Installation and Operation Manual

#610-KT-SPRTMN

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Table of Contents

Introduction

This manual will guide you step by step through the installation, setup, and operation of your new Sportsman data logger system. During this process the manual will refer you to a set of system worksheets and individual instruction sheets supplied with the sensor modules and devices.

The system worksheets describe in detail your complete data logger system, including how and where each device in your system is connected and the lengths of each of the cables supplied with your system. Individual instructions sheets will be inserted with each of the devices included with the system. After you have installed the particular device in your system, you will be asked to insert the instruction sheet in one of the Appendix in this manual. It is extremely important that you do so. These instruction sheets will complete the documentation of your new system. You will need instruction sheets as you add to or modify your data logger system.

To get the most out of your data logger system, it is highly recommended that you thoroughly read the entire manual before getting to the race track. This will ensure that you fully understand how to operate and maintain your system, and in turn, avoid frustrating days at the track.

In addition, make sure you completely test the data logger, and PC before getting to the race track. The race track is a bad place to find out something is not working properly!

Sportsman Package Contents:

A. Sportsman Data Recorder
B. Main Power/Digital Input Wiring Harness
C. Secondary/Digital Input Wiring Harness
D. Split Collar with magnets
E. Hall Effect Driveshaft Sensor
F. Universal Driveshaft Sensor Bracket
G. SD Memory Card
H. Serial Port Plug
I. USB to Serial Adaptor
J. Communication Serial Cable
K. Datalink II Software CD
L. 3-Pin Molex and Pins
M. Fuse holder and associated terminals
N. Momentary Push Button (Start Record Button)

Not shown:
USB SD Memory Card Reader
5 Amp Fuse

I: Getting Acquainted with the Sportsman Data Logger

Before you can begin the installation of your new data logger system, you will need to become familiar with the terms used to describe the various components used in your system. You will also need to find the location of various elements such as the digital input connectors on your data logger. We will begin by reviewing the features of the Sportsman data logger.

Sportsman Data Logger

Inputs capable of monitoring:
4 Hardwired Digital (Engine RPM, Driveshaft RPM, Record Button Event, 12-Volt Event)
3 Internal Sensors (Acceleration G-Force, Lateral G-Force, Battery Volts)
8 Factory Pre-Set V-Net channels (Pre-set for Exhaust Gas Temperature Inputs, up to 8)
6 User-Defined V-Net channels (Available for any V-Net Input Modules)

The recorded data is stored on an SD (Secure Digital) flash memory card. Multiple data files may be stored on the SD memory card allowing you to make back-to-back recordings without losing any data. The number of runs the SD memory card can hold depends on the number of data channels, data sample rates, and SD card capacity. A typica1 Sportsman drag racing configuration, using a 128Mb card, can store 150-200 recordings.

Programming the Sportsmans settings is done via the supplied RS-232 cable connected to a PC computer. If using a newer PC computer, a USB-to-Serial adapter cable is supplied to plug into the USB port.

Each digital input connector on the Sportsman data logger can be used to connect up to 4 hardwired digital sensors. A single V-Net connector is used to connect all V-Net devices which can be either digital and/or analog. The drawings shown on the next page illustrate the location of the input connectors on the Sportsman data logger.

You probably noticed we mentioned four terms: digital inputs, analog inputs, hardwired inputs, and V-Net devices. You may already know what they represent, but lets take a quick review.

Digital Inputs:

Digital inputs and digital sensors refer to devices that can be described as having two states. For instance, a switch is either on or it is off, a contact closure is either open or closed, and a tach output is either high or low. These type of sensors are used for a variety of applications, such as monitoring if the throttle is wide open, or if a transmission brake solenoid is closed. They also are used to measure various Rpm's, such as engine rpm or drive shaft rpm. In these applications the data logger measures the number of transitions from off to on (or pulses) that occur in a given time period. This information is then used to calculate the rpm.

Analog Inputs:

Analog inputs and sensors refer to devices that have numerous levels. For instance an oil pressure sensor could indicate 0 PSI, 100 PSI, or anywhere in between. Temperature, pressure, position, and torque sensors are all examples of analog sensors. On the Sportsman data recorder, analog inputs can only be added via V-Net.

Hardwired Inputs:

Hardwired sensors simply refer to those sensors that are connected (wired) directly to the data logger via the data logger's digital input connectors.

V-Net Devices:

V-Net (short for on-board Vehicle Network) is a technology developed by RacePak for use in implementing onboard electronics. This technology allows a variety of devices such as data loggers, gauges, sensors, and actuators to be connected together with a single cable (bus), and to share their information with each other. All devices compatible with this technology are referred to as V-Net Devices. We will discuss these devices in more detail as we continue.
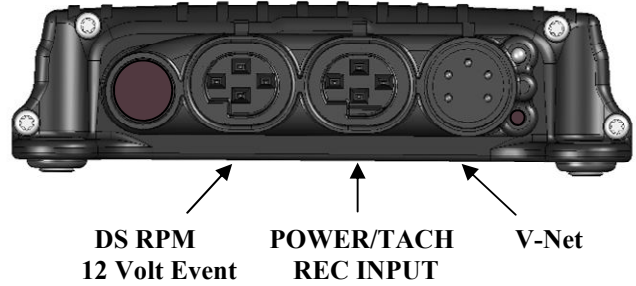
Sportsman Data Logger: Main Recorder (cont.)

POWER/TACH/REC INPUT: Main Power/Digital Input

The PWR/TACH port is used to provide the Sportsman system with power as well as to connect the digital inputs Engine RPM, and Record Button to the data logger. The main power/digital input wiring harness connects to this port.

DS RPM/12 VOLT EVENT INPUT: Secondary/Digital Input

The DS RPM/12 VOLT EVENT port is used to connect the digital inputs, driveshaft rpm, and 12 volt event to the data logger. The secondary/digital input wiring harness connects to this port.

DS RPM 12 Volt Event **POWER/TACH REC INPUT** **V-Net**

V-NET INPUT: CAN BUS Input

The V-Net port is used to connect the external V-Net devices to the Sportsman system. Both, the Pre-set and User defined V-Net devices, will connect to this port.
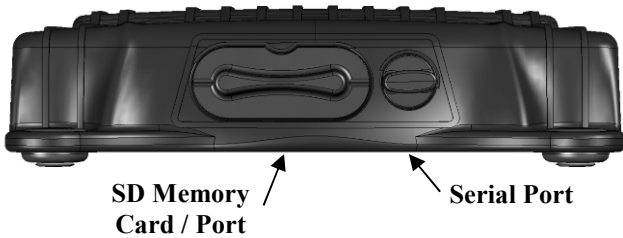
Serial Port: Communication port

The serial port is used to connect the data logger to your personal computer using the supplied RS-232 cable. The serial port is only used to configure the data logger, i.e. add/remove sensors, change up sample rates. This port is also used for PC Real Time Telemetry

SD Memory Card Port:

The SD memory card slot houses the SD memory card the data logger uses to store recorded data. To retrieve recorded data, simply remove the card, and plug it into your PC's USB port using the supplied SD memory card reader. The data is then transferred from the memory card to the Racepak DataLink II software installed on your PC for analysis.

SD Memory Card / Port **Serial Port**

Sportsman Status LED

STATUS LED

The status LED indicates the status of the Sportsman as follows.

- **Solid Red** – Power is on and the system is ready to begin recording data.

- **Flashing Red** – Data recording is in progress.

- **Flashing Green** – Writing data to memory card. Flashes green every 3 seconds while recording.

- **Solid Orange** – SD memory card error. There is problem with the memory card and data cannot be recorded. Typically caused when the SD card is not inserted, or if the unit does not recognize the card that is inserted.

- **Solid Green** – Firmware update in progress. Do not turn off the power to the Sportsman when the status LED is solid green.
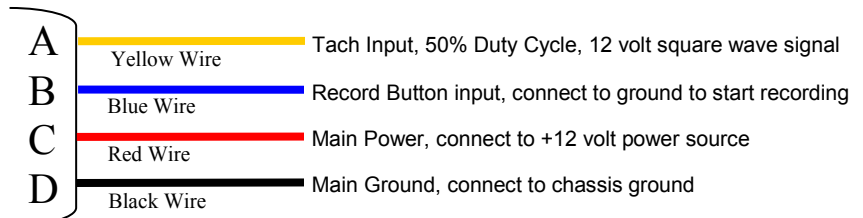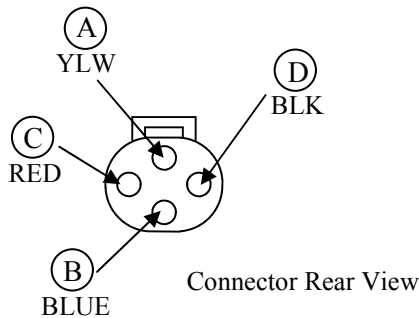
Sportsman Data Logger: Harness and connectors

The next step in getting familiar with your new system is to review the various components that make up the overall data logger system. The drawing on the following page illustrates a typical data logger system using a Sportsman data logger. We have labeled the various components on the drawing. Each of the components is described below.

Digital Inputs

Main Power/Digital Input Wiring Harness (PWR/TACH/REC INPUT):

The main power/digital input harness is a wiring harness assembly used to provide power and connect the digital inputs engine rpm, and record button to the data logger. The main power/digital input wiring harness connects to the digital input connector marked "PWR/TACH/REC " on the Sportsman.

PWR / TACH / REC INPUT CONNECTOR

A YLW
D BLK
C RED
B BLUE

Connector Rear View

A — Yellow Wire — Tach Input, 50% Duty Cycle, 12 volt square wave signal
B — Blue Wire — Record Button input, connect to ground to start recording
C — Red Wire — Main Power, connect to +12 volt power source
D — Black Wire — Main Ground, connect to chassis ground

Secondary/Digital Input Wiring Harness (DS RPM/12 VOLT EVENT):

The secondary digital input harness is a wiring harness assembly used to connect the digital inputs driveshaft rpm, and 12 volt event to the data logger. The secondary/digital input wiring harness connects to the digital input connector marked "DS RPM/12 VOLT EVENT" on the Sportsman.

DS RPM / 12V EVENT CONNECTOR

A CLR
D BLK
C RED
B ORG

Connector Rear View

A — Clear Wire — Driveshaft Signal Input, connects to driveshaft sensor
B — Orange Wire — +12 Volt Event input, connect to +12 volts to mark event
C — Red Wire — Driveshaft +12 power, connects to driveshaft sensor
D — Black Wire — Driveshaft Ground, connects to driveshaft sensor
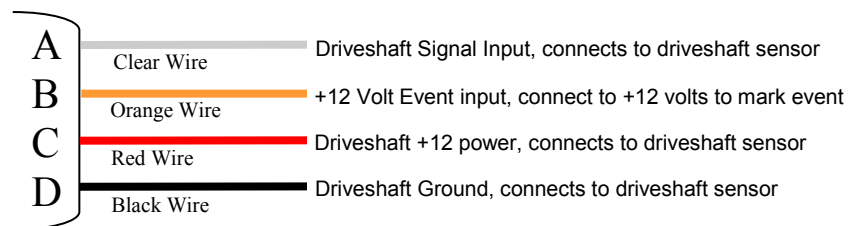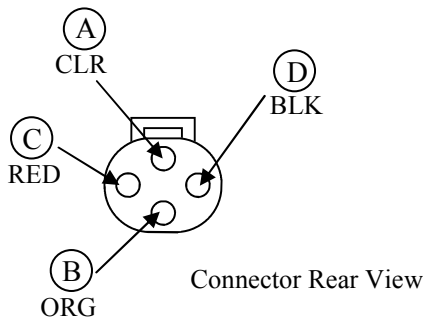
Sportsman Data Logger: Harness and connectors (cont.)
V-Net (Vehicle Network)

V-Net Module:

The V-Net module is composed of a cable with a stacking connector that houses an electronic signal conditioner. In many ways they can be thought of as electronic adapters. Each module connected to a sensor, converts the electronic signal from the sensor into the standard signal required by the data logger. Each module allows the data from a single sensor to be placed on the V-Net data bus. This data can then be used by other modules such as, display dashes, or can be recorded by the Sportsman data logger. Each module contains a 5-pin connector system that allows multiple modules to be stacked together, or be connected to each other, via a V-Net Extension cable. The housing on the V-Net module is color-coded blue for easy identification.

