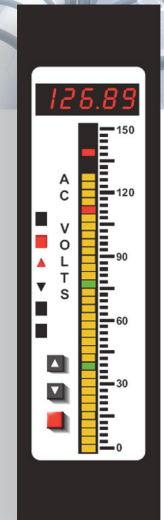
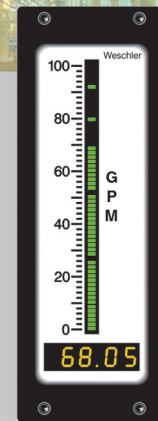
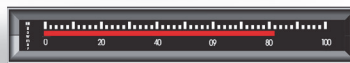
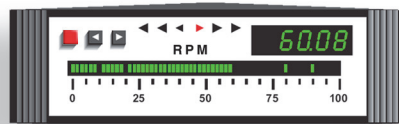
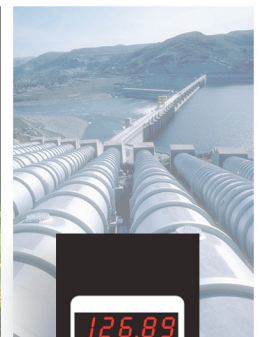
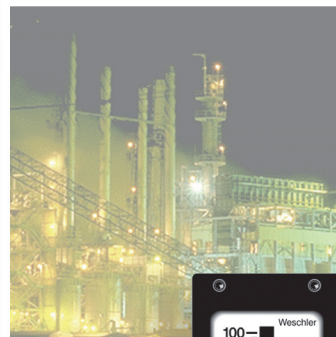
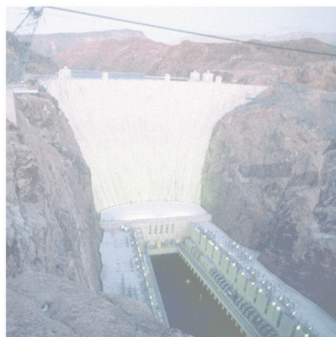
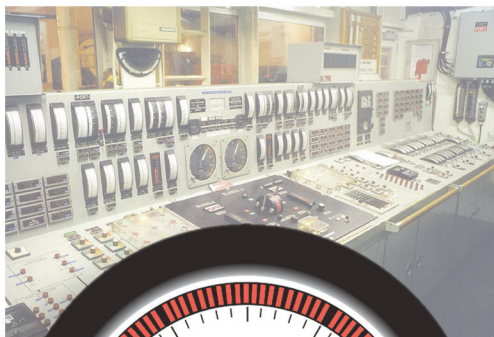
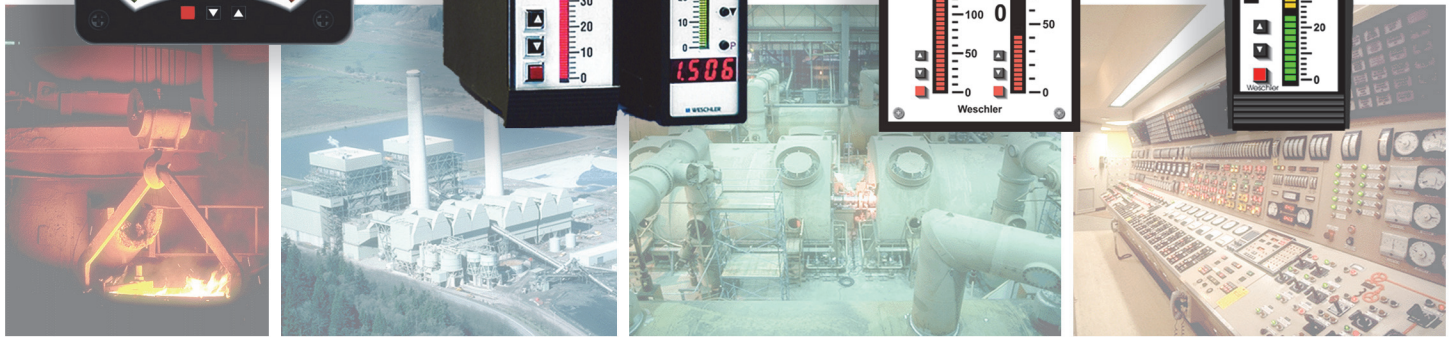
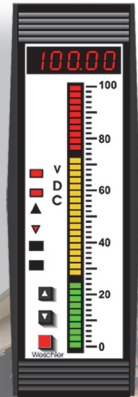
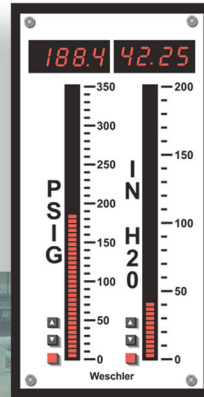
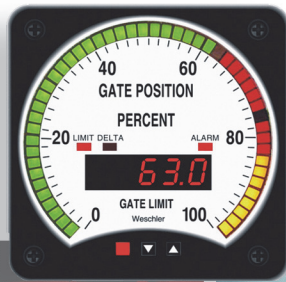


Digital BarGraph Instruments



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Weschler Digital Instruments

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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

<u>Style</u>	<u>Series</u>	<u>P/N</u>	<u>Bezel Size</u>	<u>Segments</u>	<u>Digits</u>	<u>Data Sheet</u>	<u>Page</u>
TriColor BarGraph		begins with	("W x "H)				
Edgewise Single							
6" Vertical	BG-252TC	2	1.7 x 6.04	40	5	TriColor Edgewise	5
6" Horizontal	BH-252TC	5	6.04 x 1.7	40	5	"	5
7.5" Vertical	BV-5ATC	A	1.75 x 7.6	40	5	"	5
12" Vertical	BD-101TC	K	3.14 x 12.9	40	5	"	5
Circular							
4.5" Square	BG-241TC	4	4.42 x 4.42	50	5	TriColor Circular	13
8.5" Square	BG-261TC	6	8.75 x 8.75	50	5	"	13
6" Round	BG-251TC	3	7.5" dia	50	5	"	13
8" Round	BG-281TC	8	10" dia	50	5	"	13
Square/Round	various	4, 6, 8	various	50	4.5	Gate Position	39

Standard BarGraph

Edgewise Single							
6" Vertical	BG-252	2	1.7 x 6.04	101	3.5 or 4.5	Single Edgewise	9
6" Vertical	BG2-252	A	1.7 x 6.04	101	5	Bargraph 2	1
6" Vertical	BW-1316	7	2.13 x 6.0	101	3.5 or 4.5	Single Edgewise	9
6" Vertical	BW2-1316	C	2.13 x 6.0	101	5	Bargraph 2	1
7.5" Vertical	BV-5A	A	1.75 x 7.6	101	3.5 or 4.5	Single Edgewise	9
7.5" Vertical	BV2-5A	E	1.75 x 7.6	101	5	Bargraph 2	1
10" Vertical	PG-101	V	4.05 x 10.1	51	3 or 4	Large Edgewise	25
12" Vertical	BD-101	K	3.14 x 12.9	101	3.5 or 4.5	"	25
DIN Vertical	PC-101	C	2.835 x 5.7	101	3.5 or 4.5	Single Edgewise	9
6" Horizontal	BH-252	5	6.04 x 1.7	101	3.5 or 4.5	"	9
6" Horizontal	BH2-252	B	6.04 x 1.7	101	5	Bargraph 2	1
DIN Horizontal	PH-101	H	5.7 x 2.835	101	3.5 or 4.5	Single Edgewise	9
Edgewise Dual							
6" Vert/Horiz	BI-1251	X	1.7 x 6.04	101	----	Dual Edgewise	29
10" Vertical	PG-202	W	4.05 x 10.1	51	3 or 4	Large Edgewise	25
DIN Vertical	PC-202	D	2.835 x 5.7	101	3.5 or 4	Dual Edgewise	29
Edgewise Multiple							
12" Vertical	BD-101 Multi	K	≈2.7n x 15.4	101	3.5 or 4.5	Large Edgewise	25
BG-252, BV-5A, BW-1316 can also be ganged without special hardware							
Circular							
4.5" Square	BG-241	4	4.42 x 4.42	101	3.5, 4.5 or 5	} Single Circular or AC Power Circular	17
8.5" Square	BG-261	6	8.75 x 8.75	101	3.5, 4.5 or 5		
6" Round	BG-251	3	7.5" dia	101	3.5, 4.5 or 5		
8" Round	BG-281	8	10" dia	101	3.5, 4.5 or 5		
Concentric							
Single	BF6401	F	6.5 x 7.1	101	3.5 or 4.5	BF Series Concentric	33
Single	BF2-6402	F	6.5 x 7.1		5	Bargraph 2	1
Dual	BF6402	E	6.5 x 7.1	101	3.5 or 4.5	BF Series Concentric	33
Dual	BF2-6402	G	6.5 x 7.1	101	5	Bargraph 2	1

Bowmar BarGraph

3" Vert/Horiz	APM-100**		0.62 x 4.43	100	----	Bowmar Series	35
5" Vert/Horiz	APM-500		1.27 x 6.38	50	----	"	35
5" Vert/Horiz	APM-600**		1.4 x 5.7	50	----	"	35
10" Vert/Horiz	APM-800		1.4 x 10.7	100	----	"	35

**also available as BG-xxx with card edge connector

Chart of Available Input Types and Levels

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

[Input Level Matrix](#) 41

Weschler Digital BarGraph Selector Guide

Features & Functions

Model ⇒	BarGraph 2 Series	Tricolor Edgewise & Tricolor Circular	Single Edgewise & Large Edgewise	Single Circular	Dual Edgewise	BF Concentric	Bowmar
Input Channels	1-2	1	1-2	1	2	1-2	1
Input Ranges							
DC V	20mV - 300V	20mV - 250V	20mV - 250V	20mV - 250V	20mV - 250V	20mV - 250V	50mV - 100V
DC A	1mA - 5A	20µA - 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	50mA - 5A	
AC V TRMS	200mV - 600V						
AC A TRMS	2mA - 5A						
T/C	J,K,T	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	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	1 per channel	1	1 per channel	1 per channel	
Digital Comm.	232, 485, Ethernet	232, 485	232, 485	232, 485	232, 485	232, 485	
Protocol	ASCII, Modbus	ASCII	ASCII	ASCII	ASCII	ASCII	
Features							
Dimming	100 steps, separate bar & digit adjustments	16					2
Power Supply							
5VDC			√		√	√	√
12VDC	√	√	√	√	√	√	
24VDC	√	√	√	√	√	√	
28VDC	√	√	√	√	√	√	
48VDC	√	√	√	√	√	√	
125VDC	√	√	√	√	√	√	
250VDC	√	√	√	√	√	√	
12VAC	√		√		√	√	
24VAC			√		√	√	
120VAC	√	√	√	√	√	√	
240VAC	√	√	√	√	√	√	

*Circular only

1/18/2019

BARGRAPH REPLACEMENT GUIDE

Existing Meter	Weschler BarGraph	Existing Meter	Weschler BarGraph
A&M/Weston 49 Series	BG/BH-252	Dixson BJ101	PC-101/202
Crompton 128	"	Sigma/International Instr. 9262/9263	"
Dixson BB101 (All Models)	"		
GE/Yokogawa 180	"	Foxboro 6400	BF6400
Sigma/International Instruments 1151	"		
Weschler/Westinghouse V/H252	"	Bailey Draft Gauges	PG-101/202
		Dixson K051	BD-101
Dixson BB202	BI-1251	Hayes Republic 216	"
Sigma/International Instruments 1251	"		
		Ashcroft 6"	BG-251
Crompton 077, 078	BG-241	Ashcroft 8"	BG-281
Dixson BEW51, BW051/P	"		
GE/Yokogawa AB/DB30 or AB/DB40	"	Crompton 079	BG-261
Modutec 4SB	"	GE/Yokogawa AB/DB-16	"
Weschler/Westinghouse K231/241	"	Weschler/Westinghouse K261	"
		Foxboro 65PP	BW-1316
Hays Republic 3600/V5A	BV-5A	Weston 1316	"

Cross Reference - Bargraph Model to Data Sheet

Model	Data Sheet	BarGraph 2 Series	Tricolor Edgewise	Single Edgewise	Tricolor Circular	Single Circular	AC Power Circular	Large Edgewise	Dual Edgewise	BF Series Concentric	Bowmar	Gate Position
	pg	1	5	9	13	17	21	25	29	33	35	39
ACP							X					
APM											X	
BD101			X					X				
BF6401		X								X		
BF6402		X								X		
BG241					X	X	X					X
BG251						X	X					
BG252		X	X	X								
BG261					X	X	X					X
BG281					X	X	X					X
BH252		X	X	X								
BI1251									X			
BV5A		X	X	X								
BW1316		X		X								
PC101				X								
PC202									X			
PG101								X				
PG202								X				
PH101				X								
BG2		X										

Page numbers refer to the Weschler **Digital Bargraph Instruments** catalog

BarGraph 2 Series

High Reliability Digital Bargraph Meters



◀ BG2-252



▼ BV2-5A



◀ BW2-1316

▼ BF2-6402



- Designed for use in nuclear power plants and other severe environments
- High intensity LED display with separately adjustable bar & digit brightness
- RS-232, RS-485, Ethernet & USB communication options
- Linearization tables for normalizing non-linear signals
- Differential inputs and programmable signal averaging
- Bar separately scaled & configurable for normal, expanded scale, dual slope & point representations
- Wide power supply options with minimum 3kV isolation
- Four high-capacity relays configurable for hysteresis, failsafe & delayed operation
- Dual analog retransmit outputs, selectable volts or mA
- Pluggable, screw anchored terminal connections

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.

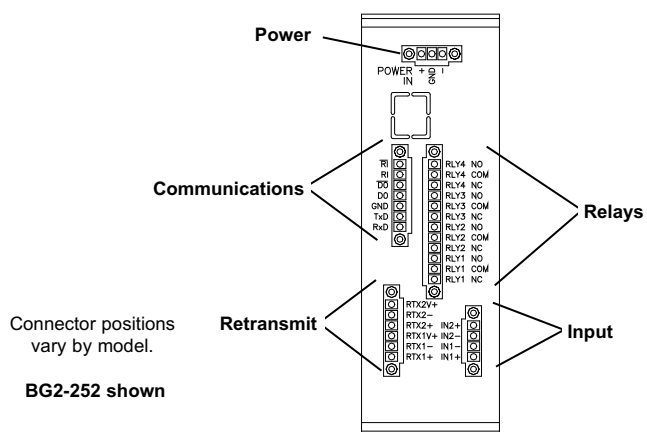
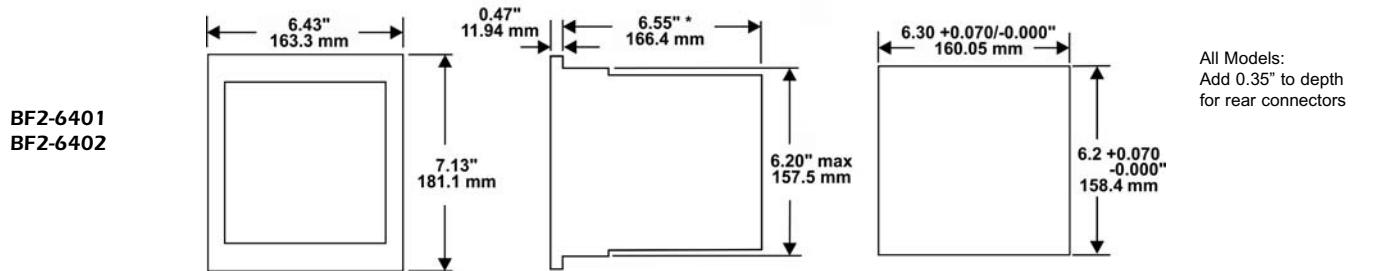
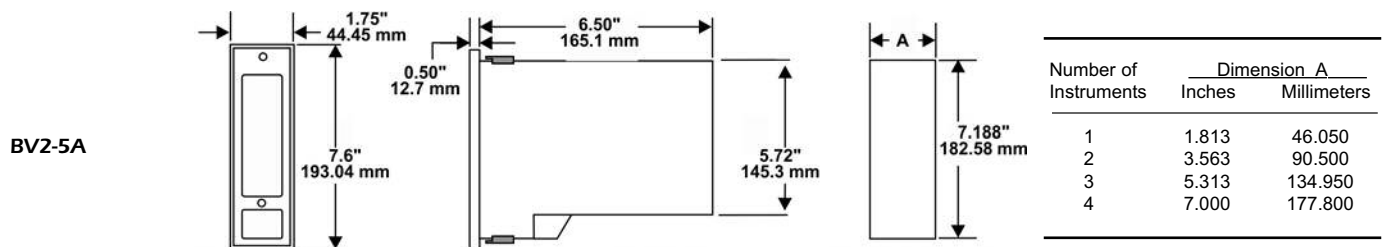
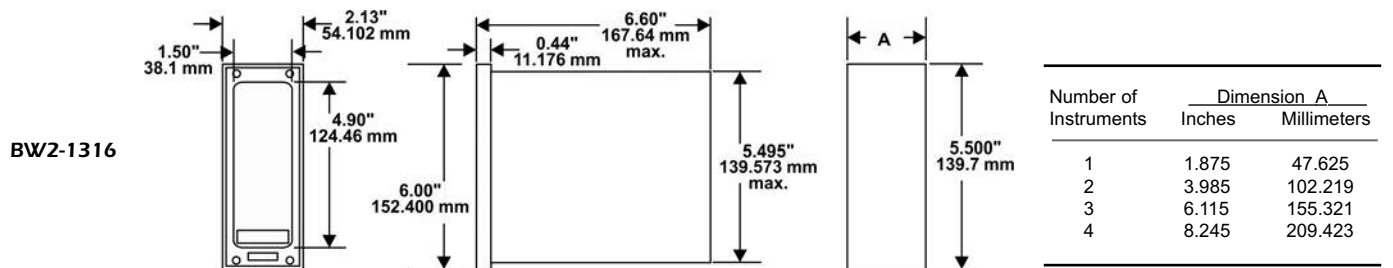
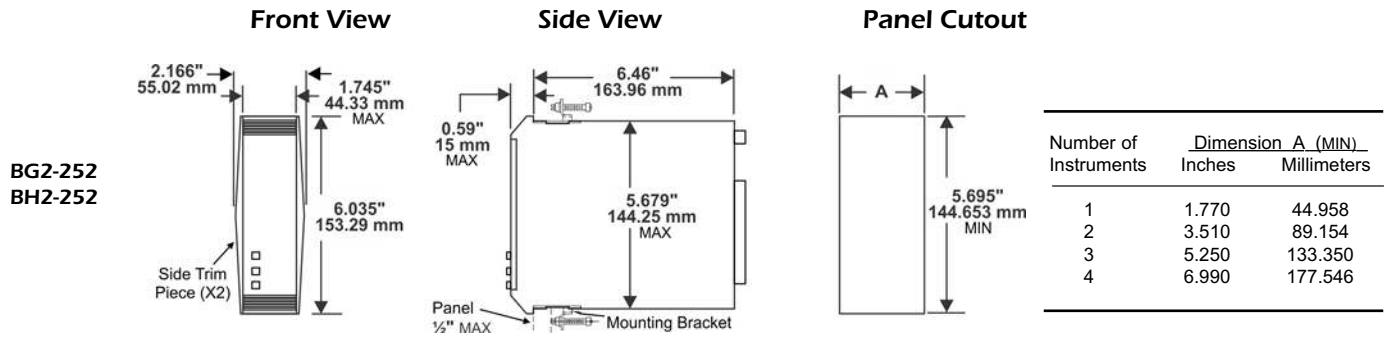
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BarGraph 2 Digital Bargraph Meters



