

**WORLD'S
FIRST**

**LOOP POWERED "SWITCHBOARD" BARGRAPH WITH
SERIAL I/O FOR:**

***I.S. *MIL-SPEC *NUCLEAR AND
HI-REL INDUSTRIAL APPLICATIONS**

**MODEL
LSB**

Bars



Needles



FEATURES:

- Parasitic RS232E
- 101 Bars & 4 1/2 Digits LCD Display
- 101 Needles & 4 1/2 LCD Digits
- Loop or External Powered
- Bi-Polar With Center Zero
- Optional Automatic Tricolor Backlight
- Fits 3.375" & 90mm Cutout
- Replaces Any Analog Loop Powered Meter
- Power For Transmitter

DESCRIPTION

In 1975 **OTEK** introduced the World's First Loop Powered DPM. In 1979, The First Loop Powered Bargraph. In 1996 the Automatic Tri-Color Bargraph and in 2004 the World's First Loop Powered Serial I/O DPM. Now **OTEK** brings you the *World's First Loop Powered Switchboard Style Bargraph* to complement its New Edgewise Loop Powered Bargraph (**LBD**), the **LPI** (Loop Powered Isolator) and the **LPT** (Loop Powered R.F. Wireless Transmitter) - **Just Released!**

Now you can power your transmitter (4-20mA) from the **LSB**! All you need is 5-48VDC or 100-240VAC power. The New **LSB** shares the same housing as our successful **HI-Q123**, **HI-Q124** & **HI-QTBS**. Just 1" on the front, 2" on the back (behind the panel) and thanks to **NANOTECHNOLOGY** we have internal space to spare for future growth and your custom needs. The **LSB** is available with 101 segments (bars) or 101 needles. Loop Powered or externally powered, with or without automatic tricolor backlight. The **LSB** is fully configurable for many functions (See User's Manual at www.otekcorp.com/otekdw/lsbmanual.com). Standard calibration and configuration (unless otherwise specified) is:

- Left Zero, 4-20mA or 0-2V = 0 - 100.0 & 0-100 bargraph segments.
- Alarm Annunciators (bars only reverse acting) set for: 25, 50, 75 & 100% of Scale.
- Backlight: Red: 0-10%, Amber: 11-20%, Green: 21-80%, Amber: 81-90%, Red: 91-100%. But, if you need to change it, just plug in a handheld terminal into the Com connector on the back of the unit.

Warranty: Lifetime Ltd.

**IF YOU DON'T SEE IT
ASK FOR IT!**



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<http://www.otekcorp.com>

OTEK™
CORP.
SINCE 1974

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TUCSON, AZ. 85714 U.S.A.

MADE
IN
USA



LSB SERIES

SPECIFICATIONS @ 25°C (Industrial Grade)

Loop Powered Models:

- Burden: 5.5V Max. (7V for "S" Grade)
- Max. Input Current: 36mA, Max Volts: 30VDC
- Min. Input Current: 3.6mA
- Accuracy & Linearity: $\pm 0.05\%$ of F.S. ± 1 Digit
- Span Adjustment: ± 3000 Counts of F.S. (10,000)
- Zero Adjustment: ± 3000 Counts of Zero (00000)
- Standard Calibration: 4-20 = 0-100.0, Others On Request

Externally Power Models:

Choice of 5, 12, 24 or 48VDC isolated input or 100-240VAC 47/63Hz isolated input.

OTHER SPECIFICATIONS

- Bars: 101 3/8" Wide & 4 1/2 Digits (19999) or 101 Needles 1.5" Long & 4 1/2 Digits
- Digits (5) & Annunciators (4): 0.4" High
- Power For Transmitter: 28VDC@20mA (requires 1 Watt Power Input)

•Input Type: Differential & Single Ended. 10M Ω For VDC

- All Configurations via Serial Port For Added Security
- 5VDC Powered: 40mA @ 5V
- Zero & Span Adjustments: On Rear (See Note 5) or Via Serial Port
- Z in For V: 10 MEG Ohms
- Z in For 2mA: 100 Ohms

GRADES: 4 grades are available, all with the same high reliability and tested and approved for:

I Industrial, **M** to specific Mil-Specs, **N** Nuclear to 10CFR50B and **S** Intrinsically Safe for Class I Div. 1. (See Note 1) Contact **OTEK** for more details.

