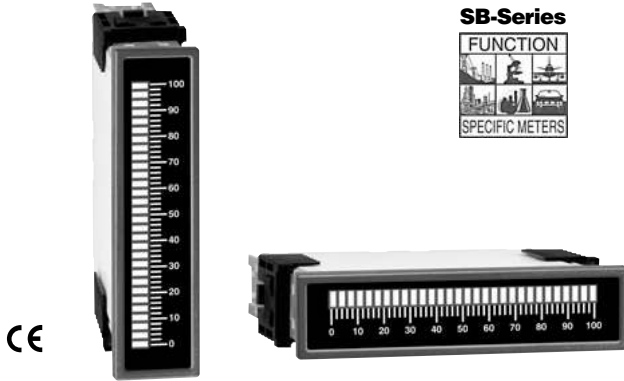




## SB-B31

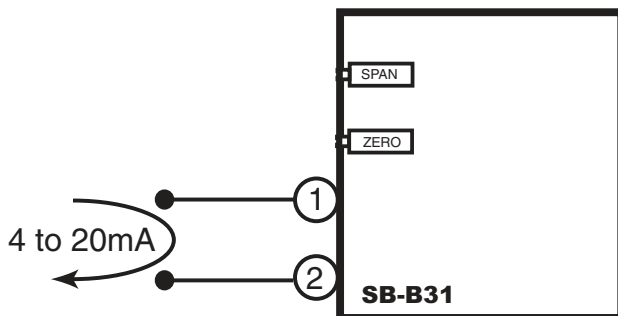
### 4 to 20mA Loop Powered 31 Segment Bargraph in a 1/16 DIN Case



#### General Features

- Elegantly simple 4 to 20mA loop powered bargraph.
- Low loop drop of only 4V.
- Needs no external power supply.
- Choice of red, green or red/green color options.
- Easy to calibrate with ZERO and SPAN potentiometers.
- Customized faceplates available.
- Compact short depth 96 X 24mm case.
- Can be stacked for multiple meter mounting.

#### Typical Application Connections



#### Compatibility

The SB-B31 bargraph has a matching DIN case style that is complementary to the Lynx, Leopard and Tiger family of meters. The SB-B31 is the economical solution for displaying 4 to 20mA current loops on a bargraph display.



#### Specifications

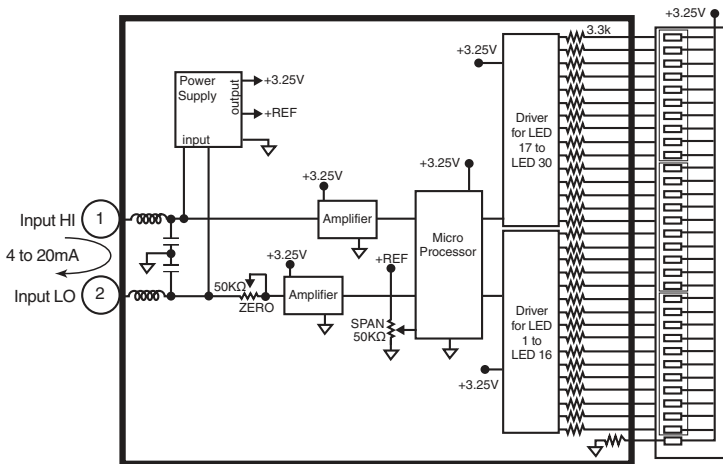
- Input Configuration:** .....Single ended
- Full Scale Range:** .....4 to 20mA to read 0 to full scale
- Input Impedance:** .....Approximately 200Ω  
Maximum 4V loop drop at 20mA input
- A/D Converter:** .....Flash converter
- Accuracy:** .....1% of full scale
- Temperature Coefficient:** ...200ppm/°C (typical)
- Warm Up Time:** .....Instantly reads to specified accuracy
- Conversion Rate:** .....Instantaneous flash conversion
- Display:** .....Thirty-one 0.20" X 0.06" (5.08mm X 1.52mm) bar segments
- Over-range Indication:** ....All bars flash
- Power Supply:** .....Powered from 4 to 20mA signal
- Operating Temperature:** ...-10°C to 60°C
- Storage Temperature:** .....-20°C to +70°C
- Relative Humidity:** .....95% (non condensing)
- Case Dimensions:** .....Bezel: 24X96 mm (0.95" X 3.78")  
Depth behind bezel: 56.5 mm (2.23")  
Plus 27 mm (1.06") for Push-on connector  
or plus 17.5 mm (0.69") for Edge connector
- Weight:** .....90.72 gms (3.2 oz)  
136.1 gms (4.8 oz) when packed

