



Ultra1500 Digital Drives

(Catalog Numbers 2092-DA1, 2092-DA2, 2092-DA3, 2092-DA4, and 2092-DA5)

This Quick Start guide provides the basic information for installing and verifying the operational status of an Ultra1500™ with a compatible motor. This Quick Start is intended for qualified drive service personnel only.

For detailed and application related information about Ultra1500 drives, refer to the on-line help provided with v1.60 or higher of Ultraware™ software (catalog number 2098-UWCPG) and the *Ultra1500 Digital Drive User Manual* (publication 2092-UM001x-EN-E).

Set up your drive as easy as:

- Wire the drive.
- Configure using the Setup Wizard in Ultraware.
- Spin the motor.

Important User Information

Because of the variety of uses for the products described in this publication, those responsible for the application and use of this control equipment must satisfy themselves that all necessary steps have been taken to assure that each application and use meets all performance and safety requirements, including any applicable laws, regulations, codes and standards.

The illustrations, charts, sample programs and layout examples shown in this guide are intended solely for purposes of example. Since there are many variables and requirements associated with any particular installation, Allen-Bradley® does not assume responsibility or liability (to include intellectual property liability) for actual use based upon the examples shown in this publication.

Allen-Bradley publication SGI-IN001A-EN-P, *Safety Guidelines for the Application, Installation and Maintenance of Solid-State Control* (available from your local Allen-Bradley office), describes some important differences between solid-state equipment and electromechanical devices that should be taken into consideration when applying products such as those described in this publication.

Unpacking Your Ultra1500 Digital Drive

The box contains the following:

- One Ultra1500 drive (catalog numbers are listed above),
- Three removable plugs mounted on the power connectors of the drive,
- One connector tool for opening wire clamps on power connectors, and
- This Quick Start document.

Installation Checklist

Always adhere to the following installation guidelines:

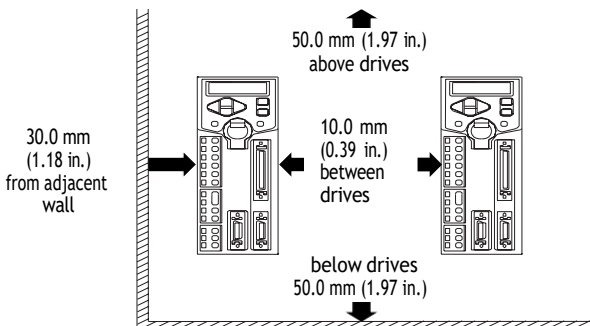
Mechanical Checklist

- ❑ The ambient temperature of the drive must be in the range of 0°C to 50°C (32°F to 122°F).
- ❑ The air should be free of oil, corrosives, or electrically conductive contaminants.
- ❑ The humidity of the drive environment must not exceed 95%, and water must never condense on the drive.
- ❑ Ensure that adequate clearances are present above, below, and at the sides of the drive for ventilation (see Figure 1). Allow adequate clearance in front for proper cable bend radius.
- ❑ Size the drive enclosure adequately to properly manage the ambient temperature, after taking the drive power dissipation into consideration.
- ❑ Implementation of safety circuits and risk assessment is the responsibility of the machine builder.

Electrical Checklist

- ❑ Follow all applicable local codes and regulations to safely ground your system.
- ❑ Separate AC input power wiring and motor power cables from other control and motor feedback cables.
- ❑ When using transformer isolation of the input power, the secondary must be grounded. Transformers must be sized at double the sum of the output power of each axis.
- ❑ The electronic equipment, enclosure, machine frame, and motor housing should all be electrically bonded at high frequencies. Heavy braid wire should be used when mechanical bonding is not possible.
- ❑ In applications that repeatedly apply and remove main AC power to the drive, ensure that the cycling rate of the drive is not exceeded.
- ❑ AC line filters are recommended and should be located as close to the drive as possible.

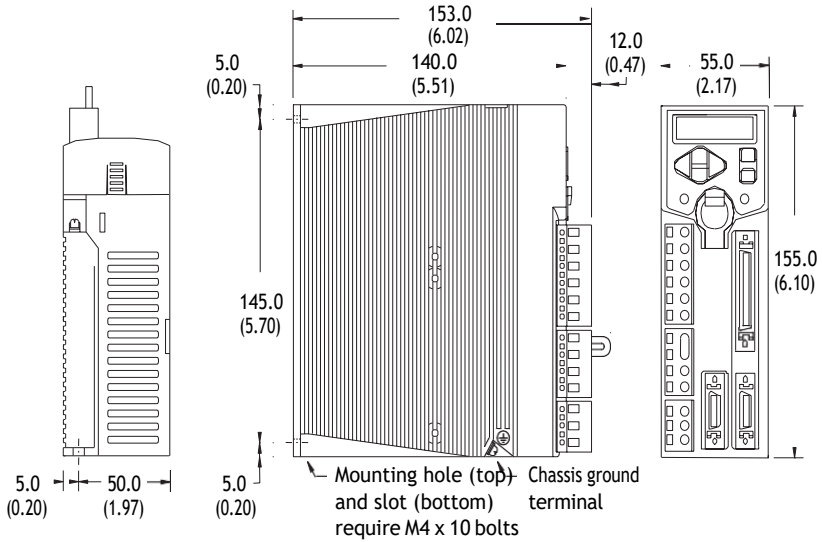
Figure 1
Clearance Requirements for 2092 Drives