BarGraph 2 Specifications

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)
12 V, 50 - 60 Hz (5.5 VA)
DC 100 - 300 V (35 mA)
18 - 36 V (140 mA)
36 - 72 V (70 mA)
12 V (630 mA)

Input Signals:

DC Amps 50 μ A - 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: \pm 3000 V, AC source: 3000Vrms
Retransmit \pm 3000 V peak
Communications \pm 2500 V rms
Signal
AC Amps (>1A) \pm 2000 V
DC Differential

Response Time (one input):

AC Signals \leq 500 mS, to within 0.2% of final value
DC Signals \leq 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 \pm 1 count
Calibrated Accuracy:
DC Volts & Amps \pm 0.01% of full scale \pm 1 count
AC Volts & Amps \pm 0.10% of full scale \pm 1 count (50/60 Hz)
Thermocouple \pm 0.5°C \pm 1 count
Long Term Accuracy Industrial Versions
Voltage Reference \pm 0.005%, \pm 0.00125% lifetime
Long Term Accuracy Nuclear Versions
Voltage Reference \pm 0.001%, \pm 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
1200 - 57600 bits/s, 7 or 8 bit
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 mADC
Compliance Voltage 24 VDC maximum

Warranty: 5 years

Standards Used in Design and Manufacture:

ASME NQA-1a-2009	IEEE 1023: 2004
EPRI TR-102323	IEEE 1074 2006
IEEE 603 2009	IEEE 323: 2003
IEEE 828: 2012	IEEE 344: 2004
IEEE 829: 2008	IEEE 7-4.3.2: 1993
IEEE 830: 1998	IEEE C63.38
IEEE 1008-1987 R2002	IEEE C37.90.3
IEEE 1012: 2004	IEEE C37.90.1
IEEE 1028: 2008	

*BW2-1316 & BV2-5A only

BarGraph 2 is Weschler's fourth generation digital indicator for power and process monitoring. Since we introduced our first bargraph 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.

WESCHLER INSTRUMENTS

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BarGraph 2 Configuration Guide

Certain combinations of options are not available on all models. Call for configuration & application assistance.

PART NUMBER
(SEE BOTTOM OF PAGE FOR EXAMPLE)

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 = AC Volts
U = Type J Thermocouple
3 = Type K Thermocouple
4 = Type T Thermocouple
5 = Type T TC, Differential

FULL SCALE - Channel 1

Code with 2 most significant digits. Minimum value=10. For intermediate value use next highest 2 digit value. Examples: Use 11 for 110, 13 for 125

FULL SCALE MULTIPLIER - Channel 1

6 = 10⁻⁶ (0.000 0XX)
5 = 10⁻⁵ (0.000 XX0)
4 = 10⁻⁴ (0.00X X00)
3 = 10⁻³ (0.0XX)
2 = 10⁻² (0.XX0)
1 = 10⁻¹ (X.X00)
0 = 10⁰ (XX.000)
A = 10¹ (XX0.000)

FUNCTION - Channel 2 (BF2-6402 only)

A = DC Amps
V = DC Volts
I = AC Amps
E = AC Volts
U = Type J Thermocouple
3 = Type K Thermocouple
4 = Type T Thermocouple
5 = Type T TC, Differential
X = No second channel

FULL SCALE - Channel 2

Code with 2 most significant digits. Minimum value=10. For intermediate value use next highest 2 digit value. Examples: Use 11 for 110, 13 for 125, XX for no second channel

FULL SCALE MULTIPLIER - Channel 2

6 = 10⁻⁶ (0.000 0XX)
5 = 10⁻⁵ (0.000 XX0)
4 = 10⁻⁴ (0.00X X00)
3 = 10⁻³ (0.0XX)
2 = 10⁻² (0.XX0)
1 = 10⁻¹ (X.X00)
0 = 10⁰ (XX.000)
A = 10¹ (XX0.000)
X = No second channel

BAR DISPLAY

R = Red
G = Green
A = Amber
B = Blue
M = Mixed
C = Red outer / Red inner *
D = Red outer / Green inner *
E = Red outer / Amber inner *
F = Red outer / Blue inner *
H = Green outer / Green inner *
J = Green outer / Red inner *
K = Green outer / Amber inner *

L = Green outer / Blue inner *
N = Amber outer / Amber inner *
P = Amber outer / Red inner *
Q = Amber outer / Green inner *
T = Amber outer / Blue inner *
U = Blue outer / Blue inner *
V = Blue outer / Red inner *
W = Blue outer / Green inner *
Y = Blue outer / Amber inner *
Z = Mixed / Mixed *
S = Special

* BF2-6402 only

OPTIONS [3 digits]

A = Custom artwork
C = Conformal coating on modules
E = Environmentally sealed panel front
L = Current Loop Power (24 VDC) ^
M = External programming module (EPM)
S = Special
X = None

^ single channel only

TREND

Y = Yes (all channels)
X = No

RETRANSMIT - Channel 2

Y = Yes
X = No

RETRANSMIT - Channel 1

Y = Yes
X = No

COMMUNICATIONS

1 = Isolated RS-232
2 = Isolated RS-485
3 = Isolated Ethernet
4 = USB (BW2-1316 & BV2-5A only, replaces EPM)
X = None

RELAYS

1 = One
2 = Two
3 = Three
4 = Four
X = None

POWER

A = 12 VDC
B = 12 VAC
C = 18-36 VDC
D = 90-264 VAC / 100-300 VDC
E = 36-72 VDC

NUMERIC DISPLAY

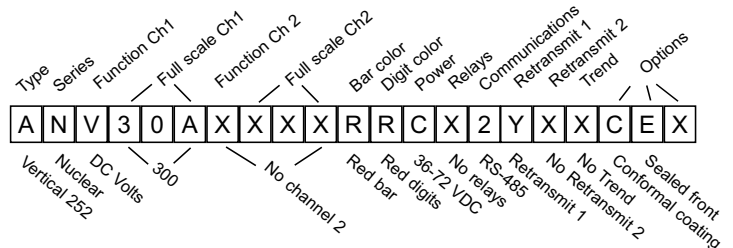
R = Red
G = Green
A = Amber
B = Blue
X = None
C = Red outer / Red inner *
D = Red outer / Green inner *
E = Red outer / Amber inner *
F = Red outer / Blue inner *
H = Green outer / Green inner *
J = Green outer / Red inner *
K = Green outer / Amber inner *

L = Green outer / Blue inner *
N = Amber outer / Amber inner *
P = Amber outer / Red inner *
Q = Amber outer / Green inner *
T = Amber outer / Blue inner *
U = Blue outer / Blue inner *
V = Blue outer / Red inner *
W = Blue outer / Green inner *
Y = Blue outer / Amber inner *
S = Special

* BF2-6402 only

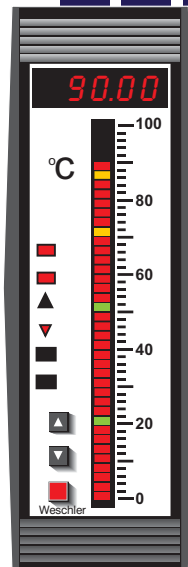
PART NUMBER EXAMPLE:

WD-13 6/18



For more information or quotes on
nuclear qualified products,
email: nuclear@weschler.com

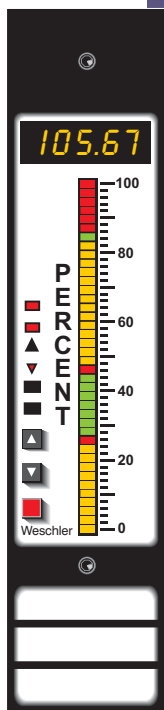
BG TC Series TriColor BarGraphs™



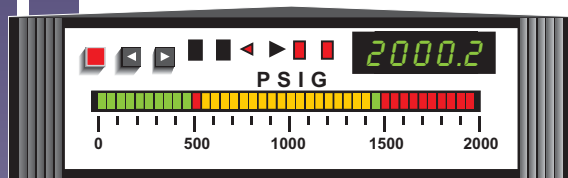
BG-252TC

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 down time 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.



BV-5ATC



BH-252TC

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

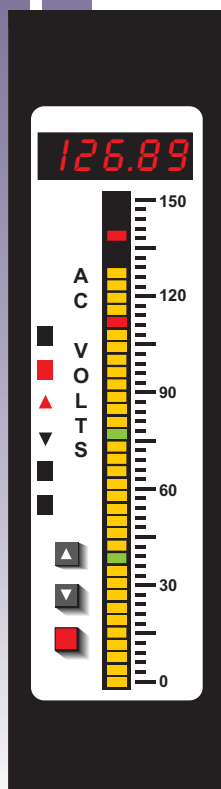
4-20, 0-1mA DC
1-5, 0-1, 0-5V DC

Retrofit sizes for:

GE/Yokogawa 180,
Bailey draft gauges,
Crompton 128,
Dixon SA/BB 101 (all models),
Dixon 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



BD-101TC



**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

40 segment LED
2.5% full scale resolution

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

Digital Display

5 digit LED -9999 to 99999
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
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:

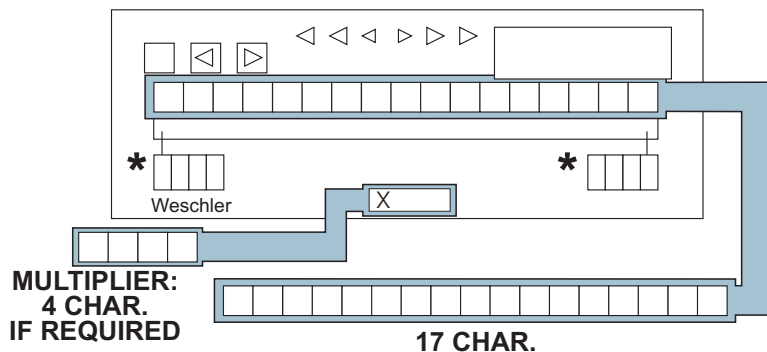
50Hz to 20kHz at 5 to 250V p-p
Accuracy 0.1% of full scale ± 1 count

Line Frequency (55 to 65 Hz):

Accuracy 0.01% of full scale
± 1 count

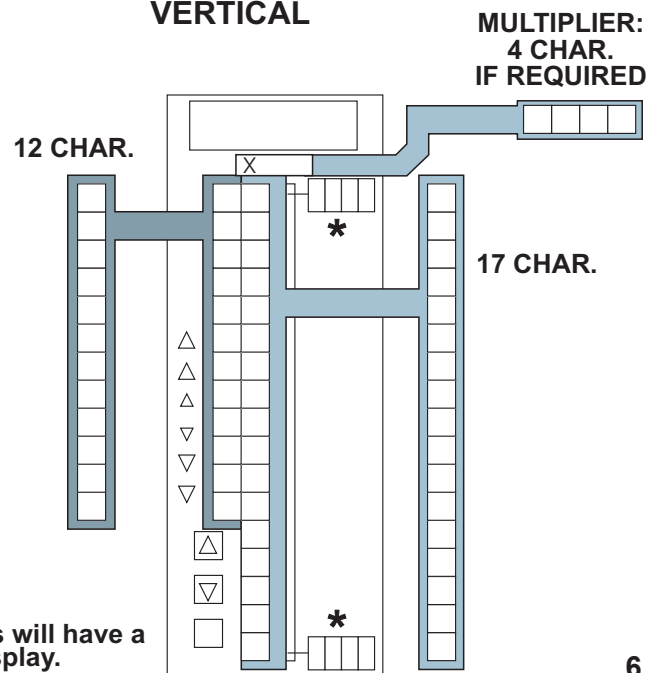
ARTWORK GUIDELINES

HORIZONTAL



* Numerical range
MAX. 4 Digits

VERTICAL



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

SAMPLE PART NUMBER (SEE BOTTOM OF PAGE FOR EXAMPLE)

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

PART NUMBER

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

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
(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
- R = RTD: Specify 3 or 4 wire & alpha
 100 Ohm Pt or 10 Ohm Cu
- S = Special
- U = Serial ASCII (requires com. type A or C in Communication options)

BAR COLOR:

- T = TriColor

- K = Conformal Coating
- T = Terminal Strip Connector
- A = Custom Artwork
- X = None
- S = Special

- T = Trend Indicator
- X = NA

- P = Peak/Valley Hold
- X = NA

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, 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

INPUT LEVEL:

See input Level Matrix Guide

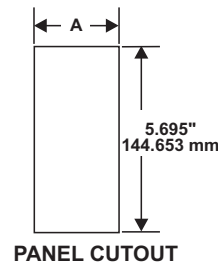
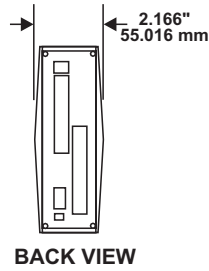
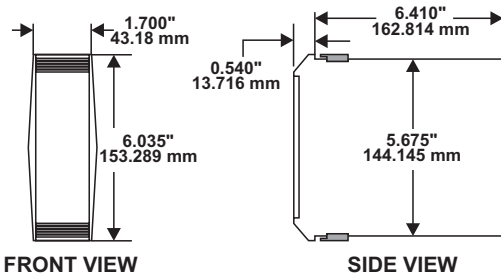
EXAMPLE:

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

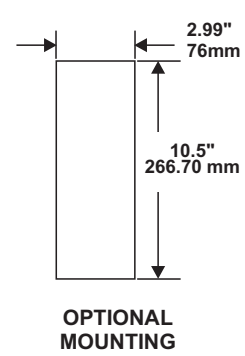
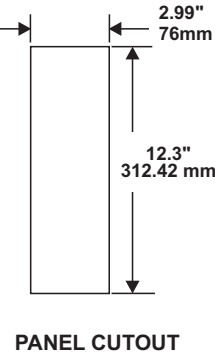
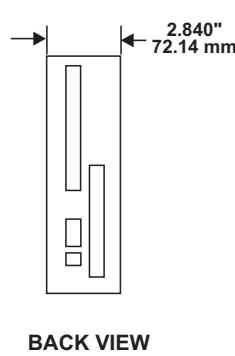
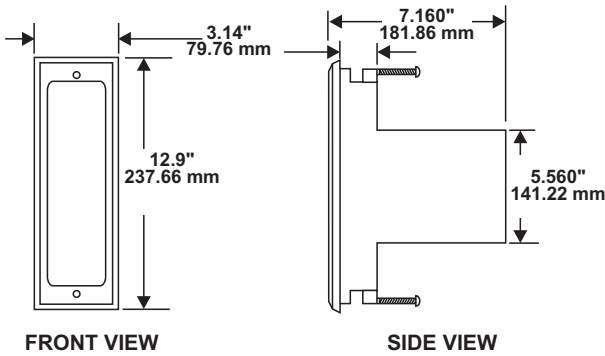
DIMENSIONS

BG-252TC and BH-252TC

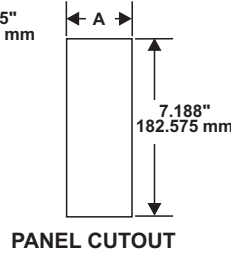
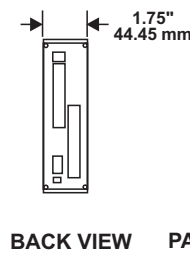
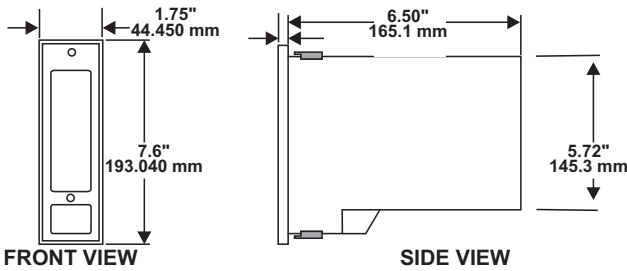


Number of Instruments	A Inches	(Millimeters)
1	1.770	(45)
2	3.510	(89)
3	5.250	(133)
4	6.990	(178)
.
.
8	13.95	(354)

BD-101TC

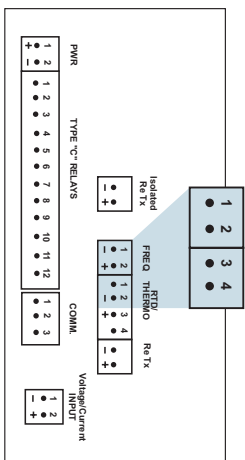


BV-5ATC



Number of Instruments	A Inches	(Millimeters)
1	1.770	(45)
2	3.510	(89)
3	5.250	(133)
4	6.990	(178)
.	.	.
.	.	.
8	13.95	(354)

TERMINAL CONNECTIONS



WHEN EXCITATION POWER IS ORDERED THIS PINOUT APPLIES

INPUT

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

RTD

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

FREQUENCY/MAGNETIC PICKUP
(1) Lead 1 (-) (2) 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 (return)
(3) 24 VDC +
(4) 24 VDC -

RELAY CONTACTS*

(1) AL 1 N.O. (2) AL 1 C.
(3) 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.

