



Ultra5000 DeviceNet Expansion Kit

(Catalog Number 2090-U5EK-DN)

These instructions describe how to install the Allen-Bradley® Ultra5000™ DeviceNet™ Expansion Kit on an Ultra5000 Intelligent Positioning Drive (IPD). Before installing this kit, please read these instructions in their entirety.

The Ultra5000 DeviceNet Expansion Kit (2090-U5EK-DN) provides the components necessary to add DeviceNet connectivity to the following Ultra5000 drives:

| Catalog Number | Description |
|----------------|--|
| 2098-IPD-005 | Ultra5000 Intelligent Positioning Drive 500 Watt |
| 2098-IPD-010 | Ultra5000 Intelligent Positioning Drive 1000 Watt |
| 2098-IPD-020 | Ultra5000 Intelligent Positioning Drive 2000 Watt |
| 2098-IPD-030 | Ultra5000 Intelligent Positioning Drive 3000 Watt |
| 2098-IPD-075 | Ultra5000 Intelligent Positioning Drive 7500 Watt |
| 2098-IPD-150 | Ultra5000 Intelligent Positioning Drive 15000 Watt |
| 2098-IPD-HV030 | Ultra5000 Intelligent Positioning Drive 3000 Watt |
| 2098-IPD-HV050 | Ultra5000 Intelligent Positioning Drive 5000 Watt |
| 2098-IPD-HV100 | Ultra5000 Intelligent Positioning Drive 10000 Watt |
| 2098-IPD-HV150 | Ultra5000 Intelligent Positioning Drive 15000 Watt |
| 2098-IPD-HV220 | Ultra5000 Intelligent Positioning Drive 22000 Watt |

Using These Installation Instructions

These instructions are divided into three major sections. *Ultra5000 DeviceNet Kit Parts List* on page 2 lists the parts included in the kit. *Getting Started* on page 2 lists which steps in *Installing the Ultra5000 DeviceNet Kit* to perform for specific drives, as some instructions are not performed with certain drives.

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Ultra5000 DeviceNet Kit Parts List

The Ultra5000 DeviceNet Expansion Kit includes the following:

| Item ¹ | Description | Quantity |
|-------------------|---|----------------|
| 1 | Adapter Board Used only with 2098-IPD-030, 2098-IPD-075, 2098-IPD-150, 2098-IPD-HV030, 2098-IPD-HV050, 2098-IPD-HV100, 2098-IPD-HV150, or 2098-IPD-HV220 drives. | 1 |
| 2 | Ultra5000 Expansion Chassis | 1 |
| 3 | 4-40 x 3/8" Panhead Phillips Thread Forming Screws Used only with 2098-IPD-005, 2098-IPD-010, or 2098-IPD-020 drives. | 4 |
| 4 | Ultra5000 DeviceNet Printed Circuit Board (PCB) | 1 |
| 5 | 5-pin DeviceNet Cable Connector (installed on PCB) | 1 |
| 6 | 4-40 x 1/4" Panhead Phillips Square Cone SEMS Screws | 8 ² |
| 7 | Ultra5000 Expansion Cover | 1 |
| 8 | Blank Label for Lower Faceplate | 1 |
| 9 | DeviceNet Expansion Label for Upper Faceplate | 1 |
| 10 | Allen-Bradley Nameplate | 1 |

¹ Item numbers are referenced in Figure 1 and Figure 2 on page 7.

² Only 4 screws are used with a 2098-IPD-005, 2098-IPD-010, or 2098-IPD-020 drive, as item 3 is used instead.

