



Application Note #1217

AMP-1460 Interconnect Module with PWM Amplifier

The AMP-1460 (Rev D) provides the features of the ICM-1460 (Rev D), with the addition of a brush-type PWM servo amplifier. The amplifier is rated for 6 Amps continuous, 10 Amps peak at up to 80 VDC. The gain of the AMP-1460 is 1 Amp per Volt.

The AMP-1460 requires an external DC power supply from 20-80 Volts. The AMP-1460 connects to the controller with a 37-pin cable and provides screw-type terminals to connect motors, encoders and external switches.

Optional versions of the ICM-1460 (Rev D) unit can be ordered with a 20-Watt linear amplifier suitable for driving small motors (see ICM-1460-20W).

Features:

- Breaks out 37-pin cable into individual screw-type terminals
- Provides a PWM servo amplifier for direct connection to a brush type motor
- Clearly identifies all terminals
- 10-pin IDC connector for quick encoder connection

Amplifier Specifications:

Voltage	20-80 VDC
Current	6 Amps continuous (10 Amps peak)
Minimum motor inductance	1 mH
PWM frequency	30 KHz
Ambient operating temperature	0-70°C
Dimensions	6.9" x 4.9" x 2.6"
Mounting	Keyholes - .2"Ø
Amplifier Gain	1 Amp/Volt

Operation and Hardware Connections:

The Galil Econo Series and E-Series controllers generate a +/-10 Volt range analog signal (ACMD and GND) for input to the AMP-1460 power amplifier through the 37-pin cable. The gain is set such that a 10 Volt command signal from the controller results in the maximum rated current output to the motor. For best performance, the amplifier has been configured for current (or torque) mode operation with no additional compensation performed by the amplifier.

DC power supply connections are made at the J1 terminal block. Connect the positive voltage level to VAMP+ and the return ground to AMPGND. Select a voltage supply from 20-80 VDC with a current rating of at least 10 Amps. The actual voltage level should be selected in reference to the motor specifications.

The AMP-1460 Interconnect Module also provides easy connections between the controller and other system elements, such as encoders and external switches. The AMP-1460 accepts the 37-pin cable from the controller and distributes it into screw-type terminals. Each screw terminal is labeled for quick connection of system elements.

The motor connections are made at the J1 terminal block. Connect the motor leads to MOTOR1 and MOTOR2. Note: these leads may need to be reversed. If the motor runs at full speed when the controller and amp are initialized, the system is in a “positive” feedback loop, hence the leads will have to be reversed to properly set the control loop in a “negative” feedback loop.

Terminal Block Description:

Term #	Label	I/O	Description
1.	+12V	O	+12 Volts
2	-12V	O	-12 Volts
3	AMPEN	O	Amp enable (leave unconnected when using on board amplifier)
4	ACMD	O	Motor command to amp input (leave unconnected when using on board amplifier)
5	PULSE	O	Pulse output for input to stepper motor amp
6	DIR	O	Direction output for input to stepper motor amp
7	GND		Signal Ground
8	RESET	I	Reset

9	ERROR	O	Error signal
10	OUT2	O	Output 2
11	OUT1	O	Output 1
12	OUT0	O	Output 0
13	CMP	O	Circular Compare output
14	5V	O	+ 5 Volts
15	GND		Signal Ground
16	IN7	I	Input 7
17	IN6	I	Input 6
18	IN5	I	Input 5
19	IN4	I	Input 4
20	IN3	I	Input 3
21	IN2	I	Input 2
22	IN1/LTC H	I	Input 1 / Input for Latch Function
23	FLS	I	Forward limit switch input
24	RLS	I	Reverse limit switch input
25	HOME	I	Home input
26	ABORT	I	Abort Input
27	GND		Signal Ground
28	MA+	I	Main encoder A+
29	MA-	I	Main encoder A-
30	MB+	I	Main encoder B+
31	MB-	I	Main encoder B-
32	INDEX+	I	Main encoder index +
33	INDEX-	I	Main encoder index -
34	AA+	I	Auxiliary encoder A+
35	AA-	I	Auxiliary encoder A-
36	AB+	I	Auxiliary encoder B+
37	AB-	I	Auxiliary encoder B-
38	NC	I	No Connection
39	5V	O	+ 5 Volts
40	GND		Signal Ground

JP2 Encoder 10-pin Header

Pin	Description	Pin	Description
1	Main Encoder A+	2	+5 VDC
3	GND	4	NC
5	NC	6	NC
7	NC	8	Main encoder B+
9	NC	10	Main encoder I+

J1 DC Voltage and Motor Connector

VAMP+	DC 20-80 volt supply input
AMPGND	DC power supply ground
VAMP-	(-DC supply for 20W amp version)
MOTOR2	Motor lead 2
MOTOR1	Motor lead 1

ICM-1460 Metal Enclosure Dimensional Drawing

