Small Instrumentation Modules

SIM922 and SIM923 — Diode and platinum RTD temperature monitors

- · Four channels
- · 1.4 K to 475 K with silicon diodes
- · 20 K to 873 K with platinum RTDs
- Memory for 4 calibration curves plus standard curve
- · Remote interface

- · SIM922 ... \$495 (U.S. list)
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SIM922 and SIM923 Temperature Monitors

The SIM922 Diode Temperature Monitor and the SIM923 Platinum RTD Monitor are designed to measure four sensors simultaneously. Based on the modular SIM platform, they provide high-performance, multiple-channel capability in a small footprint.

SIM922

Each of the four channels in the SIM922 has an independent, precision $10~\mu A$ current source to provide sensor excitation. Measurement results can be displayed in kelvin or volts.

SIM923

The four channels in the SIM923 have independent, stable, 1 mA current sources to provide sensor excitation. Sensor resistance is determined ratiometrically with a half-bridge circuit consisting of the sensor and an internal reference resistor. The current to the sensor can be reversed by the user

to test for any offset. Results are displayed in kelvin or ohms.

Common Features

Both the SIM922 and SIM923 employ four-wire measurement circuits ($\pm I$ excitation leads, $\pm V$ sense leads) making the measurements insensitive to series lead resistance. The four channel excitations are independently controlled and do not switch on or off when the readout is advancing between channels. Sensor excitations can be disabled to reduce power dissipation at sensitive cryogenic stages. This also accelerates readings in the remaining enabled channels. Measurements are performed at rates up to four readings per second.

A factory-standard calibration curve is built in for each model. In addition, each channel has non-volatile memory to store a 256-point custom calibration curve to convert sensor units (V or Ω) to temperature units (K).



SIM922

Number of inputs Sensor type Silicon diode Measurement type 4-wire

Excitation 4 constant current sources $10 \mu A \pm 0.01 \%$, $\pm 5 ppm/^{\circ}C$

Sensor units Volts Input range 0 to 2.5 V

1 std., 4 user-defined curves Calibration curves

Sensor dependent Temperature range 1.4 K to 475 K (typ.)

Display resolution Interface resolution Measurement resolution Accuracy, (23 ±1) °C Temperature coefficient

256 points each

1 μV 1.2 μVrms

 $20 \,\dot{\mu}V + 0.01 \%$ of reading

Serial via SIM interface

0 °C to 40 °C, non-condensing

±5 ppm/°C

4 digits

SIM923

Platinum and other RTDs

4 constant current sources $1.0 \text{ mA} \pm 0.1 \%, \pm 5 \text{ ppm/}^{\circ}\text{C}$

Ohms

 0Ω to 1400Ω

(includes excitation lead resistance) DIN 43760, 4 user-defined curves

256 points each Sensor dependent 20 K to 873 K (typ.)

4 digits $1\ m\Omega$ $1.2 \text{ m}\Omega \text{ rms}$ $5~\text{m}\Omega$ ±5 ppm/°C

Operating temperature

Interface Connectors

Two DB9 (female) 4-wire measurement + ground (Ch 1 & 2)

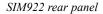
4-wire measurement + ground (Ch 3 & 4) DB15 (male) SIM Interface

Power (max.) +5 V (250 mA), ±15 V (50 mA) Dimensions $1.5" \times 3.6" \times 7.0"$ (WHD)

Weight 1.4 lbs.

Warranty One year parts and labor on defects in materials and workmanship







SIM923 rear panel

Ordering Information

SIM922 \$495 Diode temperature monitor SIM923 Pt RTD temperature monitor \$495

