

## Data sheet

# Single Output Programmable DC Power Supplies

## Models 9150, 9151, 9152 & 9153

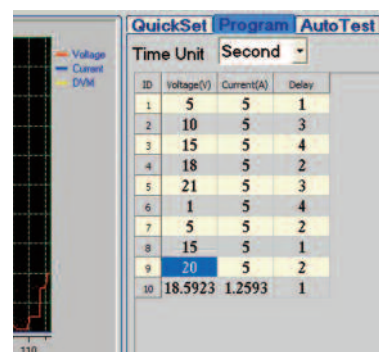
B&K Precision® models 9150, 9151, 9152 and 9153 are high performance linear-regulated programmable DC power supplies that provide excellent performance and features not found in other supplies in this price category. The 9150 series are designed for applications in design verification, production or university labs that require high yet clean and reliable power, combined with excellent resolution, accuracy and fast transient response time.



- Excellent display resolution
- Low ripple and low noise due to linear regulation
- Outstanding temperature stability
- Fast transient response time ( $< 120 \mu\text{s}$ )
- SCPI compatible command set, programmable via USB and RS232
- Closed case calibration
- List mode operation for increased throughput. Download and execute command sequences from non-volatile memory
- For bench use or rack mountable
- Very quiet due to intelligent fan speed control, making the supply suitable for lab bench use
- Over voltage protection

### Application Software

The included Application Software supports front panel emulation and allows users to generate simple test sequences without the need to write source code.



Screen shot of test sequence section

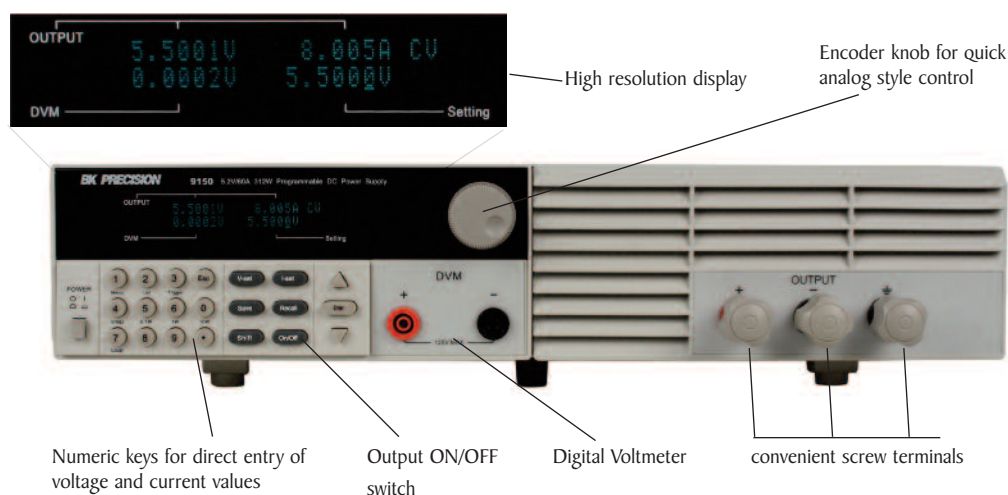
## Selection Chart

|                | models |       |       |       |
|----------------|--------|-------|-------|-------|
|                | 9150   | 9151  | 9152  | 9153  |
| Output Voltage | 0-5.2V | 0-20V | 0-30V | 0-60V |
| Output Current | 0-60A  | 0-27A | 0-18A | 0-9A  |

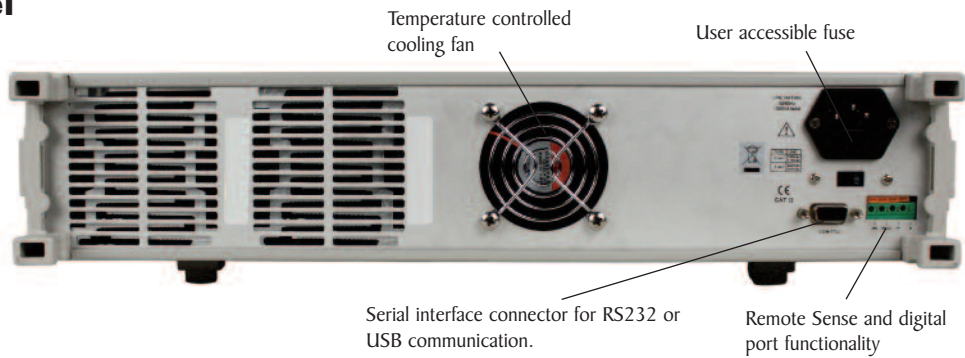
### Front Panel Operation

The numeric keys and rotary knob provide a convenient interface for setting output levels quickly and precisely. Voltage and Current can be set to a maximum resolution of 0.5 mV (0.1 mV for 9150) and 0.1 mA (1 mA for 9150) respectively. Up to 50 parameters can be stored and recalled from internal memory.

Additionally, the power supply comes with a built-in 5 1/2 digit Voltmeter and high resolution Milliohm meter supporting 4 wire measurements



▲ Rear panel



Remote Interface

The power supplies can be remotely controlled from any PC with USB or RS232 interface, allowing the user to program and monitor all parameters through easy to use SCPI commands. The power supplies come with a RS232 to TTL and a USB to TTL serial converter cable. The average command processing time is 35 ms.

