B&K PRECISION
ELECTRONIC TEST INSTRUMENTS

# NEW PRODUCTS CATALOG 2013


Model 9181


Model 9174

USB (standard) | LAN | GPIB | RS-485 | RS232 | CE

## Programmable Dual-Range DC Power Supplies

The 9170/9180 series programmable DC power supplies offer industry leading performance, designed to meet the most demanding applications in R&D, design verification and production test. All 9 models deliver clean, stable and precise output power due to the supplies' exceptionally low ripple and noise, low temperature coefficient, excellent regulation and fast transient response time characteristics.

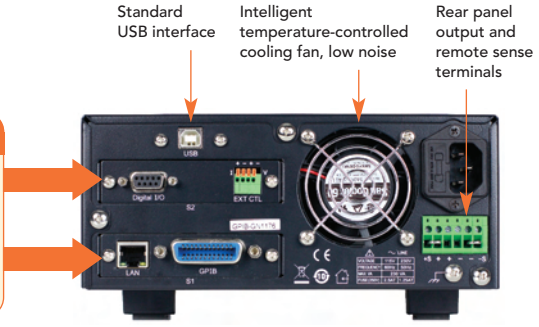
Additionally, this series offers unique features not typically found in other power sources on the market, such as versatile LED test modes, modular interface card slots, automatic range selection, and an optional 8-bit bidirectional digital I/O interface.

### Versatile Connectivity

These power supplies offer SCPI IEEE488.2 compliant USB (standard), RS232, RS485, GPIB and Ethernet interfaces, combined with rear panel output and remote sense terminals to facilitate test system development and integration. The LAN interface includes a built-in web server that allows users to configure, control or monitor basic power supply settings. When operating in multi-unit control mode, up to 31 units can be daisy chained via RS485 and controlled from one "master" unit.

### Modular interface card slots

Only buy what you need, when you need it. Pick and choose from up to 4 different interface cards to install at time of purchase or upgrade later. Interface card options include: LAN and GPIB, Digital I/O and Analog Control, RS485, or RS232. Installation is quick and easy and does not require opening the instrument case (does not void warranty).



Model 9172 rear panel

### Features & Benefits

- Single and dual output models with up to 210W output power
- Exceptionally low ripple and noise (e.g. 0.35 mVrms/3 mVpp for model 9171)
- Dual range output with automatic range selection *
- Excellent regulation, accuracy, and resolution
- Front and rear panel output
- Front and rear panel remote sense terminals (except 9173 and 9174)
- List mode for executing up to 10 stored test sequences with a maximum of 150 steps in total
- Overvoltage/overcurrent/overtemperature protection (OVP/OCP/OTP) and key-lock function
- Store and recall up to 10 power settings
- Fast transient response time of < 50us most models
- Unique LED test modes for minimizing inrush current, which allow for efficient and safe electrical tests of LEDs and LED panels
- Application software providing remote control capability included
- Programmable voltage and current slew rates

* all models except for high voltage models 9184 and 9185

Three year warranty 3

| Output Rating | | No. of Outputs | Load Regulation | | Ripple and Noise* Normal Mode | | Prog./Readback Resolution | | Model |
|---|---|---|---|---|---|---|---|---|---|
| Low Range | High Range | | Voltage | Current | Voltage | Current | Voltage | Current | |
| 0-10 V, 0-10 A | 0-20 V, 0-5 A | 1 | ≤ 0.01 %+1 mV | ≤ 0.01 %+250 uA | ≤ 0.35 mVrms/≤ 3 mVpp | ≤ 2 mA rms | < 1 mV | < 1 mA | 9171 |
| 0-35 V, 0-3 A | 0-70 V, 0-1.5 A | 1 | ≤ 0.01 %+1 mV | ≤ 0.01 %+250 uA | ≤ 0.5 mVrms/≤ 5 mVpp | ≤ 2 mA rms | < 2 mV | < 0.1 mA | 9172 |
| 0-10 V, 0-10 A | 0-20 V, 0-5 A | 2 | ≤ 0.01 %+1 mV | ≤ 0.01 %+250 uA | ≤ 0.35 mVrms/≤ 3 mVpp | ≤ 2 mA rms | < 1 mV | < 1 mA | 9173 |
| 0-35 V, 0-3 A | 0-70 V, 0-1.5 A | 2 | ≤ 0.01 %+1 mV | ≤ 0.01 %+250 uA | ≤ 0.5 mVrms/≤ 5 mVpp | ≤ 2 mA rms | < 2 mV | < 0.1 mA | 9174 |
| 0-18 V, 0-8 A | 0-36 V, 0-4 A | 1 | ≤ 0.01 %+1 mV | ≤ 0.01 %+250 uA | ≤ 0.35 mVrms/≤ 3 mVpp | ≤ 2 mA rms | < 1 mV | < 1 mA | 9181 |
| 0-10 V, 0-20 A | 0-20 V, 0-10 A | 1 | ≤ 0.01 %+1 mV | ≤ 0.01 %+250 uA | ≤ 0.35 mVrms/≤ 3 mVpp | ≤ 2 mA rms | < 1 mV | < 1 mA | 9182 |
| 0-35 V, 0-6 A | 0-70 V, 0-3 A | 1 | ≤ 0.01 %+1 mV | ≤ 0.01 %+250 uA | ≤ 0.5 mVrms/≤ 5 mVpp | ≤ 2 mA rms | < 2 mV | < 0.2 mA | 9183 |
| 0-100 V, 0-2 A | 0-200 V, 0-1 A | 1 | ≤ 0.01 %+1 mV | ≤ 0.01 %+250 uA | ≤ 1.5 mVrms/≤ 15 mVpp | ≤ 2 mA rms | < 10 mV | < 0.1 mA | 9184 |
| 0-400 V, 0-0.5 A | 0-600 V, 0-0.35 A | 1 | ≤ 0.01 %+1 mV | ≤ 0.01 %+250 uA | ≤ 4.5 mVrms/≤ 45 mVpp | ≤ 2 mA rms | < 10 mV | < 0.01 mA | 9185 |

