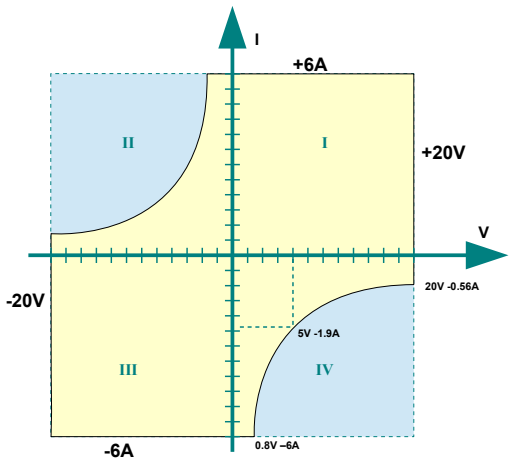
Bilt System module - BE516

Multirange Voltage DC Source ±20V ±6A

- ✔ *Low cost, general purpose DC source*
- ✔ *120W output power*
- ✔ *2 Voltage ranges: ±5V and ±20V*
- ✔ *9 Current ranges from 5µA to 6A*

Main features

- 4-quadrant non-isolated DC source and 4-digit digital multimeter (DMM)
- Voltage source with current compliance limit
- Measures from a few nA to 6A
- Typical 0,05% accuracy
- Low noise: 2mVp-p typ.
- 4-wire operation
- Excellent regulation on all kinds of passive and active loads (esp. high output capacitive drive)
- No voltage transient when powering on/off or switching on/off
- High reliability: short-circuit, over-voltage, over-heating protection
- Operating area:
  DC: yellow area
  Transient: yellow + blue areas



Bilt System features

- Up to 13 BE516 source modules into a 19” Bilt chassis
- Host connections at chassis level including Ethernet and USB
- Complete software package provided, including a turnkey PC software, Labview driver
- Synchronization between sources, memory and plotting functions

Application examples

- Reliability tests / life test for active or passive components
- Low cost laboratory power supply

BE516 module specifications

Operating area

Parameters	Conditions/Comments	Min.	Typ.	Max.
Voltage setting range	*% of the range, bipolar operation : continuous voltage setting between polarities, normal operation around 0V*	-100%		+100%
Current setting range	*Programmed in absolute value, % of the range*	1%		100%
Overvoltage threshold setting range	*Overvoltage or Undervoltage thresholds, % of the voltage range*	±5%		±105%
Remote sense operating range	*Max. voltage drop in the power or ground cable when sense connected*	-2V		+2V
Voltage output headroom	*Max module output voltage above voltage range for sense compensation*		1V	
Sourced output power				120W
Sink output power				10W
Transient sink output power	*During less than 20ms, module shutdown if longer*			120W
Operating temperature	*Ambiant temperature in front of Bilt's rear fan openings*	15°C		30°C

Ranges and Accuracy

Range switching by relay in standby mode with automatic range selection capability.
Accuracy specified on a 18°C-28°C module temperature range, 30min warm-up.

Voltage :

Parameter / Range	Resolution	2 year Accuracy(1)(3)	Ripple & Noise		
	Setting & Readback		0,1Hz-10Hz	10Hz-20Mhz(2)	Noise Density(2)
± 20V	5,3mV	0.2% (40mV)	1,2mVp-p	3,5mVp-p	2µV/√Hz at 1kHz
± 5V	1,3mV	0.2% (10mV)	0,3mVp-p	1,8mVp-p	0,6µV/√Hz at 1kHz

(1) in % of the range, typical accuracy 0,05%
(2) 1µF ceramic output decoupling capacitor, 50Ω load
(3) Additional voltage error if sense lines not used : <2mV.

Current :

Parameter / Range	Resolution	2 year Accuracy(1)	Load capacitance	
	Setting & Readback		Recommended(2)	Max (3)
± 6A	1,6mA	0.2% (12mA)	100µF - 1mF	*Iset/150 Uset or 10mF*
± 1A	263µA	0.2% (2mA)	100µF - 1mF	*Iset/150 Uset or 10mF*
± 150mA	40µA	0.2% (0,3mA)	*10µF - 56µF*	*Iset/150 Uset or 1mF*
± 30mA	7,9µA	0.2% (60µA)	*1µF - 10µF*	*Iset/150 Uset or 100µF*
± 5mA	1,3µA	0.2% (10µA)	---	*Iset/150 Uset or 100µF*
± 1mA	263nA	0.2% (2µA)	---	*Iset/150 Uset or 50µF*
± 150µA	40nA	0.2% (0,3µA)	---	*Iset/150 Uset or 10µF*
± 30µA	7,9nA	0.2% (60nA)	---	*Iset/150 Uset or* 2.2µF
± 5µA	1,3nA	0.2% (10nA)	---	*Iset/150 Uset or* 2.2µF

(1) in % of the range, typical accuracy 0,05%
(2) for best noise and transient response results, low esr ceramic and/or electrolytic type.
(3) The minimum of both values. Iset and Uset are the user programmed current (in A) and voltage setting (in V). The resulting capacitance is in mF. This limit guarantees that the source will switch off within the specified fall time. Exceeding this value can damage the module. The second value guarantees regulation stability.

