

## Data Sheet

# Multi-Range Programmable DC Power Supply

## Model 9115



### 1200 W Multi-Range 80 V/60 A DC Power Supply

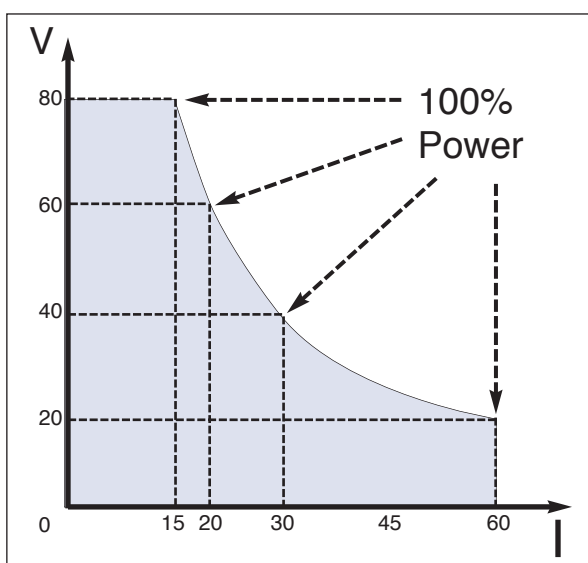
The 9115 can replace multiple supplies on your bench or in your rack. Unlike conventional supplies with fixed output ratings, the 9115 automatically recalculates voltage and current limits for each setting, providing 1200 W output power in any Volt/Amp combination within the rated voltage (80 V) and current (60 A) limits.

For benchtop applications, the 9115 provides a numerical keypad for direct data entry along with convenient cursors and analog style knobs to quickly make incremental voltage or current changes. System integrators benefit from the standard USB (USBTMC-compliant), RS-232, GPIB, and RS-485 interfaces supporting SCPI commands.

### Features & Benefits

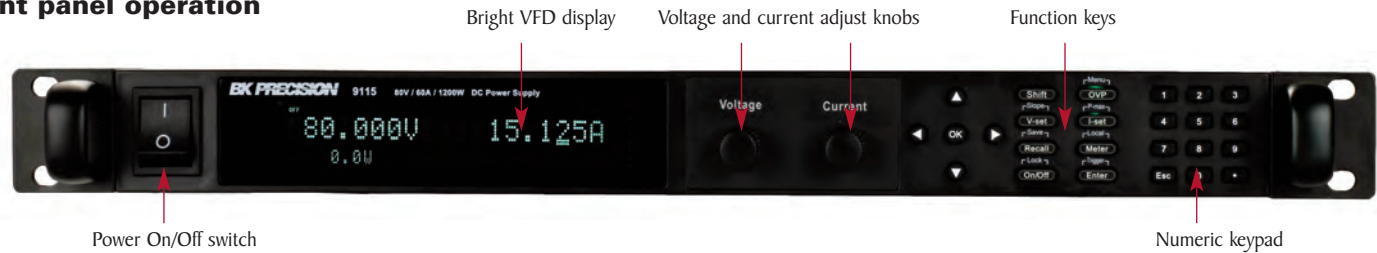
- Multi-ranging operation (output up to 1200 W within 80 V/60 A rating)
- Compact, high density, 1U rackmount form factor
- High programming and readback resolution of 1 mV/1 mA
- Adjustable voltage slope (rise and fall time)
- Sequence programming (list mode)
- Save and recall up to 100 instrument settings
- Standard USB (USBTMC-compliant), RS-232, GPIB, and RS-485 interfaces supporting SCPI commands for remote control
- Analog interface with control and monitoring functions
- Master/Slave mode for parallel and series operation
- Remote sense
- Overvoltage/overpower/overtemperature protection, and key-lock function

Multi-Range Operation



The multi-range feature of the 9115 power supply allows any combination of the rated voltage and current up to the maximum output power of 1200 W. For instance, the max current output at 20 V is 60 A.

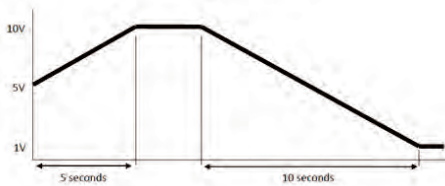
Front panel operation



Easy-to-use Interface

The numeric keypad, rotary knobs, and cursors provide an easy way to set output levels quickly and precisely. With a push of a button, the display can be conveniently toggled between set and measured voltage and current values. Additionally, the power supplies provide internal memory for storage of up to 100 different instrument settings that can be set and recalled via both the front panel and remote interfaces.

Programmable Voltage Rise/Fall Times

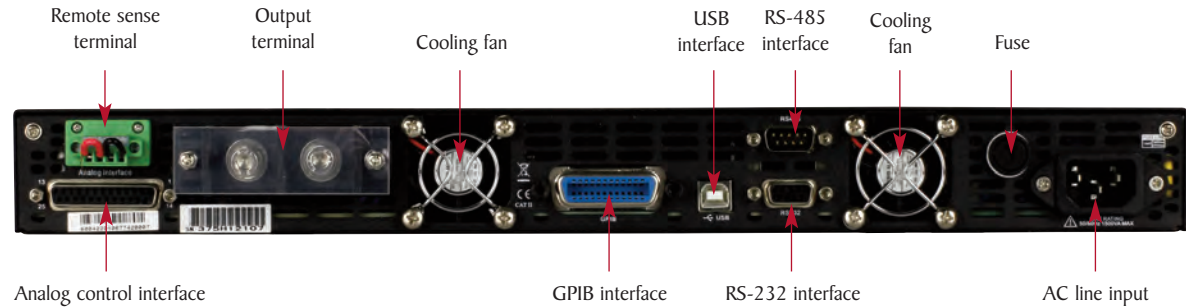


The power supply is capable of programming the slope of the output voltage during changes between voltage settings by allowing users to set the rising and falling edge times of the voltage.

