

Data Sheet

Handheld Digital Multimeters Test Bench® Series



High Quality, Ruggedized, Multifunctional

High performance and value priced, the Test Bench® Series offers more features for the dollar than other multimeters. In addition to measuring voltage and current, the meters also measure capacitance, frequency and temperature, and include component test, diode test and logic indicator capabilities. See the chart below for the meter that best fits your needs. A double injection molded case provides improved grip and protection for the meters.

Features and Benefits

- Resistance measurement
- Frequency measurement
- Diode check
- Audible continuity
- All current ranges fused
- Auto power off
- Ruggedized case
- CATIII 1000 V, (all models)
- CATIV 600 V, (392 & 393)

| Features | 392 & 393 | 391A | 390A | 389A | 388B |
|---------------------------|--------------|--------------|-------------|-------------|-------------|
| True RMS | √ | √ | - | - | - |
| Ranging | Auto/Manual | Manual | Auto/Manual | Auto/Manual | Manual |
| DCV Accuracy | 0.08% | 0.05% | 0.1% | 0.25% | 0.5% |
| AC/DC Voltage and Current | √ | √ | √ | √ | √ |
| Display Digits, Count | 60000, 4 5/6 | 20000, 4 1/2 | 4000, 3 3/4 | 4000, 3 3/4 | 4000, 3 3/4 |
| Bar Graph | √ | - | √ | √ | - |
| Capacitance Measurement | √ | - | √ | √ | √ |
| Transistor Test | - | - | - | - | √ |
| Temperature Probe | √ | - | √ | - | - |
| Logic Probe | - | √ | - | - | √ |
| Relative Mode | √ | - | √ | √ | - |
| Min/Max Hold | √ | - | √ | √ | - |
| Peak Hold | √ | - | √ | √ | - |
| Data Hold | √ | √ | √ | √ | - |
| USB | 393 only | - | √ | - | - |



| Specifications | 392 & 393 | 391A | 390A | 389A | 388B |
|---------------------|--------------------------------------|----------------------------------------------------------------|------------------------------------|----------------------------------|----------------------------------------------------------------|
| Volts | True RMS reading | True RMS reading | - | - | - |
| DC Ranges | 600 mV, 6 V, 60V, 600 V, 1000 V | 200 mV, 2 V, 20 V, 200 V, 1,000 V | | 400 mV, 4 V, 40 V, 400 V, 1000 V | |
| AC Ranges | 600 mV, 6 V, 60V, 600 V, 750 V | 200 mV, 2 V, 20 V, 200 V, 750 V | | 400 mV, 4 V, 40 V, 400 V, 750 V | |
| Resolution | 0.01 mV, 0.1 mV, 1 mV, 10 mV, 100 mV | 10 μV, 100 mV, 1 mV, 10 mV, 100 mV | | 100 μV, 1 mV, 10 mV, 100 mV, 1 V | |
| Basic DC Accuracy | ±(0.08% rdg + 5 dgt) | ±(0.05% + 3 dgt) | ±(0.1% rdg + 2 dgt) | ±(0.25% rdg + 2 dgt) | ±(0.5% rdg + 1 dgt) |
| Basic AC Accuracy | ±(1.5% rdg + 20 dgt) 500 Hz - 1 kHz | ±(2% + 10 dgt) 500 Hz - 2 kHz | ±(1.5% rdg + 5 dgt) 500 Hz - 1 kHz | | ±(1.5% rdg + 3 dgt) 500 Hz - 1 kHz |
| Overload Protection | 1000 VDC or 750 VAC rms | 1200 VDC or AC rms 500 VDC/AC rms 15 sec on 200 mV range | 1100 VDC or AC rms | 1000 VDC or peak AC | 1200 VDC or AC rms 500 VDC/AC rms 15 sec on 200 mV range |
| Input Impedance | 10 MΩ, 11 MΩ on 6 V range | 10 MΩ | 400 mV: >100 MΩ, 4V: 10 MΩ | 40 V - 1000 V: 9.1 MΩ | 10 MΩ |

