

# BG Series Circular BarGraphs™

The Weschler BG Series Circular BarGraphs include the BG241, BG251, BG261 and BG281. The panel footprint, shape and mounting meets direct retrofit applications for 4½" and 8¾" switchboard meters, as well as 6" and 8" pressure gauge meters. The electronics housing is identical for both sizes.

Bars are available in red, green or amber for easy viewing. Weschler BarGraphs combine the visual indication of an analog gauge with the precision of a digital instrument.

Digital displays are available with either 3½ or 4½ digit resolution. The 101 segment bar gives the operator a quick view of the measured signal and the control setpoints. Separate setpoint LEDs provide an added visual indication of control/alarm status. Signal direction is shown by two trend arrows. Setpoints and other parameters are easily entered from the front panel.

Weschler BarGraph instruments can be configured for a wide range of input signals. Retrofit sizes are available for most panel and switchboard meters in use today. These instruments satisfy the high quality standards of the utility, OEM and process industries.

## FEATURES

**High resolution 101 segment LED bar array**

**3½, 4½ or 5 digit display with resolution to 0.01%**

**Programmable functions**

- Zero point location
- Setpoint location
- Hysteresis (setpoint, trend)
- Span and zero
- Digital display for engineering units
- Enable/disable front buttons
- I.D. selection for communication

**Form-C relay outputs**

- Normally Open
  - 5A, resistive @ 250V AC
  - 5A, resistive @ 28V DC
- Normally Closed
  - 3A, resistive @ 250V AC
  - 2A, resistive @ 28V DC

**Peak and Valley hold**

**Trend indication for signal  
Direction**

**Communication**

RS-232, RS-485, SCADA, DCS

**Analog retransmit**

4-20, 10-50, 0-1 mA DC  
1-5, 0-1, 0-5 V DC

**Retrofit sizes for:**

GE/Yokogawa AB/DB40 4½" and AB/DB16 8¾" switchboard meters

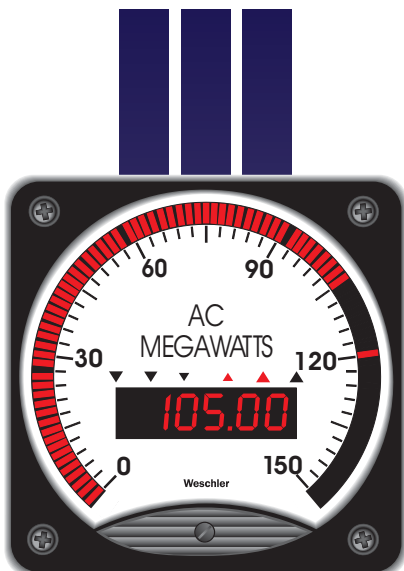
Crompton 075/077 4½" and 8¾" switchboard meters

Ashcroft, Heise 6" and 8" gauges

Dixson BW051/P, Weschler K241

**Versatile selection of inputs**

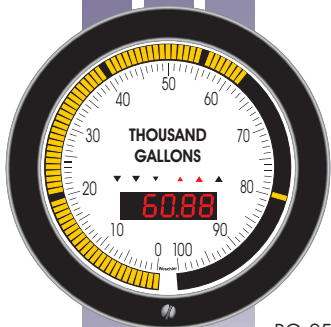
- |                 |                                        |
|-----------------|----------------------------------------|
| DC              | Up to 5A & 250V                        |
| AC              | Up to 5A & 250V                        |
| Thermocouple    | J, K, T                                |
| RTD             | 10Ω Cu or 100Ω Pt                      |
| Power           | Watts, VARS, power factor, phase angle |
| Frequency       | Line or mag pickup                     |
| Process Control | ma, V                                  |



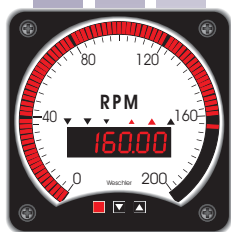
BG-261



BG-281



BG-251



BG-241



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# SPECIFICATIONS

## Bar Display

101 segment LED  
 1% full scale resolution  
 Circular Displays:  
 BG-241 285°  
 BG-261/281 270°  
 BG-251 270°/345°

