

### Parallel Port Interface PPI-04.

The PPI-04 module is a buffered interface connecting up to four single-axis step motor drivers to a single parallel port of the PC.

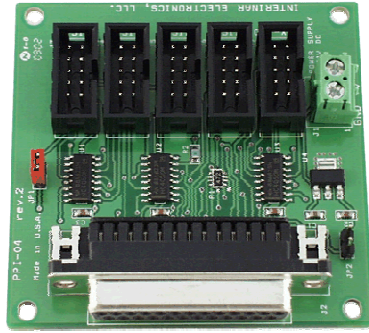


Figure 1 Parallel Port Interface PPI-04

#### Supported Stepper Drivers

- BSD-02
- BSD-02LH
- BSD-01v2

Other drivers with 5V logic inputs can be connected indirectly.

#### Power Supply

There is no need for external power supply if connected to supported drivers. To use this feature the first driver must be connected to J3 (X-Axis) while JP1-ON and JP2- OFF.

External power supply must be used for applications with unsupported drivers and/or when AUX connections are required. External power supply 7 to 24V connects to J1, while JP2-ON and JP1-OFF.

#### Cables

- PC to PPI-04 – use DB25 M-M, straight-thru, fully-wired p/n: PC305-06M DB25 M-M
- PPI-04 to BSD – use ribbon, 10-conductor p/n: FC10-14I

Table 1 Header J3, J4, J5, J6 (see Figure 2)

Pin #	Pin Description
1	ENABLE - output, active-low. Connect to ENA input of the driver.
2	+5V DC – positive supply voltage input. <b>J3 ONLY</b> . NOT CONNECTED on J4, J5, J6.
3	NOT CONNECTED.
4	NOT CONNECTED.
5	DIRECTION - output. Connect to DIR input of the driver.
6	STEP – output. Connect to STEP input of the driver.
7	NOT CONNECTED.
8	NOT CONNECTED.
9	NOT CONNECTED.
10	GND - ground.

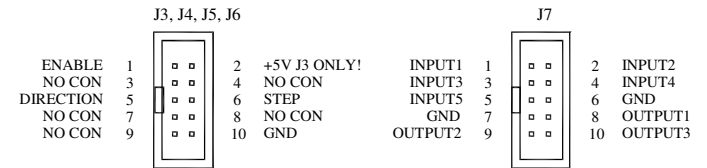


Figure 2. 10-Pin Header J2

Table 2 Header J7 (see Figure 2)

Pin #	Pin Description
1	INPUT1 – input. Auxiliary input may be used to connect external signals to LPT port.
2	INPUT2 – input. Auxiliary input may be used to connect external signals to LPT port.
3	INPUT3 – input. Auxiliary input may be used to connect external signals to LPT port.
4	INPUT4 – input. Auxiliary input may be used to connect external signals to LPT port.
5	INPUT5 – input. Auxiliary input may be used to connect external signals to LPT port.
6	GND - ground.
7	GND - ground.
8	OUTPUT1 – output. Auxiliary output may be used to connect external devices to LPT port.
9	OUTPUT2 – output. Auxiliary output may be used to connect external devices to LPT port.
10	OUTPUT3 – output. Auxiliary output may be used to connect external devices to LPT port.

Table 3 Connector J2

Pin #	Pin Description
1	ENABLE - output, active-low. When logic-low all outputs of the stepper drivers are enabled.
2	STEP X – output. A low-to-high transition advances the motor one increment.
3	DIRECTION X- output. Low or High determines the direction of the rotation of the motor X.
4	STEP Y – output. A low-to-high transition advances the motor one increment.
5	DIRECTION Y- output. Low or High determines the direction of the rotation of the motor Y.
6	STEP Z – output. A low-to-high transition advances the motor one increment.
7	DIRECTION Z- output. Low or High determines the direction of the rotation of the motor Z.
8	STEP A – output. A low-to-high transition advances the motor one increment.
9	DIRECTION A- output. Low or High determines the direction of the rotation of the motor A.
10	INPUT1 – input. Auxiliary input may be used to connect external signals to LPT port.
11	INPUT2 – input. Auxiliary input may be used to connect external signals to LPT port.
12	INPUT3 – input. Auxiliary input may be used to connect external signals to LPT port.
13	INPUT4 – input. Auxiliary input may be used to connect external signals to LPT port.
14	OUTPUT1 – output. Auxiliary output may be used to connect external devices to LPT port.
15	INPUT5 – input. Auxiliary input may be used to connect external signals to LPT port.
16	OUTPUT2 – output. Auxiliary output may be used to connect external devices to LPT port.
17	OUTPUT3 – output. Auxiliary output may be used to connect external devices to LPT port.
18	GND - signal ground.
19	GND - signal ground.
20	GND - signal ground.
21	GND - signal ground.
22	GND - signal ground.
23	GND - signal ground.
24	GND - signal ground.
25	GND - signal ground.