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

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



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

BG Series Edgewise Single BarGraphs™

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.

Contact Weschler for 10CFR50 Nuclear Qualified models

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

Communication

RS-232, RS-485, SCADA, DCS

Analog retransmit

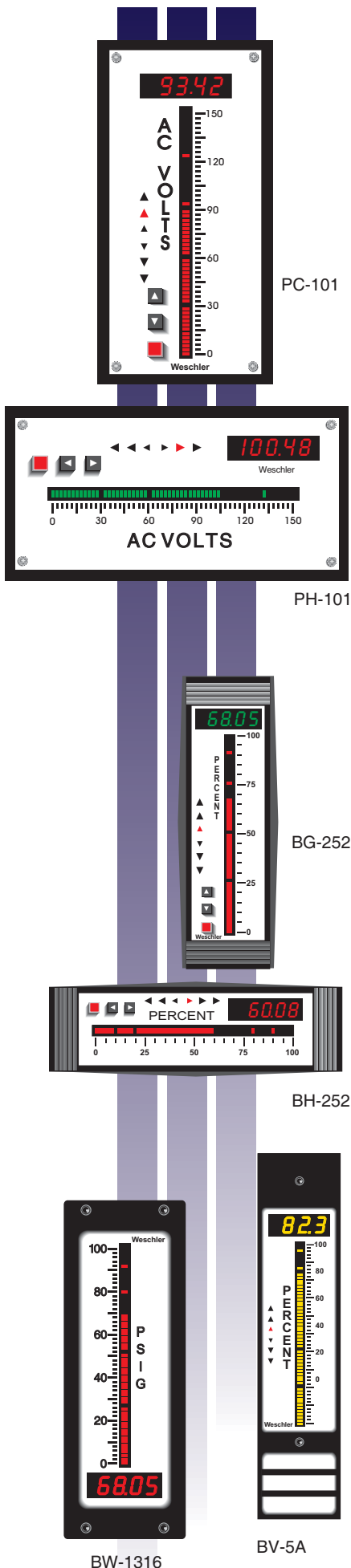
- 4-20, 10-50, 0-1mA DC
- 1-5, 0-1, 0-5V DC

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 |



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° 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 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:

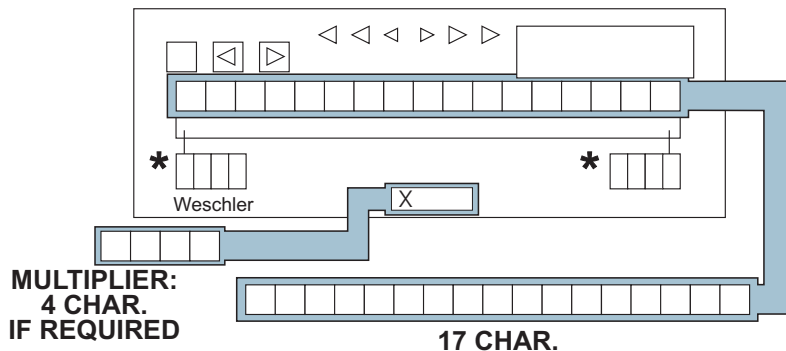
50Hz to 20kHz at 5 to 250V p-p
Accuracy 0.1% of full scale ± 1 count

Line Frequency (55 to 65 Hz):

Accuracy 0.01% of full scale ± 1 count

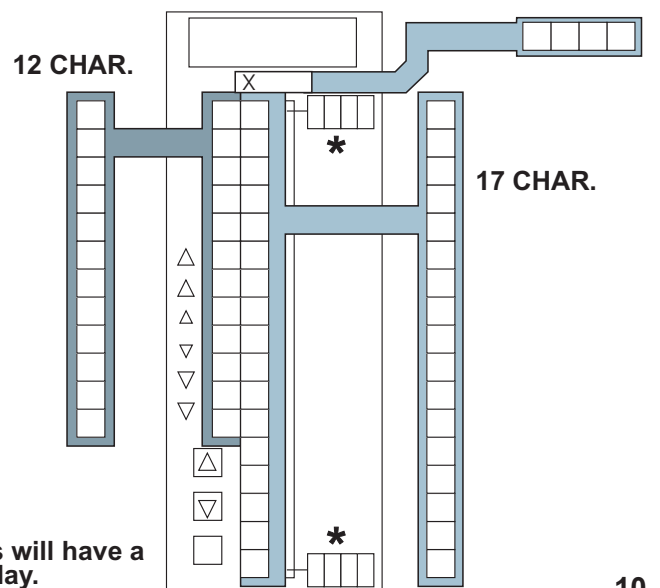
ARTWORK GUIDELINES

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



* Numerical range
MAX. 4 Digits

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



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

ORDERING GUIDE

SAMPLE PART NUMBER (SEE BOTTOM OF PAGE FOR EXAMPLE)

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

PART NUMBER

TYPE:

- 2 = BG252 6" Vertical BarGraph
- 5 = BH252 6" Horizontal BarGraph
- C = PC101 DIN Size Vertical BarGraph
- H = PH101 DIN Size Horizontal BarGraph
- 7 = BW1316 6" Vertical BarGraph
- A = BV5A 7.5" Vertical BarGraph

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
- 4 = Hi-Hi/Hi/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
(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 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

- K = Conformal Coating
- T = Terminal Strip Connector
- A = Custom Artwork
- X = NA
- S = Special

- T = Trend Indicator
- X = NA

- P = Peak/Valley Hold
- X = NA

COMMUNICATION:

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

RETRANSMIT:

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

*isolated outputs must have AC power

POWER:

- 1 = 120V AC
- 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

INPUT LEVEL:

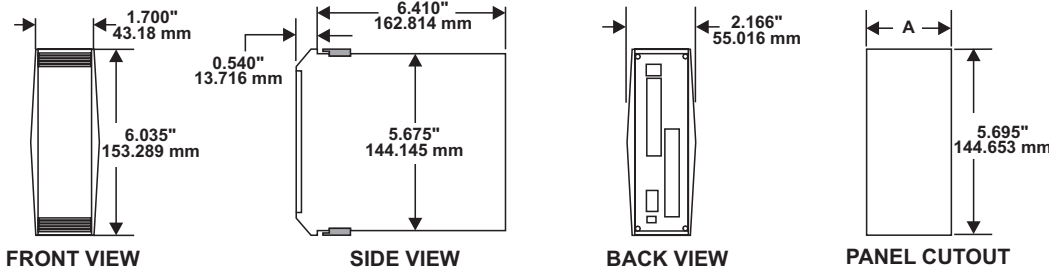
See input Level Matrix Guide

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 mADC isolated retransmit, (A) RS232 communication, (P) peak/valley hold, (T) trend indicator, (A) custom artwork, (X) red led color

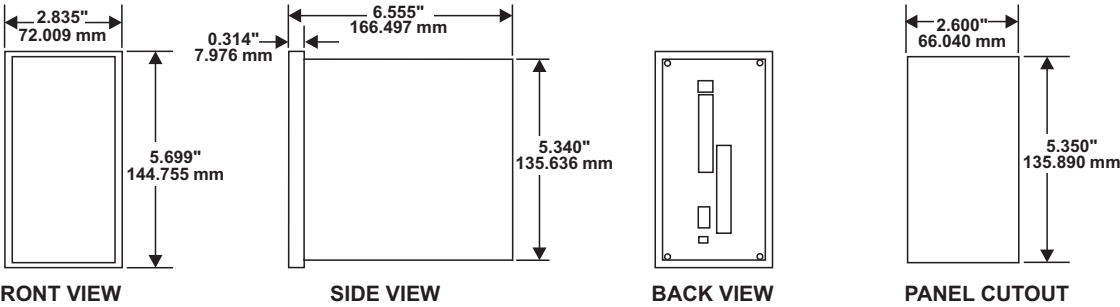
DIMENSIONS

BG-252 and BH-252

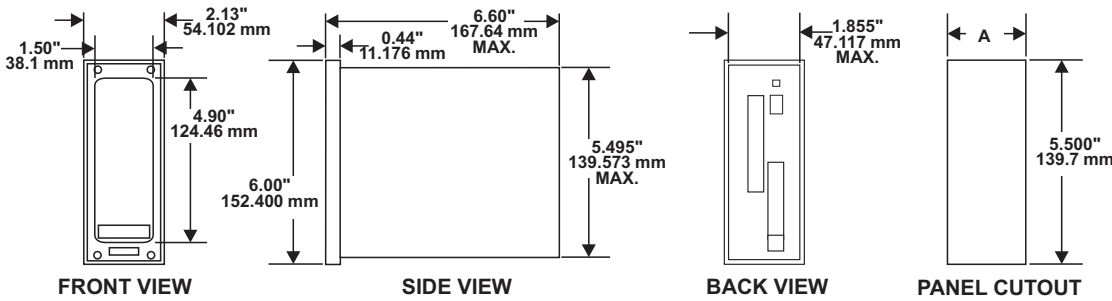


Number of Instruments	A Inches	(Millimeters)
1	1.770	(44.958)
2	3.510	(89.154)
3	5.250	(133.350)
4	6.990	(177.546)

PC-101 and PH-101

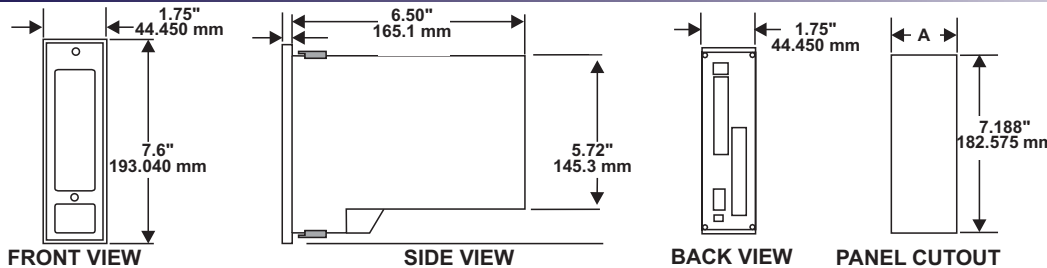


BW-1316



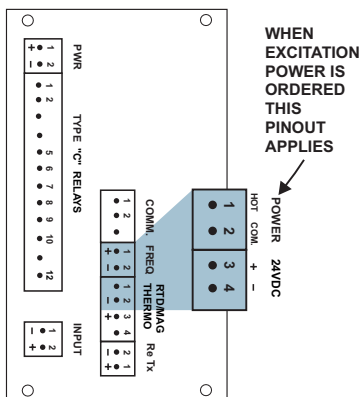
Number of Instruments	A Inches	(Millimeters)
1	1.875	(47.625)
2	3.985	(102.219)
3	6.115	(155.321)
4	8.245	(209.423)

BV5A



Number of Instruments	A Inches	(Millimeters)
1	1.813	(46.050)
2	3.563	(90.500)
3	5.313	(134.950)
4	7.000	(177.800)

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

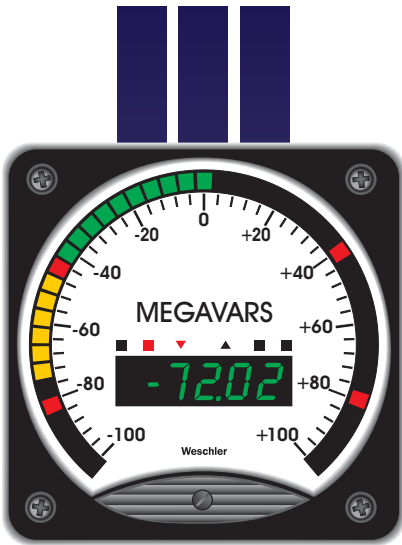
2/1/19

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

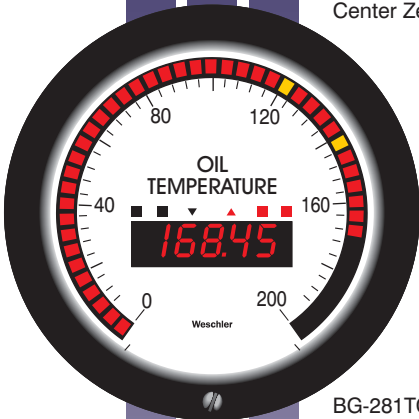


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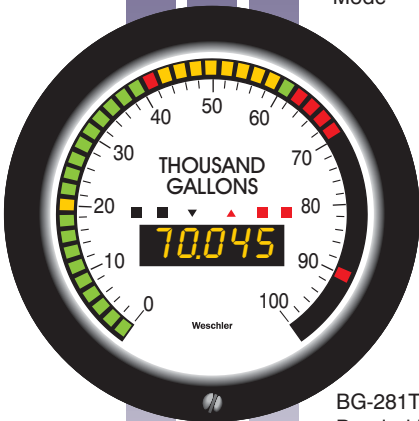
BG TC Series Circular TriColor BarGraphs™



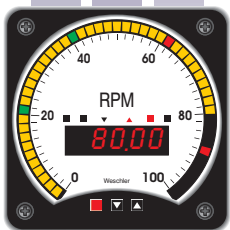
BG-261TC
Center Zero



BG-281TC
Solid Bar
Mode



BG-281TC
Banded Bar
Mode



BG-241TC

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	10Ω Cu or 100Ω Pt
Serial	ASCII
Frequency	Line or mag pickup
Process Control	V, mA



WESCHLER INSTRUMENTS
DIVISION OF HUGHES CORPORATION

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SPECIFICATIONS

Bar Display

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

Digital Display

5 digit -9999 to 99999
Resolution 0.01% full scale
Linearity ±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.

