



Dataliner DL40 Plus Message Display (Catalog No. 2706-LV2xX, -LV4xX)

Overview

This document describes how to install a Dataliner DL40 Plus display (standard or slave version) and contains these topics:

- Wiring and safety guidelines
- Mounting and dimensions
- Power connections
- DIP switch settings
- Specifications

For additional information, refer to:

- DL40 Plus Message Display User Manual (Publication 2706-6.1)
- DL40 Plus Slave Display User Manual (Publication 2706-6.3)

Wiring and Safety Guidelines

Install the DL40 Plus display conforming to NFPA 70E, Electrical Safety Requirements for Employee Workplaces. In addition to the NFPA general guidelines, refer to the following:

Careful cable routing helps minimize electrical noise. Route incoming power to the module by a separate path from the communication cables.

Do not run communications wiring and power wiring in the same conduit!

Where communication and wire paths must cross, make their intersection perpendicular.

Grounding helps limit the effects of noise due to electromagnetic interference (EMI). To avoid problems caused by EMI, properly ground all equipment and use shielded cables.

Important: Power, input and output (I/O) wiring must be in accordance with Class I, Division 2 wiring methods [Article 501-4(b) of the National Electrical Code, NFPA70] and in accordance with the local authority having jurisdiction.

Hazardous Location Installations



ATTENTION: THIS EQUIPMENT IS SUITABLE FOR USE IN CLASS I, DIVISION 2, GROUPS A, B, C AND D, OR NON-HAZARDOUS LOCATIONS ONLY.



ATTENTION: EXPLOSION HAZARD - SUBSTITUTION OF COMPONENTS MAY IMPAIR SUITABILITY FOR CLASS 1, DIVISION 2.



ATTENTION: EXPLOSION HAZARD - DO NOT CONNECT OR DISCONNECT EQUIPMENT UNLESS POWER HAS BEEN SWITCHED OFF OR THE AREA IS KNOWN TO BE NON-HAZARDOUS.

