

ARTISAN®
TECHNOLOGY GROUP

Your **definitive** source for quality pre-owned equipment.

Artisan Technology Group
(217) 352-9330 | sales@artisantg.com | artisantg.com

Full-service, independent repair center
with experienced engineers and technicians on staff.

We buy your excess, underutilized, and idle equipment
along with credit for buybacks and trade-ins.

Custom engineering
so your equipment works exactly as you specify.

- Critical and expedited services
- In stock / Ready-to-ship
- Leasing / Rentals / Demos
- ITAR-certified secure asset solutions

Expert team | Trust guarantee | 100% satisfaction

All trademarks, brand names, and brands appearing herein are the property of their respective owners.

Visit our website - *Click HERE*

USER MANUAL

Accessory 8D Option 4A

150W Four Channel PWM Amplifier Board

3Ax-602311-xUxx

October 24, 2003

DELTA TAU
Data Systems, Inc.
NEW IDEAS IN MOTION ...

Single Source Machine Control *Power // Flexibility // Ease of Use*
21314 Lassen Street Chatsworth, CA 91311 // Tel. (818) 998-2095 Fax. (818) 998-7807 // www.deltatau.com

Copyright Information

© 2003 Delta Tau Data Systems, Inc. All rights reserved.

This document is furnished for the customers of Delta Tau Data Systems, Inc. Other uses are unauthorized without written permission of Delta Tau Data Systems, Inc. Information contained in this manual may be updated from time-to-time due to product improvements, etc., and may not conform in every respect to former issues.

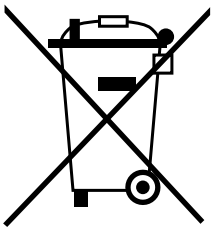
To report errors or inconsistencies, call or email:

Delta Tau Data Systems, Inc. Technical Support
Phone: (818) 717-5656
Fax: (818) 998-7807
Email: support@deltatau.com
Website: http://www.deltatau.com

Operating Conditions

All Delta Tau Data Systems, Inc. motion controller products, accessories, and amplifiers contain static sensitive components that can be damaged by incorrect handling. When installing or handling Delta Tau Data Systems, Inc. products, avoid contact with highly insulated materials. Only qualified personnel should be allowed to handle this equipment.

In the case of industrial applications, we expect our products to be protected from hazardous or conductive materials and/or environments that could cause harm to the controller by damaging components or causing electrical shorts. When our products are used in an industrial environment, install them into an industrial electrical cabinet or industrial PC to protect them from excessive or corrosive moisture, abnormal ambient temperatures, and conductive materials. If Delta Tau Data Systems, Inc. products are directly exposed to hazardous or conductive materials and/or environments, we cannot guarantee their operation.



EN Dispose in accordance with applicable regulations.

Table of Contents

INTRODUCTION **1**
Connectors 1
J1 ..... *1*
TB1 ..... *1*
TB2 ..... *1*

POWER SUPPLY CONSIDERATIONS **3**
Current Mode Considerations 3
Amplifier-Enable/Fault Polarity Selection 3
Offset Pots 3

CONNECTORS **5**
ACC-8D Option 4A J1 (16-Pin Header) 5
ACC-8D Option 4A TB1 (12 Pin Terminal Block) 5
ACC-8D Option 4A TB2 (4 Pin Terminal Block) 6

AMPLIFIER SPECIFICATIONS **7**
Power Stage Specifications 7
Mechanical Specifications 7

INTRODUCTION

Accessory 8D (ACC-8D) Option 4A is a standalone printed circuit board that is typically connected to PMAC via ACC-8D (the Terminal Block board). Option 4A provides four 150W continuous (250W-1 SEC intermittent) PWM amplifiers. The amplifiers may be used to drive small to medium size DC motors or proportional hydraulic valve actuators. Option 4A board has compact size and may be conveniently interfaced to PMAC through ACC-8D through a 16-pin flat cable. To bring the analog command and digital amplifier-enable signals to this board, connect J5 of the main ACC-8D board to J1 of Option 4A board with the provided 16-pin flat cable. In addition, the amplifier fault signals may be connected to the main ACC-8D board via its appropriate terminal block pins.

