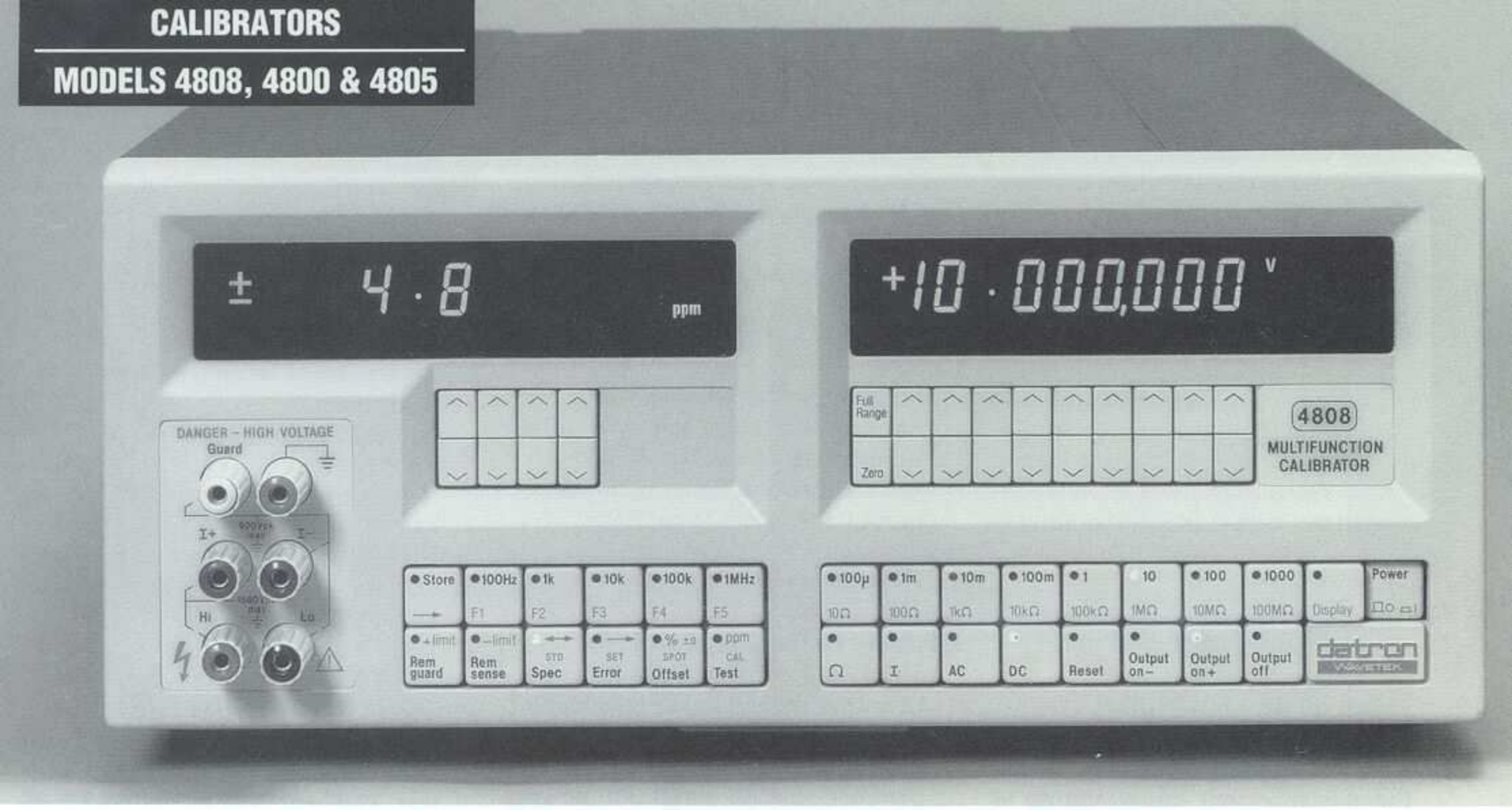
CALIBRATORS

MODELS 4808, 4800 & 4805



Multifunction DMM Calibrators

- **DCV, ACV, DCI, ACI and Ω Functions**
- **True 1kV AC Performance from a Single Unit**
- **4808 for Ultimate in Standards Laboratory Performance**
- **4800 for Meter Calibration to 7½ Digit Accuracy**
- **4805 for Meter Calibration to 5½ Digit Accuracy**

Used either as a component in an automated calibration system or as a standalone bench instrument, the Datron range of Multifunction calibrators offers the most cost-effective solution to today's calibration problems. Initial purchase costs are reduced by the inclusion of a full capability 1000V DC and AC power amplifier in the calibrator chassis, enabling a single unit to cover the widest possible calibration workload. The options available on the 4808 and 4800 allow an instrument to be configured as DCV only, ACV only, or multifunction, enabling configuration of a calibrator that meets today's requirements while retaining the flexibility to upgrade capabilities as requirements change.

