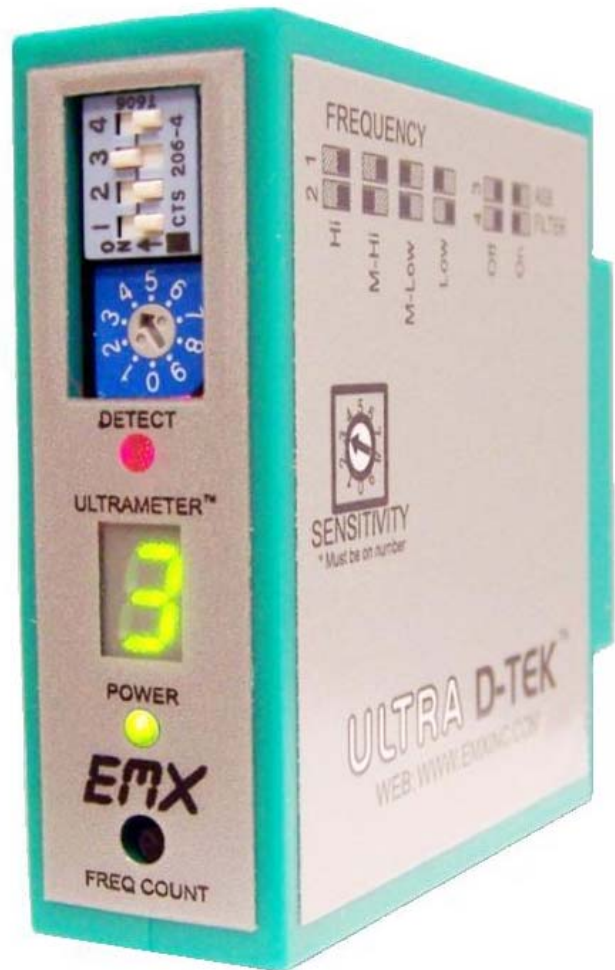




ULTRA D-TEK™

Vehicle Loop Detector



Operating Instructions

PRODUCT OVERVIEW

The UltraDTEK™ vehicle loop detector is plug-in compatible with Elite OmniControl™ board operators and other Elite™ A ELD enabled operators. The UltraDTEK™ may be used in Center, Safety and Exit slots on the control board.

The UltraMETER™ display feature makes set-up easy by displaying the optimum sensitivity setting required to detect a vehicle positioned on the loop. Ten sensitivity settings allow for fine adjustment of detection level. Four frequency settings provide flexibility in preventing crosstalk in multi-loop applications.

The UltraDTEK™ vehicle loop detector provides plug-in compatibility with SL-3000* and CSW 200* operators.

Specifications

Sensitivity	10 levels, 0-9
UltraMETER™ Display	Indicates optimum sensitivity level, 0-9 Diagnostic aid
Loop frequency	4 settings (low, med-low, med-hi, high)
Loop inductance	20...2000μH (Q factor ≥ 5)
Grounded loop	Isolation transformer allows operation with poor quality loops
Automatic tuning	Detector tunes to loop on power-up and following frequency count function
Environmental tracking	Automatic compensation
Surge protection	Loop circuitry protected by surge suppressors
Detect output	Low on detect
Power / loop fault indicator	Green LED
Detect / frequency count indicator	Red LED
External reset input	Low to reset
ASB (Automatic Sensitivity Boost)	Increases sensitivity after initial detection to prevent dropout due to high-bed vehicles
Filter	Prevents detection from cross-traffic or RF interference (i.e. keying CB transmitter)
Power	12...24VDC
Operating Current	18 mA
Operating temperature	-40°C...82°C (-40°F...180°F) 0...95% relative humidity
Dimensions (L x W x H)	3.0" (76mm) x 0.9" (22mm) x 2.75" (70mm)
Weight	0.15 lbs. (68 g)

*OmniControl™, A ELD, SL-3000 and CSW 200 are registered to Elite Access Systems Inc. and The Chamberlain Group Inc.

OPERATION

Power up

Upon power up the detector initializes by automatically tuning to the loop. The green LED indicates that the detector is powered and operational.

Frequency setting

The operating frequency of the loop is a function of the specific loop inductance and DIP switch settings 3-4. The primary purpose of the frequency setting is to allow the installer the ability to set different operating frequencies for multi-loop installations, recommended to prevent crosstalk/interference from adjacent loops. After changing the frequency setting, press the Frequency Count switch to re-initialize the detector. To check the operating frequency of a loop refer to the Frequency Count section. To determine whether crosstalk between adjacent loops is occurring, refer to the UltraMETER Sensitivity Display section.

UltraMETER™ Sensitivity Display

The UltraMETER™ sensitivity display simplifies the installation process by displaying the sensitivity setting required to detect a vehicle on the loop. To use this feature, observe the display while a vehicle is moving into position on the loop, note the number displayed, then adjust the sensitivity setting (rotary switch) to the displayed position.

