

**Aumictech**

Test & measurement • bought, sold, repaired, calibrated

Data Sheet

August 2, 2026

STANFORD RESEARCH SYSTEMS

Stanford Research DG645 Four-Channel Digital Delay Generator

Stanford Research DG645 Four-Channel Digital Delay Generator The DG645 provides a four-channel digital delay generator designed with four independent pulse pairs (AB, CD, EF, GH) plus a T0 reference, internally supporting eight delay events. It features sub-nanosecond timing control for laser, pulsed, and trigger-synchronization applications. Laser timing and Q-switch control; pump-probe and time-resolved spectroscopy; gated detector and camera triggering; pulsed RF and microwave experiment timing; multi-channel stimulus for ATE and physics labs; synchronized pulse trains for lidar and ultrafast systems; remote automation via GPIB, RS-232, or Ethernet. The DG645 provides a four-channel digital delay generator designed with four independent pulse pairs (AB, CD, EF, GH) plus a T0 reference, internally supporting eight delay events. It features sub-nanosecond timing control for laser, pulsed, and trigger-synchronization applications. Laser timing and Q-switch control; pump-probe and time-resolved spectroscopy; gated detector and camera triggering; pulsed RF and microwave experiment timing; multi-channel stimulus for ATE and physics labs; synchronized pulse trains for lidar and ultrafast systems; remote automation via GPIB, RS-232, or Ethernet.



MODEL

**Stanford Research
Systems DG645**

CALIBRATION

**Available on
request**

CONDITION

Used

STATUS

In stock

RFQ / SKU

DG645

LISTING

<https://aumictechlabs.com/products/dg645-2/>

NIST-traceable cal

SAM registered

30-day returns

NAICS 423690 • 811210 • 541380

This unit

The Stanford Research Systems DG645 is a four-channel digital delay generator delivering precise timing signals for laboratory and integrated systems requiring meticulous synchronization. With 5 ps delay resolution, sub-25 ps typical jitter, and independent control over four output channels, the DG645 addresses demanding timing applications across physics, photonics, and materials research.

Technical Specifications

Timing Performance Delay resolution: 5 ps Delay accuracy: ± 500 ps ± 10 ppm of setting Delay range: 0 ps to 1000 s (5 ps increments) Pulse width resolution: 5 ps Pulse width accuracy: ± 500 ps ± 10 ppm of setting Pulse width range: 50 ps to 1000 s Jitter (RMS): <25 ps typical Channel-to-channel skew: <1 ps RMS (typ.)

Output Characteristics Amplitude range: 0 V to 5 V into 50 Ω load Output offset: -2.5 V to +2.5 V Rise/fall time: <1 ns (20% to 80%, into 50 Ω load) Output impedance: 50 $\Omega \pm 5\%$ Output connectors: 4 $\times$ BNC (delay channels), 1 $\times$ BNC (trigger output)

Triggering & Control Internal trigger rate: 0.01 Hz to 1 MHz External trigger: TTL, NIM, ECL compatible Line sync and manual trigger supported Trigger jitter (input to output): <25 ps RMS for clock sources (typ.) Programmable trigger holdoff Control: GPIB (IEEE-488.2) and RS-232

Key Features Four independent delay channels with <1 ps RMS inter-channel skew Picosecond-level timing resolution and accuracy across nanosecond to kilosecond timescales Multiple trigger sources - internal, external, line sync, manual - with sub-25 ps jitter Variable output amplitude and DC offset for integration with diverse detection systems

Typical Applications Pump-probe spectroscopy, ultrafast photonics, time-correlated single-photon counting, synchronized data acquisition, and multi-channel timing control in laser systems and particle detectors.

Compatibility & Integration Standard 19-inch rackmount chassis. GPIB and RS-232 interfaces enable remote automation. BNC connectors support TTL, NIM, and ECL logic levels. 100/120/220/240 VAC, 50/60 Hz operation.

Features & description

From manufacturer datasheet

Features

- Four independent pulse outputs (AB, CD, EF, GH) plus T0 reference
- Eight internal delay events (A through H)
- Delay range 0 to 2000 s with 5 ps resolution
- Accuracy 1 ns plus (timebase $\times$ delay)
- Jitter external trigger to output approximately 25 ps plus timebase contribution
- T0 to output jitter approximately 15 ps
- Repetition rates to 10 MHz
- Output amplitude 0.5 to 5 V, offset ± 2 V, edge rise/fall less than 2 ns
- GPIB, RS-232, and Ethernet remote interfaces
- Optional OCXO or rubidium timebase upgrades
- Optional eight-channel output expansion

DG645 Characteristics / Specifications

PARAMETER	VALUE
Model	DG645
Manufacturer	Stanford Research Systems
Instrument Type	Four-Channel Digital Delay Generator
Pulse Groups	AB, CD, EF, GH (four independent pairs) plus T0
Internal Delay Events	8 (A through H)
Delay Range	0 to 2000 s
Delay Resolution	5 ps
Delay Accuracy	1 ns + (timebase × delay)
Jitter (External Trigger to Output)	~25 ps + timebase
Jitter (T0 to Output)	~15 ps
Maximum Repetition Rate	10 MHz
Output Amplitude	0.5 to 5 V
Output Offset	±2 V
Output Edge Speed	<2 ns
Remote Interfaces	GPIB, RS-232, Ethernet
Alias	DG645 Standard Operating Conditions Allow timebase to stabilize after power-on, especially with OCXO or Rb option installed. Configure delay and width values within output driver limits and connected instrument timing requirements. Use appropriate 50 Ω or high-impedance termination per application.

Full OEM specifications

Complete technical content extracted from the manufacturer datasheet. Sparse OEM tables are reconstructed as tables below; other text is preserved as paragraphs.

Specifications

Specifications

PARAMETER	VALUE
Model	DG645
Manufacturer	Stanford Research Systems
Instrument Type	Four-Channel Digital Delay Generator
Pulse Groups	AB, CD, EF, GH (four independent pairs) plus T0
Internal Delay Events	8 (A through H)
Delay Range	0 to 2000 s
Delay Resolution	5 ps
Delay Accuracy	1 ns + (timebase × delay)
Jitter (External Trigger to Output)	~25 ps + timebase
Jitter (T0 to Output)	~15 ps
Maximum Repetition Rate	10 MHz
Output Amplitude	0.5 to 5 V
Output Offset	±2 V
Output Edge Speed	<2 ns
Remote Interfaces	GPIB, RS-232, Ethernet

Optional Timebase: OCXO or Rb reference

Optional Outputs: 8-channel output module

Alias: DG645

Standard Operating Conditions

Allow timebase to stabilize after power-on, especially with OCXO or Rb option installed. Configure delay and width values within output driver limits and connected instrument timing requirements. Use appropriate 50 Ω or high-impedance termination per application.

Operational Notes

Optional OCXO or rubidium timebase improves long-delay accuracy and jitter performance for demanding synchronization work. Confirm installed output channel count (standard four pairs versus optional eight-channel module). Alias DG645.

Available from Aumictech

Used and refurbished unit evaluated in-house. Calibration: Available on request. Used · In stock.

Request a quote: sales@aumictech.com · +1 (484) 841-9341

Aumictech

788 S 500 E, Pleasant Grove, UT 84062
sales@aumictech.com · +1 (484) 841-9341
<https://aumictechlabs.com>

NIST-traceable calibration · SAM registered ·
30-day returns
NAICS 423690 · 811210 · 541380
Generated August 2, 2026

Technical content from manufacturer specifications. Unit photo/stock from Aumictech listing when available. Specifications subject to OEM documentation and unit condition.