*Ripple and noise (20 Hz – 20 MHz)


Model XLN8018

## Family of High Density System Power Supplies

**The B&K Precision XLN series** are compact, programmable, single-output DC power supplies, suitable for a wide range of applications. Comparable supplies from other manufacturers primarily address the ATE market only, while the XLN series are designed for both benchtop users and system integrators.

For benchtop applications, these power supplies offer built-in voltage and current meters displaying setting and output values concurrently, as well as an intuitive user interface with full keypad and rotary knob.

| Features | High Current XLN Models | High Voltage XLN Models |
|---|---|---|
| Auxiliary Output | 5 V / 1 A | - |
| Master/Slave Oper. | Parallel/Series | Parallel Only |
| Display resolution | 1 mV/1 mA | 10 mV/1 mA |
| Analog programming | √ | √ |
| Analog monitoring | - | √ |

USB (standard)
GPIB* & LAN*

*) -GL version

### Remote control and programming


Rear panel of high voltage XLN models

Standard USB & RS485 and optional GPIB & LAN interfaces combined with fast average command processing times of less than 50 ms make the XLN series ideal for ATE applications. The XLN series support SCPI IEEE488.2 and come with LabVIEW™ drivers.

The GPIB/LAN interface also provides a built-in web server. This allows users to configure, control, or monitor the basic settings of the power supply from a remote computer using a web browser.

Voltage and current values can also be programmed through the analog interface by applying a voltage or current source. High voltage models also provide additional monitoring functions such as output voltage/ current montoring and indicators for regulation mode (CC or CV) and fault alarms.

### Features & Benefits

- Compact, high density, 1U package
- USB interface (standard) and GPIB/LAN (optional)
- External analog programming interface
- List mode for executing up to 150 step test sequences from instrument memory
- Fast command processing time < 50 ms
- Programmable voltage and current slew rate allow for "soft starting" of loads
- Built-in precise voltage and current measurements
- Internal memory stores up to 10 different instrument settings
- Extensive protection features: OVP, OCP, OPP, and key-lock function
- 100 - 240 V universal AC input with power factor corrections
- Control up 31 power supplies from one PC via RS485 interface

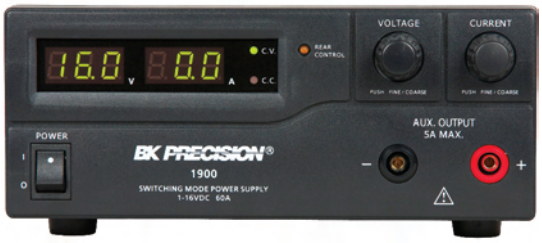
| | | High Current | | | | High Voltage | | |
|---|---|---|---|---|---|---|---|---|
| **Specifications** | | **XLN3640** | **XLN6024** | **XLN8018** | **XLN10014** | **XLN15010** | **XLN30052** | **XLN60026** |
| GPIB & LAN version | | XLN3640-GL | XLN6024-GL | XLN8018-GL | XLN10014-GL | XLN15010-GL | XLN30052-GL | XLN60026-GL |
| Output Voltage | | 0-36 V | 0-60 V | 0-80 V | 0-100 V | 5 -150 V | 5 - 300 V | 5 - 600 V |
| Output Current | | 0-40 A | 0-24 A | 0-18 A | 0-14.4 A | 0.04 - 10.4 A | 0.02 - 5.2 A | 0.01 - 2.6 A |
| Load Regulation | Voltage | ≤ 8 mV | ≤ 8 mV | ≤ 10 mV | ≤ 12 mV | ≤ 17 mV | ≤ 32 mV | ≤ 62 mV |
| | Current | ≤ 8 mA | ≤ 7 mA | ≤ 6.5 mA | ≤ 6 mA | ≤ 0.1% + 30 mA | ≤ 0.1% + 15.6 mA | ≤ 0.1% + 7.8 mA |
| Programming Accuracy | Voltage | 0.05% + 10 mV | 0.05% + 15 mV | 0.05% + 20 mV | 0.05% + 25 mV | 0.05% + 75 mV | 0.05% + 150 mV | 0.05% + 300 mV |
| | Current | 0.05% + 10 mA | 0.05% + 18 mA | 0.05% + 7 mA | 0.05% + 6 mA | 0.1% + 30 mA | 0.1% + 15.6 mA | 0.1% + 7.8 mA |
| Ripple and Noise* Normal Mode | Voltage | ≤ 5 mVrms/ ≤ 60 mVpp | ≤ 6 mVrms/ ≤ 70 mVpp | ≤ 7 mVrms/ ≤ 80 mVpp | ≤ 8 mVrms/ ≤ 80 mVpp | ≤ 10 mVrms/ ≤ 100 mVpp | ≤ 25 mVrms/ ≤ 150 mVpp | ≤ 50 mVrms/ ≤ 300 mVpp |
| | Current | ≤ 90 mA | ≤ 70 mA | ≤ 50 mA | ≤ 40 mA | ≤ 15 mA | ≤ 10 mA | ≤ 5 mA |