## Digital Display

3½, 4½ or 5 digit  
 Linearity ±1 count  
 Resolution  
 3½ digit 0.1% full scale  
 4½ digit 0.01% full scale  
 5 digit 0.01% full scale  
 Height  
 BG-241 0.4" (10.16mm)  
 BG-261/281 0.8" (20.32mm)  
 BG-251 0.56" (14.22mm)

## Response Time

DC <600msec full scale  
 AC <800msec full scale

## Temperature

Operation 0° to 50°C, <95% RH (non-condensing)  
 Storage -40° to 85°C

## Input Isolation

AC Transformer isolated (>50mA, 1V)  
 DC Differential

## Sensor Power

24V DC excitation power @ 90mA

## Setpoints

Up to 4 SPDT relays with form C contacts available. Hysteresis values of 0.5, 1.0, 2.0% of full scale, selectable (other values are available).  
 Optional: Field programmable 0-10% or latching

## Retransmit Signals

4-20mA DC  
 0-1mA DC  
 10-50mA DC  
 1-5V DC  
 0-5V DC

## Communication

RS232  
 RS485

## Power

120, 240V AC (6VA)  
 12, 24, 28, 48, 125, 250V DC (3W)

## Input Impedance

2Mohm @ >4V DC  
 30kohm @ 120V AC P.T.  
 0.1ohm @ 5A AC C.T.  
 250ohm @ 4-20mA DC  
 100ohm @ 10-50mA DC

## Input Overload Ratings

200%, not to exceed 10A  
 200%, not to exceed 300V

## Input Sensitivities [ANSI C39.1]

DC:  
 Current 50 microamp - 5A  
 Voltage 50mV - 250V  
 Accuracy 0.04% of full scale ± 1 count

AC RMS:  
 Current 1mA - 5A  
 Voltage 50mV - 250V  
 Accuracy 0.1% of full scale ± 1 count

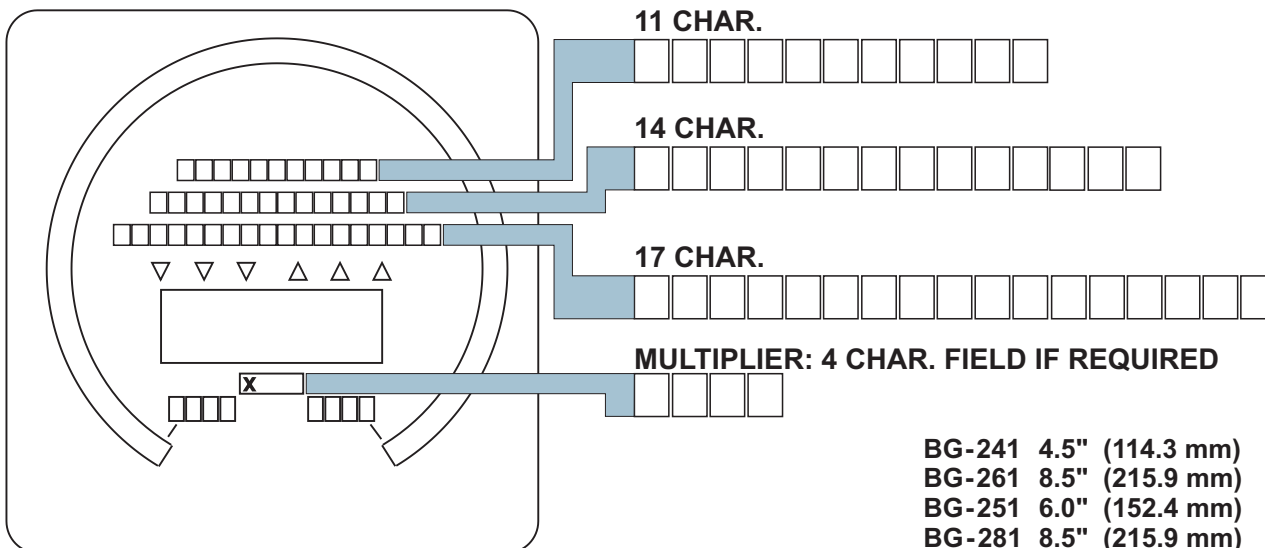
Temperature:  
 Thermocouple °C °F  
 Type J -210 to 795 -346 to 1463  
 Type K -270 to 851 -454 to 1563  
 Type T -270 to 400 -454 to 752  
 Accuracy 0.1% of full scale ± 1 count  
 Linearity 50 point, 0.1%

