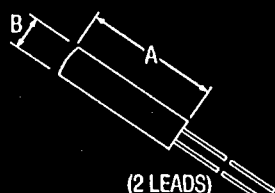
**CS-501**

Leads: Two (2), 0.20 millimeter diameter  $\times$  25 millimeters long, phosphor-bronze.

Lead insulation: polyimide

**CS-401**

Leads: Two (2), 0.20 millimeter diameter  $\times$  25 millimeters long, phosphor-bronze.

Lead insulation: polyimide

	A	B
CS-401GR-A	8.5mm	8.9mm
CS-401GR-B	8.5mm	8.9mm
CS-401LG-B	3.0mm	3.6mm
CS-401LG-C	3.0mm	3.6mm

# TEMPERATURE SENSORS

## CAPACITANCE TEMPERATURE SENSORS

### Multilayer Ceramic Capacitance Sensors

#### Series CS-501

##### A Wide Temperature Range Capacitance Sensor

- Monotonic response through the usable range from 1.5K to 290K
- Provides stable temperature during periods of use
- Magnetic field dependence:  
 $\Delta T/T = 0.15\%$  at 4.2K and 18.7 Tesla  
 $\Delta T/T = 0.05\%$  at 77K, 305K, and 18.7 Tesla

Model*	Temp (K)	Nominal Capacitance
CS-501GR	4.2K	6.1 nf
CS-501GR	50K	9.5 nf
CS-501GR	100K	11.0 nf

*\*Intended for use as a temperature control sensor in magnetic fields. Accurate temperature measurement requires use of another sensor type in low or zero magnetic fields.*

### Strontium Titanate Capacitance Sensors

#### Series CS-401

*Can Be Used to Achieve Stable Temperature Control in Magnetic Fields of 15 Tesla or Higher*

- Primarily for low temperature (1K to 60K) applications, but usable from 70K to 325K
- Provides stable temperature for long periods of time
- Magnetic field dependence:  $\Delta T/T < 0.05\%$  for temperatures from 1.5K to 50K in fields  $\leq 14$  Tesla
- Primary function: transfer standard and temperature control sensor in a magnetic field

Model*	Nominal Capacitance (4.2K)	Sensitivity (4.2K)
CS-401GR-A	1.6nf	19pf/K
CS-401GR-B	5.0nf	60pf/K
CS-401LG-B	3.7nf	44pf/K

*\*Intended for use as a temperature control sensor in magnetic fields. Accurate temperature measurement requires use of another sensor type in low or zero magnetic fields.*

## LOW TEMPERATURE CALIBRATION SERVICE

Lake Shore provides complete, fully traceable calibration services for all types of cryogenic temperature sensing elements. We maintain a complete low temperature calibration facility capable of performing calibrations from 0.05 kelvin to well above room temperature. Each scale is maintained on a set of germanium or platinum resistance standards which are regularly checked by intercomparison and periodically calibrated by the United States National Bureau of Standards or Great Britain's National Physical Laboratory.

Your precision measurement equipment should be

recalibrated periodically to assure conformance to original specifications. A recommended sensor calibration schedule depends upon sensor type, application, and desired measurement accuracy.

All Lake Shore calibrations include the following:

- Certification of Calibration
- Test Data
- Plot of Test (or raw) data versus temperature
- Polynomial Equation(s)
- Interpolation Table
- Low Temperature Calibration Service Data Sheet
- Calibration Report Description