

**NEW**

**LOOP POWERED EXPLOSION PROOF  
LED OR LCD DIGITAL PANEL METER WITH  
SERIAL I/O AND I.R.D.A. FOR SAFE CALIBRATION**

**MODEL  
LPX**

**FEATURES:**

- Loop or External Power
- 4 1/2 LCD or LED Digits
- Positive or Negative LCD Image
- Reflective or Backlit LCD
- Intrinsically Safe by Design
- I.R.D.A. Programmable
- RS232, 485 or USB Serial
- Remote Display Capability
- 5-48VDC or 100-240VAC Power
- Custom Input for any Transducer
- Zero, Span, D.P., Hold, Peak, and more via I.R. Serial or Hardware
- OTEK's Exclusive Lifetime Warranty
- Adjustable Display Position

**APPLICATIONS:**

- Harsh & Hazardous Locations
- Hard to Reach Areas
- High Reliability Applications

**DESCRIPTION**

The World's Largest Loop Powered Instrument Manufacturer since 1974 brings you its Model **LPX** which is a variation of the World's First Loop Powered Meter with Serial I/O, the **LPM** and **LPE**.

The **LPX** has several added features such as Industry Standard **I.R.D.A.** communications (I/O) that eliminates the need to stop the hazardous process to re-scale or calibrate the meter.

Serial I/O via RS232, 485 or USB to give you on-site data via wires. Provisions for Signal Conditioners to convert T.C., **RTD**, S-G, etc. at your request.

The compact **E.P.** housing is the smallest in the market, yet it is fully Class I, Div. 1 & 2 Certified with 3 NPT ports and the display can be rotated 90 degrees inside the case!

*LED*



*LCD*



**SPECIFICATIONS @ 25°C  
(Industrial Grade)**

**Loop Powered Models:**

- Burden: 4.5V Max. With Red Backlight (7V for "S" Grade)
- 5.5V With Green Backlight or LED Display
- Max. Input Current: 36mA, Max. Volts: 30V
- Min. Input Current: 3.6mA
- Accuracy & Linearity:  $\pm 0.01\%$  of F.S.  $\pm 1$  Digit
- Span Adjustment:  $\pm 3000$  Counts of F.S. (10,000)
- Zero Adjustment:  $\pm 3000$  Counts of Zero (00000)
- Standard Calibration: 4-20 = 0-1.0000, Others On Request
- Serial I/O: RS232E (Parasitic)

**Powered Models:**

- Loop Burden: 1.0V @ 20mA; 50 Ohms
- Current Requirement @ 5V: 4mA + Backlight (20mA) (w/o microcontroller) = 24mA
- Current Requirement @ 5V: 10mA + Backlight (20mA) (with microcontroller) = 30mA
- Power Input: USB, 5VDC & 5-48VDC

**OTHER SPECIFICATIONS**

- Display: LCD or 4 1/2 LED Digits 0.4", 6 O'Clock Viewing Angle
- Input Type: Differential & Single Ended. 10M For VDC
- Common Mode R.R.: 100dB @ 50/60 Hz
- Conversion Rate: 2.5/Second
- Step Response: 0.8 Sec. (0-90% of F.S)
- Common Mode Voltage:  $\pm 2$ VDC
- Op./Storage Temp: -10 + 60/ -20 + 70°C
- MTBF: >100,000 Hours
- Serial I/O: RS232/485/USB, 300-19.2Kb (8N1)
- RS232E Power: Parasitic From RS232, when loop powered
- RH: 5-95% RH Non-Condensing
- Temperature Coefficient: 50PPM/°C
- Explosion Proof FM & CSA: Class I, Div. 1 GPS. B-G EX & 1 ECex: IM2, Exd1
- I.R.D.A.: 9600 Baud

**If You Don't See It  
Ask For It!**



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SINCE 1974

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TUCSON, AZ. 85714 U.S.A.

