Ballantine Short Form Catalog

- true rms voltmeters
- ac and rf standards
- average responding voltmeters
- multi-function meters
- ac/dc voltage calibrator
- true rms voltmeters
- ac and rf standards
- ac/dc digital voltmeters
- average responding voltmeters
- multi-function meters
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- rf voltmeters
- ac/dc voltage calibrator
Ballantine's Logarithmic Scale

This is one of the many different logarithmic voltage scales offered on Ballantine Voltmeters.* Unlike standard linear scales, the Ballantine Scale has constant reading accuracy end-to-end. Always specify Ballantine instruments and receive the full accuracy paid for.

*Need the dB scale uppermost? — we can do it.
Need more divisions? — we can do it.
For any scale on any Ballantine instrument check with us — it may be standard, but if not we can supply one to suit your requirements at a modest additional charge.

Repair and Calibration
We maintain complete facilities and spare parts for prompt repair and calibration of all instruments manufactured by us. Calibration standards are available from dc to 1000 MHz, traceable to the National Bureau of Standards.

Today's fast air freight service makes factory repair of precision instruments more feasible than ever. Ask us for quotations on repair and calibration, or for calibration only, of any Ballantine instrument.

Prices
Prices are F.O.B. Boonton, N. J., and are subject to change without notice. Prices shown are for the portable configuration. Ask us about our many other special versions.

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Average Responding Voltmeters, calibrated in RMS value of a sinusoidal input voltage, are the most commonly used voltage measuring devices. They combine good accuracy and reasonable cost. Accuracy is maintained provided the input waveform is approximately sinusoidal in shape. (For example, harmonic distortion of 3% will cause less than a 1½% error.)

The number of average responding instruments available from Ballantine is second-to-none, with a wide choice of:
- Frequency Range
- Accuracy
- Sensitivity
- Special Features

Wideband, High Accuracy, Sensitive Voltmeter / Amplifier
2 Hz to 6 MHz
Model 303

This rugged solid state voltmeter features:
- Midband accuracy of 1% RDG
- Extra low frequency response down to 2 Hz (100 µV sensitivity)
- Isolated signal ground (10 MΩ input impedance)
- Rechargeable battery option
- Variable damping

The Model 303 is the perfect instrument for field, laboratory or systems use. The Model 303-50 and 303-51 versions include a 30 dB probe for operation from 1 mV to 1000 V.

Voltage Range: 100 µV to 350 V (12 ranges)
Accuracy vs Frequency:

Input Impedance: 10 MΩ shunted by 15 or 25 pF
Scales:
- Logarithmic voltage, 1 to 3 and 3 to 10;
- Linear dB, 0 to 10

Amplifier:
Gain, 40 dB; output, 100 mV; source, 150 kΩ; linearity ± 0.5 dB, 2 Hz to 6 MHz

Prices:
- Model 303-0 (AC line operated) $335
- Model 303 (battery and line operated) $395
- Model 303-50 (battery and line probe) $445
- Model 303-51 (line probe) $385

Wideband, Sensitive Voltmeter / Amplifier
10 Hz to 6 MHz
Models 310B and 314A

Both the Model 310B and 314A have proved to be standards of the industry. They feature:
- 20 dB decaded ranges
- ± 2 V null detector mode
- Highly stable performance
- A high impedance 10 Hz to 6 MHz frequency band

The Model 314A includes an attenuator probe to increase the voltage range to 1000 V and the input impedance to 10 MΩ.

Voltage Range:
- Model 310B: 100 µV to 100 V (6 ranges)
- Model 314A (without probe): 100 µV to 100 V (6 ranges)
- Model 314A (with probe): 1 mV to 1000 V (6 ranges)

Accuracy vs Frequency:
- (both models)

Input Impedance:
- Model 310B: 2 MΩ shunted by 15 or 25 pf
- Model 314A: 2 MΩ shunted by 25 pf

Scales:
- Logarithmic voltage, 1 to 10; Linear dB, 0 to 20

Amplifier:
Gain 60 dB; output, 2 V; source, 700 kΩ; linearity, 1 dB; 10 Hz to 6 MHz

Prices:
- Model 310B $385
- Model 314A (includes probe) $435
AC Voltmeters (continued)

**Low Cost, Sensitive Voltmeter / Amplifier**

10 Hz to 1 MHz

Model 300H

In addition to an expected calibration stability of 5000 hours, the Model 300H features:

- Decade 20 dB ranges
- Amplifier output: 30 µV sensitivity
- Wide frequency range
- High reliability at low cost.

