



# CarSense 101™

## Vehicle Motion Detector



## Operating Instructions

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## PRODUCT OVERVIEW

The CarSense 101 is a vehicle motion sensor. The CarSense 101 will not detect people, animals or non-metallic objects moving through the magnetic field. Normal installation includes the following components: CarSense 101 module, LD-11B socket base and Probe with various lengths of lead wire.

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## Specifications

Power Supply	12 Volt DC, 24 Volt AC, 24 Volt DC, 120 Volt AC
Power Supply Tolerance	+/- 20% of power rating
Standby Current	10 mA maximum
Detect Current	45 mA maximum
Relay Type	DPDT 1Amp @ 24 VDC, 120 VAC
Sensitivity	Low to High Continuously Adjustable Potentiometer
Off Delay	1 - 5 Seconds Continuously Adjustable Potentiometer
Control Unit Temperature Range	-40 to 170 Degrees Fahrenheit
Probe Temperature Range	-40 to 170 Degrees Fahrenheit
Power On Indicator	Green T-1 LED
Detect Indicator	Red T-1¾ LED
Surge Protection	MOV, Neon and Silicon Protection Devices
Control Unit Housing	Break Resistant Polycarbonate H:2.2" (55mm), W:1.6" (41mm), D:3.25" (84mm)
Connector	86CP11 11 Pin Connector
Probe	Length: 17", Diameter: 1.0" Watertight PVC With Direct Burial Lead-in Cable

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## OPERATION

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### Power up

Upon power up the detector initializes by automatically establishing a steady state electromagnetic field around the probe. Any interaction with this field including vibrations will cause the CarSense 101 to detect.

### Sensitivity setting

The CarSense 101 sensitivity is adjusted by a single turn adjustable potentiometer. Sensitivity from the factory is normally set on medium.

### Output setting

The CarSense 101 output setting is adjusted by a single turn adjustable potentiometer. The adjustment range is from 1 to 5 seconds allowing the relay to stay energized for up to 5 seconds after a vehicle has stopped or left the field.

### Filter

The Filter reduces or eliminates the effect of RF noise being detected by the CarSense 101.

