



- Amplitudes to 200 and 400 Volts
- IEEE-488.2 GPIB and RS-232 interfaces
- 10 and 20 ns rise and fall times
- Pulse widths variable from 0.1 to 100 us
- PRF to 10 kHz
- Peak power output to 3.2 kW
- For time-of-flight and many other applications

The AVR-3-B and AVR-4-B are high-voltage pulse generators capable of driving 50 Ohm (or higher) loads and operating over a wide pulse width range. The AVR-3-B and the AVR-4-B both include IEEE-488.2 GPIB and RS-232 interfaces. For diode loads, these models can be used to provide up to 4 or 8 Amps of pulsed current if the diode is connected in series with a 50Ω resistance. The AVR-3-B provides up to 200 Volts out with rise times of 10 ns, and pulse widths variable from 100 ns to 100 us. The pulse repetition frequency (PRF) is variable from 1 Hz to 10 kHz. This model will provide peak output power of 800 Watts and average outputs of 16 Watts (i.e. 2% maximum duty cycle).

The AVR-4-B provides up to 400 Volts out with rise times of 20 ns, and pulse widths variable from 100 ns to 100 us. The PRF is variable from 1 Hz to 10 kHz. This model will provide peak output power of 800 Watts and average outputs of 16 Watts (i.e. 0.5% maximum duty cycle).

The MOSFET output stages in both models will safely withstand any combination of front panel control settings, output open or short circuits, and high-duty cycles. An internal power supply monitor removes the power to the output stage for five seconds if an average power overload exists. The AVR-4-B output stage will source up to 5 Amps, and will automatically shut down if the load current exceeds 5 Amps. The AVR-5-B output stage will source up to 10 Amps, and will automatically shut down if the load current exceeds 10 Amps.

Aside from the internal clock, these instruments

can also be triggered by a single-pulse pushbutton or an external TTL-level trigger input. When triggered externally the output pulse width can be set to track the input trigger pulse width ($PW_{OUT} = PW_{IN}$). A delay control and a sync output are provided for scope triggering. A gate input is also provided.

Both models include a complete computer control interface (see <http://www.avtechpulse.com/gpib>). This provides GPIB and RS-232 computer-control, as well as front panel keypad and adjust knob control of the output pulse parameters. A large backlit LCD displays the output amplitude, polarity, frequency, pulse width, and delay. An Ethernet port for Telnet-based control is optional (-TNT option, <http://www.avtechpulse.com/options/tnt>) on all -B units.

The AVR-3-B and AVR-4-B are available with positive or negative outputs. A dual-polarity option is also available. The polarity must be specified when ordering, by adding the suffix “-P”, “-N”, or “-PN” to the model number. The output polarity of units with the -PN dual-polarity option can be controlled by the front-panel settings, or by computer commands.

Both models are available with a DC-voltage-controlled output amplitude option (0 to +10 V). Both models require 100 - 240 Volts, 50 - 60 Hz, and are mounted in a rugged all-metal 4” x 17” x 15” chassis.

LabView drivers for the AVR-3-B and AVR-4-B instruments are available for download at <http://www.avtechpulse.com/labview>.



AVR-3-B-PN



SPECIFICATIONS

AVR-3 AND AVR-4 SERIES

Model:	AVR-3-B ¹	AVR-4-B ¹
Amplitude ^{2,3} : ($R_L \geq 50$ Ohms)	0 to 200 Volts	0 to 400 Volts
Output Impedance:	1 Ω , approximately	1.5 Ω , approximately
Rise time (20%-80%):	≤ 10 ns	≤ 20 ns
Fall time (80%-20%):	≤ 10 ns	≤ 20 ns
Pulse width (FWHM):	100 ns to 100 μ s	
PRF:	Internal trigger: 1 Hz to 10 kHz External trigger: 0 Hz to 10 kHz	
Duty cycle (max):	2%	0.5%
Average power out:	16 Watts maximum	
Polarity ⁴ :	Positive or negative or both (specify)	
Propagation delay:	≤ 150 ns (Ext trig in to pulse out)	
Jitter: (Ext trig in to pulse out)	± 100 ps $\pm 0.03\%$ of sync delay	
Trigger required: (external trigger mode)	Ext Trig Mode A: +5 Volt, 50 ns or wider (TTL) Ext Trig Mode B: +5 Volt, $PW_{IN} = PW_{OUT}$ (TTL)	
Sync delay:	Variable 0 to ± 1 second (sync out to pulse out)	
Sync output:	+3 Volts, 200 ns, will drive 50 Ohm loads	
Gated operation:	Synchronous or asynchronous, active high or low, switchable.	
Connectors:	Out, Trig, Sync, Gate: BNC	
GPIB and RS-232 control ¹ :	Standard feature on all -B units.	
LabView drivers:	Available for download at http://www.avtechpulse.com/labview .	
Telnet / Ethernet control ⁵ :	Optional. See http://www.avtechpulse.com/options/tnt for details.	
Power requirements:	100 - 240 Volts, 50 - 60 Hz	
Dimensions:	100 mm x 430 mm x 375 mm (3.9" x 17" x 14.8")	
Chassis material:	Cast aluminum frame and handles, blue vinyl on aluminum cover plates	
Mounting:	Any. Add -R5 to the model number to add a rack-mount kit.	
Temperature range:	+5°C to +40°C	

- B suffix indicates IEEE-488.2 GPIB and RS-232 control of amplitude and frequency. See <http://www.avtechpulse.com/gpib> for details.
- For operation at amplitudes of less than 10% of full-scale, best results will be obtained by setting the amplitude near full-scale and using external attenuators on the output.
- For electronic control (0 to +10V) of amplitude, suffix the model

- number with -EA. These units also include the standard front-panel controls.
- Indicate desired polarity by suffixing model number with -P or -N (i.e. positive or negative), or -PN for dual polarity option.
- Add the suffix -TNT to the model number to specify the Telnet / Ethernet control option.

See our Applications Information Section on pages 104 - 112, and visit the application note area of the Avtech web site: <http://www.avtechpulse.com/appnote>.

Use the "Pick the Perfect Pulser" parametric search engine at <http://www.avtechpulse.com/pick> to find the best pulser for your application!