This popular instrument is an outstanding value as both an amplifier with response variation of only ±1 dB from 10Hz to 1MHz and as a 2% of reading voltmeter.

Voltage Range: 300 mV to 330 V (6 ranges)

Accuracy vs Frequency:

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Accuracy</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 Hz</td>
<td>±700 kHz</td>
</tr>
<tr>
<td>1 kHz</td>
<td>±10 kHz</td>
</tr>
<tr>
<td>10 kHz</td>
<td>±1%</td>
</tr>
</tbody>
</table>

Input Impedance: 2 MΩ shunted by 15 or 25 pF

Scales: Logarithmic voltage, 3 to 30, Linear dB, -10 to +10

Amplifier: Gain: 45 dB, output: 0.6 V, source: 300 kΩ, linearity: ±1 dB, 10 Hz to 1 MHz

Price: Model 300H $275

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**Mechanically Programmable, Half-Rack, Voltmeter / Amplifier for systems use**

10 Hz to 1 MHz

Model 300E

The Model 300E features:

- Decade 20 dB ranges
- Isolated signal ground
- Switch shaft extended to the rear for attachment to a rotary-relay actuator.

The Model 300G is ideal for systems use where panel meter readout or amplified ac output is required.

Voltage Range: 1 mV to 100 V (6 ranges)

Accuracy vs Frequency:

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Accuracy</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 Hz</td>
<td>±1%</td>
</tr>
<tr>
<td>1 kHz</td>
<td>±10%</td>
</tr>
<tr>
<td>10 kHz</td>
<td>±100%</td>
</tr>
</tbody>
</table>

Input Impedance: 2 MΩ shunted by 20, 30 or 40 pF

Scales: Logarithmic voltage: 1 to 30; Linear db, 0 to 20

Programming: Provision for actuator operated switch connection

Amplifier: Gain: 60 dB, output: 10 V, source: 300 Ω, linearity: ±1 dB, 10 Hz to 250 kHz

Price: Model 300G $325

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**High Accuracy Voltmeter / Amplifier**

10 Hz to 250 kHz

Model 300G

By combining Ballantine’s best mechanical and electrical features, the Model 300G has become widely accepted as an industry standard. The instrument features:

- ±1% midband accuracy
- 20 dB decade ranges
- An amplified output
- Unique feedback design that ensures a long, stable and trouble-free life.

Voltage Range: 1 mV to 1000 V (6 ranges)

Accuracy vs Frequency:

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Accuracy</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 Hz</td>
<td>±1%</td>
</tr>
<tr>
<td>1 kHz</td>
<td>±10%</td>
</tr>
<tr>
<td>10 kHz</td>
<td>±100%</td>
</tr>
</tbody>
</table>

Input Impedance: 2 MΩ shunted by 15 or 25 pF

Scales: Logarithmic voltage: 1 to 10; Linear db, 0 to 20

Amplifier: Gain: 40 dB, output: 6.6 V, source: 300 kΩ, linearity: ±1 dB, 10 Hz to 250 kHz

Price: Model 300G $325

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**AC Hi~**

20 ac Mo
AC/DC VOM
High Accuracy,
20 Hz to 1 GHz
(ac, dc and ohms)
Model 345

Accuracies of 1%, 2% and 3% of reading for dc, ac and ohms respectively make the Model 345 far superior in accuracy than any other multi-function meter available. The instrument also boasts an extremely wide range of resistance measurement from 25 MΩ to 5000 MD. The versatile Model 345 also features:
- Simple decade ranging
- Fewer scales
- Internal calibration voltages
- Full-scale mechanical design
- A full range of accessories.

