How to Specify a BarGraph for an Existing Installation

- Use the Selector Guide to determine which models fit the panel cutout.
- Match the power supply voltage available in the panel to the various BarGraph supply options.
- Select the input type and next higher full scale value (see ordering guide for the specific model).
- Select other options such as display colors, setpoint relays, analog retransmit, communications.
- Use this information to build the 15 digit part number. Add notes to specify the scale markings, legend & any special requirements.

How to Specify a BarGraph for a New Application

- Use the Selector Guide to determine which models have the desired input type and range.
- Select a model based on meter size and bar style.
- Specify input type and next higher full scale value (see ordering guide for the specific model).
- Select power supply to match the supply voltage available in the panel.
- Select other options such as display colors, setpoint relays, analog retransmit, communications.
- Use this information to build the 15 digit part number. Add notes to specify the scale markings, legend & any special requirements.
### Weschler Digital BarGraph Selector Guide

#### TriColor BarGraph

<table>
<thead>
<tr>
<th>Style</th>
<th>Series</th>
<th>P/N</th>
<th>Bezel Size</th>
<th>Segments</th>
<th>Digits</th>
<th>Data Sheet</th>
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<tr>
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#### Standard BarGraph

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#### Circular

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<th>Digits</th>
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<td>7.5&quot; dia</td>
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<td>8&quot; Round</td>
<td>BG-281</td>
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<td>10&quot; dia</td>
<td>101</td>
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#### Concentric

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<td>BF6401</td>
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#### Bowmar BarGraph

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<td>APM-100**</td>
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<td>5&quot; Vert/Horiz</td>
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**also available as BG-xxx with card edge connector**

**Chart of Available Input Types and Levels**

Input Level Matrix 41

for characters 7 & 8 of the BarGraph part number (except Bowmar, BG2)

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# Weschler Digital BarGraph Selector Guide

## Features & Functions

<table>
<thead>
<tr>
<th>Model</th>
<th>BarGraph 2 Series</th>
<th>Tricolor Edgewise &amp; Circular</th>
<th>Single Edgewise &amp; Large Edgewise</th>
<th>Single Circular</th>
<th>Dual Edgewise</th>
<th>BF Concentric</th>
<th>Bowmar</th>
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<td>2</td>
<td>1-2</td>
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</tbody>
</table>

### Input Ranges

- **DC V**
  - 20mV - 300V
  - 20mV - 250V
  - 20mV - 250V
  - 20mV - 250V
  - 20mV - 250V
  - 50mV - 100V

- **DC A**
  - 1mA - 5A
  - 20μA - 5A
  - 20μA - 5A
  - 20μA - 5A
  - 20μA - 5A
  - 10μA - 10A

- **Process 4-20mA**
  - ✓
  - ✓
  - ✓
  - ✓
  - ✓

- **Process 1-5V**
  - ✓
  - ✓
  - ✓
  - ✓

- **AC V**
  - 50mV - 300V
  - 1V - 250V
  - 1V - 250V
  - 1V - 250V
  - 1V - 250V
  - 1V - 250V

- **AC A**
  - 1mA - 5A
  - 50mA - 5A
  - 50mA - 5A
  - 50mA - 5A
  - 50mA - 5A
  - 10mA - 10A

- **AC V TRMS**
  - 200mV - 600V
  - 1V - 250V
  - 1V - 250V
  - 1V - 250V
  - 1V - 250V

- **AC A TRMS**
  - 2mA - 5A
  - 50mA - 5A
  - 50mA - 5A
  - 50mA - 5A
  - 50mA - 5A

- **T/C**
  - J, K, T
  - J, K, T
  - J, K, T
  - J, K, T
  - J, K, T

- **RTD**
  - Pt
  - Pt, Cu
  - Pt, Cu
  - Pt, Cu
  - Pt, Cu

- **Pressure/Load**
  - Strain Gauge
  - Pressure (direct)

- **Line Frequency**
  - ✓
  - ✓
  - ✓
  - ✓

- **Frequency/RPM**
  - ✓
  - ✓

- **Resistance**

- **Potentiometer**
  - Power (W, VAR, PF)
  - 1Ø, 3Ø [ACP]*
  - 1Ø, 3Ø [ACP]

### Outputs

- **Setpoints/Relays**
  - 4
  - 4
  - 4 per channel
  - 4
  - 4 per channel
  - 4 per channel

- **Analog Retransmit**
  - 1 per channel
  - 1 per channel
  - 1 per channel
  - 1 per channel
  - 1 per channel

- **Digital Comm.**
  - 232, 485, Ethernet
  - 232, 485
  - 232, 485
  - 232, 485
  - 232, 485

- **Protocol**
  - ASCII, Modbus
  - ASCII
  - ASCII
  - ASCII
  - ASCII

### Features

- **Dimming**
  - 100 steps, separate bar & digit adjustments
  - 100 steps
  - 16
  - 2

### Power Supply

- **5VDC**
  - ✓
  - ✓
  - ✓
  - ✓
  - ✓

- **12VDC**
  - ✓
  - ✓
  - ✓
  - ✓
  - ✓

- **24VDC**
  - ✓
  - ✓
  - ✓
  - ✓

- **28VDC**
  - ✓
  - ✓
  - ✓
  - ✓

- **48VDC**
  - ✓
  - ✓
  - ✓
  - ✓

- **125VDC**
  - ✓
  - ✓
  - ✓
  - ✓

- **250VDC**
  - ✓
  - ✓
  - ✓
  - ✓

- **12VAC**
  - ✓
  - ✓
  - ✓

- **24VAC**
  - ✓
  - ✓

- **120VAC**
  - ✓
  - ✓
  - ✓

- **240VAC**
  - ✓
  - ✓

*Circular only

1/18/2019
## Bargraph Replacement Guide

<table>
<thead>
<tr>
<th>Existing Meter</th>
<th>Weschler BarGraph</th>
<th>Existing Meter</th>
<th>Weschler BarGraph</th>
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<td>Dixson BB101 (All Models)</td>
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### Cross Reference - Bargraph Model to Data Sheet

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</tbody>
</table>

Page numbers refer to the Weschler Digital Bargraph Instruments catalog.
The Weschler BarGraph 2 Series High Reliability Digital BarGraphs are intended for use in applications where accurate and reliable measurement of a process value is of paramount importance. This series is designed to meet or exceed all national nuclear standards for environmental temperature and humidity extremes, seismic shock, EMI/RFI, HMI and system software V&V.

The BG2 is built for use in nuclear power plant (NPP) control rooms and other locations where physical and electrical environmental extremes may be found. The BV2-5A, BW2-1316 and BF2-6402 are housed in steel enclosures. The BG2-252 and BH2-252 use a high-impact, UV stabilized polycarbonate housing. Due to the self-shielded internal construction, no additional case shielding is required.

The BG2 Series features a five digit numeric display, that indicates to 99999 in the positive excursion and 19999 in the negative excursion. Character colors are blue, green, amber and red.

The 101 segment bar provides 1% resolution. A unique programming capability allows for fine control of set point annunciator visibility. In addition, the bar display can be configured to indicate with a single moving point, which simulates a pointer, or in standard expanded bar mode. It can also be configured in dual-slope or bipolar modes. The bar can be populated with LED’s in a single color (red, green, amber, blue), or in several different colors to provide a fixed banded mode of high color purity and brightness.

Up to four setpoint relays are available for control or alarms. These high current outputs can be programmed for either high or low action, with adjustable hysteresis, mode and delay. Red setpoint annunciators are provided when relays are specified. The trend indication option adds two red trend arrows to the front panel.

BG2-252 & BH2-252 meters are configured through the three front panel buttons. Front panel programming on the BW2-1316, BV2-5A and BF2-6400 is done with a plug-in programming module (EPM). For enhanced security, the front panel programming buttons can be disabled by configuring a setting requiring the installation of a jumper on the rear panel. When a communication option is ordered, the BG2 meters are also configurable through the RS-232, RS-485, Ethernet or USB port. Modbus and ASCII protocols are provided. With available setup software, configuration files can be created off-line and stored for uploading at a later time.

Made in USA
### BarGraph 2 Digital Bargraph Meters

#### Front View

<table>
<thead>
<tr>
<th>Model</th>
<th>Instrument</th>
<th>Dimension A (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BG2-252</td>
<td>1</td>
<td>177.00</td>
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<tr>
<td></td>
<td>2</td>
<td>351.00</td>
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<td></td>
<td>3</td>
<td>525.00</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>699.00</td>
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</table>

#### Side View

<table>
<thead>
<tr>
<th>Model</th>
<th>Instrument</th>
<th>Dimension A (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BW2-1316</td>
<td>1</td>
<td>187.50</td>
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<td></td>
<td>2</td>
<td>398.50</td>
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<td>3</td>
<td>611.50</td>
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<td>4</td>
<td>824.50</td>
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#### Panel Cutout

<table>
<thead>
<tr>
<th>Number of Instruments</th>
<th>Dimension A (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1.770</td>
</tr>
<tr>
<td>2</td>
<td>3.510</td>
</tr>
<tr>
<td>3</td>
<td>5.250</td>
</tr>
<tr>
<td>4</td>
<td>6.990</td>
</tr>
</tbody>
</table>

#### Power Connector positions vary by model. BG2-252 shown

#### All Models: Add 0.35" to depth for rear connectors
Environment:
Operating Temperature: 0 to 65 °C (32 to 149 °F) except 0 to 60 °C (32 to 140 °F) for BG2-252
Storage Temperature: -20 to 85 °C (-4 to 185 °F)
Humidity: 0 - 95% non-condensing

Power Sources:
AC: 90 - 264 V, 47 - 440 Hz (12 VA)
DC: 12 V, 50 - 60 Hz (5.5 VA)
100 - 300 V (35 mA)
18 - 36 V (140 mA)
36 - 72 V (70 mA)
12 V (630 mA)

Input Signals:
DC Amps: 50 µA - 5 A
DC Volts: 50 mV - 300 V
AC Amps rms: 1 mA - 5 A
AC Volts rms: 50 mV - 300 V
Type J Thermocouple: -40 to 750 °C, -346 to 1463 °F
Type K Thermocouple: -200 to 850 °C, -328 to 1562 °F
Type T Thermocouple: -200 to 350 °C, -328 to 662 °F

Isolation:
Power Source: DC source: ±3000 V, AC source: 3000Vrms
Reproducibility: ±3000 V peak
Communications: ±2500 V rms
Signal: ±2000 V
DC: Differential

Response Time (one input):
AC Signals: ≤ 500 mS, to within 0.2% of final value
DC Signals: ≤ 250 mS

Overload Ratings:
DC Signals
Volts: 150% of FS, or 350 V maximum
Amps: 150% of FS, or 7.5 A maximum
AC Signals
Volts: 150% of FS, or 350 V rms maximum
Amps: 200% of FS, or 10 A rms maximum

Displays:
Numeric: 5 Character, 7 Segment
Height: 0.3 inch, 7.6 mm
99999 to -19999
Red, Green, Amber, or Blue color
Bar:
4 inch, 101.6 mm
101 Segment, 1% Resolution
Red, Green, Amber, Blue or mixed color zones

Accuracy:
Resolvable Accuracy: 0.001% of full scale ±1 count
Calibrated Accuracy:
DC Volts & Amps: ±0.01% of full scale ±1 count
AC Volts & Amps: ±0.10% of full scale ±1 count (50/60 Hz)
Thermocouple: ±0.5°C ±1 count
Long Term Accuracy: Industrial Versions
Voltage Reference: ±0.005%, ±0.00125% lifetime
Long Term Accuracy: Nuclear Versions
Voltage Reference: ±0.001%, ±0.00125% lifetime

Temperature Coefficient:
DC Volts & Amps: 0.003% / °C
AC Volts & Amps: 0.01% / °C
Thermocouple: 0.03% / °C

Set Point Relays:
Number: 4 maximum
Type: SPDT, Form C
Modes: Hi, Lo, Latching Hi, Latching Lo, Failsafe
Capacity:
AC: 1/8 HP 120/240 V
5 A, 240 VAC (resistive)
DC: 5 A, 150 VDC

Communications:
RS-232: 1200 - 57600 bits/s, 7 or 8 bit
RS-485: 2 and 4 Wire
USB*: Peripheral device (front panel connection)
Ethernet: 10/100Base-T
Protocol: Modbus RTU/ASCII

Analog Retransmit:
Channels: Two independent channels
Signal Sources: Selectable from either channel, to follow numeric or bar display
Power Required: None (self-powered)
Output Ranges: 0 - 5 VDC, 0 - 10 VDC
Current Source programmable between 0 and 20 mA DC
Compliance Voltage: 24 VDC maximum

Warranty: 5 years

Standards Used in Design and Manufacture:
ASME NQA-1a-2009
IEEE 1008: 1987 R2002
IEEE 1023: 2004
IEEE C37.90.3
IEEE C37.90.1
IEEE 1074 2006
IEEE 323: 2003
IEEE 344: 2004
IEEE 1028: 2008
IEEE 7-4.3.2: 1993
IEEE C63.38
IEEE 1028: 2008
IEEE 1028: 2008

BarGraph 2 is Weschler’s fourth generation digital indicator for power and process monitoring. Since we introduced our first bar-graph meter in 1989, Weschler Bargraph products have outfitted thousands of installations worldwide and accumulated millions of operating hours. Based on our proven reliability in these commercial, industrial and military applications, we confidently offer a five year warranty on the new BG2 Series.