Extra Features

The 9150 series' digital port offers a variety of configurations. The port provides Digital Input, external Trigger and Remote Inhibit (RI) functionality.

The RI mode can be used for turning several power supplies On/Off simultaneously. External triggering can be used in combination with List mode.

| Specifications                                                                                                                                                   | models                                                                                                  |                                                 |                                                 |                                                |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|-------------------------------------------------|-------------------------------------------------|------------------------------------------------|
|                                                                                                                                                                  | 9150                                                                                                    | 9151                                            | 9152                                            | 9153                                           |
| Output Ratings<br>( 0 °C~40 °C)                                                                                                                                  | 0 - 5.2 V<br>0 - 60 A                                                                                   | 0 - 20 V<br>0 - 27 A                            | 0 - 30 V<br>0 - 18 A                            | 0 - 60 V<br>0 - 9 A                            |
| Load Regulation<br>±(%of output+offset)                                                                                                                          | <0.01% + 0.5 mV<br><0.1% + 10 mA                                                                        | <0.01% + 1 mV<br><0.1% + 5 mA                   |                                                 | <0.01% + 1 mV<br><0.1% + 2 mA                  |
| Line Regulation<br>±(%of output+offset)                                                                                                                          | <0.02% + 0.1 mV<br><0.1% + 1 mA                                                                         | <0.02% + 1 mV<br><0.01% + 1 mA                  |                                                 | <0.02% + 1 mV<br><0.01% + 0.1 mA               |
| Programming resolution                                                                                                                                           | 0.1 mV<br>1 mA                                                                                          | 1 mV<br>1 mA                                    |                                                 | 1 mV<br>0.1 mA                                 |
| Readback/ Meter resolution                                                                                                                                       | 0.1 mV<br>1 mA                                                                                          | 0.1 mV<br>0.1 mA                                |                                                 | 0.1 mV<br>0.1 mA                               |
| Front panel<br>setting resolution                                                                                                                                | 0.1 mV<br>1 mA                                                                                          | 0.5 mV<br>1 mA                                  |                                                 | 0.5 mV<br>1 mA                                 |
| Programming accuracy,<br>12months (25 °C ± 5 °C) ±(%of output+offset)                                                                                            | <0.02%+2 mV<br><0.1%+30 mA                                                                              | <0.02%+6 mV<br><0.1%+15 mA                      |                                                 | <0.02%+12 mV<br><0.05%+10 mA                   |
| Readback/ Meter accuracy<br>12months (25 °C ± 5 °C) ±(%of output+offset)                                                                                         | <0.02%+1.5 mV<br><0.05%+15 mA                                                                           | <0.02%+3 mV<br><0.05%+10 mA                     |                                                 | <0.02%+6 mV<br><0.05%+5 mA                     |
| Ripple & Noise<br>(20Hz ~20MHz)                                                                                                                                  | ≤0.005%+3 mVp-p<br>15 mArms                                                                             | ≤0.005%+3 mVp-p<br>5 mArms                      |                                                 | ≤0.005%+4 mVp-p<br>3 mArms                     |
| Temperature coefficient,<br>(0 °C~40 °C) ±(% of output+offset)                                                                                                   | <0.02%+2 mV<br><0.1%+30 mA                                                                              | <0.02%+5 mV<br><0.1%+15 mA                      |                                                 | <0.02%+10 mV<br><0.05%+5 mA                    |
| Readback temperature coefficient,<br>±(% of output+offset)                                                                                                       | <0.02%+2 mV<br><0.1%+20 mA                                                                              | <0.02%+5 mV<br>≤0.05%+10 mA                     |                                                 | <0.02%+10 mV<br>≤0.05%+5 mA                    |
| Transient Response (for a change from 0 mA to<br>50% of maximum rated current)                                                                                   | 100 μs for output to<br>recover to within 75 mV                                                         | 120 μs for output to<br>recover to within 75 mV | 100 μs for output to<br>recover to within 50 mV | 50 μs for output to<br>recover to within 50 mV |
| DVM Accuracy                                                                                                                                                     | 0~12V range: 0.02%+2mV<br>0~40V range: 0.02%+3mV                                                        |                                                 |                                                 |                                                |
| DVM Resolution                                                                                                                                                   | 0~12V range: 0.1mV<br>0~40V range: 1mV                                                                  |                                                 |                                                 |                                                |
| Milliohm Meter Accuracy                                                                                                                                          | 0.1% (for Voltage and Current ≥ 10% of full scale)<br>0.3% (for Voltage and Current ≥ 3% of full scale) |                                                 |                                                 |                                                |
| Weight                                                                                                                                                           | 63.9 lbs, (29 kg)                                                                                       |                                                 |                                                 |                                                |
| Dimensions                                                                                                                                                       | 16.88 in (W) x 3.47 in (H) x 18.06 in (D)<br>429 mm (W) x 88.2 mm (H) x 458.9 mm (D)                    |                                                 |                                                 |                                                |
| Two Year Warranty                                                                                                                                                |                                                                                                         |                                                 |                                                 |                                                |
| Accessories<br>Supplied: User manual, line cord, RS232 and USB communication cable, application software installation disk.<br>Optional: IT-E151 rack mount kit. |                                                                                                         |                                                 |                                                 |                                                |