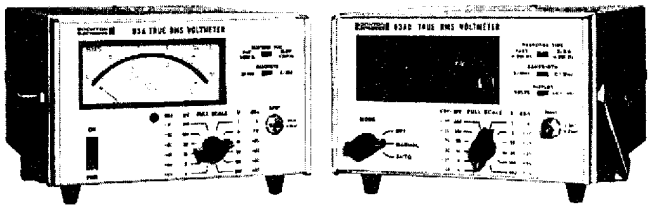
True RMS Voltmeters
Model 93

The Boonton 93A and 93AD voltmeters are true rms responding instruments that use backward diodes as balanced, low-level, square-law detectors. An all solid-state chopper amplifier and unique operational square-root circuitry convert the squared function to a high-level dc proportional to rms. This dc voltage is available at rear terminals for rms converter applications, and is displayed on an analog meter in the case of the 93A or on a 3½ digit LED display for the 93AD. The 93A and 93AD both cover twelve ac voltage ranges from 1 mV to 300 V full-scale. The 1 mV full-scale range provides unmatched sensitivity to measure the low rms level of noise and of low duty cycle pulse trains. Both rms voltmeters feature a full 10 Hz to 20 MHz frequency range usable down to the lowest voltage range. A three dB bandwidth of 30 MHz assures accurate rms measurements of complex voltages with significant high frequency energy components, such as narrow pulses and wideband noise. The 93A meter is calibrated with dBm as well as voltage scales. The 93AD has, as standard, an edge-mounted dBm analog meter in addition to the digital display; an optional dB display provides readings directly in dB with 0.01 dB resolution.



SPECIFICATIONS

Analog Model 93A

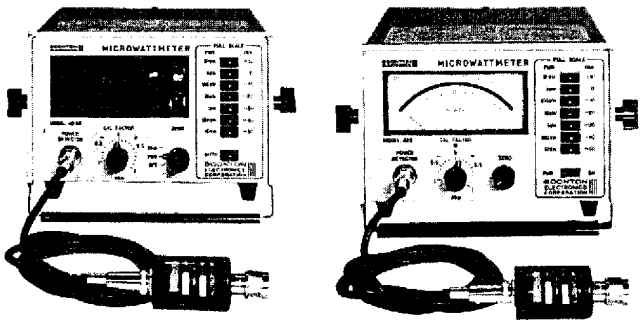
Voltage Range: 1 mV to 300 V fs, in 12 ranges.
dBm Range: −68 dBm to +52 dBm (600 Ω ref.).
Selectable Frequency Range: 10 Hz to 20 MHz or 10 Hz to 100 kHz.
Basic Accuracy: ±1% fs or ±2% rdg, whichever is better.
Indicator: 4½" taut-band meter; scales 0-3, 0-10 and dBm.
Response Time: Fast; 1 sec. Slow; 4 sec.
Crest Factor: 6 at full scale; 18 at down scale.
Input: *Impedance:* 2 MΩ, < 25 pF.
Equivalent noise: < 35 μV.
DC Output: +10 V for fs.
Remote Control: All functions and ranges commanded with TTL input.
Options:
Rear signal input.
50 Ω dBm reference.
75 Ω dBm reference.
Accessory: 93-1A High-Z probe; 10 MΩ,< 11.5 pF, attenuation 10x.

Digital Model 93AD

Voltage Range: 1 mV to 300 V rms fs, in 12 ranges.
dB Range: 120 dB; resolution, 0.01 dB (optional).
Selectable Frequency Range: 10 Hz to 20 MHz or 10 Hz to 100 kHz.
Basic Accuracy: ±(1% rdg + 1 count) for voltage.
±0.3 dB for dB option.
Display: 3½ digit LED display (4 digits for dBm). Decimal point, units (V, mV, dB), under- and over-range, polarity (dBm only) also indicated. Analog edgemeter, scaled over 12 dB range.
Response Time: Fast; 1 sec. Slow; 4 sec.
Crest Factor: 6 at full scale; 18 at down scale.
Input: *Impedance:* 1 MΩ, < 25 pF.
Equivalent noise: < 35 μV.
Outputs: BCD (serial) digits, binary range and mode information.
DC Output: 10 V for fs.
Remote Control: All functions and ranges commanded with TTL input.
Options:
Autoranging.
Rear signal-input.
50 Ω dBm display.
75 Ω dBm display.
600 Ω dBm display.
BCD serial/parallel converter
Accessory: 93-1A High-Z probe; 10 MΩ, < 11.5 pF, attenuation 10x.

RF Microwattmeters
Model 42

Models 42B, 42BB, and 42BD are analog, analog-battery, and digital versions of the rf microwattmeter. They are exceptionally stable and sensitive units which cover a 70 dB dynamic range measuring power down to 1 nanowatt and withstanding cw overloads to 0.3 watts. Power detectors may be operated many hundreds of feet away from the power meters without deterioration of accuracy or stability. Drift problems common in other types of power meter are virtually eliminated. Three coaxial 50 Ω power detectors cover frequency ranges of 200 kHz to 7 GHz, 200 kHz to 12.4 GHz and 200 kHz to 18 GHz. In addition,a 75 Ω unit covers from 200 kHz to 1 GHz for CATV applications. Analog models are scaled in power and dBm.The digital model has an LED display that uses 3½ digits for power and 4 digits for dBm (0.01 dB resolution).Unique applications are field alignment of microwave antennas and long term power alarm monitoring in satellite communications systems.



SPECIFICATIONS

Digital Model 42BD

Power Range: 10 nW fs to 10 mW fs.
Frequency Range: 200 kHz to 18 GHz.
Accuracy: Overall, instrument and detector.
±(0.2 dB + 1 digit) to ±(0.8 dB + 1 digit) depending on power range and frequency.
Stability: <1 nanowatt/hour at 25°C
Temperature Effect: 0.007 dB/ °C typ.
Indicator: 3½ digit LED display for power, 4 digit for dBm option.
Data Outputs: BCD (serial) digits, binary coded range, overrange, underrange, encode complete, TTL.
Remote Control: Input range, encode hold and trigger, manual disable, dBm and autorange commanded by TTL inputs.
DC Output: 10 V fs proportional to power.
Major Options: Autoranging, dBm display, BCD serial/parallel converter.

Analog Model 42B

Power Range: 10 nW fs to 10 mW fs.
Frequency Range: 200 kHz to 18 GHz.
Accuracy: Overall instrument and detector.
±(0.2 dB + 0.5% fs) to ±(0.8 dB + 1.0% fs) depending on power range and frequency.
Stability: <1 nanowatt/hour at 25°C
Temperature: Effect: 0.007 dB/ °C typ.
Indicator: 4½ inch taut band meter calibrated power and dBm.
Remote Control: Input range and manual disable commanded by TTL inputs.
DC Output: 10 V fs proportional to power.
Major Options: Meter scale and dc output linear with dBm. Rear input.

Analog Battery Model 42BB

Specifications same as 42B. Sealed lead-acid rechargeable 6 hour battery.

Power Detectors

41-4A	200 kHz– 7 GHz, 50 Ω input	Connector: Precision type "N" standard, APC-7 optional
41-4B	200 kHz–12.4 GHz, 50 Ω input	
41-4C	200 kHz– 1 GHz, 75 Ω input	
41-4E	200 kHz– 18 GHz, 50 Ω input	