



Carlson Resistance Thermometer

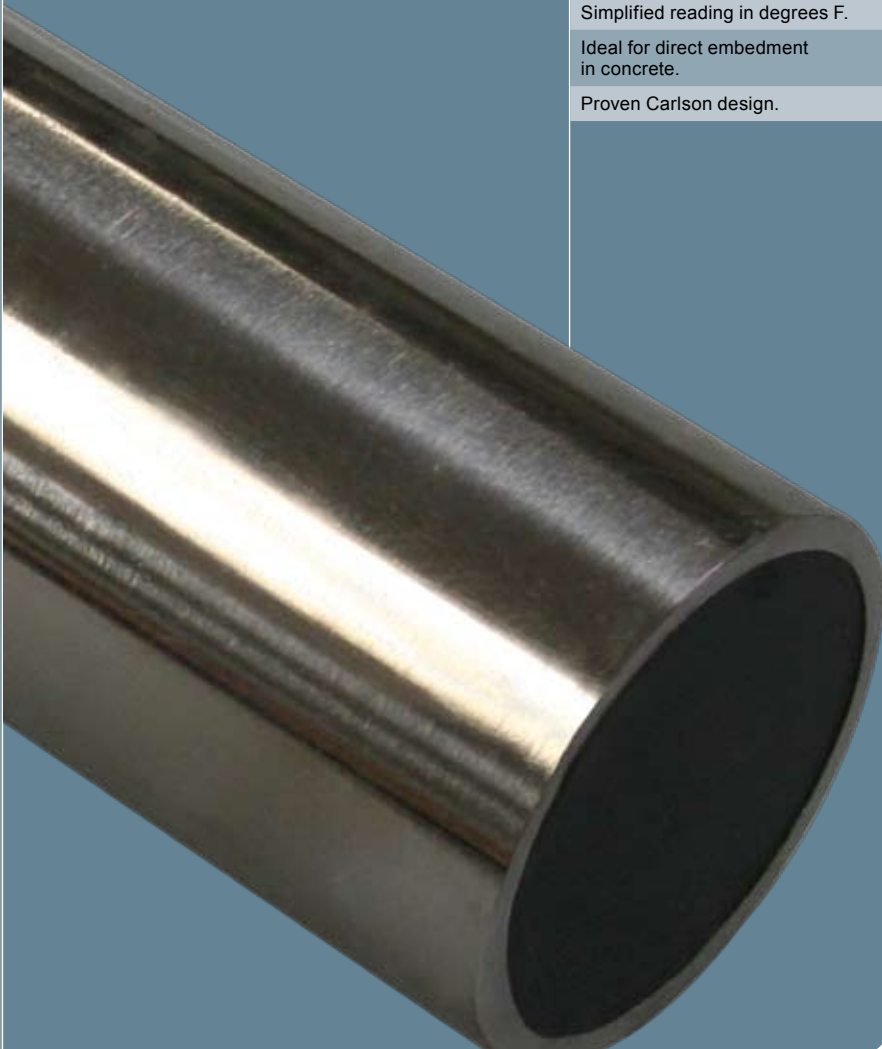


The Carlson Resistance Thermometer is used for the remote reading of temperature where a quick response is not required. It is well sealed against moisture and its diffusivity is approximately that of concrete; therefore it is especially suited for embedment in concrete to measure internal temperature.

The active element consists of a coil of copper wire wound non-inductively on an insulated spool in such a way as to be stress free.

Standard Carlson Thermometers have a resistance of 39.00 ohms at 0°F. Resistance increases at the rate of 0.10 ohm per degree Fahrenheit. To convert resistance readings to temperature, subtract 39.00 from the measured resistance and move the decimal by one digit to read the temperature in degrees Fahrenheit.

When any Carlson readout instrument is used, the resolution is 0.1°F. The useful range is limited by the insulating materials to between 0° and 180°F (-18° to +82°C). The thermometer is adjusted to be within 0.5°F at 70°F and the error is less than 1°F (0.5°C) throughout the range. It measures moderate changes in temperature accurately to 0.1°F (0.05°C).



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applications

Remote reading of temperature where a quick response is not required.

features

Long-term reliability and stability.

Simplified reading in degrees F.

Ideal for direct embedment in concrete.

Proven Carlson design.



specifications + ordering info

Carlson Resistance Thermometer



operating principle

Carlson Instruments are elastic wire strain meters containing two coils of highly elastic steel wire, one of which increases in length and electrical resistance when a strain occurs, while the other decreases. The ratio of the two resistances is independent of temperature (except for thermal expansion) and therefore the change in resistance ratio is a measure of strain. The total resistance is independent of strain since one coil increases the same amount as the other decreases due to a change in length of the meter. Therefore, the total resistance is a measure of temperature.

cable specs

The cable most commonly used is heavy duty, neoprene rubber-covered, with either three or four conductors. Alternate cable types are available to suit site specific conditions and we invite your inquiries.

The Carlson MA-6B and later series readout instruments, while compatible with both three and four wire systems, require only three conductors to monitor both temperature and resistance. Earlier versions of Carlson readouts require four conductors to monitor both parameters. We recommend that the total design length of cable be attached at the factory in order to assure system integrity. Should the final design length not be known at the time of order, specify the total length of cable to be supplied in bulk, and that a 1 m. (40 in.) length of either three or four conductor be attached. As conductor diameter is determined by lead length, please specify the approximate total length, to insure that the most appropriate cable is supplied.

While field splicing is possible, the instructions in the Carlson field manual must be followed.

specifications

DESCRIPTION	SPECIFICATIONS FOR MODEL TM-1
Standard Range	0° to 180°F (-18 to +82°C) – may be extended as required
Resolution	0.1° F (0.05°C)
Weight	227 grams (0.5 lbs.)
Dimensions	22 mm X 95 mm (0.88 in. X 3.75 in.)
Cable	3 conductor X #16 gauge < 183 (600ft.) 3 conductor X # 14 gauge > 183 m (600ft.)

specifications

ITEM	PART #
Model TM-1	CA356A



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