Specifications subject to change without notice. See product manual for detailed specifications.
### Configuration Guide

**TYPE**
- A = BG2-252 (vertical)
- B = BH2-252 (horizontal)
- C = BW2-1316
- E = BV2-5A
- F = BF2-6401
- G = BF2-6402 (2 channel)

**SERIES**
- 2 = Industrial
- N = Nuclear

**FUNCTION - Channel 1**
- A = DC Amps
- V = DC Volts
- I = AC Amps
- E = BV2-5A
- U = Type J Thermocouple
- 3 = Type K Thermocouple
- 4 = Type T Thermocouple
- 5 = Type T TC, Differential

**FUNCTION - Channel 2**
- X = No second channel
- A = 10

**FULL SCALE MULTIPLIER - Channel 1**
- 6 = 10^9 (0.000 0XX)
- 5 = 10^8 (0.000 XX0)
- 4 = 10^7 (0.000 X00)
- 3 = 10^6 (0.00 X000)
- 2 = 10^5 (XX.000)
- 1 = 10^4 (XX0.000)
- A = 10^3 (XX00.000)

**FULL SCALE MULTIPLIER - Channel 2**
- 6 = 10^9 (0.000 0XX)
- 5 = 10^8 (0.000 XX0)
- 4 = 10^7 (0.000 X00)
- 3 = 10^6 (0.00 X000)
- 2 = 10^5 (XX.000)
- 1 = 10^4 (XX0.000)
- A = 10^3 (XX00.000)

**COMMUNICATIONS**
- 1 = Isolated RS-232
- 2 = Isolated RS-485
- 3 = Isolated Ethernet
- 4 = USB (BW2-1316 & BV2-5A only, replaces EPM)

**RETRANSMIT - Channel 1**
- X = No
- Y = Yes

**RETRANSMIT - Channel 2**
- X = No

**RETRANSMIT - Channel 3**
- X = No

**TREND**
- X = None
- S = Special

**NUMERIC DISPLAY**
- 1 = No Trend
- 2 = One
- 3 = Two
- 4 = Three
- 5 = Four
- X = No Trend

**RELAYS**
- 4 = USB (BW2-1316 & BV2-5A only, replaces EPM)
- 3 = Isolated Ethernet
- 2 = Isolated RS-485
- 1 = Isolated RS-232

**PART NUMBER EXAMPLE:**

<table>
<thead>
<tr>
<th>Type</th>
<th>Function Ch1</th>
<th>Full scale Ch1</th>
<th>Full scale Ch2</th>
<th>Bar display</th>
<th>Color</th>
<th>Power</th>
<th>Communications</th>
<th>RETRANSMIT</th>
<th>Trend</th>
<th>Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>R</td>
<td>N</td>
<td>Y</td>
<td>Single channel only</td>
<td>Y</td>
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</table>

* BF2-6402 only

For more information or quotes on nuclear qualified products, email: nuclear@weschler.com
The Weschler Instruments BG "TC", TriColor BarGraphs provide the quickest way to spot problems in your process control panels with bright changing colors. Quick identification of trouble conditions can help prevent equipment damage or production loss, thus reducing downtime and maintenance costs, and improving operational safety. Each 40 segment LED (Light Emitting Diode) of the BG TC family has the ability to illuminate as Red (Danger), Yellow (Caution), or Green (Safe condition). The bar color identification can be easily changed by the user, from the front pushbuttons or through a tamper safe mode. The fully programmable Weschler BG TC BarGraph™ fits the widest range of inputs and retrofits most edgewise switchboard and panel meters. Weschler's instruments satisfy the high quality standards set forth by the utility, OEM, and process control industries.

**FEATURES**

- Large, high resolution 40 segment LED bar array
- 5 digit display with resolution to 0.01%
- Field programmable functions
- Zero and full scale point location
- Setpoint type (Hi or Low)
- Hysteresis & latching
- Setpoint time delay
- 16 step dimming
- Digital display for engineering units
- Enable/disable front buttons
- I.D. selection for communication
- Bar form
- Peak / Valley enable
- Color zones
- Over-range/Under-range flashing
- Lamp test

**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**

- RS232/485, SCADA, DCS

**Analog retransmit**

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

**Retrofit sizes for:**

- GE/Yokogawa 180
- Bailey draft gauges
- Crompton 128
- Dixson SA/BB 101 (all models)
- Dixson BJ101, K051
- Hays Republic 216, 3600/V5A
- Foxboro 65PP
- Sigma/International Instruments 1151

**Versatile selection of inputs**

- DC: Up to 5A & 250V
- AC: Up to 5A & 250V
- Thermocouple: J, K, T
- RTD: 10Ω Cu or 100Ω Pt
- Serial: ASCII
- Frequency: Line or mag pickup
- Process Control: V, mA
**SPECIFICATIONS**

Bar Display
- 40 segment LED
- 2.5% full scale resolution

Height
- BG252, BH252, BV5A 4” (10.12mm)
- BD101 10” (25.4mm)

**Digital Display**
- 5 digit LED
- Resolution 0.01% full scale
- Linearity ±1 count

Height
- BG252, BH252, BV5A 0.3” (7.62mm)
- BD101 0.56” (14.2mm)

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

Setpoints
- Up to 4 SPDT relays with form C contacts available
- Hysteresis 0.00-10.00% FS or latching
- Time delay 0-10 sec.

Sensor Power
- 24V DC excitation power @ 90mA

Retransmit Signals
- 4-20mA DC
- 0-1mA DC
- 1-5V DC
- 0-5V DC

Communication
- RS232
- RS485 (2-wire)

**Power**
- 120/240V AC ±10%
- 50/60/400Hz (13VA)
- 12V DC ±10% (8W)
- 24V DC ±10% (8W)
- 28V DC ±10% (8W)
- 48V DC ±10% (8W)
- 250V DC ±10% (8W)
- 110-250V DC (8W)/85-264V AC, 50-440 Hz (13VA)

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
- 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**

**HORIZONTAL**

**VERTICAL**

**MULTIPLIER:**
- 4 CHAR.
- IF REQUIRED

**Numerical range MAX. 4 Digits**

**Non-digital units will have a centered bar display.**
## ORDERING GUIDE

### SAMPLE PART NUMBER

```
2 B Y 4 P A A M 1 F A P T X T
```

### TYPE:
- **2**: BG252 6" Vertical BarGraph
- **5**: BH252 6" Horizontal BarGraph
- **A**: BV5A 7.5" Vertical BarGraph
- **K**: BD101 10" Vertical 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:
- **R**: Red
- **Y**: Yellow
- **G**: Green
- **S**: Special

### SETPOINT RELAYS:
- **4**: 4 relays
- **X**: No relays
- **S**: Special

### SETPOINT HYSTERESIS:
- **P**: Programmable 0-10% or latching
- **S**: Special

### 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
- **D**: AC Amps RMS
- **F**: Line Frequency
- **Q**: MAG Pickup Frequency
- **J,K,T**: Thermocouple
- **R**: RTD: Specify 3 or 4 wire & alpha
- **S**: Special
- **U**: Serial ASCII (requires com. type A or C in Communication options)

### INPUT LEVEL:
See input Level Matrix Guide

### POWER:
- **1**: 120V AC, 50/60 Hz
- **2**: 240V AC, 50/60 Hz
- **4**: 12V DC
- **6**: 250V DC
- **7**: 24V DC
- **8**: 28V DC
- **9**: 48V DC
- **U**: 110-250V DC / 85-264V AC, 50-440 Hz

### BAR COLOR:
- **T**: TriColor
- **K**: Conformal Coating
- **T**: Terminal Strip Connector
- **A**: Custom Artwork
- **X**: None
- **S**: Special

### COMMUNICATION:
- **A**: RS232
- **C**: RS485 Bi-directional
- **X**: None
- **P**: Peak/Valley Hold
- **X**: NA
- **T**: Trend Indicator
- **X**: NA

### RETRANSMIT:
- **C**: 1-5V DC (or 0-5V on request)
- **D**: 0-1V DC
- **F**: 4-20mA DC, 700 Ohm max.
- **G**: 0-1mA DC
- **W**: Excitation Power 24 VDC @ 90mA
- **S**: Special
- **X**: None

### EXAMPLE:
```
2 B Y 4 P A A M 1 F A P T X T
```

(2) BG-252, (B) zero at bottom, (Y) Yellow, (4) Four relays, (P) Programmable setpoint hysteresis, (A) DC volts input, (AM) full scale is 0.05 volts, (1)120 VAC 50/60 Hz power, (F) 4-20 mA DC isolated retransmit, (A) RS232 communication, (P) peak/valley hold, (T) trend indicator, (X) No option, (T) TriColor
**DIMENSIONS**

**BG-252TC and BH-252TC**

**TERMINAL CONNECTIONS**

**BD-101TC**

**BV-5ATC**

**TERMINAL CONNECTIONS**

Options and features vary by model. Contact factory for details and latest specifications.
The Weschler BG Series Edgewise BarGraphs include several 6” size and DIN-size instruments for horizontal and vertical orientations. 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 control industries.

