



- ◆ 200 Volt series
- ◆ Pulse widths as low as 2 ns, as high as 1 us
- ◆ Rise time as low as 1 ns
- ◆ PRF to 50 kHz
- ◆ IEEE-488.2 GPIB & RS-232 control ports
- ◆ Ethernet port for VXI-11.3 support

The AVIR series is designed for 200V applications requiring pulse widths from 2 to 1000 ns, at repetition rates up to 50 kHz.

The AVIR-1 family provides output amplitudes continuously variable from < 20 Volts up to 200 Volts (into 50 Ohms), pulse widths variable from 2 ns to 5 ns, with 1 ns rise times. The maximum pulse repetition frequency is 50 kHz.

The AVIR-2 family is similar, but features pulse widths from 3 to 10 ns, with 1.5 ns rise times, and operation to 20 kHz.

For wider pulse width applications, the AVIR-3 family offers 10 to 200 ns pulse widths with 2 ns rise times.

The AVIR-4 family essentially combines the AVIR-2 and AVIR-3 technologies to offer pulse widths from 4 to 200 ns, in two ranges (4 to 10 ns, and 10 to 200 ns). The AVIR-4D-B offers wider pulses, to 1 us.

All models include an internal oscillator variable up to 50 kHz (AVIR-1 family) or 20 kHz (all other families) using the front-panel controls. A delay control and a sync output are provided for scope triggering. All models can also be triggered externally with a TTL-level pulse.

Positive, negative, and dual polarity models can be provided. The polarity in dual-polarity units is controlled by a front-panel switch.

All AVIR units are available with a monitor output option that provides an attenuated coincident replica of the

main output pulse.

All instruments with the -B suffix include a complete computer control interface. 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 voltage amplitude, polarity, pulse repetition frequency, pulse width, and delay. (Visit <http://www.avtechpulse.com/gpib> for additional details). To allow easy integration into automated test systems, the programming command set is based on the SCPI standard, and LabView drivers are available for download from the Avtech web site, at <http://www.avtechpulse.com/labview>.

A standard rear-panel Ethernet connector allows the instrument to be remotely controlled using the VXI-11.3, ssh, telnet, and web protocols. In particular, the VXI-11.3 features allows software like LabView to control an instrument using standard VISA communications drivers and network cabling, instead of using older-style GPIB cabling and GPIB controller cards. For details, please see <http://www.avtechpulse.com/options/vxi>.

All models require 100 - 240V, 50 - 60 Hz prime power.

Contact Avtech for your special requirements, such as different output connector or pulse widths.

For assistance in selecting the ideal model for your application, visit our online parametric search engine at <http://www.avtechpulse.com/pick>.



AVIR-3-B



## SPECIFICATIONS

## AVIR SERIES

Model <sup>1</sup> :	AVIR-1-B	AVIR-2-B	AVIR-3-B	AVIR-4-B	AVIR-4D-B
Amplitude <sup>2,3,6</sup> :	< 20 to 200 Volts				
Required load impedance:	50Ω <sup>7</sup>				
Pulse width (FWHM):	2 - 5 ns	3 - 10 ns	10 - 200 ns	4 - 200 ns	4 - 1000 ns
Rise time (20%-80%):	≤ 1 ns	≤ 1.5 ns	≤ 2 ns	≤ 2 ns	≤ 2 ns
Fall time (80%-20%):	≤ 1.8 ns	≤ 3 ns			
PRF:	0 to 50 kHz	0 to 20 kHz			
Maximum duty cycle:	N/A				0.4%
Polarity <sup>4</sup> :	Positive or negative or both (specify)				
GPIB & RS-232 control <sup>1</sup> :	Standard on -B units				
LabView Drivers:	check <a href="http://www.avtechpulse.com/labview">http://www.avtechpulse.com/labview</a> for availability and downloads				
Ethernet port, for remote control using VXI-11.3, ssh, telnet, & web:	Included. Recommended as a modern alternative to GPIB / RS-232. See <a href="http://www.avtechpulse.com/options/vxi">http://www.avtechpulse.com/options/vxi</a> for details.				
Settings resolution:	The resolution of the timing parameters (pulse width, delay, period) varies, but is always better than 0.15% of ( set value  + 20 ns). The amplitude resolution is < 0.1% of the maximum amplitude.				
Settings accuracy:	Amplitude: ± 5% (plus ±2 V) after 10 minute warmup. For pulse widths below ~10 ns, the amplitude accuracy degrades to ± 10% ± 10 V. Delay, Period: Typically ± (3% of setting ) ± (5 ns) Pulse width: Typically ± (3% of setting ) ± (2 ns), at maximum amplitude. As the amplitude is reduced, the pulse width may shift ± 5 ns. For high-accuracy applications requiring traceable calibration, verify the output with a calibrated oscilloscope <sup>8</sup> .				
DC offset or bias insertion:	Optional <sup>5</sup> . Apply required DC offset or bias in the range of ± 50 Volts (250 mA max) to back panel solder terminal.				
Propagation delay:	≤ 100 ns (Ext trig in to pulse out)				
Jitter:	± 35ps ± 0.015% of sync delay (Ext trig in to pulse out)				
Trigger modes:	Internal trigger, external trigger (TTL level pulse, > 10 ns, 1 kΩ input impedance), front-panel "Single Pulse" pushbutton, or single pulse trigger via computer command.				
Variable delay:	Sync to Out: 0 to 1.0 seconds, for all trigger modes (including external trigger).				
Sync output	+3 Volts, 100 ns, will drive 50 Ohm loads				
Connectors:	Out: SMA, Trig, Sync, Gate: BNC				
Power requirement:	100 - 240 Volts, 50 - 60 Hz				
Dimensions:	H x W x D: 100 x 430 x 375 mm (3.9 x 17 x 14.8")				
Rack-mount kit:	Optional. To specify, add the -R5 suffix to the model number.				
Temperature range:	+5°C to +40°C				

- 1) -B suffix indicates IEEE-488.2 GPIB and RS-232 control of amplitude, pulse width, PRF and delay (see <http://www.avtechpulse.com/gpib> for details).
- 2) For analog electronic control (0 to +10V) of amplitude, suffix the model number with -EA. Includes standard front-panel controls. Not available on AVIR-4 models.
- 3) 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.
- 4) Indicate desired polarity by suffixing model number with -P or -N (i.e. positive or negative) or -PN for dual polarity option. Polarity reversal is achieved by means of a two-position switch.
- 5) For externally-applied DC offset option suffix model number with -OS. For internally-generated DC offset option (0 to ±5V) add suffix -OT.

- 6) The maximum amplitude decreases by 15% for repetition rates above 30 kHz. The maximum amplitude also decreases by an additional 15% for pulse widths below 3 ns.
- 7) A 50 Ohm load is required. Other loads may damage the instrument. Consult Avtech ([info@avtechpulse.com](mailto:info@avtechpulse.com)) if you need to drive other load impedances.
- 8) These instruments are provided with a basic calibration checksheet, showing a selection of measured output parameters. These measurements are performed with equipment that is calibrated on a regular basis by a third-party ISO/IEC 17025:2005 accredited calibration laboratory. However, Avtech itself does not claim any accreditation. For applications requiring traceable performance, use a calibrated measurement system rather than relying on the accuracy of the pulse generator settings.