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.

Find the *OMRON / Adept Technology EJI* at our website: ***Click HERE***

Enhanced Joint Interface(EJI) 10

Introduction 180
Connections and Indicators 181
VME Bus Address 182
Address Settings for EJI Boards 182
Address Settings for Multiple Servo Boards 182
Belt Encoder Interface 184
EJI Board Specifications 186

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

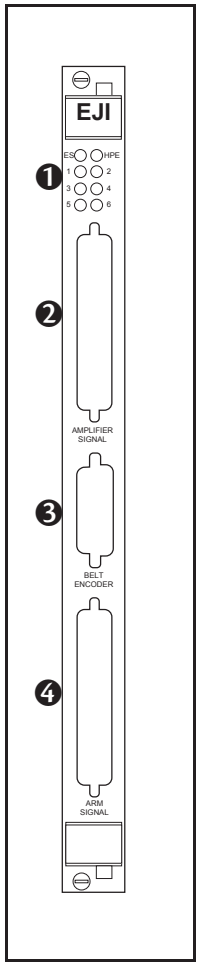
Introduction

The Adept VME Enhanced Joint Interface (EJI) board is a 6U single-slot VME board designed to control the motion axes on an Adept robot. The EJI board has connectors for the power chassis cable and the arm (robot) signal cable. There is another connector for external encoders, typically used for belt tracking.

See the robot instruction handbook for your Adept robot for complete information on installation, configuration, and operation of the EJI board and your robot.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Connections and Indicators



❶ Status LEDs. When lit:

ES — indicates a latched E-Stop signal on the backplane has been asserted from the EJI board or somewhere else in the system.

HPE — indicates the High Power Enable signal is asserted.

1 to 6 — indicates the corresponding output (motor drive) channel is enabled.

❷ **Amplifier Signal** connector — the EJI to Amp cable from the power chassis is installed here.

❸ **Belt Encoder** connector — a 15-pin D-Sub connector for up to two belt encoders in a conveyor tracking installation.

❹ **Arm Signal** connector — the EJI to Robot cable from the Adept robot is installed here.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

VME Bus Address

Address Settings for EJI Boards

The VME bus address for a single EJI board is set at the factory and will not need to be changed. If you have multiple EJI boards, each EJI board must have a unique VME bus address. The information in **Table 10-1** shows how to set the address when you have multiple boards in an Adept controller.

The address is set at DIP switch U18 on the EJI board. To operate the switch, use a small insulated instrument, such as the point of a pencil. Each switch position is a miniature rocker switch. To open a switch, press down on the side of the switch marked "open". The switch is located in the upper right-hand corner of the board.

Table 10-1. VMEbus Address Switch Settings for EJI Boards

Servo Board Address	Switch Position on DIP Switch U18[a]							
	1	2	3	4	5	6	7	8
1	Open	Closed	Open	Open	Closed	Closed	Closed	Closed
2	Open	Closed	Open	Open	Closed	Closed	Closed	Open
3	Open	Closed	Open	Open	Closed	Closed	Open	Closed
4	Open	Closed	Open	Open	Closed	Closed	Open	Open
5	Open	Closed	Open	Open	Closed	Open	Closed	Closed
6	Open	Closed	Open	Open	Closed	Open	Closed	Open

[a] The position notation on DIP switches can vary. If the switch is marked open/closed, then open = off and closed = on.

Address Settings for Multiple Servo Boards

If you have MI6/MI3 boards installed along with an EJI, each board must have a unique VME bus address. Check the address settings on all boards to make sure they are all different. If you purchased the Adept controller from Adept with all the motion boards installed, the correct DIP switch settings already will have been set for you by Adept.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

In systems with an EJI (Adept robot systems) in addition to MI6/MI3(s), the first MI6/MI3 board should be set to servo board number 3. In systems with two EJI boards (dual Adept robots) the second EJI should be set to servo board 3. This allows optimal processor allocation for the servo code with the default V+ software configuration. See **Table 10-2** for examples of address settings for various configurations.

Table 10-2. VME Bus Address Settings for Multiple Servo Board Systems[a]

	First Board Address	Second Board Address	Third Board Address	Fourth Board Address
2 MI6	1 – MI6	3 – MI6		
1 VJI plus 1 MI6	1 – VJI	3 – MI6		
2 VJI	1 – VJI	3 – VJI		
2 VJI plus 1 MI6	1 – VJI	3 – VJI	5 – MI6	
2 VJI plus 2 MI6	1 – VJI	3 – VJI	5 – MI6	7 – MI6

[a] For systems equipped with the Adept FlexFeeder system: The VJI board for FlexFeeder number 1 should be addressed as servo board number 2 and the VJI board for FlexFeeder number two should be addressed as servo board number 4.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Belt Encoder Interface

For use with conveyor tracking, EJI boards support two independent external belt encoders through a single, female, 15-pin D-sub connector. The pin assignments for the Belt Encoder connector are shown in **Table 10-3**. See **Figure 10-2** for a typical input circuit drawing. Adept strongly recommends using differential encoder outputs for maximum noise immunity. See the ***V+ Language User's Guide*** for more information on setting up and programming a conveyor tracking application.