Drive Dimensions and Mounting Locations

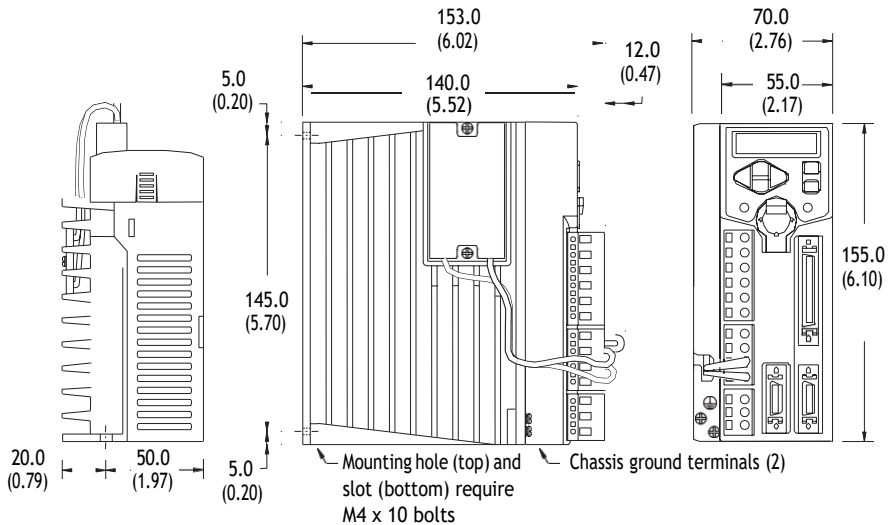
Drive dimensions are shown in the following diagrams. Clearance requirements are shown on page 2.

Figure 2
Dimensional Outline Drawing for 2092-DA1 and 2092-DA2



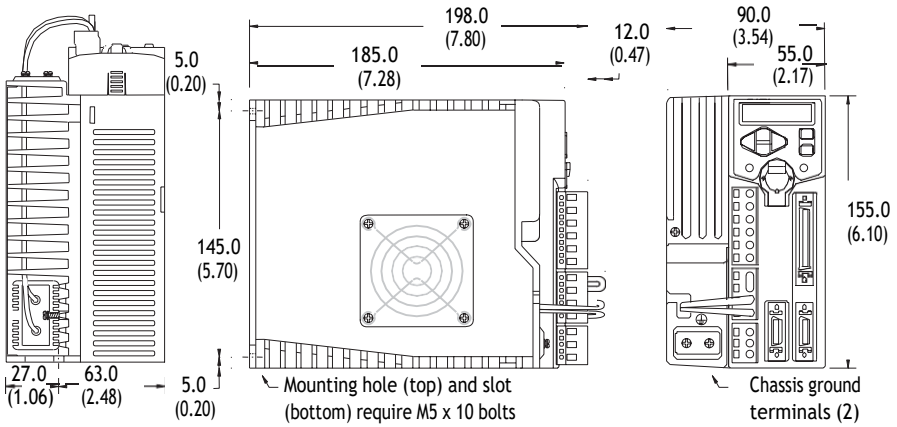
Dimensions are in millimeters (inches). Drives are designed to metric dimensions; inches are mathematical conversion.

Figure 3
Dimensional Outline Drawing for 2092-DA3



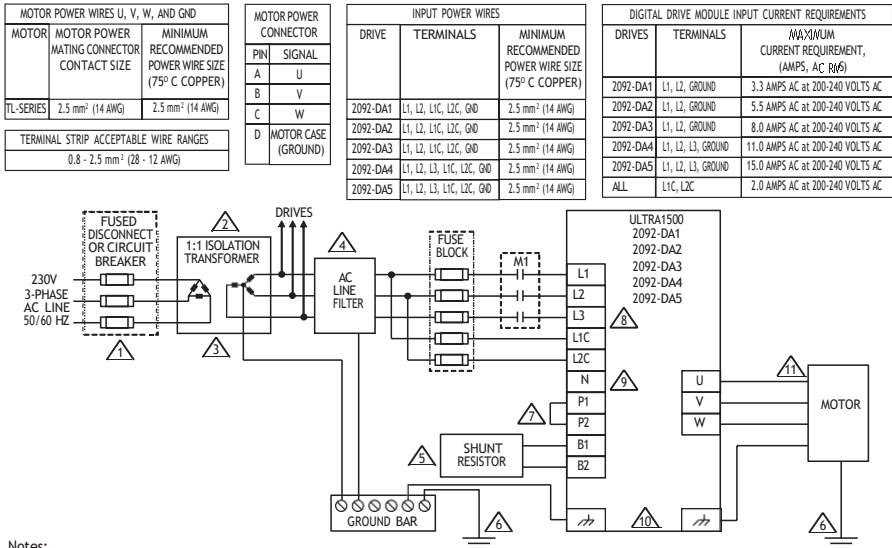
Dimensions are in millimeters (inches). Drives are designed to metric dimensions; inches are a mathematical conversion.