V-Net Extension Cables:

V-Net cables are 5-pin molded cable assemblies used to connect V-Net modules to each other, as well as to other V-Net modules and V series data loggers. The cables are specifically designed for the high-speed data transmission required by the V-Net modules. Each cable has one male and one female connector allowing multiple cables to be daisy chained together. The connectors on the V-Net cables are color-coded blue for easy identification.

V-Net Tee Cable:

The V-Net Tee Cable is used to connect the main devices (data loggers, display dashes, and EGT boxes) to V-Net cables, and/or modules in the complete system. The design of the tee allows modules to be located in both directions from the data logger. A V-Net terminator cap to be used to terminate the data bus. Tee Cables are offered in limited lengths an Extension Cable can be used to extend their lengths. As with all V-Net devices, the connector housings are color-coded blue for easy identification.
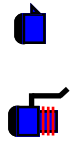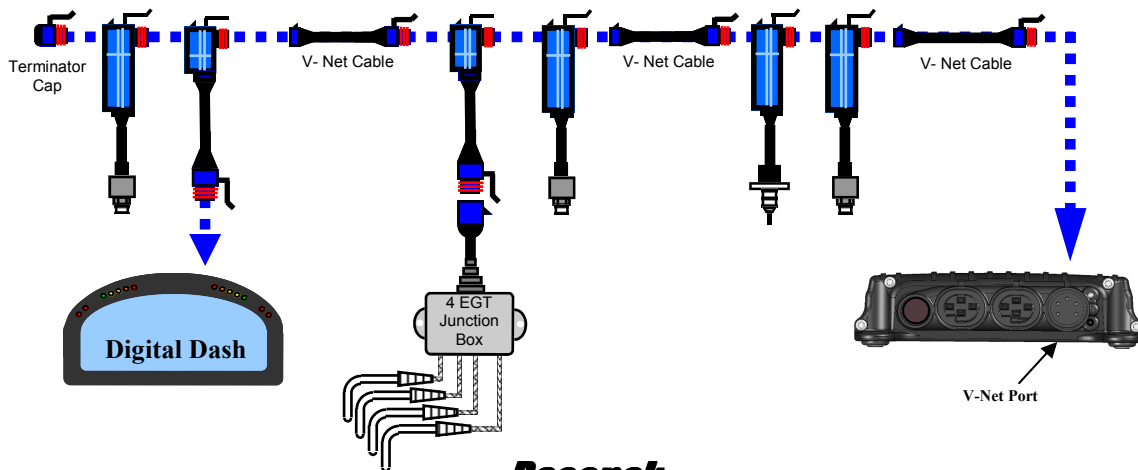
V-Net Terminator Caps

The V-Net network containing the various V-Net modules must be terminated at both ends with a V-Net Terminator Cap, (shown on the left). These caps contain a terminating resistor that is required by the V-Net data bus. The V-Net system will not function properly without the terminating caps properly installed. A male and a female cap are required. Both caps are color-coded blue for easy identification.
NOTE: Your Sportsman Data logger has a terminator cap internally installed from the factory, and only requires a single (1) external terminator cap.

By now you probably noticed we keep mentioning color-coded. The Sportsman data logger uses two connector systems. Two 4-pin connectors for connecting hardwired digital sensors and a 5-pin connector for connecting V-Net Devices. The connectors are color-coded black for the hardwired sensors system, and blue for the V-Net devices.

Terminator Cap · V- Net Cable · V- Net Cable · V- Net Cable

Digital Dash

4 EGT Junction Box

V-Net Port

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6

## II: Hardware Installation: Sportsman Data Logger

In this section we will take you step by step through the installation of your new data logger. We will begin by giving you a brief tour of a sample data logger system. Please read through the following section as you will need to know items discussed below during the installation process.

Mounting Your Sportsman Data Logger

The most important thing to consider when mounting the data logger is choosing the proper location. Several issues were covered in the section above on planning the installation of your data logger. The following additional requirements should be taken into consideration.

1. Choose a mounting location that allows easy access to the download and/or serial port and the input ports located on both ends of your data logger.
2. Avoid mounting the recorder directly on, or near a heat source. Such as hot oil lines, or on the floor near the exhaust system.
3. Avoid mounting the recorder directly near the ignition box, or any other electronic ignition components. Try to maintain a minimum of 18 inches of clearance between the recorder and any of these items.
4. Choose a location that will allow easy routing of the interconnecting cables. Care must be taken to prevent the cables from interfering with the driver, safe operation of the vehicle, and any maintenance or repair services.
5. For the internal g-meters to work properly, it is important that the recorder be mounted FLAT with the SD memory card connector facing in the direction of travel. **If you cannot mount the data logger in this direction contact RacePak for further instructions.**
6. Be sure to mount the data logger using the four rubber shock isolators, or "feet", which protect the data logger from shock and vibration damage.

When you have selected your mounting location you will need to locate, and drill 4 – 3/16 inch diameter mounting holes to match the location of the mounting feet on your data logger. The mounting feet locations and correct positioning are shown. A mounting template sheet is also included with your system.
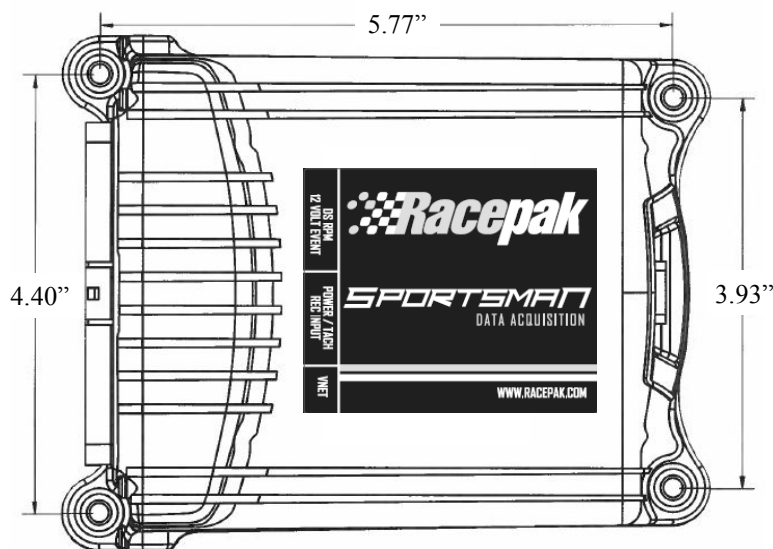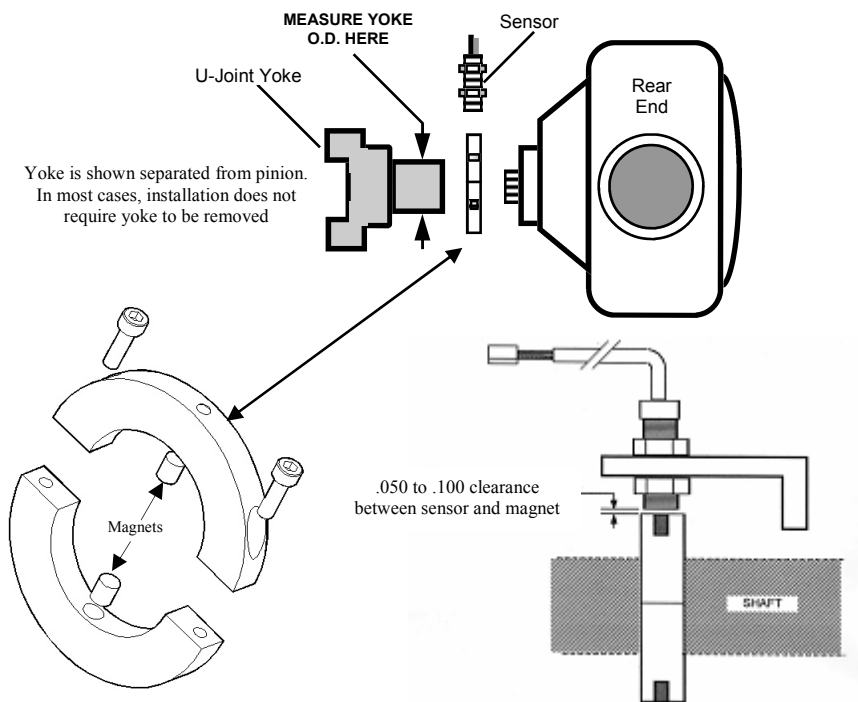

Front Of Vehicle

Hardware Installation: Driveshaft Collar and Sensor

The drive shaft rpm sensor and magnet kit includes a two piece collar with two magnets, an rpm sensor, and a mounting bracket used to mount the sensor to the vehicle. The rpm sensor is a magnetically sensitive sensor that is polarity sensitive each time a magnet passes in close proximity. The two magnets in the split collar thus provide for a two pulse per revolution rpm signal.
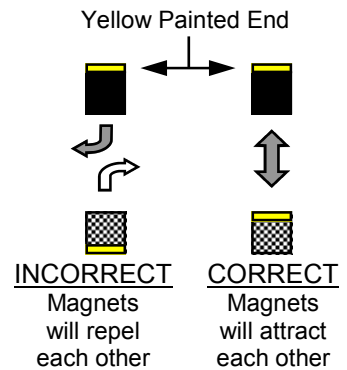
The first step in installing the kit is to determine where the split collar will be mounted. Normally the split collar is mounted on the pinion shaft/yoke. However, it can also be mounted on the transmission tail shaft/yoke. If your transmission and/or bell housing is removed frequently, you should mount the collar on the pinion shaft/yoke. Thus avoiding possible damage to the sensor during clutch, and/or transmission service.

After you have selected a location, position the split collar over the shaft, and fix the collar onto the shaft by tightening the two bolts connecting the two collar halves. Tighten the two bolts equally such that the gap on both sides of the split collar is equal. This will ensure the magnets are 180 degrees apart.

Next, secure the mount bracket, and rpm sensor to the vehicle as shown below. The mount must be installed to a solid member of the vehicle that does not move relative to the placement of the split collar assembly. This will prevent contact between the sensor and the split collar. Insert the rpm sensor in the slotted hole in the mount bracket, and position the rpm sensor such that the sensor is centered over the magnet in the split collar. Next, adjust the gap between the end of the rpm sensor and the split collar between .050" to .100". Secure the sensor by tightening the two jam nuts located on the sensor.

MEASURE YOKE O.D. HERE

U-Joint Yoke

Sensor

Rear End

Yoke is shown separated from pinion. In most cases, installation does not require yoke to be removed

Magnets

.050 to .100 clearance between sensor and magnet

SHAFT

Note: If you are using a collar other than the one supplied by Racepak you can use the supplied magnet with the sensor to test the polarity of the magnets in the collar

Yellow Painted End

INCORRECT
Magnets will repel each other

CORRECT
Magnets will attract each other

NOTE: SPLIT COLLARS ON CARS USING A COUPLER

When the driveline is equipped with a coupler rather than a U-joint, the best location for mounting the split collar often changes. Because most of the couplers have the female portion mounted on the pinion, and the radius on the backside tapers right to the pinion seal, this does not leave any room to mount a split collar in the traditional location. In this case, we must move the split collar forward onto the male portion of the coupler.

