

RO105 Ruthenium Oxide Cryogenic Temperature Sensor

RO105 Ruthenium Oxide sensors are thick-film resistors which adhere to a single resistance-versus-temperature curve. They offer excellent performance characteristics in magnetic field environments.

Specifications

Range: 2.0K – 273K

Excitation: 10 μ A \pm 0.1%

Repeatability: \pm 20 mK @ 4.2K

Magnetic Field Use: No magnetoresistance in fields up to 2T; negligible positive magnetoresistance in fields above 2T

Mounting Options: Canister, 22 Bobbin, 25 Bobbin, Exposed Element

Temp.	Nominal Resistance	Sensitivity	T/R dR/dT
4.2 K	205 k Ω	11,060 ohms/K	.22
77 K	112 k Ω	162 ohms/K	.11
273 K	101 k Ω	18 ohms/K	.04

Tolerance Groupings

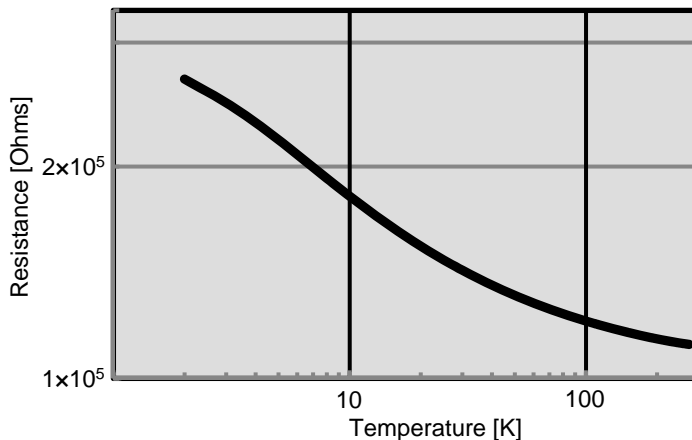
	2K – 50K	50K – 100K	100K – 273K
Group AA	\pm 0.10K	\pm 0.50K	\pm 15.0K
Group A	\pm 0.10K	\pm 0.75K	\pm 20.0K
Group B	\pm 0.20K	\pm 1.0K	\pm 20.0K
Uncal.	\pm 0.3K	-	-

*Other tolerances available, consult manufacturer

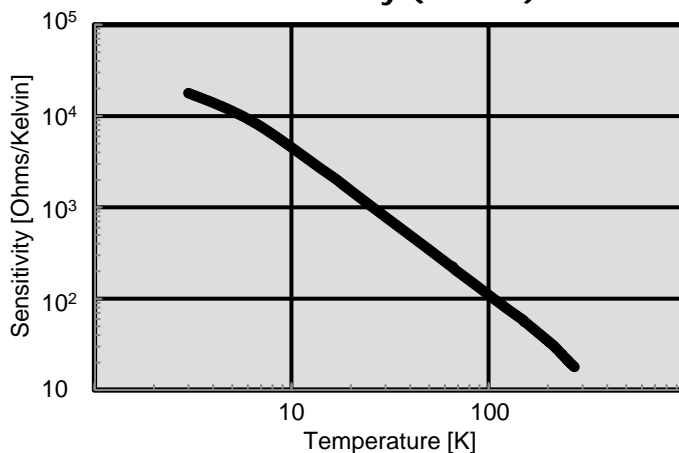
Field-induced Reading Errors [Kelvin]

	2 Tesla	7 Tesla	10 Tesla
2.2 K	0	0.250	0.350
4.2 K	0	0.080	--
75 K	0	0.090	--

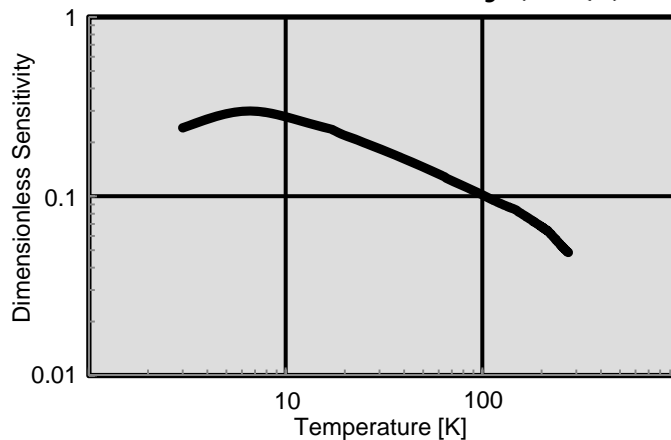
Response



Sensitivity (dR/dT)