Getting Started

Installing the Ultra5000 DeviceNet Expansion Kit on an Ultra5000 Intelligent Positioning Drive (IPD) is a two or three step process:

| If the Drive is a: | Start with the Step 1. and continue with the following step(s): | | |
|---|---|--|--------|
| | Step | Section | On: |
| 2098-IPD-005, 2098-IPD-010, or 2098-IPD-020 | 1. | <i>Installing the DeviceNet Interface</i> | Page 5 |
| | 2. | <i>Loading DeviceNet Software</i> | Page 6 |
| 2098-IPD-030, 2098-IPD-075, 2098-IPD-150, 2098-IPD-HV030, 2098-IPD-HV050, 2098-IPD-HV100, 2098-IPD-HV150, or 2098-IPD-HV220 | 1. | <i>Preparing the Standard Size Ultra5000 Drive</i> | Page 3 |
| | 2. | <i>Installing the DeviceNet Interface</i> | Page 5 |
| | 3. | <i>Loading DeviceNet Software</i> | Page 6 |

Installing the Ultra5000 DeviceNet Kit

Install the Ultra5000 DeviceNet Kit as described below and shown in the Figure 1 and Figure 2 on page 7.

ATTENTION



This product contains stored energy devices. To avoid the hazard of electrical shock, verify that all voltages on the system bus network have been discharged before attempting to service, repair or remove this unit. Only qualified personnel familiar with solid state control equipment and safety procedures in publication NFPA 70E, *Standard for Electrical Safety Requirements for Employee Workplaces*, or applicable local codes should attempt this procedure.

Preparing the Standard Size Ultra5000 Drive

This section applies only to the following drives:

| | | |
|--------------|----------------|----------------|
| 2098-IPD-030 | 2098-IPD-HV030 | 2098-IPD-HV150 |
| 2098-IPD-075 | 2098-IPD-HV050 | 2098-IPD-HV220 |
| 2098-IPD-150 | 2098-IPD-HV100 | |

See Figure 1 on page 7 for a pictorial view of the steps in this section.

1. Remove all power sources from the Ultra5000 drive.

ATTENTION



DC bus capacitors may retain hazardous voltages after input power has been removed, but will normally discharge in several seconds.

Before working on the drive, measure the DC bus voltage to verify it has reached a safe level or wait a full 5 minutes to ensure that all voltages on the system bus have discharged.

Failure to observe this precaution could result in severe bodily injury or loss of life.

2. If attached, remove the two I/O connectors from the front panel of the Ultra5000 drive.

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3. Remove the screws holding the cover to the Ultra5000 drive and remove the cover as follows.
 - On the 2098-IPD-030, 2098-IPD-075, or 2098-IPD-150: Remove the three 6-32 x 1/4" Flathead Phillips screws that secure the right side cover to the mounting bracket on the rear of the Ultra5000 drive. Then slide the right side cover off the drive.
 - On the 2098-IPD-HV030, 2098-IPD-HV050, 2098-IPD-HV100, 2098-IPD-HV150, and 2098-IPD-HV220: Remove the four 6-32 x 1/4" Roundhead Phillips screws that secure the right side cover to the mounting bracket on the top and the bottom of the Ultra5000 drive. Then lift the right side cover off the drive.
4. Remove and discard the two Connector Access tabs from the right side cover of the Ultra5000 drive.

ATTENTION

The Ultra5000 DeviceNet Kit contains ESD (Electrostatic Discharge) sensitive parts.

To avoid damaging these parts, follow static control precautions when installing, testing, servicing, or repairing this assembly.

Refer to Allen-Bradley publication 800-5.4.2, *Guarding Against Electrostatic Damage*, or other appropriate handbooks on ESD protection.

ATTENTION

To avoid personal injury, use caution when installing the Adapter Board. The header pins protrude through the Adapter Board when it is fully seated on the 30-pin Header.

To prevent injury when installing, press only on the sides or the riser of the Adapter Board.

5. Install the supplied Adapter Board on one of the appropriate dual 30-pin Headers of the backplane. The following guidelines apply:
 - A. Select a 30-pin Header that will align with a Connector Access tab removed in step 4, and that will allow connection of the Ultra5000 DeviceNet Printed Circuit Board (PCB).
 - B. Snap the Adapter Board in place by aligning the pin openings with the 30 pins in the Header and the Adapter Board mounting holes with the pre-installed plastic standoffs.
6. Replace and secure the right side cover on the Ultra5000 drive and, if removed, reinstall the two I/O connectors on the front panel. Screw torque is 0.6 Nm (5.0 lb-in).

Installing the DeviceNet Interface

See Figure 2 on page 7 for a pictorial view of the steps in this section.

