

Automated Test & Production Timing

Rackmount, remotely controlled timing and stimulus for automated test equipment and high-throughput production lines.



Model 588B multi-channel pulse and delay generator, 2U rackmount.

APPLICATION BRIEF · PULSE & DELAY GENERATORS · dc-62022201

The Mission

Automated test equipment and production-line stations run unattended, often around the clock. Each station triggers a device under test, gates an instrument, and steps through a script with no operator at the keyboard. The timing generator inside that station has to integrate cleanly into a rack, take commands over a control bus, and behave identically on the ten-thousandth cycle as on the first.

The mission is repeatability and integration: a stimulus and timing source that a test executive can drive over Ethernet, that fits the rack, and that recalls a known setup on power-up.

The Challenge

Remote control comes first. The station controller needs a clean programming interface, SCPI over LAN, USB, or RS-232, so the test sequence sets delays, widths, and modes without front-panel intervention. Form factor comes second. Space in a production rack is budgeted, and a compact 2U instrument earns its slot. Channel flexibility matters because one station may pulse a DUT, gate a scope, and trigger a handler all at once.

Consistency closes the list. Stored setups that survive a power cycle, stable timing across a long shift, and a generator that does not require recalibration between runs keep yield numbers honest and throughput high.

Recommended Berkeley Nucleonics Solutions

The **Model 588B** is built for rack integration: 12 or 24 channels in a 2U chassis, USB, RS-232, and Ethernet control, 250 ps delay resolution, 50 ps RMS channel-to-channel jitter, and 12 or 24 stored setups, a clean alternative to multi-box, multi-cable benches. Figure 1 shows the station it fits into.

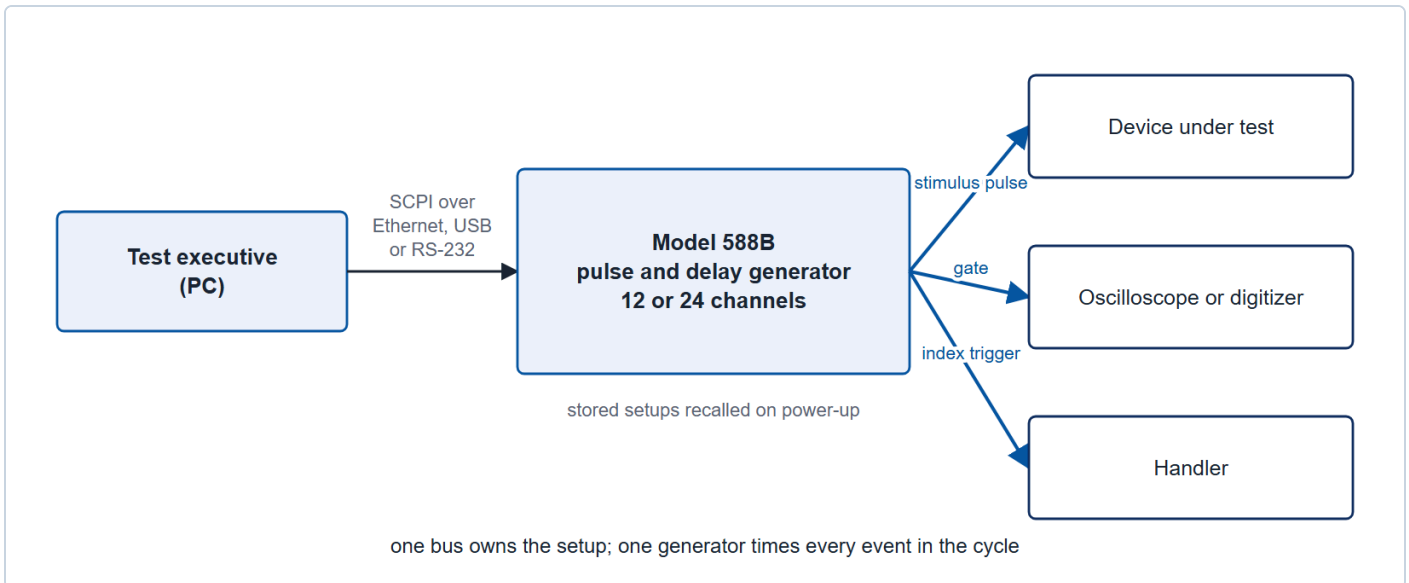
Where a station needs full-featured benchtop flexibility with the same remote reach, the **Model 577** offers 4 or 8 channels, 250 ps resolution, and optional Ethernet and GPIB alongside standard USB and RS-232. For compact stations or portable test carts, the USB-powered six-channel **Model 525** runs from the controller's own USB port and exposes a PC-based programming interface.

Model	Channels	Form factor	Control	Delay resolution
588B	12 or 24	2U rackmount (12 or 24 ch)	USB, RS-232, Ethernet; 12 or 24 stored setups	250 ps
577	4 or 8	Benchtop	USB, RS-232 standard; Ethernet & GPIB (Option COM); 16 memory locations	250 ps
525	6	USB-powered, book-sized	USB (SCPI, LabVIEW compatible)	4 ns

■ Table 1. Remote control and rack integration of the recommended models, from the current datasheets.

Why It Works

Every instrument here takes commands over a standard bus and stores its configuration, so a test executive owns the setup end to end and the station recovers its state after a power cycle. The 588B fits the rack budget at 2U while supplying the channels a multi-instrument station needs, and the 577 and 525 cover the bench and portable cases. Stable timebases and recallable setups keep the ten-thousandth unit measured the same way as the first.



■ **SCHEMATIC** Figure 1. An automated test station: the test executive drives the Model 588B over SCPI, and the generator times the DUT stimulus, the digitizer gate and the handler index from one setup recalled on power-up.

Getting Started

Berkeley Nucleonics application engineers help match channel count, edge speed, jitter budget, and output module to your timing diagram before you order. Send a block diagram or a short description of the events you need to synchronize, and we will return a configuration recommendation.

Email info@berkeleynucleonics.com or call 800-234-7858. Browse the full Pulse & Delay Generator documentation for datasheets, manuals, and ordering guides.

Berkeley Nucleonics Corp.

Test, Measurement and Nuclear Instrumentation since 1963
For details: info@berkeleynucleonics.com or 800-234-7858

Application Brief

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