When mounting the split collar on the male half of the coupler a new problem arises. This portion of the coupler needs to have some longitudinal movement in order to function properly. It must be able to slide forward and backward a small amount. This presents a problem for the split collar in trying to keep the magnets positioned under the sensor. When the magnet moves out from under the sensor, the signal is lost and the drive shaft RPM is not recorded. In order to avoid this problem, Racepak has made collars that contain two pairs of magnets (total of 4). Each pair of magnets is mounted longitudinally (inline) on the collar, which allows it some freedom to move without the sensor losing contact with a magnet. In most cases, the male portion of the coupler will have two outside diameters.
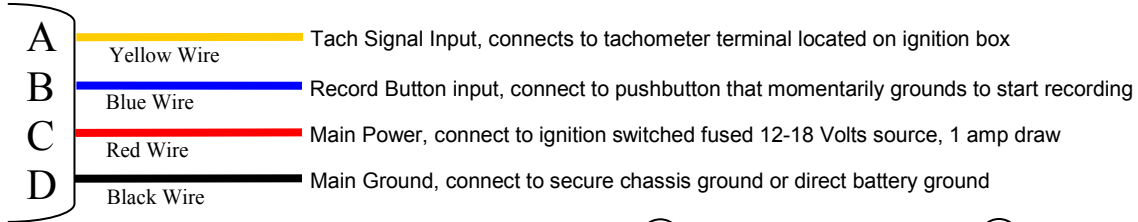
These collars are sold separately and are available directly from Racepak.
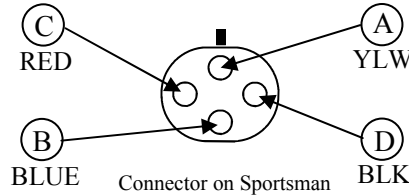
Hardware Installation: Digital Harnesses

Main Power/Digital Input Wiring Harness (PWR/TACH/REC INPUT):

The Main/Digital Input will use a wiring harness containing 4 color coded wires. In addition to supplying power to the unit, this harness provides connection for two digital inputs. The main/digital harness connects to the input connector marked "PWR/TACH/REC" on your Sportsman data logger. This is the center connector (when viewing the data logger from the rear). Each cable in the wiring harness is color coded as to its function.

YELLOW: Used to acquire an engine rpm or tachometer signal (50% duty cycle 12-volt square wave)
BLUE: Connect to the normally open button that sinks to ground. (sink to ground to initiate recording)
RED: Connect to a switched fused power source (Positive Battery 12-18 volts)
BLACK: Connect to ground (Negative Battery or chassis ground)
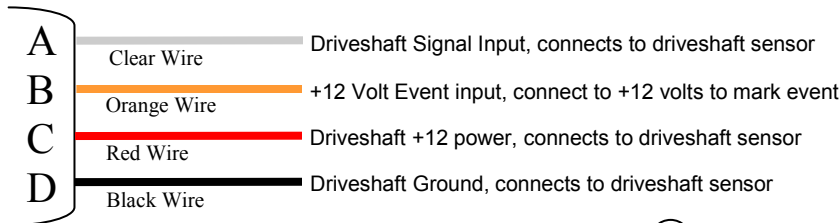
A — Yellow Wire — Tach Signal Input, connects to tachometer terminal located on ignition box
B — Blue Wire — Record Button input, connect to pushbutton that momentarily grounds to start recording
C — Red Wire — Main Power, connect to ignition switched fused 12-18 Volts source, 1 amp draw
D — Black Wire — Main Ground, connect to secure chassis ground or direct battery ground

PWR / TACH / REC INPUT CONNECTOR

C RED   A YLW

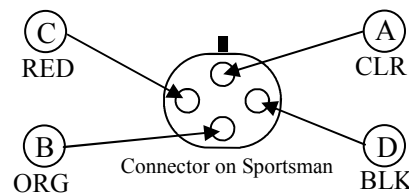B BLUE   Connector on Sportsman   D BLK

Secondary/Digital Input Wiring Harness (DS RPM/12 VOLT EVENT):

The Secondary/Digital Input will use a wiring harness containing 1 color coded wire by itself and 3 color coded wires entering a gray jacket. This harness provides connection for two digital inputs. The secondary/digital harness connects to the input connector marked "DS RPM/12 VOLT EVENT" on your Sportsman data logger. This is the left most connector when viewing the data logger from the rear. Each cable in the wiring harness is color coded as to its function.

CLEAR: Driveshaft rpm signal input (Driveshaft signal, 12-volt square wave)
ORANGE: Connect to a 12 volt event source. (Apply 12 volts to flag an event marker)
RED: Power source to the driveshaft sensor (Positive Battery 12-18 volts)
BLACK: Ground source for driveshaft sensor (Negative Battery or chassis ground)

A — Clear Wire — Driveshaft Signal Input, connects to driveshaft sensor
B — Orange Wire — +12 Volt Event input, connect to +12 volts to mark event
C — Red Wire — Driveshaft +12 power, connects to driveshaft sensor
D — Black Wire — Driveshaft Ground, connects to driveshaft sensor

DS RPM / 12V EVENT CONNECTOR

C RED   A CLR

B ORG   Connector on Sportsman   D BLK

Hardware Installation: Digital Harnesses (cont.)

Connecting Power and Ground to the Data Recorder

The Racpeak Sportsman data logger is designed to be powered anytime the vehicle is in operation. This is a necessity if other V-Net devices such as the UDX Display Dash, IQ3 Display Dash, or Intelli-Gauge analog gauges are used in the system. The Sportsman data logger should be connected directly to the switched accessory power (power for tachometers and gauges) on your vehicle.
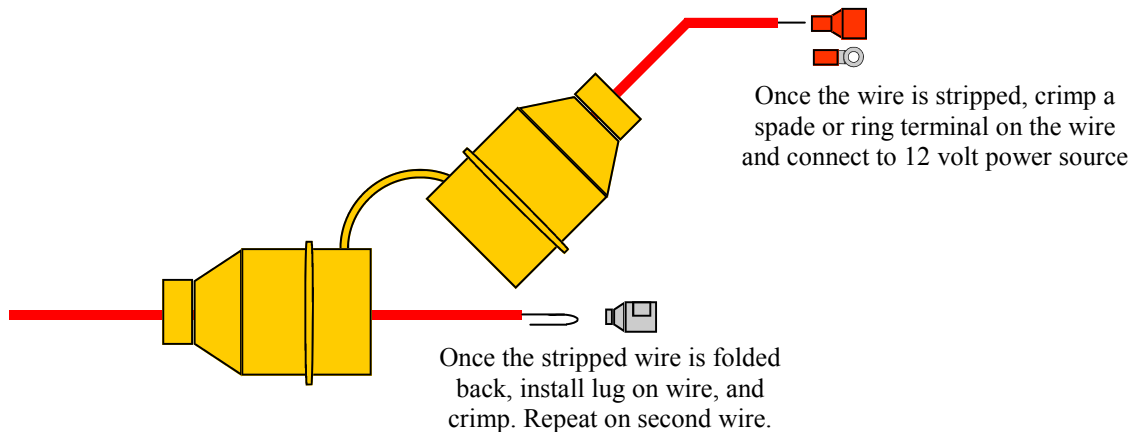
To connect the data logger to the switched power, connect the Main Power/Digital Input Wiring Harness to the data logger. Then route and secure the red and black wires in the harness to their connection points.

In most cases the cable assembly will have been terminated and the fuse holder installed for you from the factory. If you are installing the fuse holder yourself, follow the instructions below.

Cut approximately 12" inches of the red wire from its connection point at the recorder.

Insert the red wire (from the connector) through the supplied yellow fuse holder. Strip the red wire back approximately ¾ inch, and double over the end of the stripped wire. Insert the wire in the fuse terminal lug, and crimp as shown below.

Pull the red wire and fuse terminal lug back into the fuse jacket, insert the fuse (5 Amp) into the fuse holder and close the fuse holder.

Once the wire is stripped, crimp a spade or ring terminal on the wire and connect to 12 volt power source

Once the stripped wire is folded back, install lug on wire, and crimp. Repeat on second wire.

Repeat the above steps for the other red wire, and then connect the end of this red wire to the main switched accessory power. Be sure to make a solid connection. Intermittent power connections will cause the system to malfunction.

Install fuse in fuse holder and snap fuse holder together.

Crimp a ring terminal on the black wire and connect to a good solid ground. Be sure to make a solid connection. Intermittent ground connection will cause the system to malfunction.

Once the wire is stripped, crimp a ring terminal on wire, and connect to chassis ground, or negative battery.

NOTE: FAILURE TO INSURE PROPERLY SECURED CONNECTIONS WILL RESULT IN SYSTEM MALFUNCTION AND/OR NON-OPERATION

Racepak

# Hardware Installation: Digital Harnesses (cont.)

Connecting Engine RPM Tachometer Signal to the Data Recorder

The Yellow wire located in the Main Power/Digital Input Wiring Harness is used to connect the Sportsman data logger to the ignition tachometer signal. This input has a special signal conditioning to insure proper engine rpm measurement. The engine RPM tachometer signal must be connected to this input! The required tachometer signal type is a 50% Duty Cycle, 12 volt square wave signal.

⚠️ **From the factory, the Sportsman Data Logger is pre-set for a typical V-8 engine using an appropriate value of 4 Pulses Per Revolution. Should the Sportsman be used on a different engine configuration, this value can be changed by using the Datalink II software**

Route and secure the yellow wire from the data logger to the ignition box. If your ignition system has a spade type tach output terminal, remove any existing tach wires, and insert the Y-spade lug adapter supplied with the system. Reconnect any existing tach signals to one side of the Y-spade lug adapter. Strip, and crimp the female spade terminal onto the end of the yellow wire, and connect the yellow wire to the other side of the Y-spade adapter as shown below.

If your ignition system uses a terminal block connection for the tach output terminal, crimp the supplied ring terminal lug onto the end of the yellow wire. Loosen the tach terminal screw, insert the terminal lug under the terminal screw, and tighten. Be sure any additional tach wires previously connected to the terminal remain in place.

Supplied Y-spade

MSD Digital 7

Original wires connected to tach terminal

Yellow wire from Sportsman
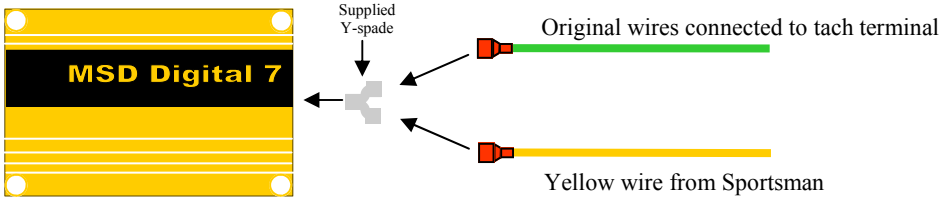
Connecting Record Enable Pushbutton to the Data Recorder

From the factory, to initiate a recording on the Sportsman data logger, the blue wire found in the Main Power/Digital Input Wiring Harness must be momentarily connected to chassis ground. To accomplish this, a normally open momentary push button is supplied with the Sportsman.

The first step is to mount the pushbutton assembly. You will want to select a location that allows easy access to the driver or crew member that will be enabling the switch to start the recording.

Cut approximately 12 inches of the blue wire. This will be used later to connect the pushbutton to chassis ground.

Route and secure the blue wire from the data logger to the pushbutton. Be sure to route the wire where it will not interfere with the operation of the vehicle, and will not be exposed to excessive heat.

If you are using a different style button in your installation, use the normally open switch terminals to connect to the input. The data logger recognizes a closed switch as the start recording signal.

Strip the wire, and crimp a spade terminal on. Connect this spade to one terminal on the pushbutton.
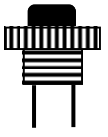
Using the extra wire you cut earlier, strip, and crimp a spade terminal on one end. Connect the spade to the open terminal on the pushbutton.

