



Global Traffic
Technologies

Canoga™ Traffic Sensing System

Canoga™ 701 Microloop™ Sensors

A Matched Component of the Canoga™ Traffic Sensing System

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Description

Canoga™ 701 Microloop™ Sensors are a matched component of the Canoga™ Traffic Sensing System. These traffic sensors provide a unique alternative to inductive loops when connected to a suitably configured Canoga™ Traffic Monitoring Card or a Canoga™ C922 or C924 Vehicle Detector.

The Canoga 701 Microloop is a transducer that converts changes in the vertical component of the earth's magnetic field to changes in inductance. Vehicles containing vertical components of ferromagnetic material "focus" the earth's field, increasing the magnetic field at the sensor when vehicles move over the sensor. Changes in inductance can be sensed by a Canoga traffic monitoring card or a Canoga C922 or C924 vehicle detector suitably configured for the sensor.

Single, double or triple Canoga 701 Microloop sensors installed across a lane will replace a typical 3-turn 6 x 6 foot (1.8 m x 1.8 m) inductive loop.

The number of Canoga 701 Microloop sensors required per lane is determined by lane width and types of vehicles to be detected. As a general rule, a single Canoga 701 Microloop centered in a lane will detect most vehicles. However, three Canoga 701 Microloop sensors with 3-foot (91 cm) spacing are preferable for detection of small motorcycles and bicycles.

Canoga 701 Microloop sensors should be located vertically in 1-inch (2.5 cm) holes and placed 18–24 inches (46–61 cm) below the roadway surface. Up to four Canoga 701 Microloop sensors can be connected in a series.

Features

- **Small size:** Canoga 701 Microloop sensors fit in a 1-inch (2.5 cm) diameter hole; lead-in cable fits in 1/4-inch (0.63 cm) wide saw cut.



Canoga™ 701 Microloop™ Sensor

- **Replaces inductive loops:** Replaces inductive loops for presence and passage detection.
- **Less surface damage:** Ideal for use in poor pavement conditions, brick or cobblestone surfaces, temporary construction zones, etc.
- **Bridge detection applications:** Can be installed under most bridge decks. A magnetic field analyzer should be used to ensure adequate strength of the vertical component of the earth's magnetic field and to verify optimal location of each Canoga 701 Microloop.
- **Low inductance:** Allows up to four Canoga 701 Microloop sensors to be connected in series to one detection channel. Lead-in and home-run cables can be up to 2,500 feet (706 m).
- **Reliable:** Buried Canoga 701 Microloop sensors are unaffected by temperature changes, water, snow, ice or pavement deterioration. Lead-in cables can be installed in deep saw cuts or prior to repavement. Tough, flexible polyurethane jacketed lead-in cable survives the rigors of poor or broken pavement.
- **Accurate:** Closely spaced vehicles can be resolved and adjacent lane vehicles rejected to improve count accuracy.

Operating Parameters

- **Earth's Vertical Magnetic Field:** 0.2–1.0 oersted.
- **Inductance (Red to Green Wires):** 20–25 mH per probe plus 20 mH per 100 feet (30 m) of lead-in cable.
- **DC Resistance (Red to Green Wires):** 0.5 ohms per probe plus 3.2 ohms per 100 feet (30 m) of cable.
- **Transducer Gain (Sensitivity):** Typically 3.5 mH per oersted at 0.4 oersted ambient vertical field intensity.
- **Sensitivity with Two (2) Sensors:** 7.0 mH per oersted at 4.0 oersted ambient vertical field intensity.
- **Optimal Crosslane Location and Depth:**
 - Autos and Trucks:** Single Canoga™ 701 Microloop™ Sensor in center lane 18–24 inches (41–61 cm) deep.
 - Small Motorcycles and Bikes:** Triple Canoga 701 Microloop sensors 3-foot (91 cm) separation and 16–20 inches (40–50 cm) deep.
- **Standard Canoga 701 Microloop Sets:** Available in single, double or triple sets with standard separation and lead-in cable.
- **Home-run Cable:** Canoga™ 30003 Home-run Cable is used to connect lead-in cable to the cabinet. The combined length of Canoga 30003 and lead-in cable may be as long as 2,500 feet (762 m).
- **Maximum Inductance per Channel with a Canoga™ Traffic Monitoring Card or Canoga™ C922 or C924 Vehicle Detector:** 400 mH total.
- **Microloop Peak-to-Peak Voltage:** A traffic monitoring card or Canoga™ C900 Series Vehicle Detector must provide .25–1.0 volts_{p-p} across each sensor.

Environmental

- **Temperature:** -35° F to +165° F (-37° C to +74° C).
- **Relative Humidity:** 100% (including submersion in solutions of chemicals typical of roadway runoff).

Wiring

Up to four Canoga 701 Microloop sensors can be wired in a series to accommodate different applications. Two independent sets can be connected to a single Canoga 30003. For reliable operation, all splices must be soldered, insulated and waterproofed. See installation instructions for detailed wiring instructions.

Physical Characteristics

- **Sensor:** Cylindrical, 0.88 inch (2.2 cm) dia. x 3.63 inches (9.2 cm) long.
- **Cable:** Polyurethane-jacketed, polypropylene insulated AWG #22 conductors. Overall diameter 0.19 inches (0.48 cm).
- **Color:** Gray sensor body, black sensor cable.

Related Products or Accessories

Canoga™ 942 and 944 Traffic Monitoring Cards for monitoring vehicle speeds, count and occupancy, and for classification of vehicle speeds and lengths.

Canoga™ C922 and C924 Vehicle Detectors for detection of vehicle presence and for traffic count applications.

Canoga™ 30003 Home-run Cable for home-runs up to 2,500 feet (762 cm).

3M™ Scotchcast™ 3832 Buried Service Wire Splice Installation Kit for splicing the lead-in cable with the home-run cable. This wire splice installation kit ensures a reliable connection in the environments encountered by the Canoga 701 Microloop.

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