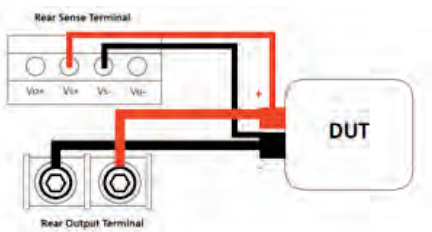
Test Sequence Execution in List Mode

The list mode feature lets users store, recall, and run program sequences in the power supply's internal memory. A total of 10 steps can be configured for each sequence (up to 10). These sequences can then be saved into a program configuration that can run one sequence after another, which allows for a maximum of 100 steps in one program configuration.

Rear panel configuration



Remote Sense



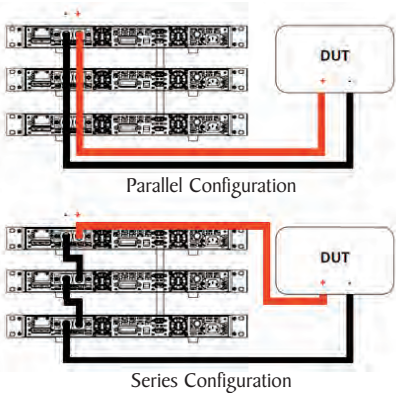
The remote sense feature can compensate for voltage drop (up to 1 V) due to resistance from the load leads to provide more accurate output voltage. Two small wires connect to the V<sub>s</sub>+ and V<sub>s</sub>- sense terminals and DUT to measure the actual voltage at the DUT. The power supply then adjusts its output to make sure this voltage equals the voltage set on the front panel.

External Analog Control Interface

The power supply output voltage and current can be controlled from zero to full range by either external DC voltage sources (0-5 V or 0-10 V) or resistances (0-5 k $\Omega$  or 0-10 k $\Omega$ ). The DB25 analog control interface also provides a source for monitoring the voltage and current output.

Master/Slave Operation

Up to three power supplies can be connected in parallel or series connection to increase the overall current or voltage output respectively. Using the RS-485 interface, the power supplies can operate in master/slave mode. In this mode, the master unit can control all other power supplies connected in parallel or series. Additionally, the RS-485 interface can be used for multi-unit control of up to 31 daisy chained units.



## Specifications

| Model  | 9115   |
|--|--|
| <b>Output Rating</b>   |  |
| Voltage  | 0 – 80 V   |
| Current  | 0 – 60 A   |
| Max Output Power   | 1200 W   |
| <b>Load Regulation<sup>(1) (2)</sup></b>                             |  |
| Voltage  | 0.01 % + 5 mV  |
| Current  | 0.1 % + 10 mA  |
| <b>Line Regulation<sup>(2)</sup></b>                                 |  |
| Voltage  | 0.02 % + 1 mV  |
| Current  | 0.02 % + 1 mA  |
| <b>Programming/Readback Resolution</b>                               |  |
| Voltage  | 1 mV   |
| Current  | 1 mA   |
| <b>Programming/Readback Accuracy<sup>(2)</sup></b>                   |  |
| Voltage  | 0.02 % + 30 mV   |
| Current  | 0.1 % + 60 mA  |
| <b>Ripple (20 Hz – 20 MHz)</b>                                       |  |
| Voltage  | 60 mVpp  |
| Current  | 100 mArms  |
| <b>Temperature Coefficient (0 °C – 40 °C)<sup>(2)</sup></b>          |  |
| Voltage  | 0.02 % + 30 mV   |
| Current  | 0.05 % + 10 mA   |
| <b>Readback Temperature Coefficient (0 °C – 40 °C)<sup>(2)</sup></b> |  |
| Voltage  | 0.02 % + 30 mV   |
| Current  | 0.05 % + 5 mA  |
| <b>General</b>   |  |
| Efficiency   | > 88% (full load)  |
| Power Factor   | > 0.99 (full load)   |
| Standard Interface   | USB (USBTMC-compliant), GPIB, RS-232, RS-485   |
| Power Requirements   | 115/230 VAC ± 10 %, 47 Hz – 63 Hz  |
| Safety   | EN61010-1:2001, EU Low Voltage Directive 2006/95/EC  |
| Electromagnetic Compatibility  | Meets EMC Directive 2004/108/EC, EN 61000-3-2:2006, EN 61000-3-3:1995+A1:2001+A2:2005, EN 61000-4-2/-3/-4/-5/-6/-11, EN 61326-1:2006 |
| Dimensions (W x H x D)   | 16.34" x 1.73" x 19.68" (415 x 44 x 500 mm)  |
| Weight   | 18.74 lbs (8.5 kg)   |
| Operating Temperature  | 32 °F - 104 °F (0 °C – 40 °C)  |
| Storage Temperature  | -4 °F - 158 °F (-20 °C - 70 °C)  |
| <b>One-Year Warranty</b>   |  |
| Included Accessories   | User manual, power cord, certificate of calibration and test report  |

<sup>(1)</sup> With remote sense connected

<sup>(2)</sup> Accuracy specified as ±(% of output + offset) after a temperature stabilization time of 15 minutes over an ambient temperature range of 23 °C ± 5 °C

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