*20 Hz – 20 MHz, load >= 0.5% of max load

Three Year Warranty 3

# Power Supplies


Model 1747




Model 1900

**B&K Precision models 1737 and 1747** are general purpose dual range DC power sources. These power supplies can output higher voltage at a lower current range or higher current at a lower voltage range. Two 4-digit LED displays continuously monitor the output voltage and current. The power supplies can be operated locally from the front panel or remotely through the RS232 interface.

### Features & Benefits

- Low ripple and noise
- Excellent regulation
- Constant voltage (CV) and constant current (CC) operation
- Two 4-digit LED displays provide good visibility in bright or low light
- RS232 interface
- Automatic recall of last settings on power up

**B&K Precision models 1685B, 1687B, 1688B, 1900, 1901 and 1902,** are laboratory grade switching DC power supplies with high current output in a small, lightweight form factor. They provide various configurations of high output voltage or high output current and feature rotary encoder control knobs, which make setting voltage and current fast and precise. Dual action push buttons allow the user to set both coarse and fine, voltage and current levels.

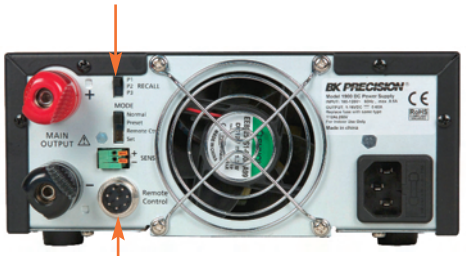
### Features & Benefits

- Automatic CV (constant voltage)/ CC (constant current) crossover operation
- Lightweight and compact
- Rotary encoder control for precise voltage and current setting
- Save up to 3 user-defined voltage and current presets for quick recall
- Analog remote control function
- Remote sensing terminal (model 1900)
- Overvoltage, overtemperature, and overload protection
- USB interface with PC software for remote control and external timed programming (models 1685B, 1687B, 1688B only)

### Versatile Configuration

#### Custom Presets

Quickly use common voltage and current settings with a flip of the Recall preset switch. Up to three different presets can be set and recalled.




Model 1900 rear panel

#### Analog Remote Control Capability

Use the included connector to wire up to an external variable DC voltage source or variable resistor to remotely control the power supply's output voltage and current or to turn the output on/off.

| Power (W) | Voltage (V) | Current (A) | Ripple & Noise | Model |
|---|---|---|---|---|
| 120 | 0 -30 (Range 1),<br>0 - 60 (Range 2) | 0 - 3 (Range 1),<br>0 - 2 (Range 2) | 1 mVrms | 1737 |
| 300 | 0 -35 (Range 1),<br>0 - 60 (Range 2) | 0 - 10 (Range 1),<br>0 - 5 (Range 2) | 1 mVrms | 1747 |
| 300 | 1-60 | 0-5 | 50 mVpp | 1685B |
| 360 | 1-36 | 0-10 | 50 mVpp | 1687B |
| 360 | 1-18 | 0-20 | 50 mVpp | 1688B |
| 900 | 1-60 | 0-15 | 100 mVpp | 1902 |
| 960 | 1-16 | 0-60 | 50 mVpp | 1900 |
| 960 | 1-32 | 0-30 | 50 mVpp | 1901 |


Model 9115

## 1200W Autorange 80V/60A 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/current limits for each setting, providing 1200W output power in any Volt/Amp combination within the rated voltage (80V) and current (60A) limits.

For benchtop applications, the 9115 provides a numerical keypad for direct data entry along with convenient cursors and analog style knobs to make small voltage or current changes. System integrators benefit from the standard USB, RS232, GPIB, and LAN interfaces supporting SCPI commands.

**Features & Benefits**

- Compact 1U package
- Standard USB, RS232, GPIB, and LAN interfaces
- Analog interface with control and monitoring functions
- Adjustable rise and fall time
- High resolution and accuracy
- Master/Slave mode for parallel and series operation

| Output Ratings | |
|---|---|
| Voltage | 0-80V |
| Current | 0-60A |
| Power | 0-1200W |


Model 1657

## AC Power Source, 1500 VA

The 1657 is an AC power source that provides high conversion efficiency and low distortion output. A built-in PFC provides an input power factor of 0.99 at full load. The AC source supplies up to 1500 VA through its universal line output terminal and can operate in one of two voltage ranges, 135 V or 270 V, with 0.1 V resolution.

This 1500 VA rated AC power source is ideally suited for industrial product testing applications where power conversion or performance verification is needed. The 19" rack-mountable design with front to rear airflow ventilation allows for a compact form factor in automated test environments.

