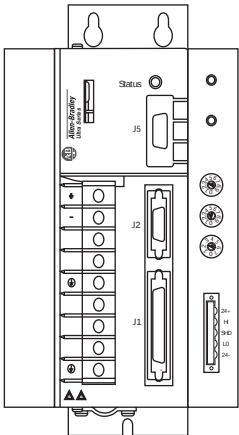


ULTRA 100 and DeviceNet

The DeviceNet interface card is an optional card that provides a direct, digital connection between a DeviceNet network and an ULTRA 100 drive.

The DeviceNet option provides:

- Two bi-colored LEDs for network and module status
- Three switches to set node addresses and baud rate
- Several message protocols
 - Explicit messaging
 - Polled I/O messaging
 - Change-of-state/cyclic messaging



ULTRA 100 Specifications

The following tables contain ULTRA 100 specifications:

General

Specification	1398-DDM-		
	005, 005X ¹ , 005-DN ² , 005X-DN	009, 009X ¹ , 009-DN ² , 009X-DN	0019, 0019X ¹ , 0019-DN ² , 0019X-DN
Peak output current	7.5A	15A	30A
Continuous output current	2.5A	5A	10A
Continuous output power	0.5 kW	1.0 kW	2.0 kW
Continuous input current	5A	9A	18A
Input voltage	100 to 240V AC RMS nominal (88 to 265 Volts), single phase		
Input frequency	47-63 Hz		

¹ The X indicates the indexing version of the drive.
² The DN denotes the DeviceNet option.

Command Sources

Specification	Description
Analog velocity/torque input	±10 Volts
Presets	8 presets, binary selection by digital inputs (unlimited I/O capability over DeviceNet)
Step and direction, step up/step down	1 MHz maximum frequency Differential or single-ended line drivers
Master encoder following	1 MHz maximum line frequency Differential or single-ended line drivers
Digital serial commands	Via serial port and ULTRA Series host language
DeviceNet commands	Via DeviceNet port
Indexing	Absolute (with Homing feature) Incremental Registration (with high-speed registration)

DeviceNet

Specification	Description
Baud rate	125 kps (default), 250 kps, or 500 kps
Multiple drive addressing	00-63 (63 default)
Power consumption (DeviceNet current draw)	60 mA

Serial Communication Port

Specification	Description
Type	RS-232, four-wire RS-485
Baud rate	1,200 to 19,200 baud
Multiple drive addressing	Up to 32 drives ¹

¹ You can use the Ultra Master software to setup multiple drives using the ULTRA 100/200 drives host command protocol.

Control Loops

Specification	Description
Modes	Torque, velocity, and position control
Type	All loops are digital.
Velocity loop bandwidth (maximum)	300 Hz
Position loop	1 ms
Current loop	125 μs

Connectors

Specification	Description
DeviceNet	5-pin open-style connector
Serial	9-pin D-shell (for J5)
Control and feedback	20-pin (for J2) and 50-pin (for J1) high density Mini D
Power	Screw terminal block (for TB1)

Environmental

Specification	1398-DDM-		
	005, 005X ¹ , 005-DN ² , 005X-DN	009, 009X ¹ , 009-DN ² , 009X-DN	0019, 0019X ¹ , 0019-DN ² , 0019X-DN
Storage temperature	-40°C to 70°C (-40°F to 158°F)		
Operating temperature	-5°C to 55°C (23°F to 131°F)		
Humidity	5% to 90%, non-condensing		
Altitude	1500m (5000 ft)		
Vibration	10 to 2000 Hz at 2g		
Shock	15g, 11 ms, half sine		
Weight	1.68 kg (3.7 lb) ³	2.03 kg (4.47 lb) ³	2.0 kg (4.4 lb) ³

¹ The X indicates the indexing version of the drive.

² The DN denotes the DeviceNet option.

³ The DeviceNet option adds 0.16 kg (0.35lb).