Connectors

J1

This connector brings in up to four analog command signals and amplifier-enable lines from the ACC-8D board via its J5 connector through the provided 16-pin flat cable. A listing of J1 pin definition is provided at the end of this manual.

TB1

This terminal block provides the actual connection to the motors. Also, the power supply for this board must be brought in through this connector. In addition, the connections for an optional external shunt resistor are provided. This may be used for applications where high deceleration rates are required from motors having unusually high inertia loads. A listing of TB1 pin definitions is provided at the end of this manual.

TB2

This terminal block provides fault information for each axis driver (low = fault).

POWER SUPPLY CONSIDERATIONS

The Option 4A board requires a single power supply of +15V to +48V (maximum). The current requirement can vary depending on the load, but should not exceed 12A continuous and 20A peak for a one second period (5 amperes peak per channel). A slow blow 15A fuse is installed for protection purposes.

If the amplifier is driven beyond its rated power, driver overheating may occur. In this event, the driver will output a low true fault signal on the corresponding pin of the terminal block 2 (TB2) and turn on the corresponding fault "LED". Also, if the bus supply exceeds approximately 55 volts, the over voltage red LED will be turned on. Care should be taken to reduce bus voltage to below 48 volts at steady state.

The bus voltage should be completely separate from PMAC's analog ground. Connecting the 15V power from PMAC (pin 59) is strongly discouraged.

Current Mode Considerations

The Option 4A is a current amplifier with a fixed current gain 0.5A/V. This means that the ± 10V signal input from each DAC on the J1 connector corresponds to ± 5A of current across the load provided that the bus supply voltage is not exceeded.

Note that if the amplifier is driving a DC motor at high speeds, the current supply to the motor may be reduced if the back e.m.f. Voltage of the motor is sufficiently large (refer to the motor manufacture's data sheet).

Amplifier-Enable/Fault Polarity Selection

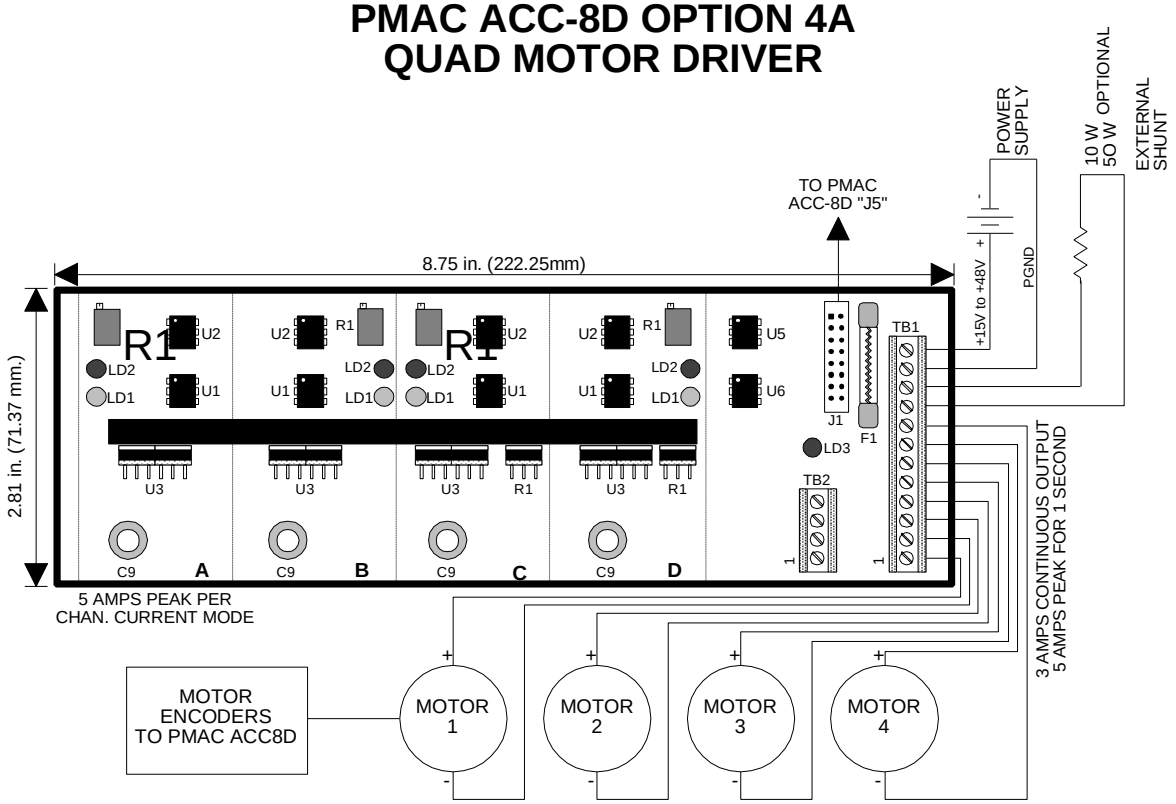
PMAC should be configured for low-true amplifier-enable signals, using jumper(s) E17. A green LED for each amplifier on the Option 4A board is lit when the board is receiving power and that amplifier is enabled.