MADE  
IN  
USA



# LPX SERIES

## ORDERING INFORMATION 3-8-10

<p><b>Model: LPX -</b></p> <p><b>GRADE (2)</b></p> <p>I ..... Industrial</p> <p>M ..... Mil-Spec</p> <p>N.....Nuclear (Contact Otek)</p> <p>9 ..... Custom (Specify)</p> <p><b>INPUT SIGNAL (1)</b></p> <p>00 ..... 4-20mA Loop Powered</p> <p>01 ..... 4-20mA External Powered</p> <p>02 ..... 3-30VDC Signal Powered</p> <p>03 ..... 20-50VDC Signal Powered</p> <p>04 ..... ±200mVDC</p> <p>05 ..... ±2VDC</p> <p>06 ..... ±20VDC</p> <p>07 ..... ±200VDC</p> <p>08 ..... ±50mVDC</p> <p>09 ..... Custom (Specify)</p> <p>10 ..... ± 200µADC</p> <p>11 ..... ±2mADC</p> <p>12 ..... ±20mADC</p> <p>13 ..... ±200mADC</p> <p>14 ..... 200mV RMS</p> <p>15 ..... 2V RMS</p> <p>16 ..... 20V RMS</p> <p>17 ..... 200V RMS</p> <p>18 ..... 50mV RMS</p> <p>20 ..... 2mA RMS</p> <p>21 ..... 20mA RMS</p> <p>22 ..... 200mA RMS</p> <p>23 ..... 5 Amp RMS</p> <p>24 ..... Strain-Gage (350 Ohm)</p> <p>25 ..... Strain-Gage (&gt;1K Ohm)</p> <p>26 ..... RTD (PT100)</p> <p>27 ..... RTD (PT1000)</p> <p>28 ..... TC (Type J)</p> <p>30 ..... TC (Type K)</p> <p>31 ..... TC (Type T)</p> <p>32 ..... Frequency (40-20KHz)</p> <p>33 ..... Frequency (50-60Hz Line)</p> <p>34 ..... % RH (Specify Sensor)</p> <p>35 ..... pH (0-14.00)</p> <p>36 ..... ORP (0-2000mV)</p> <p>37.....Hi Speed Peak &amp; Hold (2 VDC)</p> <p>40.....AC Volts Signal Powered</p> <p>41.....AC Amps Signal Powered</p>	<p>1</p> <p>2</p> <p>3</p> <p>4</p> <p>5</p> <p>6</p> <p>7</p> <p>8</p>	<p><b>SCALE PLATE &amp; Calibration (4)</b></p> <p>0.....Standard</p> <p>9...Custom (Specify)</p> <p><b>DISPLAY TYPE</b></p> <p>0 ..... 4 1/2 Digits 0.4"LED</p> <p>1...Reflective 4 1/2 Digits 0.5"LCD</p> <p>2 ..... Red Backlite LCD</p> <p>3 ..... Green Backlite LCD</p> <p>9 ..... Custom (Specify)</p> <p><b>24VDC for Transmitter Out (5)</b></p> <p>0 ..... None</p> <p>1 ..... 24VDC Out</p> <p>9 ..... Custom (Specify)</p> <p><b>POWER INPUT (2)</b></p> <p>0 ..... Signal/Loop Powered</p> <p>1 ..... Ext. Power Non-Isol. 5VDC</p> <p>2 ..... Ext. Power Isolated 5VDC</p> <p>3 ..... Ext. Power Isolated 12VDC</p> <p>4 ..... Ext. Power Isolated 24VDC</p> <p>5 ..... Ext. Power Isolated 48VDC</p> <p>6 ..... Non-Isolated USB Powered</p> <p>7 ..... 10-32VDC</p> <p>8 ..... 100-240VAC</p> <p>9 ..... Custom</p> <p><b>SERIAL I/O (3)</b></p> <p>0 ..... None</p> <p>1 ..... RS232E</p> <p>2 ..... RS485</p> <p>3 ..... USB</p> <p>4 ..... I.R.D.A.</p> <p>5 ..... IRDA &amp; 232</p> <p>6 ..... IRDA &amp; 485</p> <p>7 ..... IRDA &amp; USB</p> <p>9 ..... Custom</p>
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**NOTES:**

1. Options 00, 02 & 03 (Digits 2 & 3) must use Option 0 (Powerless) on Digit 5. Others must use Options 1- 8 or 9 on Digit 5.
2. Otek will build to certain MIL-standards but testing and confirmation of compliance, if required, will need to be done by a third party and at customer's expense.
3. Serial I/O is **NOT** isolated from signal. Must have serial I/O to implement processor's functions (if req'd).
4. Standard calibration is 0-20,000 counts for V Input, 0-10,000 for 4-20mA (0-100.00%) or specify custom
5. (24VDC(@30mA) out DC-DC for Transmitter non-isolated from internal power.