Mounting the DL40 Plus

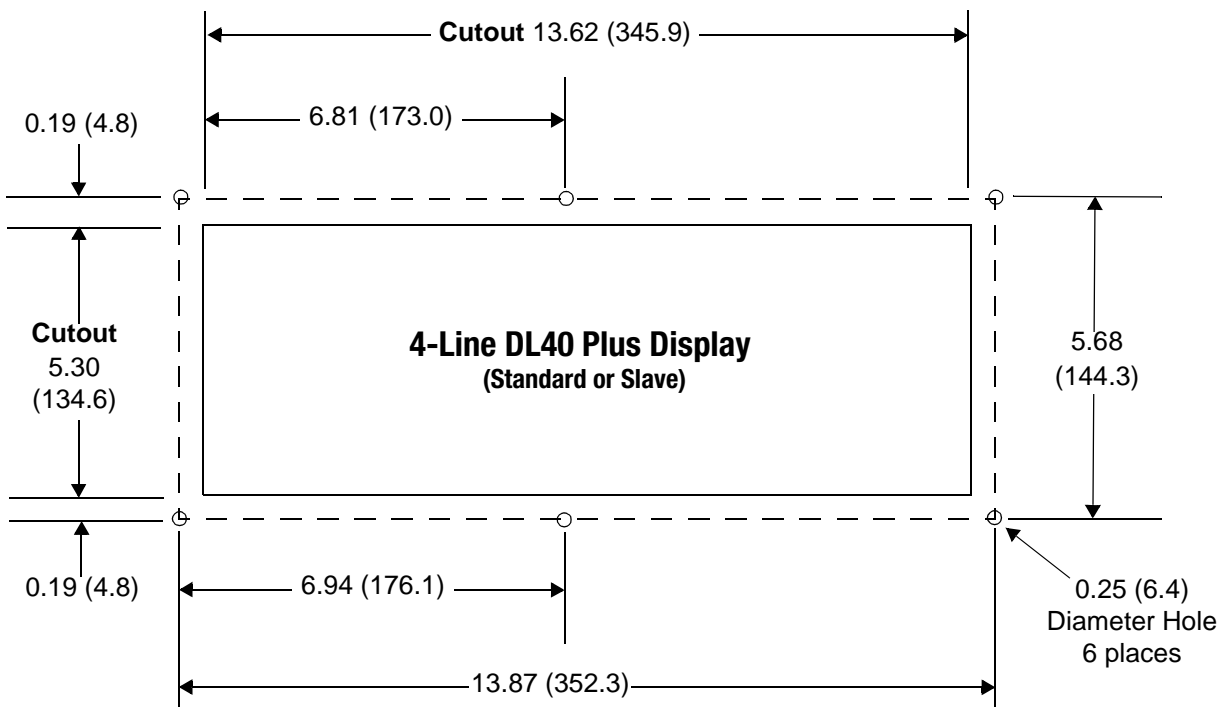
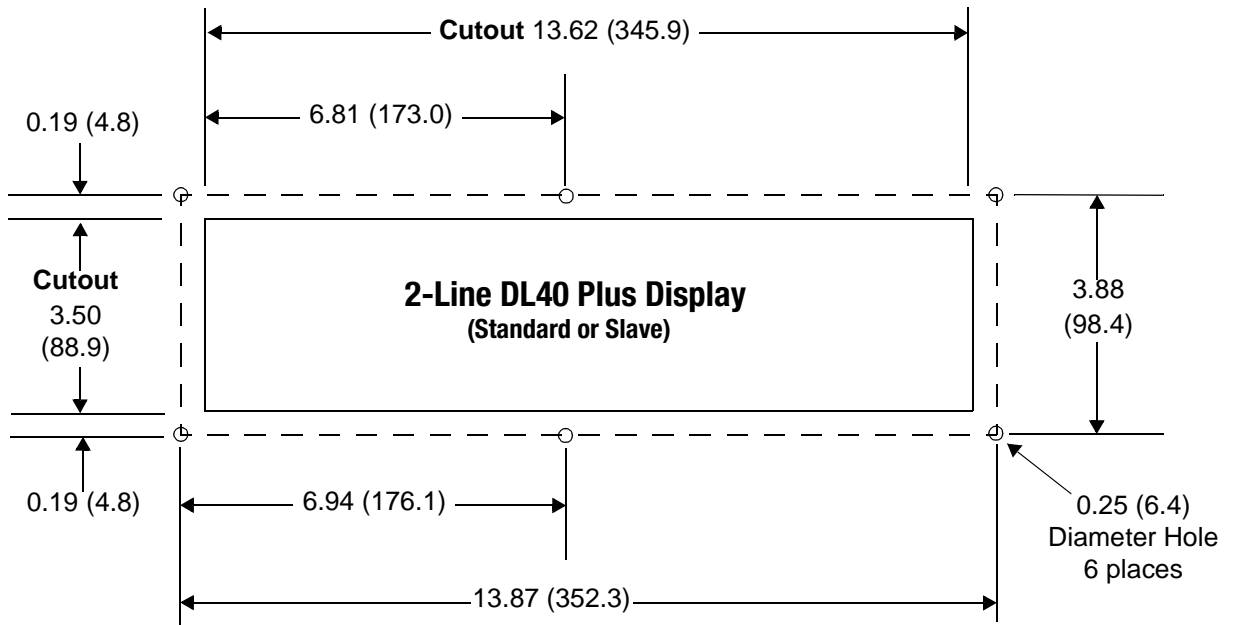
The following pages provide panel cutout dimensions and overall dimensions for the DL40 Plus displays.

You can also mount the DL40 Plus in a custom panel or enclosure. When a DL40 Plus is properly installed, the faceplate provides a NEMA Type 12, 13, and 4X(indoor) rating. To install the DL40 Plus:

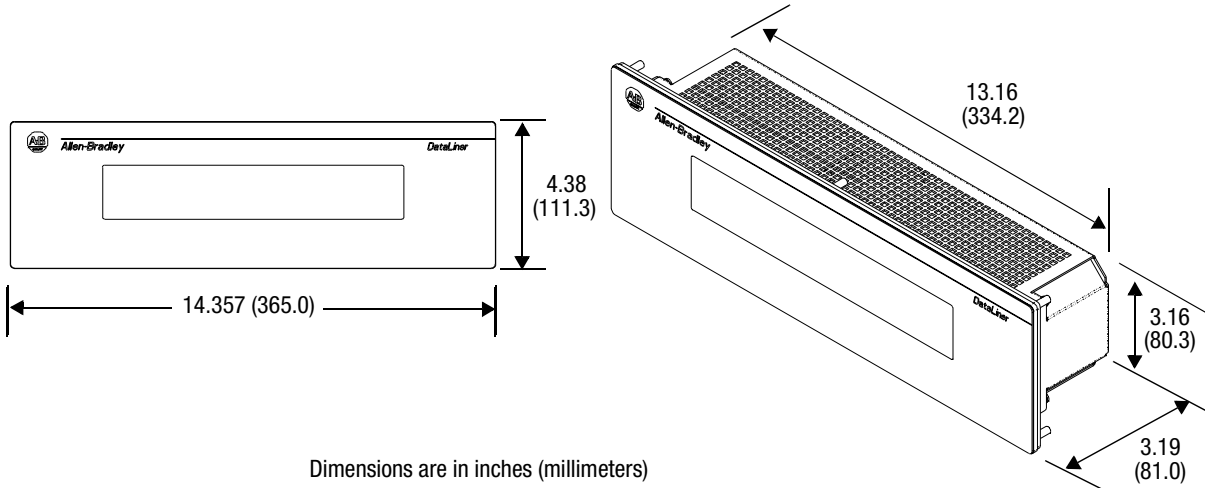
1. Cut and drill the appropriate mounting holes in the enclosure or panel.
2. Remove the six mounting nuts from the hardware bag provided with the display.
3. Position the DL40 Plus in the panel or enclosure mounting hole.
4. Install and alternately tighten the nuts to a torque of 10in•lbs (1.13N•m).

