

Data Sheet

40,000 Count Dual-Display Handheld LCR Meters 878B and 879B



Features & Benefits

- 40,000 counts resolution on primary and 10,000 counts resolution on secondary display
- L, C, R and Z (879B only) primary measurements
- Automatic calculation of secondary parameters D, Q, θ , ESR (θ /ESR for 879B only)
- 0.5% basic accuracy
- Fast auto range design for rapid, easy component measurements
- Relative mode
- Visible and audible tolerance mode
- Data Hold and Min/Max/Average recording
- USB (Virtual COM) interface
- SCPI compliant commands for remote communication
- Software for datalogging and front panel emulation available as free download
- Selectable auto-power-off options
- Configurable power-up-states
- 3 year warranty

Full Featured Handheld LCR Meters

B&K Precision's 878B and 879B 40,000-count handheld LCR meters measure inductance, capacitance, and resistance quickly and precisely. Additionally, the 879B can calculate impedance, Theta, and ESR, features typically found in bench LCR meters only.

Fast auto ranging and quick measurement configuration such as measurement parameter and test frequency selection make the 878B and 879B very simple to operate. The meters also include handy functions such as data hold, Min/Max/Average recording, tolerance sorting, and relative mode.

Measurement data can continuously transfer to a PC via the meter's mini USB interface, using either the provided data logging software or SCPI commands sent from a custom program.

ESR Measurements

Model 879B has the ability to measure the ESR (Equivalent Series Resistance) of capacitors. ESR is the sum of in-phase AC resistance of a capacitor and used to rate a capacitor's quality. An ideal capacitor would be lossless and have an ESR of zero. A capacitor could measure the correct capacitance value, yet still be defective, due to the component's excessive in-phase AC resistance. The 879B would be able to detect this faulty component.

Applications

- Passive component trouble shooting
- Electronic assembly
- Quality control (component sorting)

| Specifications | 878B | 879B |
|-----------------|---------------|----------------------------------|
| Measurements | L, C, R, D, Q | L, C, R, Z, D, Q, θ , ESR |
| Test frequency | 120 Hz, 1 kHz | 100Hz, 120 Hz, 1 kHz, 10 kHz |
| Backlit display | No | yes |
| Tolerance mode | 1%, 5%, 10% | 1%, 5%, 10%, 20% |

▲ Versatile Configuration

Flexible Operation

A tilt stand provides position flexibility for viewing and operating the meter. The over-molding rubber case protects the meter for better durability. A single 9V battery or the included DC 12V power adapter (with model 879B) can be used to power the meter, giving the user options for portable or bench-top use.

Faster Auto Range

The advanced auto range circuit design means you get faster measurements without the need to manually select ranges.