**FEATURES**

**High resolution 101 segment LED bar array**

**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**

**Contact Weschler for 10CFR50 Nuclear Qualified models**

**Communication**
- RS-232, RS-485, SCADA, DCS

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

**Retrofit sizes for:**
- GE/Yokogawa 180,
- Crompton 128,
- Dixson SA/BB 101 (all models),
- Dixson BJ101,
- Hays Republic 3600/V5A,
- Foxboro 65PP,
- Weston 1316,
- Sigma/International Instruments 1151

**Versatile selection of inputs**
- DC  Up to 5A & 250V
- AC  Up to 5A & 250V
- Thermocouple  J, K, T
- RTD  10Ω Cu or 100Ω Pt
- Serial  ASCII
- Frequency  Line or mag pickup
- Process Control  mA, V

**Contact Weschler for 10CFR50 Nuclear Qualified models**
**SPECIFICATIONS**

**Bar Display**
- 101 segment LED
- 4.0" display
- 1% full scale resolution

**Digital Display**
- 3½ or 4½ digit LED
  - Height: 0.3" (7.6mm)
  - Resolution:
    - 3½ digit: 0.1% full scale
    - 4½ digit: 0.01% full scale
  - Linearity: ±1 count

**Response Time**
- DC: <600msec full scale
- AC: <800msec full scale

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

**Input Isolation**
- AC: Transformer isolated (>50mA, 1V)
- DC: Differential

**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

**Sensor Power**
- 24V DC excitation power @ 90mA

**Retransmit Signals**
- 4-20mA DC
- 0-1mA DC
- 10-50mA DC
- 1-5V DC

**Communication**
- RS232
- RS485

**Power**
- 120/240V AC ±15%
- 50/60/400 Hz (6 VA)
- 8-30V AC (3VA max)
- 4.5-9V DC (600mA max)
- 9-36V DC (300mA max)
- 18-75V DC (150mA max)
- 110-300V DC (35mA max) / 85-264V AC (47-440Hz, 7VA max)

**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**

**BH-252 6" HORIZONTAL**
- PC-101 DIN HORIZONTAL

**BG-252 6" VERTICAL**
- PH-101 DIN VERTICAL

**MULTIPLIER:**
- 4 CHAR. IF REQUIRED

**12 CHAR.**

**17 CHAR.**

****Numerical range MAX. 4 Digits**

****Non-digital units will have a centered bar display.**
### SAMPLE PART NUMBER

(SEE BOTTOM OF PAGE FOR EXAMPLE)

```
2 B 3 N 1 A A M 1 F A P T A X
```

### ORDERING GUIDE

#### PART NUMBER

<table>
<thead>
<tr>
<th>TYPE:</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>BG252 6&quot; Vertical BarGraph</td>
</tr>
<tr>
<td>5</td>
<td>BH252 6&quot; Horizontal BarGraph</td>
</tr>
<tr>
<td>C</td>
<td>PC101 DIN Size Vertical BarGraph</td>
</tr>
<tr>
<td>H</td>
<td>PH101 DIN Size Horizontal BarGraph</td>
</tr>
<tr>
<td>7</td>
<td>BW1316 6&quot; Vertical BarGraph</td>
</tr>
<tr>
<td>A</td>
<td>BV5A 7.5&quot; Vertical BarGraph</td>
</tr>
</tbody>
</table>

#### BAR ZERO POINT:

- **B**: Zero at Bottom
- **H**: Zero at 50% mid scale
- **F**: Zero at F.S.
- **S**: Special or off scale zero

#### DIGITAL DISPLAY:

- **3**: 3-1/2 digit Display
- **4**: 4-1/2 digit Display
- **X**: None
- **S**: Special

#### SETPOINTS:

- **N**: Hi/Lo
- **H**: Hi/Hi-Hi
- **L**: Lo/Lo-Lo
- **Y**: Fail Safe Hi/Hi-Hi
- **Z**: Fail Safe Hi/Lo
- **X**: None

#### SETPOINT HYSTERESIS:

- **1**: 1% of F.S. (standard)
- **2**: 2% of F.S.
- **5**: 0.5% of F.S.
- **X**: Not required
- **S**: Special

#### 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
- **D**: AC Amps RMS
- **F**: Line Frequency
- **Q**: MAG Pickup Frequency
- **J,K,T**: Thermocouple Type
- **R**: RTD: Specify 3 or 4 wire & alpha
- **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

#### 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
- **2**: 240V AC
- **A**: 8-30V AC
- **B**: 9-36V DC
- **C**: 18-75V DC
- **D**: 110-300V DC / 85-264V AC
- **E**: 4.5-9VDC

#### EXAMPLE:

```
2 B 3 N 1 A A M 1 F A P T A X
```

(4) BG-252, (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 mAADC isolated retransmit, (A) RS232 communication, (P) peak/valley hold, (T) trend indicator, (A) custom artwork, (X) red led color
**DIMENSIONS**

**BG-252 and BH-252**

- FRONT VIEW
- SIDE VIEW
- BACK VIEW
- PANEL CUTOUT

**PC-101 and PH-101**

- FRONT VIEW
- SIDE VIEW
- BACK VIEW
- PANEL CUTOUT

**BW-1316**

- FRONT VIEW
- SIDE VIEW
- BACK VIEW
- PANEL CUTOUT

**BV5A**

- FRONT VIEW
- SIDE VIEW
- BACK VIEW
- PANEL CUTOUT

**TERMINAL CONNECTIONS**

**INPUT**
- VOLTAGE / CURRENT
  - (1) Return Side (-)
  - (2) Hot Side (+)
- RTD
  - (1) – Source
  - (2) – Sense
  - (3) + Sense
  - (4) + Source
- MAGNETIC PICKUP
  - (2) Lead 1 (-)
  - (3) Lead 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 (-)

**COMMUNICATIONS**
- (1) Transmit (2) Common (3) Receive

**EXCITATION POWER**
- (1) VAC (hot side)
- (2) VAC (common)
- (3) 24 VDC +
- (4) 24 VDC –

**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.
The Weschler Instruments BG "TC", TriColor BarGraphs provide the quickest way to spot problems in your process control panels with bright changing colors. Each 50 segment LED (Light emitting diode) of the BG TC family has the ability to illuminate as Red (Danger), Yellow (Caution), or Green (Safe condition). The bar color identification can be changed by the user, from the front pushbuttons or through a tamper safe mode.

The Weschler BG Series Circular BarGraphs consist of model 241, 261 and 281. The panel footprint, shape and mounting meets direct retrofit applications for 4½" and 8¾" switchboard meters, as well as 8" pressure gauge meters. The electronics housing remains the same. Quick identification of trouble conditions can help prevent equipment damage or production loss, thus reducing down time and maintenance costs, and improving operational safety. The fully programmable Weschler BG TC BarGraph™ fits the widest range of inputs and retrofits most edgewise switchboard and panel meters. Weschler’s instruments satisfy the high quality standards set forth by the utility, OEM, and process control industries.

**FEATURES**

**Large, high resolution**

50 segment LED bar array

**5 digit display with resolution**

to 0.01%

**Field programmable functions**

Zero and full scale point location
Setpoint type (Hi or Low)
Hysteresis & latching
Setpoint time delay
16 step dimming
Digital display for engineering units
Enable/disable front buttons
I.D. selection for communication
Bar form
Peak / Valley enable
Color zones
Over-range/Under-range flashing
Lamp test

**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**

RS232/485, SCADA, DCS

**Analog retransmit**

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

**Retrofit sizes for:**

GE/Yokogawa AB/DB 40, 4½" and
AB/DB 16 8¾" switchboard meters
Crompton 075/07, 4½" and
8¾" switchboard meters
Ashcroft, Heise 8" gauges
Dixson BW051/P
Weschler K241, K261

**Versatile selection of inputs**

DC Up to 5A & 250V
AC Up to 5A & 250V
Thermocouple J, K, T
RTD 100° Cu or 100° Pt
Serial ASCII
Frequency Line or mag pickup
Process Control V, mA
**SPECIFICATIONS**

**Bar Display**
- 50 segment LED
- 2% full scale resolution
- Circular display:
  - BG-241 285°
  - BG-261/281 255°

**Digital Display**
- 5 digit
- Resolution 11 CHAR.: ±9999 to 99999
  - 14 CHAR.: 0.01% full scale
  - 17 CHAR.: ±1 count
- Height
  - BG-241 0.4” (10.16mm)
  - BG-261/281 0.8” (20.32mm)
- 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
  - 24VDC (excitation power) @ 90mA DC

**Setpoints**
- Up to 4 SPDT relays with form C contacts available
- Hysteresis 0.00-10.00% FS or latching
- Time delay 0-10 sec.

**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

**Retransmit Signals**
- 4-20mA DC
- 0-1mA DC
- 1-5V DC
- 0-5V DC

**Communication**
- Setpoints
- Retransmit Signals
- Power
- Input Isolation
- Sensor Power
- 24VDC (excitation power) @ 90mA DC

**Input Overload Ratings**
- 200%, not to exceed 10A
- 200%, not to exceed 300V

**Input Impedance**
- DC: 2Mohm @ >4V DC
- 30kohm @ 120V AC P.T.
- 250ohm @ 4-20mA DC
- 100ohm @ 10-50mA DC

**Accuracy**
- 0.0385 &
- 0.00385 &
- 0.0075 &
- 0.0075 &
- 0.01%
- 0.01%
- 0.01%
- 0.01%

**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**

11 CHAR.

14 CHAR.

17 CHAR.

MULTIPLIER: 4 CHAR. FIELD IF REQUIRED

BG-241 4.5” (114.3 mm) SQUARE
BG-261 8.5” (215.9 mm) SQUARE
BG-281 8.5” (215.9 mm) ROUND
**ORDERING GUIDE**

**SAMPLE PART NUMBER**

<table>
<thead>
<tr>
<th>4</th>
<th>B</th>
<th>Y</th>
<th>4</th>
<th>P</th>
<th>A</th>
<th>A</th>
<th>M</th>
<th>1</th>
<th>F</th>
<th>A</th>
<th>P</th>
<th>T</th>
<th>T</th>
<th>T</th>
</tr>
</thead>
</table>

**PART NUMBER**

**TYPE:**
- 4 = BG241 4-1/2" Square BarGraph
- 6 = BG261 8-3/4" Square BarGraph
- 8 = BG281 8" 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:**
- R = Red
- Y = Yellow
- G = Green
- S = Special

**SETPOINT RELAYS:**
- 4 = 4Relays
- X = No relays
- S = Special order

**SETPOINT HYSTERESIS:**
- P = Programmable
- S = Special
- X = Not required

**INPUT TYPE:**
- A = DC Volts
- B = DC Amps
- P = 4/20 mADC (input level AK)
- N = 1/5 VDC (input level AV)
- M = 10/50 mADC (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 or 10 Ohm Cu
- S = Special
- U = Serial ASCII (requires com type A, B or C in Communication options)

**BAR COLOR:**
- T = TriColor

**COMMUNICATION:**
- A = RS232
- C = RS485 Bi-directional
- X = None

**RETRANSMIT:**
- C = 1-5V DC (or 0-5V on request)
- D = 0-1V DC
- F = 4-20mA DC, 700 ohm max.
- G = 0-1mA DC
- W = Excitation Power 24 VDC @ 90mA
- S = Special
- X = None

**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

---

**EXAMPLE:**

4 B Y 4 P A A M 1 F A P T T T

(4) BG-241, (B) zero at bottom, (Y) Yellow, (4) 4 relays, (P) Programmable setpoint hysteresis, (A) DC volts input, (AM) full scale is 0.05 volts, (1)120 VAC 50/60 Hz power, (F) 4-20 mA DC isolated retransmit, (A) RS232 communication, (P) peak/valley hold, (T) trend indicator, (T) terminal strip connector, (T) TriColor
**DIMENSIONS**

**BG-241TC**

- **FRONT VIEW**
  - DIM. A: 4.421" (112.293 mm)
  - DIM. B: 4.421" (112.293 mm)
  - DIM. C: 3.960" (100.584 mm)

- **SIDE VIEW**
  - DIM. A*: 0.687" (17.490 mm)

- **BACK VIEW**
  - 0.315" DIA. (X4) 8.001 mm

- **PANEL CUTOUT**
  - 1.687" DIA. 42.850 mm

**BG-261TC**

- **FRONT VIEW**
  - DIM. A: 8.750" (222.25 mm)

- **SIDE VIEW**
  - DIM. A*: 1.015" (25.781 mm)

- **BACK VIEW**
  - DIM. C: 3.960" (100.584 mm)

<table>
<thead>
<tr>
<th>*Case Depth</th>
<th>A</th>
<th>inches</th>
<th>mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regular</td>
<td>3.600</td>
<td>88.2</td>
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</tr>
<tr>
<td>Extended</td>
<td>5.150</td>
<td>126.17</td>
<td></td>
</tr>
</tbody>
</table>

1/4-28x5/8" mounting studs

Mounting Torque Requirements
65-70 inch-pounds maximum.