Table 4 Power Supply Selection

JP 1	JP 2	
ON	OFF	(default) Power from BSD driver connected to J3 X-Axis
OFF	ON	Power from external power supply connected to J1, 7 to 24V DC, min 200mA,

The PPI-04 can be mounted using four holes located in the corners of the circuit board. Use plastic standoffs or spacers at least ¼” high to support the board. To fasten the board use #4 or 3mm screws.

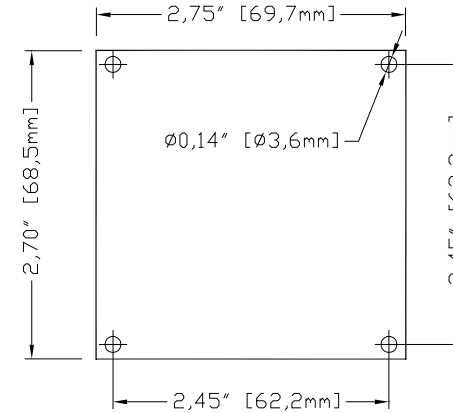
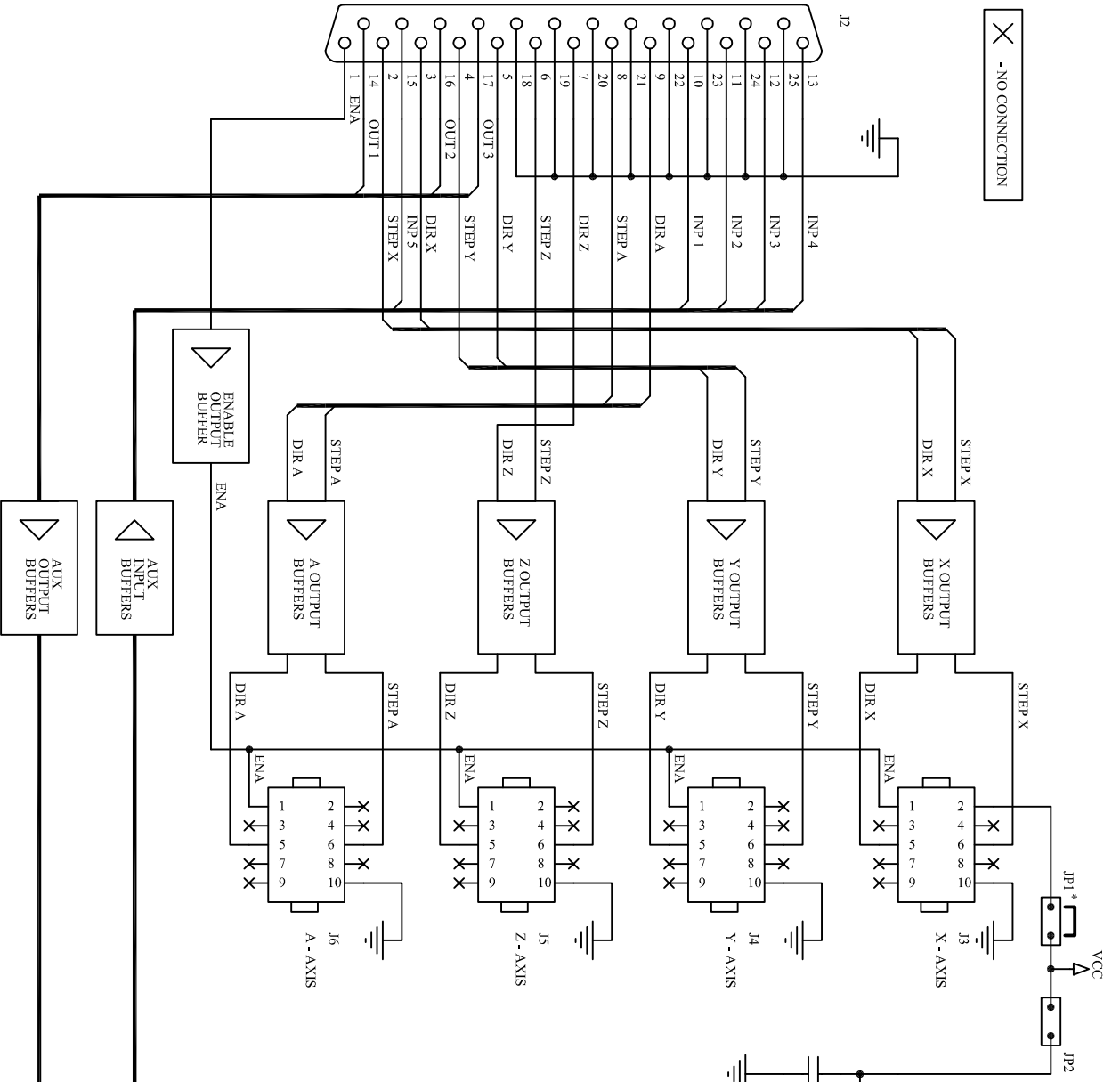


