

DMSL

Vehicle Motion Detector



Operating Instructions

CAUTIONS AND WARNINGS



- *Never use the DMSL as a safety reversing or presence detection system. The DMSL 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 before connecting this product. Comply with all applicable codes and safety regulations.*
- *Do not install probe in hot asphalt.*
- *Provide an earth ground connection using ground rod per installation instructions except when using an Vac power source.*
- *Do not exceed power supply voltage rating 41VDC or 29VAC.*
- *ALLOW 3 MINUTES AFTER POWER UP FOR STABILIZATION*
- *DMSL is sensitive to metal objects that move through its field, including bicycles, horses, small vehicles or metal in shoes. In areas with high pedestrian traffic, the probe should be buried up to 60cm deep to prevent triggering the detector by the metal in shoes.*

PRODUCT OVERVIEW

The DMSL is a compact, single-piece, vehicle motion detector that operates by detecting changes in the earth's magnetic field that occur near the probe. These changes are produced by the movement of ferrous materials such as cars or trucks within the probe's range. The DMSL is a direct burial probe placed adjacent to a roadway or buried in a concrete or asphalt roadway.

The probe features a 3,5m. detection range that is dependent on the speed and size of the vehicle. The probe is available with a cable length of 30m. The DMSL output consists of a set of form C relay contacts (N.O, N.C., C).

The DSML may be used as a free exit sensor in both commercial and residential applications. The detector is not for use as a presence detector.

Specifications

Range sensitivity	3,5m. > 5 Km/h
Output on time	0.5...6 s.
Surge protection	Probe circuitry protected by surge suppressors
Relay output configuration - 5-wire	Form C (SPDT)
Relay contact rating	1A @ 24VDC, 1A @ 230VAC
Power	9...41VDC / 6...29VAC
Standby current	0.250mA
Detection current	12mA
Operating temperature	-40°C...82°C
	0...95% relative humidity
Probe housing material	PVC IP67
Probe dimensions (Length x Diameter)	610mm x 25mm
Probe cable	5-wire, direct burial

Warranty

Hidro-Domestics, S.L. warrants this product to be free of defects in materials and workmanship for a period of 2 years under normal use and service from the date of sale to our customer. This warranty does not cover normal wear and tear, abuse, misuse, overloading, altered products, damage caused by incorrect connections, lightning damage, or use other than intended design.

OPERATION

After allowing a 3-minute stabilization time the DMSL is ready for use. It is possible that the detector will cycle during the power up stabilization period, this is normal. The DMSL relay contacts provide the means of indicating to the gate operator or other external equipment, that a vehicle has been detected. Since the DMSL is designed to detect motion it is not suitable for use as a presence detector.

Upon detection of a vehicle the output relay will energize for approximately 1 second.

Sensitivity is a function of speed and mass; the slower a vehicle is moving, the closer the vehicle must pass the probe to trigger the detector.

INSTALLATION GUIDELINES

POWER SUPPLY

- *Do not exceed 41VDC or 29VAC.* Power requirements are 9...41 VDC or 6...29 VAC

PROBE

- **STANDARD INSTALLATION - BURY PROBE 20cm - 30cm DEEP**
- **HIGH PEDESTRIAN TRAFFIC - BURY PROBE 60cm DEEP**
DMSL is sensitive to metal objects that move through its field, including bicycles, horses, small vehicles or metal in shoes. In areas with high pedestrian traffic, the probe may be buried up to 60cm deep to prevent triggering the detector by the metal in shoes.
- Do not install the Probe or lead wire near or parallel to:
 - Low voltage lighting wires
 - Telephone lines or intercom systems
 - Electric motors or control relays
 - Overhead power lines and transformers or underground power lines
 - Cell phone towers, TV towers or communications links
 - Moving metal flagpoles, fences, gates or horses with metal shoes
 - Do not mount on any moving surface such as bridges or walkways may vibrate under traffic
 - Underground water lines
- If it is necessary to extend the cable length, use a high quality lead-in cable suitable for direct burial, and a high quality, watertight cable splice to prevent moisture from entering the cable causing false triggering.
- The probe must always be installed in such a way that it remains completely motionless. Any movement will cause the probe to trigger.
- The detector is sensitive to minute changes in the magnetic field around the probe. Power lines, transformers, and other electrical devices located in the vicinity of the probe that produce transients could cause disturbances in the magnetic field that may result in triggering the detector. Avoid installation of the probe near these devices.

IMPORTANT: EARTH GROUND CONNECTION

DO NOT USE EARTH GROUND CONNECTION WITH AC POWER SOURCES

The DMSL contains transient protection devices to guard the sensitive electronic circuitry from damage and false triggering due to electrical transients caused by lightening or other sources. When using DC power systems always provide a good earth ground. A 1,5m copper rod or cold water pipe provides a sufficient earth ground connection. Connect the POWER (-) to this earth ground.