Dual Display

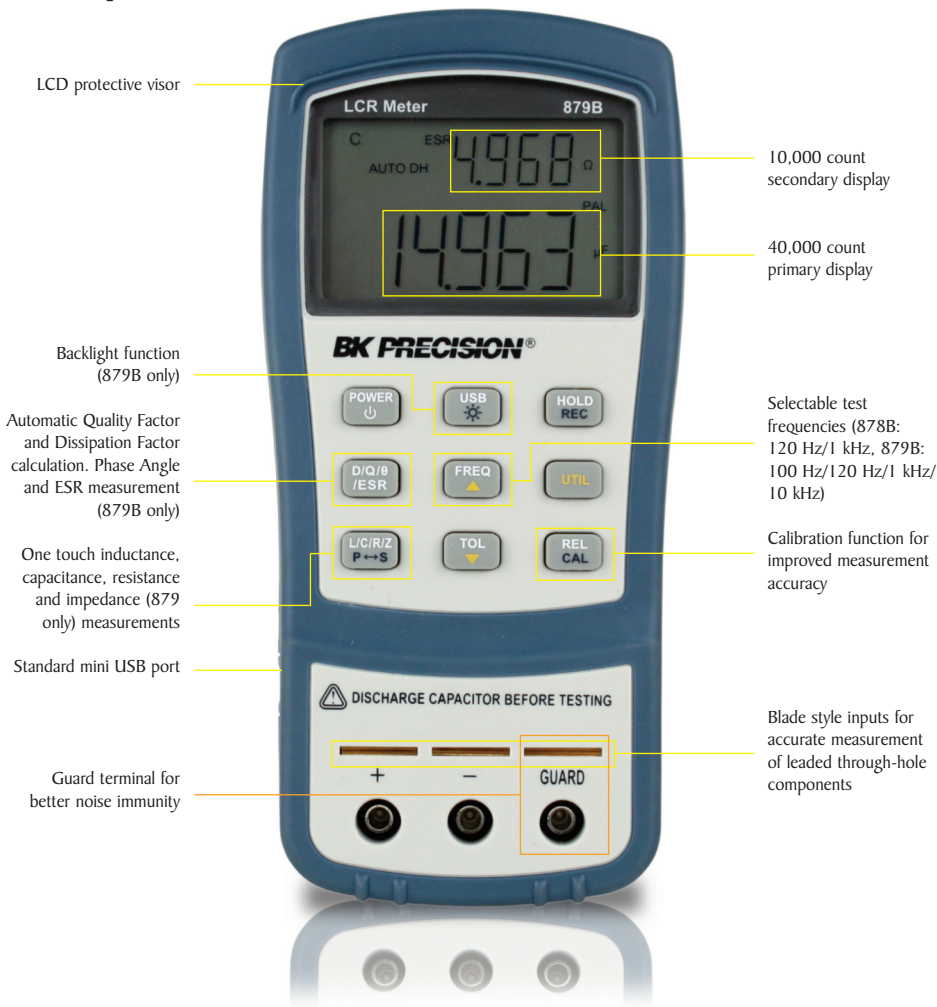
The 878B and 879B's dual display allows multiple measurements to be conveniently displayed at once.

Increase Productivity with PC Connectivity

Free downloadable software is available for your handheld LCR meter. View and log measurements and setup and configure the instrument's measurement parameters.



▲ Easy Front Panel Operation



Specifications

General

| Model | 878B | 879B |
|--|---|--|
| Measurement Parameters | L/C/R/D/Q | L/C/R/Z/D/Q/θ/ESR |
| Test Frequency Accuracy is 0.02% of actual test frequency | 120 Hz, 1 kHz (Test setting) 120.048 Hz, 1 kHz (Actual frequency) | 100 Hz, 120 Hz, 1 kHz, 10 kHz (Test setting) 100 Hz, 120.048 Hz, 1 kHz, 10 kHz (Actual frequency) |
| Tolerance Mode | 1%, 5%, 10% | 1%, 5%, 10%, 20% |
| Backlit Display | None | Yes |
| Test Signal Level | ≈ 0.6 Vrms | |
| Measuring Circuit Mode | Series mode / Parallel mode | |
| Basic Accuracy | 0.5% | |
| Ranging Mode | Auto | |
| Measuring Terminals | 3 terminals with sockets | |
| Measurement Rate | 1.5 reading/second (range auto search not included) | |
| Response Time | ≈ 680 ms/DUT | |
| Auto Power-Off | 5, 15, 30, 60 minutes, None | |
| Operation Temperature | 32° F to 104° F (0° to 40° C); 0-70 % R.H. | |
| Storage Temperature | -4° F to 122 °F (-20° to +50° C); 0-80 % R.H. | |
| Low Battery Indication | ≈ 6.8 V | |
| Battery Life | ≈ 16 hours using Alkaline Battery @ 1 kHz with 100 Ω DUT, with backlight off | |
| Power Consumption | ≈ 28 mA (under full power battery) for operation/ 2 μA after Power-off. | |
| Power Requirements | 1) DC 9V Battery, 2) Ext. DC Adapter*: DC 12 Vmin –15 Vmax. (Load 50 mA Min.) | |
| Dimensions (L/W/H) | 7.5" x 3.5" x 1.6" (190 x 90 x 41) mm | |
| Weight | 0.7 lbs (330 grams) | |
| Three-Year Warranty | | |
| Standard Accessories | Banana to Alligator Test Leads, 9V Battery, Mini USB Interface Cable, Manual, AC Adapter* (879B only) | |
| Optional Accessories | BE800 120 VAC Wall Adapter, BE802 230 VAC European Two Prong Wall Adapter | |

* The 879B includes a 120 V AC adapter. For a 230 V AC adapter, order model 879B EXD. The AC adapters are optional accessories for the 878B.

