Low-noise remote power supply for quantum communication

Overview

NSTU researchers have developed and tested the device for multichannel low-noise power supply which can be used to set the operating mode in multi-qubit systems and in quantum computers. With the rapid scaling of superconducting quantum processors, electronic control systems relying on commercial of-the-shelf instruments face critical bottlenecks in signal density, power consump-tion, and crosstalk mitigation. Here we present a custom dual-channel direct current (DC) source module. AmpliTech Group, Inc. (Nasdaq: AMPG, AMPGR, AMPGZ), today announced the receipt of follow-on orders exceeding $2 million under a previously disclosed Letter of Intent (LOI) with a North American mobile network operator (MNO). With current sensing and AWGs on each channel, a very versatile instrument that can be used for. Due to the limited cooling capability of the dilution refrig-erator, the current low-noise amplifiers (LNAs) are in need of ten to hundred times reduced dc power consumption yet with lowest noise temperature at qubit readout frequencies, typcially 4-12 GHz. Cryogenic indium phosphide (InP) high. AmpliTech Group, a designer, developer, and manufacturer of state-of-the-art signal processing components for satellite, public and private 5G, and other communications

networks, has announced the successful development and deployment of its proprietary low-noise cryogenic High Electron Mobility. AmpliTech Group has successfully developed and deployed proprietary low-noise cryogenic amplifiers, essential for enabling quantum computers to operate efficiently at ultra-low temperatures of 4 Kelvin (-452°F). The company has delivered its cryogenic amplifiers to two Fortune 50 quantum computing.

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There''s also a drain voltage sense function for situations where bias wire resistance is significant. The display can be switched off for ultra-low noise operation. The power supply is powered by LNF''s ...

The design goals of the cryogenic LNA were tailored for a superconducting qubit readout application based on the extracted low-power small-signal noise model of the InP HEMT for optimum noise and ...

AmpliTech''s amplifiers minimize noise for accurate quantum signal detection, supporting scalable, error-corrected quantum computers and advancing applications in AI, cybersecurity, and ...

AmpliTech has demonstrated its technological leadership by delivering working units of its cryogenic Low-Noise Amplifiers (LNAs) to two ...

AmpliTech has demonstrated its technological leadership by delivering working units of its cryogenic Low-Noise Amplifiers (LNAs) to two Fortune 50 companies at the forefront of the ...

AmpliTech designs develop and manufacture custom and standard state-of-the-art RF components for the Commercial, SATCOM, Space, and Military markets. These designs cover the frequency range ...

We develop QPower, a low-noise, high-stability DC source tailored specifically for the demanding require-ments of large-scale superconducting quantum proces-sors.

Here the authors demonstrate on-demand conversion of single phonons into high-purity telecom photons with low thermal noise and MHz-scale narrow bandwidth using a quasi-2D ...

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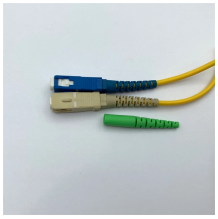

Koheron QPS100 is a linear power supply that can drive up to 2 A. Its low noise helps getting the full performance of critical analog components (amplifiers, data converters, oscillators, phase lock loops, ...

QDAC-II is a 24-channel high-precision low-noise voltage generator for DC and intermediate-frequency control of quantum electronics and QPUs, including gate electrodes and flux bias coils for qubits.

Contact Us

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