**BG-281TC**

- **FRONT VIEW**
  - DIM. B: 1.015" (25.781 mm)

- **SIDE VIEW**
  - DIM. C: 3.960" (100.584 mm)

**TERMINAL CONNECTIONS**

**INPUTS**

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

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

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

**RELAY CONTACTS**

- **TYPE `C` RELAYS**
  - AL 1 N.O.  (2) AL 1 C.
  - AL 1 N.C.  (4) AL 2 N.O.
  - (5) AL 2 C.
  - (6) AL 2 N.C.
  - (7) AL 3 N.O.  (8) AL 3 C.
  - (9) AL 3 N.C.
  - (10) AL 4 N.O.
  - (11) AL 4 C.
  - (12) AL 4 N.C.

- **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

**AC LINE FREQUENCY**

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

**THERMOCOUPLE**

- Provided w/ flying lead and plug

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

For AC power measurements see the terminal connections & wiring diagrams on the BG-AC Power Circular BarGaphs.

16900 FOLTZ PARKWAY - CLEVELAND, OH 44149
Phone: (440) 238-2550 - Fax: (440) 238-0660
www.weschler.com e-mail: sales@weschler.com
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
**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
- 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%

**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**

11 CHAR.

14 CHAR.

17 CHAR.

MULTIPLIER: 4 CHAR. FIELD IF REQUIRED

BG-241 4.5" (114.3 mm) SQUARE
BG-261 8.5" (215.9 mm) SQUARE
BG-251 6.0" (152.4 mm) ROUND
BG-281 8.5" (215.9 mm) ROUND
ORDERING GUIDE

SAMPLE PART NUMBER

<table>
<thead>
<tr>
<th>TYPE</th>
<th>BAR ZERO POINT</th>
<th>DIGITAL DISPLAY</th>
<th>SETPOINTS</th>
<th>SETPOINT HYSTERESIS</th>
<th>INPUT TYPE</th>
<th>COMMUNICATION</th>
<th>POWER</th>
<th>INPUT LEVEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>B</td>
<td>3</td>
<td>N</td>
<td>1</td>
<td>A</td>
<td>A</td>
<td>1</td>
<td>See input level matrix guide</td>
</tr>
<tr>
<td>6</td>
<td>B</td>
<td>3</td>
<td>N</td>
<td>1</td>
<td>A</td>
<td>A</td>
<td>2</td>
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<tr>
<td>8</td>
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<td>3</td>
<td>N</td>
<td>1</td>
<td>A</td>
<td>A</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>B</td>
<td>3</td>
<td>N</td>
<td>1</td>
<td>A</td>
<td>A</td>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>

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 *

(Requires com type A, B or C in Communication options)

EXAMPLE:

(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.

NOTE: * Includes 2 step dimming
### TERMINAL CONNECTIONS

**INPUTS**

**VOLTAGE / CURRENT**

(1) Hot Side (+)  (2) Return Side (–)

**RTD**

(1) –  (2) +

**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) +

**COMUNICATIONS**

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

**RELAY CONTACTS**

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

Options and features vary by model. Contact factory for details and latest specifications.
BG Series AC Power Circular BarGraphs

Watt, VAR and Power Factor Meters for Single and Three Phase Systems

These Weschler BG Series Circular BarGraphs are optimized for AC power measurements. The ACP4 series BarGraphs utilize self contained Current Transformers (CT) and accurate solid state circuitry to measure both single and poly phase systems.

Weschler BarGraphs combine the visual indication of an analog meter with the precision of a digital instrument. Large digits and a wide viewing angle allow operators to easily monitor the signal from a distance. Four case sizes and two versions (standard or enhanced) offer a broad choice of features and functions.

Weschler BarGraph Watt and Varmeters can replace analog instruments such as the Weschler/Westinghouse KP-241, KP-261, KV-241 and KV-261. The analog backplate option duplicates the Westinghouse terminal stud connections. The BG-241 and BG-261 panel footprint and mounting also match other 4½" and 8½" switchboard meters such as the GE AB40, DB40, AB16 and DB16. The BG-251 and BG-281 sizes match Ashcroft 6” and 8” gauges.

Weschler BarGraph instruments are housed in a rugged steel case. They are designed for long life in utility switchboards and other control applications.

FEATURES

- High resolution digital display
- Signal Trend arrows
- Adjustable setpoints
- Form C relay outputs
- Peak and Valley hold
- Analog retransmit
- Rugged steel case

The Weschler ACP4 Power Series BarGraph is a self-contained instrument. No external current transformers, voltage transformers or phase shifters are required to measure up to 240V and 10A. However correct installation is critical. Consult the phaser diagrams to determine the proper configuration and phase orientation for the application, particularly in retrofit situations. Note that some three phase analog VAR meters may have been specified as a Wattmeter with a VAR scaleplate and 90 degree phase shifter. The ACP4 only supports an external phase shifter in 4-wire systems.
### Wattmeters and Varmeters

<table>
<thead>
<tr>
<th>Feature</th>
<th>Standard</th>
<th>Enhanced</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measurement Range</td>
<td>± 19999</td>
<td>-9999 to 50000 (Neg Autoscale)</td>
</tr>
<tr>
<td>Potential Range</td>
<td>120, 240 V rms</td>
<td>120, 240 V rms</td>
</tr>
<tr>
<td>Self-Contained Current Maximum</td>
<td>10 A rms</td>
<td>10 A rms</td>
</tr>
<tr>
<td>Numeric Display Characters</td>
<td>4½ Digit</td>
<td>4½ Digit</td>
</tr>
<tr>
<td>Numeric Display Color</td>
<td>Red</td>
<td>Red, Green or Amber</td>
</tr>
<tr>
<td>Bar Color</td>
<td>Red</td>
<td>Red, Green or Amber</td>
</tr>
<tr>
<td>Bar Segments</td>
<td>101</td>
<td>101</td>
</tr>
<tr>
<td>Bar Resolution</td>
<td>1%</td>
<td>1%</td>
</tr>
<tr>
<td>Display Brightness</td>
<td>Fixed</td>
<td>Two Level Programmable</td>
</tr>
<tr>
<td>Alarm Hysteresis</td>
<td>0.5, 1 &amp; 2% FS</td>
<td>0.0-10.0% FS</td>
</tr>
<tr>
<td>Relays</td>
<td>2 or 4 Form C</td>
<td>2 or 4 Form C</td>
</tr>
<tr>
<td>Relay Latching Mode</td>
<td>N/A</td>
<td>Yes</td>
</tr>
<tr>
<td>Relay Fail-safe Mode</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>HI - LO Alarms</td>
<td>2 HI, 2 LO</td>
<td>Individually Programmable</td>
</tr>
<tr>
<td>Analog Retransmit</td>
<td>256 Step Resolution</td>
<td>65000 Step Resolution</td>
</tr>
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</table>

### SPECIFICATIONS

<table>
<thead>
<tr>
<th>Inputs</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Potential (Voltage)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nominal</td>
<td>120, 240 Vac</td>
<td></td>
</tr>
<tr>
<td>Maximum Continuous</td>
<td>150, 300 Vac</td>
<td></td>
</tr>
<tr>
<td>Momentary Overload</td>
<td>175, 325 Vac</td>
<td></td>
</tr>
<tr>
<td>Input Impedance</td>
<td>1MΩ</td>
<td></td>
</tr>
<tr>
<td>Current</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nominal</td>
<td>10 A</td>
<td></td>
</tr>
<tr>
<td>Maximum Continuous</td>
<td>12.5 A</td>
<td></td>
</tr>
<tr>
<td>Momentary Overload</td>
<td>100 A for 500 ms</td>
<td></td>
</tr>
<tr>
<td>Input Impedance (Internal CT)</td>
<td>0.1Ω</td>
<td></td>
</tr>
<tr>
<td>Frequency</td>
<td>50/60 or 400 Hz</td>
<td></td>
</tr>
<tr>
<td>Response Time</td>
<td>1 sec.</td>
<td></td>
</tr>
<tr>
<td>Uncertainty</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Display (W or VAr)</td>
<td>± 0.5% Full Scale, ± 1 count</td>
<td>± 0.1% Full Scale, ± 1 count</td>
</tr>
<tr>
<td>Setpoints</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Temperature Coefficient Standard</td>
<td>± 1.3 ppm / °C</td>
<td>± 0.5 ppm / °C</td>
</tr>
<tr>
<td>Enhanced</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bar Display</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scale Length</td>
<td>285°</td>
<td>270°</td>
</tr>
<tr>
<td>BG-241</td>
<td></td>
<td>270°/345°</td>
</tr>
<tr>
<td>BG-261/281</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BG-251</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Digital Display</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Resolution Standard</td>
<td>0.005%</td>
<td></td>
</tr>
<tr>
<td>Enhanced</td>
<td>0.002%</td>
<td></td>
</tr>
<tr>
<td>Height</td>
<td>0.4” (10.16 mm)</td>
<td></td>
</tr>
<tr>
<td>BG-241</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BG-261/281</td>
<td>0.8” (20.32 mm)</td>
<td></td>
</tr>
<tr>
<td>BG-251</td>
<td>0.56” (14.22 mm)</td>
<td></td>
</tr>
<tr>
<td>Communications</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RS-232</td>
<td>9600 baud, 1 start bit, 1 stop bit, no parity, no flow control</td>
<td></td>
</tr>
<tr>
<td>RS-485</td>
<td>Half duplex, 9600 baud, 1 start bit, 1 stop bit, no parity, no flow control</td>
<td></td>
</tr>
<tr>
<td>Protocol</td>
<td>Party Line</td>
<td></td>
</tr>
<tr>
<td>AC Sensing Method</td>
<td>Electronic</td>
<td></td>
</tr>
<tr>
<td>Setpoint Relays</td>
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<td></td>
</tr>
<tr>
<td>Quantity</td>
<td>2 or 4</td>
<td></td>
</tr>
<tr>
<td>Contact Arrangement</td>
<td>SPDT (Form C)</td>
<td></td>
</tr>
<tr>
<td>Type</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Standard</td>
<td>2 HI (ascending trip) and 2 LO (descending trip)</td>
<td></td>
</tr>
<tr>
<td>Enhanced</td>
<td>All programmable HI or LO</td>
<td></td>
</tr>
<tr>
<td>Contact Ratings</td>
<td>5A, 120/240 Vac or 30 Vdc resistive</td>
<td>1/14 HP 120/240 Vac inductive</td>
</tr>
<tr>
<td>Contact Protection</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hysteresis</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Analog Retransmit</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Standard</td>
<td>256 step resolution, voltage source</td>
<td>65000 step resolution, current source</td>
</tr>
<tr>
<td>Enhanced</td>
<td>0-1, 4-20, 10-50 ma; 0-5, 1-5 V</td>
<td>0-24 ma, 0-10 V programmable</td>
</tr>
<tr>
<td>Environment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operating Temperature</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Standard</td>
<td>-20 to 60°C (Standard)</td>
<td>-20 to 50°C (Enhanced)</td>
</tr>
<tr>
<td>Enhanced</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Humidity</td>
<td>0-95% non-condensing. Condensation allowed with conformal coating option.</td>
<td></td>
</tr>
<tr>
<td>Storage Temperature</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Meter Power</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nominal Tolerance</td>
<td></td>
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</tr>
<tr>
<td>Current (Maximum)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12 V DC</td>
<td>10-15 V</td>
<td>225 ma</td>
</tr>
<tr>
<td>24 V DC</td>
<td>18-36 V</td>
<td>420 ma</td>
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<tr>
<td>28 V DC</td>
<td>18-36 V</td>
<td>350 ma</td>
</tr>
<tr>
<td>48 V DC</td>
<td>36-72 V</td>
<td>210 ma</td>
</tr>
<tr>
<td>250 V DC</td>
<td>± 10%</td>
<td>25 ma</td>
</tr>
<tr>
<td>120 V AC</td>
<td>± 10% (50/60 Hz)</td>
<td>12.5 VA</td>
</tr>
<tr>
<td>240 V AC</td>
<td>± 10% (50/60 Hz)</td>
<td>12.3 VA</td>
</tr>
<tr>
<td>110-250V DC</td>
<td>/ 85-8264 V AC</td>
<td>13 VA (8W)</td>
</tr>
<tr>
<td>Fuse</td>
<td>Plug-in, rear panel accessible</td>
<td></td>
</tr>
<tr>
<td>Connections</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BG Backplate</td>
<td>#6 screw terminals for AC signals; Phoenix plug in connectors for Relays, Analog Retransmit &amp; Communications (mating connector supplied)</td>
<td></td>
</tr>
</tbody>
</table>
### ORDERING GUIDE