Retransmit Signals

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

Communication

RS232
RS485 (2-wire)

Power

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

Input Impedance

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

Input Overload Ratings

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

Input Sensitivities [ANSI C39.1]

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

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

Temperature:

Thermocouple °C °F
Type J -210 to 795 -346 to 1463
Type K -270 to 851 -454 to 1563
Type T -270 to 400 -454 to 752

Accuracy 0.1% of full scale ± 1 count
Linearity 50 point, 0.1%

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

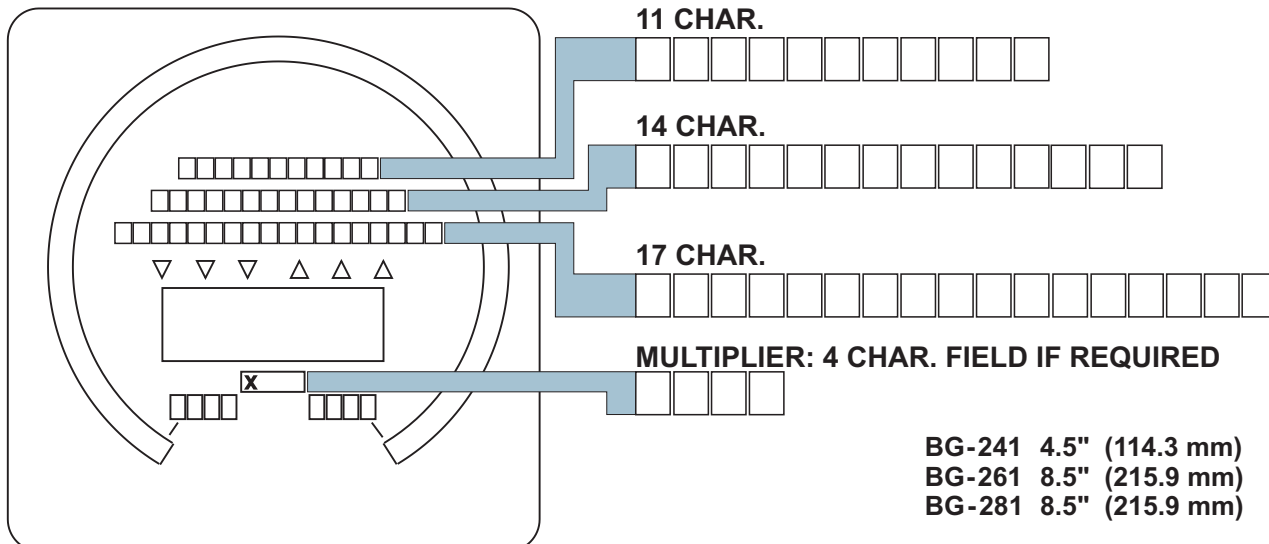
Frequency:

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

Line Frequency (55 to 65 Hz):

Accuracy 0.01% of full scale ± 1 count

ARTWORK GUIDELINES



ORDERING GUIDE

SAMPLE PART NUMBER (SEE BOTTOM OF PAGE FOR EXAMPLE)

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

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

BAR COLOR:

T = TriColor

- B = Analog Backplate
- K = Conformal Coating
- T = Terminal Strip Connector
- A = Custom Artwork
- Y = Spraytight Front & Rear (241/261)
- Z = Spraytight Front (241/261)
- X = None

- T = Trend Indicator
- X = NA

- P = Peak/Valley Hold
- X = NA

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

INPUT LEVEL:

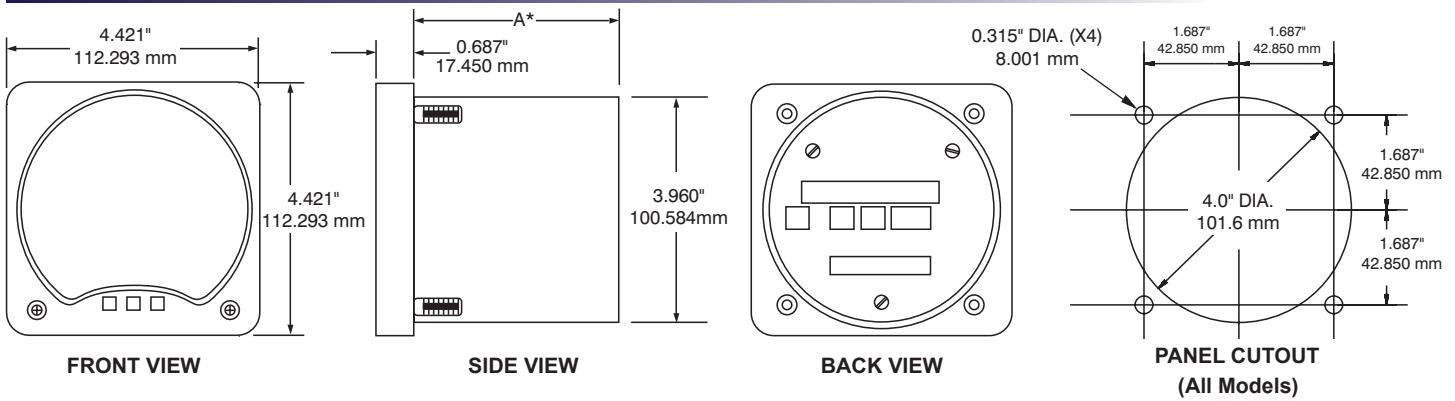
See input Level Matrix Guide

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

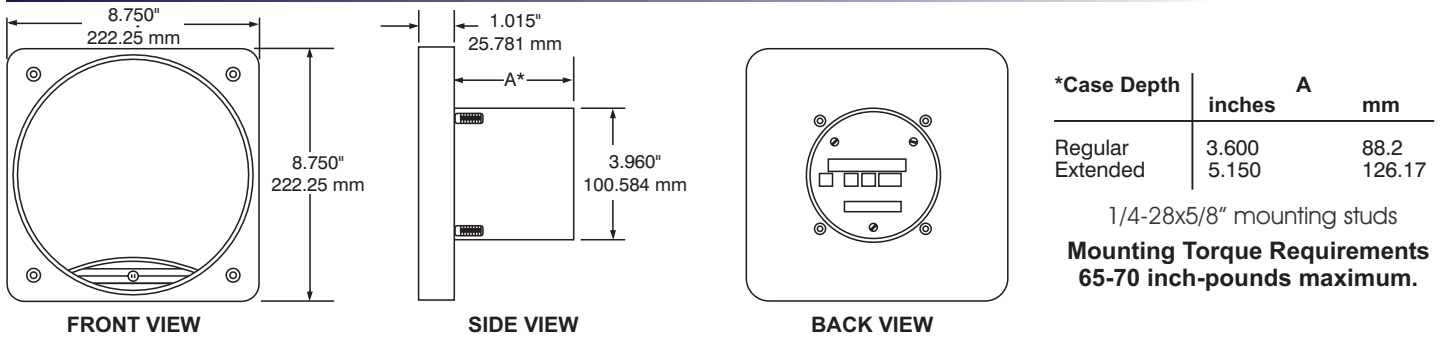
(4) BG-241, (B) zero at bottom, (Y) Yellow, (4) 4 relays, (P) Programmable setpoint hysteresis, (A) DC volts input, (AM) full scale is 0.05 volts, (1)120 VAC 50/60 Hz power, (F) 4-20 mA DC isolated retransmit, (A) RS232 communication, (P) peak/valley hold, (T) trend indicator, (T) terminal strip connector,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

DIMENSIONS

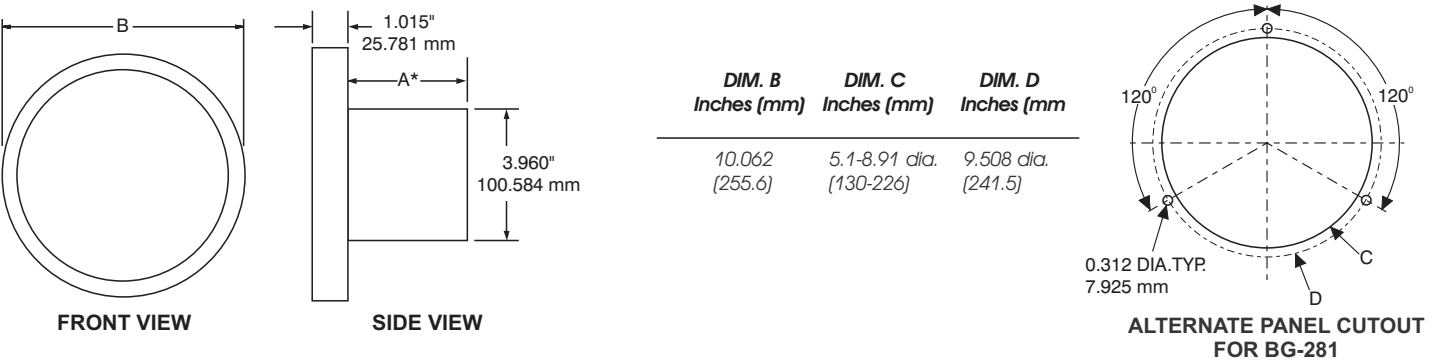
BG-241TC



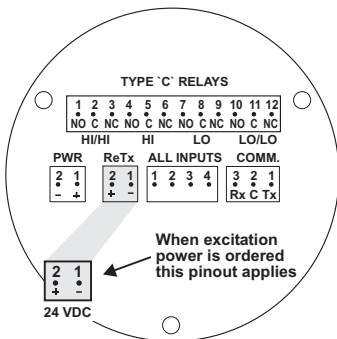
BG-261TC



BG-281TC



TERMINAL CONNECTIONS



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

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

MAGNETIC PICKUP
 (1) - (2) +

THERMOCOUPLE
 Provided w / flying lead and plug

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

AC Inputs have 6/32 barrier lug connections.

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

EXCITATION POWER 24 VDC
 (1) - (2) +

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

RELAY CONTACTS*

(1) AL 1 N.O.	(2) AL 1 C.
(3) 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.

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

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

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 BarGaps.



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BG Series Circular BarGraphs™

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

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

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

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

FEATURES

High resolution 101 segment LED bar array

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

Programmable functions

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

Form-C relay outputs

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

Peak and Valley hold

**Trend indication for signal
Direction**

Communication

RS-232, RS-485, SCADA, DCS

Analog retransmit

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

Retrofit sizes for:

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

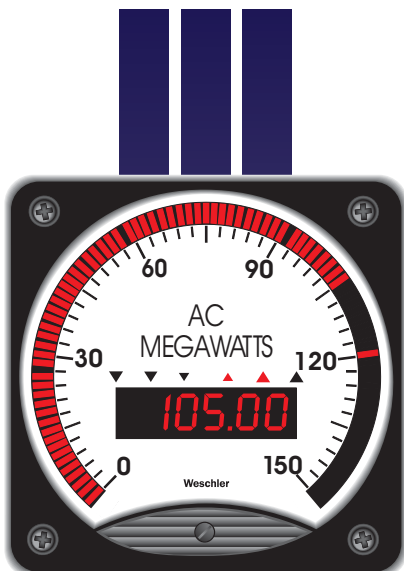
Crompton 075/077 4½" and 8¾" switchboard meters

Ashcroft, Heise 6" and 8" gauges

Dixson BW051/P, Weschler K241

Versatile selection of inputs

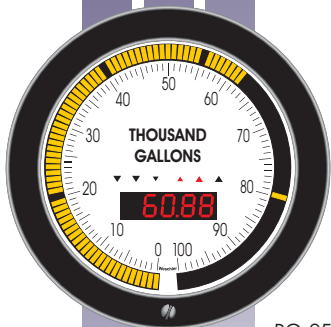
- | | |
|-----------------|--|
| DC | Up to 5A & 250V |
| AC | Up to 5A & 250V |
| Thermocouple | J, K, T |
| RTD | 10Ω Cu or 100Ω Pt |
| Power | Watts, VARS, power factor, phase angle |
| Frequency | Line or mag pickup |
| Process Control | ma, V |



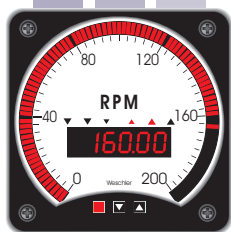
BG-261



BG-281



BG-251



BG-241



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SPECIFICATIONS

Bar Display

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

Digital Display

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

Response Time

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

Temperature

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

Input Isolation

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

Sensor Power

24V DC excitation power @ 90mA

Setpoints

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

Retransmit Signals

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

Communication

RS232
 RS485

Power

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

Input Impedance

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

Input Overload Ratings

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

Input Sensitivities [ANSI C39.1]

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

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

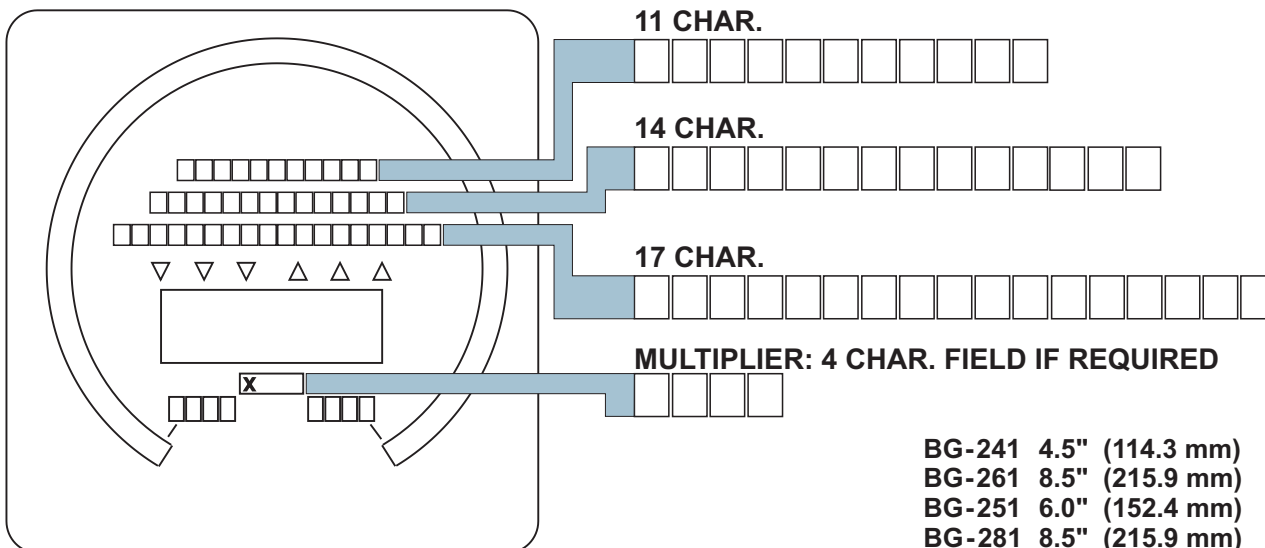
Temperature:
 Thermocouple °C °F
 Type J -210 to 795 -346 to 1463
 Type K -270 to 851 -454 to 1563
 Type T -270 to 400 -454 to 752
 Accuracy 0.1% of full scale ± 1 count
 Linearity 50 point, 0.1%

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

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

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

ARTWORK GUIDELINES



ORDERING GUIDE

SAMPLE PART NUMBER (SEE BOTTOM OF PAGE FOR EXAMPLE)

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

PART NUMBER

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

TYPE:

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

BAR ZERO POINT:

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

DIGITAL DISPLAY:

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

SETPOINTS:

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

SETPOINT HYSTERESIS:

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

INPUT TYPE:

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

LED COLOR: * Includes 2 step dimming

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

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

- T = Trend Indicator
- X = NA

- P = Peak/Valley Hold
- X = NA

COMMUNICATION:

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

RETRANSMIT:

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

POWER:

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

*Max ambient 45°C

INPUT LEVEL:

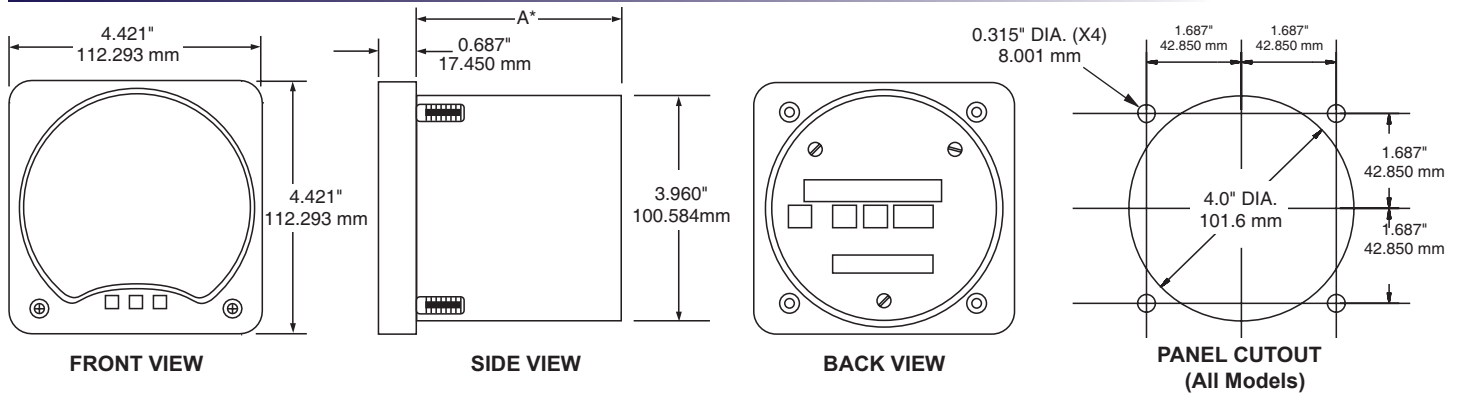
See input Level Matrix Guide

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

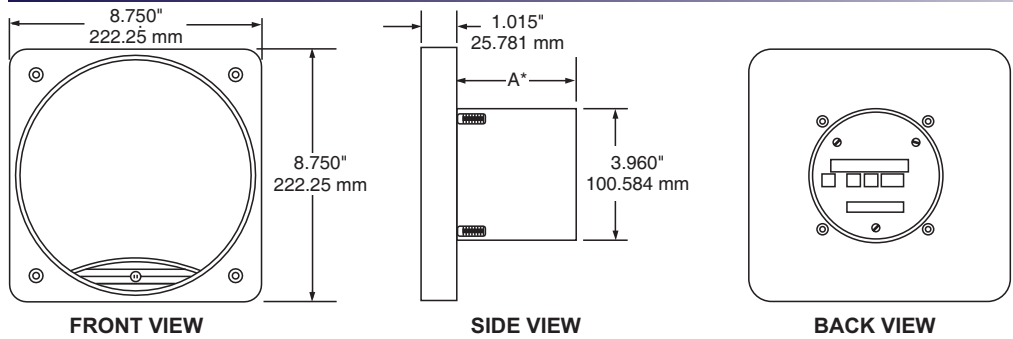
(4) BG-241, (B) zero at bottom, (3) 3 1/2 digit, (N) Hi/Lo setpoint, (1) 1% of F.S. setpoint hysteresis, (A) DC volts input, (A-M) full scale is 0.05 volts, (1)120 VAC 50/60 Hz power, (F) 4/20 mADC isolated retransmit, (A) RS232 communication, (P) peak/valley hold, (T) trend indicator, (T) terminal strip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

DIMENSIONS

BG-241



BG-261

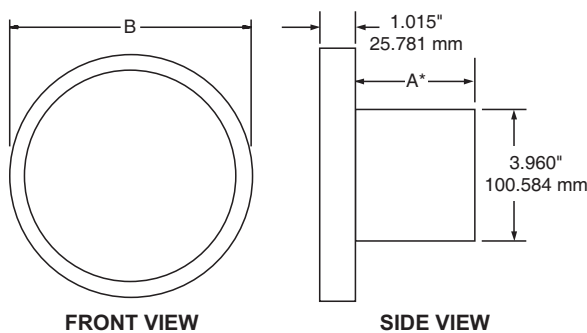


*Case Depth	A	
	inches	mm
Regular	3.600	88.2
Extended	5.150	126.17

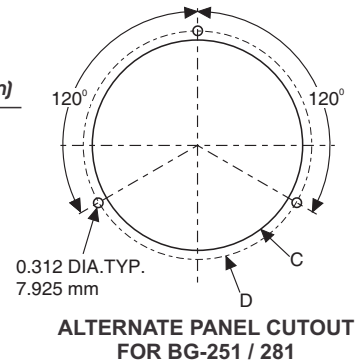
1/4-28x5/8" mounting studs

Mounting Torque Requirements
65-70 inch-pounds maximum.