**Features & Benefits**

- Two selectable output voltage ranges of 135 VAC or 270 VAC
- Output frequency adjustable from 45 Hz to 450 Hz in 0.01 Hz steps
- 0.1 V settable resolution
- Automatic protection against overload, short circuit, and over temperature
- Output ON/OFF switch
- Remote programming through RS232 serial interface
- Standard 19" rack construction
- Conforms to EN55022, class A, safety standard EN60950

| Input Voltage | Output Voltage | Output Current | Output Frequency |
|---|---|---|---|
| 90 – 264 VAC single phase<br>100 – 264 VAC for continuous full load operation, 47 – 63 Hz | Low Range: 0 - 135 Vrms<br>High Range: 0 - 270 Vrms | Low Range:12 Arms (Limited to 1500 VA)<br>High Range: 6 Arms (Limited to 1500 VA) | Range:<br>45 – 450 Hz |


Model 1739

Model 1739 is a high resolution, low current DC power source that exhibits excellent regulation and low ripple characteristics. This power supply is well suited for electrical and electronics applications requiring precise levels of low current including 4-20 mA current loop testing and calibration.

**Features & Benefits**

- Low current ripple and noise (<0.4 mArms)
- Low 1 mA settable current limit with 0.1 mA resolution
- Output on/off button
- LED indication for CV and CC modes
- Automatic recall of saved voltage and current settings upon power up
- RS232 interface
- Power-on self test

| Specifications | |
|---|---|
| Output Ratings (0 °C~40 °C) | |
| Voltage | 0-30 V |
| Current | 0-999.9 mA |
| Load Regulation ±(% of output+offset) | |
| Voltage | 0.04% + 1 mV |
| Current | 0.4% + 0.1 mA |
| Ripple & Noise (20 Hz ~ 20 MHz) | |
| Voltage | <1 mVrms |
| Current | ≤ 0.4 mArms |
| Meter Resolution | |
| Voltage | 10 mV |
| Current | 0.1 mA |

# DC Electronic Loads


MDL series

## Modular Programmable DC Electronic Loads

The MDL series consists of a mainframe and six different modules ranging in power from 200 W to 600 W. Utilizing a modular, multichannel design, the electronic load provides you with the flexibility to easily test a wide range of power sources from multi-output DC power supplies to batteries, fuel cells, and photovoltaic arrays. The mainframe has four slots and can be configured with any assortment of the modules up to 2400 W (up to 4800 W with mainframe extension).

The high-performance electronic load modules of the MDL series are capable of operating in CC (constant current), CV (constant voltage), CR (constant resistance), CW (constant power), and CZ (constant impedance) mode.

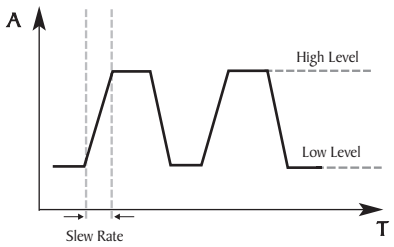
For remote communication, the electronic load provides LAN, USBTMC compliant USB, RS232, and GPIB standard interfaces that support SCPI command protocol.

### Features & Benefits

- Power range up to 2400 W
- Voltage range up to 500 V
- Current range up to 120 A
- CC, CV, CR, CW, and CZ modes
- Adjustable slew rate in CC mode
- Removable modules for easy system configurability
- Bright VFD display for both mainframe and modules
- Transient mode up to 25 kHz
- List mode up to 100 kHz
- Measurement speed up to 50 kHz
- 101 memory areas to save/recall setting parameters
- Remote sensing
- LAN, GPIB, USBTMC compliant USB, and RS-232 interfaces with SCPI protocol support
- OVP/OCP/OPP/OTP protection
- LRV (Local Reverse Voltage) and RRV (Remote Reverse Voltage) protection

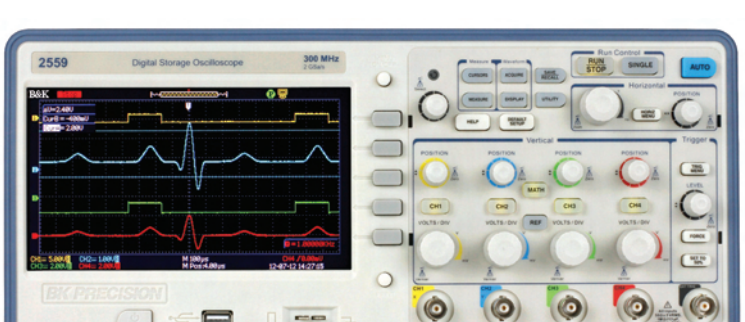
### Transient operation

Transient operation enables the module to periodically switch between two load levels. A power supply's regulation and transient characteristic can be evaluated by monitoring the supply's output voltage under varying combinations of load levels, frequency, duty cycle, and slew rate. Transient operation can simulate these conditions.

