



User's Manual
For
VDS-POD-S

DRAFT
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522 Gillingham
Sugar Land, Texas 77478
Phone: (281) 240-7233
Fax: (281) 240-7238

Engineered by  **Naztec**

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FCC Compliance

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

FCC ID: MD5-SM01

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna
- Increase the separation between the equipment and receiver
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected
- Consult the dealer or an experienced radio/TV technician for help.

WARNING: Changes or modifications to this device not expressly approved by Naztec, Inc. dba Trafficware could void the user's authority to operate the equipment.

RF Exposure WARNING: This equipment complies with FCC radio frequency energy exposure limits set forth for an uncontrolled public environment. This equipment should be installed and operated with minimum distance 20 cm between the radiator and your body.

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1 Introduction

The VDS-POD-S contains a configurable, high performance, simple to use 902-928 MHz radio. It is being used as a configurable magnetic sensor.

1.1 VDS-POD-S Installation Considerations

Care shall be taken to insure that the VDS-POD-S housing is not punctured or crushed. The sensor contains a Lithium Thionyl Chloride battery and certain precautions shall be taken. Dispose the VDS-POD-S housings with batteries in accordance with local regulations.

A label is affixed on the top of the VDS-POD-S which contains a unique ID and an arrow for the direction of traffic flow. The unique ID is used for configuring the system so the Access Point only talks to the sensors at this specific location and not Access Points nearby at other intersections. Record the ID of each VDS-POD-S and their location for use when configuring the User Interface.

1.1.1 Equipment needed:

- Coring Drill with 4" diamond bit. Water is needed for the core drill to cool the bit during drilling.
- Chisel for cleaning the hole out.
- Shop Vacuum for removing the debris out of the hole after core is removed.
- Propane torch to dry out the hole before sealant is applied.
- Epoxy, a two part Joint sealant. Fabick Joint sealant is recommended.

1.1.2 Installing the VDS-POD-S in the road

IMPORTANT: Safety glasses are required at all times.

A manufacturers label is affixed on the top of the VDS-POD-S which contains an arrow for the direction of traffic flow.

1. Mark the area of the desired VDS-POD-S location.
2. Core a hole approximately 4.0" diameter and 2.75" deep into the pavement.
3. Remove any debris with chisel to clean out the hole.
4. Dry hole with propane torch to remove any moisture.
5. Fill hole with approximately 1" of sealant and place VDS-POD-S in hole with arrow pointing with the flow of traffic.
6. Add sealant to completely cover the VDS-POD-S.
7. Maintain VDS-POD-S level about 0.25" from the road surface until sealant dries in approximately 3 minutes.

1.2 Specifications

VDS-POD-S Radio Specifications		
Performance	Transmit Power Output	20 dbm
	RF Data Rate	100 Kbps
	Receiver Sensitivity	-104 dbm (Typical)
Power Requirements	Supply Voltage	3.6V Li-SOCL2 Battery
	Transmit Current	90mA
	Idle/Receive Current	23mA
	Sleep Mode	1.4uA
General	Frequency	ISM 902-928MHz
	Spreading Method	Frequency Hopping (FHSS)
	Modulation	GFSK
	Number of Channels	60
	Dimensions	~ 3.5 x 2.25 in
	Operating Temperature	-40 to 85 deg C
	Antenna Options	Manufacturer's loop antenna only.
Agency Approvals	FCC	FCC Part 15.247

VDS-POD-S Magnetic Sensor Specifications		
Performance	Sensitivity	1 mV/V/gauss
	Field Range	+/- 6 gauss
	Resolution	85 ugauss
	Bridge resistance	1100 ohms
	Bridge offset	+/-2.5 mV
Power Requirements	Supply Voltage	3.6 VDC
	Bridge Current	3.2 mA
General	Axis	X,Y, Z1 and Z2 axis
	Sample rate	Z axis every 8 ms, X,Y axis every 1 second