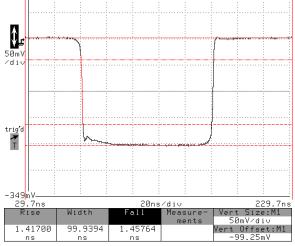# AVTECH

G P I B
IEEE-488

AVRF SERIES

1 - 7 ns RISE AND FALL TIME
100 - 750 VOLT PULSE GENERATORS
PULSE WIDTHS TO 1 us OR 100 us

AVRF-2-B-N generating -200V, 100 ns pulse width.

- Amplitude / rise time combinations of 100V / 1 ns up to 750 V / 7.5 ns
- Pulse widths to 10 or 100 us
- PRF to 1 or 10 kHz
- Switchable polarity optional
- IEEE-488.2 GPIB / RS-232 control

The AVRF series offers high-voltage outputs (to 750 Volts) with fast rise times (1 - 7.5 ns) and wide pulse width ranges (0.1 us up to 10 or 100 us).

The AVRF-1-B model provides amplitudes of up to 100V, with rise and fall times of 1 ns. The pulse width may be adjusted from 0.1 to 100 us, with a maximum duty cycle of 1%. The maximum pulse repetition frequency (PRF) is 1 kHz. Model AVRF-2-B is similar, except that the amplitude is adjustable to 200V, with 2 ns rise and fall times, and the maximum duty cycle is 0.5%.

Model AVRF-4A-B generates amplitudes of up to 400 Volts, with 4 ns rise and fall times. The pulse width is variable from 0.1 to 10 us. The maximum PRF is 10 kHz, and the maximum duty cycle is 0.5%.

Model AVRF-6A-B generates amplitudes of up to 600 Volts, with 6 ns rise and fall times. The pulse width is variable from 0.1 to 10 us. The maximum PRF is 10 kHz, and the maximum duty cycle is 0.1%.

Model AVRF-7A-B generates amplitudes of up to 750 Volts, with 7.5 ns rise and fall times. The pulse width is variable from 0.1 to 10 us. The maximum PRF is 10 kHz, and the maximum duty cycle is 0.1%.

The AVRF-1-B and AVRF-2-B models may be ordered in positive, negative, or dual-polarity configurations. The polarity of dual-polarity models may be controlled from the front-panel or by computer command.

Models AVRF-4A-B, AVRF-6A-B, and AVRF-7A-B are normally provided with positive outputs. A relay-controlled inverting transformer can be installed internally as an option (-PN). This will reduce the maximum pulse width rating of the AVRF-6A-B and AVRF-7A-B to 5 us.

All models with the "-B" suffix include a complete computer control interface (see http://www.avtechpulse.com/gpib for details). 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 back-lit LCD displays the output amplitude, polarity, frequency, pulse width or duty cycle as appropriate, and delay. 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 at the Avtech web site (http://www.avtechpulse.com/labview). An Ethernet port for Telnet-based control is optional on all -B units (-TNT option, see http://www.avtechpulse.com/options/tnt).

All models are protected from overload conditions (such as excessively high duty cycle or short circuited loads) by an automatic control feature that limits the output power for as long as the overload condition exists. A push button is provided for one-shot operation. A delay control and a sync output are provided for scope triggering purposes.

When triggered externally by a TTL-level pulse, the output pulse width may be controlled by the front-panel settings, or it may be set to track the input pulse width. The propagation delay in the externally triggered mode is typically 100 ns. Either output polarity can be provided. (A dual polarity option is also available).

All models require 100-240 Volts, 50-60 Hz.

AVRF-1-B

SPECIFICATIONS   AVRF SERIES

Model:	AVRF-1-B[1]	AVRF-2-B[1]	AVRF-4A-B[1]	AVRF-6A-B[1]	AVRF-7A-B[1]
Amplitude[2]: (50 Ohm load required)	0 to 100 Volts	0 to 200 Volts	0 to 400 Volts	0 to 600 Volts	0 to 750 Volts
Rise and fall times (20%-80%):	≤ 1 ns	≤ 2 ns	≤ 4 ns[3]	≤ 6 ns[3]	≤ 7.5 ns[3]
Pulse width (FWHM):	0.1 to 100 us		0.1 to 10 us	0.1 to 10 us (standard units), 0.1 to 5 us (with -PN option)	
PRF:	0 to 1 kHz		0 to 10 kHz		
Duty cycle (max):	1.0%	0.5%		0.1%	
Average power out (max):	4 Watts	4 Watts	16 Watts	7 Watts	11 Watts
Polarity:	Positive (-P option), negative (-N option), or both (-PN option)		Positive only (standard), Both (with -PN option)		
Propagation delay:	≤ 150 ns (Ext trig in to pulse out)				
Jitter:	± 100 ps ± 0.03% of sync delay (Ext trig in to pulse out)				
Trigger required: (external trigger mode)	Mode A: + 5 Volts, 50 ns or wider (TTL) Mode B: + 5 Volts, $PW_{IN} = PW_{OUT}$ (TTL)				
Sync delay:	Variable, 0 to ± 1 second				
Sync output:	+3 Volts, 100 ns, will drive 50 Ohm loads				
Gate input:	Synchronous or asynchronous, active high or low, switchable. Suppresses triggering when active.				
Connectors:	Out: BNC[4] Trig, Sync, Gate: BNC				
GPIB and RS-232 control[1]:	Standard on -B units.				
Telnet / Ethernet control:	Optional (-TNT option) See http://www.avtechpulse.com/options/tnt for details.				
Power requirements:	100 - 240 Volts, 50 - 60 Hz				
Dimensions: (H x W x D)	100 mm x 430 mm x 425 mm (3.9" x 17" x 16.8")				
Rack-mount kit:	Optional. Add -R5 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).
2) For operation at amplitudes of less than 20% of full-scale, best results will be obtained by setting the amplitude near full-scale and using external attenuators on the output.
3) The -PN option will degrade the rise and fall times by 20%, approximately.
4) Add the suffix -NC, -HN, -MHV, or -SHV to the model number to replace the standard BNC output connector with N, HN, MHV, or SHV connectors, respectively.

See our application notes at
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!