Menlo Micro Cryogenic Switches Set New Benchmark for RF Switches Within Quantum Computing Systems

Ohmic switch delivers RF performance at cryogenic temperatures for quantum computing with near-zero power, stabilizing dilution fridges without the wait

Menlo announces availability of the world's first available cryogenic RF switch with a near-zero thermal footprint

IRVINE, CA, UNITED STATES, January 6, 2026 /EINPresswire.com/ -- Menlo Microsystems, Inc. (Menlo Micro), the company setting a new standard for switches in modern electrical and electronic systems, announced the launch of the MM4250 switch. This product is a cryogenic SP6T switch with a near zero thermal footprint used for the switching and control of high speed and RF signals with the dilution fridge of a quantum computer. By delivering reliable, high performance ohmic contact switching in cryogenic environments with a near zero thermal signature, the MM4250 addresses a critical bottleneck in superconducting qubit testing, quantum processor calibration, and high-precision cryogenic measurements.

This commercial breakthrough reinforces Menlo Micro's leadership in delivering high performance and highly efficient switching solutions and underscores its position to deliver optimal switching solutions to the rapidly growing quantum technology market. The MM4250 has demonstrated exceptional capability in both quantum computing and cryogenic research, streamlining vector network analyzer (VNA) calibration and measurement-uncertainty evaluation at cryogenic temperatures with a near zero thermal signature that does not alter the temperature with a dilution fridge.

Superconducting circuits and qubits require extremely low temperatures to maintain coherence and minimize noise. In space and astrophysics, VNA calibration at cryogenic conditions is essential for testing sensitive radio-frequency components such as low-noise amplifiers and detectors used in satellites and telescopes. Similarly, research in materials science and fundamental physics depends on precise microwave measurements at cryogenic temperatures to investigate novel materials and superconductors.

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Traditional cryogenic switches can dissipate up to 2 watts of waste heat per activation, generating thermal loads that can raise the dilution fridge temperature by approximately 20 mK. This temperature rise causes significant delays of up to several hours while systems cool back to operating temperature. By contrast, the MM4250's electrostatic actuation only consumes energy in the hundreds of nanoamps per switching operation, generating no appreciable waste heat and enabling a continuous test and calibration operation while at cryogenic temperatures.

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>
> *Russ Garcia, CEO of Menlo Micro*

"This once-in-a-generation technological advance equips the quantum-computing sector with a robust toolkit tailored to the demands of cryogenic environments," said Russ Garcia, CEO of Menlo Micro. "It demonstrates Menlo Micro's leadership in delivering high-performance solutions for next-generation quantum technologies."

The MM4250 toolkit enables traceable, turnkey RF scattering-parameter, large-signal, and noise-parameter measurements directly within research laboratories. This allows comprehensive characterization of multiport RF components; interconnects spanning room to cryogenic temperatures; modulated signals; non-linear devices; and both cryogenic semiconductors and superconducting amplifiers.

Another major advantage of the MM4250 is its integrated calibration standards, which eliminate the need for the typically used external calibration components and free up more channels for device testing. In a typical 2-port VNA measurement setup, this efficiency shift means that the MM4250 can test more than twice as many devices at a time than alternative six-channel devices. Given that each cool-down and warm-up cycle can be multiple hours, the MM4250 delivers substantial time and energy savings while accelerating calibration and characterization of quantum processors and other cryogenic components.

“The MM4250 eliminates one of the biggest bottlenecks in quantum development—slow, resource-intensive calibration cycles," said Garcia. “By saving engineers and researchers a significant number of hours per cooldown, it dramatically accelerates device characterization and helps customers and partners bring their products to market faster. Its unprecedented scalability supports future high-density quantum systems, enabling a seamless path from lab research to commercial deployment. The MM4250 is a game-changer for customers pushing the boundaries of quantum technology, and its impact on the quantum-architecture community will be profound.”

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About Menlo Micro

Menlo Micro sets a new standard for switches with the Ideal Switch, a chip-scale platform that overcomes performance, efficiency, and scalability bottlenecks of electromechanical relays (EMRs) and semiconductor-based switches. It’s the first disruptive switching technology in over 30 years and the only platform scalable across both power and frequency domains. The Ideal Switch enables smaller, lighter, faster, more reliable, and energy-efficient systems. From AI to aerospace, defense and power electronics, the Ideal Switch eliminates bottlenecks and reduces the total cost of ownership across today’s most demanding applications. Menlo Micro unlocks new possibilities. For more information, visit www.menlomicro.com or follow the company on LinkedIn and X.

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