Inputs and Outputs

Specification	Description
Selectable digital inputs	4 optically isolated, 12 to 24 volt, active high. User-selectable as: - Analog override - Drive mode select - Fault reset - Forward enable - Preset select - Reverse enable - Starting homing - Define home - Integrator inhibit - Follower enable - Mode override - Registration sensor¹ - Remove command offset - Start index
Selectable digital outputs	2 optically isolated, 12 to 24 volt, active high, short circuit protected. User-selectable as: - At speed - Bus charged - Disabling fault - In dwell - In position - Sequence complete - Within speed window - various fault indications - Axis homed - Current limit - Drive enable - In motion - Registered - Within position window - Zero speed
Dedicated digital inputs	Enable, Fault Reset (optically isolated, 12-24 Volt, active high)
Dedicated relay outputs	Ready/Not Faulted, Brake Output
Analog inputs	1 external analog current limit, 0 to 10 Volt 10-bit resolution
Analog outputs	1 user programmable, ± 10 Volt
Encoder output	1 MHz maximum line frequency Differential line drivers Scalable by 1, $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$
Motor feedback	Incremental encoder

¹ You must use input 2 as the high-speed input.

- When placing the cable into the cable carrier, the carrier should be laid out flat with the bending direction facing upward. It should then be fitted with the cables in working position. The cables should be laid into the cable carrier and not woven between or around other cables.
- Allow at least 10% clearance between cables so that they are free to move. Use separators between cables.
- The cables must be free to move within the carrier. Do not attach the cables to the carrier or to each other.
- Clamp heavier cables toward the edge of the track and lighter cables in the center of the track.
- Do not pull cables tight against the inner/outer track curves.

System Configuration Checklist

Use the following checklist to configure an ULTRA 100/200 system for your application:

ULTRA 100/200 Drives (choose one of the following):

ULTRA 100 Drives ¹

- ☐ 1398-DDM-005, -005-DN
1398-DDM-005X, -005X-DN
- ☐ 1398-DDM-009, -009-DN
1398-DDM-009X, -009X-DN
- ☐ 1398-DDM-019, -019-DN
1398-DDM-0019X, -0019X-DN

ULTRA 200 Drives ²

- ☐ 1398-DDM-010, -010X
- ☐ 1398-DDM-020, -020X
- ☐ 1398-DDM-030, -030X
- ☐ 1398-DDM-075, -075X
- ☐ 1398-DDM-150, -150X

¹ Includes the *ULTRA 100 Installation Manual* (Publication 1398-5.2).

² Includes the *ULTRA 200 Installation Manual* (Publication 1398-5.0).

ULTRA Series Motors (choose one of the following):