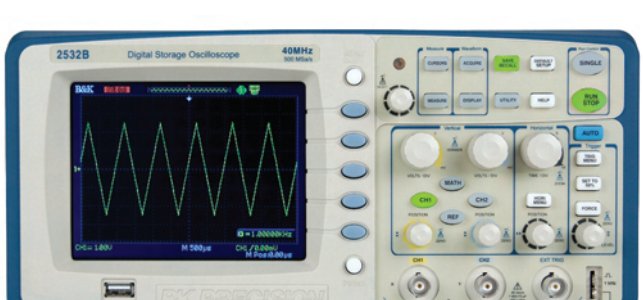



Three year warranty 3

| Specifications | MDL200 | | MDL252 | | MDL305 | | MDL400 | | MDL505 | | MDL600 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Power | 200 W | | 250 W | | 300 W | | 400 W | | 500 W | | 600 W | |
| Input Voltage | 80 V | | CH1 80 V, CH2 80 V | | 500 V | | 80 V | | 500 V | | 80 V | |
| Input Current | 0-4 A | 0-40 A | 0-3 A | 0-20 A | 0-3 A | 0- 20 A | 0-6 A | 0-60 A | 0-3 A | 0-30 A | 0-12 A | 0-120 A |
| Minimum Input Voltage | 0.1 V | 1 V | 0.15 V | 1 V | 0.7 V | 4.5 V | 0.15 V | 1.5 V | 0.54 V | 5.4 V | 0.18 V | 1.8 V |
| CC Mode Accuracy | ±(0.05% +0.05%FS) | ±(0.05% +0.05%FS) | ±(0.05% +0.05%FS) | ±(0.05% +0.05%FS) | ±(0.05% +0.05%FS) | ±(0.05% +0.05%FS) | ±(0.05% +0.05%FS) | ±(0.05% +0.05%FS) | ±(0.05% +0.05%FS) | ±(0.05% +0.05%FS) | ±(0.05% +0.1%FS) | ±(0.1% +0.1%FS) |
| CV Mode Accuracy | ±(0.05% +0.02%FS) | ±(0.05% +0.025%FS) | ±(0.05% +0.02%FS) | ±(0.05% +0.025%FS) | ±(0.05% +0.02%FS) | ±(0.05% +0.025%FS) | ±(0.05% +0.02%FS) | ±(0.05% +0.025%FS) | ±(0.05% +0.02%FS) | ±(0.05% +0.025%FS) | ±(0.05% +0.02%FS) | ±(0.05% +0.025%FS) |




Model 2559




Model 2532B

**The 2550 series** digital storage oscilloscopes provide high performance and value in 2-channel and 4-channel configurations. With bandwidth from 70 MHz to 300 MHz and 2 GSa/s sample rates, these oscilloscopes offer 24 kpts/Ch waveform memory, 32 automatic measurements, advanced triggering capabilities, math functions, and PC connectivity via LAN and USB. Engineered for best visibility, the 2550 series' 7" TFT display offers a significantly larger viewing area than typical economy oscilloscopes (5.7").

### Features & Benefits

- Bandwidth up to 300 MHz
- 2 GSa/s sample rate
- 4-Channel acquisition (on select models)
- Large 7" widescreen color display
- FFT including four additional math functions - Add, Subtract, Multiply, and Divide
- 32 automatic measurements
- USB host port for remote PC control
- 50 Ω input coupling
- Front panel USB device port for saving and recalling waveform setups, data, and screenshots on a USB flash drive
- PC control through EasyScope software
- Advanced tools include digital filters with adjustable limits, pass/fail testing and waveform recorder mode
- Multi language user interface and context sensitive help

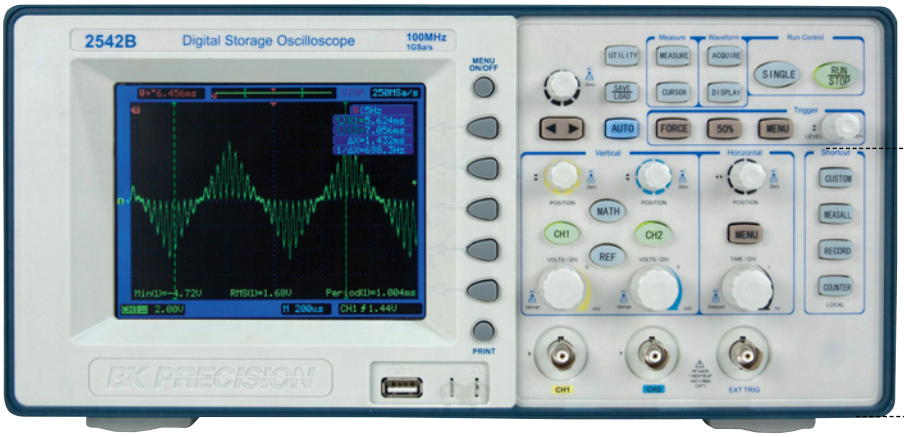
**The 2530B and 2532B** combine performance and value all in one portable solution. With advanced triggering capabilities, long waveform memory up to 32,000 pts/Ch, and extensive features such as pass/fail limit testing, digital filtering, waveform recorder, and automatic measurements, these oscilloscopes offer powerful tools in a small affordable package.

### Features & Benefits

- 25/40 MHz bandwidth (2530B / 2532B)
- 500 MSa/s sample rate
- Long waveform memory up to 32,000 pts/Ch
- Ability to disable Auto Set button for educators
- Five different math functions: +, -, x, /, and FFT
- 32 automatic measurements
- 12 different language user interfaces and context sensitive help
- USB host connectivity for remote PC control
- USB device port for convenient storing and recalling of waveform data, setups, and screenshots on a USB flash drive

