Thank you for choosing our product, please read this manual before use.

**PART 1:**

<table>
<thead>
<tr>
<th>Features:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Upgraded circuit, work more peacefully and steady than the version before.</td>
</tr>
<tr>
<td>2. Maximum support 5-axis stepper motor driver controller.</td>
</tr>
<tr>
<td>3. Two types of ways to get power, 5V DC power supply or USB port to directly get power from PC.</td>
</tr>
<tr>
<td>4. Two-stage signal processing, smooth signal transmission, powerful anti-jamming.</td>
</tr>
<tr>
<td>5. 5-input interface to define the emergency stop, limit, points in the knife, etc.</td>
</tr>
<tr>
<td>6. Relay output control interface, accessed by the spindle motor or the air pump, water pump, etc.</td>
</tr>
<tr>
<td>7. 5-axis work LED display, visually display the working condition of the stepper driver controller.</td>
</tr>
</tbody>
</table>

**Electrical Performance (Ambient Temperature Tj = 25 °C):**

| Input Power | 5V DC power supply or USB port to directly get power from PC |
| Compatible Stepper Motor Driver | Max 5 single axis stepper motor driver controller |
| Drive type | Pulse + Direction + Enable Signal Control |
| Net/Total Weight | About 80g/300g |
| Dimensions | 90 * 82 * 15mm (L*W*H) |

**Waveform And Timing:**

Pulse + Direction Mode
Interface & Pinout Definitions:

1. X/Y/Z/A/B-Enabled
2. X-Step/Pulse
3. Y-Direction
4. B-Step/Pulse
5. A-Direction
6. A-Step/Pulse
7. Z-Step/Pulse
8. Z-Direction
9. Spindle-Motor
10. LPT Input Signal/X-Limit
11. LPT Input Signal/Y-Limit
12. LPT Input Signal/Z-Limit
13. LPT Input Signal/A-Limit
14. X-Direction
15. LPT Input Signal/EStop
16. Y-Step/Pulse
17. B-Direction
18. GND
19. GND
20. GND
21. GND
22. GND
23. GND
24. GND
25. GND
Interface Detailed Drawing:

- Relay
- X Limit
- Y Limit
- A Limit
- Emergency stop
- 5V DC
- External manual control port
- 3/4/5 axis digital display interface
- B axis control
- X axis control
- Y axis control
- Z axis control
- A axis control
- USB to take power from PC

Interface Function & connections:

- Connection to computer controlled port
- Connection to external manual control port
- Connection to 3/4/5 axis digital display interface
- Connection to B axis control
- Connection to X axis control
- Connection to Y axis control
- Connection to Z axis control
- Connection to A axis control
- Connection to USB for power from PC
When testing, check the following notes before use:
1. Check the input voltage of the breakout board (make sure 5V input voltage);
2. Understand how the breakout board works with stepper drivers;
3. Check all the wiring among all the CNC units.

Part 2: The Definition Of Each Pin

1 Defined as parallel control:

<table>
<thead>
<tr>
<th>PIN9</th>
<th>PIN1</th>
<th>PIN2</th>
<th>PIN14</th>
<th>PIN16</th>
<th>PIN3</th>
<th>PIN7</th>
<th>PIN8</th>
<th>PIN6</th>
<th>PIN5</th>
<th>PIN4</th>
<th>PIN17</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spindle motor</td>
<td>Enable</td>
<td>X Pulse</td>
<td>X Dir</td>
<td>Y Pulse</td>
<td>Y Dir</td>
<td>Z Pulse</td>
<td>Z Dir</td>
<td>A Pulse</td>
<td>A Dir</td>
<td>B Pulse</td>
<td>B Dir</td>
</tr>
</tbody>
</table>

2. Hand control is defined as follows 1 ~ PIN15computer-15P interfaces and benchmarks within the Digital ID)

<table>
<thead>
<tr>
<th>P1</th>
<th>P2</th>
<th>P3</th>
<th>P4</th>
<th>P5</th>
<th>P6</th>
<th>P7</th>
<th>P8</th>
<th>P9</th>
<th>P10</th>
<th>P11</th>
<th>P12</th>
<th>P13</th>
<th>P14</th>
<th>P15</th>
</tr>
</thead>
<tbody>
<tr>
<td>B Pulse</td>
<td>B Dir</td>
<td>A Dir</td>
<td>Z Pulse</td>
<td>Y Pulse</td>
<td>X Dir</td>
<td>Enable</td>
<td>5V/V</td>
<td>DD</td>
<td>5V/G</td>
<td>ND</td>
<td>A Pulse</td>
<td>Z Dir</td>
<td>Y Dir</td>
<td>Enable</td>
</tr>
</tbody>
</table>

3. The limit is defined as 1 to 5

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>PLT-P10</td>
<td>PLT-P11</td>
<td>PLT-P12</td>
<td>PLT-P13</td>
<td>PLT-P15</td>
</tr>
</tbody>
</table>

Notes: A. 5V 1A power supply, please take more than switching power supplies, power input received indicated on the map interface.
   B. Spindle motor control is controlled via the parallel port PIN1. Spindle motor voltage must comply with the supply voltage range.
Part 3: The Use Of Mach3

Figure 1
Figure 1: open the MACH3 software, then select OK now mach3MILL.

Figure 2
MACH3 open the interface shown in Figure 2, the action of commonly used button above, here we configure the MACH software.
Figure 3: Click the “Config” menu “PORT & PIN” menu.
Figure 4

Figure 4: Place on lap 1 setting can set the fundamental frequency, the parameters of the motor rotation speed. After 2 laps to set the place selected, the configuration pin definitions, as shown in Figure 5.

Figure 5

According to the definition of the board parallel port, follow the map on the circle to indicate the definition of modification of the software settings.
Then select the output signals in part, as shown in Figure 6, according to insiders of the settings, set the corresponding entry.

Figure 6

Motor references about the settings in Motor turning and Setup, please set them shown as Figure 7. Please set each Axis with the above “Neutral values” for test: “320 steps, 600mm/min, 200 mm/s/sec/sec, 2 Step Pulse and 2 Dir Pulse”. Actually, these values can be changed to fit the motors perfectly after being tested again and again.

Figure 7
Finish all settings, you can click the “Load G Code” menu and run the G code needed, as shown in Figure 8 and Figure 9.
Having loaded the G code, “RESET” can be seen flashing red, you can use mouse to click the “RESET” make it stop flashing, then you can press the “CYCLESTART” button to run, detailed shown in Figure 10.

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