DC Voltage Range: 0 to 1100 V (to 10,000 V with optional Model 3345 Multiplier)
AC Voltage Range: 0 to 350 V
Frequency Range: 20 Hz to 1000 kHz
Ohms Range: 0 to 5000 MΩ
Accuracy, % of Reading:
DC, 1%; AC, 2%; 1 V to 359 V, 50 Hz to 100 MHz; DCm, 3%; ± 2 to 100 MHz
Input Impedance:
DC, 112 MΩ; AC, 10 MΩ and 2.2 pF
Price:
Model 345 $525

The sensitive Model 305A is the only available instrument that measures positive or negative peak and peak-to-peak value of repetitive pulses, sinusoids and complex waveforms. Harmonics up to 2 MHz are included in its measurement capability.
A special "pulse stretching" circuit allows measurement of low energy pulses. A meter reset button enables rapid consecutive measurements to be made. The integral high gain ac amplifier may also be used for many varied purposes, such as a counter pre-amp for low level signals or as a pre-amp where high voltage output is of interest.

Voltage Range:
1 mV to 1000 V peak or peak-to-peak
Accuracy and Range (% RDG):
Sine Wave:
± 2% from 20 Hz to 200 kHz;
± 4% from 3 Hz to 500 kHz
Pulses:
± 2% above 3 μs and 100 pps;
± 5% above 1 μs and 100 pps;
± 5% above 0.5 μs and 5 pps
Input Impedance:
2 MΩ shunted by 10 or 25 pF
Scales:
Logarithmic voltage, 1 to 3 and 3 to 10;
Linear dB, 0 to 30
Amplifier:
Gain, 80 dB, output, ±20 V, source, 3 to linearity, ±3%; 5 Hz to 500 kHz.
Price:
Model 305A $525

The unique frequency response characteristics of the Model 316 make it ideally suited for such applications as sine and square wave voltage measurement in automatic control systems involving low frequency servomechanisms. Special features have been included to reduce measurement tedium to an absolute minimum. Negligible hum at 0.01 Hz is virtually eliminated at 0.05 Hz.

Voltage Range:
30 mV to 200 V, peak-to-peak
Frequency Range:
0.05 Hz to 30 kHz (down to 0.01 Hz with correction)
Accuracy:
3% of reading
Input Impedance:
10 MΩ shunted by 30 or 40 pF
Scales:
Logarithmic voltage, 2 to 20; Linear dB, 0 to 30
Price:
Model 316 $480

Model 316
0.01 Hz to 30 kHz
Infrasonic Voltmeter

AC / DC VOM
High Accuracy,
20 Hz to 1 GHz
(ac, dc and ohms)
Model 345

5 Hz to 500 kHz
Model 305A

0.01 Hz to 30 kHz
Model 316

Peak / Peak-to-Peak
Voltmeter/Amplifier

Peak-to-Peak
Infrasonic Voltmeter
A fully programmable sensitive voltage measuring system consisting of a Digital Display Module and associated AC and DC Converter Modules.

**Model 3570 Display Module**
- Four digit Nixie® readout with overrange
- Dual-slope integration with four selectable integration times
- System compatibility assured— all information available in digital form
- Optional 20 MHz frequency counter capability
- Auto-ranging option

**Model 3571 AC Converter Module**
- 30 Hz to 10 MHz frequency coverage — unpassed by any instrument currently available
- 10 mV full scale sensitivity for low-level measurements
- 10 MHz input impedance
- Selectable filter time constant for smoothing dc input to display
- Auto-ranging capability with Model 3570

**Model 3572 DC Converter Module**
- 100 mV to 1000 V full scale decade ranges
- Input resistance 10 MΩ to 1000 MΩ panel selected on 100 mV and 1 V ranges
- Auto-ranging capability with Model 3570
- Ext. thermal potentials can be back-tacked by front panel control

