

MeasureReady™ Model 155 Precision I/V Source

An ultra-low noise, high precision current/voltage source for scientific applications



Unique TiltView™ screen
for better visibility and ease of use

- Bipolar, 4-quadrant I/V source
- DC and AC modes supported up to 100 kHz
- Full scale ranges from 10 mV to 100 V (1 μ A to 100 mA)
- 0.001% programming resolution
- Low peak to peak noise: from 1 μ V at 10 mV full scale
- Manual and autorange function
- Smartphone-based touchscreen user interface



Mobile app for remote operation

Lower noise for better measurements

To reliably characterize developing semiconductor materials and devices, you need high quality current or voltage sources to excite samples. A cleaner (i.e., lower noise) excitation signal enables better measurement of the sample's response.

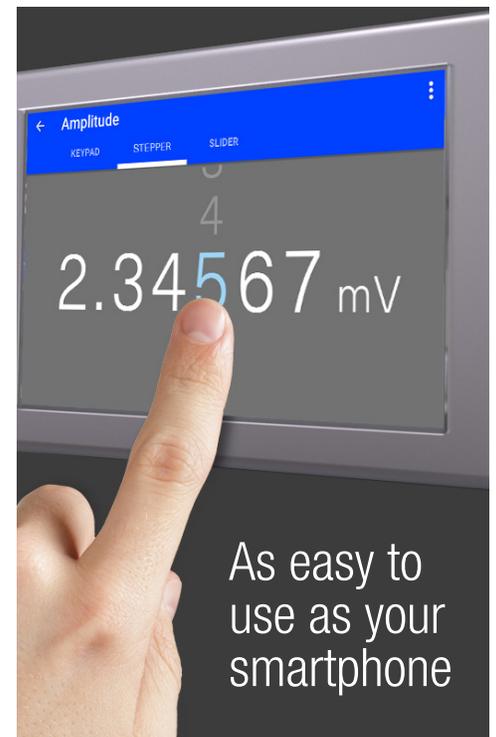
The MeasureReady™ Model 155 precision I/V sources are ideal for electronic material characterization and other demanding scientific applications requiring a precise, low-noise supply of current or voltage. Supplying 1 W maximum from DC to 100 kHz over a broad output range, these sources provide a solid foundation for I/V curve, Hall effect, and other fundamental measurements.

Expand function with online updates

With online software updates, your instrument will always have the most current capabilities. As Lake Shore introduces new options in the future, you can purchase and download them to your instrument. This allows the Model 155 to grow as your measurement needs evolve.

Built for science. Designed for people.

These all-new sources combine premium performance with unprecedented simplicity and intuitive operation. Made for the way you work today, the MeasureReady™ Model 155 precision I/V sources feature an uncluttered touch display with a unique TiltView™ screen, presenting a natural and engaging user interface. With no confusing buttons or long learning curves, the Model 155 is as easy to use as your smartphone. Full connectivity (Bluetooth, Wi-Fi, USB, or LAN) provides convenient remote operation via LabVIEW™, custom PC interface, or the mobile app.



As easy to
use as your
smartphone

Intuitive, uncluttered touch display

Preliminary specifications

Voltage

| DC/peak ranges | Maximum peak current | Maximum peak power | Programming resolution (0.001%) | DC accuracy 23 °C ± 5 °C ± (% setting + offset) | AC accuracy 23 °C ± 5 °C ± (% setting + % range) | Typical noise (RMS/pk-pk) | |
|----------------|----------------------|--------------------|---------------------------------|---|--|---------------------------|------------------|
| | | | | | | 0.1 Hz to 10 Hz | 10 Hz to 100 kHz |
| 10 mV | 100 mA | 1 mW | 100 nV | 0.05%+100 µV | — | 200 nV/1 µV | 7 µV/35 µV |
| 100 mV | 100 mA | 10 mW | 1 µV | 0.05%+100 µV | 0.5 % + 0.05% (up to 20 kHz) | 200 nV/1 µV | 7 µV/35 µV |
| 1 V | 100 mA | 100 mW | 10 µV | 0.05%+200 µV | | 300 nV/1.5 µV | 7 µV/35 µV |
| 10 V | 100 mA | 1 W | 100 µV | 0.05%+2 mV | | 2.4 µV/12 µV | 12 µV/60 µV |
| 100 V | 10 mA | 1 W | 1 mV | 0.05%+20 mV | | 22 µV/110 µV | 120 µV/600 µV |