RTD °C °F  
 100Ω Pt -260 to 700 -436 to 1292  
 Alpha 0.00385 & °C standard  
 Other Alpha ratings available  
 10Ω Cu -100 to 260 -148 to 500  
 Accuracy 0.2% of full scale ± 1 count

Frequency:  
 50Hz to 20kHz at 5 to 250V p-p  
 Accuracy 0.1% of full scale ± 1 count

Line Frequency (55 to 65 Hz):  
 Accuracy 0.01% of full scale ± 1 count

# ARTWORK GUIDELINES



# ORDERING GUIDE

SAMPLE PART NUMBER (SEE BOTTOM OF PAGE FOR EXAMPLE)

4	B	3	N	1	A	A	M	1	F	A	P	T	T	X
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

PART NUMBER

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

**TYPE:**

- 4 = BG241 4-1/2" Square BarGraph
- 6 = BG261 8-3/4" Square BarGraph
- 8 = BG281 8" Circle BarGraph
- 3 = BG251 6" Circle BarGraph

**BAR ZERO POINT:**

- B = Zero at Bottom
- H = Zero at 50% mid scale
- F = Zero at F.S.
- S = Special /off scale zero

**DIGITAL DISPLAY:**

- 3 = 3-1/2 digit Display
- 4 = 4-1/2 digit Display
- 5 = 5 digit Display
- X = Not required

**SETPOINTS:**

- N = Hi/Lo
- H = Hi/Hi-Hi
- L = Lo/Lo-Lo
- 4 = Hi-Hi/Hi/Lo/Lo-Lo
- Z = Fail Safe Hi/Lo
- X = Not required
- S = Special order
- P = Programmable Hi or Lo (not available with LED Color X)

**SETPOINT HYSTERESIS:**

- 1 = 1% of F.S. (standard)
- 2 = 2% of F.S.
- 5 = 0.5% of F.S.
- X = Not required
- S = Special
- P = Programmable 0-10% or Latching (requires Setpoints P)

**INPUT TYPE:**

- A = DC Volts
- B = DC Amps
- P = 4-20mA DC (input level AK)
- N = 1-5V DC (input level AV)
- M = 10-50mA DC (input level BA)
- C = AC Volts RMS  
(Barrier terminal strip connections included)
- D = AC Amps RMS  
(Barrier terminal strip connections included)
- F = Line Frequency
- Q = MAG Pickup Frequency
- J,K,T= Thermocouple Types
- R = RTD: Specify 3 or 4 wire & alpha  
 100 Ohm Pt  10 Ohm Cu
- S = Special
- U = Serial ASCII (requires com type A, B or C in Communication options)

**LED COLOR:**

- G = Green only \*
- A = Amber only \*
- X = Red only (not available on 251)
- M = Multi-color Display \*
- B = Enhanced Red \*
- P = Superbright red or amber \*  
(not available on 241)

\* Includes 2 step dimming

- B = Analog Backplate
- K = Conformal Coating
- T = Terminal Strip Connector
- A = Custom Artwork
- X = None
- Y = Spraytight Front/Rear (BG241/261)
- Z = Spraytight Front (BG241/261)

- T = Trend Indicator
- X = NA

- P = Peak/Valley Hold
- X = NA

**COMMUNICATION:**

- A = RS232
- C = RS485 Bi-directional
- X = None

**RETRANSMIT:**

- A = 4-20mA DC into 250 ohms
  - B = 0-1mA DC into 1000 ohms
  - C = 1-5V DC
  - D = 0-1V DC
  - F = 4-20mA DC, 700 ohms max. (isolated source\*)
  - G = 0-1mA (isolated source\*)
  - H = 10-50mA DC (isolated source\*)
  - W = Excitation Power 24 VDC @ 90mA
  - X = None
- \*isolated outputs must have AC power

