Page A-2

Replace the Ultra3000 (230V) Power Specifications table on page A-2 with the one shown below. The new table includes inrush current specifications configured as Series A, B, or C.

- Ultra3000 drive firmware revision 1.45 is required to support the Series C hardware.
- Ultraware software, version 1.63, is required to download firmware to Series C drives containing the new power board.

Ultra3000 Drive (230V) Power Specifications
2098-DSD-005*x-xx*, 2098-DSD-010*x-xx*, and 2098-DSD-020*x-xx*

Specification	Description		
	2098-DSD-005	**2098-DSD-010**	**2098-DSD-020**
AC input voltage [1]	100...240V rms single-phase		
AC input frequency	47...63 Hz		
AC input current [2] [3] Nom (rms) 230V ac (0-pk) max inrush [4]	 5 A 100 A - Series A or B 20 A - Series C	 9 A 100 A - Series A or B 20 A - Series C	 18 A 100 A - Series A or B 20 A - Series C
Continuous output current (0-pk)	2.5 A	5 A	10 A
Intermittent output current (0-pk)	7.5 A	15 A	30 A
Bus capacitance	1410 µF	1880 µF	1880 µF
Internal shunt resistance	N/A	N/A	N/A
Shunt on	N/A	N/A	N/A
Shunt off	N/A	N/A	N/A
Bus overvoltage	400V dc	400V dc	400V dc
Energy absorption capability 115V ac input 230V ac input	 93 J 38 J	 125 J 51 J	
Continuous power output 115V ac input 230V ac input	 0.25 kW 0.5 kW	 0.5 kW 1.0 kW	 1.0 kW 2.0 kW

[1] Specification is for nominal voltage. The absolute limits are ±10%, or 88...265V rms.

[2] The 2098-DSD-005*x-xx*, -010*x-xx*, and -020*x-xx* (230V) drives are limited to:
Series A or B - one contactor cycle every two minutes.
Series C - one contactor cycle every 10 s for up to two minutes, not to exceed 12 cycles in five minutes.

[3] Power initialization requires a short period of inrush current. Dual-element time delay (slow blow) fuses are recommended.

[4] Inrush current-limiting circuitry is enabled within 3 s after removal of ac line power.

ATTENTION

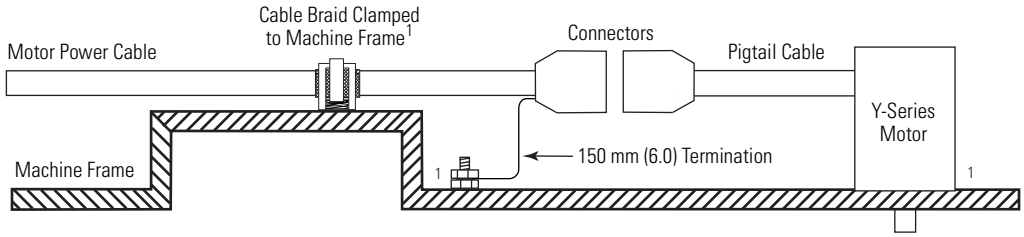


The inrush current-limiting circuitry is limited in the number of power cycles it can withstand within a set period of time. If you exceed these limitations, the circuitry will be damaged.

Connecting the Y-Series Cable Shield at the Motor

Y-Series motors have a short pigtail cable which connects to the motor, but is not shielded. The preferred method for grounding the Y-Series motor power cable on the motor side is to expose a section of the cable shield and clamp it directly to the machine frame. The motor power cable also has a 150 mm (6.0 in.) shield termination wire with a ring lug that connects to the closest earth ground. Use this method in addition to the cable clamp. The termination wire may be extended to the full length of the motor pigtail if necessary, but it is best to connect the supplied wire directly to ground without lengthening. Refer to Figure 3.13 for an illustration and Figure B.15 in *Appendix B* for the interconnect diagram.

Figure 3.13
Y-Series Motor Power Cable Connection



[1] Remove paint from machine frame to ensure proper HF-bond between machine frame and motor case, shield clamp, ground stud, etc.

4. Insert the other end of the cable (from step 3) into the Receive SERCOS connector on the ControlLogix module/SoftLogix PCI Card and thread the connector on finger tight.

5. Complete the ring by connecting the Transmit and Receive connectors from one drive to the next until all are connected (refer to the examples above).

Refer to *Appendix C* for SERCOS fiber-optic cable and bulkhead adapter catalog numbers.

