

# 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   |
|---------------------|--------------------------------------|--|------------------------------------|----------------------------------|--|
| <b>Volts</b>        | True RMS reading                     | True RMS reading   | -                                  | -                                | -  |
| DC Ranges           | 600 mV, 6 V, 60 V, 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<br>500 VDC/AC rms 15 sec<br>on 200 mV range | 1100 VDC or AC rms                 | 1000 VDC or peak AC              | 1200 VDC or AC rms<br>500 VDC/AC rms 15 sec<br>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   |
|----------------------------|---|---|--|--|---|--|
| <b>Current</b>             |   |   |  |  |   |  |
| Ranges                     | 600 µA, 6000 µA, 60 mA, 400 mA, 20 A*   | 200 µA, 2 mA, 20 mA, 200 mA, 20 A*  |  | 400 µA, 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 µA, 10 µA, 1 mA  | 10 nA, 100 nA, 1 µA, 10 µA, 1 mA  |  | 0.1 µA, 1 µA, 10 µA, 100 µA, 10 µA   | 100 nA, 1 µA, 10 µA, 100 µA, 1 mA, 10 mA  |  |
| DC Accuracy                | 600 µA to 60 mA: ±(0.5% rdg + 10 dgt)<br>400 mA: ±(1.0% rdg + 10 dgt)<br>20 A: ±(2.0% rdg + 10 dgt)   | 200 µA to 200 mA: ±(0.5% rdg + 5 dgt)<br>20 A: ±(2% rdg + 10 dgt)                                     |  | 400 µA - 400 mA: ±(1% rdg + 5 dgt)<br>20 A: ±(2% rdg + 3 dgt)                                    | 400 µA - 400 mA: ±(1% rdg + 1 dgt)<br>2 A: ±(1.5% rdg + 1 dgt)<br>20 A: ±(3% rdg + 3 dgt)   |  |
| AC Accuracy                | 600 µA to 400 mA: ±(1.5% rdg + 20 dgt)<br>20 A: ±(2.5% rdg + 20 dgt)  | 200 µA to 200 mA: ±(1.2% rdg + 10 dgt)<br>20 A: ±(2.5% rdg + 20 dgt)                                  |  | 400 µA to 400 mA: ±(1.5% rdg + 4 dgt)<br>20 A: ±(2.5% rdg + 4 dgt)                               | 400 µA - 400 mA: ±(1.5% rdg + 1 dgt)<br>2 A: ±(2% rdg + 4 dgt)<br>20 A: ±(3.5% rdg + 4 dgt) |  |
| Input Protection           | µA/mA input: 0.5A/100V fast blow ceramic fuse<br>20A input: 20A/600A fast blow ceramic fuse   |   |  | µA/mA input: 0.5 A/500 V fast blow ceramic fuse<br>20 A input: 20 A/600 A fast blow ceramic fuse |   | µA/mA input: 2 A/600 V fast blow ceramic fuse<br>20 A input: 20 A/600 V fast blow ceramic fuse |
| Max. Burden Voltage        | 500 mV on 600 µA & 60 mA ranges,<br>2 V on 6000 µA 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)  |
| <b>Resistance</b>          |   |   |  |  |   |  |
| Ranges                     | 600 Ω, 6 kΩ, 60 kΩ, 600 kΩ, 6 MΩ, 60 MΩ   | 200 Ω, 2 kΩ, 20 kΩ, 200 kΩ, 2 MΩ, 20 MΩ   |  | 400 Ω, 4 kΩ, 40 kΩ, 400 kΩ, 4 MΩ, 40 MΩ  |   |  |
| Resolution                 | 10 mΩ, 100 mΩ, 1 Ω, 10 Ω, 100 Ω, 1 kΩ   | 10 mΩ, 100 mΩ, 1 Ω, 10 Ω, 100 Ω, 1 kΩ   |  | 100 mΩ, 1 Ω, 10 Ω, 100 Ω, 1 kΩ, 10 kΩ  |   |  |
| Accuracy                   | 600 Ω: ±(0.3% rdg + 20 dgt),<br>6 kΩ to 6 MΩ: ±(0.3% rdg + 10 dgt),<br>6 MΩ: ±(1.0% rdg + 10 dgt),<br>60 MΩ: ±(3.0% rdg + 20 dgt)   | 200 Ω, 2 MΩ: ±(0.25% rdg + 10 dgt)<br>2 kΩ to 200 kΩ: ±(0.15% rdg + 3 dgt)<br>20 MΩ: ±(1.0% + 10 dgt) |  | 400 Ω to 400 kΩ: ±(0.5% rdg + 4 dgt)<br>4 MΩ: ±(1% rdg + 5 dgt)<br>40 MΩ: ±(2% rdg + 5 dgt)      | 400 Ω: ±(1% rdg + 4 dgt)<br>4 kΩ to 4 MΩ: ±(0.8% rdg + 4 dgt)<br>40 MΩ: ±(2% rdg + 5 dgt)   |  |
| Open Circuit Voltage       | -1.2 VDC typical,<br>-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<br>±(2.0% rdg + 10 dgt) accuracy   | Tested at 1 mA, 3.2 VDC max. typical<br>±(1% rdg + 10 dgt) accuracy                                   |  | Tested at 1.2 mA, 3.0 VDC max. typical<br>±(1.5% rdg + 3 dgt) accuracy                           | Tested at 1 mA, 3.2 VDC max. typical<br>±(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 µADC  |  |
| <b>Capacitance</b>         |   |   |  |  |   |  |
| Ranges                     | 6 nF, 60 nF, 600 nF, 6 µF, 600 µF, 6 mF   | -   |  | 4 nF, 40 nF, 400 nF, 4 µF, 400 µF, 4 mF, 40 mF   | 4 nF, 40 nF, 400 nF, 4 µF, 40 µF  |  |
| Resolution                 | 1 pF, 10 pF, 100 pF, 1 nF, 10 nF, 100 nF, 1 µF  | -   |  | 1 pF, 10 pF, 100 pF, 1 nF, 10 nF, 100 nF, 1 µF, 10 µF  | 0.1 pF, 1 pF, 10 pF, 100 pF, 1 nF   |  |
| Accuracy                   | 6 nF: ±(3% rdg+30 dgt), 60 nF to 600 µF: ±(3% rdg + 10dgt), 6 mF: ±(5% rdg+10 dgt)  | -   |  | 4 nF: ±(3% rdg+20 dgt) 4 nF to 40 µF: ±(3% rdg + 5dgt)<br>400 µF to 40 mF: ±(5% rdg + 10 dgt)    | ±(3% rdg + 4 dgt)   |  |
| Test Voltage               | <1 V  | -   |  | <1 V   | <3.5 V  |  |
| Overload Protection        | 600 VDC or 600 VAC rms  |   |  | 500 VDC or AC rms  |   |  |
| <b>Frequency</b>           |   |   |  |  |   |  |
| Ranges                     | 60 Hz, 400 Hz, 6 kHz, 60 kHz,<br>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                 | 0.001Hz, 0.01 Hz, 0.1 Hz, 1 Hz,<br>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                   | ±(0.1% rdg + 10 dgt)  | ±(0.1% rdg + 3 dgt)   |  | ±(0.1% rdg + 3 dgt) ±(0.25% + 4 dgt)   | ±(0.1% + 2 dgt)   |  |
| Sensitivity                | >100 ns   | 50 mVrms min. (At>30 & <70% duty cycle: 400 mVrms min.)   |  | 1 Hz - 4 MHz: 1Vrms<br>4 MHz - 40 MHz: >2 Vrms, <5 Vrms  | 250 mVrms min. on 10 Hz to 1 MHz<br>500 mVrms min. on 1 MHz to 4 MHz                        |  |
| Minimum Pulse Width        | >25 ns  | >25 ns  |  | >25 ns   | >2 µs   |  |
| 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  |   |  |
| <b>Logic Test</b>          |   |   |  |  |   |  |
| Logic Threshold            | -   | Hi: 2.8±0.8 V, Lo: 0.8 ± 0.5 V  |  | -  | -   | Hi: 2.8±0.8 V, Lo: 0.8 ± 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   |
| <b>Temperature</b>         |   |   |  |  |   |  |
| Range, Resolution          | -58° to +2372°F, 0.1F°,<br>(-50° to + 1300°C, 0.1C°)  | -   |  | -58° to +2372°F, 1F°,<br>(-50° to + 1300°C, 1C°)   | -   | -  |
| Accuracy                   | ±(2.0% rdg + 6°F) -58°F to 32°F & 750°F to 2372°F,<br>±(1.0% rdg + 2°F) 32°F to 750°F<br>±(2.0% rdg + 3°C) -50° to 0°C & 400°C to 1300°C,<br>±(1.0% rdg + 1°C) 0°C to 400°C | -   |  | ±(0.8% rdg + 2°C) -50° - 400°C,<br>±(1% rdg + 2°C) 400° - 1300°C                                 | -   | -  |
| <b>Duty Cycle</b>          |   |   |  |  |   |  |
| Range, Resolution          | 5 to 95%, 0.1%  | 0 to 90%, 0.1%  |  | -  | -   | -  |
| Accuracy (5V logic)        | ±(2.0% rdg + 10 dgt)  | ±(2.0% rdg + 10 dgt)  |  | -  | -   | -  |
| Minimum Pulse Width        | 10 µs   | 10 µs   |  | -  | -   | -  |
| 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   |  | -  | -   | -  |
| <b>General</b>             |   |   |  |  |   |  |
| 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  | 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)   |   |  |
| <b>Three-Year Warranty</b> |   |   |  |  |   |  |
| 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