Calibration Support

The 4808, 4800 and 4805 are designed to be supported by the 4950 Multifunction Transfer Standard. This allows fully traceable calibration support to be achieved on site, eliminating the downtime normally associated with transportation of the calibrator to a Standards laboratory. This calibration process may be totally automated, making it much faster, more repeatable and less dependant on skilled labor than the traditional, manual approach. For further information, refer to the section covering the model 4950.

Flexibility and Ease of Use

All models contain an IEEE-488 interface as standard, enabling the calibrator to form the heart of a compact and highly accurate calibration or test system, while its rugged construction and insensitivity to temperature variations make it ideal for applications outside of the traditional calibration environment. It is compatible with the Datron Portocal Multimeter Calibration software package, a combination which forms an automated calibration system capable of calibrating any DMM. Portocal can also be expanded to other type of instrumentation, such as oscilloscopes, signal generators etc.

When used as a standalone bench operated calibrator, each 4808, 4800 and 4805 offers ease of use, high reliability, higher performance and unique functionality. All three models share the same easy-to-use front panel interface that uses high brightness seven segment vacuum flourescent displays and ergonomically designed keyboard using pushbuttons designed to give a high level of tactile feedback. Designed with operator safety in mind, specially designed safety terminals guard against accidental contact with live parts. Selection of potentially lethal output voltages requires a fixed sequence of keystrokes, and is accompanied by a continuous, audible alarm for as long as dangerous voltages are present at the output terminals.

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MODELS 4808, 4800 & 4805

4808 SPECIFICATIONS

DC Voltage (Option 10)

Ranges: 100 µV to 1000V in decades.
Resolution: 7 1/2 digits or 10 nV, whichever is greater.
Accuracy: 90 days, 23°C ±1°C: ±(ppm Output + ppmFS) (FS = 2 X Range)

100 µV to 100 mV Ranges:	3 + 0.4 µV
1V Range:	2 + 0.4
10V Range:	1 + 0.15
100V Range:	2 + 0.25
1000V Range (requires Option 30):	3 + 0.25

Output Impedance/Max Output Current:
100 µV to 100 mV Ranges: 100Ω.
1V to 1000V Ranges: 25 mA max.

AC Voltage (Option 20)

Ranges: 1 mV to 1000V in decades.
Resolution: 6 1/2 digits or 100 nV, whichever is greater.
Frequency: Ranges: 10 Hz to 1 MHz. Resolution: 1% of setting or 1Hz. Accuracy: <±100 ppm.
Maximum Capacitive load: 1000 pF on 1V to 100V ranges, 300 pF on 1000V range.
Accuracy: 90 days, 23°C ± 1°C: ±(ppm Output + ppmFS) (FS = 2 X Range)

1 mV to 100 mV Ranges

110 + 20 + 5 µV:	(10 - 31 Hz)
60 + 20 + 5 µV:	(32 - 330 Hz)
50 + 20 + 5 µV:	(300 Hz - 10 kHz)
60 + 20 + 5 µV:	(10k - 33 kHz)
250 + 20 + 5 µV:	(30k - 100 kHz)
750 + 50 + 10 µV:	(100k - 330 kHz)
1550 + 500 + 20 µV:	(300k - 1 MHz)

1V and 10V Ranges

80 + 15:	(10 - 31 Hz)
40 + 10:	(32 - 330 Hz)
30 + 5:	(300 Hz - 33 kHz)
60 + 10:	(30k - 100 kHz)
180 + 50:	(100k - 330 kHz)
1100 + 200:	(300k - 1 MHz)

100V Range

90 + 15:	(10 - 31 Hz)
50 + 10:	(32 - 330 Hz)
40 + 5:	(300 Hz - 10 kHz)
50 + 10:	(10k - 33k Hz)
90 + 15:	(30k - 100 kHz)
530 + 150:	(100k - 330 kHz)
7700 + 600:	(300k - 1MHz)

1000V Range (reqs. Opt 30)

130 + 10:	(10 - 330 Hz)
90 + 10:	(300Hz - 10 kHz)
130 + 10:	(10k - 33 kHz)
750 + 20:	(to 750V max, 30k - 100 kHz)

Output Impedance / Max Current:

1mV to 100mV ranges:	30Ω.
1V range:	50mA rms.
10V range:	60mA rms.
100V range:	120mA rms.
1000V range, <3kHz:	15mA rms.
1000V range, >3kHz:	65mA rms.