**POWER:**

- 1 = 120V AC ±15% 50/60Hz
- 2 = 240V AC ±15% 50/60Hz
- 4 = 12V DC ±10%\*
- 6 = 250VDC±10%
- 7 = 24V DC ±10%
- 8 = 28V DC ±10%
- 9 = 48V DC ±10%
- U = 110-250V DC / 85-264V AC, 50-440Hz

\*Max ambient 45°C

**INPUT LEVEL:**

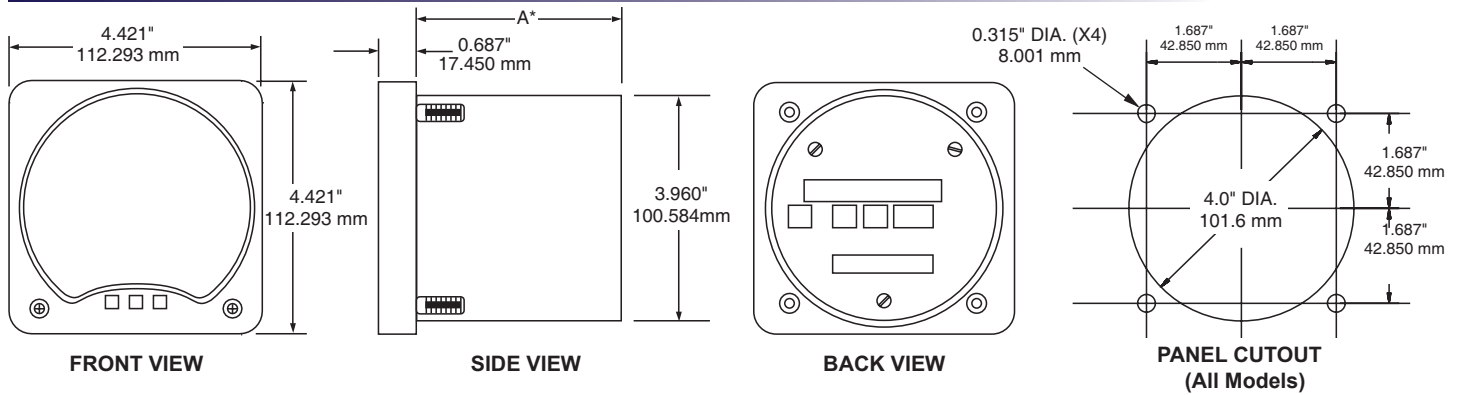
See input Level Matrix Guide

**EXAMPLE:** 4 B 3 N 1 A A M 1 F A P T T X

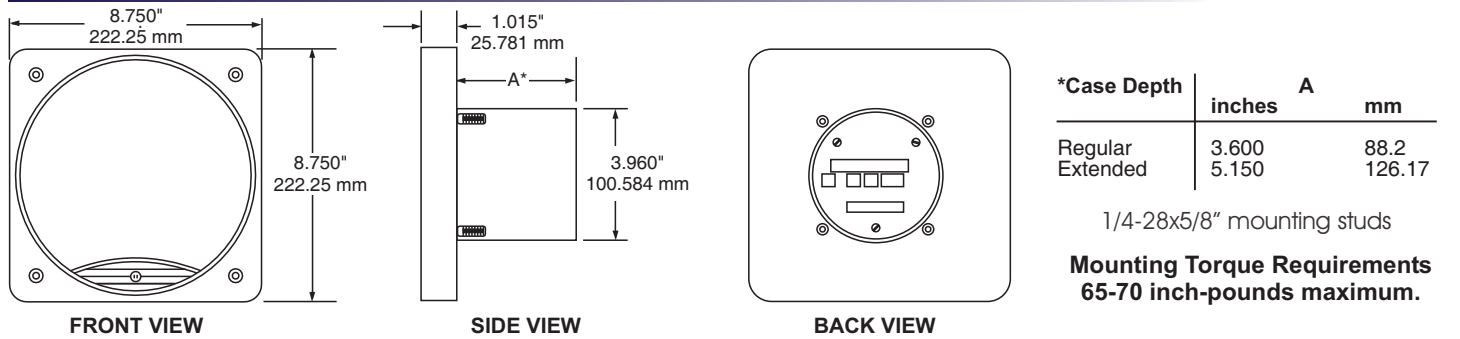
(4) BG-241, (B) zero at bottom, (3) 3 1/2 digit, (N) Hi/Lo setpoint, (1) 1% of F.S. setpoint hysteresis, (A) DC volts input, (A-M) full scale is 0.05 volts, (1)120 VAC 50/60 Hz power, (F) 4/20 mADC isolated retransmit, (A) RS232 communication, (P) peak/valley hold, (T) trend indicator, (T) terminal strip connector, (X) red led color

