Diamond Knowledge Base

What is a Phoenix Field Unit?

The Phoenix is a data gathering instrument for use in the field (roadway). By using the Phoenix and one of several possible combinations of sensors, traffic data and vehicle classification can be recorded and later retrieved. Speed, Length, Number of Axles, Vehicle Class Type are just a few types of data which can be gathered with this instrument.

For the unit itself, the welded aluminum case is durable, light, and weather resistant. The Interior keypad & display are both sealed to prevent moisture from damaging them. The Phoenix MDK is available in several sizes and types including a water tight case. Inside the case is the heart of the unit, the microprocessor. Printed circuit boards contain the microprocessor, backup battery, charger network, memory, and all other support circuitry for the unit. The Phoenix MDK can contain the boards for the following optional features, Inductive loop detector boards, Piezo classification boards.

What is the difference between a Phoenix, Phoenix MDK and Phoenix II?

The Original Phoenix unit released in 1993 was designed to be similar to a small computer based platform. It contained a motherboard, a daughterboard and a keyboard for the base unit and then could contain inductive loop detector boards and piezo detector boards that could be installed in a stack formation. With the development of electronic technology over time, the Mother, Daughter and Keyboards were combined into one single controller board (hence the MDK – Mother,Daughter,Keboard). The replacement MDK board was known as the Phoenix MDK as there were differences in electronics that enhanced the unit and upgraded it from the previous version. True to its name, the Phoenix unit was reborn with the redesign of the Piezo sensor and Inductive Loop boards over time and the new Phoenix II unit was created to differentiate from the original Phoenix electronics. Even though the function of the Phoenix has stayed the same, the advances and technology changes warranted a distinction.

Some tips to prolong the life of your Phoenix MDK

Always dry the unit out completely after removing from the field. Always use the dust caps on unused plugs. Keeping the battery fully charged will prolong its service and battery life span. Recharge the battery every six weeks when not in use. Disconnect the serial interface plug if communication is not required. This will substantially prolong battery life. Avoid placement of unit in drainage ditches or areas prone to flooding. Do not attempt servicing without qualified personnel. The components of the Phoenix MDK are very static sensitive, and boards can be damaged by improper handling or removal.

1.a. How To Use This Manual

This manual completely describes the use of the Phoenix MDK. Not covered in this manual is programming & retrieving data from the serial port with a PC Computer. PC Interface operation is handled by the Centurion Software and covered by the Communication Protocol Documentation provided upon request.

Method 1 - To operate the Phoenix MDK entirely from its built in keypad:

Almost all setup and configuration can be done from the keypad. A computer, PDA or other retrieval device must be used to retrieve the data once it has been collected however. The Phoenix MDK can also be connected through telemetry (modem) to the Centurion software for retrieval. If this is the method you want to use, first read section 4a and 4b, then read section 5 for an example which matches your application.

Method 2 - To operate the Phoenix MDK only from a computer (using the Centurion Software):

All setup and configuration can be done from a computer (in addition to retrieving the collected data). If this is the method you want to use, simply refer to the Centurion Software Manual for more information. Use this field unit manual for clarification and technical information on the Phoenix MDK capabilities.

Method 3 - To operate the Phoenix MDK using both a computer and its built in keyboard:

Becoming familiar with programming using either the counter keypad and a computer will make operation of the Phoenix easier for you. We suggest that you first attempt to run the counter using the built in keypad (first read Section 4a and 4b then follow the examples in Section 5). After collecting some data with the Phoenix MDK, move on to using the Centurion Software to collect your data. From that point, read through the rest of the Centurion Software Manual for more information on controlling the counter through a computer.

1.b. Communication with the Phoenix MDK

Communicating with the Phoenix MDK is done through the built in Keypad/Display, or through the serial port to a PC or laptop computer. A communications software package is available for use with the large variety of PC and laptop computers available on the market today.

Software Features Include:

 "Pop-Up" windows and "User-Friendly" menus. Complete database functions with viewing and editing of all collected data. XMODEM transfers for data file retrieval, with later file format conversion utilities. Data file printouts with daily and hourly summaries. Complete monitoring and configuration.

To learn more about the Centurion software program, refer to the Centurion quickstart guide which contains programming and software features available on our website. (www.diamondtraffic.com)

1.c. System Components

To operate your Phoenix MDK counter/classifier you will need the following:

 Phoenix MDK Field Unit Instruction Manual. Centurion Software. A battery charger or solar charging panel. A serial interface cable (or USB interface cable)

Optional Items Include:

 A Modem Interface Cable. One or more Software Enhancement Options (such as telemetry). A remote Air Switch Cable. An Inductive Loop Cable (provided with Inductive Loop Circuit Board). One or more PC or data retrieval devices.

Equipment required when using the Phoenix MDK Counter:

You must have the following equipment to use the Phoenix MDK. All of this equipment can be purchased from Diamond Traffic Products as well as from several other sources.

Sensors: You must have the appropriate type and quality of sensors (Loop, Tube, Piezo, etc) If using tubes, you will need nails and road tube grips to install road tubes.

Computer: Ideally a PC computer with Microsoft Windows 98/2000/XP is used.

Modem: This is required if you plan to install the Phoenix MDK in a permanent station where communication over a phone line or cellular service is required. There are several modems available, each with their own advantages and disadvantages. You must purchase a Hayes Compatible Modem. The Phoenix MDK will work with most non-programmable modems as well, but you may not be able to take advantage of some features of the counter. See section 3.c.1 for more information.

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