

The ORACLE Loop Monitor™ Advanced Vehicle Detector

Knowing More. . . Telling More. . .



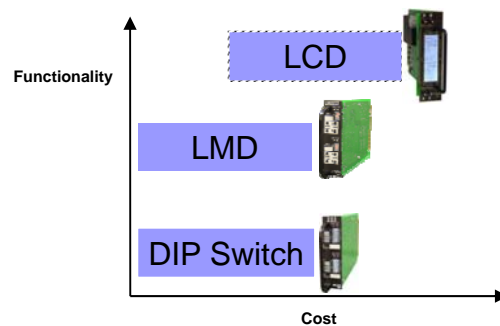
*Liquid Crystal Display
with Advanced
Menu Driven Setup
and Diagnostics*



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Inductive Loop Detectors

- Having the right tools makes installing and operating a loop detector easier.
- Two categories of product in the marketplace
 - › High-end, many programmable features, LCD display
 - › Commodity level, low cost, does the job



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Why The “ENHANCED” Series ?

- The right tools always make the job easier.
- Oracle features a back-lit user friendly LCD interface using plain English word prompts for setup, operations, special functions and diagnostics.
- Visual set up and diagnostic tools eliminates ALL guess work.
- Indicates vehicle presence with great accuracy and reliability.
- Monitors the condition of the loop and loop network for diagnostics purposes.
- Saves agencies time and money!

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ORACLE Basic Detection Features

- **AUTOMATIC TUNING**
 - Tunes immediately after power up and after a sensitivity, frequency, or mode change.
 - Fulltime environmental tracking compensates for changes in ambient conditions.
 - Twenty (20) Levels of Sensitivity
 - Allows the user to fine tune the loop monitor for a specific application.
- **EIGHT LOOP FREQUENCIES**
 - Actual loop frequency is displayed for cross-talk avoidance with adjacent loops.
 - The Frequency Stability Graph visually displays noise on the loop for a more accurate frequency setting.
 - Filter mode for high noise environments
- **FOUR OPERATIONAL MODES**
 - Presence (long, short, user defined), Pulse, Turn Queue, Directional logic.
- **TIME MULTIPLEXED SCANNING**
 - Avoids cross-talk between adjacent loops connected to the same detector.

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ORACLE User Interface

- **DISPLAY INTERFACE**

- Multi-Channel Graphics Display
 - **All channels can be displayed and setup simultaneously.** No need to toggle back and forth in between channels.
- Multi-line Graphics Liquid Crystal Display
- Natural Language Menu structure
 - Plain English prompts to describe functions and parameters.
 - No need for a manual or “cheat sheet” to describe setup, operational, or diagnostic prompts.
- LED Back Light
 - Automatically shuts off two hours after last switch actuation.
- Automatic Temperature Contrast Compensation
 - No need to manually change contrast due to temperature changes.

- **SWITCHES**

- High Reliability Gold Contact Spring Loaded Switches
 - Allows forward and backward movement through menus.
 - Designed for the harsh environment of the Traffic Signal Cabinet



Menu Driven = Easier Set-up

Main Menu
Run
Reset
Setup
Quik Set
Event Log

- **MAIN MENU**

- › RUN Returns to the Operating Screen
- › RESET Resets the detector
- › SETUP Enters the set-up sequence
- › QUIK SET Selected setup for most used options
- › Event Logs Displays the Event Log Screen

Whether your want to perform the basic setup (Sensitivity, Frequency, Mode) from the “Quik Set” menu or go through the main setup parameters, the ORACLE “Enhanced” series gives you ALL the tools to setup, operate and diagnose with ease.



Parameter Menu Items

- **SETUP** Menu List
 - › Output Enable
 - › Sensitivity
 - › Filter
 - › Frequency & Stability Graph
 - › Paired Channels
 - › Output Mode
 - › Presence Timing
 - › Delay / Extend Timing
 - › Count (EC & ECX models)
 - › Channel Id
 - › Display Mode
- **QuikSet** Menu Items
 - › Sensitivity & Deflectometer
 - › Frequency & Stability Graph
 - › Paired Channels
 - › Output Mode
 - › Presence Timing
 - › Delay / Extend Timing

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Installation and Setup

- **Installation Issues**
 - Loop detectors often work well “out-of-the-box”.
 - To more accurately configure a detector such that ALL vehicle classes are reliably detected takes some effort.
 - Conventional DIP switch detectors use an iterative series of vehicle experiments to arrive at the correct configuration.
 - Thus, correct DIP Switch setup can **ONLY** be verified by an actual test of the vehicle class.



