

- Product Overview -

The LMD DEFLECTOMETER™ Series

Inductive Loop Detector

Why guess when you can know!



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021508



What is the DEFLECTOMETER?

- The LMD Series uses an intuitive push-button interface with a 7-segment DEFLECTOMETER display for each channel.
 - › The DEFLECTOMETER display shows the relative **strength of the call** while a vehicle is in the detection zone. This provides feedback that the unit is optimally tuned to detect vehicles of all sizes.
 - › Setting the sensitivity level on the detector can be easily done in one step with a “typical” vehicle parked in the detection zone. The DEFLECTOMETER display updates dynamically as the sensitivity level is changed.
- Saves agencies time, trouble, and money!



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LMD Series Products

- **Nema TS-2 Type A**
 - › [LMD622](#) - Two channel
- **Nema TS-2 Type B**
 - › [LMD624](#) - Four channel
 - › [LMD624H](#) - Four Channel Half Width
- **Nema TS-2 Type C**
 - › [LMD622t](#) - Two channel with Delay & Extend Timing
 - › [LMD642t](#) - Two channel with Delay & Extend Timing and AccurateCount System Count Outputs
- **Nema TS-2 Type D**
 - › [LMD624t](#) - Four channel with Delay & Extend Timing
- **Nema TS-1**
 - › [LMD602](#) - Two channel
 - › [LMD602t](#) - Two channel with Delay & Extend Timing
 - › [LMD632t](#) - Two channel with Delay & Extend Timing and AccurateCount System Count Outputs
 - › [LMD604](#) - Four channel
 - › [LMD604t](#) - Four channel with Delay & Extend Timing
- **Caltrans**
 - › [LMD222](#) - Two channel
 - › [LMD224](#) - Four channel

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LMD Series Set-up

- Let's see how simple it is to install and program the LMD Series detector:
 - › Set Sensitivity Level to an Optimum value automatically.
 - With one mid-sized vehicle on the loop, adjust the Call Strength to 5.
 - This now ensures that vehicles of all classes are reliably detected.
 - Eliminate the usual "trail and error" and multi-vehicle process of conventional detectors.
 - › Set the Output Mode
 - › Check the Loop Reference Frequency. This helps ensure that adjacent loops don't cause cross-talk problems.
- Done!

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Setting the Sensitivity Level (Auto)

- With a vehicle in the detection zone the *DEFLECTOMETER* will display the **Call Strength** value of 1 through 9. The optimum value for a typical mid-sized vehicle is 5.
 - If a mid-size vehicle shows the Call Strength value 7 on the *DEFLECTOMETER*, the "sensitivity" should be lowered two levels (7-2 = *DEFLECTOMETER* reading 5). This is done by pressing the front panel SENS▼ (down) button two times.
 - If a mid-size vehicle shows the Call Strength value 2 on the *DEFLECTOMETER*, the "sensitivity" should be raised three levels (2+3 = *DEFLECTOMETER* reading 5). This is done by pressing the front panel SENS▲ (up) button three times.
- The *DEFLECTOMETER* dynamically updates after each level change, allowing changes to the sensitivity setting while the vehicle remains in the detection zone.
- Note that the **Call Strength** value is different than the actual Sensitivity Level setting, though they increase or decrease in step.
- The Sensitivity Level can also be set directly if desired.

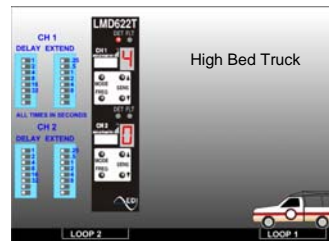
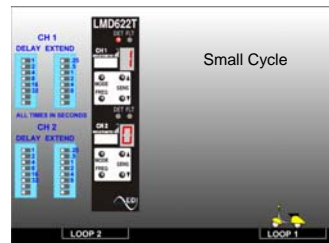
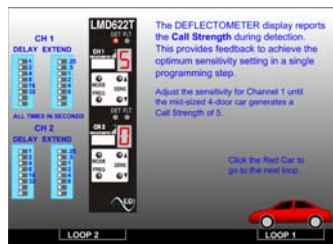


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One Set-up Step for Sensitivity

- Using Call Strength to *indirectly* set the Sensitivity Level ensures that vehicles of all sizes are optimally detected.



- The Call Strength display is dynamically adjusted as sensitivity is changed to achieve the desired Call Strength value without moving the vehicle in and out of the detection zone.

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Setting the Mode

- The Operational mode can be set to Short Presence, Long Presence, Pulse, Call or Off mode.
 - › Short Presence mode is 30 minutes
 - › Long Presence mode is 120 minutes
 - › Pulse mode produces a 125 ms pulse
 - › Call mode will set the output to the True state continuously
 - This is a useful mode for testing detector channel to CU mapping and hardware without cabinet test switches
 - › Off mode disables the channel when not used
- Pressing the MODE button once will display the Operational Mode without changing the setting.
 - › The setting can then be changed by pressing the MODE button again. The display will automatically return to the normal display after several seconds.