**AC System**
- Voltage Range: 10 mV Is to 300 VIs (6 ranges)
- Accuracy vs Frequency:

<table>
<thead>
<tr>
<th>Range</th>
<th>Accuracy</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 mV</td>
<td>±0.02 % rdg ±0.03 % full scale</td>
</tr>
<tr>
<td>300 V</td>
<td>±0.03 % rdg ±0.05 % full scale</td>
</tr>
</tbody>
</table>

- Input Impedance: 2 MΩ panel selected on 100 mV and 1 V Is ranges
- Option 1 Frequency Counter $250
- Option 2 Auto-ranging $180
- 801 Rack Interconnecting Kit $190
- 802 Bench Interconnecting Kit $ 50

**DC System**
- Voltage Range: 100 mV Is to 1000 VIs (5 ranges) (autopolarity)
- Accuracy:

<table>
<thead>
<tr>
<th>Range</th>
<th>Accuracy</th>
</tr>
</thead>
<tbody>
<tr>
<td>100 mV</td>
<td>±0.02 % rdg ±0.03 % full scale</td>
</tr>
<tr>
<td>1 V</td>
<td>±0.03 % rdg ±0.05 % full scale</td>
</tr>
<tr>
<td>10 V</td>
<td>±0.05 % rdg ±0.10 % full scale</td>
</tr>
<tr>
<td>100 V</td>
<td>±0.10 % rdg ±0.20 % full scale</td>
</tr>
<tr>
<td>1000 V</td>
<td>±0.20 % rdg ±0.30 % full scale</td>
</tr>
</tbody>
</table>

- Input Impedance: 10 MΩ panel selected on 100 mV and 1 V Is ranges
- Price: Model 3570 Display Module $1150
- Model 3571 AC Module $600

**Model 355**
- This self-balancing servo-driven unit combines the accuracy and speed of digital readout with the well known advantages of an analog indication for peaking and nulling. As well as ac and dc voltages, current may also be measured by the use of optional input resistors.
- Features: • long-life ball bearing mechanism • half-rack packaging • amplifier output • reading retention • overrange indication make the Model 355 unbeatable as an economical investment for most general purpose ac and dc measurements.

- Voltage Range:
  - AC: 10 mV Is to 1000 VIs (6 ranges)
  - DC: 100 mV Is to 1000 VIs (5 ranges)

- Display: 3 digits (least significant graduation), 1 overrange

- Resolution:
  - AC, 1 µV, DC, 10 µV

- Accuracy (DC): ±0.05% Is to 1000 V

- Input Impedance: 2 MΩ shorted by 25 or 40 pF

- AC Amplifier: Gain, 60 db, output, 10 V, source, 300 Ohms; linearity, ±1 dB, 30 Hz to 250 kHz

- Bandwidth: 4 seconds to full scale

- Price: Model 355 $595

**A registered trademark of the Burroughs Corp.**
All True RMS techniques allow accurate voltage measurements on any waveform, provided the peaks do not exceed the dynamic range of the instrument and the frequency components of the input waveform do not exceed the frequency range of the instrument. Distortion of itself does not cause error. Ballantine offers True RMS voltmeters with a far wider frequency range and superior accuracy compared to the best competitive units and therefore enjoys the position of being a leader in this field.

No other true RMS voltmeter offers a basic accuracy of ±1% and a frequency range to 20 MHz. Compare specifications with our well known competitor, particularly down-scale, and you will see that we are often orders of magnitude better with twice the frequency range. The wide frequency range of the Model 323 includes more of the harmonic content of complex waveforms, thus allowing more accurate and/or higher frequency measurements. By specifying the Model 323, input waveform can be disregarded and the ultimate in measurement accuracy attained. Features which make the Model 323 a standout are:

- solid-state design
- rechargeable battery option
- variable time constant
- isolated signal ground
- freedom from overload damage
- ability to handle crest factors encountered in noise, complex waveforms and all but lowest duty cycle pulses. The Model 323 is also a widely accepted tool in sound and vibrations analysis.