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ORACLE Makes Detector Setup Easy

- Main Setup Tools
 - › Call Strength indicator
 - › Dynamic sensitivity programming
 - › Frequency Meter
- 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.
 - › **Call Strength** is analogous to the volume of the music from a radio. It is not the number on the dial that matters, but the volume of the music that hits your ears.
 - › Note that the Call Strength value is different than the actual Sensitivity Level setting, though they increase or decrease in step.
- The *DEFLECTOMETER* dynamically updates after each level change, allowing changes to the sensitivity setting while the vehicle remains in the detection zone.

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ORACLE Makes Detector Setup Easy

- Sensitivity Setting Tools
 - › The DEFLECTOMETER™ Pie Chart: When viewing the display during the CALL state, a 50% filled pie chart represents optimum vehicle call strength.
 - › The DEFLECTOMETER™ Numeric Value Indicator: When viewing the display during the CALL state a numeric value of ten (10) represents optimum vehicle call strength.
 - › The DEFLECTOMETER Streaming Graph: The Streaming Graph shows the CALL strength over time. The horizontal axis represents a six second interval. The vertical axis represents CALL strength.

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ORACLE Makes Detector Setup Easy

- Frequency Setting Tools
 - › Built-in Frequency Meter
 - The loop frequency is also displayed in Khz. It is best to have at least 5 Khz separation from physically adjacent loops on different detector units.
 - Eight loop frequency settings to choose ranging from 20 to 60 khz.
 - › Frequency Stability Meter
 - An XY graph that displays frequency samples compared to a reference.
 - A thin smooth line offers a more optimum frequency level than a thick uneven line.
 - › Take the guesswork out of minimizing crosstalk.

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ORACLE Makes Detector Setup Easy

- Here is how simple it is to program the Oracle Series detector:
 - › Set Sensitivity Level to an Optimum value:
 - With one mid-sized vehicle on the loop, adjust the Call Strength to 10 using the Deflectometer display.
 - This now ensures that vehicles of all classes are reliably detected.
 - Eliminate the usual “trail and error” and multi-vehicle process of conventional detectors.
 - › Scan the eight frequency settings using the Frequency Stability Graph for the most stable frequency band to avoid the possibility of future crosstalk issues.
- Done! Don't leave motorcycles stranded.

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ORACLE Makes Loop Diagnostics Easy

- **FAULT LED's**

- › A yellow fault LED is provided on each channel. When both the fault and the red detect LED are flashing, it's a current fault. If just the yellow LED is flashing, the detector has retuned and resumed normal operations.
 - 1 flash per second indicates an open loop
 - 2 flashes per second indicates a shorted loop
 - 3 flashes per second indicates a 25% or greater change of inductance
- › Lets the user know at a glance that there is a current fault or a previous fault has occurred and could require attention.

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ORACLE Makes Loop Diagnostics Easy

- **EVENT LOG**

- › Store the last 25 events on a per channel basis.
 - Records the type of loop fault:
 - Short
 - Open
 - 25% or greater change of inductance
 - Power Loss
 - The Event Log includes elapsed time since the event occurred.
- › Event history is useful in diagnosing intermittent faults.

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ORACLE Makes Loop Monitoring Easy

- **THREE DISPLAY MODES**

- › The following 3 display modes are provided on the ORACLE display when it is in the standard (run) mode detecting vehicles.
 - Frequency (Standard)
 - Shows the frequency the loop is oscillating at when at rest and after a vehicle is detected.
 - Inductance
 - Shows the inductance of the loop when at rest and shows the percentage of change in inductance when a vehicle is detected.
 - Count (EC and ECX models)
 - Displays counts when Accucount is activated. A maximum of 999,999 can be displayed.

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ORACLE Special Features

- **PAIRED CHANNEL FEATURES**

- › Turn Queue (3rd Car mode)
 - Usually used for a protected permissive left turn. Requires two loops to be covered before a call is generated. Typical loop configuration is two 6' x 20 foot loops in a left hand turn lane with 10' feet of space between. Once 3 cars are lined up, a call is output providing the green arrow.
- › Directional Logic
 - For use with freeway ramps for wrong way detection or left turn lanes where other movements tend to clip the detection zone.

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Rail Mode

- Available on Oracle EC and ECX models
- Rail Mode lowers the *call release threshold* compared to the call threshold.
 - › This accommodates the residual effects of the train exit from the zone.
- The call release threshold is programmed as a percentage of full call strength. This threshold is adjustable if necessary.
 - › Default is 20%.

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ORACLE 2E, 4H, 4E “ENHANCED” Series

**Setting the Standard
for
Quality and Reliability**

Eberle Design Inc.
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