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## CAUTIONS AND WARNINGS

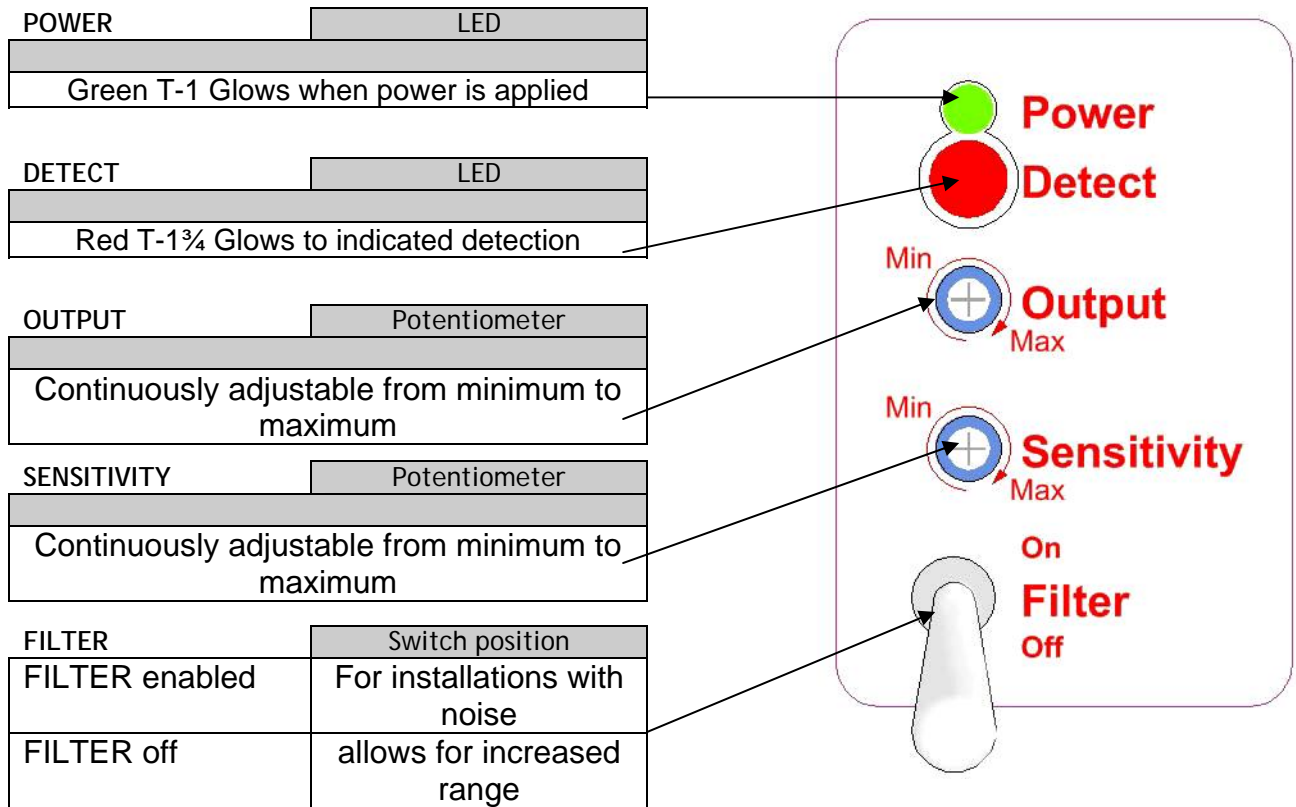
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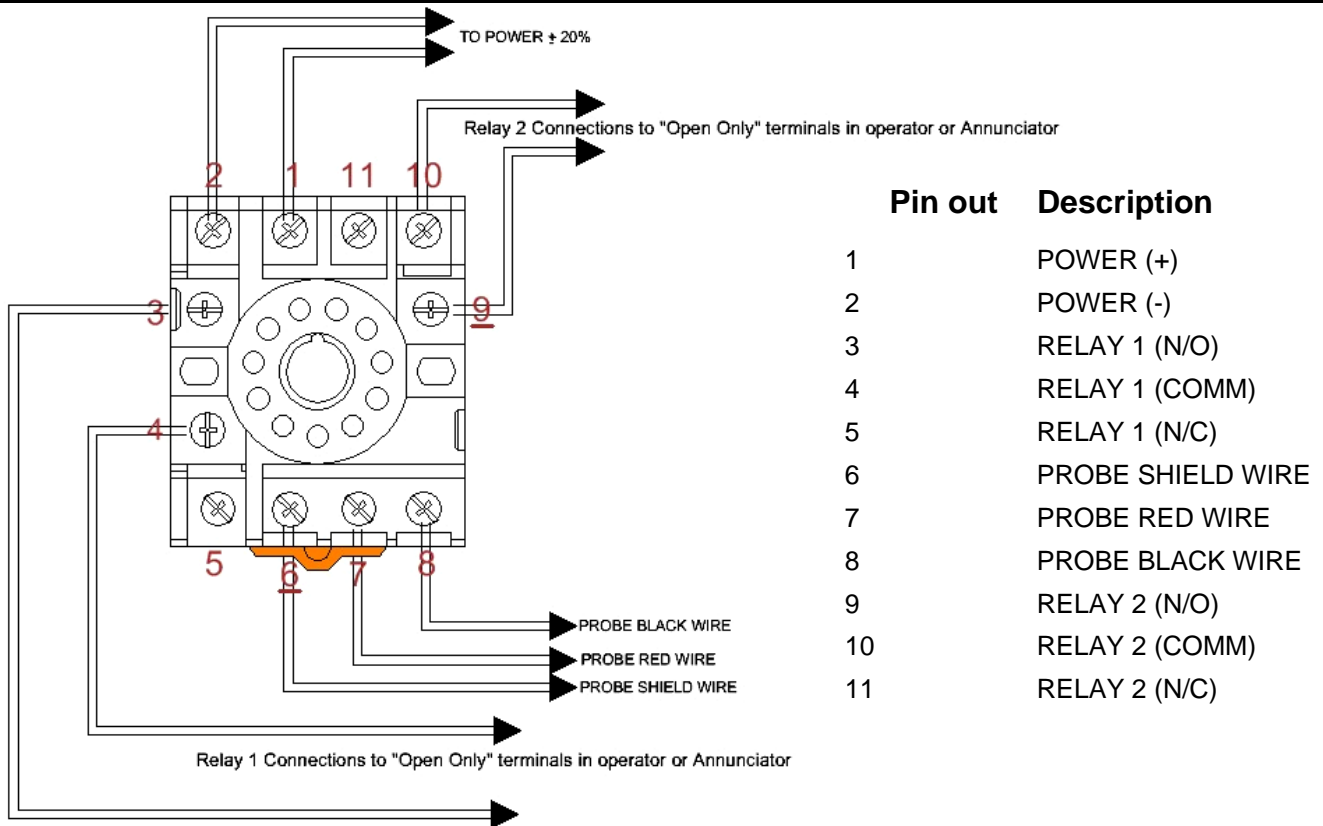
***Never use the CarSense 101 as a safety reversing or presence detection system. The CarSense 101 requires that a vehicle be moving for detection. This product is an accessory or part of a system. Always read and follow the manufacturer's instructions of the equipment you are connecting this product to. Comply with all applicable codes and safety regulations. Failure to do so may result in damage, injury or death.***