Voltage Range: 300 mV to 330 V (52 ranges)
Accuracy vs Frequency:

<table>
<thead>
<tr>
<th>Voltage Range</th>
<th>Accuracy</th>
</tr>
</thead>
<tbody>
<tr>
<td>100 mV to 1 V</td>
<td>±1%</td>
</tr>
<tr>
<td>1.25 V to 2 V</td>
<td>±1.5%</td>
</tr>
<tr>
<td>2.5 V to 5 V</td>
<td>±2%</td>
</tr>
<tr>
<td>Above 5 V</td>
<td>±3%</td>
</tr>
</tbody>
</table>

Scales: Logarithmic voltage, 1 to 3 and 3 to 10; Linear dB, 0 to 10
Input Impedance: 2 MΩ shunted by 15 or 25 pF
Crest Factor: 5:1 at fs; 15:1 at 1/3 fs
Overload: 500 V peak on all ranges
Price:
Model 323 (line) $525
Model 323 (battery/line) $590

The Model 320A is the only True RMS Voltmeter with an ac amplifier output. This field proven instrument is a standard of the industry. Its rugged high-feedback design provides accurate RMS voltage measurements of sinusoidal and a wide variety of non-sinusoidal and random waveforms including noise. Features such as:

- long stable life
- no effect on calibration due to tube change
- extra low frequency response
- high input impedance
- 10 mV sensitivity as a null detector, make this instrument the perfect choice for tough general purpose applications. The Model 320A handles crest factors encountered in noise, complex waveforms and all but the very lowest duty cycle pulses.

Voltage Range: 100 mV to 330 V (13 ranges)
Null Detector: 10 mV sensitivity
Accuracy vs Frequency:

<table>
<thead>
<tr>
<th>Voltage Range</th>
<th>Accuracy</th>
</tr>
</thead>
<tbody>
<tr>
<td>100 mV to 1 V</td>
<td>±1%</td>
</tr>
<tr>
<td>1.25 V to 2 V</td>
<td>±1.5%</td>
</tr>
<tr>
<td>2.5 V to 5 V</td>
<td>±2%</td>
</tr>
<tr>
<td>Above 5 V</td>
<td>±3%</td>
</tr>
</tbody>
</table>

Scales: Logarithmic voltage, 1 to 3; 3 to 10; Linear dB, 0 to 10
Input Impedance: 10 MΩ shunted by 11 or 27 pF
Crest Factor: 5:1 at fs; 15:1 at 1/3 fs
Overload: Gain, 90 dB output 25 V; source, 350 Ω linearly, ±0.5 dB, 5 Hz to 2 MHz, —1 dB at 4 MHz
Price:
Model 320A $525
True RMS, Average and Peak Voltmeter / Amplifier
Model 321

Unlike most average or peak responding voltmeters that are calibrated in RMS, the Model 321 both responds to and indicates the true average and peak voltages of the input waveform. As a True RMS Voltmeter it is identical in range, facilities and features to the Model 330A.

True RMS Mode:
See 320A specifications
Voltage Range: 300 mV to 330 V (12 ranges)
Accuracy vs Frequency:

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Accuracy (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 Hz</td>
<td>±0.4%</td>
</tr>
<tr>
<td>100 Hz</td>
<td>±0.4%</td>
</tr>
<tr>
<td>500 Hz</td>
<td>±0.4%</td>
</tr>
<tr>
<td>1 MHz</td>
<td>±0.4%</td>
</tr>
<tr>
<td>5 MHz</td>
<td>±0.4%</td>
</tr>
<tr>
<td>10 MHz</td>
<td>±0.4%</td>
</tr>
</tbody>
</table>

Input Impedance: 10 MΩ shunted by 7.1 pF
Crest Factor: 4:1 for average, 7:1 at 1/3 Is
Price: Model 321 $620

Sensitive, High Accuracy, True RMS RF-Voltmeter, 0.01 pF to 12 μF
Model 340

No other rf voltmeter can offer a basic accuracy of ± 4% of reading and indicate true RMS at all voltage levels. Accurate readings are obtained when measuring complex waveforms, pulses and noise as well as sine waves.

