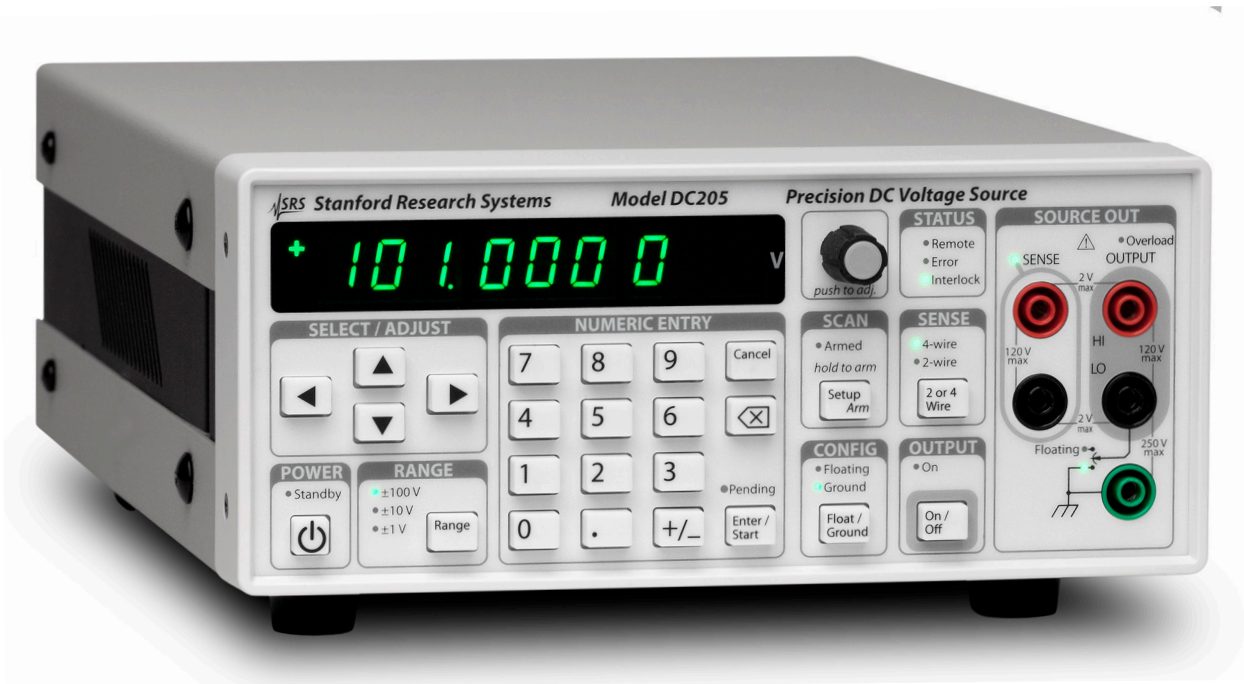
Precision DC Source

DC205 — ±100 VDC source



DC205 Precision DC Source

- **±100 VDC range**
- **True 6-digit resolution**
- **1 ppm/°C stability**
- **0.0025 % accuracy (1 yr.)**
- **Triggerable voltage scans**
- **Low-noise design**
- **Linear power supply**
- **RS-232, USB and fiber optic interfaces**

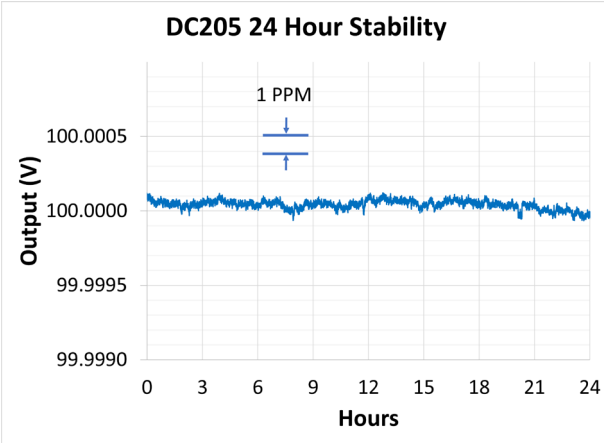
The DC205 low-noise, high-resolution DC voltage source is the right tool when a precision bias source is needed. Its bipolar, four-quadrant output delivers up to 100 V with 1 µV resolution and up to 50 mA of current. In 4-wire mode (remote sense), the instrument corrects for lead resistance delivering accurate potential to your load. The DC205's output stability is a remarkable ±1 ppm over 24 hours. With its linear power supply, there is no need to worry about high-frequency noise.

True 6-Digit Resolution

The front-panel display of the DC205 lets you set voltage with true 6-digit resolution. There are three voltage ranges to choose from: ±1 V, ±10 V and ±100 V which allows voltage settings from 1 µV to 100 V — eight orders of magnitude!

Low-Noise Design

The DC205 has outstanding noise characteristics — on the 1 V range, the rms noise is less than 1 µV (0.1 Hz to 10 Hz). It is also accurate to 0.0025 % over a one year period, and it has excellent temperature stability with a specification of less than 1 ppm/°C. The design even features linear power supplies rather than switching power supplies, so switching frequency interference can never be a problem.



