

CCS Constant Current Supply



Features:

- ◆ Low Noise
- ◆ Wide Current Range
- ◆ Direct SQUID Input Capability
- ◆ Rechargeable NiMH Batteries



The Tristan Model CCS Constant Current Supply is a miniaturized, battery powered current source that is particularly useful for measurements, which require excellent rf shielding as well as a high degree of electrical isolation from ground and the power line. Its stability allows it to directly drive the input of even the most sensitive SQUID devices without introducing high frequency noise or transients. It is ideal for use with the Tristan Model MFP Picovoltmeter probe. The unit should also find wide application in the laboratory as a general purpose constant current source for small coils and magnets, cryostat heaters, resistivity measurements, demonstrations, teaching experiments, etc.

The Model CCS provides a highly-regulated, floating current output controlled by a ten-turn potentiometer. The full scale current is switch selectable in 1-2-5 steps between 100 μ A and 100 mA. The maximum output voltage exceeds 2.5 V on all ranges, giving a maximum output power of 250 mV. Power is provided by internal rechargeable Nickel Metal Hydride (NiMH) batteries. A recharging unit is included.

The standby drain of the circuit is low and a positive indication of low battery voltage is provided by a flashing lamp, which is also triggered by insufficient voltage compliance.

SPECIFICATIONS

OUTPUT CURRENT: 100 μ A to 100 mA full scale in 1-2-5 steps. Control from 0-100% of full scale by 10-turn potentiometer.

OUTPUT VOLTAGE: 2.5 V maximum (warning lamp indicates voltage overload condition).

CALIBRATION: Full scale current accurate to $\pm 1\%$.

RESOLUTION: 0.05% of full scale.

LINEARITY & RESETTABILITY: 0.5% of full scale.

OUTPUT REGULATION: Better than 1 ppm due to variation in load resistance. This is well below typical noise and drift at the output.

DRIFT: Less than 0.1%/hour over battery lifetime.

NOISE: Less than 0.1% of full scale, peak-to-peak.

POWER SOURCE: Rechargeable NiMH batteries with external recharging unit. Warning lamp flashes when battery voltage is low. Current drain is 12 mA plus output current.

ISOLATION FROM CASE: Better than $10^8 \Omega$ at 100V.



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