High Performance DMM
Test Bench® Series

| Specifications | 392 & 393 | 391A | 390A | 389A | 388B |
|----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|
| Current | | | | | |
| Ranges | 600 μ A, 6000 μ A, 60 mA, 400 mA, 20 A* | 200 μ A, 2 mA, 20 mA, 200 mA, 20 A* | 400 μ A, 4 mA, 40 mA, 400 mA, 20 A* | 400 mA, 4 mA, 40 mA, 400 mA, 2 A, 20 A* | |
| Resolution | 10 nA, 100 nA, 1 μ A, 10 μ A, 1 mA | 10 nA, 100 nA, 1 μ A, 10 μ A, 1 mA | 0.1 μ A, 1 μ A, 10 μ A, 100 μ A, 10 mA | 100 nA, 1 μ A, 10 μ A, 100 μ A, 1 mA, 10 mA | |
| DC Accuracy | 600 μ A to 60 mA: \pm (0.5% rdg + 10 dgt) 400 mA: \pm (1.0% rdg + 10 dgt) 20 A: \pm (2.0% rdg + 10 dgt) | 200 μ A to 200 mA: \pm (0.5% rdg + 5 dgt) 20 A: \pm (2% rdg + 10 dgt) | 400 μ A - 400 mA: \pm (1% rdg + 5 dgt) 20 A: \pm (2% rdg + 3 dgt) | \pm (1% rdg + 1 dgt) \pm (2% rdg + 3 dgt) | 400 μ A - 400 mA: \pm (1% rdg + 1 dgt) 2 A: \pm (1.5% rdg + 1 dgt) 20 A: \pm (3% rdg + 3 dgt) |
| AC Accuracy | 600 μ A to 400 mA: \pm (1.5% rdg + 20 dgt) 20 A: \pm (2.5% rdg + 20 dgt) | 200 μ A to 200 mA: \pm (1.2% rdg + 10 dgt) 20 A: \pm (2.5% rdg + 20 dgt) | 400 μ A to 400 mA: \pm (1.5% rdg + 4 dgt) 20 A: \pm (2.5% rdg + 4 dgt) | 400 μ A - 400 mA: \pm (1.5% rdg + 1 dgt) 2 A: \pm (2% rdg + 4 dgt) 20 A: \pm (3.5% rdg + 4 dgt) | |
| Input Protection | μ A/mA input: 0.5A/100V fast blow ceramic fuse 20A input: 20A/600A fast blow ceramic fuse | μ A/mA input: 0.5 A/500 V fast blow ceramic fuse 20 A input: 20 A/600 A fast blow ceramic fuse | | | μ A/mA input: 2 A/600 V fast blow ceramic fuse 20 A input: 20 A/600 V fast blow ceramic fuse |
| Max. Burden Voltage | 500 mV on 600 μ A & 60 mA ranges, 2 V on 6000 μ A range | 600 mV (900 mV on 20 A range) | 500 mV (2 V on 4 mA, 400 mA ranges) | 600 mV (900 mV on 2 A, 20 A ranges) | |
| Resistance | | | | | |
| Ranges | 600 Ω , 6 k Ω , 60 k Ω , 600 k Ω , 6 M Ω , 60 M Ω | 200 Ω ; 2 k Ω ; 20 k Ω ; 200 k Ω ; 2 M Ω ; 20 M Ω | 400 Ω , 4 k Ω , 40 k Ω , 400 k Ω , 4 M Ω , 40 M Ω | | |
| Resolution | 10 m Ω , 100 m Ω , 1 Ω , 10 Ω , 100 Ω , 1 k Ω | 10 m Ω ; 100 m Ω ; 1 Ω ; 10 Ω ; 100 Ω ; 1 k Ω | 100 m Ω , 1 Ω , 10 Ω , 100 Ω , 1 k Ω , 10 k Ω | | |