**520-748-7900**

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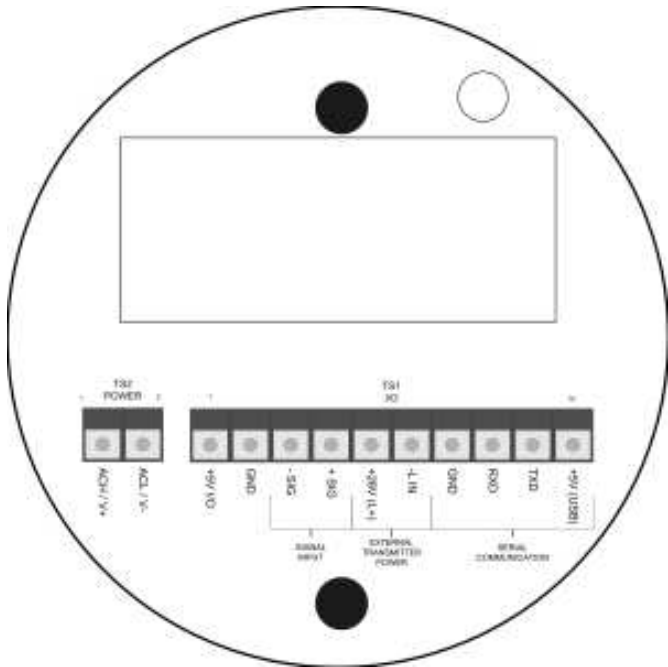
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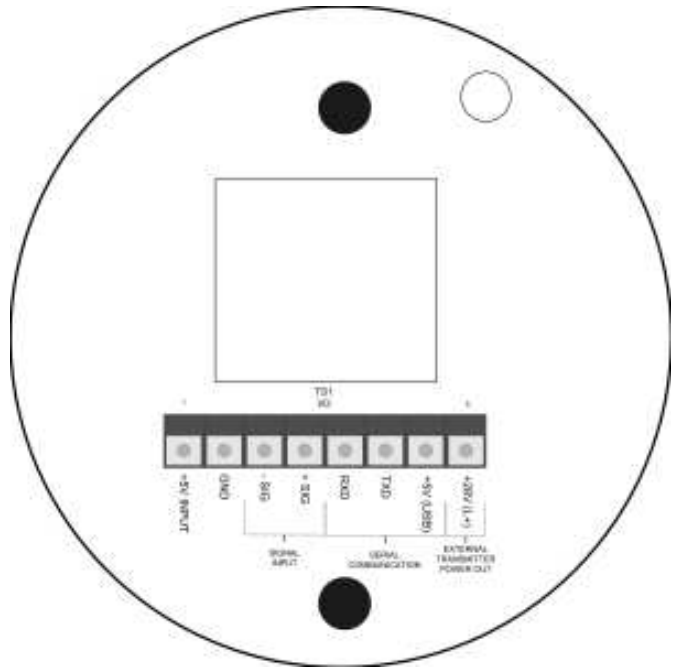


## CONNECTOR DIAGRAM WITH SERIAL I/O (OPTIONS 1-7, 4TH DIGIT)

ISOLATED POWER (OPTIONS 2-8, 2ND DIGIT)

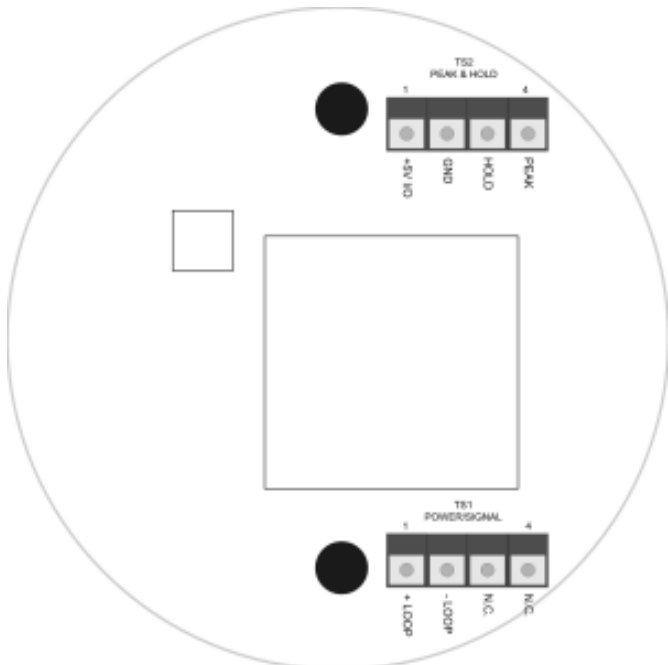


NON-ISOLATED POWER (OPTION 1, 2ND DIGIT)