Figure 4
Dimensional Outline Drawing for 2092-DA4 and 2092-DA5



Dimensions are in millimeters (inches). Drives are designed to metric dimensions; inches are a mathematical conversion.

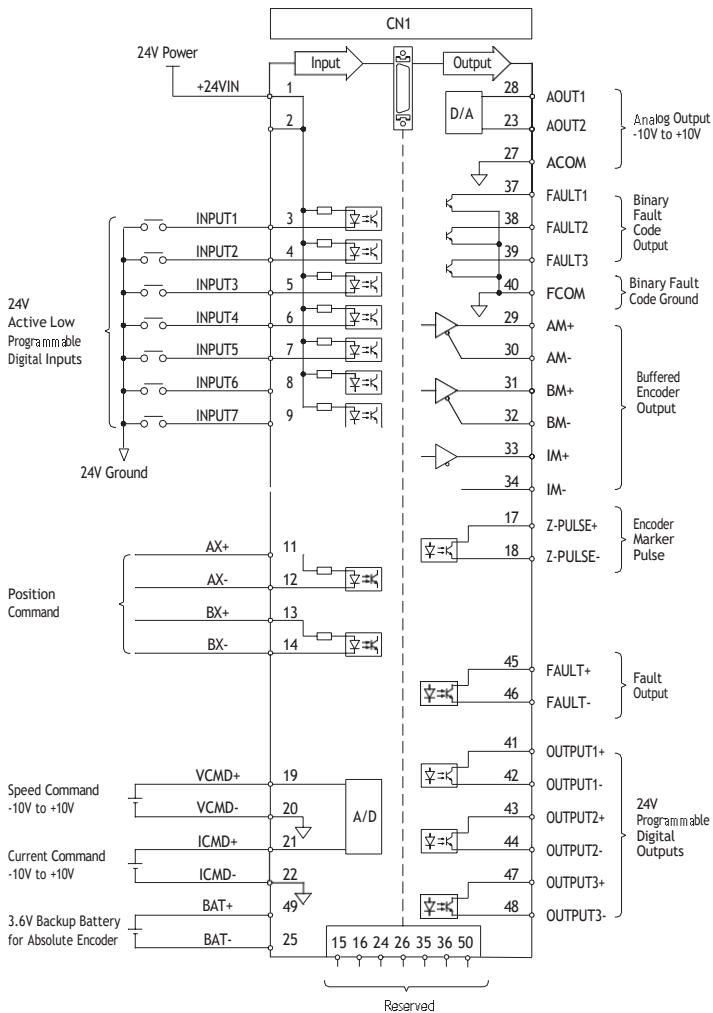
Power Wiring Diagram



Notes:

1. A supply disconnecting device is required for maintenance and safety. Local regulations should be observed.
2. If using an isolation transformer, ensure the phase to neutral/ground voltage does not exceed the input ratings of the drive.
3. Isolation transformer is optional. If used, the secondary of the transformer must be grounded.
4. AC line filter and shielded motor cable are to be used for improving the drive module's electromagnetic compatibility (EMC), and are required to meet European EMC directive. CAUTION: AC line filters have large leakage currents and require discharge time upon power removal.
5. Wiring between the drive module and filter should be kept as short as possible. The common ground bus bar should be as close to the drive as possible.
6. Internal shunt resistor is present only on 2092-DA3, 2092-DA4, and 2092-DA5 drives. B1 and B2 should be left disconnected on 2092-DA1 and 2092-DA2 drives.
7. High-frequency grounding, using heavy braided wires, should connect together the electronic equipment, electrical enclosure, machine frame, and motor housing.
8. If the power factor or harmonic distortion needs improvement, the jumper from P1 to P2 can be replaced with an inductor.
9. 2092-DA1, 2092-DA2, and 2092-DA3 drives are single-phase AC input drives; input power is not connected to L3 on these drives.
10. DC Bus Voltage connection - not an AC power input.
11. 2092-DA1 and 2092-DA2 drives have one grounding screw on the heatsink. 2092-DA3, 2092-DA4, and 2092-DA5 drives have two grounding screws on the heatsink. Tighten the ground terminal screw(s) to 1.25 Nm (11 lbs-in.)
12. Refer to manual included with motor for power, feedback, and brake interconnect information (pinouts and/or wire colors).
13. Wire sizes are minimum recommended values. Local regulations should be observed.

I/O Interface Diagram



Drive Setup

The Setup Wizard found in the Commands menu of Ultraware software (v1.60 or higher) is a quick way to configure your Ultra1500 servo system. A step-by-step procedure assists in the selection of controls and motor to be configured with the Ultra1500 drive, and then tunes the assembled system.

For detailed hardware, interconnect, and application related information about Ultra1500 drives, refer to the following:

- The on-line help provided with Ultraware software, v1.60 or higher (catalog no. 2098-UWCPG).
- The *Ultra1500 Digital Drive User Manual* (publication 2092-UM001x-EN-E).

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