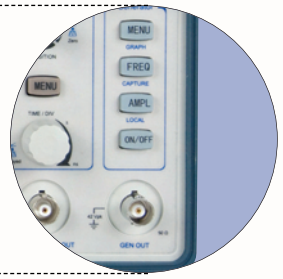
| Specifications | 2530B | 2532B | 2553 | 2555 | 2556 | 2557 | 2558 | 2559 |
|---|---|---|---|---|---|---|---|---|
| Bandwidth | 25 MHz | 40 MHz | 70 MHz | 100 MHz | 200 MHz | | 300 MHz | |
| Real Time Sampling Rate | 500 MSa/s (interleaved), 250 MSa/s (per channel) | | 2 GSa/s (interleaved), 1 GSa/s (per channel) | | | | | |
| Channels | 2 | | 4 | | 2 | 4 | 2 | 4 |
| Display | 5.7" Color LCD | | 7" widescreen Color LCD | | | | | |
| Memory Depth | 32 kpts max. (interleaved, single CH operation), 16 kpts (each channel) | | 24 kpts max. (interleaved, single CH operation), 12 kpts (each channel) | | | | | |
| I/O Interface | USB host port, USB device port | | USB host port, USB device port, LAN | | | | | |
| Vertical Resolution | 8 bits | | | | | | | |
| Vertical Sensitivity | 2 mV – 5 V/div | | | | | | | |

# Oscilloscopes




Model 2542B

**Built-in arbitrary waveform generator (models 2540B-GEN and 2542B-GEN only)**



Optimize your workspace and increase productivity with the unique combination of a DSO and a built-in AWG.

**The 2540B, 2542B, 2540B-GEN, and 2542B-GEN** dual channel 60 MHz and 100 MHz digital storage oscilloscopes deliver performance and value, all in one portable solution. Maximize productivity using extensive features such as digital filtering, waveform recorder, pass/fail limit testing, and automatic measurements. These oscilloscopes offer powerful tools in a small affordable package with deep waveform memory up to 2.4 Mpts plus LAN and USB PC interface. The 2540B-GEN and 2542B-GEN models include a built-in function/arbitrary waveform generator (AWG).

### Features & Benefits

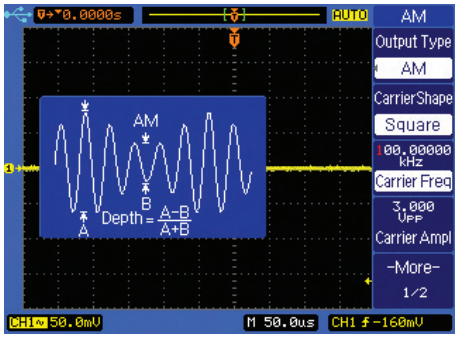
- 60 MHz (2540B and 2540B-GEN) and 100 MHz (2542B and 2542B-GEN) bandwidth
- 1 GSa/s sample rate
- Deep waveform memory up to 2.4 Mpts
- FFT plus three additional math functions
- Built-in context sensitive help system
- Edge, pulse width, and video triggering
- For educators - ability to disable the Auto set button
- PC software that lets you remotely control the oscilloscope and capture, save, and analyze waveform data
- Front panel USB port for convenient storing and recalling of waveform data, setups, and screenshots on a USB flash drive
- LAN interface enables users to capture screenshots from any standard web browser

AVEXPRESS™ Compatible

### Arbitrary Waveform Generator

- 1 µHz to 20 MHz sine output (2540B-GEN)
  1 µHz to 40 MHz sine output (2542B-GEN)
- 1 µHz to 20 MHz square output
- 1 mHz to 10 MHz pulse output
- Frequency sweep and burst mode
- Output protected against short circuit
- 30 built-in arbitrary waveforms
- Supports AM, FM, FSK, PSK, and PWM modulation
- Store up to 10 user arbitrary waveforms internally

### Graphical Help Feature




Display a graphical illustration explaining the parameters of the built-in arbitrary waveforms and modulation schemes. This is a convenient tool for students and new users.

| Specifications | 2540B | 2542B | 2540B-GEN | 2542B-GEN |
|---|---|---|---|---|
| Bandwidth | 60 MHz | 100 MHz | 60 MHz | 100 MHz |
| Sample Rate | 1 GSa/s | 1 GSa/s | 1 GSa/s | 1 GSa/s |
| Built-In AWG | - | - | 20 MHz | 40 MHz |
| Max. Memory Depth | 2.4 Mpts | 2.4 Mpts | 2.4 Mpts | 2.4 Mpts |

## Oscilloscope Probes

PR2000B

PR150B, PR250B, PR500B

These probes are high quality, easy to use family of 5 mm passive voltage oscilloscope probes in stylish, slimline bodies. The series features superior input impedances for enhanced measurement performance when compared to other oscilloscope probes.

### Features & Benefits

- Slim, stylish body
- Snap-Locking Sprung Hook
- Easily replaceable tip
- Large accessory set
- Meets IEC 61010-031 CATII
- RoHS compliant

