

Test Bench® High Performance DMM



391A

390A

389A

388B

High Quality,
Ruggedized,
Multifunction

High performance and value priced, the Test Bench® Series offers more features for the dollar than other multimeters. These meters include Component Test capabilities, Resistance, Diode Test and Capacitance, in addition to measuring Frequency, Temperature and a Logic Indicator. See the chart below for the meter that best fits your needs. Dual injection molding process allows a better grip and protection for the meters. CE marked and UL listed.

Common Features

- Resistance measurement
 - Diode check
 - Frequency measurement
 - Audible continuity
 - All current ranges fused
 - Ruggedized case
 - Auto power off
 - Designed to meet IEC61010-1
- CATIII 1000V, class 2**



Features

| | models | | | |
|---------------------------|--------------|-------------|-------------|-------------|
| | 391A | 390A | 389A | 388B |
| Basic Functions | | | | |
| True RMS | √ | | | |
| Ranging | Manual | Auto/Manual | Auto/Manual | Manual |
| DCV Accuracy | 0.05% | 0.1% | 0.25% | 0.5% |
| AC/DC Voltage and Current | √ | √ | √ | √ |
| Display Digits, Count | 4 1/2, 20000 | 3 3/4, 4000 | 3 3/4, 4000 | 3 3/4, 4000 |
| Bar Graph (41 Segment) | | √ | √ | |
| Capacitance Measurement | | √ | √ | √ |
| Transistor Test | | | | √ |
| Temperature Probe | | √ | | |
| Logic Probe | √ | | | √ |
| Relative Mode | | √ | √ | |
| Min/Max Hold | | √ | √ | |
| Peak Hold | | √ | √ | |
| Data Hold | √ | √ | √ | |
| RS-232 | | √ | | |

Specifications

| | models | | | |
|---------------------|---|---|-------------------------------|---|
| | 391A | 390A | 389A | 388B |
| Volts | True RMS reading | | | |
| DC Ranges | 200mV, 2V, 20V, 200V, 1,000V | 400mV, 4V, 40V, 400V, 1000V | | |
| AC Ranges | 200mV, 2V, 20V, 200V, 750V | 400mV, 4V, 40V, 400V, 750V | | |
| Resolution | 10μV, 100mV, 1 mV 10mV, 100mV | 100μV, 1mV, 10mV, 100mV, 1V | | |
| DC Accuracy | ±(0.05% + 3 dgt) | ±(0.1% rdg + 2 dgt) | ±(0.25% rdg + 2 dgt) | ±(0.5% rdg + 1 dgt) |
| AC Accuracy | ±(1% + 10 dgt.) 50Hz-500Hz ±(2% + 10 dgt.) 500Hz - 2kHz, | 400mV: ±(1.2% rdg + 5 dgt) 50Hz-100Hz | > 10% of range at 200mV range | ±(1.2% rdg + 4 dgt) 750V: ±(2% rdg + 4 dgt) |
| Overload Protection | 500Hz on 750V range 1200VDC or AC rms | ±(1.0% rdg + 3 dgt) 50Hz-500Hz 1100VDC or AC rms | | ±(1.5% rdg + 3 dgt) 500Hz-1kHz 1200VDC or AC rms |
| | 500VDC/AC rms 15 sec on 200mV range | | | 500VDC/AC rms 15 sec on 200mV range |
| Input Impedance | 10MΩ | 400mV: > 100MΩ, 4V: 10MΩ, | 40V - 1000V: 9.1MΩ | 10MΩ |

Specifications (continued)