HOUSINGS: Either plastic, metal, explosion proof or sanitary to 250°F Steam cleaning.

ENVIRONMENTAL:

- *Op/Storage Temp.: -10 + 70°C/-20 + 80°C
- *Humidity: 5-95RH Non-Condensing
- *MTBF: >100,000 Hours

ORDERING INFORMATION (6-11-09)

	1	2	3	4	5	6	7	8	9
Model: LSB-	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
GRADE (1)							RANGE/CALIBRATION		
I..... Industrial							0.....Standard		
M..... Mil-Spec							9.....Custom		
N..... Nuclear (Contact Otek)									
S..... Intrinsically Safe									
9..... Custom (Specify)									
INPUT TYPE FULL SCALE (2)							SCALE PLATE		
0..... Loop Powered 4-20mA							0.....Standard (0-100%)		
1..... Loop Powered 10-50mA							9.....Custom		
2..... 4-20mA External Power							HOUSING & MOUNTING		
3..... 10-50mA External Power							0..... Plastic & 3.375"		
4..... ±1.0VDC External Power							1..... Plastic & 90mm		
5..... ±10VDC External Power							2..... Metal & 3.375"		
6..... ±100VDC External Power							3..... Metal & 90mm		
7..... ±1mADC External Power							4..... Explosion Proof		
8..... ±10mADC External Power							5..... Sanitary		
9..... Custom							9..... Custom		
R..... None, Remote Display							CONTROL OUTPUTS (*, 7, 8)		
POWER INPUT (4) (6)							0..... None		
0..... Loop Powered							1..... (200mA) Relays (4 ea.)		
1..... Non-Isolated 5VDC							2..... (20mA) Open Collector Xtrs. (4 ea.)		
2..... Isolated 5VDC ±10%							3..... (200mA) Retransmission (4-20mA)		
3..... Isolated 12VDC ±10%							4..... (200mA) 30VDC For Transmitter		
4..... Isolated 24VDC ± 10%							5..... (400mA) Relays & 4-20mA Out		
5..... Isolated 48VDC ± 10%							6..... (220mA) O.C.T. & 4-20mA		
6..... Isolated 100-240VAC							7..... (400mA) Relays & 30VDC Out		
7..... Non-Isolated USB Powered							8..... (220mA) O.C.T. & 30VDC Out		
9..... Custom							9..... Custom		
							A..... Non-Isol. 28VDC for Transmitter		
							B..... Non-Isol. 28VDC and Relays		
							D..... Non-Isol. 28VDC & O.C.T.		
							E..... Non-Isol. 28VDC & 4-20mA Out		
							SERIAL I/O (4)		
							1..... Parasitic (Loop Powered) RS232E		
							2..... Powered RS232D		
							3..... Powered RS485		
							4..... Powered USB		
							9..... Custom (Specify)		
							DISPLAY TYPE (3)		
							0..... Bars Reflective		
							1..... Bars BackLighted		
							2..... Needles Reflective		
							3..... Needles Backlighted		
							9..... Custom		

NOTES: * = Options Power Consumption @5VDC

- Contact OTEK for applicable specs for M, N & S Grades. "S" Grade Intrinsically Safe By Design, but NO certification is provided. Agency approval on request. 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.
- Specify input range and calibration for Options 2, 3 or 9
- Standard calibration and configuration - See Description. **OTEK** will configure the **LSB** for any standard configuration at no charge at time of shipping. Reconfiguration charge is \$50.00/unit minimum. Specify yours when ordering or use our commands. See User's Manual.
- The **LSB** lends itself to many variations and I/O. Contact OTEK for your custom power input, Serial I/O and control outputs.
- Option AL Zero and SPAN adjustments on front on Options 0-3. No NEMA 4X Rating. Use #9 on Digit 9 and specify.
- Power for transmitter only available with externally powered models.
- USB Powered is limited to 0.5A @ 5V (V2.0). Contact OTEK for maximum loading. Requires Serial I/O.
- Power For Transmitter: Non-Isolated: Options A, B, D or E. Isolated: (Options 4, 7 or 8) can Not Have Retransmission (4-20mA Out) and power for transmitter simultaneously. 4-20mA is standard, others on request.