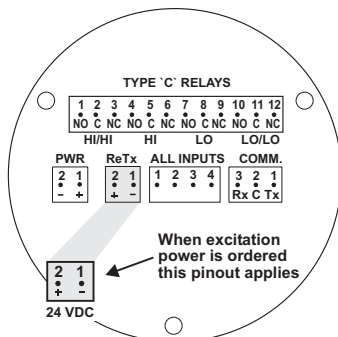
BG-251 / 281



METER TYPE	DIM. B Inches (mm)	DIM. C Inches (mm)	DIM. D Inches (mm)
BG-251	7.562 (192.1)	5.1-6.55 dia. (130-167)	6.880 dia. (174.75)
BG-281	10.062 (255.6)	5.1-8.91 dia. (130-226)	9.508 dia. (241.5)



TERMINAL CONNECTIONS



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

INPUTS

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

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

MAGNETIC PICKUP
(1) - (2) +

THERMOCOUPLE
Provided w / flying lead and plug

AC LINE FREQUENCY

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

AC Inputs have 6/32 barrier lug connections.

POWER

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

(1) - (2) +

COMMUNICATIONS

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

RELAY CONTACTS*

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

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

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



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BG Series AC Power Circular BarGraphs

ACP4

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.

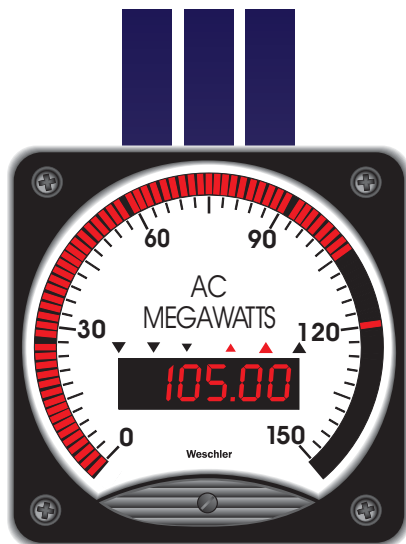
Weschler BarGraph Watt and Varmeters can replace analog instruments such as the Weschler/Westinghouse KP-241, KP-261, KV-241 and KV-261. The analog backplate option duplicates the Westinghouse terminal stud connections. The BG-241 and BG-261 panel footprint and mounting also match other 4½" and 8¾" switchboard 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.

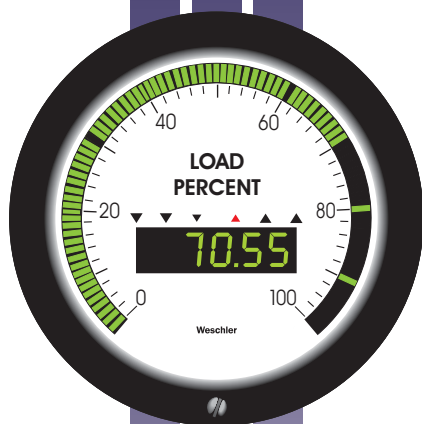
FEATURES

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

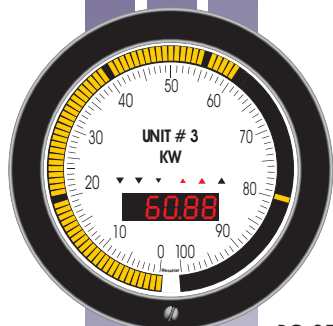
The Weschler ACP4 Power Series BarGraph is a self-contained instrument. No external current transformers, voltage transformers or phase shifters are required to measure up to 240V and 10A. However correct installation is critical. Consult the phaser diagrams to determine the proper configuration and 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.



BG-261



BG-281



BG-251



BG-241

FEATURES

Wattmeters and Varmeters

	Standard	Enhanced
Measurement Range	± 19999	-9999 to 50000 (Neg Autoscale)
Potential Range	120, 240 V rms	120, 240 V rms
Self-Contained Current Maximum	10 A rms	10 A rms
Numeric Display Characters	4½ Digit	4¾ Digit
Numeric Display Color	Red	Red, Green or Amber
Bar Color	Red	Red, Green or Amber
Bar Segments	101	101
Bar Resolution	1%	1%
Display Brightness	Fixed	Two Level Programmable
Alarm Hysteresis	0.5, 1 & 2% FS	0.0-10.0% FS
Relays	2 or 4 Form C	2 or 4 Form C
Relay Latching Mode	N/A	Yes
Relay Fail-safe Mode	N/A	N/A
HI - LO Alarms	2 HI, 2 LO	Individually Programmable
Analog Retransmit	256 Step Resolution	65000 Step Resolution

SPECIFICATIONS

Inputs

Potential (Voltage)	
Nominal	120, 240 Vac
Maximum Continuous	150, 300 Vac
Momentary Overload	175, 325 Vac
Input Impedance	1MΩ
Current	
Nominal	10 A
Maximum Continuous	12.5 A
Momentary Overload	100 A for 500 ms
Input Impedance	Internal CT, 0.1Ω
Frequency	50/60 or 400 Hz
Response Time	1 sec.

Uncertainty

Display (W or VAR)	± 0.5% Full Scale, ± 1 count
Setpoints	± 0.1% Full Scale, ± 1 count
Temperature Coefficient	
Standard	± 1.3 ppm / °C
Enhanced	± 0.5 ppm / °C

Bar Display

Scale Length	
BG-241	285°
BG-261/281	270°
BG-251	270°/345°

Digital Display

Resolution	
Standard	0.005%
Enhanced	0.002%
Height	
BG-241	0.4" (10.16 mm)
BG-261/281	0.8" (20.32 mm)
BG-251	0.56" (14.22 mm)

Communications

RS-232	9600 baud, 1 start bit, 1 stop bit, no parity, no flow control
RS-485	Half duplex, 9600 baud, 1 start bit, 1 stop bit, no parity, no flow control
Protocol	Party Line

AC Sensing Method

Electronic

Setpoint Relays

Quantity	2 or 4
Contact Arrangement	SPDT (Form C)
Type	
Standard	2 HI (ascending trip) and 2 LO (descending trip)
Enhanced	All programmable HI or LO
Contact Ratings	5A, 120/240 Vac or 30 Vdc resistive 1/14 HP 120/240 Vac inductive
Contact Protection	MOV clamp
Hysteresis	Selectable for all setpoints collectively

Analog Retransmit

Standard	256 step resolution, voltage source 0-1, 4-20, 10-50 ma; 0-5, 1-5 V
Enhanced	65000 step resolution, current source 0-24 ma, 0-10 V programmable

Environment

Operating Temperature	-20 to 60°C (Standard) -20 to 50°C (Enhanced)
Humidity	0- 95% non-condensing. Condensation allowed with conformal coating option.
Storage Temperature	-40 to 85°C

Meter Power

Nominal	Tolerance	Current (Maximum)	
		Standard	Enhanced
12 V DC	10-15 V	225 ma	825 ma
24 V DC	18-36 V	125 ma	420 ma
28 V DC	18-36 V	100 ma	350 ma
48 V DC	36-72 V	65 ma	210 ma
250 V DC	± 10%	12 ma	25 ma
120 V AC	± 10% (50/60 Hz)	2.5 VA	12.5 VA
240 V AC	± 10% (50/60 Hz)	1.3 VA	12.3 VA
110-250V DC / 85-264V AC		6 VA (3 W)	13 VA (8W)
Fuse		Plug-in, rear panel accessible	

Connections

BG Backplate	#6 screw terminals for AC signals; Phoenix plug in connectors for Relays, Analog Retransmit & Communications (mating connector supplied)
--------------	---

ORDERING GUIDE

PART NUMBER

Specify scale markings and legend when ordering

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

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

*Enhanced only

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)

INPUT TYPE:

- L = Watts single phase
- H = Watts three phase
- V = VARs single phase
- Z = VARs three phase
- Y = VARs three phase for external phase shifter (4-wire only)
- G = Power factor (display 1.00 max, specify lag on right or left)

Specify:

CT ratio _____ Full scale Watts value _____

PT ratio _____ External phase shifter _____

System Delta or WYE

DIGIT COLOR**:

- B = Enhanced Red
- X = Standard Red (BG-241 only)
- G = Enhance Green
- A = Enhanced Amber
- M = Red with Multi-color bar *
- S = Special

*Enhanced only

- Y = Spraytight Front & Rear (241/261)
- Z = Spraytight Front (241/261)
- K = Conformal Coating
- A = Custom Artwork
- X = NA

- T = Trend Indicator
- X = NA

- P = Peak/Valley Hold
- X = NA

COMMUNICATION:

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

RETRANSMIT:

- A = 4-20mA DC into 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 = 0-10V across 500Ω (isolated) *
- K = 0-1V across 50Ω (isolated) *
- M = 1-5V across 250Ω (isolated) *
- X = None

*Enhanced only.

Isolated requires AC power

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

*Max ambient 45°C

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

**bar color matches digit color unless specified on order

EXAMPLE:

4	B	4	N	1	H	3	3	1	F	A	P	T	Y	X
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

(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) 4-20 mADC 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.



**WESCHLER
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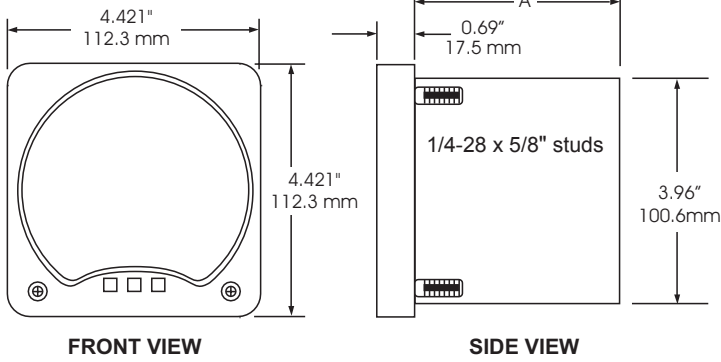
16900 FOLTZ PARKWAY - CLEVELAND, OH 44149

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

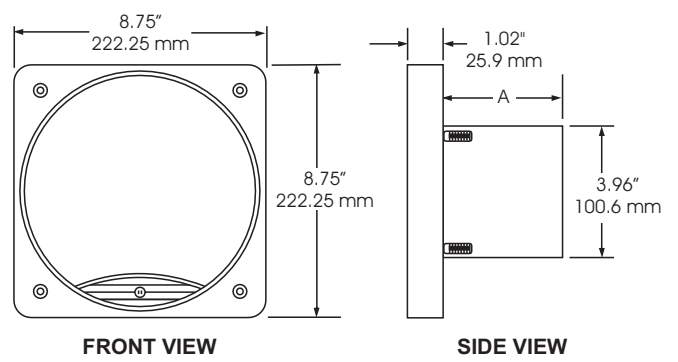
www.weschler.com e-mail: sales@weschler.com

DIMENSIONS

BG-241

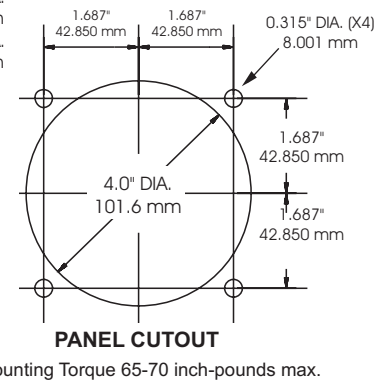
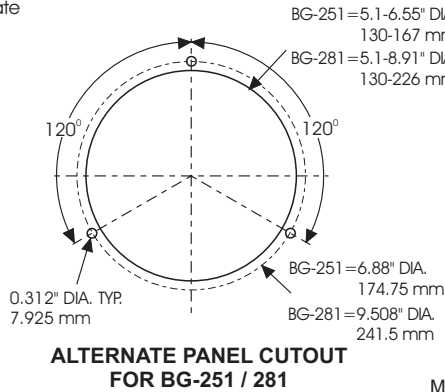
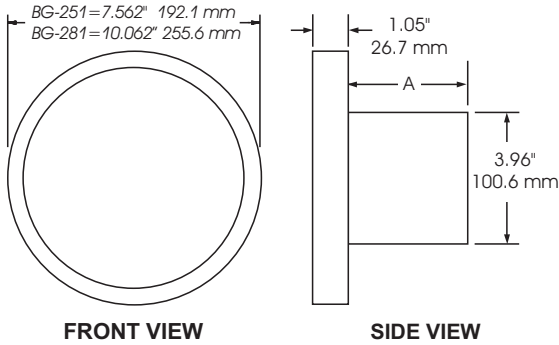


BG-261

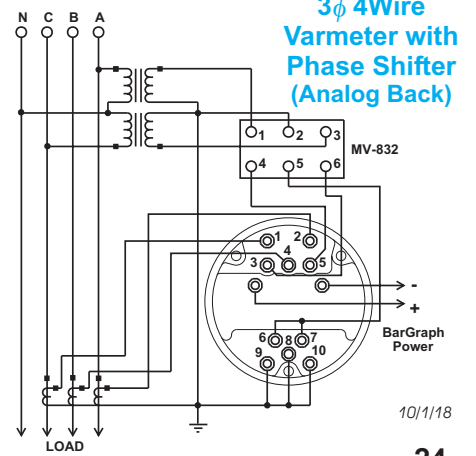
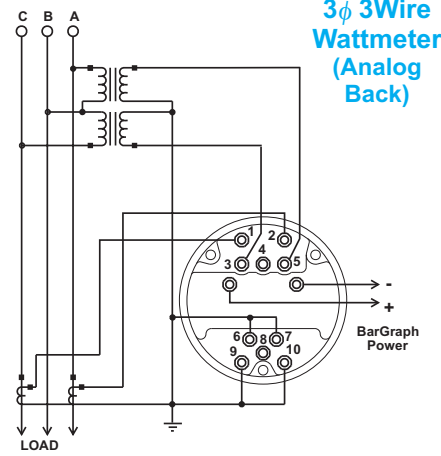
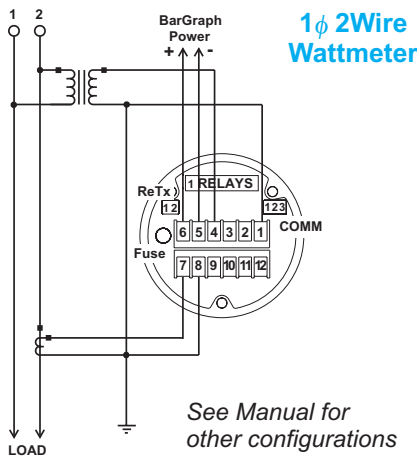
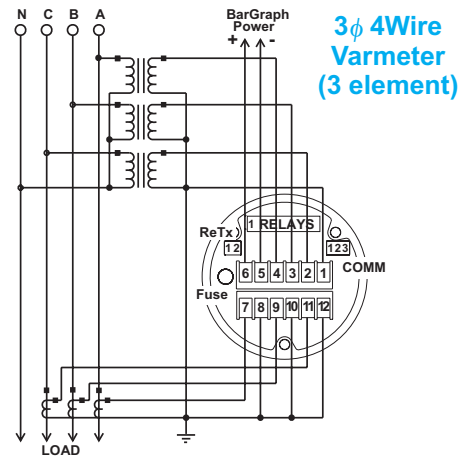
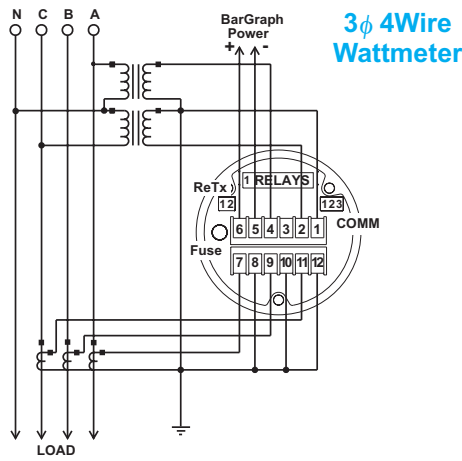
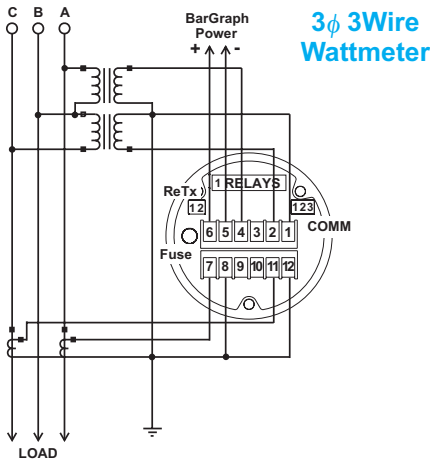


A = 5.15" (130.8mm). Add 0.6" (15mm) for screw terminals or 0.85" (22mm) for studs on analog backplate

BG-251 / 281



TERMINAL CONNECTIONS



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 Dixon 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

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

Trend indication for signal direction

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

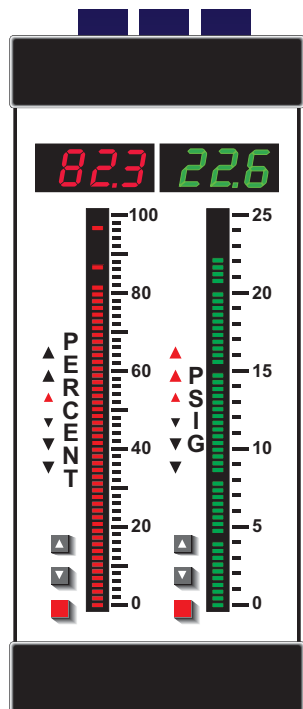
RTD 10Ω Cu or 100Ω Pt

Serial ASCII

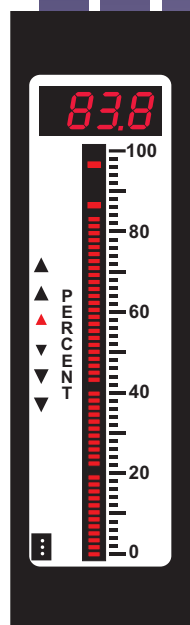
Frequency Line or mag pickup

Process Control mA, V

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

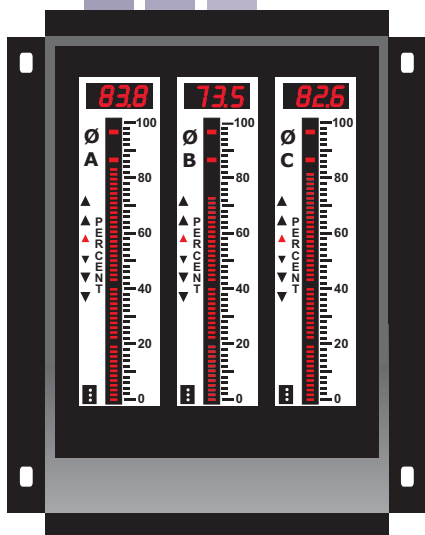


PG202



BD101

BD101
MULTI-CHANNEL



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

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

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

Communication

RS232	
RS485	bi-directional

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).

