Large Display Meter

LDP63000-E, $475, shown smaller than actual size.

LDP63000 Starts at
$475

2 YEAR WARRANTY · MADE IN USA · CE · c UL us

- **Large 38 mm (1.5") LED Display Readable to 70'**
- **Various Input Types Available**
- **Alarms, Analog Outputs, and Communication**
- **Custom Units Label with Backlight**
- **Programmable User Inputs and Function Keys**
- **Universal AC/DC Powered**
- **NEMA 4 (IP65)**
- **Field Installable Output Cards (Optional)**

The LDP63000 Series is a versatile display that can increase productivity by offering the plant floor or production area a large visual display of their current status. Whether your measurement needs are for temperature or process information, the LDP63000 can satisfy your requirements. With the use of a units label and backlighting, the display can be tailored to show the actual engineering unit. The LDP63000 display accepts various analog inputs through the use of input modules which allow the unit to adapt to most any application. Additional plug-in option cards can add alarms, analog output, and communication/bus capabilities, making the LDP63000 an "intelligent" panel meter.

Specifications

Display: 38 mm(1.5") red LED, 5-digit, (-19999 to 99999)

Power Requirements:

AC Modules: 85 to 250 Vac, 50/60 Hz, 18 VA

DC Modules: 11 to 36 Vdc or 24 Vac ±10%, 50/60 Hz, 14 W

Input: Accepts analog input modules

Keypad: Five tactile membrane switches integrated into the front panel

Environmental Conditions:

Operating Temperature Range: Determined by the input module

Storage Temperature Range: -40 to 60°C (-40 to 140°F)

Operating and Storage Humidity: 0 to 85% max RH (non-condensing)

Altitude: Up to 2000 meters

Mounting Requirements:

Max Panel Thickness: 9.5 mm (0.375")

Min Panel Thickness [NEMA 4 (IP65) Sealing]: 1.57 mm (0.060")

Connections: All wiring connections are made to the input module via high-compression, cage-clamp terminal blocks

Construction: Steel front panel, enclosure, and rear cover with textured black polyurethane paint for scratch and corrosion resistance protection; sealed front panel meets NEMA 4 (IP65) specifications for indoor use when properly installed—Installation Category II, Pollution Degree 2, panel gasket and keps nuts included

Weight: 1.2 kg (2.7 lbs) (less module)

Readout:

Resolution: Variable—0.1, 0.2, 0.5, or 1, 2, or 5°

Scale: °F or °C

Offset Range: -19,999 to 99,999 display units

Thermocouple Inputs

Thermocouple Inputs:

Input Impedance: 20 MΩ

Lead Resistance Effect: 0.03µV/Ω

Max Continuous Overvoltage: 30 V

Input Type	Range	Accuracy* (18 to 28°C)	Accuracy* (0 to 60°C)
T	-200 to 400°C (-328 to 752°F) -270 to -200°C (-454 to -328°F)	1.2°C**	2.1°C
E	-200 to 871°C (-328 to 1600°F) -270 to -200°C (-454 to -328°F)	1.0°C**	2.4°C
J	-200 to 760°C (-328 to 1400°F)	1.1°C	2.3°C
K	-200 to 1372°C (-328 to 2502°F) -270 to -200°C (-454 to -328°F)	1.3°C**	3.4°C
R	-50 to 1768°C (-58 to 3214°F)	1.9°C	4.0°C
S	-50 to 1768°C (-58 to 3214°F)	1.9°C	4.0°C
B	100 to 300°C (100 to 572°F) 300 to 1820°C (572 to 3308°F)	3.9°C 2.8°C	5.7°C 4.4°C
N	-200 to 1300°C (-328 to 2372°F) -270 to -200°C (-454 to -328°F)	1.3°C**	3.1°C
C	0 to 2315°C (32 to 4199°F)	1.9°C	6.1°C