Dimensionless Sensitivity (T/R)(dR/dT)



Custom Leads

Two Wire Options

36 AWG Copper, Twisted
Insulation: Teflon

36 AWG Phosphor-Bronze, Bonded
Insulation: Polyimide (Recommended)

32 AWG Phosphor-Bronze, Bonded
Insulation: Polyimide

30 AWG Phosphor-Bronze, Bonded
Insulation: Polyimide

Four Wire Options

36 AWG Copper, Twisted
Insulation: Teflon

36 AWG Phosphor-Bronze, Bonded
Insulation: Polyimide (Recommended)

32 AWG Phosphor-Bronze, Bonded
Insulation: Polyimide

Available in lengths from 6 inches to 15 feet

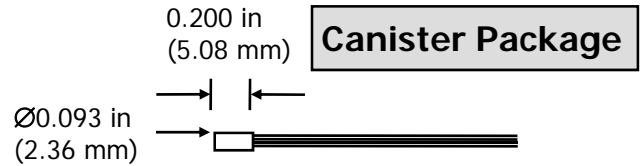
Teflon sheathing available.

Calibration Groups

D1 = 2.0K to 20K
G1 = 2.0K to 100K
GG1 = 2.0K to 273K
H = 4.2K to 20K
L = 4.2 K to 200K
LL = 4.2 to 273K

Calibration Accuracy

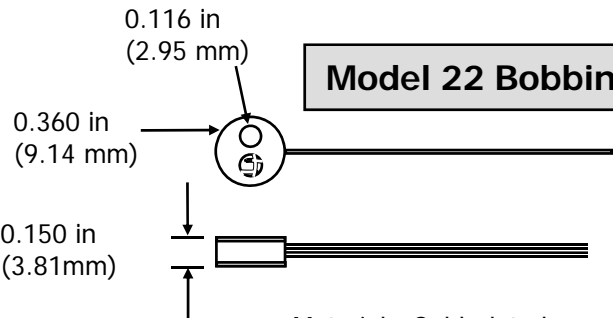
2K to 4.2K ±0.05K
4.2K to 20K ±0.05K to 0.1K
20K to 80K ±0.1K to 0.2K
80K to 100K ±0.2K to 0.4K
100K to 273K ±0.4K to 1K



Canister Package

Material: Gold-plated copper,
Stycast® Epoxy

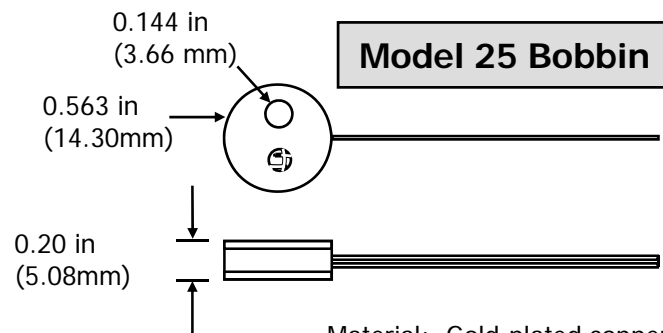
*Drill hole to 0.101 in (2.56 mm)
for installation



Model 22 Bobbin

Material: Gold-plated copper,
Stycast® Epoxy

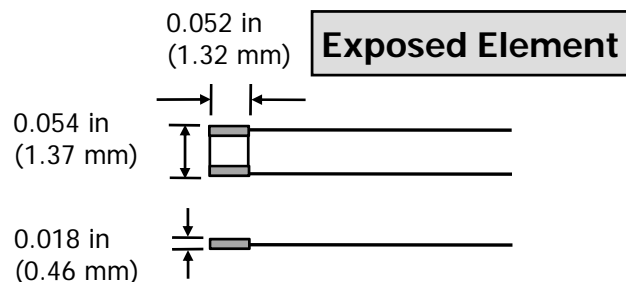
*Mount with 4-40 screw, washer.



Model 25 Bobbin

Material: Gold-plated copper,
Stycast® Epoxy

*Mount with 6-32 screw, washer.



Exposed Element