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Output Modes (Channel 1)

Short Presence (S) Long Presence (L) Pulse (P) Call Continuous (C) Channel Off (-)



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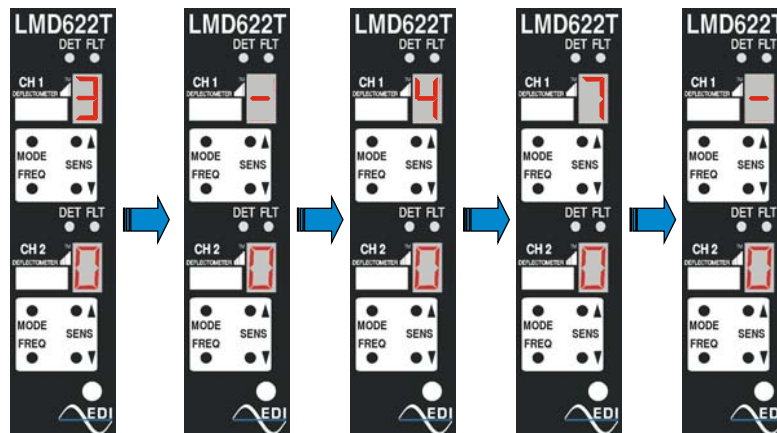
Setting the Reference Frequency

- The Frequency Level setting can be set to one of four values (1 – 4).
- Pressing the FREQ button once will display the Frequency Level without changing the setting.
 - › The setting can then be changed by pressing the FREQ button again.
- The Loop Reference Frequency is then displayed:
"3" ⇨ "-" ⇨ "4" ⇨ "7" ⇨ "-"
 - › This sequence would indicate Frequency Level "3" and a loop reference frequency of 47 KHz
- The display will automatically return to the normal display after three seconds.
- *5 KHz separation is recommended between adjacent loops on different detectors to prevent crosstalk problems.*

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Loop Frequency Display



This sequence indicates Frequency Level 3 and a Loop Reference Frequency of 47 KHz for Channel 1

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Setting the Sensitivity Level (Manual)

- The Sensitivity Level can also be set directly without a vehicle in the detection zone.

But why would you?

- The LMD Series offers nine levels of sensitivity (1 to 9).
 - › The Sensitivity Level can be manually set to any desired level by pressing the SENS▲ or SENS▼ front panel buttons when a vehicle is NOT over the roadway loop.
 - › Pressing the SENS▲ or SENS▼ button once will display the **Sensitivity Level** without changing the setting. The setting can then be changed by pressing the SENS▲ or SENS▼ buttons again.
 - › The *DEFLECTOMETER* will automatically return to the normal display after three seconds.

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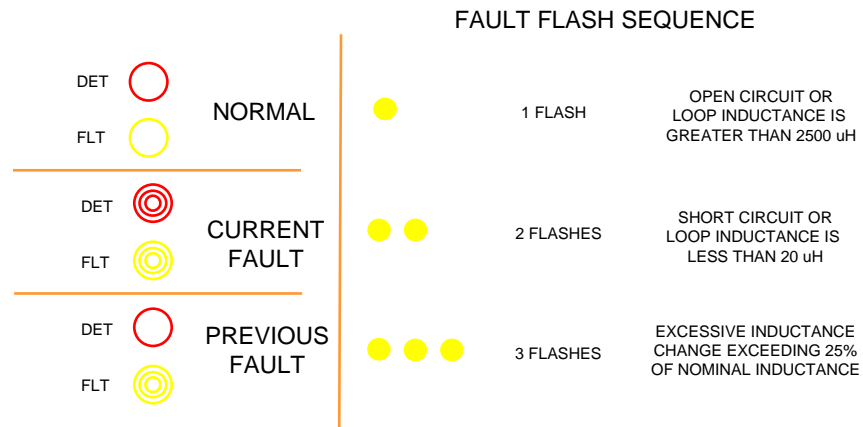
LMD Series Loop Monitor™

- Separate Color-coded Detect and Fault LED Indicators
 - › Red for the Detect LED and Yellow for the Fault LED
- Loop Faults Indicated by Unique LED Flash Sequence
 - › Shorted Loop, Open Circuit Loop and Excessive Inductance Change.
 - › The *DEFLECTOMETER* displays an “F” during a current fault.
- Fault Memory
 - › The Fault LED flash sequence indicates the last loop fault that was detected.
 - › This feature can indicate the failure mode of an intermittent suspect loop.

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Loop Fault Diagnostics



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Introducing a Better Handle Assembly

- Revolutionary New Design
 - › Manufactured from durable GE Lexan™ Polycarbonate
 - › Designed for Durability, Protection and Convenience
 - › Integrated Handle, Faceplate, and Component Cover
 - › Strengthens and Protects the PCB Assembly.
 - › Temperature Stability of Critical Components is greatly increased.
 - › Larger handle provides more room for gloved hands. Makes insertion and extraction much easier and less stressful on the PCB assembly.
 - › Quick Reference Instructions are conveniently attached on the side. No need for usually missing “cheat sheets”.

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Why use an LMD instead of an LCD?

- Function
 - › It was found that most users of advanced LCD detectors were only interested in the Call Strength and Frequency displays.
 - › The more complex set-up and display functions of an advanced LCD detector often made their use confusing or even overwhelming when only simple functionality was required for the application.
 - › The LMD *DEFLECTOMETER* Series displays the most important setup and operational information at a fraction of the cost.
- Value
 - › An LMD *DEFLECTOMETER* Series detector costs no more than a conventional dipswitch type detector.
 - › Advanced LCD type detectors can cost up to twice what an LMD *DEFLECTOMETER* Series product costs.

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LMD Series Loop Monitor

- Built-in *DEFLECTOMETER* Technology Provides Users With:
 - › Call Strength Indicator for Optimum Sensitivity Programming
 - › Frequency Meter for immediate analysis of loop frequency, avoiding loop cross-talk problems
 - › Push Button Programming
- *Why guess when you can know* your detector is optimally programmed and performing for all vehicle classes!



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LMD DEFLECTOMETER Series

Setting the Standard for Quality and Reliability

Eberle Design Inc.

www.EDIttraffic.com

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