The Model 340 is unlike competitive units whose response characteristics change with input level, or are average responding calibrated in the RMS value of a sine wave. Features such as: 8 low noise 8 null balance mode 8 full range of input accessories, make the Model 340 one of the best RF Voltmeters available.

Voltage Range: 300 mV to 3 V (8 ranges)
Accuracy vs Frequency:

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Accuracy (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>100 kHz</td>
<td>±0.4%</td>
</tr>
<tr>
<td>1 MHz</td>
<td>±0.4%</td>
</tr>
<tr>
<td>10 MHz</td>
<td>±0.4%</td>
</tr>
<tr>
<td>100 MHz</td>
<td>±0.4%</td>
</tr>
<tr>
<td>1 GHz</td>
<td>±0.4%</td>
</tr>
</tbody>
</table>

Scales:
Logarithmic voltage, 1 to 3 and 3 to 10; Linear 4 dB, 0 to 10
Crest Factor:
Min 3:1; max 100:1
Input Impedance:
Varies between 25 kΩ & 1 MΩ shunted by 4 pF
VSWR (50 Ω TEE adapter)
1.15 up to 700 kHz below 30 mV
1.2 up to 500 MHz above 30 mV
Price: Model 340 $850

The Model 520 measures true, three-terminal capacitance over an extremely wide range with the speed and convenience of a voltmeter. It effectively ignores the loss of the capacitor within normally occurring limits and, by the use of its adapters, can be mechanically and electrically interfaced with most sizes and values. The instrument’s logarithmic scale allows accuracy to be stated in percent of indication as would be the case with bridge methods of measurement.

Capacitance Range:
0.01 pF to 12 μF (9 ranges, lowest 0.12 pF, h)
Accuracy, as % of reading:
2% rdg from 0.1 pF to 12 μF and 5% rdg from 0.01 pF to 0.1 pF
Test Frequency: 1 kHz
Test Levels:
0.01 pF to 0.12 μF; 10 V RMS
0.01 μF to 12 μF; 100 mV RMS
Meter:
Logarithmic, reading from 1 to 12
Maximum Capacitance Dissipation Factor: 0.05
Price: Model 520 $850

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At a is provided or dc, and or be in t the do or neg this or can pr y out. An ace (the M errors track in her)

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At a is provided or dc, and or be in t the do or neg this or can pr y out. An ace (the M errors track in her)
Precision AC/DC Voltage Calibrator

1000 Hz, 400 Hz and DC
Model 421A

At a reasonable price, the Model 421A provides a precisely settable source of AC or DC voltage of adequate level and accuracy for checking analog voltmeters and oscilloscopes. AC voltage output can be in terms of RMS or peak-to-peak and the DC voltage output can be of positive or negative polarity. The portability of this calibrator is quite unique and can prove invaluable for routine checks outside the calibration laboratory. An accessory error computer (the Model 2421) reads calibration errors directly in %. In addition a tracking dial allows reading of indicator error in % even in the presence of range error.

Voltage Range:
- 0 to 111 V (6 ranges) AC and DC
- 100 to 1000 V high output at 400 Hz only

Frequencies:
- 400 Hz and 1 kHz

Accuracy:
- AC, 0.15% of setting to 111 V
- 0.35% of setting 111 V to 1000 V
- DC 0.2% of setting

Distortion:
- Less than 0.15%

Line Stability:
- Less than 0.05% for ±10% variation

Price:
- Model 421A $735
- Model 2421 Error Computer $75

Laboratory Reference AC Voltage Standards

A-T Voltmeter
(Attenuator-Thermoelement)
1 MHz to 1000 MHz
Model 390

The Model 390 is a laboratory reference standard designed for calibration of AC voltages above 0.5 volt, at frequencies from 1 MHz to 1000 MHz. The instrument consists of a stable, adjustable, waveguide-below-cut-off attenuator feeding a UHF thermocouple. The instrument setting for standard DC output is determined from NBS calibration at various frequencies and voltages. Calibration by NBS is required, but not included in the price. Design is based on that of Myron C. Selby and J. F. Betrent of NBS.