Accuracy Specifications

Accuracy is expressed as ±(% of reading + number of last significant digits) and based within 10% to 100% of full scale of range
Valid after 30 minutes of warm up time and operation at 23 °C + 5 °C, <75% R.H.

| | Range | Max Display | Lx Accuracy | DF (Dx <0.5) | Measurement Mode |
|----------------|---------|-------------|-----------------|------------------|------------------|
| 100 Hz*/120 Hz | 1000 H | 1000.0 H | 1.5% + 3 digits | 1.5% + 50 digits | Parallel |
| | 400 H | 399.99 H | 0.7% + 2 digits | 0.7% + 50 digits | Parallel |
| | 40 H | 39.999 H | 0.7% + 2 digits | 0.7% + 50 digits | Series/ Parallel |
| | 4000 mH | 3999.9 mH | 0.5% + 1 digits | 0.5% + 50 digits | Series |
| | 400 mH | 399.99 mH | 0.6% + 2 digits | 0.6% + 50 digits | Series |
| | 40 mH | 39.999 mH | 0.9% + 2 digits | 0.9% + 50 digits | Series |
| | 4 mH | 3.9999 mH | 2.8% + 3 digits | 2.8% + 50 digits | Series |
| 1 kHz | 100 H | 100.00 H | 1.5% + 3 digits | 1.5% + 50 digits | Parallel |
| | 40 H | 39.999 H | 0.7% + 2 digits | 0.7% + 50 digits | Parallel |
| | 4000 mH | 3999.9 mH | 0.7% + 2 digits | 0.7% + 50 digits | Series/ Parallel |
| | 400 mH | 399.99 mH | 0.5% + 1 digits | 0.5% + 50 digits | Series |
| | 40 mH | 39.999 mH | 0.6% + 2 digits | 0.6% + 50 digits | Series |
| | 4000 μH | 3999.9 μH | 0.9% + 2 digits | 0.9% + 50 digits | Series |
| | 400 μH | 399.99 μH | 2.8% + 3 digits | 2.8% + 50 digits | Series |
| 10 kHz* | 1000 mH | 1000.0 mH | 1.5% + 3 digits | 1.5% + 50 digits | Parallel |
| | 400 mH | 399.99 mH | 0.7% + 2 digits | 0.7% + 50 digits | Series/ Parallel |
| | 40 mH | 39.999 mH | 0.5% + 1 digits | 0.5% + 50 digits | Series |
| | 4000 μH | 3999.9 μH | 0.6% + 2 digits | 0.6% + 50 digits | Series |
| | 400 μH | 399.99 μH | 0.9% + 2 digits | 0.9% + 50 digits | Series |
| | 40 μH | 39.99 μH | 2.8% + 3 digits | 2.8% + 50 digits | Series |

Specifications (cont.)