#### Other Signal Powered Meters

- CM-35XT** .....3.5 digit LCD, Loop Powered, 4-20mA (1.0.0.0)
- CM-35XTL** .....3.5 digit LCD, 1 Volt Drop, Loop Powered, 4-20mA (1.0.0.0)
- SD-50X** .....5 Digit 4-20 mA Loop Powered
- SD-50XTOT** .....Loop Powered Totalizer

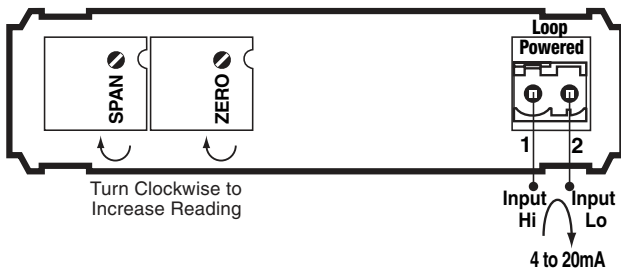
- SD-50XTOTSQ** ....Loop Powered Totalizer with Square Root Function
- SP-35X** .....3.5 digit LCD, Signal Powered by DC voltage
- SP-35XMV** .....3.5 digit LCD DCMV Input, 10-100VDC or 18-36VAC Pwr
- SP-35XRMS** .....3.5 digit LCD, VAC RMS Signal Pwr, 15.0-199.9VAC/DC

## Functional Diagram



## Connector Pinouts

### REAR VIEW OF CASE AND CONNECTOR

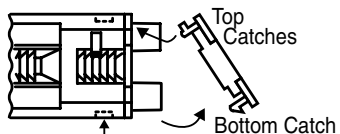


Connectors are supplied by Texmate with the bargraph.

**Pin 1 - Current Loop High Input:** The 4-20mA current loop is applied to Pin (1) and returned from Pin (2). If reverse polarity is applied no damage will occur; however the meter will not operate (this condition should not be maintained for extended periods). The maximum loop drop is 4V.

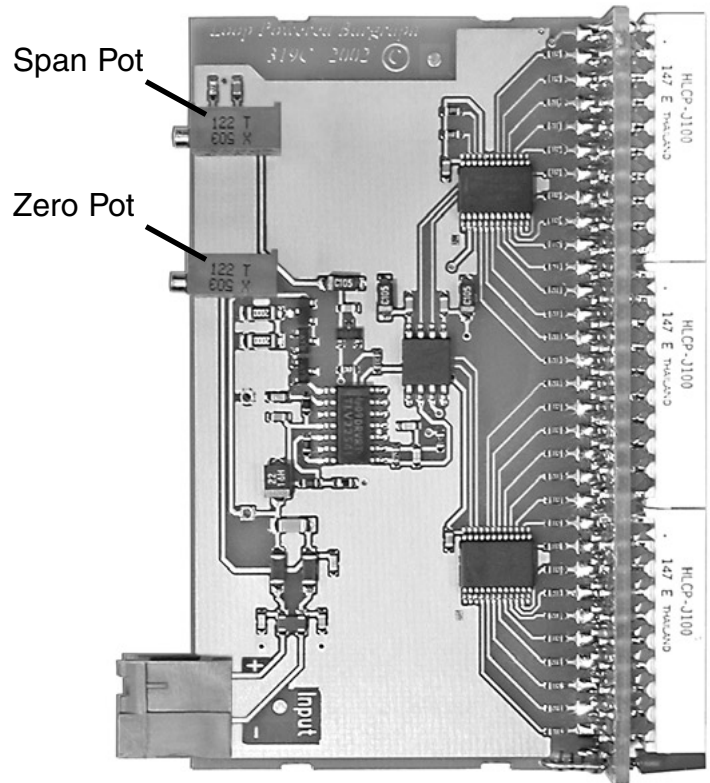
**Pin 2 - Current Loop Low Return:** The 4-20mA current loop is returned from Pin (2). At 4mA the bargraph has one segment ON. At 20mA the bargraph has all segments ON. The maximum loop drop is 4V.