Strip, and crimp a ring terminal on the open end, and connect to a good solid ground. Be sure to make a solid connection. Intermittent ground connection will cause the system to malfunction.
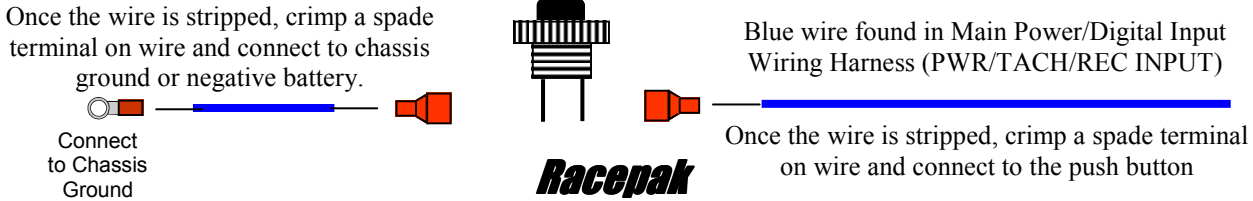
Once the wire is stripped, crimp a spade terminal on wire and connect to chassis ground or negative battery.

Connect to Chassis Ground

Blue wire found in Main Power/Digital Input Wiring Harness (PWR/TACH/REC INPUT)

Once the wire is stripped, crimp a spade terminal on wire and connect to the push button

Racepak

Hardware Installation: Digital Harnesses (cont.)

Connecting Driveshaft sensor to the Data Recorder

Route the gray cable, found in the Secondary/Digital Input Wiring Harness, from the data logger to the location of the drive shaft sensor, securing the cable along the route as appropriate. Cut any excess length from the end of the cable, trim the outer cover of the cable back approximately 1.0" from the end. Remove the shield foil and drain wire exposing the red, clear, and black wires.

Next, trim back the red, clear, and black wires, exposing the bare wires for .2 inches as shown below.

Grey Cable

.2"

Slide the heat-shrink over the end of the cable assembly. Crimp the three male terminal pins on the red, clear, and black wires, and insert the pins into the connector as shown below. Slide the heat shrink back over the connector housing, and using a heat gun, shrink the heat shrink onto the connector to form a strain relief and insulator.

Grey Cable

Heat shrink wrap

Forward edge of 1/2" heat shrink goes here

Red Wire
Clear Wire
Black Wire
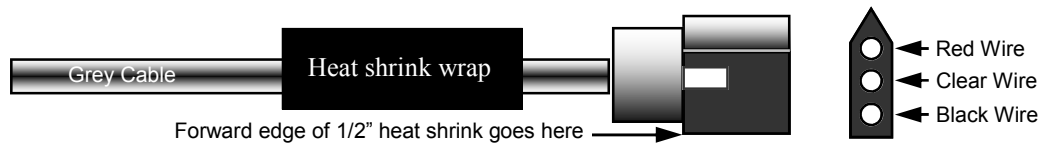
Finally connect the drive shaft sensor to the connector on the cable, and secure the cable in a fashion that will not accidentally come apart.

Connecting +12 Volt Event Marker (optional, not required for operation)

The orange wire found in the Secondary/Digital Input Wiring Harness can be used to mark a single +12 volt event such as, but not limited to, transbrake activation, brake switch activation, or solenoid activation. Any time this wire is supplied with +12 volts, a line will be inserted in the recorded data indicating an event. It will show when the event started, and when the event ended. Depending on when power is supplied, and removed.
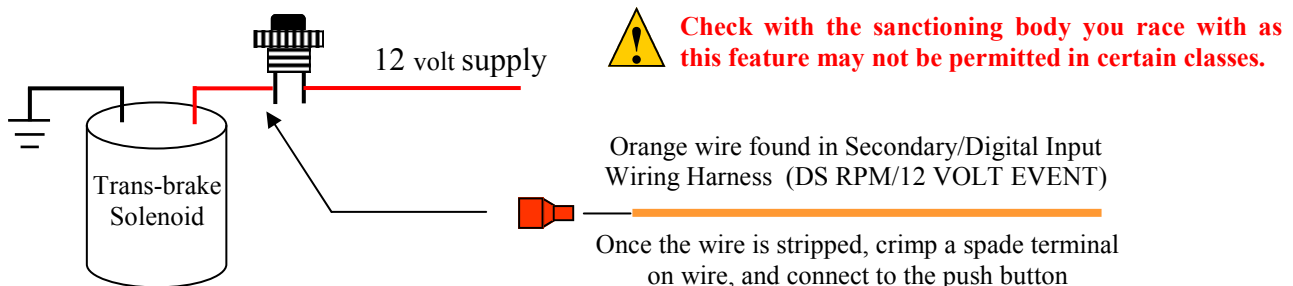
Although other applications can be used, this input is factory pre-set for Transbrake, . In the example below, we will show the installation to monitor the transbrake activation.

Route and secure the orange wire from the data logger to the push button used to activate the transbrake solenoid. Be sure to route the wire where it will not interfere with the operation of the vehicle, and will not be exposed to excessive heat.

Verify which wire will supply voltage to the transbrake solenoid when activated. This is the side of the switch the orange wire will need to connect to.

Strip the wire, and crimp a spade terminal onto it. Connect this spade to the push button, along with the currently installed wire, activating the transbrake solenoid.

Be sure to make a solid connection. Intermittent power connections will cause the system to malfunction.

12 volt supply

Check with the sanctioning body you race with as this feature may not be permitted in certain classes.

Orange wire found in Secondary/Digital Input Wiring Harness (DS RPM/12 VOLT EVENT)

Trans-brake Solenoid

Once the wire is stripped, crimp a spade terminal on wire, and connect to the push button

Hardware Installation: V-Net Devices (pre-defined and user defined)

If V-Net items were purchased, these should be installed after a mounting location is determined for the Sportsman Data logger.

Before you begin the actual installation of the devices, you should lay out the devices in the vehicle where they will be mounted to determine the route of the extension cables between the data logger and the devices. As you are laying out the V-Net portion of your system, there are some important considerations to keep in mind. These are:

A. The V-Net modules (blue connectors) and the EGT junction boxes contain electronic components. **The temperature of these components cannot exceed 180° degrees F**. Select a location that minimizes the temperature they are exposed to.

B. Ignition systems generate a large amount of electrical noise (EMI). This noise can cause the V-Net modules to malfunction. Avoid routing, or mounting any of the V-Net cables, or components near the high voltage ignition wires.

C. The V-Net components are designed to be water-resistant. They are not waterproof. Avoid mounting components where they are continually exposed to water, and/or high pressure sprays.

When you are satisfied the devices can be installed meeting the above criteria, follow the steps below to install the V-Net devices.

1. Follow the installation instructions included with the V-Net device and install the sensors to be used in their appropriate locations.
2. Referring the generic layout shown below, locate the V-Net module closest to your data logger to be installed in the system.
3. Install and route the V-Net Extension Cable from the Sportsman Data logger to this first V-Net module.
4. If the next V-Net module installed is to be plugged directly into the previous V-Net module, plug the next V-Net module into the previous V-Net module at this time.
5. If the next V-Net module is located in a different area, use a V-Net Extension Cable to connect it to the previous V-Net module.
6. Repeat steps 4 and 5 for each of the V-Net devices to be connected to your system. After you have finished connecting all of the V-Net devices, plug a V-Net terminator cap into the open end of the V-Net cable. **If you do not install this terminator cap, the V-Net devices will not function.**

The V-Net hardware installation of your Sportsman data logger is now complete.
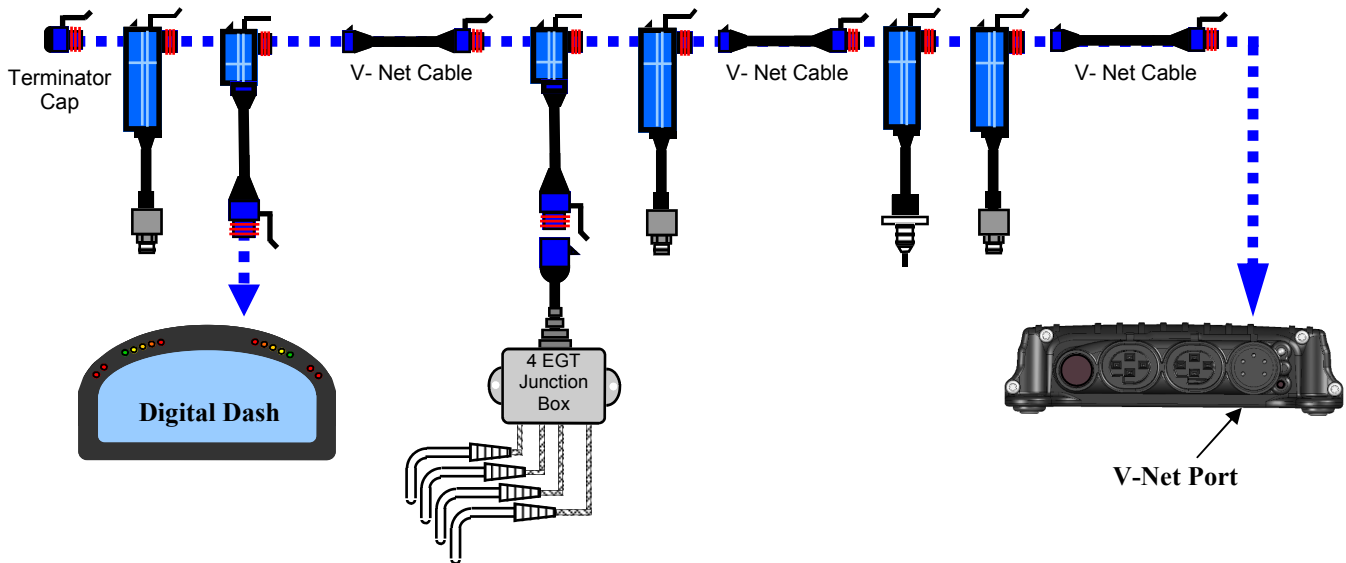
III: Datalink II Software Installation

After you have completed the installation of your Sportsman data logger and hardware, the next step is to install the DataLink II software in you PC. The DataLink II software is used to configure your data logger, view real time data, upload run data from your data logger, and analyze the saved run data.

Installing the DataLink II Software

NOTE: DataLink Software Versions supporting the Sportsman Data Loggers
> Before you install the DataLink II software, check the revision level of the software on the front of the software CD supplied with your system. If you have an existing version of the DataLink II software you *will need* to re-install the new version of the software to update your existing version. This will ensure you have the latest data files required by the Sportsman data logger. Please note that DataLink II is the latest generation of Racepak software and supersedes the first generation known as DataLink. The release version numbering of DataLink II started at 1.0. Therefore, **DataLink II** version 3.4, as an example, is newer than **DataLink** version 5.5.

You are now ready to begin the software installation procedure. Insert the CD into the CD drive of your PC and close the bay door. After a few seconds, the installation program should automatically start. If it does not, follow the instructions printed on the CD label.

During the program installation, you will be asked to select the data logger you will be using. Be sure to select "Sportsman", as this will install the necessary files needed for your Sportsman data logger.

After the program has been installed, a new shortcut icon will be added to your desktop with a title "Datalink Program". Double click on the icon to start the Datalink II software.

## Configuring the Sportsman Serial Communications Port

You will be connecting the 9 pin female connector end of the provided serial communication cable to the mating 9 pin male connector on your PC. In most computer systems, the mating connector will be labeled "Serial 1" or "COM 1". If your PC does not have a DB9 male connecter you will use the supplied USB to RS-232 serial adaptor. When installing the USB to RS-232 serial adaptor, make sure you have installed the Datalink II software CD supplied with your system prior to inserting the USB cable.

The next step in the software installation is to tell the DataLink II software which serial communications port on your PC you just connected the serial communication cable to. To tell DataLink II software which port, turn on your PC and start the DataLink II program by clicking on the DataLink shortcut on your Window's desktop. Next, click on *Settings* from main menu bar then select *Preferences*. The following dialog box will be displayed.

Locate the **Logger Com Port** selection box and select the communications port to which the serial communications cable is connected. If the required COM port is not listed, you may type the name in the text box above the list box. Next, select **OK** to accept your selection.