| Specifications | PR150B | PR250B | PR500B | PR2000B |
|---|---|---|---|---|
| Type | 5 mm Passive Voltage | 5 mm Passive Voltage | 5 mm Passive Voltage | 5 mm Passive Voltage |
| Bandwidth | 17/150 MHz | 25/250 MHz | 500 MHz | 200 MHz |
| Attenuation | 1x/10x | 1x/10x | 10x | 100x |
| Input Impedance | 1/10 MΩ | 1/10 MΩ | 10 MΩ | 100 MΩ |
| Input Capacitance | ≈45/12 pF | ≈45/12 pF | ≈10 pF | ≈5 pF |
| Output Impedance | 1 MΩ | 1 MΩ | 1 MΩ | 1 MΩ |
| Risetime | 20/2.3 ns | 14/1.4 ns | 0.7 ns | 1.8 ns |
| IEC Rating | 300 V CAT II | 300 V CAT II | 300 V CAT II | 2,000 V CAT I |
| Compensation | 10–30 pF | 10–30 pF | 6–22 pF | 10–30 pF |
| Cable Length | 1.2 m | 1.2 m | 1.2 m | 1.2 m |
| Attenuation Accuracy | - | - | - | 6% |
| Voltage Coefficient (VCR) | - | - | - | ≤30 ppm/V |
| Operating Temperature | 0° to +50° C | 0° to +50° C | 0° to +50° C | 0° to +50° C |
| Humidity | 85% RH or less (at 35° C) | 85% RH or less (at 35° C) | 85% RH or less (at 35° C) | 85% RH or less (at 35° C) |
| RoHS (2002/95/EC) | Compliant | Compliant | Compliant | Compliant |

## Handheld Spectrum Analyzers

Model 2658A

The 2650A series handheld spectrum analyzers are compact, lightweight, and cost-effective instruments for quick and precise signal investigations. At a weight of only 4 lbs (1.8 kg), the 2650A series are by far the lightest full-featured spectrum analyzer available, yet they deliver performance and features comparable to full-size bench spectrum analyzers and can operate up to 4 hours on a single battery.

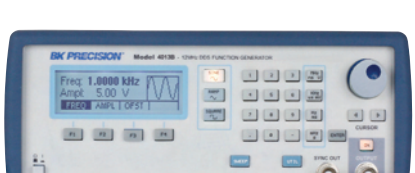
With their ease of use, measurement flexibility, and unmatched portability, the 2650A series analyzers are indispensible tools for engineers and technicians who conduct field measurements in the 50 kHz to 8.5 GHz range.

### Features & Benefits

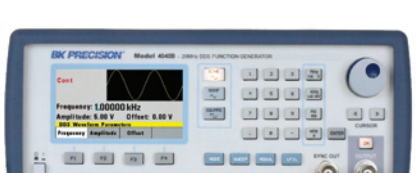
- Frequency range from 50 kHz – 8.5 GHz
- USB interface for PC connectivity
- Intuitive PC software for remote control and documentation of measurement results
- Conveniently store measurement results and screenshots in bitmap format to USB flash drive (USB host interface)
- Large easy-to-read color display
- Measurement functions: channel / adjacent channel power, occupied bandwidth, electric and magnetic field strength
- Built-in tracking generator to rapidly determine transmission characteristics of 2 port devices (model 2652A)
- Convenient Auto Tune function
- External trigger for zero span measurements
- SCPI-like remote control commands

| Specifications | 2650A/2652A | 2658A |
|---|---|---|
| Frequency range | 50 kHz to 3.3 GHz | 50 kHz to 8.5 GHz |
| Resolution bandwidth | 3 kHz to 3 MHz (1-3 sequence) and AUTO | |
| SSB phase noise | -90 dBc/Hz (typical) @100 kHz offset | |
| Average noise level | -127 dBm (typical) @ CF : 1 GHz, RBW : 3 kHz, VBW : 100 Hz, Ref. level < - 40 dBm (preamp automatically ON) | |
| Input VSWR | < 2.0 | |

# Signal Generators



Model 4013B



Model 4040B

**The 4007B and 4013B** are DDS function generators capable of generating waveforms with high signal precision and stability. Both models are suitable for users needing a basic DDS generator with sweep capability.

**Common Features**

- Linear and log sweep
- Adjustable DC offset and duty cycle
- Store/Recall up to 10 settings
- Output ON/OFF button

**The 4014B and 4040B** are high-performance DDS function generators that offer some features seen in higher-end instruments at an attractive price.

**4014B/4040B Features**

- AM/FM modulation
- Internal/External triggering
- Gate and burst mode (4040B only)
- Built-in counter
- USB interface
- SCPI compliant command set

| Specifications | 4007B◆ | 4013B◆ | 4014B◆ | 4040B◆ |
|---|---|---|---|---|
| Frequency (sine & square) | 0.1 Hz - 7 MHz | 0.1 Hz - 12 MHz | 0.01 Hz - 12 MHz | 0.01 Hz - 20 MHz |
| Frequency (triangle/ramp) | 0.1 Hz - 1 MHz | | 0.01 Hz - 2 MHz | |
| Output range (into 50 Ω) | 10 mV - 10 Vpp | | | |
| Distortion | DC - 20 kHz : -50 dBc | | | |
| Flatness | ±1 dB to max frequency | | | |
| Variable Duty Cycle | 20% - 80% to 1 MHz for square | | 20% - 80% to 2 MHz for square, 0% - 100% in 1% steps for triangle | |

◆ = three year warranty

Model 4078

**Models 4075, 4076, 4078, and 4079** are versatile high-performance function/arbitrary waveform generators suitable for a wide range of applications. These instruments combine easy-to-use conventional function generator capabilities and the ability to produce nearly any conceivable arbitrary waveform with accuracy and precision.

