



## MODEL LD - LARGE DC VOLT/CURRENT/PROCESS DISPLAY



- 2.25" & 4" HIGH RED LED DIGITS
- PROGRAMMABLE SCALING AND DECIMAL POINTS
- PROGRAMMABLE USER INPUT
- DUAL 5 AMP FORM C RELAY
- ALUMINUM NEMA 4X CASE CONSTRUCTION
- RS232/RS485 SERIAL COMMUNICATIONS
- UNIVERSALLY POWERED

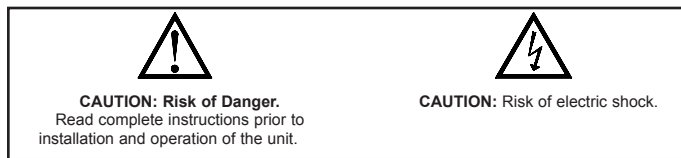
### GENERAL DESCRIPTION

The Large Display is a versatile display available as a DC volt, current, or process meter with scaling, serial communications and dual relay outputs. The 5 digit displays are available in either 2.25" or 4" high red LED digits with adjustable display intensities. The 2.25" high models are readable up to 130 feet. The 4" high models are readable up to 180 feet. Both versions are constructed of a NEMA 4X enclosure in light weight aluminum.

All models also come with dual Form C relay outputs and RS232 / RS485 serial communications.

### SAFETY SUMMARY

All safety regulations, local codes and instructions that appear in this and corresponding literature, or on equipment, must be observed to ensure personal safety and to prevent damage to either the instrument or equipment connected to it. If equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

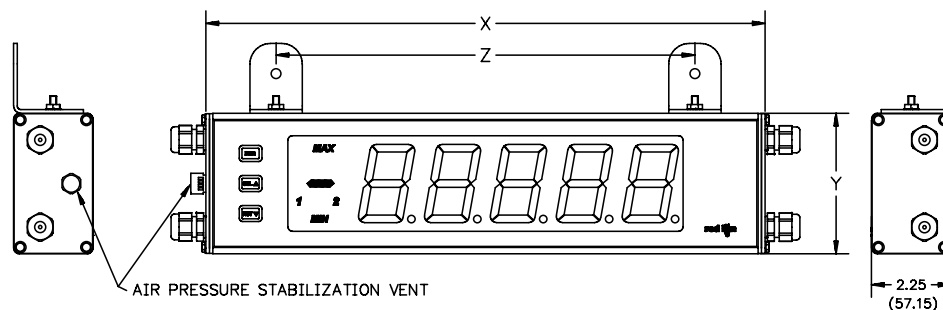


The protective conductor terminal is bonded to conductive parts of the equipment for safety purposes and must be connected to an external protective earthing system.

### ORDERING INFORMATION

MODEL NO.	DESCRIPTION	PART NUMBER
LD2A	2.25" High 5 Digit Red LED Volt/Current Meter w/ Relay Output and RS232/RS485 Serial Comms	LD2A05P0
LD4A	4" High 5 Digit Red LED Volt/Current Meter w/ Relay Output and RS232/RS485 Serial Comms	LD4A05P0

### DIMENSIONS In inches (mm)



PART NUMBER	X (Length)	Y (Height)	Z (Center)
LD2A05P0	16 (406.4)	4 (101.6)	12 (304.3)
LD4A05P0	26 (660.4)	7.875 (200)	22 (558.8)

### SPECIFICATIONS

- DISPLAY:** 5 digit, 2.25" (57 mm) or 4" (101 mm) intensity adjustable Red LED (-99999 to 99999)
- POWER REQUIREMENTS:**  
AC POWER: 50 to 250 VAC 50/60 Hz, 26 VA  
DC POWER: 21.6 to 250 VDC, 11 W  
DC Out: +24 VDC @ 100 mA if input voltage is greater than 50 VAC/VDC  
+24 VDC @ 50 mA if input voltage is less than 50 VDC  
Isolation: 2300 Vrms for 1 min. to all inputs and outputs
- INPUT RANGES:** Jumper Selectable  
**D.C. Voltages:** 200 mV, 2 V, 20 V, 200 V, 10 V

INPUT RANGE	ACCURACY @ 23 °C LESS THAN 85% RH	INPUT IMPEDANCE	MAX INPUT SIGNAL	RESOLUTION	TEMP. COEFFICIENT
200 mV	0.1% of span	1.027 MΩ	75 VDC	10 μV	70 ppm /°C
2 V	0.1% of span	1.027 MΩ	75 VDC	0.1 mV	70 ppm /°C
20 V	0.1% of span	1.027 MΩ	250 VDC	1 mV	70 ppm /°C
200 V	0.1% of span	1.027 MΩ	250 VDC	10 mV	70 ppm /°C
10 V	0.1% of span	538 KΩ	30 V	1 mV	70 ppm /°C

**D.C. Currents:** 200 μA, 2 mA, 20 mA, 200 mA

INPUT RANGE	ACCURACY @ 23 °C LESS THAN 85% RH	INPUT IMPEDANCE	MAX INPUT SIGNAL	RESOLUTION	TEMP. COEFFICIENT
200 μA	0.1% of span	1.111 KΩ	15 mA	10 nA	70 ppm /°C
2 mA	0.1% of span	111 Ω	50 mA	0.1 μA	70 ppm /°C
20 mA	0.1% of span	11 Ω	150 mA	1 μA	70 ppm /°C
200 mA	0.1% of span	1 Ω	500 mA	10 μA	70 ppm /°C

**D.C. Process:** 4 to 20 mA, 1 to 5 VDC, 0/1 to 10 VDC

INPUT RANGE	SELECT RANGE
4 - 20 mA	Use the 20 mA range
1 - 5 VDC	Use the 10V range
1 - 10 VDC	Use the 10V range

- OVERRANGE/UNDERRANGE INDICATION:**

**Input Overrange Indication:** "0.00".

**Input Underrange Indication:** "0.00".

**Display Overrange/Underrange Indication:** "....."/"....."

- A/D CONVERTER:** 16 bit resolution  
A/D Conversion Rate: 6 readings/sec.