Connecting to a DeviceNet Network

A DeviceNet network is an arrangement of electrical power and device distribution. A DeviceNet network is planned and adjusted for optimal communications.

Before proceeding to add devices, you need to record the following:

- Network data rate
- Network cable system map (topology) to which you are connecting
- Distances between cable system components
- Device current draw and voltage drop for each device on the network
- Limitation of the trunk and drop cables

Refer to the table below for recommended trunk and drop lengths.

Data Rates	125 Kbps	250 Kbps	500 Kbps
Thick Trunk Line	500 m (1,640 ft)	250 m (820 ft)	100 m (328 ft)
Thin Trunk Lengths	100 m (328 ft)	100 m (328 ft)	100 m (328 ft)
Maximum Drop Length	6 m (20 ft)	6 m (20 ft)	6 m (20 ft)
Cumulative Drop Budget	156 m (512 ft)	78 m (256 ft)	39 m (128 ft)

Refer to the *DeviceNet Cable System Planning and Installation Manual* (publication DN-6.7.2) for specific guidance in calculating and attaching the Ultra3000-DN to a network.

Configuring Your Ultra3000 Drive with DeviceNet

The procedures in this section are listed in this table and apply to Ultra3000-DN drives with indexing.

Ultra3000 Drive Configuration Procedures

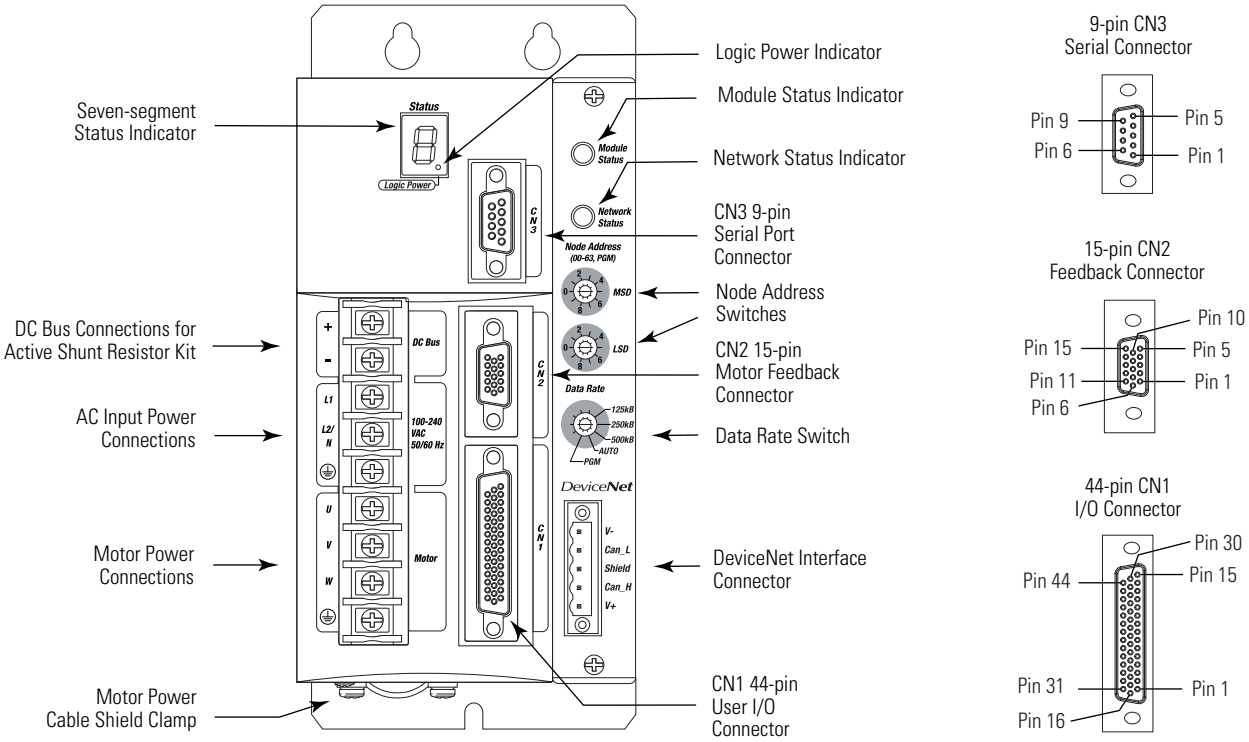
Procedure	Page
Configure Your Ultra3000 Drive with DeviceNet	93
Apply Power to Your Ultra3000 Drive with DeviceNet	94

These procedures assume you have completed wiring the DeviceNet interface connector on your Ultra3000-DN drive.