During normal operation, when a vehicle is not on the loop, the display is blank. The effects of crosstalk or other interference can be observed on the display when the loop is vacant. Interference or crosstalk will cause the display to indicate a level, typically 8 or 9. It may be necessary to observe the display for a minute or so to see this effect. Change the frequency setting to prevent crosstalk.

Sensitivity setting

The 10-position rotary switch allows for precise adjustment of detection level. The sensitivity level increases from position 0 thru 9 with position 0 being the lowest sensitivity. Typical applications require a setting of 3 or 4. The UltraMETER™ sensitivity display simplifies the installation process by displaying the sensitivity setting required to detect a vehicle on the loop. To use this feature, observe the display while a vehicle is moving into position on the loop, note the number displayed, then adjust the sensitivity setting (rotary switch) to the displayed position.

Frequency Count / Reset

Press the Frequency Count switch and count the number of flashes on the red LED. Each flash represents 10kHz. To help to prevent crosstalk when multiple detectors are used for adjacent loops, perform a frequency count on each detector to confirm the operation frequencies are different. Following a frequency count cycle, the detector re-initializes

Automatic Sensitivity Boost

The Automatic Sensitivity boost causes the sensitivity to increase following initial detection. This feature is useful to prevent dropout when detecting high-bed vehicles. The sensitivity returns to its normal setting after the vehicle exits the loop.

Filter

The Filter prevents false detections such as cross traffic or a short burst of RF caused by keying a CB transmitter. Detections that are shorter than 2 second are ignored.

CAUTIONS AND WARNINGS



When more than one loop detector is used, set each one to a different frequency.
Refer to DIP switch diagram for frequency settings.

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.

Controls and Indicators

FREQUENCY SETTINGS

FREQUENCY	DIP switch position	
	4	3
Low	on	on
Medium low	off	on
Medium high	on	off
High	off	off

AUTOMATIC SENSITIVITY BOOST

	DIP switch position 2
ASB enabled	on
ASB off	off

FILTER

	DIP switch position 1
FILTER enabled	on
FILTER off	off

SENSITIVITY SETTING

	Position 0..... 9
Sensitivity	Low.....high

DETECT / FREQUENCY COUNT

	Red LED
Presence detected	on
No presence	off
Frequency count	flashing

ULTRAMETER™ DISPLAY

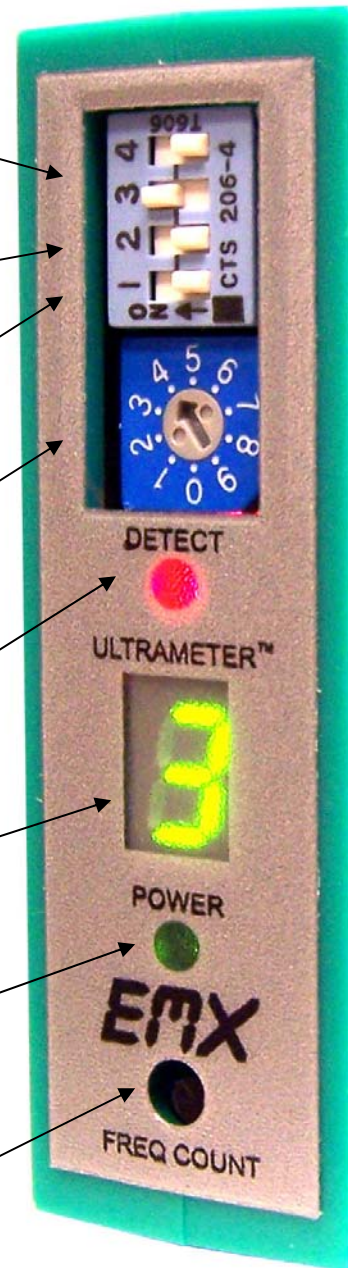
Indicates sensitivity setting required to detect vehicle

POWER / LOOP FAULT INDICATOR

	Green LED
Normal operation	on
Shorted loop	1 fast flash
Open loop	2 fast flashes
Abrupt change (>20%)	3 fast flashes
Previous loop fault	2 slow flashes