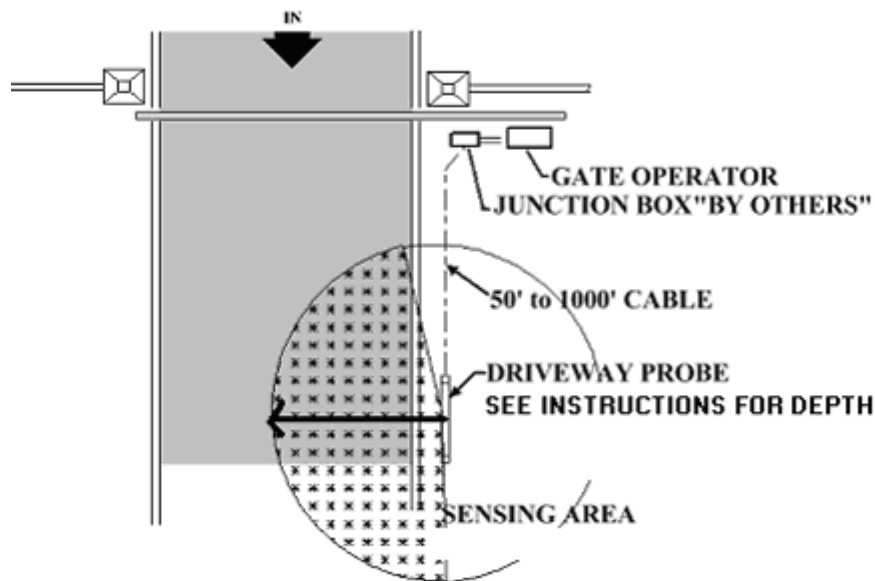
PROBE INSTALLATION ADJACENT TO ROADWAY

Please read INSTALLATION GUIDELINES prior to installation.

The detector detection distance is approximately 3,5m at a speed of 5Km/h. At higher speeds, 10-15Km/h, detection distance can exceed 3,5m.

1. Prior to permanent installation adjacent to the roadway, place the probe in the desired location; connect the power, output contact and earth ground to the intended equipment. (reference EARTH GROUND CONNECTION in the INSTALLATION GUIDELINES section).
2. Apply power and allow 3 minutes warm-up for system stabilization.
3. Drive the vehicle past the probe at a typical speed and to the far side of the roadway. Verify proper operation of the DMSL.
4. Bury the probe approximately 20-30cm deep or 60 deep (see INSTALLATION GUIDELINES) at this location and repeat the previous sensitivity check (step 3 -4) to verify proper operation.

Typical Installation



PROBE INSTALLATION IN A ROADWAY

Please read INSTALLATION GUIDELINES prior to installation.
DO NOT INSTALL IN HOT ASPHALT

The detector detection distance is approximately 12ft at a speed of 5mph. At higher speeds, 10-15mph, detection distance can exceed 12ft.

1. The probe should be positioned in the center of the roadway, perpendicular to the direction of traffic. Place the probe in plastic conduit to prevent damage to probe and cable. Probe should be located at approximately 2" depth in concrete or asphalt. The probe may be located prior to paving, or a cut may be made in the pavement for installation. No rebar should be above the probe.
2. Once the probe is installed, connect the probe to the power, output contact and earth ground to the intended equipment. (Reference EARTH GROUND CONNECTION in the INSTALLATION GUIDELINES section).
3. Apply power and allow 3 minutes warm-up for system stabilization.
4. Drive the vehicle over the probe at a typical speed and each side of the roadway before sealing the probe in place, to verify proper operation.

Troubleshooting

<i>Symptom</i>	<i>Possible cause</i>
False triggering	Electrical disturbances
	Damaged probe cable
	Moisture in the probe cable
	Movement of probe

Possible solutions

1. Verify that the earth ground connection is secure. If the connection is not secure, reconnect to the earth ground and retest the system.
2. Inspect the area around the probe for any metal object that may move such as signs or fences.
3. Disconnect the power and temporarily connect a 9V battery to the DMSL and reconnect the probe. Wait 3 minutes for the system to stabilize. If the false triggering stops, consider using a separate power supply for the DMSL such as a 120VAC to 12V power converter (min. 100ma). Re-connect the probe and test the system.
4. If the false triggering continues, inspect the area around the probe to see if any metallic objects may be subject to any movement. These may include fences, flagpoles, signs, etc. Other possible causes are electrical power lines, electric motors and high power lighting.

Checking the DMSL output contacts

1. Disconnect the output contacts from the operator.
2. Connect a DVM, set to read ohms, to the COM and N.O. contacts. The DVM should read open (infinity). Move a metal tool over the length of the probe, and observe that the DVM reads less than 10 ohms.

<i>Symptom</i>	<i>Possible cause</i>
No detection	Minimum 5 Km/h
	Bad connection
	Faulty power connection
	Failed relay or broken wire

Wiring information

Wire color	Description
RED	Power (+) (9...41VDC or 6...29VAC)
BLACK	Power (-) (9...41VDC common and earth ground or 6...29VAC)
GREEN	Common (relay common contact)
WHITE	N.C. (Relay output, normally closed contact)
BROWN	N.O. (Relay output, normally open contact)



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