


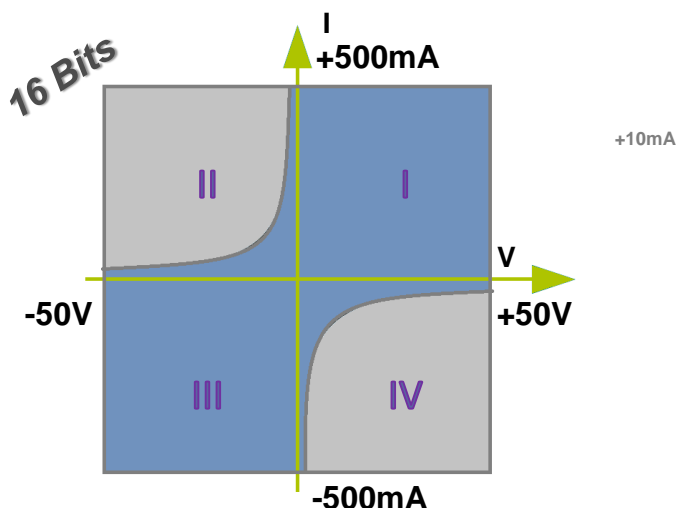
Voltage DC Source $\pm 50V \pm 500mA$

- Designed for noise sensitive applications
- Clean output noise spectrum with no spike
- Isolated with very low common mode noise
- Low cost reliable power supply

Powered by 

Main Features:

- **4-quadrant** isolated DC source and 5½-digit digital multimeter (DMM)
- Voltage source with current compliance limit
- **16 bit source** resolution and **19 bit measurement** resolution for both voltage and current
- 2 voltage ranges: $\pm 50V$ and $\pm 5V$, **down to $20\mu V$ measurement resolution**
- **Stable** with high output capacitors, providing higher noise reduction and tight voltage regulation
- Down to **$100\mu V$ peak-to-peak output noise**
- **0,02% measurement accuracy**, 4-wire operation
- Built-in Waveform Generator: exponential, ramp, stair, step, pattern. Trigger input to synchronize multiple sources.
- No voltage transient
- Operating area (Blue: DC; Grey : Transient)



System description

High Resolution DC power supply



- Up to 13 BE2231 source modules into a 19" Bilt chassis
- Host connections at chassis level including Ethernet, USB
- Complete software package provided, including a turnkey PC software, Labview driver

Application examples:

- Noise-sensitive device power supply, such as PLL, VCO
- Polarization of nanoscale, mesoscopic, nanotube,
- Graphene, quantum devices... requiring very low noise
- Reliability tests / life test for active or passive
- Components
- Semiconductor I-V characterization and testing

System Specifications

Source and measurement accuracy

Accuracy specified on an 18°C-28°C ambient temperature range, after a 1 hour warm-up.
 Range switching when the source is off, with automatic range selection capability.

Voltage

Range	Resolution		1-year accuracy ⁽¹⁾	
	Source	Measurement	Source	Measurement
± 50V	1,6mV	200µV	±2,3mV ±250ppm	±0,9mV ±200ppm
± 5V	160µV	20µV	±0,2mV ±250ppm	±0,09mV ±200ppm

Current:

Range	Resolution		1-year accuracy ⁽¹⁾	
	Source	Measurement	Source	Measurement
± 500mA	15µA	1,9µA	±34µA ±450ppm	±19µA ±450ppm

1) ± offset ± ppm of the setting or the measured value, 95% confidence level

Noise and Settling time

Range	Settling time ⁽¹⁾		Noise ⁽³⁾			Voltage noise density ⁽⁵⁾	
	To 95%	To LSB ⁽²⁾	0,1Hz-10Hz ⁽⁴⁾	10Hz-10kHz	10Hz-1MHz	1kHz	10kHz
± 50V	30ms	150ms	250µVp-p	1mVp-p (0µF) 380µVp-p (150µF)	1mVp-p (0µF) 380µVp-p (150µF)	1,3µV/√Hz (0µF) 0,9µV/√Hz (150µF)	850nV/√Hz (0µF) 25nV/√Hz (150µF)
± 5V	30ms	150ms	20µVp-p	170µVp-p (0µF) 100µVp-p (150µF)	240µVp-p (0µF) 120µVp-p (150µF)	220nV/√Hz (0µF) 130nV/√Hz (150µF)	140nV/√Hz (0µF) 10nV/√Hz (150µF)

- 1) step settling mode, with no output capacitor, resistive load, exponential waveform
- 2) Settling to the 16 bit LSB resolution
- 3) with 0µF or 150µF low esr output decoupling capacitor, peak-to-peak noise measured with the output loaded at 200mA
- 4) expressed in volt peak-to-peak, over the full voltage range, whatever the load
- 5) averaging measurement, worst case value over the full operating range

System Specifications

Operating Area

Parameters	Conditions/Comments	Min.	Max.
Voltage programming range		-50V	+50V
Voltage slope	ramp settling mode		1000V/s
Current compliance range	Programmed in absolute value	2mA	500mA
Sourced output power	DC or transient operation		25W
Sink output power	DC operation. Automatic shutdown if limit exceeded for more than 50ms	0,5W	1W
Output impedance	If sense signals are used If sense signals are left floating		0,00Ω 0,06Ω
Output capacitor	For stable operation ; consider a longer settling time using large values according to the current compliance limit. Before proceeding, read the User Manual.	0μF	250μF
Operating temperature	Ambient temperature (in front of the chassis openings), 80% RH non condensing. Power derating if temperature exceeded.	15°C	30°C
Remote sense operating range	Max. voltage drop in the power or ground cable when sense connected	-0,5V	+0,5V
Voltage output headroom	Max module output voltage above voltage range for sense compensation	-1V	1V
OFF impedance	Impedance between both output terminals when the module is off, max allowed current 1A.		0,02Ω
Earth isolation	40nF between any terminal and the earth	5GΩ	
Earth isolation voltage	Limited by TVS, 0.5W max.	-150V	150V

Connection

- 2 laboratory jacks Ø4mm for power output
- 15 pin D-SUB connector, providing power output, sense and trigger signals
- Accessories are available to convert the D-SUB15 connectors to other connector types, see the “accessories” table further on

Related products

BE2101 BE2102	Very low noise, very low drift, 21-bit resolution DC Voltage source modules, up to ±12V ±200mA, down to 1μV resolution
BE2141	4-channel very low noise, very low drift, 21-bit resolution DC Voltage source module, up to ±12V ±10mA, down to 1μV resolution
BE2811	Low noise, low drift, 19-bit resolution DC current source modules, ±18V ±5A
BE2812	Low noise, low drift, 19-bit resolution DC current source modules, ±8V ±15A

System Specifications

Warranty

Any Bilt product comes with a two-year parts and labour warranty, when returned to our workshops. A phone support service is also available for the same period.

At the end of the initial two-year period, a further contract can be subscribed, including:

- a preventive functional check and calibration of the modules (on site or in our workshop)
- a further two-year warranty period

Quality Regulations & Environment

The Bilt System and all modules are compliant to the applicable European directive and hold the CE mark.

- Products are designed and manufactured in France.
- ISO/CEI 17025 compliant calibration for any DC source or measurement module, calibration certificate provided.
- Serial number based life cycle management
- All products are 100% tested (test reports on demand)
- iTest only uses RoHS compliant components and does not use substances banned by the COSHH regulation.
- iTest complies with the relevant national regulations related to the safety and health of its employees against hazardous substances.
- The protection degree of the Bilt system is IP20 according to CEI 60529.

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