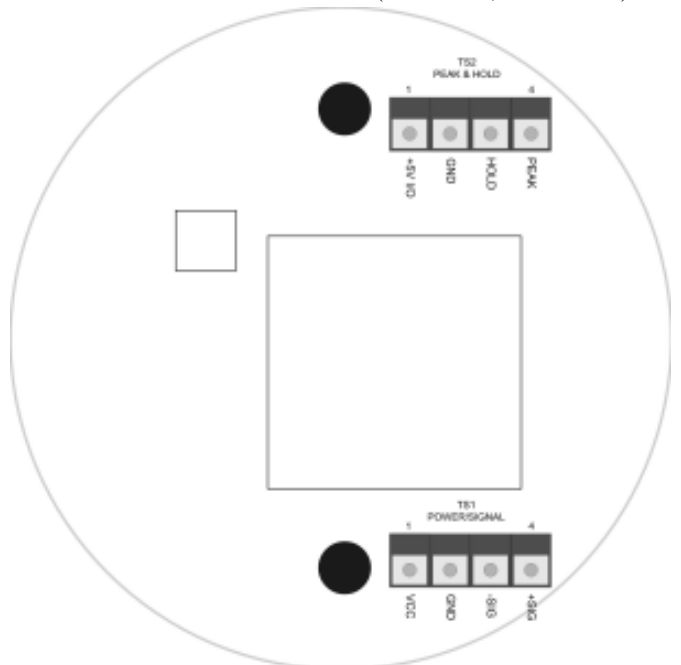


## CONNECTOR DIAGRAM WITHOUT SERIAL I/O

LOOP POWERED (OPTION 0, 2ND DIGIT)



EXTERNALLY POWERED (OPTION 1, 2ND DIGIT)



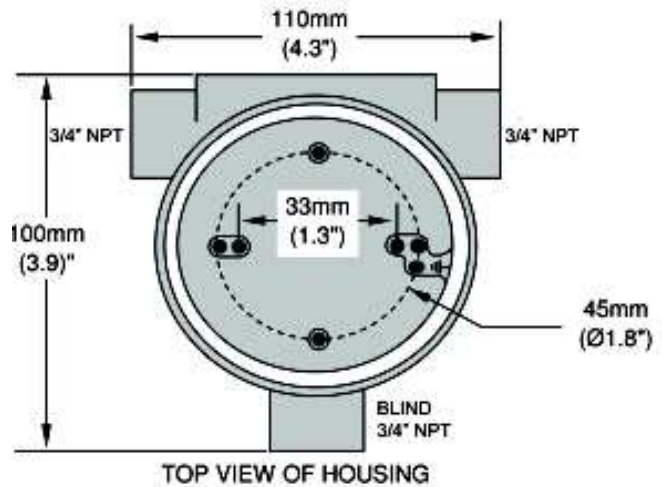
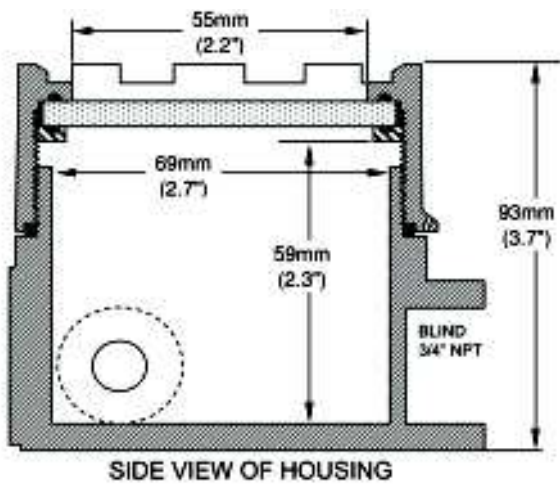
NOTE:  
CONNECT "PEAK" OR "HOLD" TO +5V  
TO ENABLE

Decimal Point Selection Table			
JDP 1&2	JDP 3&4	JDP 1&2	DISPLAY
OFF	OFF	OFF	1.XXXX
OFF	ON	OFF	1X.XXX
ON	OFF	OFF	1XX.XX
ON	ON	OFF	1XXX.X
X	X	ON	1XXXX

**WIRE SIZE: 26-18GA**

## MECHANICAL INFORMATION

NOTE: Do not remove cover in hazardous area, remove cover and select decimal point desired in safe area.



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