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

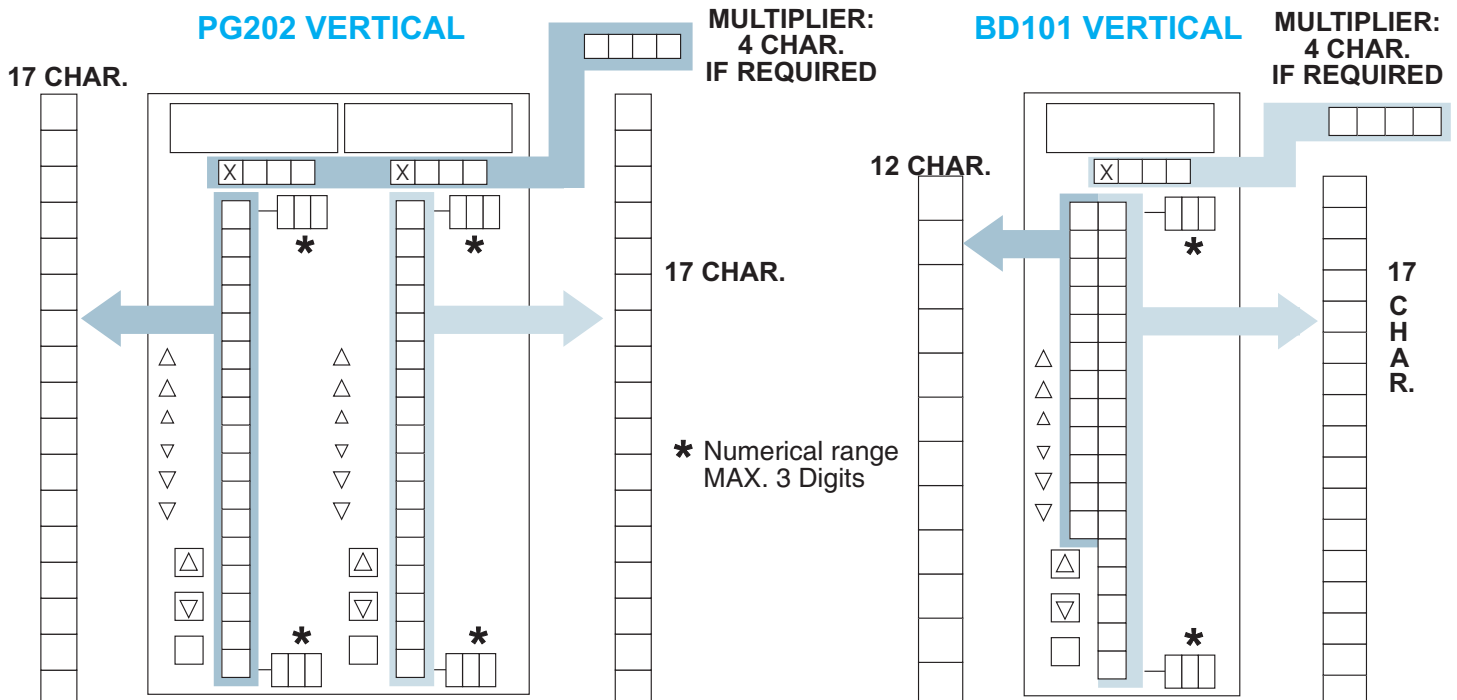
Input Overload Ratings

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



ORDERING GUIDE

SAMPLE PART NUMBER (SEE BOTTOM OF PAGE FOR EXAMPLE)

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

PART NUMBER

<p>TYPE: K = BD101 - 10" Vertical BarGraph V = PG101 - Single Multipoint BarGraph W = PG202 - Dual Multipoint BarGraph</p> <p>BAR ZERO POINT: B = Zero at Bottom H = Zero at 50% mid scale F = Zero at F.S. S = Special /off scale zero</p> <p>DIGITAL DISPLAY: 3 = 3 digit Display (PG101/202) 3-1/2 digit Display (BD101/Multiple) 4 = 4 digit Display (PG101/202) 4-1/2 digit Display (BD101/Multiple) X = Not required S = Special</p> <p>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</p> <p>SETPOINT HYSTERESIS: 1 = 1% of F.S. (standard) 2 = 2% of F.S. 5 = 0.5% of F.S. X = Not required S = Special</p> <p>INPUT TYPE: A = DC Volts B = DC Amps P = 4-20mA DC (input level AK) N = 1-5V DC (input level AV) M = 10-50mA DC (input level BA) C = AC Volts RMS D = AC Amps RMS F = Line Frequency Q = MAG Pickup Frequency J,K,T= Thermocouple Type R = RTD: Specify 3 or 4 wire & alpha <input type="checkbox"/> 100 Ohm Pt <input type="checkbox"/> 10 Ohm Cu S = Special U = Serial ASCII (requires com. type A, B or C in Communication options)</p>	<p>LED COLOR: G = Green only A = Amber only X = Red only M = Multicolor Special</p> <p>K = Conformal Coating T = Terminal Strip Connector A = Custom Artwork X = NA S = Special</p> <p>T = Trend Indicator X = NA</p> <p>P = Peak/Valley Hold X = NA</p> <p>COMMUNICATION: A = RS232 C = RS485 Bi-directional X = None</p> <p>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</p> <p>POWER: 1 = 120V AC 2 = 240V AC</p> <p>A = 8-30V AC B = 9-36V DC C = 18-75V DC D = 110-300V DC / 85-264V AC E = 4.5-9VDC</p> <p>INPUT LEVEL: See input Level Matrix Guide</p>
---	--

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) 4/20mADC (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

ORDERING INFORMATION: LEFT SIDE

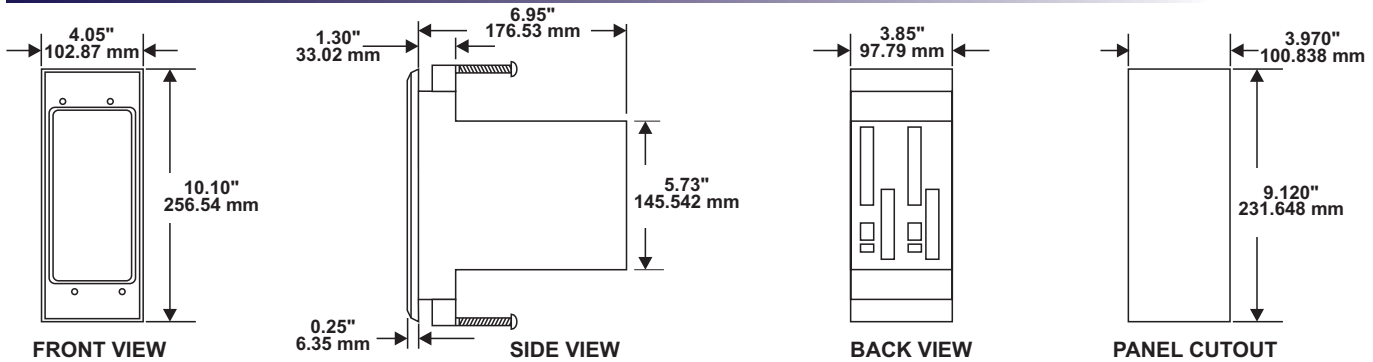
Input: _____ to _____ Eng. Units: _____
 Bar Display*: _____ to _____
 (*State % of bar for each different color)
 Digital Display _____ to _____ Color _____
 legend _____

ORDERING INFORMATION: RIGHT SIDE

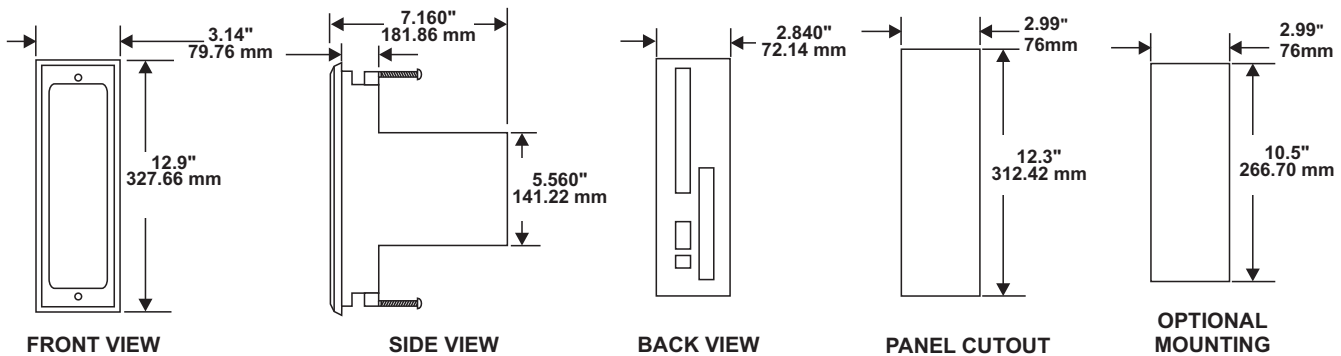
Input: _____ to _____ Eng. Units: _____
 Bar Display*: _____ to _____
 (*State % of bar for each different color)
 Digital Display _____ to _____ Color _____
 legend _____

DIMENSIONS

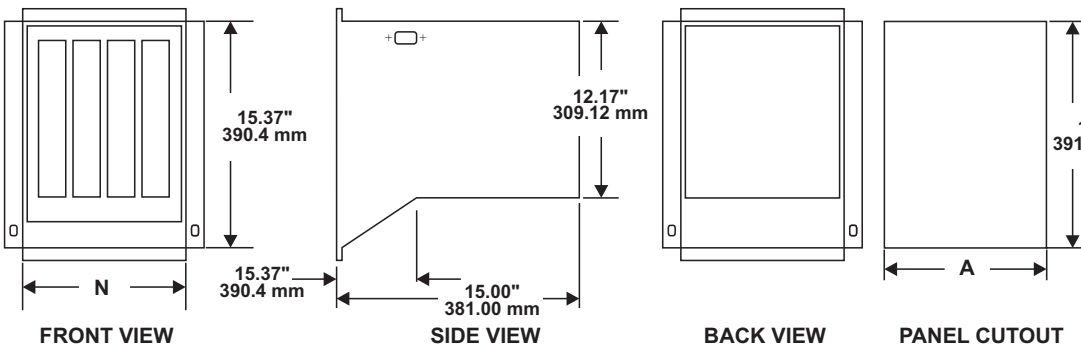
PG-101/202



BD-101



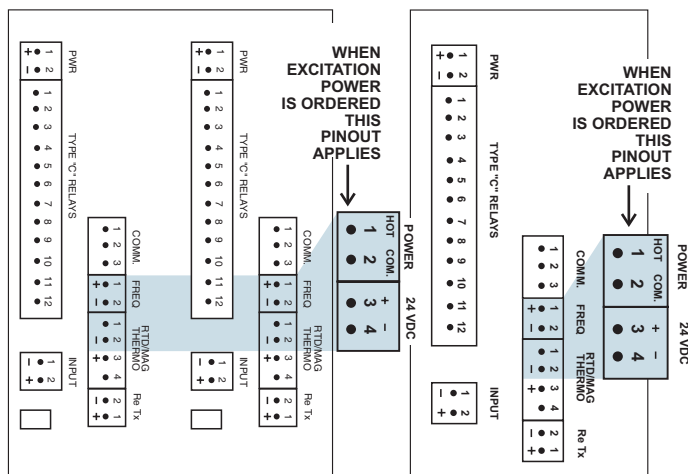
BD-101 Multiple Channel



Number of Instruments	A Inches	(Millimeters)
4	11.15	(283.21)
5	13.47	(342.14)
6	15.65	(397.51)
9	22.46	(570.48)

Number of Instruments	N Inches	(Millimeters)
4	11.12	(282.45)
5	13.44	(341.38)
6	15.62	(396.75)
9	22.43	(569.72)

TERMINAL CONNECTIONS



PG101/202

BD101

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

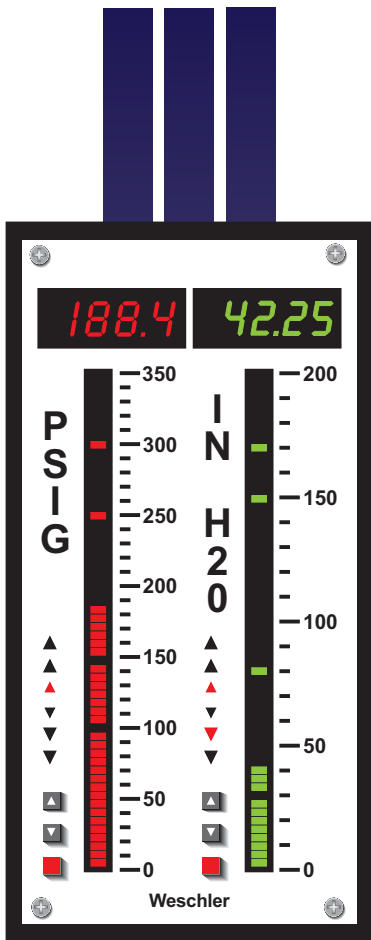
(1) VAC (hot side)
(2) VAC (common)
(3) 24 VDC +
(4) 24 VDC -

RELAY CONTACTS*

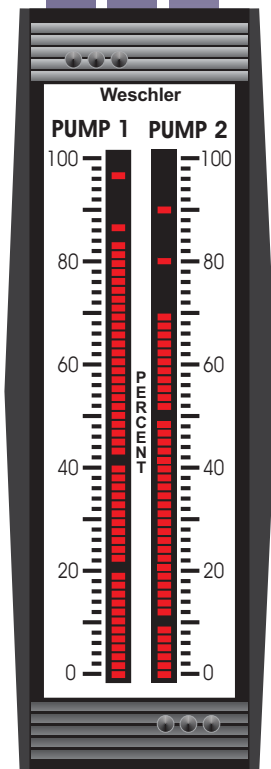
(1) Hi/Hi N.O. (2) Hi/Hi C.
(3) Hi/Hi N.C. (4) Hi N.O.
(5) Hi C. (6) Hi N.C.
(7) Lo N.O. (8) Lo C.
(9) Lo N.C. (10) Lo/Lo N.O.
(11) Lo/Lo C. (12) Lo/Lo N.C.