Current — low voltage compliance

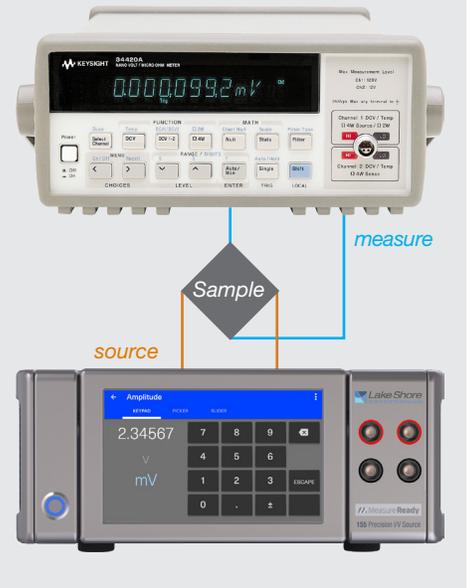
| Ranges | Peak compliance voltage | Maximum peak power | Programming resolution (0.001%) | DC accuracy 23 °C ± 5 °C ± (% setting + offset) | AC accuracy 23 °C ± 5 °C ± (% setting + % range) | Typical noise (RMS/pk-pk) | |
|--------|-------------------------|--------------------|---------------------------------|---|--|---------------------------|------------------|
| | | | | | | 0.1 Hz to 10 Hz | 10 Hz to 100 kHz |
| 1 µA | 10 V | 10 µW | 10 pA | 0.05% + 200 pA | — | TBD | 70 pA/350 pA |
| 10 µA | | 100 µW | 100 pA | 0.05% + 2 nA | 1% + 0.2% (up to 20 kHz) | TBD | 300 pA/1.5 nA |
| 100 µA | | 1 mW | 1 nA | 0.05% + 20 nA | | TBD | 500 pA/2.5 nA |
| 1 mA | | 10 mW | 10 nA | 0.05% + 200 nA | | TBD | 4 nA/20 nA |
| 10 mA | | 100 mW | 100 nA | 0.05% + 2 µA | | TBD | 40 nA/200 nA |
| 100 mA | | 1 W | 1 µA | 0.05% + 20 µA | | TBD | 400 nA/2 µA |

Current — high voltage compliance

| Ranges | Peak compliance voltage | Maximum peak power | Programming resolution (0.001%) | DC accuracy 23 °C ± 5 °C ± (% setting + offset) | AC accuracy 23 °C ± 5 °C ± (% setting + % range) | Typical noise (RMS/pk-pk) | |
|--------|-------------------------|--------------------|---------------------------------|---|--|---------------------------|------------------|
| | | | | | | 0.1 Hz to 10 Hz | 10 Hz to 100 kHz |
| 1 µA | 100 V | 100 µW | 10 pA | 0.05% + 200 pA | — | TBD | 500 pA/2.5 nA |
| 10 µA | | 1 mW | 100 pA | 0.05% + 2 nA | 1% + 0.2% (up to 20 kHz) | TBD | 600 pA/3 nA |
| 100 µA | | 10 mW | 1 nA | 0.05% + 20 nA | | TBD | 800 pA/4 nA |
| 1 mA | | 100 mW | 10 nA | 0.05% + 200 nA | | TBD | 8 nA/40 nA |
| 10 mA | | 1 W | 100 nA | 0.05% + 2 µA | | TBD | 80 nA/400 nA |

A perfect pair

Combined with a quality digital meter such as the Keysight 34420A, the Model 155 I/V source provides greater measurement flexibility and performance when compared to some traditional all-in-one source-measure units (SMUs).



From precision thermometry to advanced measurement

Lake Shore has advanced science by providing cryogenic temperature and magnetic instrumentation to researchers and engineers for decades. At the heart of these instruments are special low-noise current and voltage sources that excite the attached sensors. This has led us to develop ultra-low noise voltage and current sources as standalone instruments for a wider range of demanding applications. The all-new design of the Model 155 sources offers premium performance, easy operation, and modern convenience, backed by Lake Shore's quality and service.

155 rear panel