### TO REMOVE REAR COVER

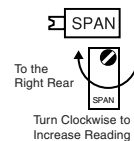


Release Bottom Catch with a small flat blade, and lever outwards.

## Component Layout

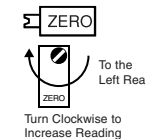


## Signal Conditioning Components



### SPAN Potentiometer (Pot)

The 15 turn SPAN Pot is on the left side (as viewed from the back of the meter). Typical adjustment is 100% of the input signal range.



### ZERO Potentiometer (Pot)

The ZERO Pot is to the right side (as viewed from the back of the meter). It enables the Digital Display Span to be offset 50% of the input signal range.

## Calibration Procedure

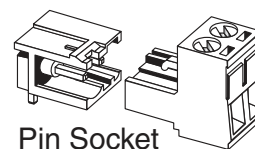
Apply an input of 4mA. Adjust the ZERO pot until the extreme left or bottom LED is ON. Apply 20mA input. Adjust the SPAN pot until all LEDs are ON. The bargraph is now calibrated.

## Power Supply

The SB-B31 Bargraph is powered from the 4 to 20mA input signal. NO EXTERNAL POWER SUPPLY IS REQUIRED. The maximum loop drop is 4V.

## Connector

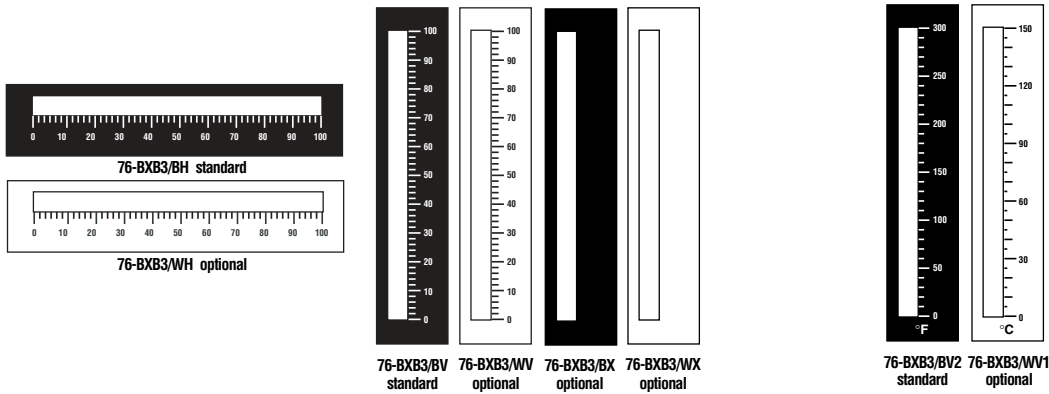
### Input Power Screw Terminal Plug



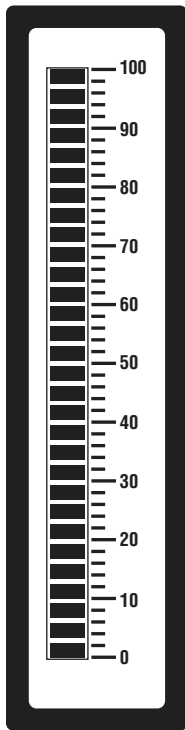
Part Number:  
93-PLUG2P-DP

## Standard Face Plates and Scales

- Unless otherwise specified, a standard 0-100 scaled face plate with white letters on a black background is provided with each meter. In those cases where a temperature modules is ordered, a 0-300 °F (white on black) face plate will be provided as standard.