DC Current (Option 40)

Ranges: 100 µA to 10A in decades.
Resolution: 6 1/2 digits or 100 pA, whichever is greater.
Accuracy: 90 days, 23°C ± 1°C: ±(ppm Output + ppmFS) (FS = 2 X Range)

100 µA Range:	50 + 10
1 mA Range:	20 + 5
10 mA Range:	20 + 5
100 mA Range:	20 + 5
1A Range:	50 + 10
10A Range (Requires Opt. 60):	50 + 25

AC Current (Option 40)

Ranges: 100 mA to 10A in decades.
Resolution: 6 1/2 digits or 100 pA, whichever is greater.
Accuracy: 90 days, 23°C ± 1°C: ±(ppm Output + ppmFS) (FS = 2 X Range)

100 µA Range

120 + 30:	(10 Hz - 1 kHz)
250 + 40:	(1 k - 5 kHz)

1 mA, 10mA & 100mA Ranges

70 + 30:	(10 Hz - 1 kHz)
120 + 30:	(1k - 5 kHz)

1A Range

250 + 30:	(10 Hz - 1 kHz)
400 + 40:	(1k - 5 kHz)

10A Range (Reqs Opt. 60):

300 + 60:	(10 Hz - 1 kHz)
750 + 75:	(1k - 5 kHz)
1500 + 300:	(5k - 10kHz)
5400 + 1600:	(10k - 20kHz)

Resistance (Option 50)

Ranges: 10Ω to 100 MΩ in decades. (Ranges are nominal, actual calibrated values are displayed).
Connections: Selectable 2 or 4-wire, remote/local guard.
Display Resolution: 7 1/2 digits
Accuracy: 90 days, 23°C ± 1°C: ±(ppm Output):

10Ω:	10
100Ω, 1 kΩ, 10 kΩ, 100 kΩ:	3
1 MΩ:	10
10 MΩ:	25
100 MΩ:	30

4800 SPECIFICATIONS

DC Voltage (Option 10)

Ranges: 100 µV to 1000V in decades.
Resolution: 7 1/2 digits or 10 nV, whichever is greater.
Accuracy: 90 days, 23°C ±1°C: ±(ppm Output + ppmFS) (FS = 2 X Range)

100 µV to 100 mV Ranges:	5 + 1 µV
1V Range:	4 + 1
10V Range:	3 + 0.5
100V Range:	4 + 1
1000V Range (requires Opt. 30):	5 + 1

Output Impedance/Max Output Current:
100 µV to 100 mV Ranges: 100Ω.
1V to 1000V Ranges: 25 mA max.

AC Voltage (Option 20)

Ranges: 1 mV to 1000V in decades.
Resolution: 6 1/2 digits or 100 nV, whichever is greater.
Frequency: Ranges: 10 Hz to 1 MHz. Resolution: 1% of setting or 1Hz. Accuracy: <±100 ppm.
Maximum Capacitive load: 1000 pF on 1V to 100V ranges, 300 pF on 1000V range.
Accuracy: 90 days, 23°C ± 1°C: ±(ppm Output + ppmFS) (FS = 2 X Range)

1 mV to 100 mV Ranges

250 + 30 + 7 µV:	(10 - 31 Hz)
200 + 30 + 7 µV:	(32 - 330 Hz)
150 + 20 + 5 µV:	(300 Hz - 10 kHz)
160 + 30 + 7 µV:	(10k - 33 kHz)
480 + 40 + 9 µV:	(30k - 100 kHz)
1200 + 100 + 20 µV:	(100k - 330 kHz)
2300 + 1000 + 20 µV:	(300k - 1 MHz)

1V and 10V Ranges

210 + 50:	(10 - 31 Hz)
140 + 30:	(32 - 330 Hz)
80 + 20:	(300 Hz - 33 kHz)
130 + 20:	(30k - 100 kHz)
320 + 60:	(100k - 330 kHz)
2000 + 500:	(300k - 1 MHz)

100V Range

210 + 50:	(10 - 31 Hz)
140 + 30:	(32 - 330 Hz)
80 + 20:	(300 Hz - 33 kHz)
250 + 40:	(30k - 100 kHz)

1000V Range (reqs. Opt 30)

210 + 30:	(10 - 330 Hz)
160 + 20:	(300Hz - 10 kHz)
200 + 20:	(10k - 33 kHz)

Output Impedance / Max Current:

1mV to 100mV ranges:	30Ω.
1V range:	50mA rms.
10V range:	60mA rms.
100V range:	120mA rms.
1000V range, <3kHz:	15mA rms.
1000V range, >3kHz:	65mA rms.