Panel Cutout Dimensions

All dimensions are in inches (millimeters)

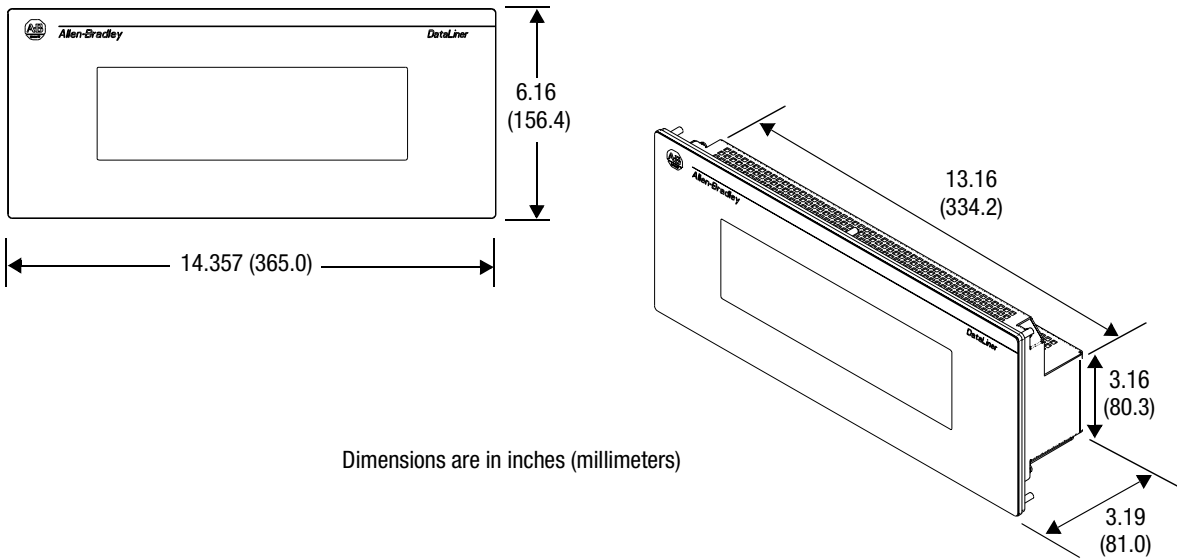


Dimensions 2-Line Display



Dimensions are in inches (millimeters)

Dimensions 4-Line Display



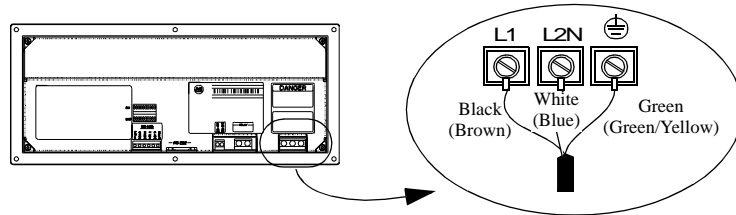
Dimensions are in inches (millimeters)

Power Connections

Before making power connections, make sure that the power is turned off. The DL40 Plus display requires 100-240Volts AC, 50/60 Hz, 0.60-0.25 Amperes.



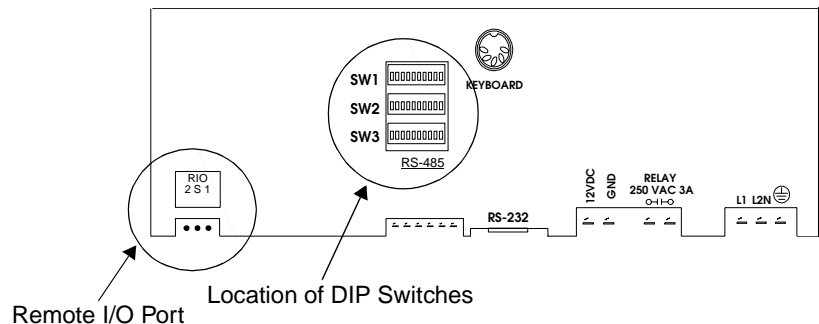
ATTENTION: Improper wiring of the power connections may result in damage to the DL40.