- Alternatively a face plate with black letters on a white background or a blank, white or black face plate, may be ordered as a no charge substitute. For temperature applications there are also several different optional face plates that may be ordered as a no charge substitute. (See below). Customized face plates with special scaling can also be ordered.



Optional no charge substitute faceplates for Temperature may be ordered scaled 0 to 300°F or 0 to 150°C, Vertical or Horizontal in Black or White background.



Face plate scales and numbers are shown close to actual size

	1	1.2	1.5	2	2.5	3	4	4.5	5	6	7.5	8	9
	10	12	15	20	25	30	40	45	50	60	75	80	90
	100	120	150	200	250	300	400	450	500	600	750	800	900
	1000	1200	1500	2000	2500	3000	4000	4500	5000	6000	7500	8000	9000
100	12	15	20	25	30	40	45	50	60	75	80	90	
90							35	40	45	70			80
80	10				25				50			70	
70		12		15	20	30	35	40	60			70	
60	8				20				40			60	
50		9		15	25	30	35	40	50			50	
40	6		10		20	25	30	35	40			40	
30		6			15	20	25	30	40			30	
20	4			5	10	15	20	25	30			20	
10		3			5	10	15	20	30			10	
0	2				5	10	15	20	30			0	
	0	0	0	0	0	0	0	0	0	0	0	0	0
	10x5	6x2x2	5x3x2	4x5x2	5x5x2	6x5	8x5	9x5	10x5	6x5	7.5x5	8x5	9x5
	Div. 50	24	15	20	25	30	40	45	50	30	37.5	40	45

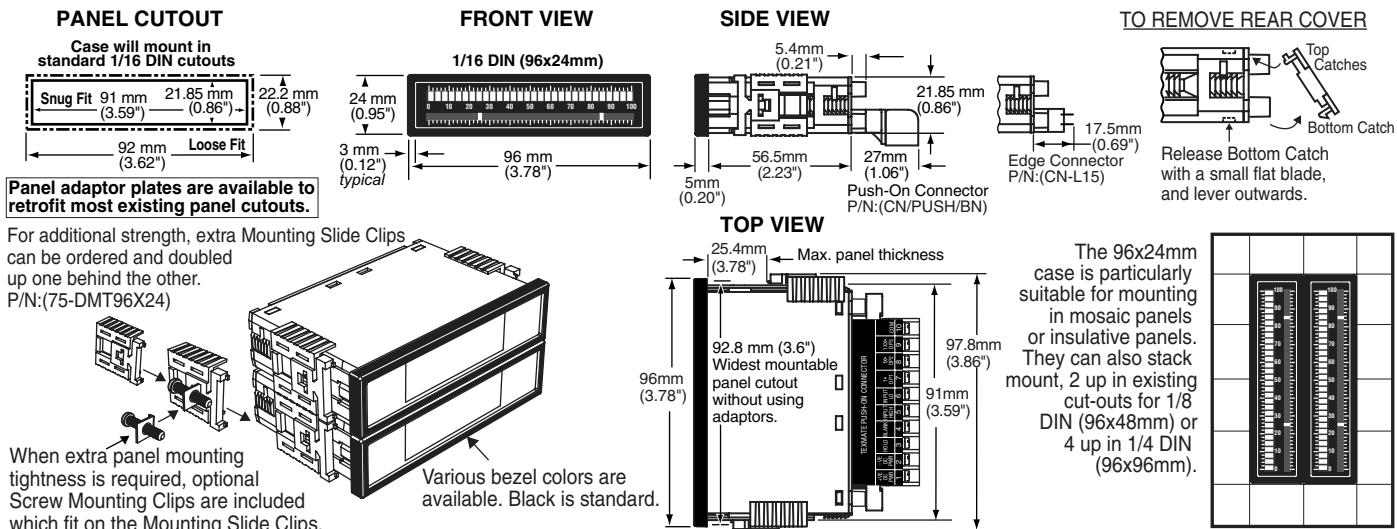
## Standard Caption Sheets (white or black lettering for do-it-yourself customizing)

