Omega X3

Mixed Use Timestamp
Automatic Traffic Recorder

Features and Specifications

The Omega X3 is an event timestamp Counter/Classifier vehicle traffic recording unit that uses pneumatic road tube sensors to record vehicles and/or bicycles in mixed traffic. The counter also optionally records Bluetooth MAC address probe data for travel time or origin destination data. The unit is compact and includes a lightweight watertight and ruggedized case. It is programmable via onboard keypad and LCD graphic display, or by a PC using a USB cable or Bluetooth wireless communication.

The unit contains internal Lithium batteries that have a life of 5+ years without recharging or maintenance and a secondary battery pack for Bluetooth data recording and optional cellular modem power. The Omega X3 stores data in a high resolution timestamp format, but also performs processing of sensor inputs to provide real time data monitoring functions of vehicle traffic via the LCD display. The Omega X3 is a mixed use traffic recorder that can count and classify Vehicles, Bicycles and also provide Origin/Destination data all in one device. After each study is completed, the unit also provides an "End of Study" summary to present field users the data validation in an easy and useful way before leaving the site to ensure proper data collection was performed. This eliminates the question of data quality and accuracy before leaving a site.

Diamond Traffic's Centurion Software programs the counter, downloads data and features advanced processing of data, providing easy exports to Excel and 25 different export formats with over 20 different reports formats.

Features

- **Count / Classify**
  Count methods include directional, lane subtraction, and normal count up to four lanes using up to four tubes. Divide by 2 can also be enabled. Classification is done using two or four sensors, and the unit can classify single lane directional traffic, two lane bi-directional traffic, and two lane same direction traffic.
  * Using four sensors the unit can class up to four lanes with a median.
- **Bicycle Detection**
  The Omega X3 has advanced sensor analysis routines to identify and process bicycle data specifically. It can filter out bicycles, only keep bicycles, or collect mixed data with ease that is then processed by Centurion into specific bicycle and vehicle data classes.
- **Optional cellular data link – Iris Modem**
  Supports internal Iris Modem complete with internal antenna and advanced features: nightly posting data to cloud storage server, 'listen' mode, and text message alerts if issues are detected.
- **Built in GPS**
  Counter can acquire position fix at time of Start Recording which is stored into the data file. GPS also provides time/date adjustments, and can be automatically reacquired every 6 hours for truth-in-data requirements and to improve timestamp accuracy.
- **Firmware Upgradable**
  The Omega X3 can utilize the USB or Bluetooth ports to upgrade the firmware in the unit without a power cycle or loss of data.
- **Ultra Low Power Consumption with Smart Power Management**
  The Omega X3 is designed to last for five+ years in the field under normal operating use. The battery and low power processor are optimized for maintenance free use. Power use and battery voltage are monitored to provide the user a gauge to track battery life.
- **Real Time Classification Monitoring**
  Unlike other timestamp units, the Omega X3 has on board vehicle processor that gives real time feedback of unit operation and sensor activations for easy feedback for proper operation and data recording.
- **End Of Study Summaries**
  A highly useful and reassuring feature to users is the new ability to view immediate summary data such as ADT, average speed, peak times and data quality percentage when closing the study. This gives the user immediate feedback of the data accuracy and allows the user to know if the data collected is useable before leaving a site.

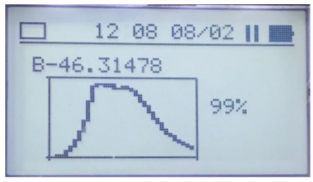
*** Collecting classification in more than one lane using two tubes is recommended for locations with 4500 ADT or less**

- **Ultra High Resolution Timestamp Accuracy**
  The Omega X3 operates and records timestamp data at a resolution of 30.5 microseconds (0.0000305sec), providing the highest quality of data accuracy. Each timestamp is recorded and stored with no loss of resolution in memory.
- **On-board Sensor Diagnostics**
  Using advanced A/D converters the Omega X3 provides the user with sensor diagnostics to show users the condition of the sensor and attached road tubes. Troubleshooting on site is simple and quick, eliminating the hassle of bad sensor installations.
- **Large Memory Capacity**
  The Omega X3 has a 512MB on board non-volatile flash memory capacity to store up to 120 million timestamp records or approximately 20 million vehicles.
- **Watertight, Compact, and Lightweight**
  The ultra-portable, compact, lightweight, and watertight (IP67) case weighs in at just 1.4 kilograms (minus optional D-Cell batteries) and is designed for the harsh roadside environment. Using a molded plastic hardened case the unit is robust providing great protection and vandal resistant operation.
- **User Settable Values**
  The following values can be set by the user: Clock, Sensor Timeout (1-4096ms), Site ID (30 char), Info lines 1&2 (30 char each), User (30 char), Weather (30 char), Date Format (US/Metric), Storage Mode, Latitude/Longitude, Sensor Layout, plus many additional controls.
- **High Speed Communication**
  The Omega uses a USB high speed communication port that allows for both Host and Peripheral modes to connect to a number of auxiliary devices such as a USB thumb drives and other devices.
- **Normal and Low Profile Tube Nozzles**
  The Omega X3 road tube nozzles are designed for both the use of normal and mini or low profile tube use without the need for adapters.
- **Open Formats and Protocol**
  The Omega X3 uses an open proprietary communication and file format. This format can be developed to and used for third party application and data interrogation upon request at no cost.
- **Replaceable Airswitches**
  The Omega X3 is designed to be rugged, but not a throw away unit if the airswitches become damaged. New airswitches can be installed by our repair department at a tremendous savings to you.