** After 20 minute warm-up. Accuracy is specified in 2 ways—accuracy over an 18 to 28°C (64 to 82°F) in a 15 to 75% RH environment and accuracy over a 0 to 50°C (32 to 122°F) in a 0 to 85% RH (non-condensing) environment. Accuracy specified over the 0 to 50°C (32 to 122°F) operating range includes meter tempco and ice point tracking effects. The specification includes the A/D conversion errors, linearization conformity, and thermocouple ice point compensation. Total system accuracy is the sum of meter and probe errors. Accuracy may be improved by field calibrating the meter readout at the temperature of interest.*

*** The accuracy over the interval -270 to -200°C (-454 to -328°F) is a function of temperature, ranging from 1°C at -200°C and degrading to 7°C at -270°C. Accuracy may be improved by field calibrating the meter readout at the temperature of interest.*

RTD Inputs

Type: 3- or 4-wire, 2-wire can be compensated for lead wire resistance

Excitation Current:

100 Ω Range: 165 µA

10 Ω Range: 2.6 mA

Lead Resistance:

100 Ω Range: 10 Ω/lead max

10 Ω Range: 3 Ω/lead max

Max Continuous Overload: 30 V

Input Type	Range	Accuracy* (18 to 28°C)	Accuracy* (0 to 50°C)
100 Ω Pt alpha = .00385	-200 to 850°C (-328 to 1562°F)	0.4°C	1.6°C
100 Ω Pt alpha = .003919	-200 to 850°C (-328 to 1562°F)	0.4°C	1.6°C
120 Ω Nickel alpha = .00672	-80 to 260°C (-112 to 1562°F)	0.2°C	0.5°C
10 Ω Copper alpha = .00427	-100 to 260°C (-148 to 500°F)	0.4°C	0.9°C

** After 20 minute warm-up. Accuracy is specified in 2 ways—accuracy over an 18 to 28°C (64 to 82°F) in a 15 to 75% RH environment and accuracy over a 0 to 50°C (32 to 122°F) in a 0 to 85% RH (non-condensing) environment. Accuracy specified over the 0 to 50°C (32 to 122°F) operating range includes meter tempco and ice point tracking effects. The specification includes the A/D conversion errors, linearization conformity, and thermocouple ice point compensation. Total system accuracy is the sum of meter and probe errors. Accuracy may be improved by field calibrating the meter readout at the temperature of interest.*

Custom Ranges

Custom Ranges: Up to 16 data point pairs

Input Range: -10 to 65 mV

0 to 400 Ω: High range

0 to 25 Ω: Low range

Display Range: -19999 to 99999

Input Type	Range	Accuracy* (18 to 28°C)	Accuracy* (0 to 50°C)
Custom mV Range	-10 to 65 mV (1 µV res)	0.02% of rdg + 4µV	0.12% of rdg + 5 µV
Custom 100 Ω Range	0 to 400 Ω (10 MΩ res)	0.02% of rdg + 0.04 Ω	0.12% of rdg + 0.05 Ω
Custom 10 Ω Range	0 to 25 Ω (1 MΩ res)	0.04% of rdg + 0.005 Ω	0.20% of rdg + 0.007 Ω

** After 20 minute warm-up. Accuracy is specified in 2 ways—accuracy over an 18 to 28°C (64 to 82°F) in a 15 to 75% RH environment and accuracy over a 0 to 50°C (32 to 122°F) in a 0 to 85% RH (non-condensing) environment. Accuracy specified over the 0 to 50°C (32 to 122°F) operating range includes meter tempco and ice point tracking effects. The specification includes the A/D conversion errors, linearization conformity, and thermocouple ice point compensation. Total system accuracy is the sum of meter and probe errors. Accuracy may be improved by field calibrating the meter readout at the temperature of interest.*

Option Boards Specifications

LDP63000-AC Isolation For All 4 Cards:

Isolation To Sensor (Common): 1400 Vrms for 1 min

Working Voltage: 125 V

Isolation To User Input (Common): 500 Vrms for 1 min

Working Voltage: 50 V

RS232/RS485 Communication Card

RS485 Communication Card Type: RS485 multi-point balanced interface

Isolation To Sensor and User Input Commons: 500 Vrms for 1 min

Working Voltage: 50 V (not isolated from all other commons)