Clear self-adhesive caption sheets with white or black lettering are provided for each meter shipped with a standard or optional faceplate.

AHEAD	AC Vars	AC Amperes	AC Kilowatts	AIR PRESSURE	AC Milliampers
ALARM	AC Volts	AC Kilovolts	AC Millivolts	AC Kiloamperes	Battery Voltage
BOILER	AC Watts	AC Kilovolts	BPH X 1000	AC Megavars	Backup Voltage
Cycles	BEARING	AIR FLOW	CFH x 1000	AC Megawatts	Displacement
Depth	COOLANT	BFLS/HOUR	DC Amperes	AC Watts/Vars	DC Amps to Ground
HEATER	DC Volts	BFM AMPS	DC Kilovolts	CENTIMETERS	DC Microamperes
Height	DC Watts	BHP x 100	DC Kilowatts	DC Kiloamperes	DC Milliampers
Hertz	Degrees	BLOWER	DC Millivolts	FD FAN AMPS	GALLONS / MINUTE
Hours	ENGINE	DC Current	FPM X 100	IN. H <sub>2</sub> O PRESS	GENERATOR AMPS
INCHES	EXHAUST	Dew Point	FPM X 1000	LBS/MINUTE	LBS PER GALLON
Input	Humidity	Degrees C	GPM X 1000	LEVEL INCHES	LOAD LIMIT PERCENT
PORT	METERS	Degrees F	HORSEPOWER	LEVEL GALLONS	MANIFOLD PRESSURE
PUMP	Output	Degrees K	INCHES WC	LEVEL PERCENT	MILL LOAD AMPS
Presel	Percent	Degrees R	INCHES H <sub>2</sub> O	MILLIMETERS	MOTOR LOAD AMPS
Reset	Program	FPM X 10	KILOWATTS	Percent Current	Percent Horsepower
SHAFT	Pounds	Frequency	LBS X 1000	Percent Load	OXYGEN PERCENT
SPEED	Pulses	FUEL FLOW	MEGAWATTS	PERCENT OPEN	TEMPERATURE °C
Setup	RUDDER	GALLONS	Power Factor	RATE OF TURN	TEMPERATURE °F
TABLE	SPINDLE	IN. WATER	Phase Angle	STEAM TEMP °F	Motor Load Percent
Total	SQ ROOT	LEVEL FT.	RPM X 100	TONS / HOUR	LEFT RIGHT
VALVE	Set Point	LBS X 100	STARBOARD	OIL PRESSURE	FRONT REAR
Valley	THRUST	POSITION	TANK LEVEL	WATER LEVEL	FORWARD REVERSE
WATTS	TURBINE	TONS X 10	VAC MM HG	1000 LBS/HOUR	TOP BOTTOM (L458)