************** NOTE: *************

If you are not sure which serial port you are connected to, when the first attempt is made to communicate with the Sportsman data logger, the RacePak Serial Port Scanner will automatically ask to scan, find, and configure the above settings for you. **The Sportsman data logger must have the power on in order for the scanner to find a port.** Instructions on manually using this utility are provided inside the Sportsman serial cable package provided with your Sportsman kit.
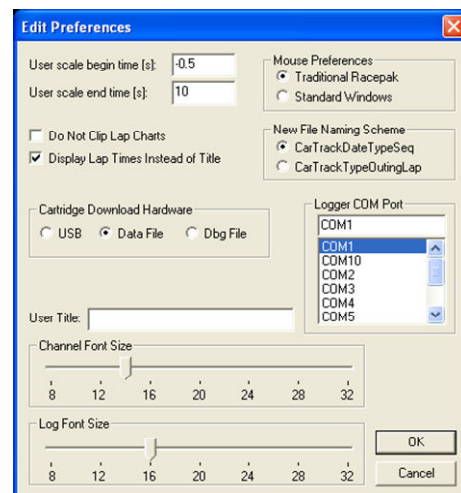
IV: Configuring your Sportsman Data Logger

When you purchased your Sportsman data logger, the data logger will have been pre-configured with it's factory defaults setting. This factory car configuration file will have been copied onto your PC during the DataLink II software installation, and will be listed as Sportsman_Config. The configuration file contains the setup information for the Sportsman data logger, and each of the internal channels connected to your Sportsman data logger. You will use this file any time you wish to modify the setup of your system, view real time data, upload run data from your data logger, and analyze the saved run data on your PC.

You will need to open the car configuration file, Sportsman_Config, each time you wish to modify the setup of your data logger. You will also need to select the car configuration file each time you upload data to your PC, or start a telemetry session.

Modifying the Configuration of the Sportsman System

Each time you wish to modify the setup of your Sportsman data logger system you will need to perform the following steps;

1. Connect your PC to your data logger via the serial interface cable.
2. Start the DataLink II program on your PC and open the car configuration file created for your system
3. Select the device/channel to be modified
4. Make the desired modifications to the device/channel
5. Apply power to your data logger system
6. Send the modified configuration to the device
7. Save the modified car configuration file

The first step is to connect your PC to your data logger using the serial interface cable supplied with your data logger system. You will have connected the cable to your PC, and set the proper communication port in the previous section.

The next step is to start the DataLink II program by clicking on the DataLink Program icon located on the Windows desktop of your PC.

With the Datalink II software now open, you will need to open the car configuration file. To open your car configuration file, select **File** located in the main menu bar across the top of the screen.

In the drop down menu select **Open Car Configuration.** The dialog box shown below will be displayed.
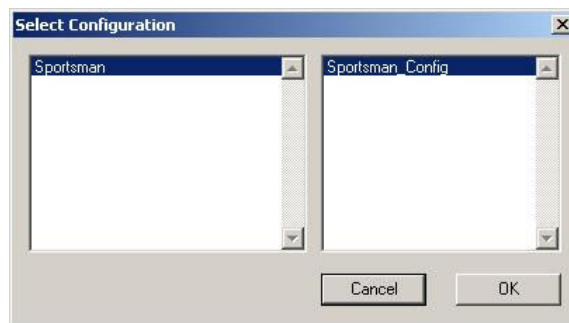
The list on the left-hand side of the **Select Configuration** dialog box will display all of the file folders in your RacePakData subdirectory that contain valid configuration files. Select listing with the name that contains your data system, for instance Sportsman, by left clicking on it with the mouse. The list on the right will now contain the list of configuration files contained in this folder. The factory configuration file for the Sportsman data logger will be located here.

Modifying the Configuration of the Sportsman System (cont.)

Locate your car configuration file in the right hand list and highlight it by clicking on it with the mouse. Select the OK button to open the configuration file. Your screen will be updated and your configuration file will be displayed as shown below. The configuration file shown below is for sample purposes.
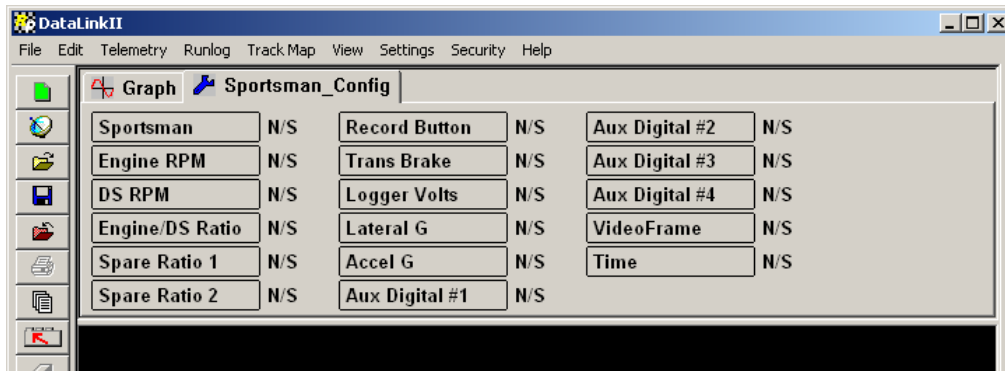

The wrench icon in the run file tab is used to indicate that this file is a car configuration file. Each of the buttons represents one of the devices/channels in your system. For instance the Sportsman button represents your data logger, the Engine Rpm button represents the engine rpm channel, and the Logger Volts button represents battery volts in your system.

After you have opened the car configuration file the next step in modifying the setup of your system is to select the device/channel to be modified. To select a device/channel, position the mouse cursor over the desired button. In our sample, DS RPM. Click the right mouse button and a edit dialog box, as shown below, will be opened to allow you to edit the parameters for that specific device/channel.

In addition to allowing you to edit the device/channel parameters the dialog box also contains online help to instruct you on the procedure for configuring the device and the options available for each of the parameters that can be modified. Although each of the dialog boxes for the different devices are slightly different, all of the dialog boxes have the same overall structure.

The first section to note is the **Channel Description** area. This area includes important information about the channel that you are editing. You should always check this area to be certain you are editing the correct channel. When you are sure you are editing the proper channel, go to the **Online Help Scroll Box.** Read this section. It will give you step by step instructions on configuring the specific device/channel you are editing.

The following two pages describe the basic sections of the edit dialog box and their locations.

Typical Device/Channel Edit Dialog Box
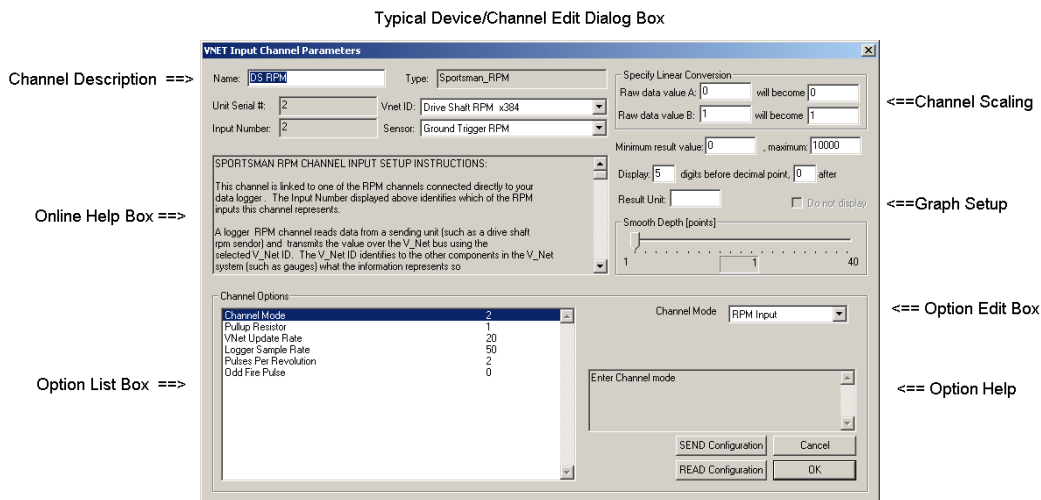
Configuring the Sportsman

Modifying the Configuration of the Sportsman System (cont.)

The channel description area contains several fields that describes the channel represented by the button, and the edit dialog box. The fields in order of importance are, as follows:

Type: The type field describes the type of device being edited. For instance a Logger_Analog input, or an Oil Pressure Gauge

Unit Serial #: This field displays the serial number of the device being edited.

Input Number: In devices such as a four-channel EGT module, this field displays the channel number in the device being edited.

V-Net ID: The box displays the ID of the parameter measured by this device, i.e. Drive Shaft Rpm

Sensor Type: This field indicates the type of sensor connected to the channel

Name: This is the user assigned name for the channel

Online Help Box

The online help box is a scrollable text area containing detailed instructions on how to configure this device. You should always read this section before editing any of the device parameters.

Channel Scaling

This section is used to enter the calibration factors for the sensor connected to this channel. These factors are entered automatically by the system any time the Sensor type is selected. They must be entered manually only when a custom sensor calibration is required.

Graph Setup

These fields are used to define how the DataLink II program charts the data obtained by this channel. Please refer to the online help box for details.

Options List Box

The options list box displays all of the user settable options for the device being programmed. To select an option to edit, place the mouse cursor over the desired option and click the left mouse button. The options help box and the options edit box will be updated with appropriate information for the selected option.

Options Help Box

The options help box displays detailed information on the option currently selected for editing.

Options Edit Box

The options edit box will display an appropriate edit box for the option currently selected in the options list. The edit box will display the name of the option being edited, the current value of the option, and the range of values that can be entered for the option is appropriate. Enter the new value for the option here.

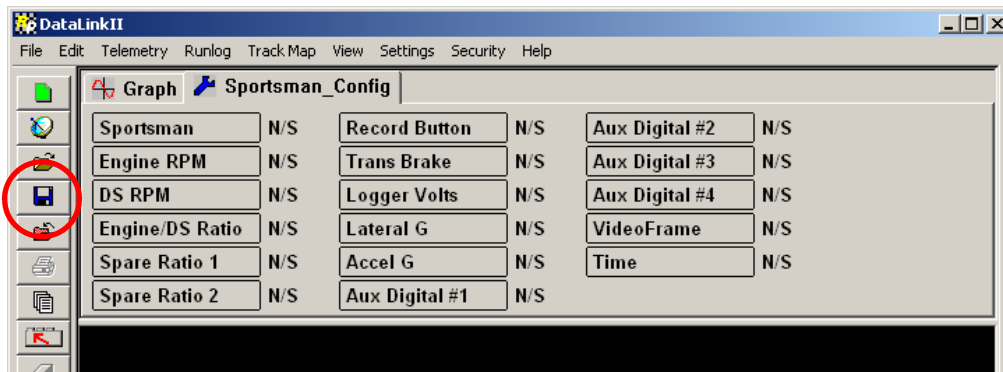# Modifying the Configuration of the Sportsman System (cont.)

