

Chapter 9 Appendix B

MOTOR-POWER DISTRIBUTION BOARD

The Motor-Power Board provides power conversion and distribution to other robot components.

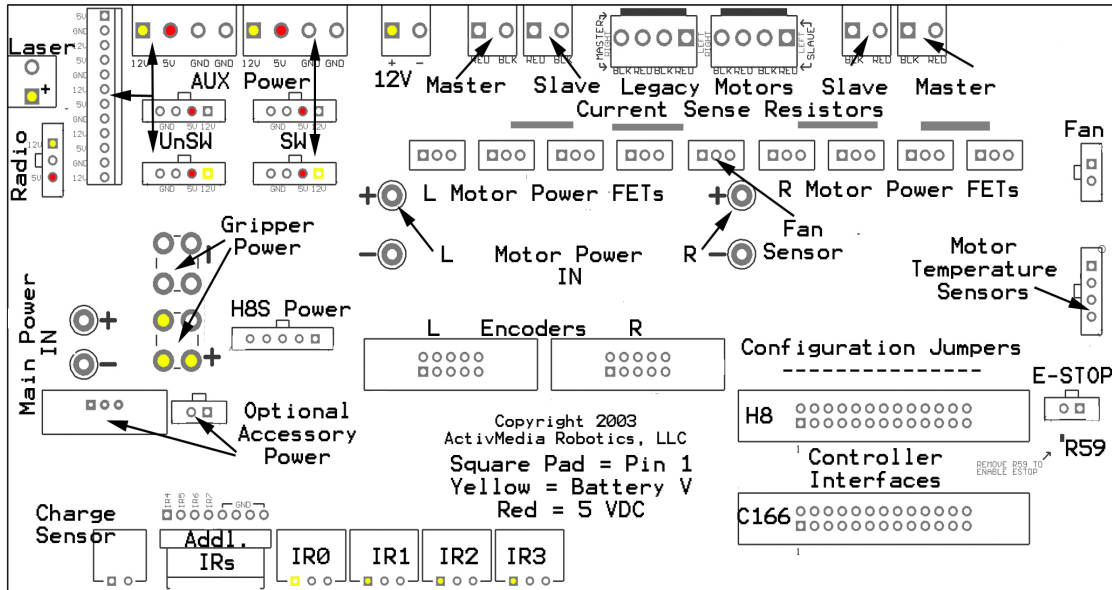


Figure 20. Pioneer 3 Motor-Power Board

Microcontroller Connection

Individual 26-pos IDC connectors and cables provide signal for the H8S- and SH2-based microcontrollers or for the legacy C166-based microcontrollers. A separate cable and connector provides for the SH2 microcontroller and SONAR power. Power and signal are shared on the C166 microcontroller connector.

Table 33. "H8S Power" connector, to microcontroller board (5-pos microfit)

PIN	FUNCTION	DESCRIPTION
1	Vbat	Battery power
2	Gnd	Power common
3	Vcc	5 VDC for SONAR
4	Vcc	5 VDC for SONAR
5	nc	No connection

Auxiliary and User Power Connectors

Various connectors provide conditioned 5 VDC @ 1.5A total and unconditioned battery power for the variety of accessories and custom user attachments. Some are AUX1 and AUX2 power switched from the User Control Panel.

The row of screw-down auxiliary user-power connectors along the top edge of the motor-powerboard make custom attachments easy.

(The 12-position latchlock connector to the left of the screw-down terminals was used in the past for some accessories.) Four-position microfit connectors also provide AUX power for standard accessories. AUX1 power was formerly called “Radio” power. AUX2 power is sometimes referred to or labeled as “Video” power as well.

Table 34. User Control Panel-switched AUX1 power connector (3-pos microfit)

PIN	FUNCTION	DESCRIPTION
1	Vpp	AUX1 (formerly radio) switched battery 12 VDC
2	Gnd	Power common
3	Vcc	AUX1 (formerly radio) switched 5 VDC
Socket on Board:		3-position microfit header (male pins, 3mm) Molex part #43650-0315
Mating connector:		3-position connector receptacle (female) with latch lock. Add 20-30 AWG terminal contact pins to crimp with wire.
		Molex part #436450300
		www.digikey.com part #WM1846-ND
		www.mouser.com part #538-43645-0300

Table 35. User Control Panel-switched and unswitched Aux power connectors (4-pos microfits and screw-down terminal blocks)

PIN	FUNCTION	DESCRIPTION
1	Vpp	Aux switched battery 12 VDC
2	Vcc	Aux switched 5 VDC
3	Gnd	Power common
4	Gnd	Power common
Socket on Board:		4-position microfit header (male pins, 3mm) Molex part #43650-0415
Mating connector:		4-position connector receptacle (female) with latch lock. Add 20-30 AWG terminal contact pins to crimp with wire.
		Molex part #436450-400
		www.digikey.com part #WM1847-ND
		www.mouser.com part #538-43645-0400

Table 36. User Power connector (12-pos latchlock; unswitched)

PIN	FUNCTION	PIN	FUNCTION
1	Vcc	7	Vcc
2	Gnd	8	Gnd
3	Vpp	9	Vpp

4	Vcc	10	Vcc
5	Gnd	11	Gnd
6	Vpp	12	Vpp

IR Signal and Power

Four connectors provide power and signal for fixed-range IR sensors. A separate connector provides signal path for an additional four IR sensors.

Table 37. IR power and signal connectors (3-pos microfits)

PIN	FUNCTION	DESCRIPTION
1	Vpp	Battery 12 VDC
2	IRn	Switching signal
3	Gnd	Power/signal ground

Table 38. Additional IR connector (8-pos latchlock 0.1 header)

PIN	SIGNAL	DESCRIPTION
1-4	IR4-7	IR signals
5-8	GND	Signal common