A	AC	E <sub>b</sub>	Btu	bars	CFH	BHP	Low	inch/	CosØ	AMPS	BBL/HR
J	Ah	kJ	bar	cal <sub>15</sub>	CFM	IPS	High	Kcal	FEET	GALS	BBL/MIN
K	cd	kV	cal	cm <sup>-1</sup>	CFS	IPH	MGD	kg/hr	Hold	INHg	DEG/MIN
l	dB	kW	cm	cm <sup>2</sup>	COS	Kg/h	Mid	kVAR	Km <sup>3</sup> /h	m/min	FT H <sub>2</sub> O
m	DC	ml	FT <sup>3</sup>	cm <sup>3</sup>	CPH	KPH	MPH	kW/s	MWH	m/sec	In. H <sub>2</sub> O
V	FT	NL	lbs	dm <sup>3</sup>	CPM	KPM	MPS	RPM	mWs	Nm <sup>3</sup> /h	Kg/cm <sup>2</sup>
α	HP	Pa	IN <sup>2</sup>	H <sub>2</sub> O	CPS	KPS	N/m <sup>2</sup>	MPM	mbar	Ohms	KNOTS
β	Hz	PF	kg/	kPa	DCA	kWH	ORP	M <sup>3</sup> /hr	ml/m <sup>3</sup>	PSIA	kg/sec
φ	Kg	pH	mA	l/s	FPH	lb/ft	PPH	Upm	mm/s	PSID	Mvars
Ω	kA	sin	mS	l/h	FPM	lb/in	PPM	VAC	Peak	PSIG	mmH <sub>2</sub> O
Δ	L <sup>3</sup>	t/h	mV	l/m	FPS	LPH	PPS	Vars	PORT	PSIR	mmHg
μ	m <sup>3</sup>	yd <sup>3</sup>	Nm	lb/h	GAL	LPM	RPH	VDC	STRB	SCFM	VOLTS
∅	W	μA	oz	MW	GMP	LPS	RPS	w/m <sup>2</sup>	TARE	TORR	%LOAD
γ	°C	μS	RH	min	GPH	m <sup>3</sup> /h	phi	YPM	TONS	U/min	%OPEN
%	°F	μV	1/h	mm	GPM	m <sup>3</sup> /m	psi	YPS	X100	x10kN	→
∠	°K	μΩ	μm	Sm <sup>3</sup>	GPS	m <sup>3</sup> /S	X10	μPa	%KW	X1000	←

# Case Dimensions and Panel Cutouts



## Ordering Information

### Standard Options for this Model Number

Part Number . . .Description

#### ► BASIC MODEL NUMBER

**SB-B31** . . . . .Red 31 Seg. Bargraph, 4-20mA Loop Powered

#### ► DISPLAY

**SB-VERT/RED** .Vertical Red (standard)

SB-HORZ/RED . . .Horizontal Red LED option

SB-VERT/GRN . . .Vertical Green LED option

SB-HORZ/GRN . . .Horizontal Green LED option

SB-MULTI . . . . .Red, green or amber LEDs (10 seg. increments)

### Special Options and Accessories

Part Number . . .Description

#### ► ACCESSORIES

75-DMTC96X24 . . .Side Slide Brackets, extra set (96x24mm only)

75-DBBZ96X24 . . .Black Bezel for 96x24mm Case, BN and AM series

DN.CAS96X24 . . .Din Case 96 X 24 Short Depth Plus Accessories

93-PLUG2P-DP . . .Extra Screw Terminal Conn., 2 Pin Power Plug

OP-MTLCLIP . . . . .Screw Mounting Clips (2 pc) to screw tighten slide brackets

75-DTP96X24 . . . . .Black Metal Trim Plate (96x24mm Case) 1 Meter

75-DTP2X9624 . . . . .Black Metal Trim Plate (96x24mm Case) 2 Meters

75-DTP3X9624 . . . . .Black Metal Trim Plate (96x24mm Case) 3 Meters

Prices subject to change without notice.

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995 Park Center Drive • Vista, CA 92081-8397

Tel: 1-760-598-9899 • USA 1-800-839-6283 • That's 1-800-TEXMATE

Fax: 1-760-598-9828 • Email: sales@texmate.com • Web: www.texmate.com

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