DIP Switch Settings (Remote I/O Versions)

Three DIP switch banks are located on the back of the display. Access the DIP switches through a cutout, as shown below. Set DIP switches using a thin nonconductive object. Do not use a pencil (broken graphite pieces may short out the internal circuitry).

For details on DIP switch settings, refer to the DL40 Plus User Manual (Publication 2706-6.1).



Switch Bank #1 (SW-1) sets the rack address.

Switch Bank #2 (SW-2) controls Baud Rate, Fast Reset Sequence, Block Transfer, Last Chassis, Keyboard Type, Handshaking, Last State, Select Enable, No PLC Comm Error Message.

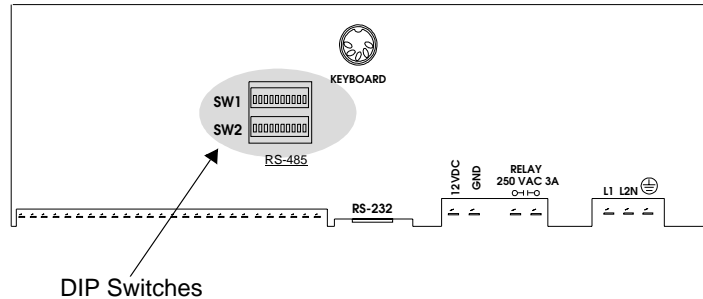
Switch Bank #3 (SW-3) sets the serial address. The serial address refers to the address used for triggere received from the serial RS-485 port or computer keyboard.

Important: Disconnect power from the DL40 Plus before setting any switch except Select Enable, SW2-9. Select Enable can be changed with the power on. Switch settings are scanned **only** on power-up. A new setting for Select Enable takes effect immediately. All other switches take effect on power-up or reset.

DIP Switch Settings (Parallel Port Versions)

Two DIP switch banks are located on the back of the module. You can access the DIP switches through a cutout, as shown below. Set DIP switches using a thin nonconductive object. Do not use a pencil (broken graphite pieces may short out the internal circuitry).

For details on DIP switch settings, refer to the DL40 Plus User Manual (Publication No. 2706-6.1).



Switch Bank #1 (SW-1) controls: Debug Mode, Fast Reset Sequence, Keyboard Type, Select Enable.

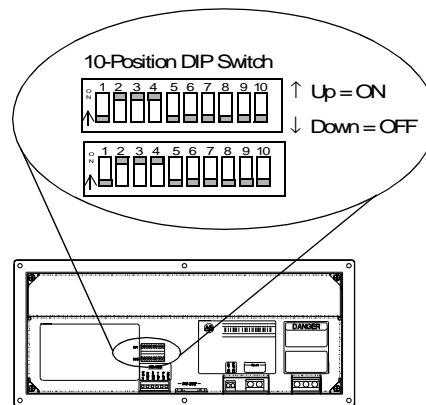
Switch Bank #2 (SW-2) sets the serial address. The serial address refers to the address used for triggers received from the serial RS-485 port or computer keyboard.

Important: Remove power from the DL40 Plus before setting any switch except Select Enable, SW1-9. Select Enable can be changed with the power ON. Switch settings are scanned only on power-up. The new setting for Select Enable takes effect immediately. The new settings for all other switches take effect when you power-up or reset the DL40 Plus.

DIP Switch Settings (Slave Versions)

Access the 10-position DIP switches from the back of the display. Set DIP switches using a thin nonconductive object. Do not use a pencil (broken graphite pieces may short out the internal circuitry).

Changes to DIP switches take effect on powerup. The DL40 Plus slave displays the current settings during its powerup sequence. If you make changes with the power applied, you will have to cycle power before the changes take effect. For details on setting DIP switches, refer to the DL40 Plus Slave User Manual (Publication 2706-6.3).



Positions #1 and #2 of DIP Switch #1 set the operating mode. Default factory setting is DL Slave mode.

Positions #3 and #4 of DIP Switch #1 set the display language. Default factory setting is English.

Positions #5 and #6 of DIP Switch #1 set the baud rate. Select the baud rate to match the host device. Default factory setting is 9600.