ООО "ЛайфЭлектроникс"

"LifeElectronics" LLC

ИНН 7805602321 КПП 780501001 Р/С 40702810122510004610 ФАКБ "АБСОЛЮТ БАНК" (ЗАО) в г.Санкт-Петербурге К/С 30101810900000000703 БИК 044030703

Компания «Life Electronics» занимается поставками электронных компонентов импортного и отечественного производства от производителей и со складов крупных дистрибуторов Европы, Америки и Азии.

С конца 2013 года компания активно расширяет линейку поставок компонентов по направлению коаксиальный кабель, кварцевые генераторы и конденсаторы (керамические, пленочные, электролитические), за счёт заключения дистрибуторских договоров

Мы предлагаем:

- Конкурентоспособные цены и скидки постоянным клиентам.
- Специальные условия для постоянных клиентов.
- Подбор аналогов.
- Поставку компонентов в любых объемах, удовлетворяющих вашим потребностям.
- Приемлемые сроки поставки, возможна ускоренная поставка.
- Доставку товара в любую точку России и стран СНГ.
- Комплексную поставку.
- Работу по проектам и поставку образцов.
- Формирование склада под заказчика.
- Сертификаты соответствия на поставляемую продукцию (по желанию клиента).
- Тестирование поставляемой продукции.
- Поставку компонентов, требующих военную и космическую приемку.
- Входной контроль качества.
- Наличие сертификата ISO.

В составе нашей компании организован Конструкторский отдел, призванный помочь разработчикам, и инженерам.

Конструкторский отдел помогает осуществить:

- Регистрацию проекта у производителя компонентов.
- Техническую поддержку проекта.
- Защиту от снятия компонента с производства.
- Оценку стоимости проекта по компонентам.
- Изготовление тестовой платы монтаж и пусконаладочные работы.



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