Frequency Range:
- 1 MHz to 1000 MHz

Voltage Range:
- 0.5 V to 300 V

Accuracy:
- ±1% (with NBS calibration)

Price:
- Model 390, including Model 2390 Tee Adapter test including dc micrometer or NBS calibrations $1925
- Model 2390 Accessory Tee Adapter required by NBS for calibration of Model 390 $115

Thermocouples:
- 5, 10, 15, 25 and 50 mA

Radial Resistors:
- 11 values: 0.0 to 22 0

Model 440, with one radial resistor and one thermocouple housing. Price: $250

Additional Radial Resistors. Price: $175

Additional Thermocouple and Housing. Price: $75

Micropotentiometer
0 to 900 MHz
Model 440

The Model 440 is designed as a low impedance source of accurately known voltage at frequencies from 0 to 900 MHz. It consists of a UHF thermocouple in series with a special radial resistor. When the combination is connected to an external signal source the voltage drop across the resistor, which constitutes the low impedance output, can be held to a known value over the entire range of frequencies by monitoring the dc output of the thermocouple. Each thermocouple-resistor combination selected can be operated over an output voltage range of 4 to 1 within the overall limits of 17 mV and 1.4 V RMS Ideal for calibration of AC voltimeters, oscilloscopes and signal generators. Calibration to 500 MHz is included in the price. Design based on that of Myron C. Selby of NBS.

Frequency Range:
- 0 to 900 MHz

Voltage Ranges:
- 4.1 ratios from 17 mV to 1.4 V (depending on thermocouple and resistor used)

Uncertainty:
- (Typical)
  - 0 to 5 MHz: ±3%
  - 400 MHz: ±4%
  - 500 MHz: ±4%
  - 900 MHz: ±6%

- see NBS

Thermocouples:
- 5, 10, 15, 25 and 50 mA

Radial Resistors:
- 11 values: 0.0 to 22 0

Model 440, with one radial resistor and one thermocouple housing. Price: $250

Additional Radial Resistors. Price: $175

Additional Thermocouple and Housing. Price: $75
Accessories

Adapters

Model 617 Adapter
A single binding post to UHF male connector which may be plugged into a UHF receptacle on voltmeters to provide a binding post instead of a UHF coaxial input connection.
Price $4

Model 618 Adapter
A single binding post to BNC male connector which may be plugged into a BNC receptacle on voltmeters to provide a binding post instead of a BNC coaxial input connection.
Price $5

Model 2314 Adapter
A UHF male coaxial to twin binding post adapter which may be connected into a UHF coaxial connector to provide a twin binding post input connection.
Price $15

Rack Adapter

Model 800 Rack Mounting Kit
Consists of a complete set of hardware and panel, painted gray, for 19 inch rack mounting of either one or two of the Ballantine Models 303, 303, 345, 353 or 355.
Price $45

Probes, High Voltage

Model 1301 High Voltage Probe
A 10,000 to 1 capacitive attenuator designed for measurements of voltages up to 15,000 rms or 28,000 peak to peak when connected to the binding post input of Ballantine voltmeters.
Price $65

Switch

Model 1355 Foot Switch and Cable Assembly
Designed for hold-down operation when plugged into a jack on Ballantine digital voltmeter Model 355.
Price $15

Interconnecting Kits

Model 801 Interconnecting Kit
Used to electrically and mechanically connect the Model 3570 Display Module to an associated converter module and to adapt the package to rack mounting.
Price $50

Resistors

Model 802 Interconnecting Kit
Used to electrically and mechanically connect the Model 3570 Display Module to an associated converter module and to provide a bail-handle for bench use.
Price $50

Series 600 Precision Shunt Resistors
Values of 0.01, 0.1, 1.0, 10, 100, 1000 ohms may be plugged into the binding post input terminals of Ballantine voltmeters for measurement of current from 0.1 microampere to 10 amperes.

- 1, 10, 100 & 1000Q $20
- 0.01, 0.1, 1.0 $25
- 0.001Q $35

Model 303, 303, 345, 353 or 355

Price $15

Price $15

Price $50

Price $50

Price $35

Price $20

Price $25

Price $45