

Gemini Pulsar2 pinout information

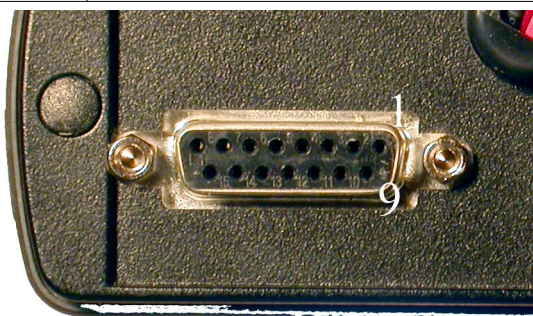
Motor connector for bipolar (2 coil, 4 lead) steppers

Pin on DSUB15	Connection	
1	Mot DEC Coil1 A	<p>255 level microstepping is used for tracking. Recommended total reduction range for 200 or 400 step motor is 300 – 1000. Incremental encoders can be used to correct GoTo, to get an absolute reference for initializing and for real time tracking corrections (based on encoder precision). A monostable Hall sensor can be used as PEC worm sensor. PEC has 300 registers for the worm rotation cycle. Stepper motor quality may influence tracking stability and max goto speed.</p>
2	Mot DEC Coil1 B	
3	Not used	
4	Mot RA Coil1 A	
5	Mot RA Coil1 B	
6	Not used	
7	Mot RA Coil2 A	
8	Mot RA Coil2 B	
9	Mot DEC Coil2 A	
10	Mot DEC Coil2 B	
11	Not used	
12	PEC +5V	
13	PEC GND	
14	PEC signal (pull down to GND)	
15	Not used	



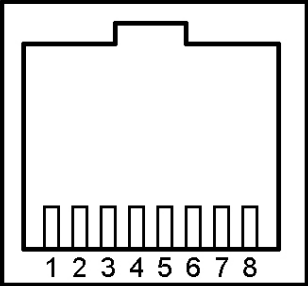
Pin identification

Choose a stepper with 1-3 Ohm resistance, low inductance. Accepted step number 100, 200, 400.



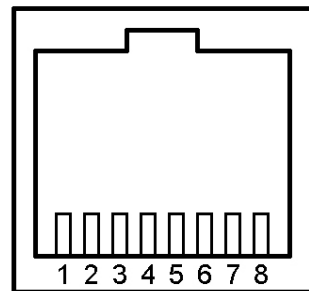
Hint for making motor cables: Make sure that the motor cable has no more than 15 % of the motor coil resistance. Otherwise the motor will not perform correctly.

Encoder connector for incremental encoders (PP, quadrature signal, 5V(TTL) 200mA max) with reference channel

RJ45 pin	Connection	<p>Note: the reference channel must be connected to both inputs marked “reference” of the RJ45 connector. Connector pinout for RA and DEC is identical.</p>  <p>Pins are marked on the diagram below. The maximum frequency allowed without loss is 8kHz.</p> <p>2 encoders are accepted. On mount axis (when steppers are used) OR on motor axis (when servos are used).</p>
1	GND	
2	reference	
3	VSS +5V	
4	reference	
5	GND	
6	Signal B	
7	VSS +5V	
8	Signal A	

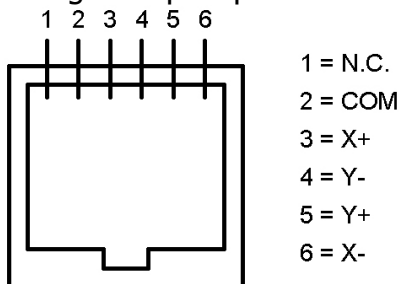
Auxiliary RJ45 connector pinout (NOT the Ethernet/LAN connector near the USB)

RJ45 pin	Connection
1	15 Volts (100mA)
2	External Parking (short to GND)
3	bus +
4	3,3 Volts
5	GND (GPS or serial D9 pin5)
6	bus -
7	RS 232 out (GPS D9 pin3, serial pin2)
8	RS 232 in (GPS D9 pin2, serial pin3)



Pins marked on the diagram above.

Autoguider port pinout



Using servos with Pulsar2

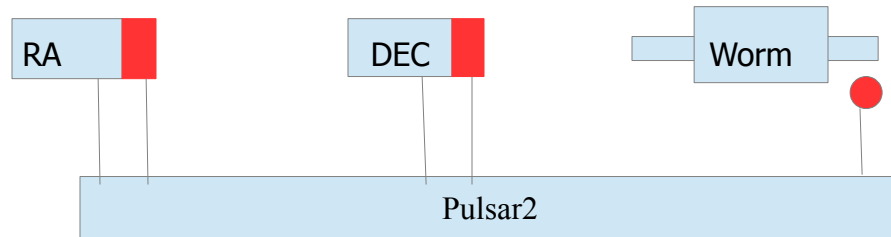
If you select “servo” in the motor type menu, you can connect simple brushed DC servos (max recommended 18V 2A) and the motor shaft mounted encoders.

The encoders must match the description above and at the max rpm of the motor must stay below 8kHz pulse frequency.

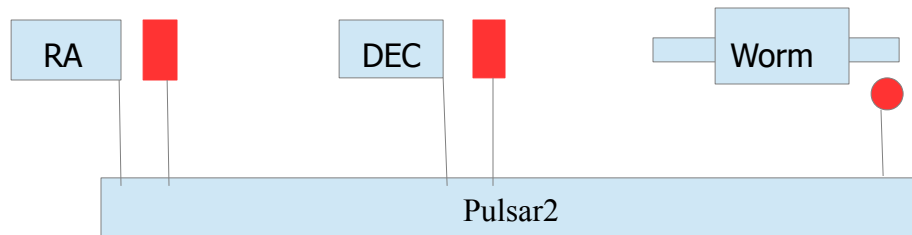
The motors must be connected to the DB15 motor connector. RA motor to pins 7, 8 and DEC motor to pins 4, 5. Polarity irrelevant.

The encoders must be connected to the encoder input. In the encoder menu, set mount encoder to "NO", motor encoder to "YES". You cannot use an independent mount encoder because there are only 2 encoder channels available.

Servo configuration – 2 motors with shaft encoders, PEC sensor



Stepper configuration – 2 motors, 2 encoders (normally on mount axis), PEC sensor



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