NOTE: Conveyor tracking requires a V+ Extensions License, which can be obtained from Adept.

Table 10-3. Belt Encoder Connector Pin Assignments

Channel 1		Channel 2		Pin Locations
Signal	**Pin**	**Signal**	**Pin**	
A+	9	A+	13	
A–	2	A–	6	
B+	10	B+	14	
B–	3	B–	7	
I+	11	I+	15	
I–	4	I–	8	
Pull up[a]	1	Pull up[a]	1	
Encoder power out	5	Encoder power out	5	
Encoder ground	12	Encoder ground	12	

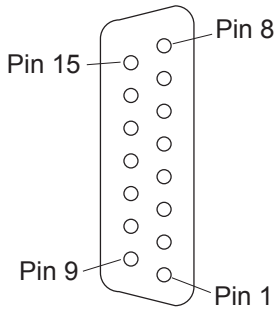
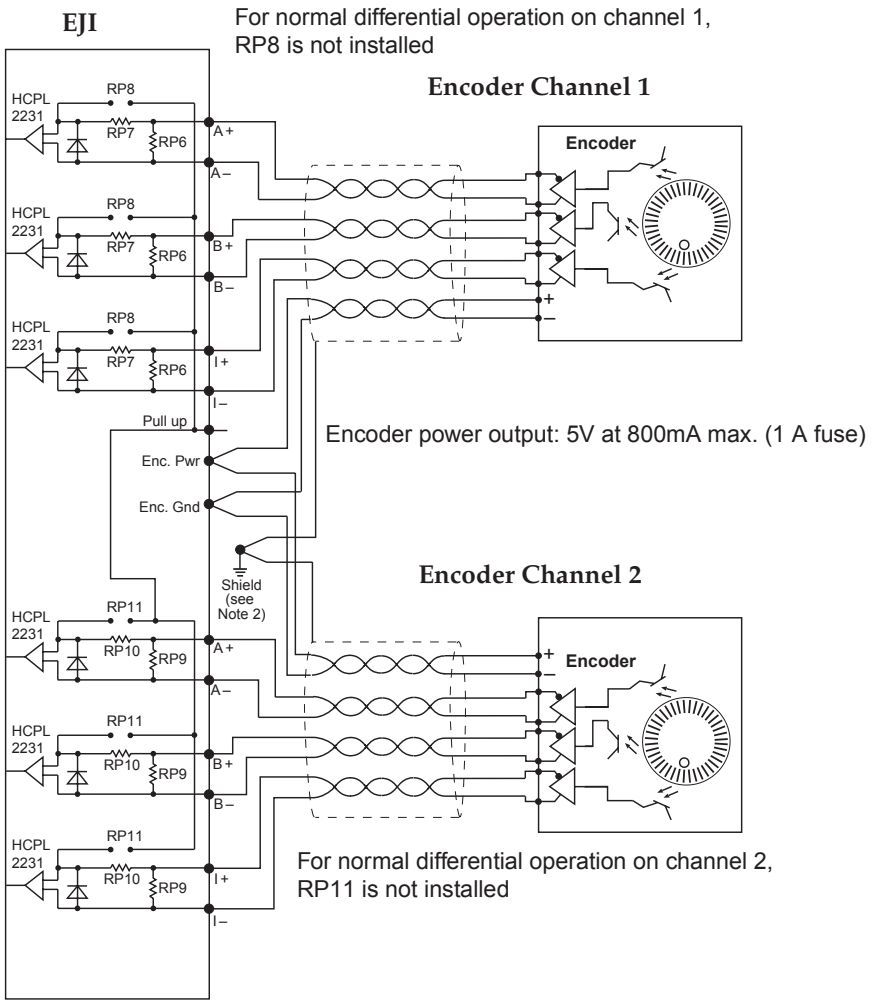


Figure 10-1. EJI Belt Encoder Connector Pinout

[a] User-supplied pull up (used for single-ended encoders only)

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com



Note 2:
RP6 & RP9: 300Ω, 6-pin resistor pack, socketed
RP7 & RP10: 470Ω, 6-pin resistor pack, socketed
RP8 & RP11: 470 Ω, 6-pin resistor pack, socketed
For single-ended encoders, remove RP7 and RP10, and install RP8 and RP11.

HPCL2331: Hewlett-Packard Opto-coupler

Note 2: Connect cable shield to connector shell

Figure 10-2. EJI Belt Encoder Typical Input Circuity

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

EJI Board Specifications

Table 10-4. Technical Specifications[a]

Maximum EJIs per controller[b]	3
Number of axes of control (maximum)	5 axes of robot joint control per VJI/EJI board
Number of belt encoders (maximum)	2 conveyor belts per VJI/EJI board
Width	Occupies one backplane slot

[a] Specifications subject to change.

[b] Note that there may be limitations preventing the operation of dual Adept robots from a single controller.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

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