1. Copy the product information from the Ultra5000 drive to the blank Allen-Bradley Nameplate with a permanent marker.
2. Install the Ultra5000 Expansion Chassis using:
 - If the Ultra5000 drive is a 2098-IPD-005, -010, or -020, use four 4-40 x 3/8" Panhead Phillips Thread Forming Screws. Screw torque is 0.6 Nm (5.0 lb-in).
 - If the Ultra5000 drive is a 2098-IPD-030, -075, -150, -HV030, -HV050, -HV100, -HV150, or -HV220 use four 4-40 x 1/4" Panhead Phillips Square Cone SEMS Screws. Screw torque is 0.6 Nm (5.0 lb-in).
3. Install the Ultra5000 DeviceNet Printed Circuit Board (PCB) by mating the PCB connector with the 30-pin Header on the backplane through the opening made by removing the access tabs (If a standard size drive, ensure an Adapter Board is installed on the respective 30-pin Header). Figure 2 shows the proper orientation of the PCB.
4. Secure the Ultra5000 DeviceNet Printed Circuit Board (PCB) with four 4-40 x 1/4" Panhead Phillips Square Cone SEMS Screws. Screw torque is 0.6 Nm (5.0 lb-in).
5. To install the Ultra5000 Expansion Cover, depress the top and bottom snap tabs and slide the cover over the expansion chassis until the rear locking tabs and the front snap tabs engage the expansion chassis.
6. Affix the two Faceplate labels and the Nameplate label to the Ultra5000 Expansion Cover.

Loading DeviceNet Software

Refer to the following manuals, at the specified revision level or higher, (e.g., 2098-UM001E-xx-x) for instructions on loading DeviceNet software and verifying drive and Ultra5000 DeviceNet Kit functionality.

Related Documentation

The following documents contain additional information concerning related Allen-Bradley products or general information that may be helpful. To obtain a copy, contact your local Rockwell Automation office or distributor, or access the documents on-line at www.theautomationbookstore.com or www.ab.com/manuals/gmc.

| For Information About | Read This Document | Publication Number ¹ |
|--|--|---------------------------------|
| Ultra5000 drive installation and setup procedures | <i>Ultra5000 Hardware Installation Manual</i> | 2098-IN001E-xx-x |
| DeviceNet programming structures for Ultra5000 IPDs | <i>Ultra5000 Series IPDs with DeviceNet Reference Manual</i> | 2098-RM002A-xx-x |
| Loading drivers and files using Ultraware™ | Ultraware Help menus: • Drive branch (Ultra5000) • Ultra5000 Drivers | — |
| | <i>Ultraware User Manual Release 1.4</i> | 2098-UM001E-xx-x |
| Precautions to prevent electrostatic damage | <i>Guarding Against Electrostatic Damage</i> | 800-5.4.2 |
| Information on attaching Ultra5000 DeviceNet Kit drives to a DeviceNet network | <i>DeviceNet Cable System Planning and Installation Manual</i> | DN-6.7.2 |
| How to minimize and control system-level noise | <i>System Design for Control of Electrical Noise</i> | GMC-RM001x-xx-x |
| Information on the safe installation of electrical equipment | <i>Standard for Electrical Safety Requirements for Employee Workplaces</i> | NFPA 70E |

¹ To ensure correct operation, Allen-Bradley publications referenced should be at or above the revision level listed. (e.g., 2098-IN001E-xx-x is revision E of the *Ultra5000 Hardware Installation Manual*.)

Figure 1
Ultra5000 Drive Preparation for DeviceNet Interface
(Applies only to 2098-IPD-030 through 2098-IPD-150, and 2098-IPD-HVxxx)

