# USER'S HANDBOOK

# 4920M

## Alternating Voltage Measurement Standard

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Documentation Part No. 850261-1
Mod Level 1

# SECTION 6 SPECIFICATIONS

## MECHANICAL

| | |
|---|---|
| HEIGHT | 88mm (3.46ins). |
| WIDTH | 427mm (16.81ins). |
| DEPTH | 482 max. (18.98ins) which includes 13mm (0.51ins) of front-panel terminals. |
| WEIGHT | 11.5kg (25 lbs) approx. |
| RACK MOUNTING | Rack mounting ears to fit standard 19inch rack (ANSI-EIA-310-C). Conversion to accept 0.5inch wide slides, including MATE standard (Drg No. 2806701, Sperry). |
| RACK MOUNTING DEPTH | 467mm (18.39ins) excluding rear-panel connectors. |

## ENVIRONMENTAL

| | |
|---|---|
| TEMPERATURE | Non-Operating: -40°C to 71°C.<br>Operating: 10°C to 40°C. |
| HUMIDITY | Operating (non-condensing): 0°C to 30°C : < 95% ± 5% RH.<br>30°C to 40°C : <75% ± 5% RH. 40°C to 50°C : < 45% ± 5% RH. |
| ALTITUDE | Non-Operating: 0-4570m (15,000 feet).<br>Operating: 0-3050m (10,000 feet). |
| ELECTROMAGNETIC COMPATIBILITY | Meets the requirements of MIL-T-28800D for Type III, Class 5, Style E equipment. |
| SHOCK AND VIBRATION | Meets the requirements of MIL-T-28800D for Type III, Class 5, Style E equipment. |
| FUNGUS RESISTANCE | Meets the requirements of MIL-T-28800D for Type III, Class 5, Style E equipment. |

# ELECTRICAL

| | |
|---|---|
| POWER SUPPLY | Voltage: single-phase 100V-130V or 200V-260V selectable from rear panel.<br>Line Frequency: 47Hz to 63Hz. |
| POWER CONSUMPTION | 37 VA maximum. |
| INPUT PROTECTION | ACV input: 1.1kV rms all ranges.<br>WBV input: 3.5V rms all ranges. |
| INPUT IMPEDANCE | ACV input: >200Ω/V<br>WBV input: 50Ω |
| INPUT VSWR | WBV input: ≤1.02:1 from 10Hz to 20MHz |
| INPUT SENSING | True rms, periodic waveforms. |
| INPUT VOLT. HERTZ | $7.5 \times 10^7$ maximum. |
| WARM UP TIME | 30 minutes to full accuracy after power on. |
| MEASUREMENT ACCURACY | See accuracy specification tables. |
| LONG-TERM STABILITY | Better than ±15ppm for 6 months for voltages between 100mV and 1000V at frequencies between 40Hz and 20kHz. |
| ACQUISITION TIME | Normal Band: >100Hz: 3 seconds.<br><100Hz: 6 seconds.<br>Extended Band: 20 seconds. |
| AUTORANGING | ACV input: Range up at approximately 118% of range. Range down at approximately 28% of range.<br>WBV input: No autoranging capability. |
| SAFETY | Meets the requirements of MIL-T-28800D for Type III, Class 5, Style E equipment. |

# ACCURACY SPECIFICATIONS

## ACV Accuracy

| **Range and Frequency** | **Absolute Accuracy** [1][2][3][4][5] **±ppm of reading** | |
|---|---|---|
| | **18°C to 28°C** | **10°C to 18°C and 28°C to 40°C** |
| 300.0000mV to 100.0000V | | |
| 10Hz - 40Hz | 75 | 300 |
| 40Hz - 20kHz | 30 | 120 |
| 20kHz - 50kHz | 70 | 280 |
| 50kHz - 100kHz | 150 | 600 |
| 100kHz - 500kHz | 300 | 1200 |
| 500kHz - 1MHz | 1000 | 4000 |
| 300.0000V to 1000.000V | | |
| 10Hz - 40Hz | 80 | 320 |
| 40Hz - 20kHz | 35 | 140 |
| 20kHz - 50kHz | 75 | 300 |
| 50kHz - 100kHz | 150 | 600 |

## Notes to ACV Accuracy Specifications

[1] Traceable to National Standards, and inclusive of National Standards uncertainties.

[2] Valid for a period of 6 months from date of last calibration.

[3] Valid only after a 30 minute warm-up period.

[4] Specifications apply for max resolution.

[5] Specifications apply for inputs >30% of range.

## WBV Accuracy

| Range and Frequency | Absolute Accuracy [1][2][3][4] ±[ppm of reading + μV] | |
|---|---|---|
| | 18°C to 28°C | 10°C to 18°C and 28°C to 40°C |
| 1.000000V [5] | | |
| 10Hz - 500kHz | 1250 + 75 | 5000 + 300 |
| 3.000000V [6] | | |
| 10Hz - 500kHz | 1000 + 0 | 4000 + 0 |
| 500kHz - 1MHz | 1250 + 0 | 5000 + 0 |
| 1MHz - 10MHz | 1500 + 0 | 6000 + 0 |
| 10MHz - 20MHz | 2000 + 0 | 8000 + 0 |

## WBV Frequency Response

| Range and Frequency | Maximum Deviation from 1kHz Reference Level [1][2][3][4] ±ppm of reading | |
|---|---|---|
| | 18°C to 28°C | 10°C to 18°C and 28°C to 40°C |
| 3.000000V [6] | | |
| 10Hz - 40Hz | 750 | 3000 |
| 40Hz - 1MHz | 250 | 1000 |
| 1MHz - 10MHz | 500 | 2000 |
| 10MHz - 20MHz | 1000 | 4000 |

# Notes to WBV Accuracy Specifications

[1] Traceable to National Standards, and inclusive of National Standards uncertainties.

[2] Valid for a period of 6 months from date of last calibration.

[3] Valid only after a 30 minute warm-up period.

[4] Specifications apply for max resolution.

[5] Specifications apply for inputs >10% of range.

[6] Specifications apply for inputs >33% of range.

# Maximum RMS Inputs

## ACV Input [1][2][3]

| Hi | Lo | Safety Ground | Logic Ground |
|---|---|---|---|
| 1100V | | | |
| 1100V | 0V | | |
| 1100V | 0V | 0V | |

## WBV Input [1][2][3]

| Hi | Lo | Safety Ground | Logic Ground |
|---|---|---|---|
| 3.5V | | | |
| 3.5V | 0V | | |
| 3.5V | 0V | 0V | |

## Notes to Maximum Input Tables

[1] Maximum RMS inputs specified assume a peak of ≤RMS x 1.414

[2] Logic Ground and Input Signal Lo (ACV and WBV inputs) are internally connected to Safety Ground.

[3] Excessive voltage at any input during Self Test may affect performance.