# DIMENSIONS

## BG-241



## BG-261

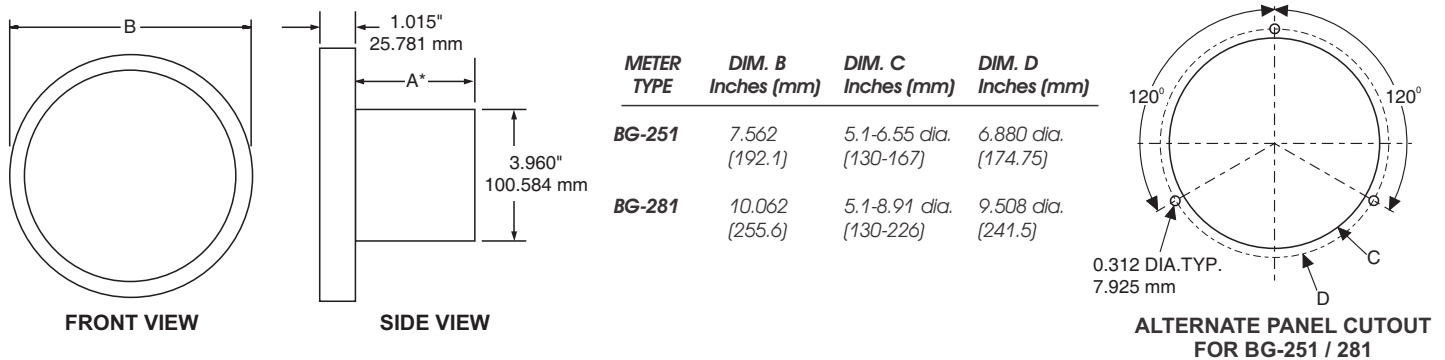


*Case Depth	A	
	inches	mm
Regular	3.600	88.2
Extended	5.150	126.17

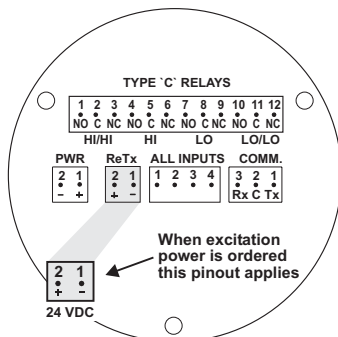
1/4-28x5/8" mounting studs

**Mounting Torque Requirements**  
65-70 inch-pounds maximum.

## BG-251 / 281



# TERMINAL CONNECTIONS



BG-241 / BG-251 / BG-261 / BG-281

### INPUTS

**VOLTAGE / CURRENT**  
(1) Hot Side (+) (2) Return Side (-)

**RTD**  
(1) + Source (2) + Sense  
(3) - Sense (4) - Source

**MAGNETIC PICKUP**  
(1) - (2) +

**THERMOCOUPLE**  
Provided w / flying lead and plug

### AC LINE FREQUENCY

(1) Hot Side (+) (2) Return Side (-)

**AC Inputs have 6/32 barrier lug connections.**

### POWER

(1) Hot Side (+) (2) Return Side (-)  
**EXCITATION POWER 24 VDC**

(1) - (2) +

### COMMUNICATIONS

(1) Transmit (2) Common  
(3) Receive

### RELAY CONTACTS\*

(1) Hi/Hi N.O. (2) Hi/Hi C.  
(3) Hi/Hi N.C. (4) Hi N.O.  
(5) Hi C. (6) Hi N.C.  
(7) Lo N.O. (8) Lo C.  
(9) Lo N.C. (10) Lo/Lo N.O.  
(11) Lo/Lo C. (12) Lo/Lo N.C.

\* N.O.= Normally Open  
N.C.= Normally Closed  
C.= Common

Options and features vary by model. Contact factory for details and latest specifications.



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