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ULTRA 100 Series Drives Installation Manual

(Catalog Numbers 1398-DDM-005, -009, and -019, 1398-DDM-005X, -009X, and -019X)

This document updates information about the 500, 1000, and 2000 Watt ULTRA 100 drive products.

Use this document in conjunction with the *ULTRA 100 Series Drives Installation Manual* 1398-UM002A-EN-P (1398-5.2). To obtain a copy, contact your local Rockwell Automation office or distributor, or access the documents on-line at **http://literature.rockwellautomation.com**.

The power board electronics have changed on these drives. The change includes an enhancement to the in-rush current limiting circuitry that lowers the maximum in-rush current from 100A to 20A, and changes the maximum power-up/power-down cycle rate to once every 10 seconds for up to two minutes, not to exceed 12 cycles in five minutes. The hardware upgrade results in a series change (from A to B) for the drives.

Firmware and software supporting this change include:

- ULTRA 100 firmware version 1.60
  ULTRA 100 Boot firmware version 3.01
- ULTRA Master version 1.62 is required to download firmware to Series B drives containing the new power board.

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Replace the *AC Input Power Sizing Requirements* table. The table specifies in-rush currents for ULTRA 100 drives configured as Series A or Series B.

Table 7.4 AC Input Power Sizing Requirements

Drive Model	Input Current	Inrush Current	Fuse Size[1]	Wire Size mm (AWG)	Transformer Size [(1)]	
ULTRA 100 Digital Drive Module-005 or ULTRA 100 Digital Drive Module-005X	5 A ac rms	100 A peak - Series A 20 A peak - Series B	5 A	1.5 (16)	1 kVA min	100 kVA max
ULTRA 100 Digital Drive Module-009 or ULTRA 100 Digital Drive Module-009X	9 A ac rms	100 A peak - Series A 20 A peak - Series B	10 A	2.5 (14)	2 kVA min	100 kVA max
ULTRA 100 Digital Drive Module-019 or ULTRA 100 Digital Drive Module-019X	18 A ac rms	100 A peak - Series A 20 A peak - Series B	20 A	4.0 (12)	4 kVA min	100 kVA max

1. In the United States, the National Electrical Code (NEC), specifies that fuses must be selected based on the motor full load amperage (FLA), which is not to be confused with the drive input current. The largest fuse allowed under any circumstances is four times the motor FLA. Therefore the largest fuse permissible for use with the ULTRA 100 is four times the motor rated continuous current (converted to an RMS value). The Digital Servo Drive has been evaluated and listed by Underwriters Laboratories Inc. with fuses sized as four times the continuous output current of the drives (FLA), according to UL 508C.
In almost all cases fuses selected to match the drive input current rating will meet the NEC requirements and provide the full drive capabilities. Dual element, time delay (slow acting) fuses should be used to avoid nuisance trips during the inrush current of power initialization. The fuse sizes listed are recommended values, but local regulations must be determined and adhered to.
The ULTRA 100 utilizes solid state motor short circuit protection rated as follows:
Short Circuit Current Rating with No Fuse Restrictions:
Suitable for use on a circuit capable of delivering not more than 5000 RMS symmetrical Amperes, 240 Volts maximum.
Short Circuit Current Rating with Fuse Restrictions:
Suitable for use on a circuit capable of delivering not more than 200,000 RMS symmetrical Amperes, 240 Volts maximum, when protected by high interrupting capacity, current limiting fuses (Class CC, G, J, L, R, T).

[(1)]Technical Note Number 1 details Transformer Sizing requirements for a variety of applications.

For more information refer to our web site: **www.ab.com/motion**
For Allen-Bradley Technical Support information refer to: www.ab.com/support or Tel: (1) 440.646.5800

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