F-Series Motors

- ☐ F-4030-Q-H00AA
- ☐ F-4050-Q-H00AA
- ☐ F-4075-R-H00AA¹
- ☐ F-6100-R-H00AA¹
- ☐ F-6200-R-H00AA¹

H-Series Motors

- ☐ H-2005-K-H00AA
- ☐ H-3007-N-H00AA
- ☐ H-3016-N-H00AA
- ☐ H-4030-M-H00AA¹
- ☐ H-4030-P-H00AA

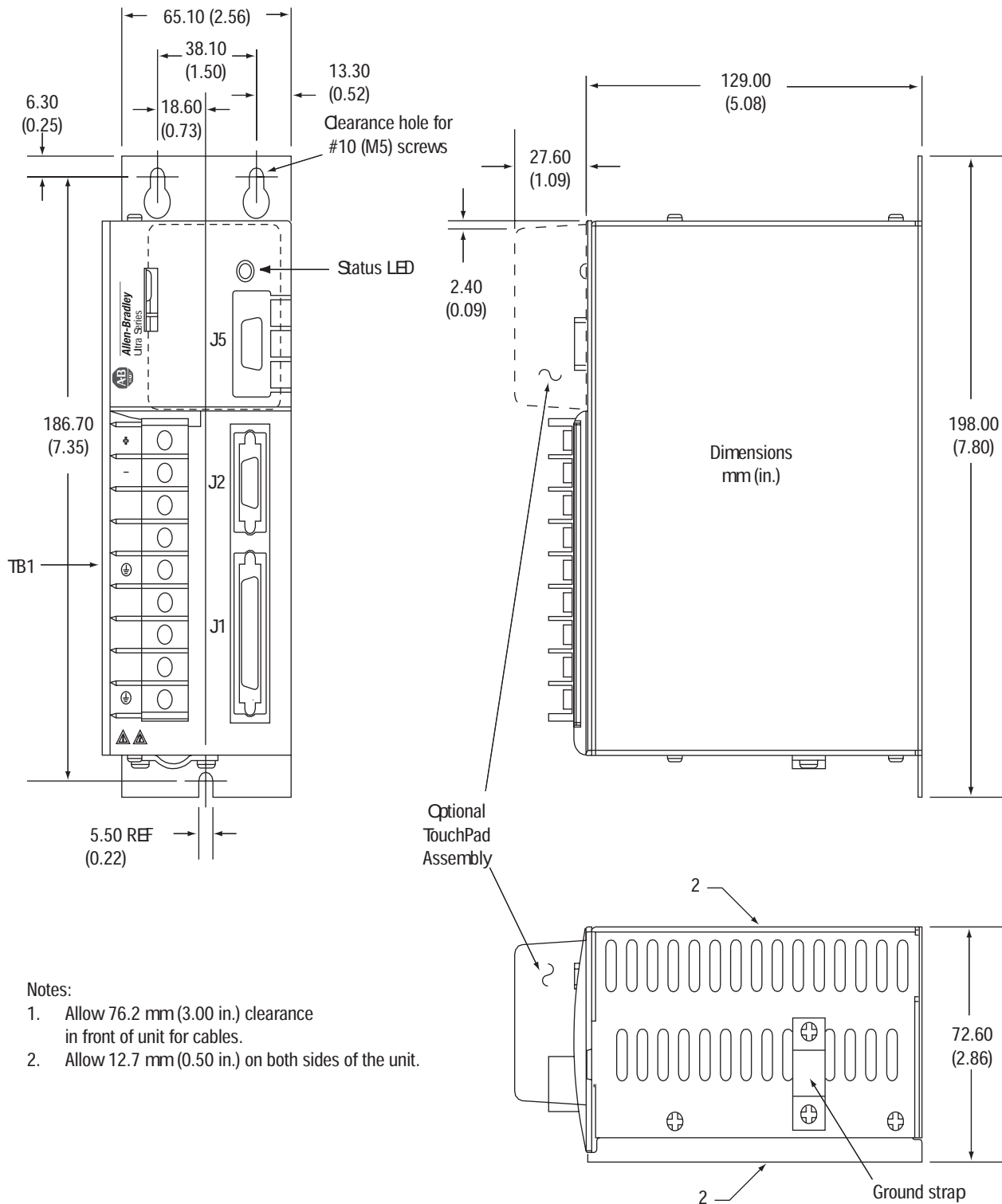
Y-Series Motors

- ☐ Y-1002-1-H00AA
- ☐ Y-1002-2-H00AA
- ☐ Y-1003-1-H00AA
- ☐ Y-1003-2-H00AA
- ☐ Y-2006-1-H00AA

N-Series Motors

- ☐ N-2302-1-F00AA
- ☐ N-2304-1-F00AA
- ☐ N-3406-2-H00AA
- ☐ N-3412-2-F00AA²
- ☐ N-3412-2-H00AA¹

Dimensions for 1398-DDM-005, -005X



Allen-Bradley 1398-DDM-005

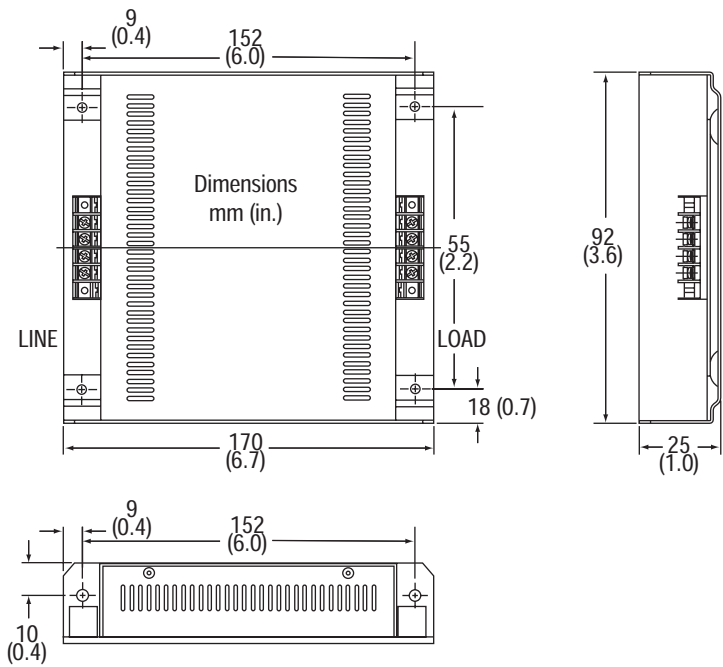
AC Line Filters

AC line filters are required for EMC compliance.