WaveXpress™ Compatible

**4078/4079 Features**

- Two independent channels
- Synchronize both output signals to the same clock signal (external or internal) and precisely adjust the phase relationship between the two signals

| Specifications | 4075 | 4078 | 4076 | 4079 |
|---|---|---|---|---|
| Number of channels | 1 | 2 | 1 | 2 |
| Frequency (sine) | 1 uHz - 25 MHz | | 1 uHz - 50 MHz | |
| Flatness | ±0.2 db @ 1 MHz, ±1 db @ 25 MHz | | ±0.1 db @ 10 MHz, ±1 db @ 50 MHz | |
| Sample rate | 100 MS/s | | 125 MS/s | |
| Waveform length (points) | 2 to 400,000 | | 2 to 4,000,000 | |
| Vertical resolution | 14 bit | | | |
| Computer interface | RS232 standard, GPIB optional | | RS232 and GPIB standard | |

WaveXpress™

**WaveXpress** is a comprehensive stand-alone application with several transformation options, allowing users to easily create complex waveforms. Modify a waveform downloaded from a scope or construct a new waveform using powerful and intuitive editing tools. Quickly download them to your AWG and begin testing your circuits and systems moments later. The WaveXpress program can also be used for general-purpose waveform editing without requiring any instruments to be connected to the computer.

**Features & Benefits**

- Import waveforms from B&K scopes, AWGs, or load them from CSV or text files
- Autoscan function automatically detects instruments connected via RS232, USB, or GPIB
- Generate waveforms from scratch with drawing and editing tools. Insert commonly used waveforms and different types of noise
- Numerous transformations for changing a waveform. Add user-defined transformations in the python programming language
- Multi-language support: additional languages can be added by the user
- Dialog settings are remembered for faster repetitive work

Available for download at:
*www.bkprecision.com/WaveXpress*


Model 4033


Model 5492B

## 50 MHz Programmable Pulse Generators

**The 4033 and 4034** are high performance programmable pulse generators ideal for testing digital systems and circuits based on TTL, CMOS, or ECL technologies. Both instruments generate clean and accurate pulses at up to 6 digits resolution with a repetition rate up to 50 MHz, variable pulse widths from 10 ns to 10 s, and pulse delays from 0 ns to 10 s. Output levels are adjustable from -10 V to +10 V, with pulse amplitudes settable from 0.1 Vpp to 10 Vpp into a 50 ohm load.

All parameters, modes, and functions are programmable via the front panel or remote control commands. Additionally, the pulse generators provide selectable complementary pulse and double pulse generation in continuous, triggered, gated, and counted burst modes.

### Features & Benefits

- Repetition rate of 0.1 Hz to 50 MHz
- Flexible trigger modes: Continuous, Triggered (internal, external, manual), Gated Burst and External Width
- Pulse width programmable from 10 ns to 10 s
- Transition times (rise and fall times) variable from 6 ns to 100 ms
- Programmable delay and double pulse
- Predefined amplitude levels for ECL, TTL, and CMOS signals
- Store up to 99 different test setups with auto retention of last power down setup
- Pulse amplitudes up to 10 Vpp into 50 Ω output
- Programmable via GPIB and RS-232
- SCPI compatible

| Specifications | 4033 | 4034 |
|---|---|---|
| Channels | 1 | 2 |
| Frequency | 0.1 Hz – 50 MHz | |
| Period | 40 ns to 10 s (25 MHz to 0.1 Hz repetition rate) | |
| Width | 10 ns to (Period – 10 ns) | |
| Delay | 0 ns to (Period – Width – 10 ns) | |
| Duty Cycle | 1 to 99% | |
| Amplitude | 0.1 V to 10 Vpp into 50 Ω load (20 Vpp max into open circuit) | |
| Transition Times | <6 ns to 100 ms variable. Leading and trailing edges settable separately and limited to 20:1 ratio between settings into one of the following ranges: 5 ns-100 ns; 50 ns-1.0 us; 500 ns-10 us; 5.0 us-100 us; 50 us-1.0 ms; 500 us-10 ms, 5 ms – 100 ms | |

Three year warranty

## 5½-digit Bench Multimeter

**Model 5492B** is a versatile 5½-digit, 120,000-count bench multimeter suitable for applications in education, service, repair, and manufacturing. This multimeter offers powerful features not commonly found in other 5½-digit DMMs such as advanced triggering, buffer storage operation, and a GPIB interface option.

### Features & Benefits

- 0.01% basic VDC accuracy
- Two- and four-wire resistance measurement up to 120 MΩ
- AC voltage and AC current measurement over wide frequency range (ACV 100 kHz/ ACI 10 kHz)
- AC (RMS) and DC current measurements up to 12 A
- Limit mode for Pass/Fail testing
- Save/recall up to 10 instrument settings
- Built-in math functions: Rel, Max/Min, dBm, dB, %, limits, Mx+B
- CAT I (1000 V) / CAT II (300 V) protection
- USB (Virtual Com) and RS232 interface standard, GPIB interface optional
- SCPI compatible

| DC Volt Specifications | | |
|---|---|---|
| Ranges | Resolution | Basic Accuracy |
| 120 mV, 1.2 V, 12 V, 120 V, 1000 V | 1 uV, 10 uV, 100 uV, 1 mV, 10 mV | 0.01% (reading) +0.004% (range) |

## About B&K Precision

For more than 60 years B&K Precision has provided test and measurement solutions to customers from wide-ranging fields including research and development, product design, industrial maintenance, electronic field service, production line testing, and the educational community. Universities and technical schools worldwide have made our instruments standard equipment in their training programs.

Our core instruments include power supplies and DC electronic loads, as well as function and arbitrary generators, component testers, oscilloscopes, multimeters and spectrum analyzers.

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