screen. In Jog mode, user can manually adjust the foil puller. Numeric keys fasten up and slow down the motor on pressing the numeric keys for respective motor.

Slow: It shows that keys under this parameter are assigned for slow jogging of respective motors.

Fast: It shows that keys under this parameter are assigned for fast jogging of respective motors. Press Esc button to exit to Home/Run mode.

SET MODE



User can enter in Set mode by pressing left navigation key for long time till green LED glows.

Spd. It is the speed of each stepper motor which controls the pulley roller. Its range is 1 to 900 RPM.

StpMM: StpMM are the number of pulses required by stepper motor in 1 mm. It can be calculated with formula

$$\text{StpMM} = \frac{\text{No of pulses required for one revolution}}{\pi * d}$$

d = diameter of pulley in mm.

No of pulses required for one revolution = (1 revolution) / ($\pi * d$). Use $\pi = 22/7$.

For our Tstep-484 and Tstep-087 drive, no of pulses required for one revolution is 2000.

Acc.: Acceleration value with which stepper motor achieves the top speed. The range for it is 1 to 20.

Press Esc button to exit to Home/Run mode.

EDIT MODE



```
*Edit Size Step JUMP
Motr1: 0010 0010 2000
Motr2: 3392 9999 9999
Motr3: 0257 0001 0001
```

User can enter in Edit mode by pressing right arrow key for long time till green LED glows. Adjacent screen appears and user can change parameters for all motors.

StepSize: StepSize determines the length of foil to be pulled from pulley in each step. The range for this parameter is 1 to 9999mm.

Step: Step determines the number of times the foil of length equal to step size to be pulled and after that the foil of length equal to jump size pulls. The range for this parameter is 1 to 9999mm.

Jump: Jump size is the length of foil that is pulled after completing the number of steps with Step size. The range for this parameter is 1 to 9999mm.

Press Esc button to exit to Home/Run mode.

CONNECTION DIAGRAM