Figure 3 Dimensions and Mounting Holes

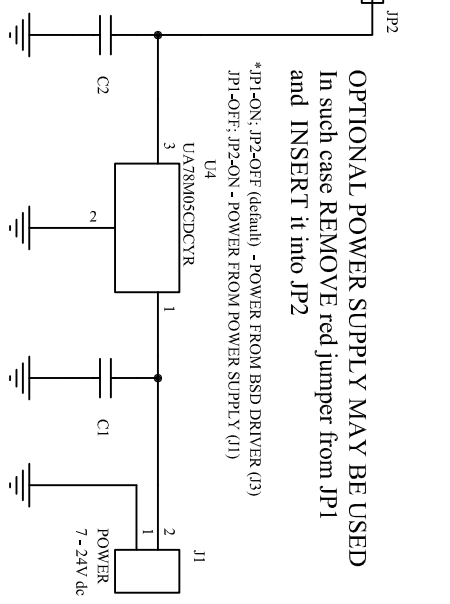
Table 5 Electrical Characteristics at Ta=+25°C

Characteristic	Symbol	Test Condition	Limit			Unit	
			Min	Typ	Max		
Supply Voltage	from J3	V <sub>CC</sub>	JP1-ON		5		V
	from J1	V <sub>PS</sub>	JP2-ON	7		24	V
Aux Input Logic Voltage	V <sub>IN(1)</sub>			3.5	-	-	V
	V <sub>IN(0)</sub>			-	-	1.5	V
Aux Input Voltage	V <sub>IN</sub>			0	-	5	V
Max Aux Input Current	I <sub>IK</sub>	per Input		-	-	±15	mA
Aux Output Logic Voltage	V <sub>OUT(1)</sub>	TTL Loads		3.7	-	-	V
	V <sub>OUT(0)</sub>			-	-	0.4	V
Aux Output Voltage	V <sub>OUT</sub>			0	-	5	V
Max Aux Output Current	I <sub>OK</sub>	per Output		-	-	±15	mA
Operating Temperature Range	-			-20	-	+85	°C

Block diagram and connection details - please refer to drawing nr P0310.09



✗ -NO CONNECTION



**OPTIONAL POWER SUPPLY MAY BE USED**  
 In such case REMOVE red jumper from JP1  
 and INSERT it into JP2

\*JP1-ON: JP2-OFF (default) - POWER FROM BSD DRIVER (G3)  
 JP1-OFF: JP2-ON - POWER FROM POWER SUPPLY (J1)

INPUT VOLTAGE ALLOWED ON  
 J7 PINS INP1 - INP5 IS  
 MIN - 0V MAX - 5V

OUTPUT VOLTAGE AVAILABLE ON  
 J7 PINS OUT1 - OUT3 IS  
 MIN - 0V MAX - 5V

- 1- ENABLE
- 2- STEP X
- 3- DIR X
- 4- STEP Y
- 5- DIR Y
- 6- STEP Z
- 7- DIR Z
- 8- STEP A
- 9- DIR A
- 10- INP1
- 11- INP2
- 12- INP3
- 13- INP4
- 14- OUT1
- 15- INP5
- 16- OUT2
- 17- OUT3
- 18- GND
- 19- GND
- 20- GND
- 21- GND
- 22- GND
- 23- GND
- 24- GND
- 25- GND

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REV	REV NOTE	DATE	CAT	SCALE	FILE NAME	SHEET	DATE
			54	not to scale	PP1-04-R2.dwg	1	03-09-2009

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DWG <b>M.V.</b>	DATE <b>03-09-2009</b>	FILE NAME <b>PP1-04-R2.dwg</b>	DATE <b>03-09-2009</b>