After all the changes are performed to the particular device you are modifying, you will select the **Send Configuration** button in the channel edit dialog box to send the information to the device being programmed. A progress box will be displayed to indicate whether the transfer is successful.
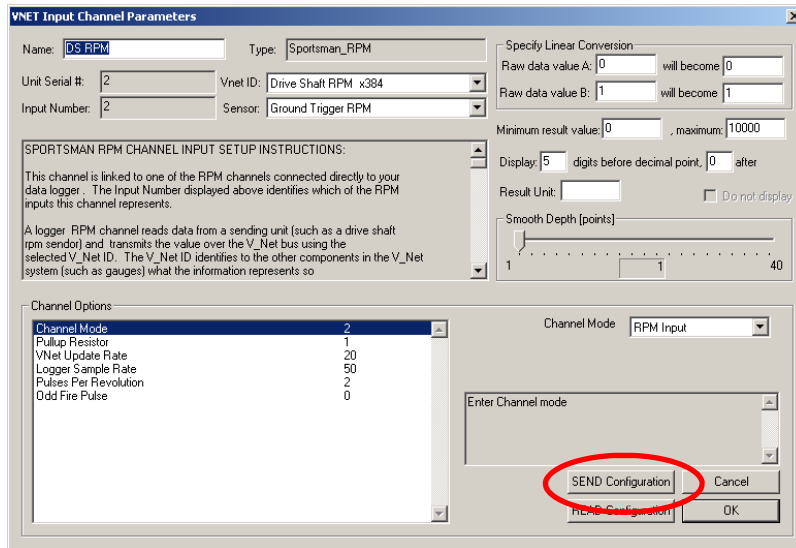
When you have successfully sent the new information to the device being programmed, select the **OK** button to exit the dialog box.
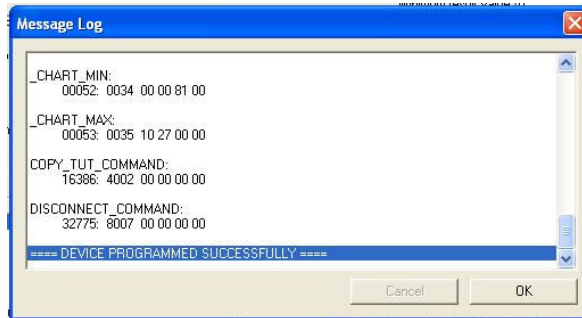
As a final step save the car configuration file to your disk by clicking on the save icon in the DataLink II Toolbar, or select the Save menu item located in the Files main menu selection.

You have completed the programming of the device/channel. Repeat the above process for each of the devices you wish to modify.

Configuring the Sportsman

Modifying the Configuration of the Sportsman System (cont.)

Adding or Removing V-Net Devices on the Sportsman System

If you add or remove modules from your system, you will need to update your configuration file to match the configuration of your Sportsman system. This requires you to edit your existing configuration file to match the new setup. If the configuration is not updated, your new V-Net devices will not show up in the uploaded data

To update the configuration file:

1. Connect the PC to the Sportsman data logger using supplied Serial interface cable (and Serial-to-USB adapter if required)
2. Select **File** from menu task bar located at top of screen,
3. Select **Open Car Configuration**.
4. Select **Sportsman** from list on left
5. Select **Sportsman_Config** from list on right
6. Click **OK**
7. Car configuration file now open (Note: by blue wrench next to Sportsman_config name at top)
8. Select **Edit** from menu task bar located at the top of screen
9. Select **Read V-Net Config**

A message log window will open as the DataLinkII software will now query the V-Net modules in your system and will read in the current configuration of the system. During this process a message log dialog box will be displayed. The progress of the read will be displayed in the message log box.

If the following error is encountered (shown below), verify power is on, communication cables are correctly installed, click OK, and then yes to scan all COM ports. When a COM port is found, click OK. Repeat from step 8.
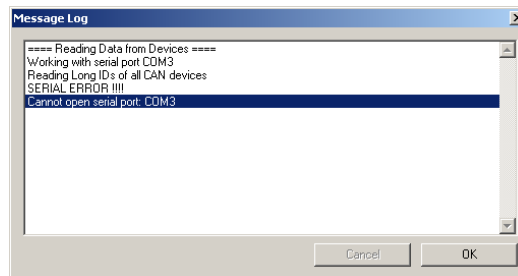
If a V-Net module that is included in the current configuration file is not found in the System, the following message (shown below) will be displayed.
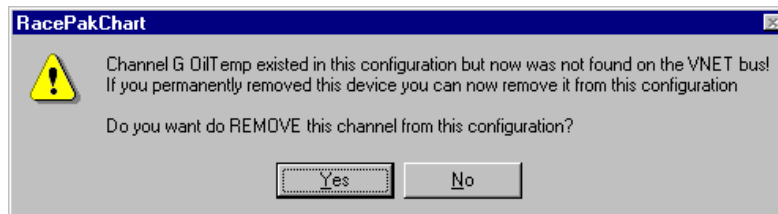
If you have removed the module from the system, you should select **Yes** to remove the module from the configuration file.

If you have not removed the module from the system, you should select **No,** and then inspect your system to be sure the module is properly installed. When you have corrected the problem you should repeat the process above.

If you have added modules to the V-Net system, the DataLink II software will automatically insert new channel buttons for the new modules. You should review the programming of the new module(s) as detailed above and change the setup of the new module(s) as required.

V: Operating the Sportsman Data Logger

Now that you have completed the installation and programming of your new data logger system, you are ready to begin using your system to display, record, and analyze the run data. The following section will take you through each step in the process. We will also review the various setup parameters used to control the operation of the logger.

## *Setting the Correct Time and Date Inside Your Sportsman*

A new data file (.ddf extension) is created on the SD memory card each time a new recording is initiated. Each file is stamped with the time and date the recording was started to allow for easy identification of the data files upon uploading to your PC. For this reason, it is strongly recommended that you maintain the correct time in your Sportsman. The time can be changed by performing the following procedure.

Before beginning, ensure that the time and date on your PC are set correctly. The time is located in the Windows system tray at the lower right hand side of your screen. The date can be seen by placing the mouse cursor over the time display for a few seconds. You can change the time by double clicking on the time display.

Start the DataLink II software and open your Car Configuration file. You can do so by Clicking on **File** from the Menu bar and selecting **Open Car Configuration**. Select the configuration file named **Sportsman_Config** and click **OK.**

This will open your car configuration file. Next click on the Organize Pane icon on the left tool bar. This should bring up run log pane (located on the bottom of the screen) as shown below.
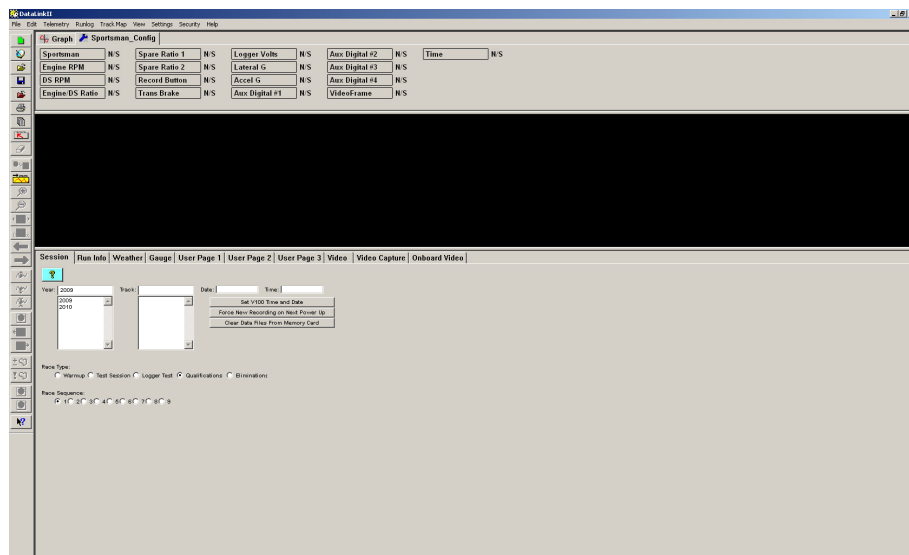
Next, insert the memory card in the memory card reader. Now click on the button labeled **Set Sportsman Time and Date** and follow the online instructions.


This procedure writes a file that contains the current time and date on the memory card. For the time to be set accurately, you must immediately remove the memory card from your PC's card reader, place it back in to the Sportsman and turn on the power for at least 5 seconds.
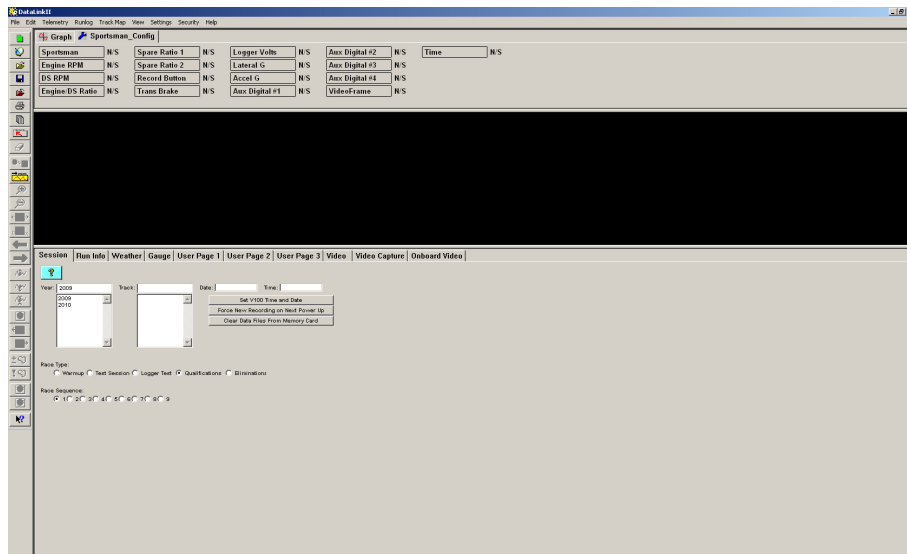
Clearing Data Files from the Memory Card

Clearing run data files after each data upload is not required but it is highly recommended that you do not allow too many run data files to build up. Storing too many data files on the memory card can also make it more difficult to identify the proper run data file on future uploads. Eventually the memory card will fill to capacity, and the data logger will no longer be able to record data. You can clear the data files from the memory card by performing the following procedure:

1) Start the DataLink II software and open you Car Configuration file by Clicking on **File** from the Menu bar and selecting **Open Car Configuration**. Select the configuration file named **Sportsman_Config** and click **OK**
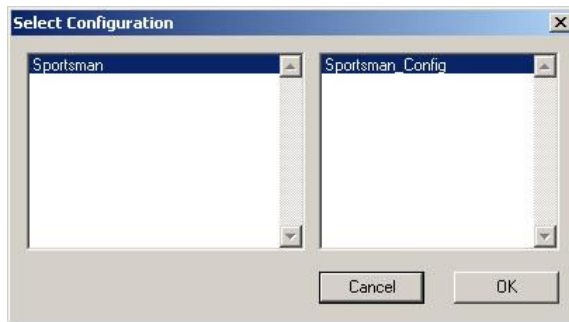
2) This will open your car configuration file. Next, click on the Organize Pane icon on the left tool bar. This should bring up the run log pane as shown below.
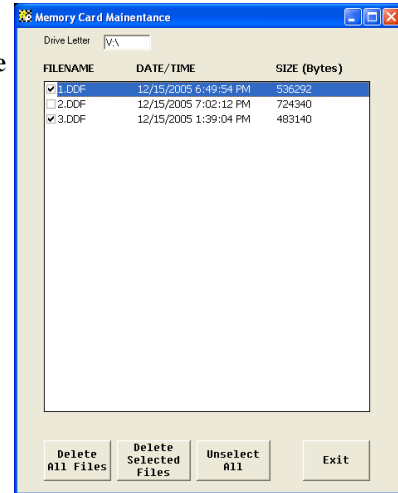
3) Next, insert the memory card in the memory card reader. Now click on the button labeled **Clear Data Files From Memory Card**. The following screen will appear.

4) To delete all of the data files on the memory card click on the **Delete All Files** button. To delete only some of the data files on the card first click on the check boxes of the files you want to clear or delete. Then click on the **Delete Selected Files** button. When finished, click on the **Exit** button.

FILENAME	DATE/TIME	SIZE (Bytes)
☑ 1.DDF	12/15/2005 6:49:54 PM	536292
☐ 2.DDF	12/15/2005 7:02:12 PM	724340
☑ 3.DDF	12/15/2005 1:39:04 PM	483140

Drive Letter V:\

Delete All Files   Delete Selected Files   Unselect All   Exit

Initiating a Recording with the Sportsman data logger

Anytime power is applied to your system the data logger is ready to record data from the various sensors connected to the system. When the recording process actually begins and how much data is recorded is determined by how you program the setup features in your data logger. The staff at RacePak will have setup your data logger to start recording via pushbutton using the blue wire located in the "PWR/TACH/REC INPUT" harness. If you wish to modify how the data is recorded read the following information.