Baud Rate: 300 to 19.2 K

Data Format: 7/8 bits; odd, even, or no parity

Bus Address: 0 to 99, max 32 m per line

Transmit Delay: Selectable, 2 to 50 ms or 50 to 100 msec

RS232 Communication Card

Type: RS232 half duplex

Isolation To Sensor and User Input (Commons): 500 Vrms for 1 min

Working Voltage: 50 V (not isolated from all other commons)

Baud Rate: 300 to 19.2 K

Data Format: 7/8 bits; odd, even, or no parity

MODBUS

Type: RS485, RTU and ASCII MODBUS modes

Isolation To Sensor and User Input Commons: 500 Vrms for 1 minute

Working Voltage: 50 V, not isolated from all other commons

Baud Rates: 300 to 38400

Data: 7/8 bits

Parity: No, odd, or even

Addresses: 1 to 247

Transmit Delay: Programmable, see transmit delay explanation

Analog Output Card

Types: 0 to 20 mA, 4 to 20 mA and 0 to 10 Vdc

Isolation To Sensor and User Input Commons: 500 Vrms for 1 min

Working Voltage: 50 V, not isolated from all other commons

Accuracy: 0.17% of FS (18 to 28°C); 0.4% of FS (0 to 50°C)

Resolution: 1/3500

Compliance:

10 Vdc: 10 KΩ load minimum

20 mA: 500 Ω load max

True RMS—Excitation Power:

Transmitter Power: 24 Vdc, ±5%, regulated, 50 mA max

True RMS AC Voltage/Current Isolation To Option Card Commons and User Input Commons: 125 Vrms

Isolation To AC Power Terminals: 250 Vrms

Maximum Crest Factor (Vp/VRMS): 5 @ FS input

Input Coupling: AC, or AC and DC

Input Capacitance: 10 pF

Common Mode Voltage: 125 Vac working

Common Mode Rejection (DC to 60 Hz): 100 dB

True RMS Voltage/Current Inputs

Input Range	Accuracy*	Max DC Blocking	Impedance (60 Hz)	Continuous Overload	Resolution
200 mV	0.1% of rdg + 0.4 mV	±10 V	686 KΩ	30 V max	0.01 Mv
2 V	0.1% of rdg + 2 mV	±50 V	686 KΩ	30 V max	0.1 mV
20 V	0.1% of rdg + 20 mV	±300 V	686 KΩ	300 V max	1 mV
300 V	0.2% of rdg + 0.3 V	±300 V***	686 KΩ	300 V max	0.1 V
200 µA	0.1% of rdg + 0.4 µA	±15 mA	1.11 KΩ	15 mA max	0.01 µA
2 mA	0.1% of rdg + 2 µA	±50 mA	111 Ω	50 mA max	0.1 µA
20 mA	0.1% of rdg + 20 µA	±150 mA	11.1 Ω	150 mA max	1 µA
200 mA	0.1% of rdg + 0.2 mA	±500 mA	1.1 Ω	500 mA max	10 µA
5 A	0.5% of rdg + 5 mA	±7 A***	0.02 Ω	7 A** max	1 mA

** Conditions for accuracy specification: 20 minutes warm-up, 18 to 28°C (64 to 82°F) temperature range, 10 to 75% RH non-condensing, 50 Hz to 400 Hz sine wave input, 1% to 100% of range. Add 0.1% reading + 20 counts error over 0 to 50°C (32 to 122°F) range, 0.2% reading + 10 counts error for crest factors up to 3, add 1% reading up to 5, 0.5% reading + 10 counts of DC component and 1% reading + 20 counts error over 20 Hz to 10 KHz range.*

*** Non-repetitive surge rating: 15 A for 5 seconds*

**** Inputs are directly coupled to the input divider and shunts. Input signals with high DC component levels may reduce the usable range.*