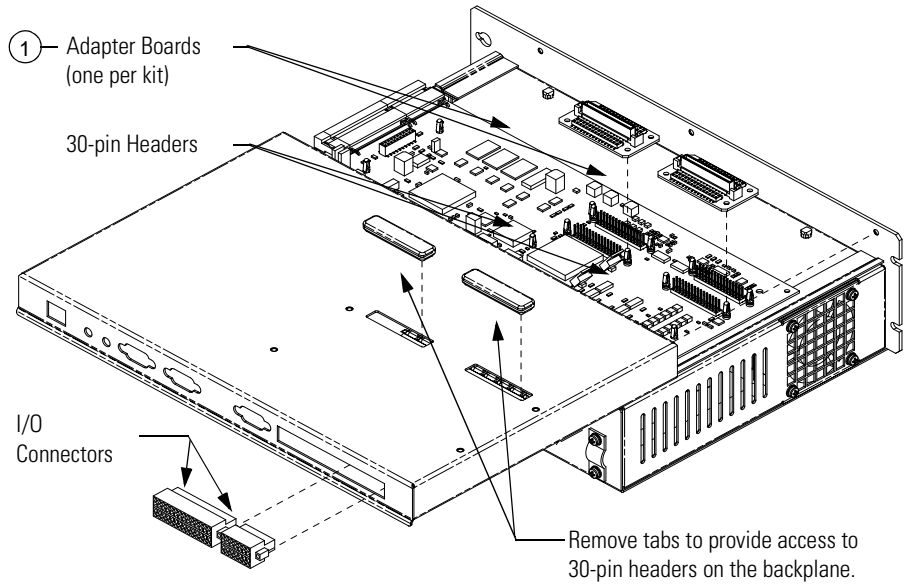
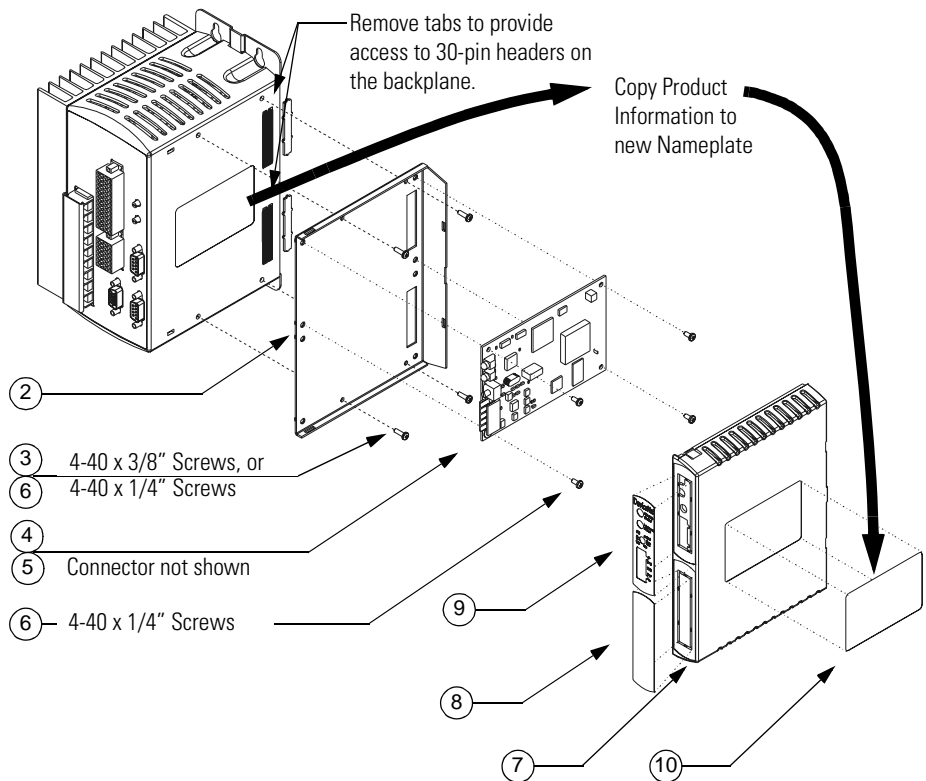


Figure 2
Ultra5000 DeviceNet Kit Exploded View of Installation
(2098-IPD-005, 2098-IPD-010, and 2098-IPD-020 shown, but applies to all Ultra5000 drives)



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Note: Callouts correspond to items in the Parts List on page 2.

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DeviceNet is a trademark of the Open DeviceNet Vendor Association.

For more information refer to our web site: **www.ab.com/motion**

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