| Accuracy | 600 Ω : \pm (0.3% rdg + 20 dgt), 6 k Ω to 6 M Ω : \pm (0.3% rdg + 10 dgt), 6 M Ω : \pm (1.0% rdg + 10 dgt), 60 M Ω : \pm (3.0% rdg + 20 dgt) | 200 Ω , 2 M Ω : \pm (0.25% rdg + 10 dgt) 2 k Ω to 200 k Ω : \pm (0.15% rdg + 3 dgt) 20 M Ω : \pm (1.0% + 10 dgt) | 400 Ω to 400 k Ω : \pm (0.5% rdg + 4 dgt) 4 M Ω : \pm (1% rdg + 5 dgt) 40 M Ω : \pm (2% rdg + 5 dgt) | 400 Ω : \pm (1% rdg + 4 dgt) 4 k Ω to 4 M Ω : \pm (0.8% rdg + 4 dgt) 40 M Ω : \pm (2% rdg + 5 dgt) | |
| Open Circuit Voltage | -1.2 VDC typical, -3.0 VDC typical on 600 Ω range | 3.2 VDC typical | -0.45 VDC typ. (-1.2 VDC on 400 Ω range) | | 0.6 VDC typ. (3.2 VDC on 400 Ω range) |
| Overload Protection | 600 VDC or 600 VAC rms | 500 VDC or 500 AC rms | | | |
| Diode Test | Tested at 0.5 mA, 2 VDC max. typical \pm (2.0% rdg + 10 dgt) accuracy | Tested at 1 mA, 3.2 VDC max. typical \pm (1% rdg + 10 dgt) accuracy | Tested at 1.2 mA, 3.0 VDC max. typical \pm (1.5% rdg + 3 dgt) accuracy | | Tested at 1 mA, 3.2 VDC max. typical \pm (1.5% rdg + 3 dgt) accuracy |
| Transistor Test (hFE) | Does not apply | Does not apply | Does not apply | | hFE range: 0 - 1000, hFE base current: 10 μ ADC |
| Capacitance | | | | | |
| Ranges | 6 nF, 60 nF, 600 nF, 6 μ F, 60 μ F, 600 μ F, 6 mF | - | 4 nF, 40 nF, 400 nF, 4 μ F, 40 μ F, 400 μ F, 4 mF, 40 mF | 4 nF, 40 nF, 400 nF, 4 μ F, 40 μ F | |
| Resolution | 1 pF, 10 pF, 100 pF, 1 nF, 10 nF, 100 nF, 1 μ F | - | 1 pF, 10 pF, 100 pF, 1 nF, 10 nF, 100 nF, 1 μ F, 10 μ F | 0.1 pF, 1 pF, 10 pF, 100 pF, 1 nF | |
| Accuracy | 6 nF: \pm (3% rdg + 30 dgt), 60 nF to 600 μ F: \pm (3% rdg + 10 dgt), 6 mF: \pm (5% rdg + 10 dgt) | - | 4 nF: \pm (3% rdg + 20 dgt) 4 nF to 40 μ F: \pm (3% rdg + 5 dgt) 400 μ F to 40 mF: \pm (5% rdg + 10 dgt) | \pm (3% rdg + 4 dgt) | |
| Test Voltage | <1 V | - | <1V | | <3.5 V |
| Overload Protection | 600 VDC or 600 VAC rms | - | 500 VDC or AC rms | | |
| Frequency | | | | | |
| Ranges | 60 Hz, 400 Hz, 6 kHz, 60 kHz, 600 kHz, 6 MHz, 10 MHz | 2 kHz, 20 kHz, 200 kHz | 4 kHz, 40 kHz, 400 kHz, 4 MHz, 40 MHz | 4 kHz, 40 kHz, 400 kHz, 4 MHz | |
| Resolution | 0.0001Hz, 0.01 Hz, 0.1 Hz, 1 Hz, 10 Hz, 100 Hz, 1 kHz | 0.1 Hz, 1 Hz, 10 Hz | 1 Hz, 10 Hz, 100 Hz, 10 kHz, 100 kHz | 1 Hz, 10 Hz, 100 Hz, 10 kHz | |
| Accuracy | \pm (0.1% rdg + 10 dgt) | \pm (0.1% rdg + 3 dgt) | \pm (0.1% rdg + 3 dgt) | \pm (0.25% + 4 dgt) | \pm (0.1% + 2 dgt) |
| Sensitivity | >100 ns | 50 mVrms min. (At >30 & <70% duty cycle: 400 mVrms min.) | 1 Hz - 4 MHz: 1Vrms 4 MHz - 40 MHz: >2 Vrms, <5 Vrms | 250 mVrms min. on 10 Hz to 1 MHz 500 mVrms min. on 1 MHz to 4 MHz | |