Process Inputs—Excitation Power:

Transmitter Power: 24 Vdc, ±5%, regulated, 50 mA max

Reference Voltage: 2 Vdc, ± 2%

Compliance: 1 kΩ load min. (2 mA max)

Temperature Coefficient: 40 ppm/°C max

Reference Current: 1.75 mAdc, ± 2%

Compliance: 10 kΩ load max

Temperature Coefficient: 40 ppm/°C max

Input Range	Accuracy* (18 to 28°C)	Accuracy* (0 to 50°C)	Impedance/ Compliance	Max Continuous Overload	Display Resolution
20 mA (-2 to 26 mA)	0.03% of rdg + 2 µA	0.12% of rdg + 3 µA	20 Ω	150 mA	1 µA
10 Vdc (-1 to 13 Vdc)	0.03% of rdg + 2 mV	0.12% of rdg + 3 mV	500 KΩ	300 V	1 mV

** After 20 minute warm-up. Accuracy is specified in 2 ways: accuracy over an 18 to 28°C (64 to 82°F) with a 10 to 75% RH environment and accuracy over a 0 to 50°C (32 to 122°F) with a 0 to 85% RH (non-condensing environment). Accuracy over the 0 to 50°C (32 to 122°F) range includes the temperature coefficient effect of the meter.*

Update Time: 200 ms max to within 99% of final readout value (digital filter and internal zero correction disabled), 700 ms max (digital filter disabled, internal zero correction enabled)

LDP63000-AC: 1 s max to within 99% of final readout value (digital filter disabled)

Response Time: 200 ms max to within 99% of final readout value (digital filter and internal zero correction disabled), 700 ms max (digital filter disabled, internal zero correction enabled)

LDP63000-AC Only: 1 s max to within 99% of final readout value (digital filter disabled)

LDP63000-T Only: 200 ms typical, 700 ms max (digital filter disabled)

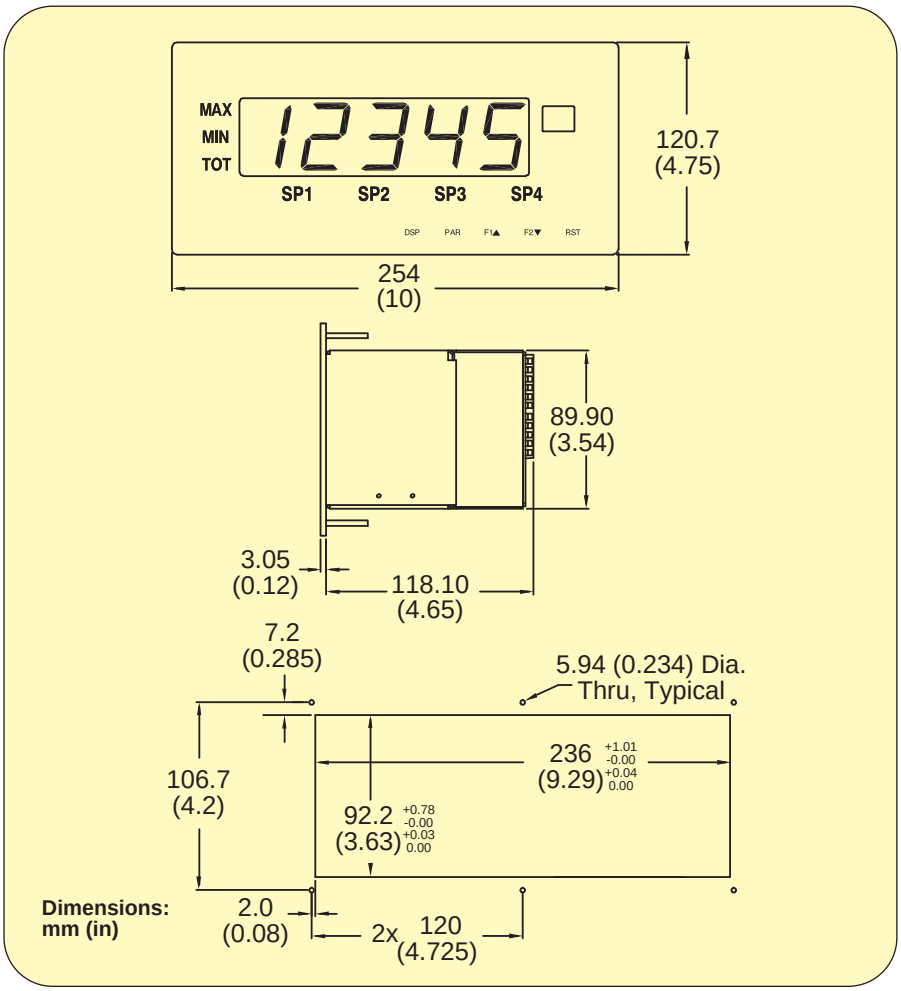
Setpoint Output Cards:

Type: Four types of field-installable cards

DC Inputs

Input Range	Accuracy* (18 to 28°C)	Accuracy* (0 to 50°C)	Impedance/ Compliance	Max Continuous Overload	Resolution
±200 µAdc	0.03% of rdg + 0.03 µA	0.12% of rdg + 0.04 µA	1.11 KΩ	15 mA	10 nA
±2 mAdc	0.03% of rdg + 0.3 µA	0.12% of rdg + 0.4 µA	111 Ω	50 mA	0.1 µA
±20 mAdc	0.03% of rdg + 3 µA	0.12% of rdg + 4 µA	11.1 Ω	150 mA	1 µA
±200 mAdc	0.05% of rdg + 30 µA	0.15% of rdg + 40 µA	1.1 Ω	500 mA	10 µA
±2 Adc	0.5% of rdg + 0.3 mA	0.7% of rdg + 0.4 mA	0.1 Ω	3 A	0.1 mA
±200 mVdc	0.03% of rdg + 30 mV	0.12% of rdg + 40 mV	1.066 MΩ	100 V	10 µV
±2 Vdc	0.03% of rdg + 0.3 mV	0.12% of rdg + 0.4 mV	1.066 MΩ	300 V	0.1 mV
±20 Vdc	0.03% of rdg + 3 mV	0.12% of rdg + 4 mV	1.066 MΩ	300 V	1 mV
±300 Vdc	0.05% of rdg + 30 mV	0.15% of rdg + 40 mV	1.066 MΩ	300 V	10 mV
100 Ω	0.05% of rdg + 30 MΩ	0.2% of rdg + 40 MΩ	0.175 V	30 V	0.01 Ω
1000 Ω	0.05% of rdg + 0.3 Ω	0.2% of rdg + 0.4 Ω	1.75 V	30 V	0.1 Ω
10 KΩ	0.05% of rdg + 1 Ω	0.2% of rdg + 1.5 Ω	17.5 V	30 V	1 Ω

** After 20 minute warm-up. Accuracy is specified in two ways: Accuracy over an 18 to 28°C and 10 to 75% RH environment; and accuracy over a 0 to 50°C and 0 to 85% RH (non-condensing environment). Accuracy over the 0 to 50°C range includes the temperature coefficient effect of the meter.*



Dual Relay Card (LDP6-CDS10)

Type: Two form "C" relays

Isolation To Sensor and User Input Commons: 2000 Vrms for 1 minute

Working Voltage: 250 V

Contact Rating:

1 Relay Energized: 5 A @ 120/240 Vac or 28 Vdc (resistive load), ⅛ HP @ 120 Vac (inductive load); total current with both relays energized not to exceed 5 A

Life Expectancy: 100 K cycles min at full load rating; external RC snubber extends relay life for operation with inductive loads

Quad Relay Card (LDP6-CDS20)

Type: Four form "A" relays

Isolation To Sensor and User Input Commons: 2300 Vrms for 1 minute

Working Voltage: 250 Vrms

Contact Rating:

1 Relay Energized: 3 A @ 250 Vac or 30 Vdc (resistive load), 1/10 HP @ 120 Vac (inductive load); total current with all 4 relays energized not to exceed 4 A

Life Expectancy: 100 K cycles min at full load rating; external RC snubber extends relay life for operation with inductive loads

Quad-Sinking Open Collector (LDP6-CDS30)

Type: Four isolated sinking NPN transistors

Isolation To Sensor and User Input Commons: 500 Vrms for 1 min

Working Voltage: 50 V, not isolated from all other commons

Rating: 100 mA max @ V_{SAT} = 0.7 V max, V_{MAX} = 30 V

Quad-Sourcing Open Collector (LDP6-CDS40)

Type: Four isolated sourcing PNP transistors

Isolation To Sensor and User Input Commons: 500 Vrms for 1 min

Working Voltage: 50 V, not isolated from all other commons

Rating:

Internal Supply: 24 Vdc ± 10% , 30 mA max total for all 4

External Supply: 30 Vdc max, 100 mA max each output

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LDP63000-E, $471, shown smaller than actual size.

MOST POPULAR MODELS HIGHLIGHTED!

To Order *(Specify Model Number)*		
Model No.	**Price**	**Description (Display Meter Only, No Outputs)**
LDP63000-T	**$475**	Large display meter, temperature inputs, 85 to 250 Vac power
LDP63000-T-LV	**499**	Large display meter, temperature inputs, 11 to 36 Vdc/24 Vac
LDP63000-E	**475**	Large display meter, process inputs, 85 to 250 Vac power
LDP63000-E-LV	**500**	Large display meter, process inputs, 11 to 36 Vdc/24 Vac
LDP63000-DC	**485**	Large display meter, universal DC Inputs, 85 to 250 Vac power
LDP63000-DC-LV	**510**	Large display meter, universal DC Inputs, 11 to 36 Vdc/24 Vac
LDP63000-AC	**545**	Large display meter, True RMS AC voltage/current inputs, 85 to 250 Vac power

Optional Plug-in Output Cards (Field Installable)

Model No.	**Price**	**Description**
Setpoint Alarms (Only 1 Alarm Card Can Be Installed Into Base Meter)		
LDP6-CDS10	**$37**	Dual setpoint relay output card
LDP6-CDS20	**48**	Quad setpoint relay output card
LDP6-CDS30	**37**	Quad setpoint sinking open collector output card
LDP6-CDS40	**37**	Quad setpoint sourcing open collector output card
Analog Output		
LDP6-CDL10	**$74**	Analog output card
Communications (Only 1 Communications Card Can Be Installed Into Base Meter)*		
LDP6-CDC10	**$48**	RS485 serial communications output card with terminal block
LDP6-CDC1C	**48**	Extended RS485 serial communications output card with dual RJ11 connector
LDP6-CDC20	**48**	RS232 serial communications output card with terminal block
LDP6-CDC2C	**48**	Extended RS232 serial communications output card with 9-pin D connector
LDP6-CDC40	**58**	MODBUS communications card
LDP6-CDC4C	**58**	Extended MODBUS communications card with dual RJ11 connector

**Software is free. Download from omega.com.*
Comes with complete operator's manual.

Note: *Adding option cards—meters can be fitted with up to 3 optional plug-in cards, however, only 1 card from each function type can be installed at a time. The function types include setpoint alarms, analog output and communications. The cards can be installed initially or at a later date. Each optional plug-in card is shipped with installation and programming instructions.*

Ordering Example: LDP63000-T-LV, *large display meter, temperature inputs, 11 to 36 Vdc/24 Vac, LDP6-CDL10 analog output card, $499 + 74 =* ***$573.***

Accessories (Field Installable)

Model No.	**Price**	**Description**
LDP6-ENC9	**148**	NEMA 4 enclosure
LDP6-SHR	**43**	Shroud
LDP6-MB	**46**	Mounting bracket

Recommended Reference Book:
Grounding and Shielding Techniques,
EE-1319, $85.
See Section Y
For Additional Books

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