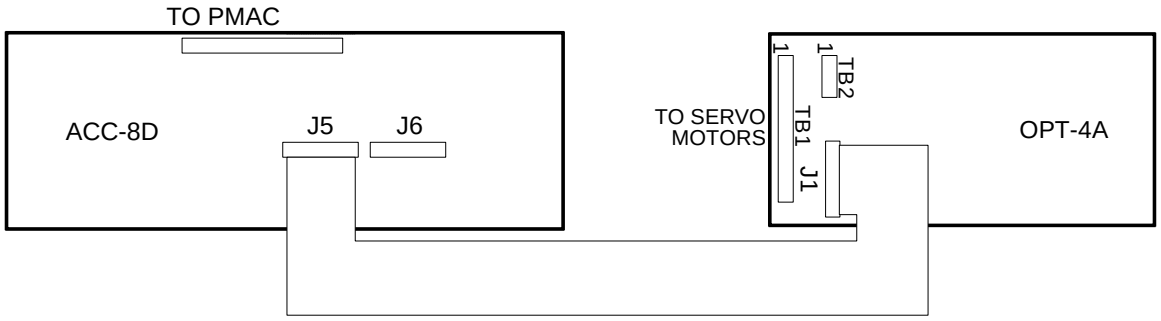
Also, if the amplifier fault signal is fed back to PMAC, bit 23 (the most significant bit) of Ix25 should be set to zero for "Low True" fault input. The red LED for each channel is lit when the amplifier faults (overheats).

Offset Pots

The four R1 potentiometers located on the PC board are the added feature of ACC-8D Option 4A Revision 1 (boards manufactured since April 1992). These pots may be used to eliminate the DC bias voltage between PMAC's DAC output signals and the Option 4A's reference signal inputs.

PMAC ACC-8D OPTION 4A
QUAD MOTOR DRIVER





CONNECTION OF PMAC ACC-8D TO ITS OPTION 4A BOARD

CONNECTORS

ACC-8D Option 4A J1 (16-Pin Header)

