

Type :- Press Release

Pickering Expands Analog Output Portfolio for Functional Test and HIL

Embargo Info

Under Embargo: No

Publication Date: 2026-06-24 11:30 PM

Company:

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[Pickering Interfaces](#), the leading supplier of modular signal switching and simulation solutions for electronic test and verification, has announced three new PXI/PXIe analog output modules, expanding its signal sourcing and sensor simulation portfolio for functional test and hardware-in-the-loop (HIL) applications.

The new modules include multi-channel waveform generators, precision digital-to-analog converter (DAC) outputs, and high-density thermocouple simulators. Together, they enable engineers to stimulate embedded controllers with realistic analog, sensor, and waveform conditions from compact, open-platform test systems. Designed for high channel density, broad chassis compatibility, and long lifecycle support, the modules help reduce rack space, complexity, and obsolescence risk.

“These new analog output modules expand Pickering’s ability to support realistic signal and sensor simulation across functional test and HIL applications,” said Stephen Jenkins, Simulation Product Manager at Pickering. “They deliver high channel density, precise performance, and dependable long-term support in modular PXI/PXIe platforms.”

The [41-770 PXI and 43-770 PXIe DAC](#) modules provide up to four fully isolated analog output channels in a single 3U PXI/PXIe slot. Each channel is independently programmable across multiple voltage and current ranges, with voltage outputs up to ± 40 V and current outputs up to ± 20 mA. The modules can also simulate open-circuit conditions, helping engineers replicate wiring faults or sensor failures for fault-injection testing. A hardware interlock adds protection for the device under test and broader test system.

The **41-625 PXI and 43-625 PXIe multi-channel waveform generators** provide up to 32 independent output channels in a single 3U PXI/PXIe slot. The modules support waveform generation from DC to 300 kHz, making them suited for simulating accelerometers and other multi-channel stimulus conditions. Each channel includes independent memory for sine waves, standard waveforms, or customer-defined arbitrary waveforms, with software-controlled frequency adjustment using Direct Digital Synthesis. Trigger functions allow other instruments to initiate waveform generation or frequency sweeps.

The **PXI 41-761A analog output/thermocouple simulator modules** provide precise μ V-level thermocouple sensor simulation with built-in fault insertion. The modules offer independently isolated, two-wire low-voltage outputs that cover common thermocouple ranges, support multiple cold junction configurations, and handle common-mode voltages for true sensor-level simulation. With up to 32 fully isolated channels per slot, they deliver high-density thermocouple simulation without external switching or system expansion.

Designed for HIL simulation, functional test, sensor simulation, production test, and fault injection, these modules provide software-controlled electrical stimulus for embedded controllers and devices under test.

PXI and PXIe variants are available, with driver support for Windows and Linux and APIs for C, Python, C#, MATLAB, Simulink, and LabVIEW.

All standard Pickering Interfaces products include a three-year warranty and long-term product support. For pricing, availability, and contact information, visit: www.pickeringtest.com.

Supporting Links:

<https://www.pickeringtest.com/en-us/product/41-625-001-pxi-32-channel-function-generator>

<https://www.pickeringtest.com/en-us/product/41-761-001-pxi-isolated-millivolt-thermocouple-simulator-32channel>

<https://www.pickeringtest.com/en-us/product/41-770-001-digital-to-analog-module-4-channel>

Tags:

Automation, Circuit Design, Embedded Design, Industrial Applications, Industrial Automation, Industrial IoT, Semiconductors, Sensors, Test & Measurement

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About Us:

Heading : About Pickering Interfaces

Pickering Interfaces designs and manufactures modular signal switching and simulation for use in electronic test and verification. We offer the industry's most extensive range of switching and simulation products for PXI, LXI, and PCI applications. We also provide cable and connector solutions, diagnostic test tools, and application software and drivers created by our in-house software team to support these products.

Pickering's products are specified in test systems installed worldwide and have a reputation for providing excellent reliability and value. Pickering Interfaces operates globally with direct operations in the US, UK, Germany, Sweden, France, Czech Republic, China, and Malaysia, together with additional representation in countries throughout the Americas, Europe, and Asia. We serve all electronics industries, including automotive, aerospace and defense, energy, industrial, communications, medical, and semiconductor. For more information on signal switching and simulation products, or to contact sales, please visit www.pickeringtest.com.