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## Controls and Indicators



## Connections



LD-11B Socket Base

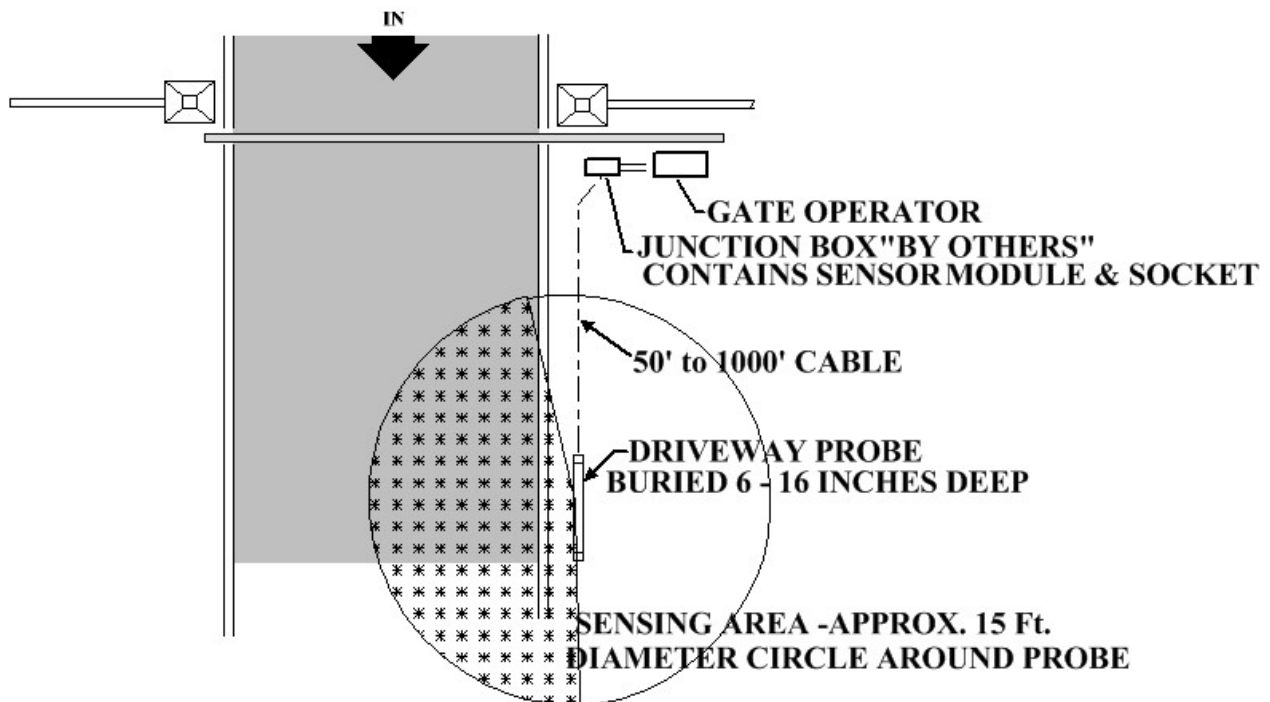
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## Installation

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### General Installation Guidelines