The start of the recording can be programmed to occur by three different methods.   These are;

Start Recording Immediately
In this mode the data logger begins recording immediately after power up and records data until the maximum record time is reached, or the power is turned off.

Start Recording Manually on Operator Input
In this mode a momentary push button switch is connected to one of the digital inputs on the data logger. Each time power is applied to the data logger, the logger monitors the input, and will begin recording only when the switch button is pushed. Once the recording is started, it will continue until the maximum record time is reached, or the power is turned off.

**Start Recording Automatically when threshold is exceeded.**
In this mode the logger is programmed to begin recording only after one of the monitored data channels exceeds a preset threshold. For instance, the logger can be programmed to begin recording any time the Engine RPM exceeds 3000 rpm. Once the recording is started, it will continue until the maximum record time is reached, the power is turned off, or the RPM goes below the Stop Record threshold for more than 30 seconds.

When setting the start record parameters, please keep in mind that it can take up to 5 seconds from the time a new recording is initiated, and the time data actually begins to be recorded. This time is required for the Sportsman data logger to initialize a new recording and varies depending on the number of V-Net channels installed in your system and the number of data files on the SD memory card.

Configuring the Record Parameters

The first step to programming the record parameters to your data logger is to connect your data logger to your PC using the serial communications cable supplied with your data logger. Once the logger is connected turn on power to your data logger.

Next, start the DataLink II program and open the car configuration file. You can do so by clicking on **File** from the Menu bar, and selecting **Open Car Configuration**. Select the configuration file named Sportsman, and click OK.
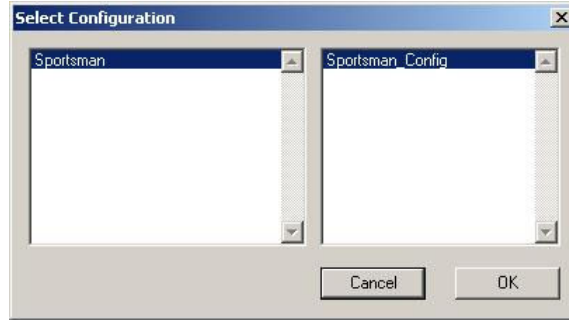
Next, position the mouse cursor over the **Sportsman** channel button, and click the right mouse button (shown below, left). The logger edit dialog box will be displayed (shown below, right).
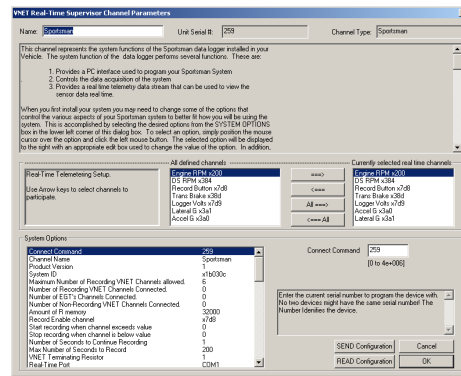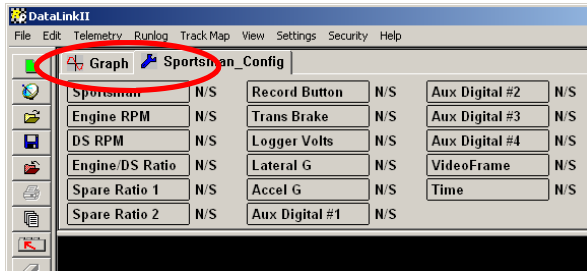
Located in the lower left-hand corner of the dialog box is the **Systems Options** section (shown below). Several options and their present value will be listed on the left-hand side of the Systems Options section. To select an option for editing, simply position the mouse cursor over the option and click the left mouse button. The option will become highlighted. The options edit box and option help box, located to the right of the list, will be updated with appropriate information for the selected option. Read the help information, and enter the new value for the selected option. The options for setting the record parameters are discussed in detail below.
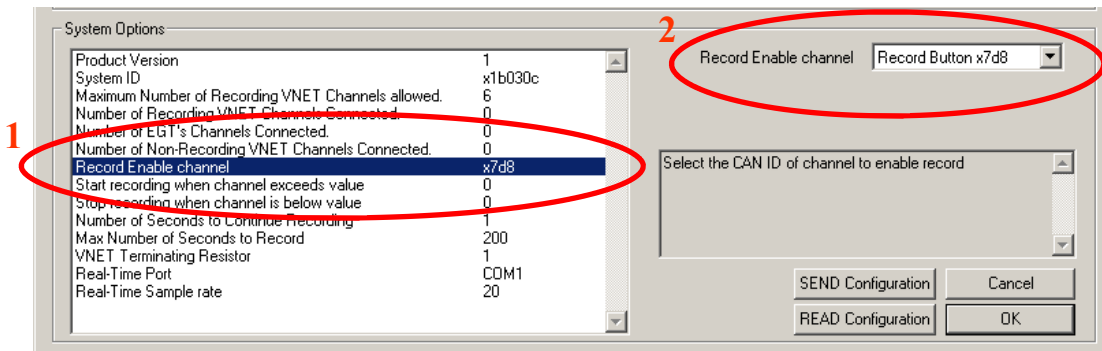
Setting the Start Record Channel

The record enable channel is the data channel used to start or trigger the recording process. If you want the data logger to begin recording immediately you should select the **Disabled = x0** value below. If you want to start the recording manually you should select the input to which you connected the sample on/off switch above. To start the recording automatically when a selected parameter exceeds a preset threshold, select the desired parameters name from the list displayed in the edit box as described below.

To program the record enable channel, locate the **Start Record Channel** option, and select it as described above. The options edit box will be updated with the names and ID's of all of the currently installed parameters measured by your system. To enter a new value, click on the down arrow located on the right side of the option edit box as shown below.

Start Record Channel	Engine RPM x200	▼

A list of the valid channel names, and IDs will be displayed. Use the scroll buttons to display all of the values included in the list. When you have located the desired selection, position the mouse cursor over the selection, and click the left mouse button to accept the selection. The top line of the edit box will be updated with the newly selected value.

Setting the Start Record Value

This option is used in conjunction with the Start Record Channel to determine when the recording is started. If you have decided to begin the recording immediately after power up and have selected **Disabled** for the record enable channel, the record option threshold is ignored.

If you have selected any other channel, the recording will start any time the value of the selected channel exceeds the value of the record threshold. If you are using an on/off switch connected to a digital input on your data logger to manually start the recording, you will need to set the Start Record Value to 0. A digital input channel in event mode only has two values, 0 when the switch is off and 1 when the switch is on. In this case, a value of 1 is greater than 0 and the recording will start.

If you have selected a channel such as Engine Rpm, enter the desired rpm above which to start the recording. For instance, 3000. The recording will begin any time the engine rpm exceeds 3000 rpm.

To program the record threshold, select the **Start Record Value** option as described above, and enter the desired value in the option edit box.

Setting the Record Length

Locate the **Max Number of Seconds to Record** option, and select it as described above. The options edit box will now display the currently programmed number of seconds to record. Enter the new desired value in the edit box.

Sending the Record Parameters to Your Data Logger

The final step in programming the record parameters on your data logger is to send the configuration just edited from your PC to your data logger over the serial communication cable connected above. To send the information click, on the **Send Configuration** button located in the lower left-hand section of the logger dialog box. A progress box will be displayed showing the information being transferred to your data logger. When completed, the last line in the progress box should read **Devices Programmed Successfully**.
You have completed the programming of your data logger. The new programming will become effective the next time you turn your data logger on.

Recording Data

After you have programmed the recording parameters as described above, you are ready to record run data using your new data logger. To record data simply turn on power to your system. The recording will begin any time the conditions as programmed above are met. The status LED on the Sportsman data logger will flash red while recording data. The recording will end when the Max Number of Seconds to Record is reached, the Start Record Channel data goes below the Stop Record Value for more than 10 seconds, or the power to the data logger is turned off.

If you have selected to automatically start the recording when a data channel exceeds a programmed threshold, be sure the data channel is functioning properly or the recording will not start. In addition, if you are trying to take a warm up recording in the pits, be sure the data channel exceeds the start threshold or no recording will be taken.

After you have recorded your data you are ready to upload the data into your PC.

Uploading Recorded Data to your PC from the Sportsman

Data from your Sportsman data logger can be uploaded to your PC for data viewing and analysis using the RacePak DataLink II program. Follow the instructions below to upload data from the SD memory card to your PC.

Remove the SD memory card from the Sportsman data logger and place it in the SD memory card reader connected to you PC.

Next, click the [icon] New Upload icon at the top of the left toolbar.

Select the configuration file named **Sportsman_Config** and click **OK.**
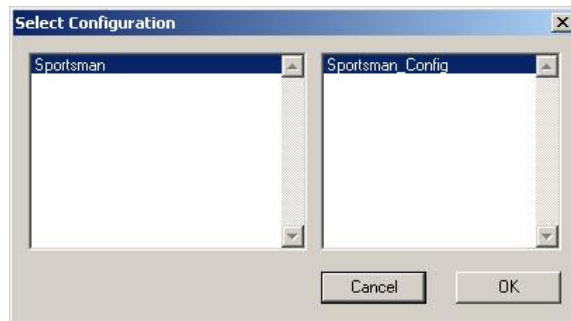
The first time you attempt to upload data you will need to select the memory card reader drive. To do this click on the drop down box labeled **Look in:** and then click on the drive labeled **RACEPAK_SD** as shown in the picture below.

Racepak
949-709-5555 www.Racepak.com
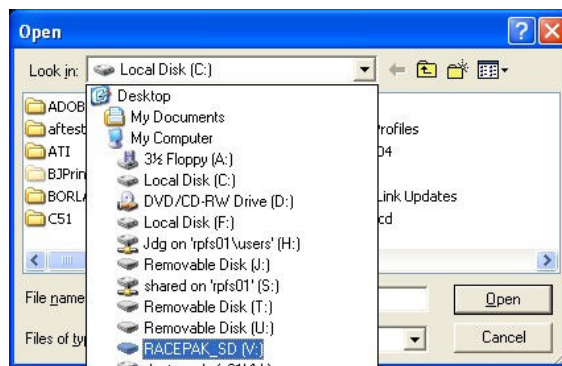
Now you should be able to see the data files that were recorded by your Sportsman. The first file recorded would be named 1.ddf , the second 2.ddf , the third 3.ddf and so on. If you would like to see the time and date the data files were created, you will need to click on the ⊞▾ details icon in the upper corner.
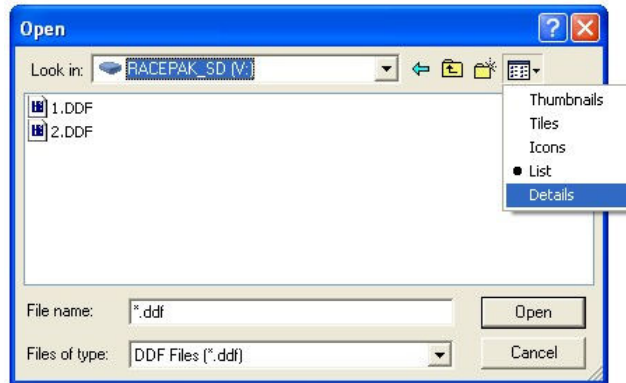
The time and date will now be shown. However, they typically cannot be seen because they are off to the right of the screen. To fix this, you will need to drag the window larger by placing the mouse over the lower right corner. Now using left mouse button, click and drag the window larger .
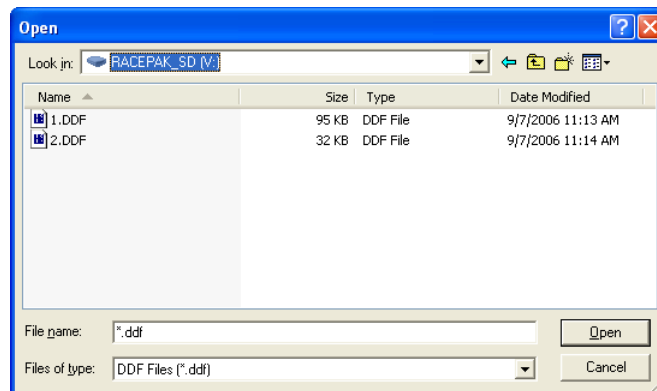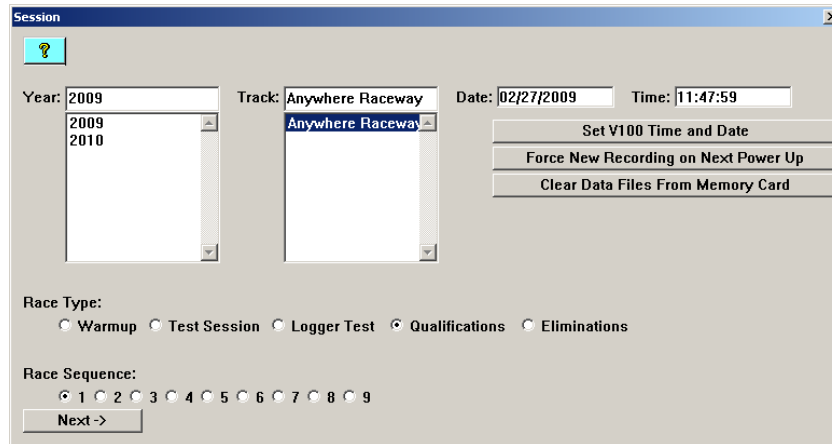
After you have identified the data file you would like to upload, select the file by clicking on it with the left mouse button, and then click on the Open button in the lower right corner.