| | | Range | Max Display | Cx Accuracy | DF (Dx <0.5) | Measurement Mode |
|-------------|----------------|---------|-------------|-----------------|------------------|------------------|
| Capacitance | 100 Hz*/120 Hz | 20 mF | 20.000 mF | 8% + 3 digits | 8% + 50 digits | Series |
| | | 4000 µF | 3999.9 µF | 2% + 2 digits | 2% + 50 digits | Series |
| | | 400 µF | 399.99 µF | 0.7% + 2 digits | 0.7% + 50 digits | Series |
| | | 40 µF | 39.999 nF | 0.5% + 1 digits | 0.5% + 50 digits | Series |
| | | 4000 nF | 3999.9 nF | 0.5% + 1 digits | 0.5% + 50 digits | Series/ Parallel |
| | | 400 nF | 399.99 nF | 0.5% + 2 digits | 0.5% + 50 digits | Series/ Parallel |
| | | 40 nF | 39.999 nF | 0.7% + 1 digits | 0.7% + 50 digits | Parallel |
| | | 4 nF | 3.9999 nF | 2.5% + 2 digits | 2.5% + 50 digits | Parallel |
| Capacitance | 1 kHz | 1000 µF | 1000.0 µF | 3.7% + 3 digits | 3.7% + 50 digits | Series |
| | | 400 µF | 399.99 µF | 2% + 2 digits | 2% + 50 digits | Series |
| | | 40 µF | 39.999 µF | 0.7% + 2 digits | 0.7% + 50 digits | Series |
| | | 4000 nF | 3999.9 nF | 0.5% + 1 digit | 0.5% + 50 digit | Series |
| | | 400 nF | 399.99 nF | 0.5% + 2 digits | 0.5% + 50 digits | Series/ Parallel |
| | | 40 nF | 39.999 nF | 0.5% + 2 digits | 0.5% + 50 digits | Series/ Parallel |
| | | 4000 pF | 3999.9 pF | 0.7% + 2 digits | 0.7% + 50 digits | Parallel |
| | | 400 pF | 399.9 pF | 2.5% + 2 digits | 2.5% + 50 digits | Parallel |
| Capacitance | 10 kHz* | 100 µF | 100.00 µF | 3.9% + 5 digits | 3.9% + 50 digits | Series |
| | | 40 µF | 39.999 µF | 3.7% + 3 digits | 3.7% + 50 digits | Series |
| | | 4000 nF | 3999.9 nF | 0.7% + 2 digits | 0.7% + 50 digits | Series |
| | | 400 nF | 399.99 nF | 0.5% + 2 digits | 0.5% + 50 digits | Series |
| | | 40 nF | 39.999 nF | 0.5% + 1 digit | 0.5% + 50 digit | Series/ Parallel |
| | | 4000 pF | 3999.9 nF | 0.5% + 2 digits | 0.5% + 50 digits | Series/ Parallel |
| | | 400 pF | 399.99 pF | 0.7% + 2 digits | 0.7% + 50 digits | Parallel |
| | | 40 pF | 39.99 pF | 2.5% + 2 digits | 2.5% + 50 digits | Parallel |

| | | Range | Max Display | R/Zx Accuracy | θ Accuracy* | Measurement Mode |
|-----------------------|------------------------------|---------|-------------|-----------------|-------------|------------------|
| Resistance/Impedance* | 100 Hz/120 Hz/ 1 kHz/10 kHz* | 10 MΩ | 10.000 MΩ | 5.5% + 3 digits | ±3.2° | Parallel |
| | | 4000 kΩ | 3999.9 kΩ | 2.5% + 2 digits | ±1.5° | Parallel |
| | | 400 kΩ | 399.99 kΩ | 0.7% + 2 digits | ±0.4° | Parallel |
| | | 40 kΩ | 39.999 kΩ | 0.5% + 2 digits | ±0.3° | Series/ Parallel |
| | | 4000 Ω | 3999.9 Ω | 0.5% + 2 digits | ±0.3° | Series/ Parallel |
| | | 400 Ω | 399.99 Ω | 0.5% + 2 digits | ±0.3° | Series |
| | | 40 Ω | 39.999 Ω | 0.7% + 2 digits | ±0.4° | Series |
| | | 4 Ω | 3.9999 Ω | 2.0% + 2 digits | ±1.2° | Series |

| | | Range | Max Display | ESR Accuracy | Measurement Mode |
|------|------------------------------|--------|-------------|-----------------|------------------|
| ESR* | 100 Hz/120 Hz/ 1 kHz/ 10 kHz | 1000 Ω | 999.9 Ω | 0.5% + 2 digits | Series |
| | | 100 Ω | 99.99 Ω | 0.5% + 2 digits | Series |
| | | 10 Ω | 9.999 Ω | 0.7% + 2 digits | Series |
| | | 1 Ω | .9999 Ω | 2.0% + 2 digits | Series |

* = Model 879B only

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- 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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