- Do not install the Probe or lead wire near or parallel to:
  - A. Low voltage lighting wires.
  - B. Telephone lines or intercom systems.
  - C. Electric motors or control relays.
  - D. Overhead power lines and transformers or underground power lines.
  - E. Cell phone towers, TV towers or communications links.
  - F. Moving metal flagpoles, fences or gates or around horses with metal shoes.
  - G. Do not mount on any moving surface such as bridges or walkways to could move under traffic.
  - H. Underground water lines.
- Detection range is approximately a 15-foot diameter. This will vary depending on mass and speed of the vehicle.
- Use appropriate module for source supplied voltage.
- Connect the probe shield wire (pin 6) to earth ground, not common or box ground.
- Relay outputs for Relay1 and Relay 2 are dry contact output and perform switching functions only. The relay connections are isolated from the modules operating supply voltage and will switch voltage of the circuit to which they are connected.
- Be mindful of installations where the AC voltage input is multiplied by 1.414 times to produce the final output DC voltage, i.e. 27 volts AC x 1.414 is actually 38 volts. This could possibly overdrive the voltage regulator circuits causing failure.
- Bury Probe parallel to driveway or traffic flow at least 6 inches deep into soil. Pack soil around probe so that it remains motionless.



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## Installation

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### General Installation Guidelines

The CarSense 101 uses a passive probe sensor to generate a steady state magnetic field. Changes to the field are caused by the movement of ferrous metal objects such as a vehicle moving through the sensing area of the probe.

The sensing area is approximately a 15-foot diameter as illustrated by the graphic on page 4. Install the probe a minimum of 6 inches deep and parallel to the driveway. Alternately the probe may be placed under the drive surface in the path of vehicle traffic as long as there is no metal above it.

#### **IMPORTANT!**

The Probe must be installed so that it remains totally motionless at all times and away from power lines. This will help to prevent false detections. Do not run the probe lead in the same conduit as electrical wiring.

Probe leads may be ordered in 50-foot increments from 50 to 1000 feet.

Two probes may be used on one module as long as they are installed in parallel. (This will result in a smaller detection field off each probe.)

## Troubleshooting

Symptom	Possible cause(s)	Solution
False activation or ghosting	RF noise or noisy power source	Turn on filter. Isolate module from operator power supply. (for DC powered units this may be verified by connecting a 9 volt battery for 12 VDC units or (2) 9 volt batteries in series for 24 VDC modules as a test) Move module into separate weatherproof housing outside operator.
No Detection	Probe failure vehicle moving less than 5 MPH through detection field	Check probe resistance, nominal resistance reading should be 900 ohms, +/- 100 ohms. Any reading between the Red or Black and Shield less than 10 megohms may indicate a problem. Drive faster through detection field.

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## Ordering information

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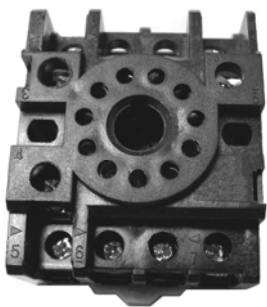
XC101-12	12 Volt DC Detector Module
XC101-24	24 Volt DC Detector Module
XC101-24A	24 Volt AC Detector Module
XC101-110	110 Volt Ac Detector Module

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## Accessories

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PROBE-XX	Probe where XX equals lead length.
LD-11B	Included 11 Pin Din Rail mount socket base
LD-11	Optional 11 Pin DIN Rail mount socket base
HAR-11	Optional 11 Pin socket with 36-inch wire harness.



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## Warranty

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EMX, Inc. warrants the product described herein for a period of 2 years under normal use and service from the date of sale to our customer. The product will be free from defects in material and workmanship. The warranty does not cover ordinary wear and tear, abuse, misuse, overloading, altered products, or damage caused by the purchaser from incorrect connections or lightning damage.

There is no warranty of merchantability. There are no warranties expressed, implied or any affirmation of fact or representation which extend beyond the description set forth herein.

EMX, Inc. sole responsibility and liability, and purchaser's exclusive remedy shall be limited to the repair or replacement at EMX's option of a part or parts not so conforming to the warranty. In no event shall EMX, Inc. be liable for damages of any nature, including incidental or consequential damages, including, but not limited to any damages resulting from non-conformity defect in material or workmanship.



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