

SQUID Current Sensor with Differential Output

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Abstract - We have developed a superconducting quantum interference device with differential output (diffSQUID). The device concept aims at improving the operability of SQUID current sensors in the presence of large common-mode signals. The diffSQUID is based on a series connection of two identical SQUID sensors. The biasing and input signal coupling provides for the differential output signal. The diffSQUID is read out by a fully differential amplifier. A compact, low-power and low-noise differential amplifier has been developed for this purpose. This amplifier is partially powered via the diffSQUID's combined bias and output signal leads and can be operated at temperatures between 77 K and 300 K.

Keywords - Differential output, electromagnetic interference, low-power amplifier, SQUID.

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