DC Current (Option 40)

Ranges: 100 µA to 10A in decades.
Resolution: 6 1/2 digits or 100 pA, whichever is greater.
Accuracy: 90 days, 23°C ± 1°C: ±(ppm Output + ppmFS) (FS = 2 X Range)

100 µA Range:	50 + 10
1 mA Range:	35 + 10
10 mA Range:	35 + 10
100 mA Range:	35 + 10
1A Range:	60 + 15
10A Range (Reqs Opt. 60):	70 + 25

AC Current (Option 40)

Ranges: 100 mA to 10A in decades.
Resolution: 6 1/2 digits or 100 pA, whichever is greater.
Accuracy: 90 days, 23°C ± 1°C: ±(ppm Output + ppmFS) (FS = 2 X Range)

100 µA Range

120 + 30:	(10 Hz - 1 kHz)
250 + 40:	(1 k - 5 kHz)

1 mA, 10mA & 100mA Ranges

70 + 30:	(10 Hz - 1 kHz)
120 + 30:	(1k - 5 kHz)

1A Range

250 + 30:	(10 Hz - 1 kHz)
400 + 40:	(1k - 5 kHz)

10A Range (Requires Opt. 60):

300 + 100:	(10 Hz - 1 kHz)
750 + 100:	(1k - 5 kHz)
1500 + 300:	(5k - 10kHz)
5500 + 1600:	(10k - 20kHz)

Resistance (Option 50)

Ranges: 10Ω to 100 MΩ in decades. (Ranges are nominal, actual calibrated values are displayed).
Connections: Selectable 2 or 4-wire, remote/local guard.
Display Resolution: 7 1/2 digits
Accuracy: 90 days, 23°C ± 1°C: ±(ppm Output):

10Ω:	15
100Ω, 1 kΩ, 10 kΩ:	6
100kΩ:	7
1 MΩ:	16
10 MΩ:	40
100 MΩ:	80

CALIBRATORS

MODELS 4808, 4800 & 4805

4805 SPECIFICATIONS

DC Voltage

Ranges: 100 µV to 1000V in decades.
Resolution: 6 1/2 digits or 10 nV, whichever is greater.
Accuracy: 90 days, 23°C ±1°C: ±(ppm Output + ppmFS) (FS = 2 X Range)

100 µV to 100 mV Ranges:	15 + 1 µV
1V to 100V Ranges:	15 + 1

Output Impedance/Max Output Current:
100 µV to 100 mV Ranges: 100Ω.
1V to 1000V Ranges: 25 mA max.

AC Voltage (Option 20)

Ranges: 1 mV to 1000V in decades.
Resolution: 5 1/2 digits or 1 µV, whichever is greater.
Frequency: Ranges: 10 Hz to 100kHz. Resolution: 1% of setting or 1Hz. Accuracy: <±100 ppm.
Maximum Capacitive load: 1000 pF on 1V to 100V ranges, 300 pF on 1000V range.
Accuracy: 90 days, 23°C ± 1°C: ±(ppm Output + ppmFS) (FS = 2 X Range)

1 mV to 100 mV Ranges

300 + 60 + 10 µV:	(10 - 31 Hz)
250 + 60 + 10 µV:	(32 - 33kHz)
800 + 80 + 10 µV:	(30k - 100 kHz)

1V and 10V Ranges

300 + 60:	(10 - 31 Hz)
250 + 50:	(32 - 33kHz)
300 + 80:	(30k - 100 kHz)

100V Range

300 + 60:	(10 - 31 Hz)
250 + 50:	(32 - 33kHz)
300 + 80:	(30k - 100 kHz)

1000V Range

300 + 60:	(10 - 330 Hz)
250 + 50:	(300Hz - 10 kHz)
300 + 80:	(10k - 33 kHz)

Output Impedance / Max Current:

1mV to 100mV ranges:	30Ω.
1V range:	50mA rms.
10V range:	60mA rms.
100V range:	120mA rms.
1000V range, <3kHz:	15mA rms.
1000V range, >3kHz:	65mA rms.

