

Top: Voltage at internal 50 Ohm load. 100V/div, 200 ns/div.
Bottom: Output of A6303 15 MHz probe (the device under test).

- Amplitudes to 250 Volts, 5 Amps
- Internal or external 50.0 Ohm load
- Clamping cable for attaching probes
- 0.5 or 10 ns rise time

The AVR-3-PW-TEK series was specially designed for the testing of current probes such as the Tektronix A6303, the TCP300 and TCP400 series, and the CT-1 and CT-2 high-speed probes.

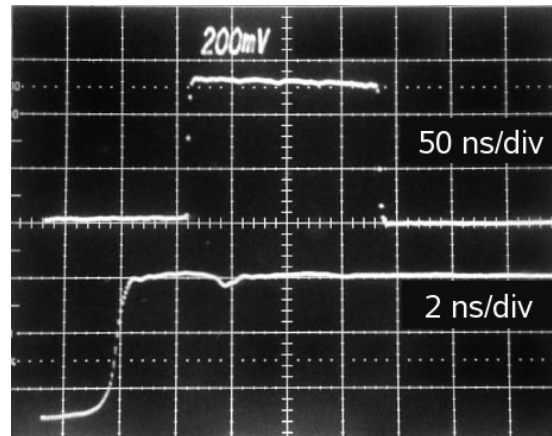
The AVR-3-PW-TEK2-B generates 10 ns rise time voltage pulses (0 to 250V, 250 ns to 250 us), suitable for testing A6303 or TCP303 probes. A 50Ω termination is provided. A variable current of up to 5 Amperes is defined by the 250 Volt pulse and the 50Ω termination. For other applications, the output pulse may be connected to a user-supplied 50Ω load, if desired.

Model AVR-3-PW-TEK3-B has all of the features of the AVR-3-PW-TEK2-B, but adds a second output for testing lower-current, higher-speed current probes. This additional output can generate pulse amplitudes up to 50V and 1A, with 0.5 ns rise times. The pulse width is variable from 50 ns to 200 ns. The two outputs allow this model to test both high-speed lower-current probes such as the TCP312 or TCP305, and lower-speed high-current probes such as the A6303 or TCP303.

An external output module is provided for each output. Replaceable flexible shorting cables are mounted on these output modules. (The shorting cables are standard RG-316 coaxial cables.) During tests, the output module are connected to the mainframe by a 12" / 30 cm length of coaxial cable, and the current probes are clamped around the shorting cables. The output modules also contain the 50 Ohm termination.

The supplied cables and output modules are designed to preserve the fast rise and falls times as much as possible, despite the parasitic inductance introduced by the probes and the unshielded connections (i.e., imperfect transmission lines) required to measure current flow.

Model AVR-3-PW-TEK3-B is optionally available with an additional output module that is physically suitable for use



Output of a Tektronix CT-1 current probe when tested with the AVR-3-PW-TEK3-B-P with the -CT option. The rated rise time of the CT-1 is 350 ps, which agrees well with the lower waveform.

- GPIB, RS-232, and Ethernet ports
- Ideal for testing of a wide range of current probes, such as the Tektronix A6303, TCP300 / 400 series, CT-1, CT-2, etc.

with the Tektronix CT-1 and CT-2 ultra-fast (i.e., sub-nanosecond rise time) current probes.

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.

These models include a 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, 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 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, see <http://www.avtechpulse.com/options/vxi>.

It is recommended that test applications which previously used the discontinued AVR-3-PW-TEK2-C-P migrate to the newer AVR-3-PW-TEK2-B-P or AVR-3-PW-TEK3-B-P models instead. These have all of the functionality of the older AVR-3-PW-TEK2-C-P, and add new capabilities (such as computer control).

Many specifications can be adapted to meet particular requirements. Contact Avtech with your special needs!



SPECIFICATIONS

AVR-3-PW-TEK SERIES

Model:	AVR-3-PW-TEK2-B	AVR-3-PW-TEK3-B
Basic Description:	High current pulser	High and low current "combo" pulser
Number of Outputs:	1	2
		Output 1 Output 2
Amplitude ($R_L \geq 50 \Omega$):	10 to 250 V	
Provided termination:	50.0 $\Omega \pm 1\%$	
Voltage rise & fall times:	≤ 10 ns (20%-80%)	≤ 0.5 ns (20%-80%)
Pulse width (FWHM):	250 ns to 250 μ s	50 to 200 ns
Droop (at max. pulse width):	$\leq 2\%$	
Overshoot (at max. amp.):	$\leq 5\%$	
PRF:	Internal trigger: 1 Hz to 10 kHz, External trigger: 0 Hz to 10 kHz	
Duty cycle (max):	0.25%	0.2%
Polarity ² :	Positive or negative (specify)	
Propagation delay:	≤ 150 ns (Ext trig in to pulse out)	
Jitter:	± 100 ps $\pm 0.03\%$ of sync delay (Ext trig in to pulse out)	
Output connector:	BNC	SMA
Probe attachment style:	Flexible clamping cable on output module ³ . The output module is connected to the front panel by a 12" / 30 cm coaxial cable.	
Trigger modes:	Internal trigger, external trigger (TTL-level pulse, > 10 ns, 1 k Ω input impedance), front-panel "Single Pulse" pushbutton, or single pulse trigger via computer command.	
Variable delay (Sync to main out):	0 to 1.0 seconds, for all trigger modes (including external trigger). Common to all outputs.	
Sync output (will drive 50 Ω):	+3 Volts, 100 ns	
Gated operation:	Synchronous, active high or low, switchable.	
GPIB and RS-232 control:	Standard feature on all -B units.	
Ethernet port, for remote control using VXI-11.3, ssh, telnet, & web:	Included. Recommended as a modern alternative to GPIB / RS-232. See http://www.avtechpulse.com/options/vxi for details.	
LabView drivers:	Check for available downloads at http://www.avtechpulse.com/labview .	
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:	Typically $\pm 3\%$ (plus $\pm 1V$ or ± 2 ns) after 10 minute warmup. For high-accuracy applications requiring traceable calibration, verify the output parameters with a calibrated oscilloscope ⁴ .	
Power requirements:	100 - 240 Volts, 50 - 60 Hz	
Dimensions:	100 mm x 430 mm x 375 mm (3.9" x 17" x 14.8")	
Mounting:	Any. Add -R5 to the model number to add a rack-mount kit.	
Temperature range:	+5°C to +40°C	

- 1) 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.
- 2) Indicate desired polarity by suffixing model number with -P or -N (i.e. positive or negative).
- 3) An optional additional output module is available for "Output 2" of the AVR-3-PW-TEK3-B, which is suitable for use with CT-1 and CT-2 current probes. This output module uses a very short length of de-solderable bus-bar wire (instead of flexible

- 4) 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.



AVR-3-PW-TEK3-B-P MAINFRAME



A high-current probe is clamped to the shorting cable on the AVX-TEK3-TM1 output module supplied with the AVR-3-PW-TEK2-B and AVR-3-PW-TEK3-B. The cable fed through the probe is a standard, replaceable RG-316 coaxial cable.

A low-current probe is clamped to the shorting cable on the AVX-TEK3-TM2 output module supplied with the AVR-3-PW-TEK3-B.