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

BG Series Dual BarGraphs™



PC-202



BI-1251

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



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

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

Power

(each side)
120/240V AC $\pm 15\%$
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)

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

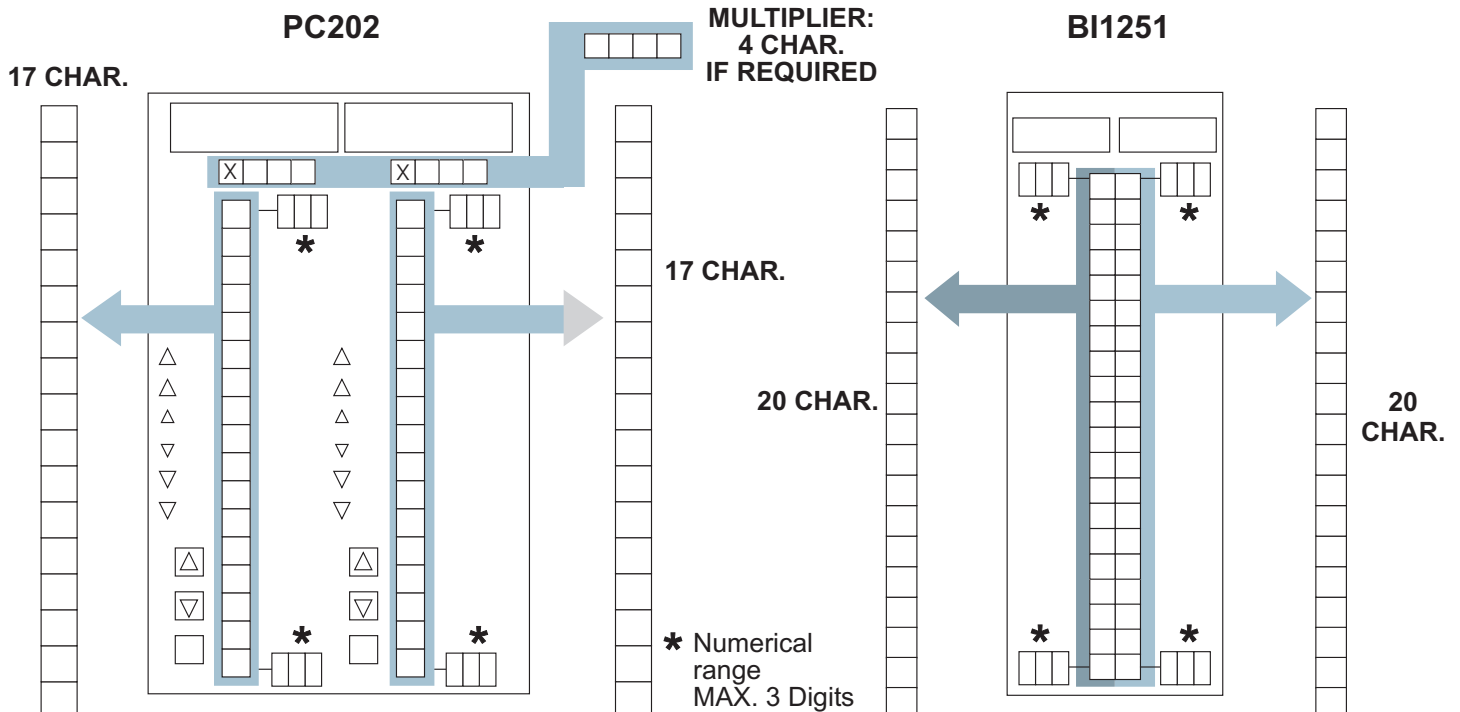
Input Isolation

DC Differential

DC Input Sensitivities

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

ARTWORK GUIDELINES



ORDERING GUIDE

SAMPLE PART NUMBER (SEE BOTTOM OF PAGE FOR EXAMPLE)

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

PART NUMBER

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 _____

LED COLOR:
 G = Green only
 A = Amber only
 X = Red only

K = Conformal Coating
 T = Terminal Strip Connector
 A = Custom Artwork
 X = NA
 S = Special

T = Trend Indicator (202 only)
 X = NA

P = Peak/Valley Hold
 X = NA

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

*Available on one side of 202 only

RETRANSMIT:**
 A = 4-20 mADC into 250 ohm
 B = 0-1 mADC into 1000 ohm
 C = 1-5 VDC
 D = 0-1 VDC
 F = 4-20 mA DC, 700 ohm max. (isolated)
 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

INPUT LEVEL:
 See input Level Matrix Guide

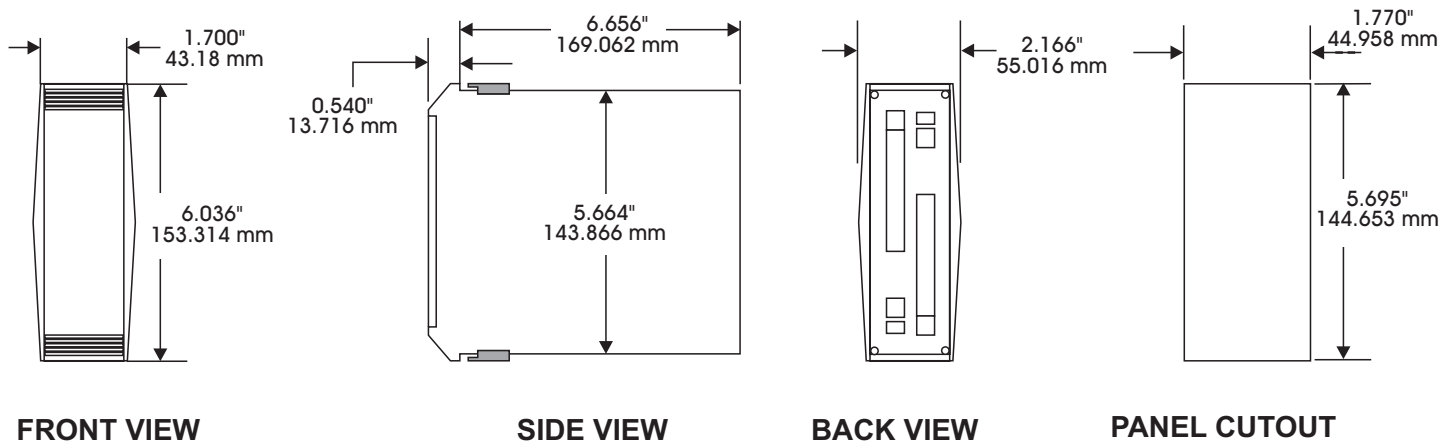
** Available on one side only. Isolated retransmit requires AC power.

ORDERING INFORMATION: RIGHT SIDE

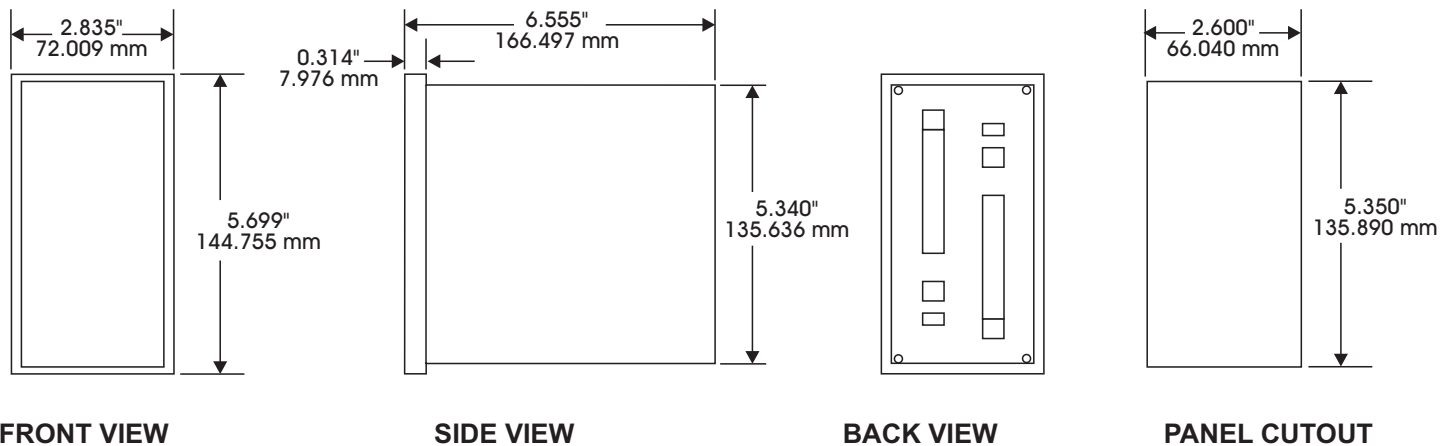
Input: _____ to _____ Eng. Units: _____
 Bar Display: _____ to _____
 Digital Display _____ to _____ Color _____
 legend _____

DIMENSIONS

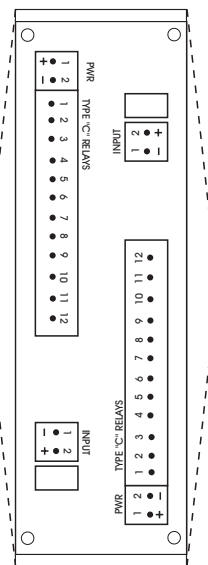
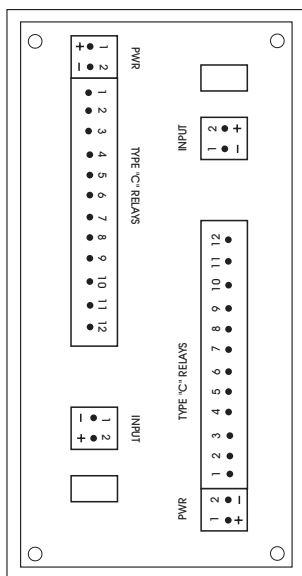
BI-1251



PC-202



TERMINAL CONNECTIONS



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) Lo/Lo N.O.
 (11) Lo/Lo C. (12) Lo/Lo N.C.

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

9/1/12

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



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BF6400 SINGLE & DUAL CONCENTRIC BARGRAPHS



BF6402 with Attachable Button Station option

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

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:	50µA-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 50°C, <95% RH, non-condensing.
Storage Temperature:	-40°C to 85°C.
Weight:	5.2 lbs. (2.36kg)

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

Contact Weschler for 10CFR50
Nuclear Qualified models



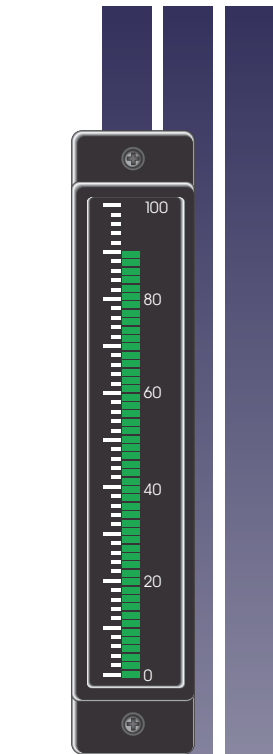
Mounting hardware attaches to top & bottom or sides

Bowmar Series Single Edgewise BarGraphs™

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.

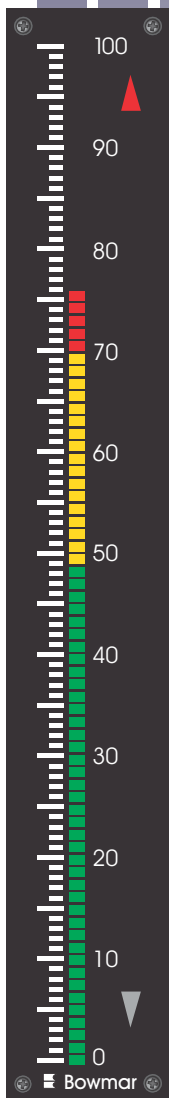
The Bowmar BarGraph instruments accept DC process inputs, either voltage or current. Other BarGraph models can be configured for a wide variety of input signals. Retrofit sizes are available for most panel and switchboard meters in use today. These instruments satisfy the high quality standards set forth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



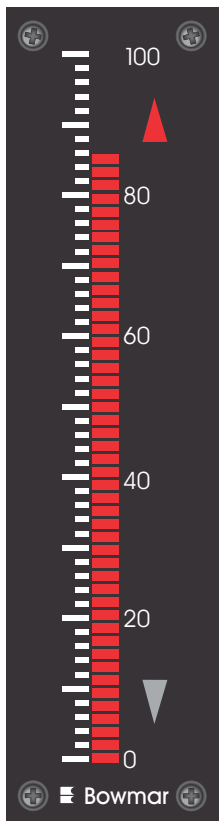
APM-500



APM-100



APM-800
with MX option



APM-600

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

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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 $\pm 20\%$ at Zero and Full Scale

Power Requirement

5VDC $\pm 0.25V$, 400mA typical

Input Impedance

$\geq 100k\Omega$ typical, 50mV current shunt for most ammeters

Linearity

0.5% (from 0 to 50°C)

Gain Temperature Coefficient

$\pm 0.015\%/^{\circ}C$ maximum

Zero Temperature Coefficient

$\pm 0.01\%/^{\circ}C$ maximum

Under-range

150% of input

Over-range

250% of input

Display Modes

Bar and Point

Power Supply Sensitivity

$\pm 0.1\%/volt$ maximum

Input Bias Current

100 nA typical

Common Mode Rejection

60dB typical

Standard Scales

0-10
0-50
0-100
-10/0/+10
-50/0/+50
-100/0/+100
Available with % signs
Over 2300 scales available

Connections

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

OPTIONS MATRIX GUIDE

Option Code	100	150		500	600	800	DESCRIPTION
A	●					●	Differential Input, DC volts
F	●	●		●	●	●	Increased Damping
G	●	●		●	●	●	Custom Input Range
Z	●	●					Black Metal Bezel
X				●	●		Drip Proof Bezel
P					●	●	Red Filter
Gr	●	●		●	●	●	Green Display
YL	●	●		●	●	●	Yellow Display
MX	●	●		●	●	●	Mixed Display (Red, Green, Yellow)
BL	●	●					Blue Display
WH	●	●					White Display
UN	●	●					Sunlight Readable
S	●	●		●	●	●	Library Scales (Scale #)

● = Available

ORDERING GUIDE

SAMPLE PART NUMBER

(SEE BOTTOM OF PAGE FOR EXAMPLE)

A	P	M	1	0	0	V	V	0	1	0	S	1				
---	---	---	---	---	---	---	---	---	---	---	---	---	--	--	--	--

PART NUMBER

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

TYPE:

APM1 = 3" LED BarGraph
 APM5 = 5" LED BarGraph, with bezel
 APM6 = 5" LED BarGraph
 APM8 = 10" LED BarGraph
 BG1 = 3" LED BarGraph
 BG6 = 5" LED BarGraph

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)

VERTICAL	HORIZONTAL	RANGE
S12	S13	0-10
S8	S11	0-50
S3	S1	0-100
S3P	S1P	0-100%
S136	S137	-10, 0, +10
S113	S112	-50, 0, +50
S4	S2	-100, 0, +100
S242	S10	Tick Marks Only
Sbnk	Sbnk	Blank
SH	SH	Custom Artwork

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)

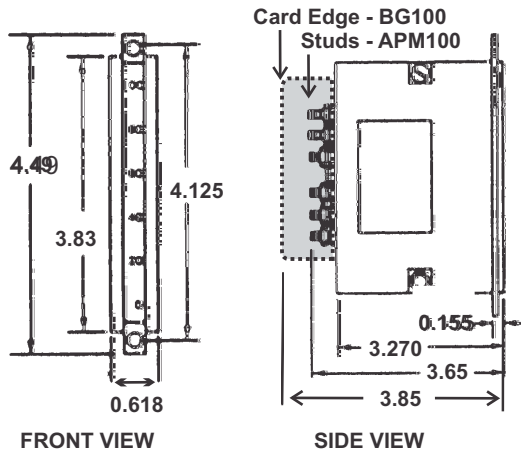
EXAMPLE:

A	P	M	1	0	0	V	V	0	1	0	S	1				
---	---	---	---	---	---	---	---	---	---	---	---	---	--	--	--	--

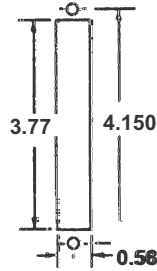
(APM1) 3" LED BarGraph, (00) DC input, (VV) Volts input sensitivity, (010) 0-10 input level, (S1) 0-100 horizontal scale.