DC205 Stability

Bipolar, Four-Quadrant Output

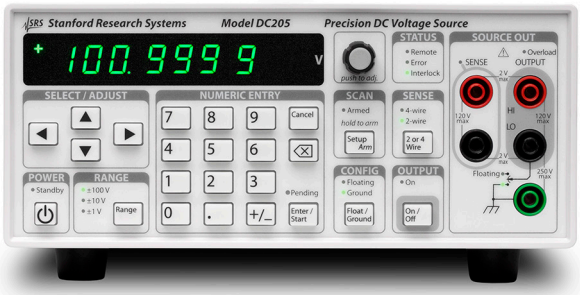
The DC205 can output either positive or negative voltages, and it operates in either grounded or floating mode. In floating mode, the output can float up to 250 V relative to chassis ground. You can also select either 2-wire or 4-wire operation. In 4-wire mode (remote sense), the instrument maintains its preset voltage directly at your load eliminating the effect of lead resistance.

Computer Interfaces

The DC205 has both RS-232 and USB computer interfaces on its rear panel. All functions of the instrument can be set or read via the interfaces. For remote interfacing with complete electrical isolation, the DC205 also has a rear-panel fiber optic interface. When connected to the SX199 Remote Computer Interface Unit, a path for controlling the DC205 via GPIB, Ethernet, and RS-232 is provided.

Voltage Scanning

The instrument's triggerable voltage scanning feature can be useful in a number of experimental applications. The start and stop voltage, and scan speed can all be controlled. Scan speeds can be set from 100 ms to 10,000 s, and the scan function can either be a ramp or a triangle wave. Single scans and continuous scans are both supported, and the instrument can be triggered from the front panel, remotely over one of the interfaces, or from an external trigger signal.



DC205 front panel

DC205 rear panel

DC205 Specifications

Signal Output

Output configuration	2-wire or 4-wire (remote sense) Output can be set to Ground or Float (250 V max.) mode
±1 VDC range	
Full scale	±1.010000 V
Resolution	1 µV
Max. current	50 mA
Accuracy	24 hour: ±(7 ppm of setting + 2 µV) 90 day*: ±(12 ppm of setting + 6 µV) 1 year*: ±(25 ppm of setting + 10 µV)
Stability	24 hour: ±(1 ppm of setting + 1 µV)
Temp. coefficient	±(1 ppm of setting + 1 µV)/°C (0 °C to 40 °C)
Noise (typ.)	0.5 µVrms (0.1 Hz to 10 Hz) 9 µVrms (10 Hz to 100 kHz)
±10 VDC range	
Full scale	±10.10000 V
Resolution	10 µV
Max. current	50 mA
Accuracy	24 hour: ±(7 ppm of setting + 12 µV) 90 day*: ±(12 ppm of setting + 20 µV) 1 year*: ±(25 ppm of setting + 20 µV)
Stability	24 hour: ±(1 ppm of setting + 3 µV)
Temp. coefficient	±(1 ppm of setting + 2 µV)/°C (0 °C to 40 °C)
Noise (typ.)	1.5 µVrms (0.1 Hz to 10 Hz) 12 µVrms (10 Hz to 100 kHz)
±100 VDC range	
Full scale	±101.0000 V
Resolution	100 µV
Max. current	25 mA
Accuracy	24 hour: ±(8 ppm of setting + 120 µV) 90 day*: ±(12 ppm of setting + 200 µV) 1 year*: ±(25 ppm of setting + 200 µV)
Stability	24 hour: ±(1 ppm of setting + 20 µV)
Temp. coefficient	±(1 ppm of setting + 15 µV)/°C (0 °C to 40 °C)
Noise (typ.)	12 µVrms (0.1 Hz to 10 Hz) 50 µVrms (10 Hz to 100 kHz)

Voltage Scanning

Scan speed	0.1 s to 9999.9 s
Scan type	Ramp or triangle wave, continuous or single shot
Triggered scans	Scans can be triggered using the rear-panel trigger input

Remote Interfaces

USB	Virtual COM port with FTDI drivers, 115.2k baud, 8 bits, no parity, 1 stop bit, RTS/CTS flow
RS-232	DB-9 connector, 9600 baud
Optical fiber	Connection to SX199 Optical Interface Controller. Provides connectivity to GPIB, RS-232 and Ethernet

General

Operating temperature	0 °C to 40 °C, non-condensing
Power	<30 W, 100/120/220/240 VAC, 50 Hz or 60 Hz
Dimensions	8.3" × 3.55" × 13.0" (WHD)
Weight	10 lbs.
Warranty	One year parts and labor on defects in materials and workmanship

* *Preliminary specifications*

All performance specifications after 2 hours warm-up at 23 °C ± 1 °C ambient, unless otherwise stated

Ordering Information

DC205	Precision voltage source
O205RMS	Single rack mount kit
O205RMD	Dual rack mount kit