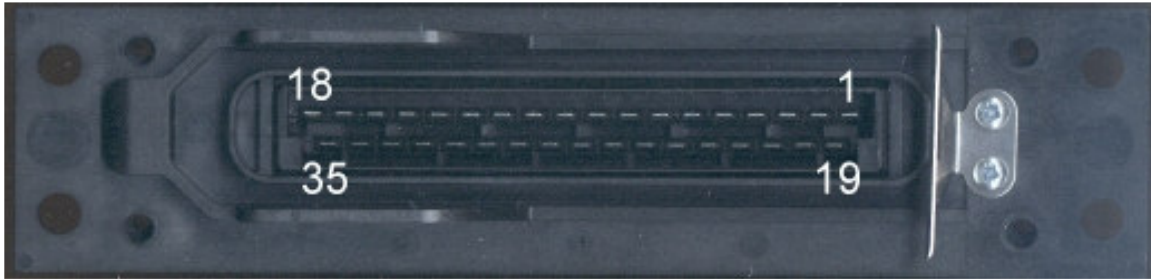


Hardware Manual for MinJ 400

Important Information: The MinJ 400 can be used with either inductive or Hall Effect type crankshaft and camshaft position sensors. Different internal hardware is necessary for the different types of sensors. Therefore, please specify the type of sensor that you require when ordering your ECU.



<u>Pin(s)</u>	<u>Reference Name(s)</u>	<u>Connection</u>	<u>Specifications</u>
7	GNDPOWER	ECU Ground	Must be connected to Engine Ground.
27	VBB	+12V	+12V ECU Power (Under Ignition Switch).
22	PUMP	Fuel Pump Relay Output	Switched ground for fuel pump relay.
4	TACHOMETER	Tachometer Signal Output	
1	IGN1	Ignition Coil Cylinder 1 Trigger	Trigger for inductive ignition coils with maximum charge current of 7.5 Ampere.
19	IGN2	Ignition Coil Cylinder 2 Trigger	Trigger for inductive ignition coils with maximum charge current of 7.5 Ampere.
2	IGN3	Ignition Coil Cylinder 3 Trigger	Trigger for inductive ignition coils with maximum charge current of 7.5 Ampere.
20	IGN4	Ignition Coil Cylinder 4 Trigger	Trigger for inductive ignition coils with maximum charge current of 7.5 Ampere.
3 21	GNDIGN	Ignition Grounds	Grounds for ignition drivers. Both must be connected to Engine Ground.
17	INJ1	Injection Cylinder 1 Trigger	Trigger for injectors with impedance in the range of 8 to 20 Ohms.
34	INJ2	Injection Cylinder 2	Trigger for injectors with

		Trigger	impedance in the range of 8 to 20 Ohms.
18	INJ3	Injection Cylinder 3 Trigger	Trigger for injectors with impedance in the range of 8 to 20 Ohms.
35	INJ4	Injection Cylinder 4 Trigger	Trigger for injectors with impedance in the range of 8 to 20 Ohms.
16 33	GNDINJ	Injection Grounds	Grounds for injector drivers. Both must be connected to Engine Ground.
24	MPP1	Idle Valve Stepper Motor Output 1 or PWM Idle Valve Output 1	Stepper Motor Driver output. Maximum current of 1 Ampere.
6	MPP2	Idle Valve Stepper Motor Output 2 or PWM Idle Valve Output 2 or Engine Temperature Fan	Stepper Motor Driver output. Maximum current of 1 Ampere.
23	MPP3	Idle Valve Stepper Motor Output 3 or Solenoid Output 1	Stepper Motor Driver output. Maximum current of 1 Ampere.
5	MPP4	Idle Valve Stepper Motor Output 3 or Solenoid Output 2	Stepper Motor Driver output. Maximum current of 1 Ampere.
10	VREF	5V Reference Voltage	Reference Voltage for Sensors and Serial Communications (pin 6 on DB9 connector).
32	INENGPOS	Crankshaft Position Signal	Inductive Sensor with peak-to-peak voltage of 12V or Hall Effect Sensor with 5V or 12V signal (sensor type is hardware dependent).
15	INCAMPOS	Camshaft Position Signal	Inductive Sensor with peak-to-peak voltage of 12V or Hall Effect Sensor with 5V or 12V signal (sensor type is hardware dependent).
29	INTHROT	Throttle Position Signal	0-5V Input Signal
9	GND	Ground for Throttle Position, Crankshaft Position, Camshaft Position, Engine Temperature, Air Temperature, Inductive Sensor Shields and Serial Communications	Ground for Sensors and serial communications (pin 5 on DB9 connector). A wire must also be connected to the Engine Ground.

31	INAIRT	Air Temperature Sensor Signal	Thermistor with impedance in the range of 100 to 100,000 Ohms.
13	INENGT	Engine Temperature Sensor Signal	Thermistor with impedance in the range of 100 to 100,000 Ohms.
12	APSEXT	Signal for Manifold Absolute Pressure or Feedback for Idle Valve	Pressure transducer or position sensor with 0 to 5V signal.
30	INLAMBDA	Lambda Sensor Signal	Wideband lambda sensor with 0 to 5V signal.
14	INMAP	Dual Map Switch Trigger	Input open – ECU runs on map 0. Input grounded – ECU runs on map 1.
26	GNDECU	Ground for Lambda, Manifold Air Pressure, Dual Map Switch and Serial Communications.	Ground for Sensors and serial communications (pin 2 on DB9 connector).
28	RX	Receive for DAct	Pin 7 on female DB9 connector.
11	TX	Send for DAct	Pin 8 on female DB9 connector.
8	RX1	Receive for WinCons/GenTab	Pin 1 on female DB9 connector.
25	TX1	Send for WinCons/GenTab	Pin 9 on female DB9 connector.