#### PART NUMBER

| TYPE: | 4 = BG-241 4½" Square BarGraph |
|       | 6 = BG-261 8½" Square BarGraph |
|       | 8 = BG-281 8" Circle BarGraph  |
|       | 3 = BG-251 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

**DISPLAY:**

- 4 = 4½ digit Standard (BG-241 only)
- E = 5 digit Enhanced

**INPUT LEVEL:**

- 12 = Single phase two wire 1 element
- 13 = Single phase three wire 2 element
- 33 = Three phase three wire 2 element
- 34 = Three phase four wire 2½ element
- 3E = Three phase four wire 3 element

**SETPOINTS:**

- N = Hi/Lo
- H = Hi/Hi-Hi
- L = Lo/Lo-Lo
- 4 = Hi-Hi/Hi/Lo/Lo-Lo
- B = 2 relays, programmable Hi or Lo *
- D = 4 relays, programmable Hi or Lo *
- X = None
- S = Special order

**SETPOINT HYSTERESIS:**

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

**RETRANSMIT:**

- A = 4-20mA DC into 250Ω
- B = 0-1mA DC into 1000Ω
- C = 1-5V DC
- D = 0-1V DC
- F = 4-20mA DC, 700Ω max. (isolated)
- G = 0-1mA (isolated)
- T = 0-1V across 500Ω (isolated) *
- K = 0-1V across 50Ω (isolated) *
- M = 1-5V across 250Ω (isolated) *
- X = None

**COMMUNICATION:**

- A = RS232
- C = RS485 Bi-directional
- X = None
- P = Peak/Valley Hold
- T = Trend Indicator

**POWER:**

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

**EXAMPLE:**

(4) BG-241, (B) zero at bottom, (4) 4-1/2 digit Standard display, (N) Hi/Lo setpoint, (1) 1% of F.S. setpoint hysteresis, (H) Watts, poly phase, (33) Three phase three wire, (1)120 VAC 50/60 Hz power, (F)14.20 mA DC isolated retransmit, (A) RS232 communication, (P) peak/valley hold, (T) trend indicator, (Y) spray tight face, (X) red LED color

Options and features vary by model. Contact factory for details and latest specifications. **Enhanced only**
**DIMENSIONS**

**BG-241**

- **Front View**: A = 5.15" (130.8 mm). Add 0.6" (15 mm) for screw terminals or 0.85" (22 mm) for studs on analog backplate.

**BG-251 / 281**

- **BG-251 = 7.562" 192.1 mm**
- **BG-281 = 10.062" 255.6 mm**

**BG-261**

- **Front View**: A = 8.75" 222.25 mm

**TERMINAL CONNECTIONS**

**3φ 3Wire Wattmeter**

- Diagram showing connection for a 3-phase 3-wire wattmeter.

**3φ 4Wire Wattmeter**

- Diagram showing connection for a 3-phase 4-wire wattmeter.

**3φ 4Wire Varmeter (3 element)**

- Diagram showing connection for a 3-phase 4-wire varmeter with phase shifter (3 element).

**1φ 2Wire Wattmeter**

- Diagram showing connection for a single-phase 2-wire wattmeter.

**3φ 3Wire Wattmeter (Analog Back)**

- Diagram showing connection for a 3-phase 3-wire wattmeter (analog back).

**3φ 4Wire Varmeter with Phase Shifter (Analog Back)**

- Diagram showing connection for a 3-phase 4-wire varmeter with phase shifter (analog back).

See Manual for other configurations.
BG Series
Large BarGraphs™

The Weschler BG Series Large BarGraphs include single and multiple channel models BD101, PG101 and PG202. These large BarGraphs directly retrofit Hays, Bailey and Dixson draft gauges. Bars are available in red, green or amber for easy viewing. Weschler’s LED BarGraphs combine the visual indication of an analog instrument with the precision of a digital instrument.

The BD101 BarGraph has a 12" edgewise display with 101 bar segments. Large digits and a wide viewing angle allow operators to easily monitor the signal from a distance. The BD101 can be ordered as a single channel unit or ganged into a multi-channel unit to simplify installation.

The PG Series BarGraphs have a 10" edgewise display with a 51 segment LED bar. One and two channel models are available. Setpoints and other parameters on the PG101/202 are easily entered from the front panel. Analog retransmit and digital communications are optional.

Weschler BarGraphs can be configured for a wide range of input signals. These instruments satisfy the high quality standards of the utility, OEM and process control industries.

FEATURES

- High resolution 51 or 101 segment LED bar array
- 3 and 4 digit displays with resolution up to 0.01%
- Programmable functions*
  - Zero point location
  - Setpoint location
  - Hysteresis (setpoint, trend)
  - Span and zero
  - Digital display for engineering units
  - 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
- Serial ASCII communication
  - RS232, RS485, SCADA, DCS
- Analog retransmit
  - 4-20, 10-50, 0-1mA DC
  - 0-1, 0-5, 1-5V DC
- Retrofit sizes for:
  - Dixon K051
  - Hays Republic 216
  - Bailey PG Series Draft Gauges
- Versatile selection of inputs
  - DC Up to 5A & 250V
  - AC Up to 5A & 250V
  - Thermocouple J, K, T
  - RTD 10Ω Cu or 100Ω Pt
  - Serial ASCII
  - Frequency Line or mag pickup
  - Process Control mA, V

* Model BD101 requires a hand-held button station to change functions.
SPECIFICATIONS

Bar Display
BD101  101 segment LED, 10" display
      1% full scale resolution
PG101/202  51 segment LED, 5.1" display
            2% full scale resolution

Digital Display
BD101
  3½ or 4½ digit
  Linearity ±1 count
  Resolution 0.1% full scale (3½/digit)
  Resolution .01% full scale (4½/digit)
  Height 0.56"
PG101/202
  3 digit or 4 digit
  Linearity ± 1 count
  Resolution 0.1% full scale
  Height 0.56"

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).

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

Power (each channel)
120/240V AC ±15%
50/60/400 Hz (6.0 VA)
8-30V AC (3VA max)
4.5-9V DC (600mA max)
9-36V DC (300mA max)
18-75V DC (150mA max)
110-300V DC (35mA max) / 85-264V AC (47-440Hz, 7VA max)

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

Input Overload Ratings
200%, not to exceed 10 A
200%, not to exceed 300 V

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

PG202 VERTICAL

BD101 VERTICAL

MULTIPLIER: 4 CHAR. IF REQUIRED

PG101/202
17 CHAR.

BD101
12 CHAR.

* Numerical range MAX. 3 Digits
### SAMPLE PART NUMBER

| K | H | 3 | N | 1 | P | A | K | 1 | X | X | P | X | X | X |

#### PART NUMBER

<table>
<thead>
<tr>
<th>TYPE:</th>
</tr>
</thead>
<tbody>
<tr>
<td>K =</td>
</tr>
<tr>
<td>V =</td>
</tr>
<tr>
<td>W =</td>
</tr>
</tbody>
</table>

#### 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 digit Display (PG101/202)
- **4 =** 4 digit Display (BD101/Multiple)
- **X =** Not required
- **S =** Special

#### 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

#### SETPOINT HYSTERESIS:

- **1 =** 1% of F.S. (standard)
- **2 =** 2% of F.S.
- **5 =** 0.5% of F.S.
- **X =** Not required
- **S =** Special

#### 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
- **D =** AC Amps RMS
- **F =** Line Frequency
- **Q =** MAG Pickup Frequency
- **J,K,T=** Thermocouple Type
- **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
- **M =** Multicolor Special

#### 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

#### POWER:

- **1 =** 120V AC
- **2 =** 240V AC
- **A =** 8-30V AC
- **B =** 9-36V DC
- **C =** 18-75V DC
- **D =** 110-300V DC / 85-264V AC
- **E =** 4.5-9VDC

#### EXAMPLE:

| K | H | 3 | N | 1 | P | A | K | 1 | X | X | P | X | X | X |

(K) BD101, (H) zero at 50% mid scale, (3) 3-1/2 digit, (N) Hi/Lo setpoint, (1) 1% of F.S. setpoint hysteresis, (P) 4/20mA input level AK, (1) 120 VAC 50/60 Hz power, (X) no retransmit, (X) no communication, (P) peak valley/hold, (X) no trend indicator, (X) na, (X) red led color
**DIMENSIONS**

PG-101/202

**BD-101**

**BD-101 Multiple Channel**

**TERMINAL CONNECTIONS**

**OPTIONS AND MOUNTING**

**WESCHLER INSTRUMENTS**

Division of Hughes Corporation

16900 Foltz Parkway - Cleveland, OH 44149

Phone: (440) 238-2550 - Fax: (440) 238-0660

www.weschler.com - e-mail: sales@weschler.com

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

2/1/19
Weschler’s 101 segment LED BarGraphs combine the best of analog and digital solid state instrumentation. The BI125 and PC202 Dual BarGraphs have two independent 101 segment indicator bars that fit easily into standard 6” edgewise and DIN size panel cutouts. Bars are available in red, green or amber.

Each bar gives the operator a quick view of the measured signal and the control setpoints. The 101 segment bar provides 1% display resolution. Setpoint LEDs provide an added visual indication of control/alarm status. Signal direction is indicated by two trend indicators for each display. Dual 3-1/2 or 4 digit displays on the PC202 provide precise readouts of the signal variables. Setpoints and other parameters on the PC202 are easily entered from the front panel. The BI1251 uses an external button station to program the setpoints.

The Weschler Dual BarGraph instruments accept DC process inputs, either voltage or current. Other BarGraph models can be configured for a wide variety of input signals. Retrofit sizes are available for most panel and switchboard meters in use today. These instruments satisfy the high quality standards set forth by the utility, OEM and process control industries.