DC Current

Ranges: 100 µA to 10A in decades.
Resolution: 5 1/2 digits or 100 pA, whichever is greater.
Accuracy: 90 days, 23°C ± 1°C: ±(ppm Output + ppmFS) (FS = 2 X Range)

100 µA to 100mA Ranges:	50 + 15
1A Range:	115 + 20
10A Range (Requires Opt. 60):	150 + 25

AC Current

Ranges: 100 mA to 10A in decades.
Resolution: 5 1/2 digits or 100 pA, whichever is greater.
Accuracy: 90 days, 23°C ± 1°C: ±(ppm Output + ppmFS) (FS = 2 X Range)

100 µA Range

400 + 80:	(10 Hz - 1 kHz)
550 + 100:	(1 k - 5 kHz)

1 mA, 10mA & 100mA Ranges

220 + 80:	(10 Hz - 1 kHz)
350 + 80:	(1k - 5 kHz)

1A Range

400 + 80:	(10 Hz - 1 kHz)
550 + 100:	(1k - 5 kHz)

10A Range (Requires Opt. 60):

500 + 100:	(10 Hz - 1 kHz)
1000 + 100:	(1k - 5 kHz)
2000 + 300:	(5k - 10kHz)
6000 + 2000:	(10k - 20kHz)

Resistance

Ranges: 10Ω to 100 MΩ in decades. (Ranges are nominal, actual calibrated values are displayed).
Connections: Selectable 2 or 4-wire, remote/local guard.
Display Resolution: 6 1/2 digits
Accuracy: 90 days, 23°C ± 1°C: ±(ppm Output):

10Ω:	30
100Ω, 1 kΩ, 10 kΩ, 100kΩ:	6
1 MΩ:	25
10 MΩ:	100
100 MΩ:	125

GENERAL (4808, 4800 & 4805)

Environmental:
Operating Temp: 0°C to +50°C.
Storage Temp: -40°C to +70°C.
Dimensions: 178 mm (7 in.) high; 455 mm (17.9 in.) wide; 563 mm (22.2 in.) deep.
Weight: 36 kg (80 lb.) net.
Power: 100/120/220/240 Vac ±10%, 50 Hz or 60 Hz. Consumption 370 VA standby, 660 VA full power.

4808 & 4800 OPTIONS

10: DCV Ranges to 200V.
20: ACV Ranges to 200V.
30: 1000V range for DCV, ACV (requires option 10, option 20 or both)
40: DCI and ACI to 2A (requires option 10, option 20 or both)
50: Ω Ranges
60: DCI and ACI ranges extender to 11A DC or RMS AC (requires Options 10 and/or 20 and option 40)
80: 115V 60Hz line operation.
81: 115V 50Hz line operation.
90: Rack Mounting Kit.

4805 OPTIONS

60: DCI and ACI ranges extender to 11A DC or RMS AC
80: 115V 60Hz line operation.
81: 115V 50Hz line operation.
90: Rack Mounting Kit.

ACCESSORIES

1510: General purpose AC and DC lead kit with fused probes
1512: 480X series calibrator to 4920 N-type, 4-wire lead set
1513: General purpose screened 4-wire AC lead set
1514: General purpose 5 banana to 3 banana DC lead set
1516: 480X series calibrator to 5 banana general purpose DC lead set

ORDER INFORMATION

Model 4808	**$11,995**
Option 10	**$3,995**
Option 20	**$7,495**
Option 30	**$4,495**
Option 40	**$3,995**
Option 50	**$1,495**
Option 60	**$5,745**
Option 80	**NC**
Option 81	**NC**
Option 90	**$275**
Configured with Options 10, 20, 30, 40, 50	**$29,995**
Configured with Options 10, 20, 30, 40, 50, 60	**$33,995**
Model 4800	**$8,050**
Option 10	**$2,995**
Option 20	**$5,495**
Option 30	**$3,995**
Option 40	**$3,495**
Option 50	**$995**
Option 60	**$5,745**
Option 80	**NC**
Option 81	**NC**
Option 90	**$275**
Configured with Options 10, 20, 30, 40, 50	**$21,995**
Configured with Options 10, 20, 30, 40, 50, 60	**$25,995**
Model 4805	**$14,845**
Model 4805 with Option 60	**$19,495**
Option 80	**NC**
Option 81	**NC**
Option 90	**$275**
Accessory 1510	**$595**
Accessory 1512	**$295**
Accessory 1513	**$360**
Accessory 1514	**$195**
Accessory 1516	**$295**

Factory/FOB: Indianapolis, IN & Norwich, England

For a demonstration contact your nearest Wavetek representative (page 146).