| Minimum Pulse Width | >25 ns | >25 ns | >25 ns | >2 μ s | |
| Duty Cycle Limits | >30% & <70% | >30% & <70% | >30% & <70% | | |
| Minimum Input Range | >0 Hz | 2kHz:10Hz:20kHz:>60dgt; 200kHz>60dgt | - | - | - |
| Overload Protection | 600 VDC or 600 VAC rms | 500 VDC or 500 AC rms | | | |
| Logic Test | | | | | |
| Logic Threshold | - | Hi: 2.8 \pm 0.8 V, Lo: 0.8 \pm 0.5 V | - | - | Hi: 2.8 \pm 0.8 V, Lo: 0.8 \pm 0.5 V |
| Frequency Response | - | 20 MHz | - | - | 20 MHz |
| Pulse Width | - | 25 ns | - | - | 25 ns |
| Pulse Limits | - | >20% and <80% | - | - | >20% and <80% |
| Indication | - | 40 ms beep at logic 1 (Hi) | - | - | 40 ms beep at logic 1 (Hi) |
| Overload Protection | - | 500 V DC or 500 AC rms | - | - | 500 V DC or 500 AC rms |
| Temperature | | | | | |
| Range, Resolution | -58° to +2372°F 0.1F°, (-50° to + 1300°C, 0.1C°) | - | -58° to +2372°F 1F°, (-50° to + 1300°C, 1C°) | - | - |
| Accuracy | \pm (2.0% rdg + 6°F) -58°F to 32°F & 750°F to 2372°F \pm (1.0% rdg + 2°F) 32°F to 750°F \pm (2.0% rdg + 3°C) -50° to 0°C & 400°C to 1300°C, \pm (1.0% rdg + 1°C) 0°C to 400°C | - | \pm (0.8% rdg + 2°C) -50° - 400°C, \pm (1% rdg + 2°C) 400° - 1300°C | - | - |
| Duty Cycle | | | | | |
| Range, Resolution | 5 to 95%, 0.1% | 0 to 90%, 0.1% | - | - | - |
| Accuracy (SV logic) | \pm (2.0% rdg + 10 dgt) | \pm (2.0% rdg + 10 dgt) | - | - | - |
| Minimum Pulse Width | 10 μ s | 10 μ s | - | - | - |
| Frequency Range | 40 Hz to 20 kHz | 40 Hz to 20 kHz | - | - | - |
| Overload Protection | 600 VDC or 600 VAC rms | 500 VDC or 500 AC rms | - | - | - |
| General | | | | | |
| Display | 60000 count, 4 5/6 digit LCD | 20000 count, 4 1/2 digit LCD | 4000 count, 3 3/4 digit LCD with 41 segment analog bar graph | 4000 count, 3 3/4 digit LCD | |
| Polarity | Automatic, positive implied, negative polarity indication | | | | |
| Operating Temperature | 32° to 122° (0° to 50°C), 0 to 70% R.H. | | | | |
| Dimensions (HxWxD) | 7.8 x 3.5 x 1.57" (198 x 90 x 40 mm) | | | | |
| Weight | 14.1 oz. (400 g) | | | | 11.3 oz. (320 g) |
| Three-Year Warranty | | | | | |
| Included Accessories | 9 V battery, test leads, instruction manual, thermocouple probe (models 390A, 392, & 393), software and USB interface cable (models 390A & 393) | | | | |

* 10 A continuous, 20 A for 30 seconds maximum