**FEATURES**

**High resolution 101 segment LED bar**

**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 @ 250VAC
  - 5A, resistive @ 28VDC
- Normally Closed
  - 3A, resistive @ 250VAC
  - 2A, resistive @ 28VDC

**Peak and Valley hold**

**Trend indication for signal direction.**

**Retrofit sizes for:**
- Dixson BB202, BG202
- Sigma/International Instruments 1251

**3½ or 4 digit display with resolution up to 0.01%.**

**Process Control DC inputs up to 5 amps and 250V**
**SPECIFICATIONS**

**Bar Display**
101 segment LED
4.0” display
1% full scale resolution

**Digital Display**
(PC202 only)
4 digit
- Linearity ± 1 count
- Resolution 0.01% full scale
- Height 0.3”

Digital display not available on BI1251

**Response Time**
DC <600 msec full scale
AC <800 msec full scale

**Temperature**
Operation 0 to 50°C @ 95% RH (non-condensing)
Storage -40° to 85°C

**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).

**Retransmit Signals**
(one side on 202 only)
- 0-1 mADC
- 1-5 VDC
- 4-20mADC

**Communication**
(one side on 202 only)
- RS232
- RS485 bi-directional

**Input Impedance**
- 2Mohm @ >4V DC
- 250ohm @ 4-20mA DC
- 100ohm @ 10-50mA DC

**Input Overload Ratings**
200%, not to exceed 10A
200%, not to exceed 250V

**Input Isolation**
DC Differential

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

**ARTWORK GUIDELINES**

PC202

BI1251

17 CHAR.

MULTIPLIER:
4 CHAR.
IF REQUIRED

17 CHAR.

20 CHAR.

20 CHAR.

* Numerical range MAX. 3 Digits

---

**30**
### ORDERING GUIDE

#### SAMPLE PART NUMBER

<table>
<thead>
<tr>
<th>D</th>
<th>B</th>
<th>3</th>
<th>N</th>
<th>1</th>
<th>A</th>
<th>A</th>
<th>M</th>
<th>X</th>
<th>X</th>
<th>P</th>
<th>X</th>
<th>X</th>
<th>X</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>PART NUMBER</th>
</tr>
</thead>
</table>

**Type:**
- D = PC202 DIN Size Dual BarGraph
- X = Bi1251 6" Vertical 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 digit Display
- X = None
- S = Special

**Setpoints:**
- N = Hi/Lo
- H = Hi/Hi-Hi
- L = Lo/Lo-Lo
- Z = Fail Safe Hi/Lo
- X = None
- S = Special order

**Setpoint Hysteresis:**
- 1 = 1% of F.S. (standard)
- 2 = 2% of F.S.
- 5 = 0.5% of F.S.
- X = Not required
- S = Special

**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)
- S = Special

**Example:**

- D B 3 N 1 A A M 1 X X P X X X

(D) PC202, (B) zero at bottom, (3) 3-1/2 digit, (N) Hi/Lo setpoint, (1) 1% of F.S. setpoint hysteresis, (A) DC volts input, (AM) full scale is 0.05 volts, (1) 120 VAC 50/60 Hz power, (X) not required, (X) not required, (P) peak/valley hold, (X) not required, (X) not required, (X) red led color

**Ordering Information: Left Side**

Input: ___________ to ___________ Eng. Units: ___________

Bar Display: ___________ to ___________

Digital Display ___________ to ___________ Color ___________

Legend ___________

**Ordering Information: Right Side**

Input: ___________ to ___________ Eng. Units: ___________

Bar Display: ___________ to ___________

Digital Display ___________ to ___________ Color ___________

Legend ___________

**Input Level:**

See input Level Matrix Guide

**Power:**
- 1 = 120V AC
- 2 = 240V AC
- A = 8-30V AC
- B = 9-36V DC
- C = 18-75V DC
- D = 110-300V DC / 85-264V AC
- E = 4.5-9VDC

**Example:**

- D B 3 N 1 A A M 1 X X P X X X

(D) PC202, (B) zero at bottom, (3) 3-1/2 digit, (N) Hi/Lo setpoint, (1) 1% of F.S. setpoint hysteresis, (A) DC volts input, (AM) full scale is 0.05 volts, (1) 120 VAC 50/60 Hz power, (X) not required, (X) not required, (P) peak/valley hold, (X) not required, (X) not required, (X) red led color

**Ordering Guide**

**Available on one side only. Isolated retransmit requires AC power.**

**Communications:**

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

**Available on one side of 202 only**

**Retransmit:**
- A = 4-20 mA DC into 250 ohm
- B = 0-1 mA DC into 1000 ohm
- C = 1-5 VDC
- D = 0-1 VDC
- F = 4-20 mA DC, 700 ohm max. (isolated)
- X = None
### BI-1251

**DIMENSIONS**

**TERMINAL CONNECTIONS**

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

---

**PC-202**

**INPUT**

Voltage / Current

(1) Return Side (−)  (2) Hot Side (+)

**POWER**

(1) Hot Side (+)  (2) Return Side (−)

**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) LoLo N.O.
(11) LoLo C.  (12) LoLo N.C.

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

---

**WESCHLER INSTRUMENTS**

**DIVISION OF HUGHES CORPORATION**

16900 FOLTZ PARKWAY - CLEVELAND, OH 44149
Phone: (440) 238-2550 - Fax: (440) 238-0660
www.weschler.com  e-mail: sales@weschler.com
The BF6400 family of Bargraph Meters provide either one or two channels of signal conditioning and display in a rugged metal case. For maximum flexibility, each channel is configured separately and operates totally independently. These units provide large, bright displays to replace Foxboro mechanical indicators or other large analog gauges. In addition to replicating the Foxboro 0-50mA DC input, a wide selection of DC, AC, temperature and frequency inputs can be ordered. Adjustable setpoints and up to four relay outputs provide the capability for control and alarm based on signal level. Custom scales can be specified to duplicate existing gauge markings.

The front panel has no operator accessible controls, so configuration settings cannot be accidentally changed. Either the digital interface or optional Attachable Button Station can be used to setup or reconfigure each channel. The digital displays provide precise measurements of process parameters. The optional analog retransmit can be used for remote display or connection to a plant SCADA system. The BF6400 provides many other features of the popular Weschler BG252, including adjustable bar zero location, bar span, digital decimal point, digital full scale and flashing overrange.

**Key Specifications**

- Outer Bar: 101 segment Red, Green or Amber LED, 5" (127mm) dia.
- Inner Bar: 101 segment Red LED, 3.5" (89mm) dia.
- Digital Display: 7 Segment LED, 0.4" (10mm) high, color matches bar.
  - 3½ digit resolution 0.1% of full scale.
  - 4½ digit resolution 0.01% of full scale.
- Input Sensitivity: 50 uA-5ADC, 50mV-250VDC, 50mA-5AAC, 1-250VAC.
  - Line frequency 55-65Hz, Freq 50-20kHz.
- Input Overload: 200%, not to exceed 250V or 10A.
- Setpoint Relays: 2 or 4 Form C, single pole (SPDT)
  - Normally Open contacts: 5A@250VAC or 28VDC, resistive.
  - Normally Closed contacts: 3A@250VAC or 28VDC resistive.
- Connections: Phoenix style standard (mating connectors supplied),
  - terminal strips optional.
- Dimensions:
  - Front Bezel: 6-7/16"W x 7-1/8"H (164x181mm), protrudes 1/2".
  - Case: 5-15/16"W x 6-1/8"H (143x156mm).
  - Depth: 6-5/8" (168mm) behind panel; add 1/2" (13mm) for connectors.
- Operating Temperature: 0 to 50ºC, <95% RH, non-condensing.
- Storage Temperature: -40ºC to 85ºC.
- Weight: 5.2 lbs. (2.36kg)

See BG Series Edgewise data sheet for more complete input specifications.

**Features:**

- Two Complete Bargraph Units in One Case
- Replaces Foxboro 6400HC Indicators
- High Resolution 101 Segment Bars
- 3½ or 4½ Digit LED Displays
- Wide Selection of Inputs
- Alarm, Retransmit & SCADA Output Options

Contact Weschler for 10CFR50 Nuclear Qualified models
**ORDERING GUIDE**

<table>
<thead>
<tr>
<th>OUTER CHANNEL</th>
<th>INNER CHANNEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>TYPE:</td>
<td></td>
</tr>
<tr>
<td>E = BF6402 Dual Channel</td>
<td>F = BF6401 Single Channel</td>
</tr>
<tr>
<td>BAR ZERO POINT:</td>
<td></td>
</tr>
<tr>
<td>B = Zero at Bottom</td>
<td>H = Zero at 50% Mid scale</td>
</tr>
<tr>
<td>F = Zero at Full Scale</td>
<td>S = Special</td>
</tr>
<tr>
<td>DIGITAL DISPLAY:</td>
<td></td>
</tr>
<tr>
<td>3 = 3½ digit</td>
<td>4 = 4½ digit</td>
</tr>
<tr>
<td>X = None</td>
<td></td>
</tr>
<tr>
<td>SETPOINTS:</td>
<td></td>
</tr>
<tr>
<td>N = Hi /Lo</td>
<td>H = Hi /Hi-Hi</td>
</tr>
<tr>
<td>L = Lo /Lo-Lo</td>
<td>4 = Hi-Hi /Hi / Lo / Lo-Lo</td>
</tr>
<tr>
<td>Z = Fail Safe Hi /Lo</td>
<td>X = None</td>
</tr>
<tr>
<td>S = Special</td>
<td></td>
</tr>
<tr>
<td>SETPOINT HYSTERESIS:</td>
<td></td>
</tr>
<tr>
<td>1 = 1% of Full Scale</td>
<td>2 = 2% of Full Scale</td>
</tr>
<tr>
<td>5 = 0.5% of Full Scale</td>
<td>X = None</td>
</tr>
<tr>
<td>S = Special</td>
<td></td>
</tr>
</tbody>
</table>

**INPUT:**
- A = DC Volts
- B = DC Amps
- P = 4-20mA DC (use input level AK)
- N = 1-5V DC (use input level AV)
- M = 10-50mA DC (use input level BA)
- C = AC Volts RMS (terminal strip connections incl.)
- D = AC Amps RMS (terminal strip connections incl.)
- F = Line Frequency
- Q = Mag Pickup Frequency
- T = Thermocouple (specify J, K, or T)
- R = 3 or 4 wire RTD (specify 10Ω Pt or 10Ω Cu)
- U = Serial ASCII (communication option required)
- S = Special

**INPUT LEVEL:**
- See Input Level Matrix chart

**TERMINAL CONNECTIONS**

- **INPUT VOLTAGE / CURRENT**
  - (1) Hot Side (+)
  - (2) Return Side (−)
- **RTD**
  - (1) – Source
  - (2) – Sense
  - (3) + Sense
  - (4) + Source
- **MAGNETIC PICKUP**
  - (2) Lead 1 (−)
  - (3) Lead 2 (+)
- **THERMOCOUPLE**
  - Provided w/ flying lead and plug.

**AC LINE FREQUENCY**
- (1) Hot Side (+)
- (2) Return Side (−)

**POWER**
- (1) Hot Side (+)
- (2) Return Side (−)

**COMMUNICATIONS**
- (1) Transmit
- (2) Common
- (3) Receive

**EXCITATION POWER**
- (1) VAC (hot side)
- (2) VAC (common)
- (3) 24 VDC
- (4) 24 VDC

**RELAY CONTACTS**
- (1) Hi/Hi N.O.
- (2) Hi/Hi C.
- (3) Hi/Hi N.C.
- (4) Hi N.O.
- (5) Hi Com.
- (6) Hi N.C.
- (7) Lo N.O.
- (8) Lo Com.
- (9) Lo N.C.
- (10) Lo/Lo N.O.
- (11) Lo/Lo Com.

**LED COLOR:**
- G = Green
- A = Amber
- X = Red
- S = Special or Mixed

**MISCELLANEOUS:**
- K = Conformal Coating
- T = Terminal Strip Connector
- S = Special
- X = None

**COMMUNICATION:**
- A = RS232
- C = RS485 (2 wire bi-directional)
- X = None

**RETRANSMIT:**
- A = 4-20mA DC into 250Ω
- B = 0-1mA DC into 1000Ω
- C = 1-5V DC
- D = 0-1V DC
- F = 4-20mA DC, 700 max. (isolated source*)
- G = 0-1mA DC (isolated source*)
- H = 10-50mA DC (isolated source*)
- W = 24VDC@90mA Excitation Power

**POWER:**
- 1 = 120VAC 50/60Hz
- 2 = 240VAC 50/60Hz
- A = 8-30V AC
- B = 9-36V DC
- C = 18-75V DC
- D = 110-300V DC / 85-264V AC
- E = 4.5-9V DC

* unit must be AC powered

**Note:** Single Channel units can be configured with either the inner or outer bar. Specify when ordering.
The Weschler Bowmar Series Single Edgewise BarGraphs feature bright, easy-reading 3" to 10" LED bars for OEM and process applications. The Bowmar Series offer 51 or 101 segment bar displays with 2% or 1% resolution. Choose from red, green or amber LEDs on most larger models. Colors can also be mixed within the bar to provide permanent indication zones. A rear panel low/high brightness selection terminal changes the LED intensity for operator and control room conditions. Standard white on black or custom black on white scales can be provided. Expanded scales can also be ordered to view the most important part of a measurement in greater detail.

