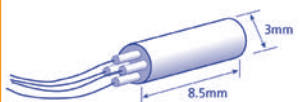


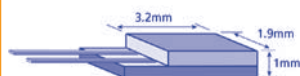
Cernox™ Resistance Sensor - Temperature Range 1.4 K to 420 K

Cernox

Temperature range: 1.4 to 420 K



Canister



Hermetic

The Cernox 1050 resistance sensor is the standard sensor for use in magnetic fields up to and in excess of 20 Tesla as it has a very small magnetic field dependence.

The Cernox is available in two packages: the canister package and the hermetic package.

The canister package is somewhat more robust and is convenient for insertion in a hole. It has four colour-coded leads, 15 cm long.

The hermetic package is advisable in situations where reduced size or a fast thermal response time is necessary. The hermetic package is slightly magnetic. This may have an effect on some very sensitive magnetic measurements, but since the total mass of ferromagnetic material is only a small fraction of the total sensor mass (itself only 40 mg), the effect will be negligible in most cases.

Any Oxford Instruments 500 series temperature controller (ITC 501, 502, or 503) can be used.

Calibration

A calibration, if purchased, includes:

- Certificate of calibration. This states that the calibration conforms to the International Temperature Scale (1990), and is traceable to NIST
- Measured calibration data
- A fit to the data based on Chebychev polynomials, with deviations
- An interpolation table
- With full calibration, sensor operates to 420° K
- All supplied on CD

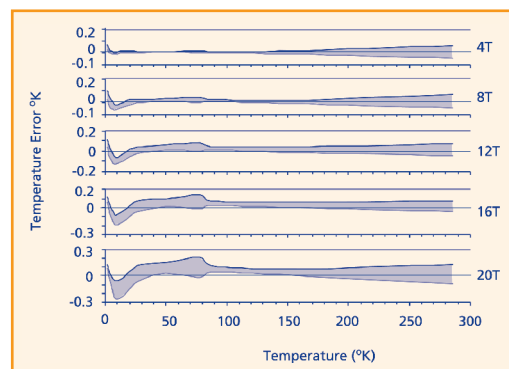
The magnetic field dependence has been described in detail in fields up to 32 T between 2 and 286 K (see graphs and reference below).

Specifications

	Canister package	Hermetic package
Thermal response	0.4 sec at 4.2 K	15 msec at 4.2 K
Temperature limit	325 K	325 K
Long-term stability	±25 mK in the range 1 K to 100 K 0.05% of temperature in the range 100 K to 325 K	

Temperature error due to magnetic field, K

The error in measured temperature due to magnetic field is likely to lie between the upper and lower lines in each graph. (Canisters mounted with long axis parallel to magnetic field)



Reference

Low temperature thermometry in high magnetic fields VII. Cernox sensors to 32 T, B.L. Brandt *et al*, Rev. Sci. Instrum., vol 70, No 1, 1999, pp 104-110.

Ordering information

	Uncalibrated	Calibrated (1.4 – 300 K)	Calibrated (1.4 – 420 K)	Mounting clamp
Canister	T1-107	T1-108	-	-
Hermetic	T1-109	T1-110	T1-112	A6-106 (with 2.1 mm hole for fixing screw)

Resistance vs Temperature for a Cernox 1050