BE516 module specifications

Regulation/Measurement

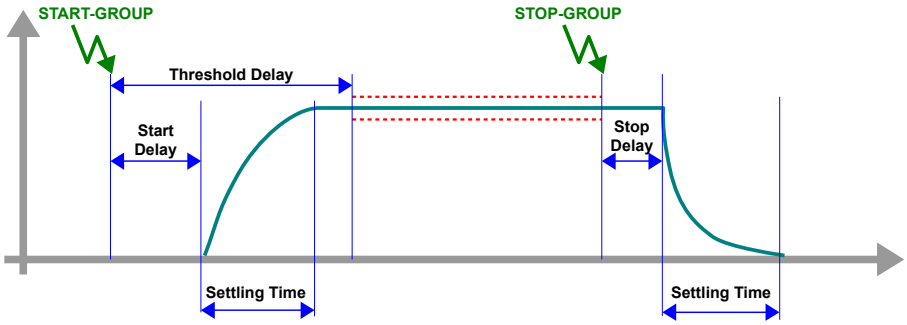
Parameters	Conditions/Comments	Min.	Typ.	Max.
Voltage transient response time [1]	*From 0µF to max recommended output decoupling capacitor* *Typical value : 20V and 6A range, 1mF decoupling capacitor*	300µs	400µs	600µs
Voltage to current transient response time [2]	*6A and 1A range, no output decoupling capacitor*		400µs	
	Other current ranges, no output decoupling capacitor			100µs
Short-circuit response time	*Time for the source to limit short-circuit current to 150% of the range*		5µs	
Line regulation	*No line regulation error, guaranteed by design*			0%
Load regulation	*Sense lines connected, 0 to max. source current, guaranteed by design*			0%
Measurements sampling frequency	*Envelope trace capability at this rate, meas. Bandwidth 1,6kHz.*		1 ks/s	

(1) response time to a 10% to 90% load step, time to stabilize to within 50mV of setting (20V range), 10mV (5V range)
(2) time to stabilize from a constant voltage (CV) regulation to a constant current (CC) regulation after a load step

Module start/stop

Parameters	Conditions/Comments	Min.	Typ.	Max.
Settling time [1]	*source switching on or off, or any setting change, 95% of the step (first order step response time waveform. The time constant is typically 9ms)*		30ms	
Start delay		25ms		250ms
Stop delay		0ms		50ms
Threshold delay	*Time after which the measurement thresholds are monitored*	0ms		60s
Off output impedance	*Source off, max current 1A, impedance of the relay contact*		50mΩ	

(1) no output transient perturbation during output rise/cut-off and mains Starting/ Stopping, several possibilities for programmable sequences



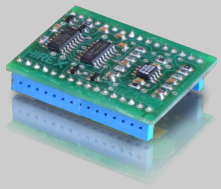
Connection

- 2 laboratory jacks Ø4mm for power output
- 9 pin D-SUB connector, providing power output, sense and guard

BE516 module specifications

Related products	
BE2231	±50V ±500mA very low noise voltage DC source
BE515	±40V ±200mA multirange voltage DC source
BE517	+120V 4A multirange voltage DC source
BE547	+15V 12A voltage DC source

Documentation			
BE516 Brochure	Rev 5.0	2016/02/20	module's data sheet: specifications and main features
BE516 User Manual	-	-	additional specification, quick-start guide
http://www.bilt-system.com/			bilt user manual and any other Bilt modules specification

Accessories			
	***AM264*** DSUB 9 pin / BNC female converter.		***BE592*** Inter-module coupling for regulating NPN, PNP, MOS-P, MOS-N, FET, etc transistors.

Standards, Calibration,Warranty and Maintenance
Bilt system is compliant with the applicable European Directives and holds the CE mark. Any iTest product comes with a two-year parts and labour guarantee and a calibration certificate if applicable. A telephone support service is also available for the same period. Our calibration laboratory performs according to ISO/CEI 17025 "*General requirements for the competence of testing and calibration laboratories*". All measurements are traceable to the International System of Unit. The recommended calibration interval of this product is 2 years. On request, Itest can proceed to scheduled calibration (in our workshop or at the customer's site). Maintenance can also be performed on-site or in our workshop.

119 rue de la providence 31500 TOULOUSE - FRANCE
Tel + (33) 5 61 54 81 30 http://www.bilt-system.com