Pin	Symbol	Function	Description	Notes
1	DAC1	INPUT	Analog Out Positive 1	Reference to AGND
2	DAC1/	INPUT	Analog Out Negative 1	Reference to AGND
3	DAC2	INPUT	Analog Out Positive 2	Reference to AGND
4	DAC2/	INPUT	Analog Out Negative 2	Reference to AGND
5	DAC3	INPUT	Analog Out Positive 3	Reference to AGND
6	DAC3/	INPUT	Analog Out Negative 3	Reference to AGND
7	DAC4	INPUT	Analog Out Positive 4	Reference to AGND
8	DAC4/	INPUT	Analog Out Negative 4	Reference to AGND
9	AENA1	INPUT	Amplifier Enable1[1]	Reference to AGND
10	AENA2	INPUT	Amplifier Enable2[1]	Reference to AGND
11	AENA3	INPUT	Amplifier Enable3[1]	Reference to AGND
12	AENA4	INPUT	Amplifier Enable4[1]	Reference to AGND
13	AGND	COMMON	Analog Ground	
14	A+15V	INPUT	Analog Positive Supply	Reference to AGND
15	AGND	COMMON	Analog Ground	
16	A-15V	INPUT	Analog Negative Supply	Reference to AGND

This connector brings in the analog command signals and amplifier enable lines from the ACC-8D board, It also supplies the analog +/-15V power.

[1]The settings of Ix02 and Ix25 determine whether these lines are amplifier-enable signals or direction bit signals. Jumper E17 on PMAC determines the polarity of these signals.

ACC-8D Option 4A TB1 (12 Pin Terminal Block)

Pin	Symbol	Function	Description
1	AMPOUT1	OUTPUT	1st motor + lead
2	AMPOUT1/	OUTPUT	1st motor - lead
3	AMPOUT2	OUTPUT	2nd motor + lead
4	AMPOUT2/	OUTPUT	2nd motor - lead
5	AMPOUT3	OUTPUT	3rd motor + lead
6	AMPOUT3/	OUTPUT	3rd motor – lead
7	AMPOUT4	OUTPUT	4th motor + lead
8	AMPOUT4/	OUTPUT	4th motor - lead
9	DB-R	OUTPUT	External Shunt Regulator Resistor} than 10
10	DB-R+	OUTPUT	External Shunt Regulator Resistor} than 10
11	PGND	COMMON	Bus ground
12	A+48V	INPUT	Bus supply (+15V to +48V)

This terminal block provides the actual connection to the motors, optional shunt regulator resistor and to the power supply.

ACC-8D Option 4A TB2 (4 Pin Terminal Block)

Pin	Symbol	Function	Description	Notes
1	FAULT1/	OUTPUT	1st Driver Fault	Low = fault
2	FAULT2/	OUTPUT	2nd Driver Fault	Low = fault
3	FAULT3/	OUTPUT	3rd Driver Fault	Low = fault
4	FAULT4/	OUTPUT	4th Driver Fault	Low = fault
This terminal block provides the four amplifier fault signals which may be fed back to PMAC via the terminal block of the main ACC-8D board. Note Ix25 should be set for the low true amp fault signal.				

AMPLIFIER SPECIFICATIONS

Power Stage Specifications

V+ Input Voltage	15V to48V
Transconductance Factor	0.5V/A
Max Continuous Current	12A (3A per channel)
Peak Current	20 A (5A per channel)
Reference Voltage	± 10V

Mechanical Specifications

Size	8.75 in. × 2.81 in.
Connector	12 pin Phoenix or 12 pin box header

Artisan Technology Group is an independent supplier of quality pre-owned equipment

Gold-standard solutions

Extend the life of your critical industrial, commercial, and military systems with our superior service and support.

We buy equipment

Planning to upgrade your current equipment? Have surplus equipment taking up shelf space? We'll give it a new home.

Learn more!

Visit us at **artisantg.com** for more info on price quotes, drivers, technical specifications, manuals, and documentation.

Artisan Scientific Corporation dba Artisan Technology Group is not an affiliate, representative, or authorized distributor for any manufacturer listed herein.

We're here to make your life easier. How can we help you today?

(217) 352-9330 | sales@artisantg.com | artisantg.com

ARTISAN® TECHNOLOGY GROUP