DIMENSIONS

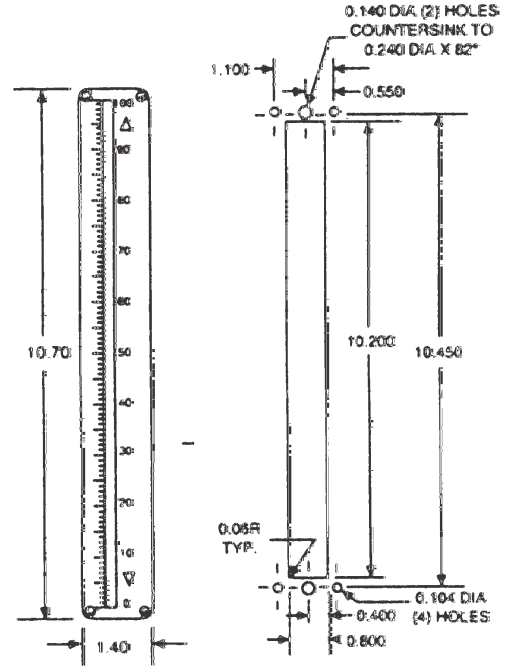
APM 100



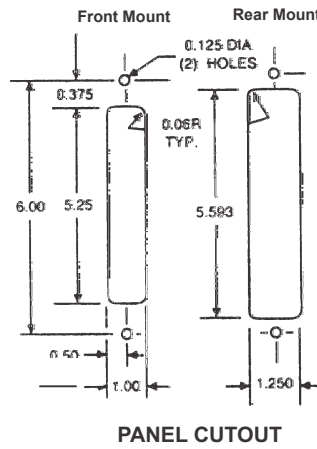
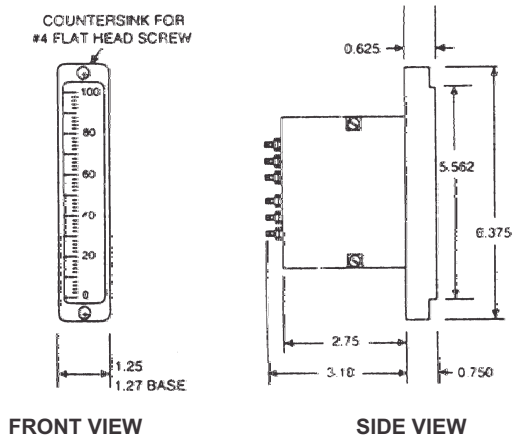
0.140 dia
2 holes
for 4-40 screws



APM 800



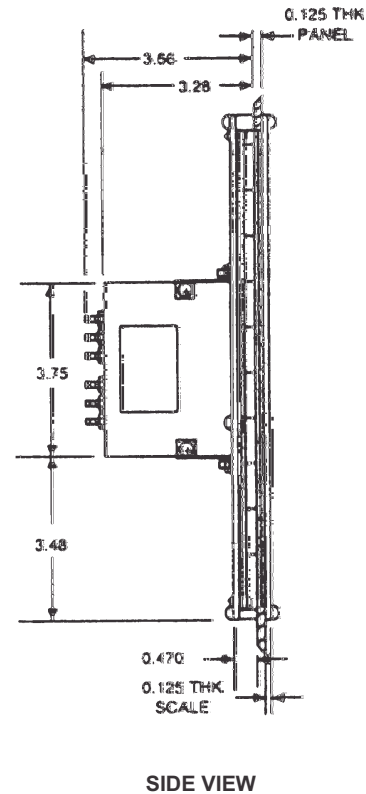
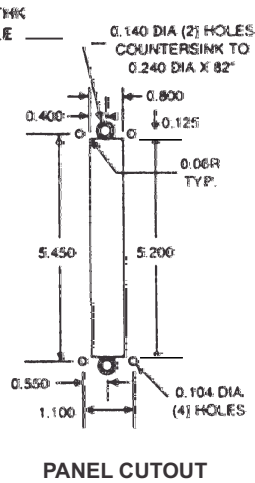
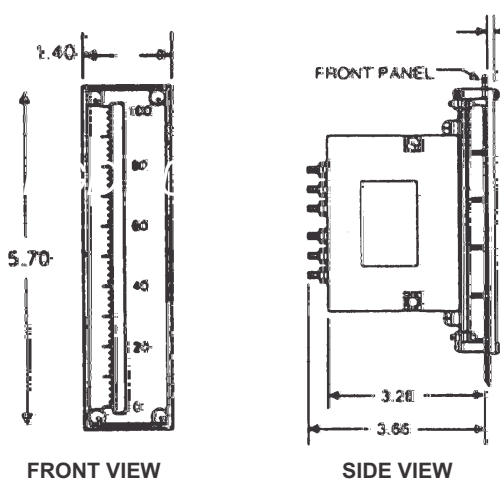
APM 500



FRONT VIEW

PANEL CUTOUT

APM 600



SIDE VIEW

2/22/18

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

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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



BG241 GPI with optional Trend & Alarm functions. Green bar indicates gate position. Yellow bar indicates gate limit. Single illuminated segment shows the adjustable alarm level.

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.

S P E C I F I C A T I O N S	Bar Display	50 segment LED, 2% resolution
	BG-241	285°
	BG-261/281	270°
	Digital Display	5 digit -9999 to 20000
	Resolution	0.01% of full scale
	BG-241	0.4" high (10.16mm)
	BG-261/281	0.8" high (20.32mm)
	Differential DC Input	Accuracy 0.3% of full scale
	Input Overload	200%
	Impedance	2MΩ for DCV 250Ω for 4-20mA
Response Time	<600ms, zero to full scale	
Temperature	Operation 0° to 50°C, <95% RH (non-condensing)	
Storage	-40° to 85°C	
Setpoints	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.	
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

B

X

X

T

T = TriColor bar

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

MISCELLANEOUS OPTIONS:

- A = Analog Backplate
- K = Conformal Coating
- T = Terminal Strip Connector
- A = Custom Artwork
- Y = Spraytight Face

- T = Trend Indicators
- X = No Trend Indicators

X = NA

X = NA

RETRANSMIT:

- C = 1-5V DC
- D = 0-1V DC
- F = 4-20mA DC
- G = 0-1mA
- 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

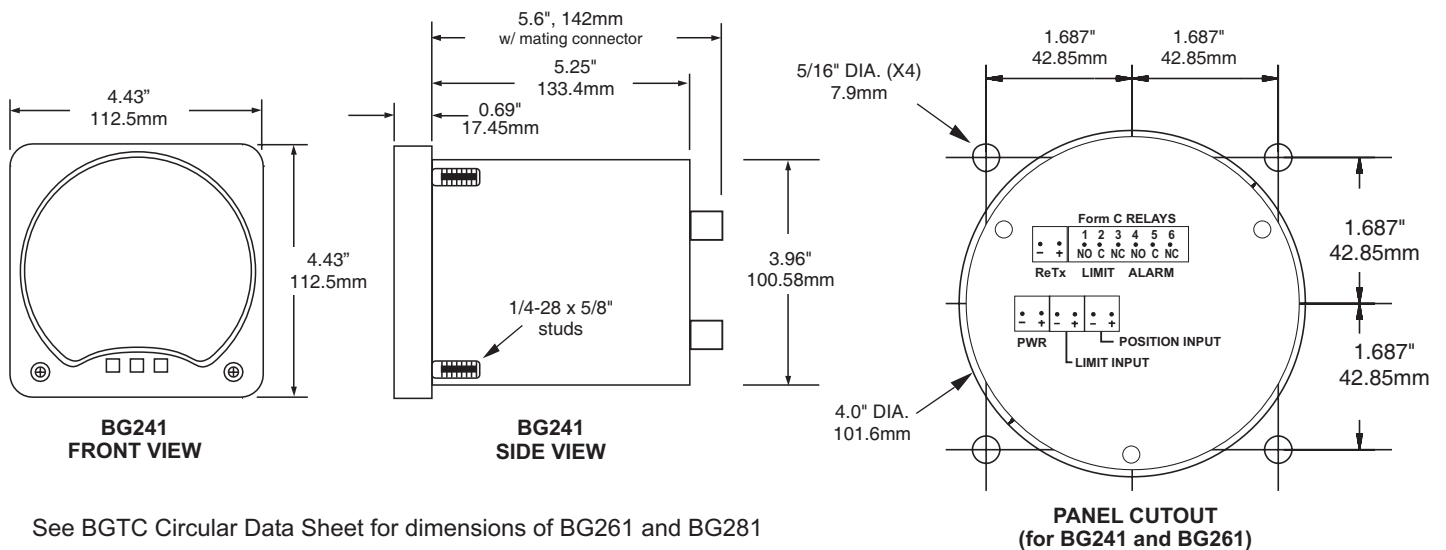
*Max ambient 45°C

EXAMPLE:

4	B	Y	2	P	G	P	1	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 mADC isolated retransmit, (X), (X), (T) trend indication, (T) terminal strip connector, (T) TriColor

DIMENSIONS & CONNECTIONS



See BGTC Circular Data Sheet for dimensions of BG261 and BG281

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WESCHLER INSTRUMENTS BG Series BarGraph Input Level Matrix Guide

NOTE: If full scale level is not listed, use next highest full scale value.
 Example: Input Type = A (DC volts), input level required = 7 volts. Use code AW and list 0 to 7 volts.

- ◆ Full scale reading available for the indicated input type.
- External resistor required.

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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					◆						◆	◆	◆						

CONTACT
FACTORY
FOR
AC
POWER
INPUTS

CONTACT FACTORY

* 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



**Standard Brightness
(Control Room)**

**Super Bright
(Sunlight Readable)**

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



Standard Connectors

Terminal Strip Option

Analog Backplate Option

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 Watts
AC Voltage	AC VAR
AC Current	Power Factor
AC Line Frequency	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.

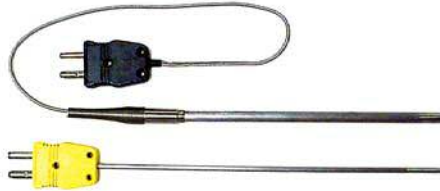


Sensors

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.



RTD

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



Infrared Non-Contact

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



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,
 magneto-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.



Position, humidity and other types of sensors also available.

Enclosures & Assemblies

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



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.



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.



Single, dual, and triple displays

- Field Configurable
- Measures True RMS Current and Voltage
- Accuracy: $\pm 0.2\%$ of Rdg. $\pm 0.1\%$ 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.

2493



Made in USA

AC AMP/VOLT/FREQUENCY SINGLE FUNCTION

To Order—Insert Number Code for Each Letter to Select Catalog Number.
Order Example: 2491-21-01-1-AHD-1-1

A - B - C - D - E - F - G

A	2491	Single Function
B	Function	
	11	Amp AC
	21	Volts AC
	81	Frequency
C	AC Input Rating	
	01	1 Amp
	05	5 Amp
	10	150 Volt
	20	300 Volt
	30	600 Volt
D	Frequency	
	1	50/60 Hz
	2	400 Hz
E	Analog Output	
	AAA	None
	AFA	0 to 1 mA
	AHD	4 to 20 mA
F	RS-485 Protocol	
	1	ASCII
	2	Modbus
G	Auxiliary Power	
	1	120/240 VAC
	3	24 VDC
	4	48 VDC
	5	125 VDC



2491



2492

AC WATT/VAR SINGLE FUNCTION

To Order—Insert Number Code for Each Letter to Select Catalog Number.
Order Example: 2491-53-11-1-AHD-1-3

A - B - C - D - E - F - G

A	2491	Single Function
B	Function & Connection	
	51	Watt 1P2W
	52	Watt 1P3W
	53	Watt 3P3W
	54	Watt 3P4W (2 ¹ / ₂ Element)
	55	Watt 3P4W (3 Element)
	61	Vars 1P2W
	62	Vars 1P3W
	63	Vars 3P3W
	64	Vars 3P4W (2 ¹ / ₂ Element)
	65	Vars 3P4W (3 Element)
	71	Power Factor 1P2W
	72	Power Factor 1P3W
	73	Power Factor 3P3W
	74	Power Factor 3P4W (2 ¹ / ₂ Element)
	75	Power Factor 3P4W (3 Element)
	91	Phase Angle 1P2W
	92	Phase Angle 1P3W
	93	Phase Angle 3P3W
	94	Phase Angle 3P4W (2 ¹ / ₂ Element)
	95	Phase Angle 3P4W (3 Element)
C	AC Input Rating	
	11	120 Volt/1 Amp
	15	120 Volt/5 Amp
	21	240 Volt/1 Amp
	25	240 Volt/5 Amp
	31	480 Volt/1 Amp
	35	480 Volt/5 Amp
D	Frequency	
	1	50/60 Hz
E	Analog Output	
	AAA	None
	AFA	0 to 1 mA
	AHD	4 to 20 mA
	AHF	12 \pm 8 mA
F	RS-485 Protocol	
	1	ASCII
	2	Modbus
G	Auxiliary Power	
	1	120/240 VAC
	3	24 VDC
	4	48 VDC
	5	125 VDC

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

A	2492	Dual Display	
B	Function		
	12	Volt/Amp AC	22 Volt/Hz
C	Input Rating		
	51	150 Volt/1 Amp AC	10 150 Volt AC
	55	150 Volt/5 Amp AC	20 300 Volt AC
	61	300 Volt/1 Amp AC	30 600 Volt AC
	65	300 Volt/5 Amp AC	
	71	600 Volt/1 Amp AC	
	75	600 Volt/5 Amp AC	
D	Frequency		
	1	50/60 Hz	
	2	400 Hz	
E	Analog Output		
	AAA	None	
	AFA	0 to 1 mA	
	AHD	4 to 20 mA	
F	RS-485 Protocol		
	1	ASCII	
	2	Modbus	
G	Auxiliary Power Supply		
	1	120/240 VAC	
	3	24 VDC	
	4	48 VDC	
	5	125 VDC	

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

A	2492	Dual Display	2493	Triple Display
B	Function/Connection		B	Function/Connection
	40	Watt/VAR 1P2W	34	Watt/VAR/PF 1P2W
	41	Watt/VAR 1P3W	35	Watt/VAR/PF 1P3W
	42	Watt/VAR 3P3W	36	Watt/VAR/PF 3P3W
	43	Watt/VAR 3P4W (2½ Element)	37	Watt/VAR/PF 3P4W (2½ Element)
	44	Watt/VAR 3P4W (3 Element)	38	Watt/VAR/PF 3P4W (3 Element)
	45	Watt/PF 1P2W		
	46	Watt/PF 1P3W		
	47	Watt/PF 3P3W		
	48	Watt/PF 3P4W (2½ Element)		
	49	Watt/PF 3P4W (3 Element)		
C	AC Input Rating		C	AC Input Rating
	11	120 Volt/1 Amp	11	120 Volt/1 Amp
	15	120 Volt/5 Amp	15	120 Volt/5 Amp
	21	240 Volt/1 Amp	21	240 Volt/1 Amp
	25	240 Volt/5 Amp	25	240 Volt/5 Amp
	31	480 Volt/1 Amp	31	480 Volt/1 Amp
	35	480 Volt/5 Amp	35	480 Volt/5 Amp
D	Frequency		D	Frequency
	1	50/60 Hz	1	50/60 Hz
E	Analog Output		E	Analog Output
	AAA	None	AAA	None
	AFA	0 to 1 mA	AFA	0 to 1 mA
	AHD	4 to 20 mA	AHD	4 to 20 mA
	AHF	12 ±8 mA		
F	RS-485 Protocol		F	RS-485 Protocol
	1	ASCII	1	ASCII
	2	Modbus	2	Modbus
G	Aux. Power Supply		G	Aux. Power Supply
	1	120/240 VAC	1	120/240 VAC
	3	24 VDC	3	24 VDC
	4	48 VDC	4	48 VDC
	5	125 VDC	5	125 VDC

TRIPLE AC VOLT OR AMP

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

A	2493	Triple Display
B	Connections	
	01	3P3W Volts AC
	02	3P4W Volts AC
	05	3-Phase A, B, C Amps AC
C	Input Rating	
	01	1 A
	05	5 A
	10	150 V
	20	300 V
	30	600 V
D	Frequency	
	1	50/60 Hz
	2	400 Hz
E	Analog Output	
	AAA	None
	AFA	0 to 1 mA DC
	AHD	4 to 20 mA DC
F	RS-485 Protocol	
	1	ASCII
	2	Modbus
G	Auxiliary Power	
	1	120/240 VAC
	3	24 VDC
	4	48 VDC
	5	125 VDC

TRIPLE AC VOLT/AMP/HERTZ

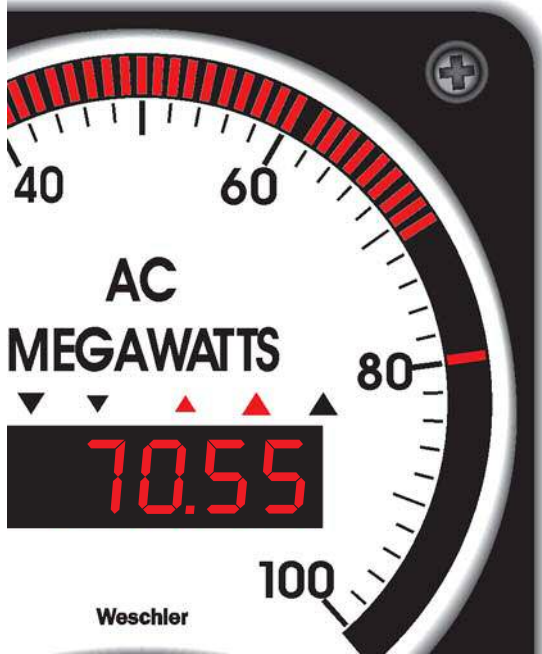
To Order—Insert Number Code for Each Letter to Select Catalog Number.
Order Example: 2493-08-51-1-AHD-1-1

A	2493	Triple Display
B	Function/Connections	
	07	Volt/Amp/Hz 1P2W
	08	Volt/Amp/Hz 3P3W
	09	Volt/Amp/Hz 3P4W
C	AC Volt/Amp Rating	
	51	150V /1 A
	55	150V /5 A
	61	300V /1 A
	65	300V /5 A
	71	600V /1 A
	75	600V /5 A
D	Frequency	
	1	50/60 Hz
	2	400 Hz
E	Analog Output	
	AAA	None
	AFA	0 to 1 mA DC
	AHD	4 to 20 mA DC
F	RS-485 Protocol	
	1	ASCII
	2	Modbus
G	Auxiliary Power	
	1	120/240 VAC
	3	24 VDC
	4	48 VDC
	5	125 VDC

WESCHLER INSTRUMENTS

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

Weschler BarGraph Meters



- **DIGITAL PRECISION**
- **VISUAL TREND INDICATION**
- **LARGE BRIGHT DISPLAYS**
- **TRANSDUCER INPUTS**
- **RELAY OUTPUTS**
- **ADJUSTABLE SETPOINTS**

DIRECT REPLACEMENTS FOR ANALOG GAUGES

Measure and Display: DC/AC Volts, DC/AC Amps, Watts, VARs, Power Factor, RPM, Frequency, Quadrature, Load, Strain, Pressure Resistance, Temperature, pH and more.

TYPICAL APPLICATIONS

- Power measurements
- Control room displays
- Process indicators
- Shipboard engine monitors
- Backup power supply status
- Pot line monitors
- Gate position indicators
- Turbine indicators
- Boiler draft gauges
- Tank/drum level indicators

Display, control & backup for DCS systems



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