Specifications

- **Sensor Inputs:**
  - Four watertight piezo airswitches (Road Tube)
  - 1-4096 millisecond programmable timeout value
  - On board sensor diagnostics
  - 5-120MPH normal operating range
  - Metal nozzles accept Standard Road Tubes (1/4") and Mini Tubes (3/16")
  - Four optional O.C. (Open Collector) style inputs which can connect to tapeswitches or other devices. Requires the addition of the *External Input Connector*.

- **Road Tube Diagnostics:**
  - Display graph of any road tube strike directly on screen.
  - Pause/Restart display during vehicles or sensor hits.
  - Scroll backwards to display previous hits (inc. graphs).
  - Can store graphs to data file.



- **Optional Outputs:**
  - Four channel optically isolated outputs
  - I/O expansion port for integrated designs
    * Contact Diamond for information on adding connectors for these features.

- **Lane Sensor Configurations:**

Count:
  - Normal
  - Median (2 or 4 tube Normal)
  - Short/Long (aka Lane Subtract)
  - Directional
  - Divide by 2 available for all modes.

Class
  - 1 Lane Directional
  - 2 Lane Bi-Directional
  - 2 Lane Same Direction
  - 4 Lane Bi-Directional with Median
  - Programmable sensor spacing from 10cm to 4.8m.

- **Display**
  - 128x64 LCD graphic display with backlight.
  - Four LED channel activation indicators.

- **GPS**
  Onboard GPS for location storage, clock calibrations, and data tampering security features.

- **Keypad**
  19 button membrane keypad

- **Firmware:**
  Flash upgradable firmware via USB or Bluetooth communication ports without loss of collected data.

- **Memory:**
  512MB flash (up to120 million timestamp records)

- **Files:**
  Unit stores up to 65,000 files in flash memory

- **Communications:**
  - USB A Host
  - USB B Peripheral
  - Bluetooth Serial Port
  - Bluetooth Low Energy
  - Optional RS232 Serial Port

- **Timestamp Record Resolution**
  Sensor resolution is performed and stored at 30.5 Microseconds (0.0000305 sec)

- **Data Storage Types:**
  - Sensor timestamps for 4 airswitch channels.
  - Bluetooth MAC addresses (optional feature).
  - Temperature and Battery Voltage.
  - Site Setup and Data Study.
  - GPS location (at beginning and optionally every 6 hours).
  - Text Message Alerts (when optional Modem installed)

- **Power:**
  - Main Battery: Lithium 3.6v
    - Battery Life: 5+ years
  - Secondary Battery : 8 D cell Alkaline 12v
    - Bluetooth Origin/Destination Data Battery Life: 18-30 days of recording (depending on environmental conditions and battery state)
    - Iris Modem:
      - 9 months for *Diamond Data Server*.
      - 3-10 days constantly on (listen mode).

- **Physical:**
  - Size – 10.9 cm x 19.8 cm x 24 cm
  - Weight – 1.36 kg
  - Case – Polypropylene molded case with lid and thumb latches. O-ring seal with sealed inputs and carry handle. Crush and Impact resistant.

- **Environmental:**
  - Watertight IP67
  - Operating Range: -40℃ to 72℃

- **<u>Optional equipment:</u>**
  - **Iris Modem** - For built in cellular data communication, nightly posting of data to cloud storage server, and text message alerts in event of detected problems.
  - **RS232 Port** – External watertight serial port for connection of Omega X3 to other equipment types.
  - **External Input Connector** – Four Open Collector (O.C.) style input which can be connected to external devices such as tape switches, contact closures, or any almost any kind of external On/Off style device.
  - **External Output Connector** – Four relay outputs for triggering external devices under user controlled conditions.

*** Contact Ballinger Technology for specific information on adding any of these optional items to your Omega X3.**

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DIAMOND TRAFFIC PRODUCTS