Screw terminal connectors are standard on the APM series. Connections to the BG series are made to a rear panel card edge connector. Front panel, mounting and performance are identical in both series.

The Bowmar BarGraph instruments accept DC process inputs, either voltage or current. Other BarGraph models can be configured for a wide variety of input signals. Retrofit sizes can be available for most panel and switchboard meters in use today. These instruments satisfy the high quality standards set forth by the utility, OEM and process control industries.

**FEATURES**

- 51 or 101 segment LED bar array
- Red, green, yellow, blue, white or mixed color bar
- Selectable LED brightness
- DC inputs to 10A and 100V
- Differential input
- Harsh environment enclosures

---

WESCHLER INSTRUMENTS
DIVISION OF HUGHES CORPORATION

16900 FOLTZ PARKWAY - CLEVELAND, OH 44149
Phone: (440) 238-2550 - Fax: (440) 238-0660
www.weschler.com e-mail: sales@weschler.com
**SPECIFICATIONS**

**Bar Display**
APM500, APM600, BG500, BG600
- 51 segment LED plus underrange and overrange
- 5" display

APM100, BG100
- 101 segment LED plus underrange and overrange
- 3" display

APM800, BG800
- 100 segment LED plus underrange and overrange
- 10" display

**Input Type**
- DC Volts: 50mV to 100V
- DC Amps: 10mV to 10A

**Response Time**
- 25msec full scale, damping to 1sec available

**Temperature**
- Operation: 0 to 50°C
- Storage: -60 to 71°C

**Shock**
- to 8.5 G’s

**Humidity**
- 0 to 95% RH, non-condensing

**Weight**
- 6 to 27 oz.

**Calibration**
- NIST traceable factory calibration. Some models may be field adjusted ± 20% at Zero and Full Scale

**Power Requirement**
- 5VDC ± 0.25V, 400mA typical

**Power Supply Sensitivity**
- ± 0.1%/volt maximum

**Input Impedance**
- >100kohms typical, 50mV current shunt for most ammeters

**Linearity**
- 0.5% (from 0 to 50°C)

**Gain Temperature Coefficient**
- ± 0.015%/°C maximum

**Zero Temperature Coefficient**
- ± 0.01%/°C maximum

**Under-range**
- 150% of input

**Over-range**
- 250% of input

**Display Modes**
- Bar and Point

**Input Bias Current**
- 100 nA typical

**Common Mode Rejection**
- 60dB typical

**Standard Scales**
- Available with % signs
- Over 2300 scales available

**Connections**
- APM: Terminal studs
- BG: Card edge (mating connector included)

---

**OPTIONS MATRIX GUIDE**

<table>
<thead>
<tr>
<th>Option Code</th>
<th>100</th>
<th>150</th>
<th>500</th>
<th>600</th>
<th>800</th>
<th>DESCRIPTION</th>
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<tr>
<td>A</td>
<td>●</td>
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<td></td>
<td></td>
<td></td>
<td>Differential Input, DC volts</td>
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<td>F</td>
<td></td>
<td>●</td>
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<td>●</td>
<td>●</td>
<td>Increased Damping</td>
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<td>●</td>
<td>Custom Input Range</td>
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<td>●</td>
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<td>●</td>
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<td>Drip Proof Bezel</td>
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<td>P</td>
<td></td>
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<td>Green Display</td>
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<td>Sunlight Readable</td>
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<td>●</td>
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<td>●</td>
<td>●</td>
<td>Library Scales (Scale #)</td>
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</table>

● = Available
### ORDERING GUIDE

**SAMPLE PART NUMBER**

```
APM 1 0 0 V V 0 1 0 S 1
```

**PART NUMBER**

<p>| | | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
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<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>APM1 = 3&quot; LED BarGraph</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>APM5 = 5&quot; LED BarGraph, with bezel</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>APM6 = 5&quot; LED BarGraph</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>APM8 = 10&quot; LED BarGraph</td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>BG1 = 3&quot; LED BarGraph</td>
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<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>BG6 = 5&quot; LED BarGraph</td>
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<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Input Type:**

00 = DC
50 = Center Zero (APM only)

**Input Sensitivity:**

VV = Volts
MV = Millivolts
AA = Amps
MA = Milliamps
UA = Microamps

**Input Level:**

Example 4/20, 10, 150
Indicate Full Scale Value

**Scale Number:**

(Consult factory for exact need)

<table>
<thead>
<tr>
<th>Vertical</th>
<th>Horizontal</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>S12</td>
<td>S13</td>
<td>0-10</td>
</tr>
<tr>
<td>S8</td>
<td>S11</td>
<td>0-50</td>
</tr>
<tr>
<td>S3P</td>
<td>S1P</td>
<td>0-100%</td>
</tr>
<tr>
<td>S136</td>
<td>S137</td>
<td>-10, 0, +10</td>
</tr>
<tr>
<td>S113</td>
<td>S112</td>
<td>-50, 0, +50</td>
</tr>
<tr>
<td>S4</td>
<td>S2</td>
<td>-100, 0, +100</td>
</tr>
<tr>
<td>S242</td>
<td>S10</td>
<td>Tick Marks Only</td>
</tr>
<tr>
<td>Sbnk</td>
<td>Sbnk</td>
<td>Blank</td>
</tr>
<tr>
<td>SH</td>
<td>SH</td>
<td>Custom Artwork</td>
</tr>
</tbody>
</table>

**Options:**

If more than one option is required, continue placing each respective option letter after each other.

*See Options Matrix Guide on previous page or consult factory.*

**Accessories:**

ACC-001 Card Edge Connectors (BG/BGD)
ACC-002 Screw Type Barrier Strip (BG/BGD)

**Example:**

(APM1) 3" LED BarGraph, (00) DC input, (VV) Volts input sensitivity, (010) 0-10 input level, (S1) 0-100 horizontal scale.
Options and features vary by model. Contact factory for details and latest specifications.

WESCHLER INSTRUMENTS
DIVISION OF HUGHES CORPORATION
16900 FOLTZ PARKWAY - CLEVELAND, OH 44149
Phone: (440) 238-2550 - Fax: (440) 238-0660
www.weschler.com e-mail: sales@weschler.com
**TriColor BarGraph Gate Position Indicator**

**FEATURES**

- Simultaneous Position & Limit Display
- Bright 50 Segment TriColor Bar
- Volt or mA Inputs
- Optional Alarm Relay Outputs
- Rugged Metal Case

The Weschler TriColor BarGraph Gate Position Indicator (GPI) provides a rapid visual display of gate position and gate limit. The GPI also gives a precise digital readout of either signal or their difference. Bar colors for position and limit are user selectable (red, green or yellow). Overlap defaults to the third color. Two relay outputs are available. One is tied to the gate limit value. The second is user adjustable and indicated by front panel annunciators. Optional trend LEDs show the direction of gate movement.

A rugged metal case is standard on the Weschler GPI. An optional splash-proof bezel provides additional environmental protection. Analog retransmit of the gate position is available for connection to SCADA systems. Units can be ordered with custom dial scales and legends.

**Specs**

<table>
<thead>
<tr>
<th>Bar Display</th>
<th>50 segment LED, 2% resolution</th>
</tr>
</thead>
<tbody>
<tr>
<td>BG-241</td>
<td>285°</td>
</tr>
<tr>
<td>BG-261/281</td>
<td>270°</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Digital Display</th>
<th>5 digit -9999 to 20000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resolution</td>
<td>0.01% of full scale</td>
</tr>
<tr>
<td>BG-241</td>
<td>0.4” high (10.16mm)</td>
</tr>
<tr>
<td>BG-261/281</td>
<td>0.8” high (20.32mm)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Differential DC Input</th>
<th>Accuracy 0.3% of full scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input Overload</td>
<td>200%</td>
</tr>
<tr>
<td>Impedance</td>
<td>2MΩ for DCV</td>
</tr>
<tr>
<td>Response Time</td>
<td>&lt;600ms, zero to full scale</td>
</tr>
<tr>
<td>250Ω for 4-20mA</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Temperature</th>
<th>Operation 0° to 50°C, &lt;95% RH (non-condensing)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Storage</td>
<td>-40° to 85°C</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Setpoints</th>
<th>2 SPDT (form C) relays. NO contact 5A resistive @250V AC or 28V DC. NC contact 3A resistive @250V AC or 28V DC. Hysteresis 0.00-10.00% FS or latching. Time Delay 0-10 sec.</th>
</tr>
</thead>
</table>

| Power       | 120, 240V AC (13VA) 12, 24, 28, 48, 125, 250V DC (8W) |


Bar changes color when gate position exceeds limit. UP button toggles digital display between position, limit & delta. Example of a custom dial shown here.
**ORDERING GUIDE**

**PART NUMBER**

<table>
<thead>
<tr>
<th>TYPE:</th>
<th>PART NUMBER</th>
<th>B</th>
<th>X</th>
<th>X</th>
<th>T</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>BG241</td>
<td>4½&quot; Square BarGraph</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>BG261</td>
<td>8½&quot; Square BarGraph</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>BG281</td>
<td>8&quot; Circular BarGraph</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**BAR ZERO POINT:**

B = Zero at Bottom

**DIGITAL DISPLAY:**

R = Red
Y = Yellow
G = Green
S = Special

**SETPOINT RELAYS:**

2 = 2 Relays
X = No relays
S = Special order

**SETPOINT HYSTERESIS:**

P = Programmable
S = Special

**INPUT (both channels):**

GP1 = 0-10V DC
GP2 = 4-20mA DC
GP3 = 0-1mA DC

**TYPE:**

4 = BG241 4½" Square BarGraph
6 = BG261 8½" Square BarGraph
8 = BG281 8" Circular BarGraph

**BAR ZERO POINT:**

B = Zero at Bottom

**DIGITAL DISPLAY:**

R = Red
Y = Yellow
G = Green
S = Special

**SETPOINT RELAYS:**

2 = 2 Relays
X = No relays
S = Special order

**SETPOINT HYSTERESIS:**

P = Programmable
S = Special

**INPUT (both channels):**

GP1 = 0-10V DC
GP2 = 4-20mA DC
GP3 = 0-1mA DC

**EXAMPLE:**

4 B Y 2 P GP 1 F X X T T T

(4) BG-241, (B) zero at bottom, (Y) Yellow, (2) 2 relays,
(P) Programmable hysteresis, (GP1) 0-10V DC input,
(1) 120V AC 50/60Hz power, (F) 4-20 mA DC isolated retransmit,
(X), (X), (T) trend indication, (T) terminal strip connector,
(T) TriColor