FREQUENCY COUNT / RESET

Press to start frequency count, re-initializes after count



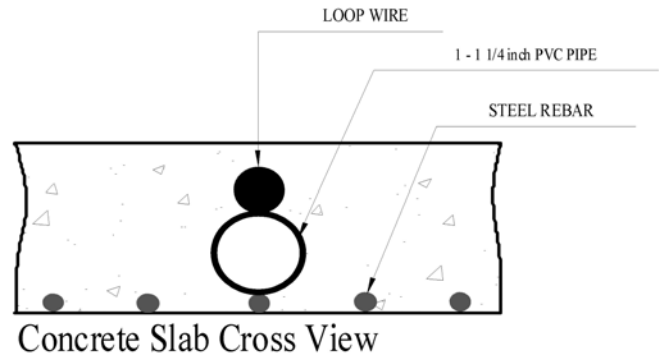
Troubleshooting

Symptom	Possible cause	Solution
Green LED flashes	Loop wire shorted or open	Check loop resistance on the appropriate loop pins on the control board connector, between .5 ohms and 5 ohms.
Green LED flashes, 2 fast	Loop was previously shorted or open	Check loop resistance on the appropriate loop pins on the control board connector.
Detector remains in detect after vehicle has left loop	<ol style="list-style-type: none">1. Faulty loop2. Poorly crimped terminals3. Loose connections	<ol style="list-style-type: none">1. Perform megger test from loop lead to ground, should be >100 megohms2. Check loop connections to terminals3. Check splices are properly soldered and sealed against moisture4. Observe ULTRAMETER display, level indicated on display indicates residual frequency shift from vacant loop to vehicle presence, press Frequency Count switch to re-initialize the detector
Intermittent detection	<ol style="list-style-type: none">1. Faulty loop2. Poorly crimped terminals3. Loose connections4. Cross-talk between adjacent loops	<ol style="list-style-type: none">1. Perform megger test from loop lead to ground, should be >100 megohms2. Check loop connections to terminals3. Check splices are properly soldered and sealed against moisture4. Set adjacent loops to different frequencies (see Frequency Setting)
No detection	<ol style="list-style-type: none">1. Loop wire shorted or open2. Loop sensitivity set too low	<ol style="list-style-type: none">1. Check loop resistance on the appropriate loop pins on the control board connector, between .5 ohms and 5 ohms.2. With vehicle on loop, observe ULTRAMETER display, set sensitivity to the level indicated on the display

Loop Installation

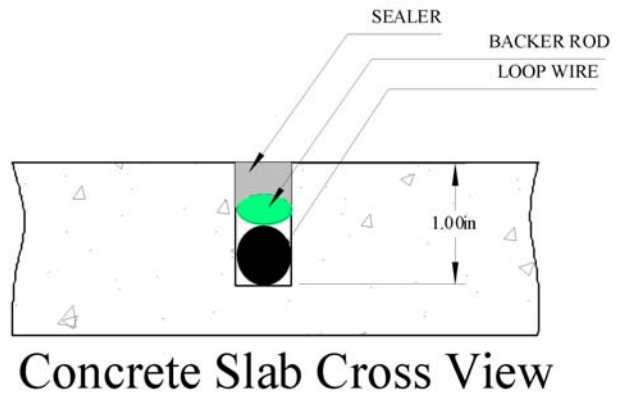
NEW SLAB POUR

Ty-wrap 1-1/4" PVC pipe to the top of the rebar in the size and configuration of the loop (ex. 4' x 8'). Then ty-wrap the loop to the top of the PVC frame. This stabilizes the loop during the pour and separates it from the rebar.



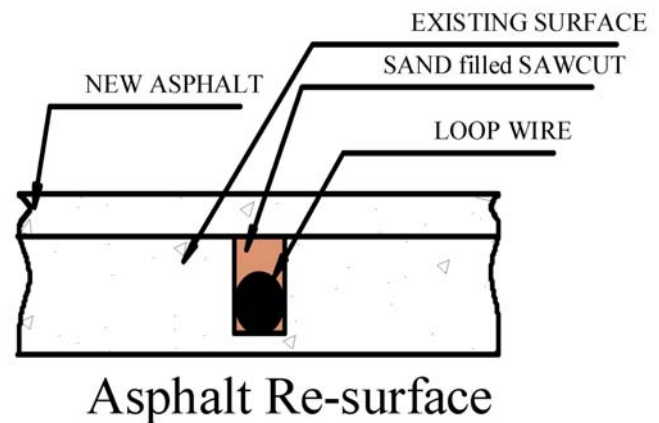
SAW CUT EXISTING SURFACE

Cut 1" deep into the existing surface, place a 45° cut at the corners to prevent sharp edges from damaging the loop wire. Notch out for the "T" connection where the lead wire connects to the loop. Remove all debris from the finished cut with compressed air. Place the loop into the saw cut. Place backer material into the saw cut over the loop wire and pack tightly. Place a high-quality sealer over the saw cut to seal the surface.



RESURFACE ASPHALT

Saw cut the existing surface 3/4" deep and place a 45° cut at the corners to prevent sharp edges from damaging the loop wire. Remove all debris from the finished cut with compressed air. Place sand over the loop wire to the surface and pack tightly. Lay new asphalt.



General Installation Guidelines

- Lead-in wire (wire from loop to detector) must be twisted a minimum of 6 turns/ foot to avoid the effects of noise or other interference.
- Detection height is approximately 70% of the shortest side of the loop. Example: detection height for an 4' x 8' loop = 48" x .7 = 33.6"
- Use EMX Lite Preformed loops for quick and reliable installations.

Ordering information

UltraDTEK Vehicle Loop Detector

Accessories

PR-XX EMX Lite Preformed Loops™
LD-6P 6 position pluggable screw terminal adapter for *OmniControl™ loop
connections

Warranty

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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