Naming and Storing the Uploaded Data

After the data has been uploaded from the memory card, a dialog box will be displayed to allow you to enter the session information. Enter the appropriate year and track by selecting the correct value from the selection lists. If the desired year and/or track is not on the corresponding selection list, enter the new year or track, by typing the name directly into the top selection box. The new year, and/or track will be added to the selection list. Select the race type, and race sequence information by clicking on the desired radio button. The system will enter the date and time.
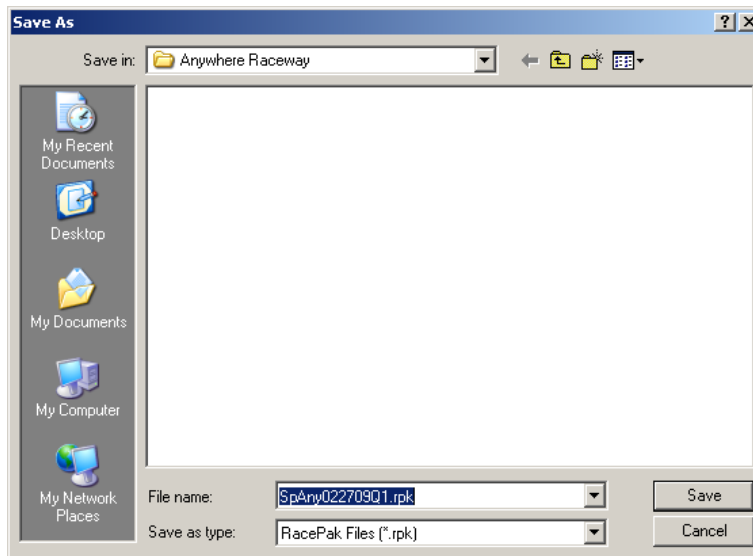
This information will be used to name the data file. The dialog box is shown below. If you need help on filling out the dialog box, click on the help icon in the upper left hand corner of the dialog box.

Select **OK** or **Next** depending on your configuration file. Additional dialog boxes may be displayed. These are part of the Run Log sections that are user programmable to allow test information to be entered during the download process. Fill out the information appropriately. The file save dialog box will then be displayed as shown below.

 To save and view the file, select the **Save** button. To view the file only, select the **Cancel** button. If you select cancel you can save the file later if desired. A new file tab with the channel data will be opened. You are now ready to view the data.

Refer to the DataLink II instruction manual for information on viewing the run data.

Viewing Real Time Data on your PC

Real Time data from your Sportsman data logger can be displayed and recorded on your PC computer using the DataLink II program. Before you can view the data however, you must first setup the real time parameters in your data logger. To setup your data logger's real time configuration, open your configuration file, and right click on the Sportsman channel button. An edit dialog box will be displayed. In the center of the dialog box will be a Real – Time Telemetry Section.

Setting up the Logger Real Time Telemetry Parameters

This section will contain two lists. The list on the left-hand side of the telemetry section will include all of the data channels currently being monitored by your data logger. The list on the right-hand side of the telemetry sections includes all those channels that will be displayed during a real time telemetry session.

To add a channel to the telemetry list, highlight the name of the channel in the left-hand list, and click on the right arrow button to add the selected channel to the real-time channel list. To remove a channel from the real-time channel list highlight the name of the channel in the right hand list and click on the left arrow button. Remember that only channels in the right hand list will be displayed during a real time telemetry session.
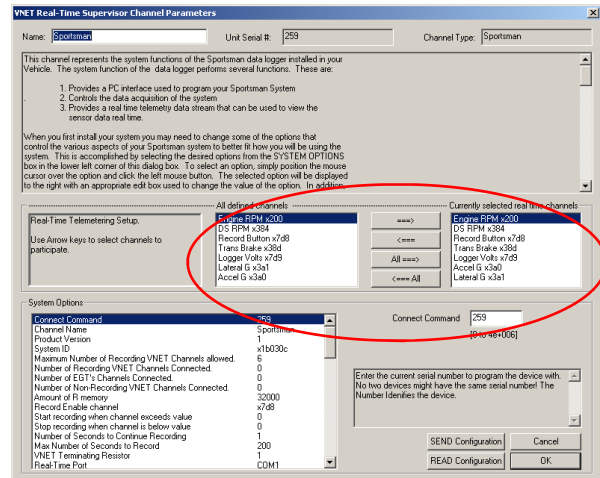
From the options list in the lower left-hand corner of the dialog box, select the **Real Time Sample Rate** and select the desired real time sample rate. **Note:** the V-Net Sample rate of each module(s) to be monitored, should be equal to or greater than the real time sample rate. If they are not, then the last data points will be repeated during the sample process.

Next, select the **Real Time Communications Port** option and type in the name of the serial communications port on your PC you will be using to receive the real time data from the V-Net system.
Normally this is the same as the default Logger Com Port setting in the initial software installation. Normally this is COM1.

After you have edited the options, use the **Send Configuration** button to sync the setup data to your data logger. Next, select **OK** to exit the edit box. You will need to turn the power to your data logger "Off", and then back on to allow the changes to take effect. When you have completed the edit, save the configuration file.

Entering the Datalink Real Time Telemetry Parameters

The final step to setting up the real time telemetry session is to set the DataLink II real time recording parameters. These parameters are set by selecting the **Recording Parameter** menu item found in the **Telemetry** main menu selection. The following dialog box will be displayed.
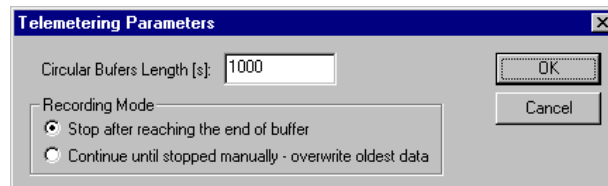

The first parameter **Circular Buffer Length** is used to set the amount of data to record in seconds. The **Recording Mode** is used to determine whether the recording will stop when the maximum record time is reached or whether the oldest data will be overwritten. For example, if a 1000 seconds is entered for Circular Buffer Length and **Stop after reaching end of buffer** is selected, the program will record data for 1000 seconds and stop. If **Continue until stopped manually-overwrite oldest data** is selected, the program will continuously record until stopped by the operator. Only the last 1000 seconds of data will be stored.

Starting a Telemetry Session

The next step is to start a telemetry session. Select the **Telemetry** icon   [icon]   or the **New Telem Session** menu item located in the **File** main menu selection. A dialog box, as shown below, will be displayed and you will then be asked to select the configuration file to use for this session.
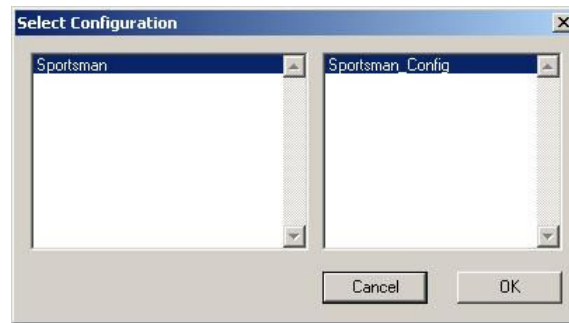
Select the configuration file as setup above. A dialog box will then be displayed to allow you to enter the session information (the same as when uploading run data). Enter the appropriate year, track, race type, and race sequence information as shown below. The system will enter the date and time.
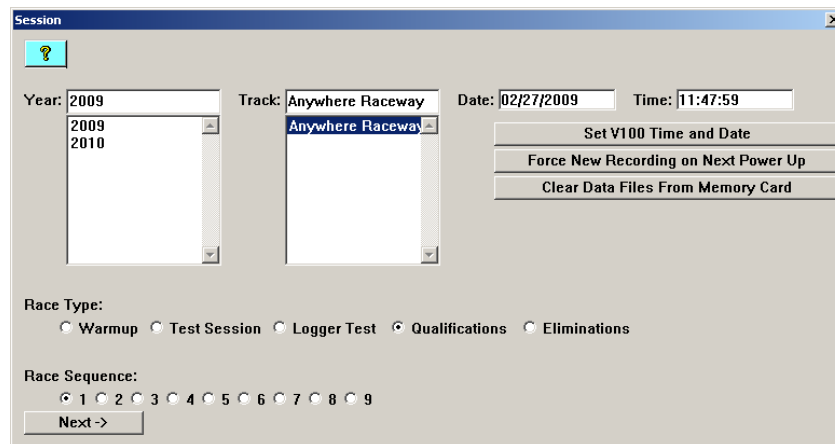
If you need help in filling out the dialog box, click on the help button (? Icon) located in the upper left-hand corner of the dialog box.

Select **Next,** and depending on your configuration file, additional dialog boxes may be displayed. These are part of the Run Log sections that are user programmable to allow test information to be entered during the download process. Fill out the information as appropriate.

The file save dialog box will then be displayed. Select the **Cancel** button. A new file tab with the channel data will be opened. You real time data session is now ready.

The real time session is controlled via two icons located below the context sensitive help icon in tool bar. Only one icon will be active at a time depending on the status of the telemetry session. The **Start Data Acquisition** icon is shown active on the left. The **Stop Data Acquisition** icon is shown active on the right.

 Start Data Acquisition - Green Light

 Stop Data Acquisition - Red Light

Starting a Telemetry Session (cont.)

To start the real time data acquisition left click, on the **Start Data Acquisition** Icon at the bottom of the tool bar. The data acquisition will start at time 0. Once the real time data acquisition has been started, the value of the data channels will be displayed next to the channel button in the top portion of the display area. To display the data from a channel on the graphics screen, simply select the channel by left clicking on the channel button in the same manner you display data from a recorded file.

To stop the data acquisition, left click on the **Stop Data Acquisition** icon located at the bottom of the tool bar. The real time data acquisition session will be suspended.

If you wish to continue the real time data acquisition, simply click on the **Start Data Acquisition** icon. The telemetry session will restart at the same point it was suspended. If you wish to restart the session from the beginning, select **Erase** from the **Telemetry** main menu. All previously recorded data will be erased from the file.

If you wish to save the data, stop the data acquisition, and click the **Save** icon located in the tool bar, or select **Save** located in the **File** main menu.

Operating the Sportsman

Appendix I – V-Net Module Installation Instructions