Front Panel Connections

Use this figure to locate the front panel connections on the Ultra3000-DN 230V drives (500W, 1 kW, and 2 kW).

Front Panel Connections for 2098-DSD-005-DN, 2098-DSD-005X-DN, 2098-DSD-010-DN, 2098-DSD-010X-DN, 2098-DSD-020-DN, and 2098-DSD-020X-DN Drives



For CN1, CN2, and CN3 connector pin-out information, refer to the Ultra3000 Digital Servo Drives Installation Manual, publication 2098-IN003.

Configure Your Ultra3000 Drive with DeviceNet

Follow these steps to configure your Ultra3000-DN drive.

1. Verify that there is no power applied to the drive and that the DeviceNet cable is connected.

Refer to the figures on pages 89…92 for switch locations.

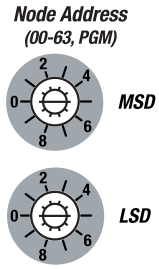
2. Set the node address for each drive in your system.

Valid node addresses are 00…63 and PGM. The MSD rotary switch sets the most significant digit and the LSD rotary switch sets the least significant digit.

Refer to the figures on pages 89…92 for the switch locations. Refer to this table for examples.

Node Address	MSD Switch	LSD Switch
10	1	0
11	1	1
12	1	2

Use the MSD and LSD rotary switches on the DeviceNet drive panel to set node addresses.



Selecting an invalid node address (> 63) sets the node address according to a non-volatile parameter stored in the drive.

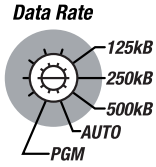
3. Set the data rate.

Valid data rates are 125, 250, and 500 Kbps, AUTO, and PGM.

Refer to the figures on pages 89…92 for the switch location.

Selecting AUTO automatically matches the device data rate to the rate of the network. Selecting PGM sets the data rate according to a non-volatile parameter stored in the drive.

Use the Data Rate rotary switch on the DeviceNet drive panel to set the data rate.



Apply Power to Your Ultra3000 Drive with DeviceNet

This procedure assumes you have wired your Ultra3000-DN system, verified the wiring, and are ready to begin using Ultraware software.

ATTENTION



High voltage exists in ac line filters. The filter must be grounded properly before applying power. Filter capacitors retain high voltages after power removal. Before handling the equipment, voltages should be measured to determine safe levels. Failure to observe this precaution could result in personal injury.

Follow these steps to apply power to your Ultra3000-DN drive.

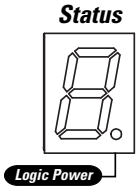
1. Disconnect any load to the motor, making sure the motor is free of all linkages when initially applying power to the system.

ATTENTION



To avoid damage to the drive due to improper sequencing of input power and the Drive Enable signal, you must assign one of the eight inputs as Drive Enable (Input 1 is the default setting).

2. Apply input power to the Ultra3000-DN drive and observe the front panel Logic Power status indicator.



If the Logic Power status indicator is	Then
ON	Go to step 3.
Not ON	1. Check your input power connections. 2. Repeat step 2.

3. Observe the front panel seven-segment status indicator on your Ultra3000-DN drive.

Seven-segment Status Indicator	Status	Do This
Actively cycling segments in a full circle	The drive is ready.	Go to step 4.
Flashing E followed by two numbers	The drive is faulted.	Go to Error Codes on page 98.

4. Observe the module status indicator.

Module Status Indicator	Status	Do This
Steady green	The drive is ready.	Go to step 5.
Not steady green	The drive is faulted.	Go to DeviceNet Module Status Indicator on page 109.

5. Observe the network status indicator.

Network Status Indicator	Status	Do This
Off	Establishing communication with network.	Wait for flashing or steady green.
Flashing or steady green	Communication is ready.	Go to step .
Not flashing or steady green	The drive is faulted.	Go to DeviceNet Network Status Indicator on page 109.

For further commissioning procedures, refer to the following table for procedures.

Ultra3000 Drive Configuration Procedures

Procedure	Page
Detect Your Ultra3000 Drive	16
Understanding the Workspace and Drive Branches	17
Select a Motor	21
Tune Your Motor	22
Configure Displayed Units	23
Test Your Motor (non-indexing move)	25
Test Your Motor (indexing move)	26
Indexing and Non-indexing Move Examples	29

Refer to the Ultra3000 with DeviceNet Reference Manual, publication 2098-RM001, for information on communicating with the Ultra3000 drives using DeviceNet.