6. **DISPLAY RESPONSE TIME:** 500 msec min.
7. **USER INPUT:**  
 Software selectable pull-up (8.6 K $\Omega$ ) or pull-down resistor (3.9 K $\Omega$ ) that determines active high or active low input logic.  
 Trigger levels: V<sub>IL</sub> = 1.0 V max; V<sub>IH</sub> = 2.4 V min; V<sub>MAX</sub> = 28 VDC  
 Response Time: 5 msec typ.; 50 msec debounce (activation and release)
8. **COMMUNICATIONS:**  
**Type:** RS485 or RS232  
**Isolation To Sensor & User Input Commons:** 500 Vrms for 1 min.  
 Working Voltage: 50 V. Not Isolated from all other commons.  
**Data:** 7/8 bits  
**Parity:** no, odd or even  
**Baud Rate:** 300 to 38.4 K  
**Bus Address:** Selectable 0 to 99, Max. 32 meters per line (RS485)
9. **MEMORY:** Nonvolatile E<sup>2</sup>PROM retains all programming parameters and max/min values when power is removed.
10. **OUTPUT:**  
**Type:** Single FORM-C relay  
**Isolation To Sensor & User Input Commons:** 1400 Vrms for 1 min.  
 Working Voltage: 150 Vrms  
**Contact Rating:** 5 amps @ 120/240 VAC or 28 VDC (resistive load), 1/8 H.P. @ 120 VAC (inductive load)  
**Life Expectancy:** 100,000 minimum operations  
**Response Time:**  
 Turn On Time: 4 msec max.  
 Turn Off Time: 4 msec max.
11. **ENVIRONMENTAL CONDITIONS:**  
 Operating temperature: 0 to 50 °C  
 Storage temperature: -40 to 70 °C  
 Operating and storage humidity: 0 to 85% max. RH (non-condensing)  
 Vibration According to IEC 68-2-6: Operational 5 to 150 Hz, in X, Y, Z direction for 1.5 hours, 2 g's (1 g relay).  
 Shock According to IEC 68-2-27: Operational 30 g's (10 g relay), 11 msec in 3 directions.  
 Altitude: Up to 2,000 meters
12. **CONNECTIONS:** Internal removable terminal blocks  
 Wire Strip Length: 0.4" (10 mm)  
 Wire Gauge: 24-12 AWG copper wire  
 Torque: 5.3 inch-lbs (0.6 N-m) max.  
 Cable Diameter: Outside diameter must be 0.181" (4.6 mm) to 0.312" (7.9 mm) to maintain NEMA 4 rating of cord grips.

13. **CONSTRUCTION:** Aluminum enclosure, and steel side panels with textured black polyurethane paint for scratch and corrosion resistance protection. Sealed front panel meets NEMA 4X/IP65 specifications. Installation Category II, Pollution Degree 2.

14. **CERTIFICATIONS AND COMPLIANCES:**

**SAFETY**

UL Listed, File # E137808, UL508, CSA C22.2 No. 14-M95

File # E179259, UL61010A-1, CSA C22.2 No. 61010-1

LISTED by Und. Lab. Inc. to U.S. and Canadian safety standards

Type 4X Enclosure rating, UL50

IECEE CB Scheme Test Certificate #US/8843B/UL

CB Scheme Test Report #04ME11209-20041018

Issued by Underwriters Laboratories, Inc.

IEC 61010-1, EN 61010-1: Safety requirements for electrical equipment for measurement, control, and laboratory use, Part 1.

IP65 Enclosure rating, IEC 529

**ELECTROMAGNETIC COMPATIBILITY**

Emissions and Immunity to EN 61326: Electrical Equipment for Measurement, Control and Laboratory use.

**Immunity to Industrial Locations:**

Electrostatic discharge	EN 61000-4-2	Criterion B 4 kV contact discharge 8 kV air discharge
Electromagnetic RF fields	EN 61000-4-3	Criterion B 10 V/m
Fast transients (burst)	EN 61000-4-4	Criterion B 2 kV power 1 kV signal
Surge	EN 61000-4-5	Criterion A 1 kV L-L, 2 kV L&N-E power
RF conducted interference	EN 61000-4-6	Criterion B 3 V/rms
Voltage dip/interruptions	EN 61000-4-11	Criterion A 0.5 cycle

**Emissions:**

Emissions EN 55011 Class A

*Notes:*

1. *Criterion A: Normal operation within specified limits.*

2. *Criterion B: Temporary loss of performance from which the unit self-recovers.*

15. **WEIGHT:**

LD2A05XX - 4.5 lbs (2.04 kg)

LD4A05XX - 10.5 lbs (4.76 kg)