| | 391A | 390A | 389A | models 388B |
|-----------------------|---|---|---------------------------------------|---|
| Current | True RMS reading | | | |
| Ranges | 200µA, 2mA, 20mA, 200mA, 20A* | 400µA, 4mA, 40mA, 400mA, 20A* | | 400mA, 4mA, 40mA, 400mA, 2A, 20A* |
| Resolution | 10nA, 100nA, 1µA, 10µA, 1mA | 0.1µA, 1µA, 10µA, 100µA, 10mA | | 100nA, 1µA, 10µA, 100µA, 1mA, 10mA |
| DC Accuracy | 200µA to 200mA: ±(0.5% rdg + 5 dgt.) 20A: ±(2% rdg + 10 dgt.) | 400µA - 400mA: ±(1% rdg + 5dgt) 20A: ±(2% rdg + 3 dgt) | ±(1% rdg + 1 dgt) ±(2% rdg + 3dgt) | 400µA - 400mA: ±(1% rdg + 1 dgt) 2A: ±(1.5% rdg + 1 dgt) 20A: ±(3% rdg + 3 dgt) |
| AC Accuracy | 200µA to 200mA: ±(1.2% rdg + 10 dgt.) 20A: ±(2.5% rdg + 20 dgt.) | 400µA to 400mA: ±(1.5% rdg + 4 dgt) 20A: ±(2.5% rdg + 4 dgt.) | | 400µA - 400mA: ±(1.5% rdg + 1 dgt) 2A: ±(2% rdg + 4 dgt) 20A: ±(3.5% rdg + 4 dgt) |
| Input Protection | µA/mA input: 0.5A/500V fast blow ceramic fuse 20A input: 20A/600A fast blow ceramic fuse | µA/mA input: 0.5A/500V fast blow ceramic fuse 20A input: 20A/600A fast blow ceramic fuse | | µA/mA input: 2A/600V fast blow ceramic fuse 20A input: 20A/600V fast blow ceramic fuse |
| Max. Burden Voltage | 600mV (900mV on 20A range) | 500mV (2V on 4mA, 400mA ranges) | | 600mV (900mV on 2A, 20A ranges) |
| Resistance | | | | |
| Ranges | 200Ω, 2kΩ, 20kΩ, 200kΩ; 2MΩ, 20MΩ | 400Ω, 4kΩ, 40kΩ, 400kΩ, 4MΩ, 40MΩ | | |
| Resolution | 10mΩ, 100mΩ, 1Ω, 10Ω, 100Ω, 1kΩ | 100mΩ, 1Ω, 10Ω, 100Ω, 1kΩ, 10kΩ | | |
| Accuracy | 200Ω, 2MΩ: ±(0.25% rdg + 10 dgt.) 2kΩ to 200kΩ: ±(0.15% rdg + 3 dgt.) 20MΩ: ±(1.0% + 10 dgt.) | 400Ω to 400kΩ: ±(0.5% rdg + 4 dgt.) 4MΩ: ±(1% rdg + 5 dgt.) 40MΩ: ±(2% rdg + 5 dgt.) | | 400Ω: ±(1% rdg + 4 dgt.) 4kΩ to 4MΩ: ±(0.8% rdg + 4 dgt.) 40MΩ: ±(2% rdg + 5 dgt.) |
| Open Circuit Voltage | 3.2VDC typ. | -0.45VDC typ. (-1.2VDC on 400Ω range) | | 0.6VDC typ. (3.2VDC on 400Ω range) |
| Overload Protection | 500VDC or ACrms | 500VDC or ACrms | | |
| Diode Test | Tested at 1mA, 3.2VDC max. typ. ±(1% rdg + 10 dgt.) accuracy | Tested at 1.2mA, 3.0VDC max. typ. ±(1.5% rdg + 3 dgt.) accuracy | | Tested at 1mA, 3.2VDC max. typ. ±(1.5% rdg + 3 dgt.) accuracy |
| Transistor Test (hFE) | Does not apply | Does not apply | | hFE range: 0 - 1000 hFE base current: 10µADC |
| Capacitance | | | | |
| Ranges | Does not apply | 4nF, 40nF, 400nF, 4µF, 40µF, 400µF, 4mF, 40mF | | 4nF, 40nF, 400nF, 4µF, 40µF |
| Resolution | | 1pF, 10pF, 100pF, 1nF, 10nF, 100nF, 1µF, 10µF | | 0.1pF, 1pF, 10pF, 100pF, 1nF |
| Accuracy | | 4nF: ±(3% rdg + 20 dgt.) 4nF to 40µF: ±(3% rdg + 5 dgt.) 400µF to 40mF: ±(5% rdg + 10 dgt.) | | ±(3% rdg + 4 dgt.) |
| Test Voltage | | < 1V | | < 3.5V |
| Overload Protection | | 500VDC or AC rms | | |
| Frequency | | | | |
| Ranges | 2kHz, 20kHz, 200kHz | 4kHz, 40kHz, 400kHz, 4MHz, 40MHz | | 4kHz, 40kHz, 400kHz, 4MHz |
| Resolution | 0.1 Hz, 1Hz, 10Hz | 1Hz, 10Hz, 100Hz, 10kHz, 100kHz | | 1Hz, 10Hz, 100Hz, 10kHz |
| Accuracy | ±(0.1% rdg + 3 dgt.) | ±(0.1% rdg + 3 dgt.) | | ±(0.1% + 2 Digits) |
| Sensitivity | 50mVrms min. (@ >30 & <70% duty cycle: 400mVrms min.) | 1Hz - 4MHz: 1Vrms 4MHz - 40MHz: >2Vrms, <5Vrms | | 250mVrms min. on 10Hz to 1MHz 500mVrms min. on 1MHz to 4MHz |
| Minimum Pulse Width | >25ns | >25ns | | >2µs |
| Duty Cycle Limits | >30% & <70% | >30% & <70% | | |
| Minimum Input Range | 2kHz: 10Hz; 20kHz: >60dgt; 200kHz: >60dgt | | | |
| Overload Protection | 500VDC or AC rms | 500VDC or AC rms | | |
| Logic Test | | | | |
| Logic Threshold | Hi=2.8±0.8V, 0=0.8 ± 0.5V | Does not apply | | Hi=2.8±0.8V, 0=0.8 ± 0.5V |
| Frequency Response | 20MHz | | | 20MHz |
| Pulse Width | 25ns | | | 25ns |
| Pulse Limits | >20% and <80% | | | >20% and <80% |
| Indication | 40m sec beep at logic 1 (Hi) | | | 40m sec beep at logic 1 (Hi) |
| Overload Protection | 500V DC or ACrms | | | 500V DC or ACrms |
| Temperature | | | | |
| Range, Resolution | Does not apply | -58° to +2372°F, 1F° (-50° to +1300°C, 1C°) | | Does not apply |
| Accuracy | | ±(0.8% rdg + 2°C) -50° - 400°C ±(1% rdg + 2°C) 400° - 1300°C | | |
| Duty Cycle | | | | |
| Range, Resolution | 0 to 90%, 0.1% | Does not apply | | Does not apply |
| Accuracy (5V logic) | ±(2.0% rdg + 10 dgt.) | | | |
| Minimum Pulse Width | 10µs | | | |
| Frequency Range | 40Hz to 20kHz | | | |
| Overload Protection | 500VDC or AC rms | | | |
| General | | | | |
| Display | 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 40mm) | | | |
| Weight | 11.3 oz. (320g). | | | |

Accessories

Three Year Warranty

SUPPLIED: 9 Volt Battery, Test Leads, Instruction Manual, Thermocouple Probe (Model 390)
 OPTIONAL: TL-2A Deluxe Test Leads, TL-3 Accessory Tip Kit (for TL-2A), PR-28A High Voltage Probe (40kVDC), TL-130A General Purpose DMM Kit
 Carrying Case (not included): LC-29B

*10 A continuous, 20A for 30 seconds max.