**DIMENSIONS & CONNECTIONS**

**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

**RETRANSMIT:**

C = 1-5V DC
D = 0-1V DC
F = 4-20mA DC
G = 0-1mA DC
X = None

See BGTC Circular Data Sheet for dimensions of BG261 and BG281
**Input Type Selections**

| Full Scale Reading | Code | P | M | N | R | A | B | C | D | F | Q | J* | K* | T* | E | L | V | G | H | Z |
|--------------------|------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| .000020            | AA   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| .000050            | AB   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| .000100            | AC   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| .000200            | AD   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| .000250            | AE   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| .000500            | AF   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| .001               | AG   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| .002               | AH   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| .005               | AI   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| .01                | AJ   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| .02                | AK   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| .025               | AL   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| .05                | AM   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 1                  | AN   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 2                  | AO   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| .25                | AP   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| .5                | AQ   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 1                | AR   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 2                | AS   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 2.5                | AT   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 4                | AU   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 5                | AV   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 10                | AW   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 12.5              | AX   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 20                | AY   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 25                | AZ   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 50                | BA   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 60                | BB   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 100               | BC   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 125               | BD   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 150               | BE   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 200               | BF   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 250               | BG   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 300               | B1   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 400               | BH   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 500               | BI   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 600               | B4   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 800               | BJ   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 1000              | BK   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 5000             | BL   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 10000             | BM   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 20000             | BN   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| -0.05             | EA   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| -0.1             | EB   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| -0.2             | EC   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| -0.25             | ED   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| -0.5             | EF   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| -1             | EG   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| -2             | EH   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| -2.5             | EI   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| -5             | EJ   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| -10             | EK   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| -12.5          | EL   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| -20             | EM   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| -25             | EN   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| -50             | EO   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| -100           | EP   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| -125           | EQ   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| -200           | ER   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| -250           | ES   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |

* Thermocouple temperatures are listed in °C; minimum span 100° (C or F).
Special Configurations

In addition to the many configuration choices shown on our ordering guides, Weschler can customize Bargraph meters for special situations. Here are several modifications that are now available as standard options:

**Super Bright Display**

A super bright display is now available on larger size circular BarGraph meters. With 5 times the luminous intensity of the standard bar display, this option is ideal for use outdoors or in other highly lit areas. In wet environments, it can be combined with the spray-tight cover option. The super bright display is available on Weschler BG251 (5” circular), BG281 (8” circular) and BG261 (8.5” square) meters. A super bright yellow bar can also be specified.

**Analog Backplate**

The standard backplate on Weschler bargraph meters has plug-in terminals for all connections. For more secure wire attachment, a terminal strip option on the circular meters is available. This option changes the input, power and some of the other connections to screw terminals. A third termination option on certain circular bargraph models is the analog backplate. Here all connections are made to threaded studs. This is particularly useful when replacing an old Westinghouse style analog meter.

**Shipboard Bargraph Meters**

These meters meet the requirement for a highly visible readout in harsh shipboard environments. They are available in the standard 4½” switchboard size and the large 8¾” size viewable from more than 30 feet. Both versions feature a rugged metal case, spray tight front/rear and shock resistant internal construction. These units are also suitable for use in pump rooms, drilling platforms and other wet or high shock locations. Three front panel buttons access setup and operating functions. Brightness is easily adjusted for day or night viewing. The digital readout is available in red, yellow or green. The bar can be ordered in red, yellow, green or tricolor. Custom scale factor, markings and legend tailor the readout to the application.

**Draft Gauge Array**

Large BarGraph models such as the BD101 easily replace old analog draft gauges. Weschler can install meters in a housing to match an existing panel arrangement. In some arrangements, the individual meter cases are omitted to reduce the spacing between channels. Here the front panel is tilted to duplicate the existing gauges' viewing angle.

Pressure transducers can be mounted on the rear of the enclosure or located close to the pressure source. The photo shows a 10 bay unit. Sizes for 3 to 14 gauges are available.

Weschler can also install meters in fiberglass enclosures for indoor or outdoor applications.
Bargraph & Panel Meter Accessories

Weschler carries a variety of accessories for use with Bargraph and digital panel meters. Select a transducer, sensor or signal conditioner to meet your measurement requirements. Then configure the digital meter with the matching input type and range.

**DC Current Shunts**
Sizes from 1 amp to 10,000 amps. 50 or 100 mV output.

**AC Current Transformers**
Window diameters from 1 inch to more than 8 inches. Primary from 50 to 5,000 amps. 5 amp secondary standard, 1 amp available. Burden 1.5 to 200 VA. Solid core, split core or flexible core styles. Variety of mountings.

**Voltage (Potential) Transformers**
120V AC output. Burden to 150 VA. Inputs to 600V standard, higher available.

**AC Current Transducers**
Input 2 - 2000 amps full scale. DC Output 0-5V, 0-10V or 4-20mA. Average or TRMS sensing. Solid and split core styles. Self-powered, loop powered or externally powered.

**Transducers**
Output 4-20mA or 0-1mA for easy interface to a meter. Input:
- DC Volts
- AC Voltage
- AC Current
- AC Line Frequency
- AC Watts
- AC VAR
- Power Factor
- Phase Angle

Single phase 2 or 3 wire, three phase 3 or 4 wire.

**Signal Conditioners**
Wide selection of input types. Single or multi-function. Fixed or adjustable range. DIN rail or plug-in socket mounting.
Sensors

Temperature

Thermocouple
Type J, K, E, T or N
Bendable sheath, diameter 1/16” to 3/8”
Sheath length and cable length to order.
Standard or miniature thermocouple plug.

Infrared Non-Contact
Sensing to 500°C (900°F).
Fixed or adjustable emissivity.
4:1, 10:1 or 13:1 optics.

RTD
3 or 4 wire Pt100, 385 alpha
Bendable sheath, diameter 1/16” to 3/8”
Sheath length and cable length to order.

Pressure
Full scale 2 to 20,000 psig.
1/8” to 1/2” process connection.
0-10V, 0-5V or 4-20mA output.
Loop, DC or battery powered.
Optional local readout.

Flow
Differential pressure, thermal,
magnteto-inductive or paddle wheel sensing.
1 GPH to 600 GPM.
Pipe sizes to 3 inches.

Speed / Rotation
Tach generators to 100,000 RPM
Optical speed sensors to 250,000 RPM

Level
Detect solids or liquids.
Range up to 65 ft.
Radar or ultrasonic sensing.

Enclosures & Assemblies
Fiberglass, polycarbonate, stainless steel and explosion-proof enclosures for indoor & outdoor use. Sizes up to 20”x20”x10”.

Test Instruments
Weschler also offers a selection of test equipment to aid meter setup, maintenance and general electrical troubleshooting. Well known brands provide years of reliable operation.
Shown here are three of the most common test tools: process calibrator, digital multimeter, clamp multimeter.

Position, humidity and other types of sensors also available.

Weschler’s Meter Modification Center can assemble instruments into a panel, rack or enclosure. Products from several manufacturers can be combined to meet the application requirements.
Power Series Plus
Digital Switchboard Meters

Single, dual, and triple displays
- Field Configurable
- Measures True RMS Current and Voltage
- Accuracy: ±0.2% of Rdg. ±0.1% FS
- Displays MIN/MAX Values
- Scaling to 1250:1 for Potential Transformers, 5000:1 for Current Transformers
- Available for Single and Three-Phase Systems
- High-Resolution, High-Intensity LED Display
- Fits Standard ANSI Panel Cutout
- Non-Volatile Memory Stores All Setup Parameters
- Options Include Modbus Communications, Analog Output, DC Auxiliary Power Supply

See Power Series Plus catalog for complete specifications.
### DUAL AC VOLT/AMP AND VOLT/FREQUENCY

To Order—Insert Number Code for Each Letter to Select Catalog Number. Order Example: 2492-12-51-1-AHD-1-1

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>2492</td>
<td>Dual Display</td>
<td></td>
<td>22</td>
<td></td>
<td>Volt/Hz</td>
</tr>
<tr>
<td>B</td>
<td>Function</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>Input Rating</td>
<td>150 Volt/1 Amp AC</td>
<td>150 Volt/5 Amp AC</td>
<td>300 Volt/1 Amp AC</td>
<td>600 Volt/1 Amp AC</td>
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<tr>
<td>D</td>
<td>Frequency</td>
<td>50/60 Hz</td>
<td>400 Hz</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>E</td>
<td>Analog Output</td>
<td>None</td>
<td>0 to 1 mA DC</td>
<td>4 to 20 mA DC</td>
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<tr>
<td>F</td>
<td>RS-485 Protocol</td>
<td>ASCII</td>
<td>Modbus</td>
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<tr>
<td>G</td>
<td>Auxiliary Power Supply</td>
<td>120/240 VAC</td>
<td>24 VDC</td>
<td>48 VDC</td>
<td>125 VDC</td>
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### TRIPLE AC VOLT/AMP

To Order—Insert Number Code for Each Letter to Select Catalog Number. Order Example: 2493-02-01-1-AFA-1-1

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<tr>
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<th>B</th>
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<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
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<tbody>
<tr>
<td>A</td>
<td>2493</td>
<td>Triple Display</td>
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<td>B</td>
<td>Connections</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>C</td>
<td>Input Rating</td>
<td>3P3W Volts AC</td>
<td>3P4W Volts AC</td>
<td>3-Phase A, B, C Amps AC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>Frequency</td>
<td>50/60 Hz</td>
<td>400 Hz</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E</td>
<td>Analog Output</td>
<td>None</td>
<td>0 to 1 mA DC</td>
<td>4 to 20 mA DC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>F</td>
<td>RS-485 Protocol</td>
<td>ASCII</td>
<td>Modbus</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>G</td>
<td>Auxiliary Power</td>
<td>120/240 VAC</td>
<td>24 VDC</td>
<td>48 VDC</td>
<td>125 VDC</td>
<td></td>
</tr>
</tbody>
</table>

### AC WATT/VAR/POWER FACTOR

To Order—Insert Number Code for Each Letter to Select Catalog Number. Order Example: 2493-34-11-1-AFA-1-1

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>2492</td>
<td>Dual Display</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>Function/Connection</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>Input Rating</td>
<td>120 Volt/1 Amp AC</td>
<td>150 Volt/5 Amp AC</td>
<td>300 Volt/1 Amp AC</td>
<td>600 Volt/1 Amp AC</td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>Frequency</td>
<td>50/60 Hz</td>
<td>400 Hz</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E</td>
<td>Analog Output</td>
<td>None</td>
<td>0 to 1 mA DC</td>
<td>4 to 20 mA DC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>F</td>
<td>RS-485 Protocol</td>
<td>ASCII</td>
<td>Modbus</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>G</td>
<td>Auxiliary Power</td>
<td>120/240 VAC</td>
<td>24 VDC</td>
<td>48 VDC</td>
<td>125 VDC</td>
<td></td>
</tr>
</tbody>
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### TRIPLE AC VOLT/AMP/Hertz

To Order—Insert Number Code for Each Letter to Select Catalog Number. Order Example: 2493-08-51-1-AHD-1-1

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<thead>
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<th>E</th>
<th>F</th>
<th>G</th>
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<tbody>
<tr>
<td>A</td>
<td>2493</td>
<td>Triple Display</td>
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</tr>
<tr>
<td>B</td>
<td>Function/Connections</td>
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<td></td>
<td></td>
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</tr>
<tr>
<td>C</td>
<td>AC Input Rating</td>
<td>120 Volt/1 Amp AC</td>
<td>120 Volt/5 Amp AC</td>
<td>240 Volt/1 Amp AC</td>
<td>480 Volt/1 Amp AC</td>
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</tr>
<tr>
<td>D</td>
<td>Frequency</td>
<td>50/60 Hz</td>
<td>400 Hz</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>E</td>
<td>Analog Output</td>
<td>None</td>
<td>0 to 1 mA DC</td>
<td>4 to 20 mA DC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>F</td>
<td>RS-485 Protocol</td>
<td>ASCII</td>
<td>Modbus</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>G</td>
<td>Auxiliary Power</td>
<td>120/240 VAC</td>
<td>24 VDC</td>
<td>48 VDC</td>
<td>125 VDC</td>
<td></td>
</tr>
</tbody>
</table>

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