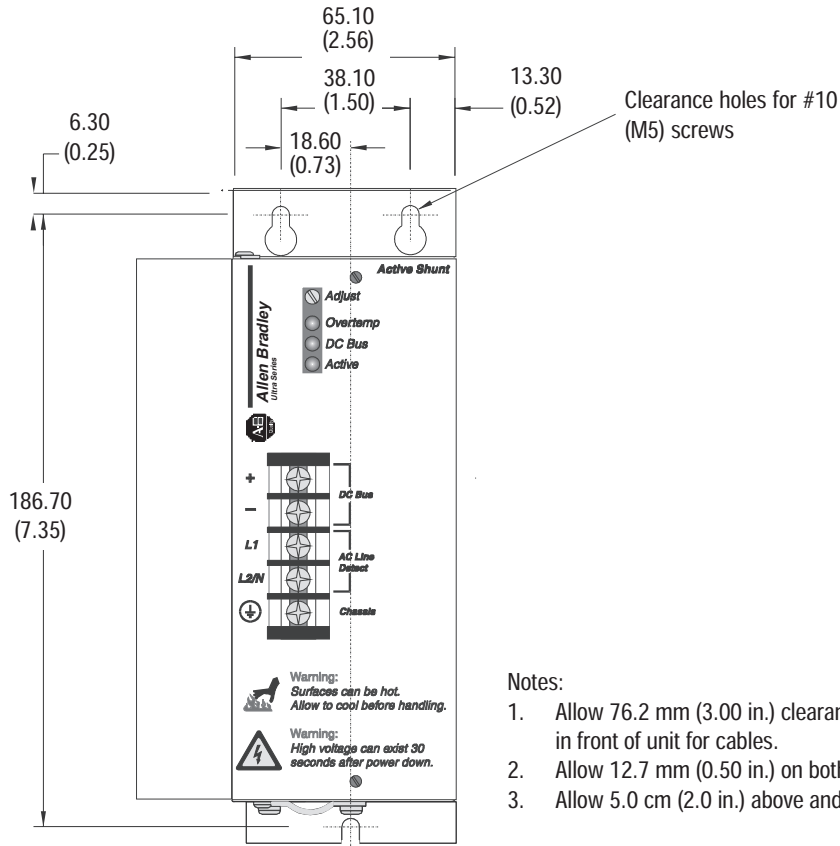
Part Number	Description	ULTRA 100/200
9101-1516	6A, 1 ϕ	1398-DDM-005
9101-1517	10A, 1 ϕ	1398-DDM-009, -010
9101-1518	23A, 1 ϕ	1398-DDM-019, -020
9101-1575	50A, 3 ϕ	1398-DDM-150
9101-1387	36A, 1 ϕ	1398-DDM-030
9101-1388	50A, 1 ϕ	For multiple drives on one filter ¹
9101-1389	36A, 3 ϕ	1398-DDM-075
9101-1390	70A, 3 ϕ	For multiple 1398-DDM-075 drives on one filter ¹

¹ For multiple drives using one filter, the combined drive input currents must not exceed filter current rating.

AC Line Filter (9101-1516)
for 1398-DDM-005



Active External Shunt Module (1398-SR3AF) for
 1398-DDM-005, -005-DN, -005X, -005X-DN
 1398-DDM-009, -009-DN, -009X, -009X-DN, and
 1398-DDM-019, -019-DN, -019X, -019X-DN



Notes:

1. Allow 76.2 mm (3.00 in.) clearance in front of unit for cables.
2. Allow 12.7 mm (0.50 in.) on both sides of the unit.
3. Allow 5.0 cm (2.0 in.) above and below the unit.

Breakout Board (J1) for ULTRA 100/200 Drives (9101-1391)