Positions #7 and #8 of DIP Switch #1 determine the parity. Set the parity to match the host device. Default factory setting is Even Parity enabled. Positions #9 and #10 apply to Terminal mode operation.

Positions #1 through #7 of DIP Switch #2 select the serial address of the DL40 Slave. The address is the binary sum of the value of all the switches in the Up condition. Default factory setting is address 127. Positions #8 to #10 are not used.

Additional Information

For additional information on communication port wiring and display configuration, refer to the DL40 Plus User Manual (Publication 2706-6.1) or DL40 Plus Slave User Manual (Publication 2706-6.3).

Specifications

Display Characters

Character Height Two line display Four line display	11.3 mm (0.44 inch) 11.3 mm (0.44 inch)
Character Set English Cyrillic International	Standard & Extended ASCII Characters Standard & Cyrillic (Russian) Characters Standard & International ISO 8859-1 Characters
Characters per Display Line	20
Viewing Distance - Approximate	7.6 meters (25 feet)
Character Type	Vacuum fluorescent, 5 x 7 dot matrix characters. Filtered to blue/green color.

Electrical

Input Voltage	100 - 240V AC, 50-60 Hz, 0.60 - 0.25A
Input Power	60VA
Fuse Type	Internal sealed (not user replaceable)
Annunciation Relay AC Resistive Load DC Resistive Load	Single N.O. contact 3 Amperes at 240V AC 3 Amperes at 30V DC

Serial Communications

Electrical Interface	RS-232 (EIA-/TIA-232-E) RS-485 (EIA-485)
Baud Rate	300, 1200, 9600, 19200 2400, 4800 (2706-LV2S, -LV2R, -LV4S, -LV4R only)
Data Format	7 or 8 data bits; odd, even, or no parity

PLC Remote I/O Communications Port (RIO versions only)

Electrical Interface	Allen-Bradley Remote I/O Link
Remote I/O Baud Rate	57.6K, 115.2K, or 230.4K
Maximum I/O Cable Distance	10,000 feet (2800m) for 57.6K baud 5,000 feet (1400m) for 115.2k baud 2,500 feet (700m) for 230.4K baud
Rack Sizes	1/4 1/2, 3/4, or 1 (any starting module)
Data Transfer Type	Discrete I/O or Block Transfers

Parallel Communications Port (Parallel Port versions only)

Electrical Interface Parallel Input Port	0 to 24 VDC High True Logic Low True Logic
Logic Low	0 - 0.8 VDC 3.5 - 24 VDC
Indeterminate	0.8 - 3.5 VDC 0.8 - 3.5 VDC
Logic High	3.5 - 24 VDC 0 - 0.8 VDC
Data Lines	16 Data Lines,- plus 4 strobe lines
Input Current	5mA per data line at 12 Volts DC
Output Supply	+12 Volts DC output voltage source provided, 200mA maximum

Keyboard Port (RIO & Parallel Port Versions Only)

Electrical Interface	Standard Personal Computer Keyboard IBM PC-XT, -AT compatible
Connector	8-pin DIN (large style connector)

Environmental



Temperature Range - Operating	0° to 60°C (+32° to 140°F)
Temperature Range - Storage	-40° to 85°C (-40° to 185°F)
Humidity	5% to 95% (non-condensing)
Shock	Operating 15G, Non-operating 30G pulses
Vibration	Operating 1.0G, Non-operating 2.5G sinusoidal

Mechanical

Enclosure Type	UL listed for NEMA Type 12, 13, 4, 4X (indoor use only) when mounted in a suitable enclosure of Type 12, 13, 4, 4X, IP65, or IP54
Weight - Approximate Catalog No. 2706-LV2S, -LV2P, -LV2R Catalog No. 2706-LV4S, -LV4P, -LV4R	3.6 lbs. (1.6 kg) 4.8 lbs. (2.2 kg)

Allen-Bradley Replacements

Certifications

<p>UL Listings</p> 	<p>UL listed for UL-508 Industrial Control Equipment Class I, Groups A, B, C, and D Division 2, Hazardous Locations</p> <p>UL Listed for Canadian Safety Standards CSA 22.2 No. 213</p>
<p>European Union Directive</p> 	<p>Electromagnetic Compatibility Directive (89/336/EEC)</p> <p>EN 50082-2 Generic Emission Standard - Industrial Environment</p> <p>EN 50081-2 Generic Immunity Standard - Industrial Environment</p> <p>IEC 1131-2 Programmable Controllers - Equipment Class I</p>

Allen-Bradley Replacements

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