“People ask, ‘what was the one single thing that made the big progression in drag racing…?’"

“It was the onboard computer; changed the sport like nothing else. There isn’t one other item that even comes close to changing the sport like that did.”

- Dale Armstrong
The early years. Before the idea of a personal computer existed. Utilizing an industrial style strip chart recorder, the engine RPM input from a circle track vehicle was recorded and printed onto a paper roll, proving the ability to graphically plot and review data. While a far cry from today’s modern PC based data analysis, the ability to print and overlay RPM graph traces from multiple laps signaled the beginning of Racepak.

1978

2K. The first purpose designed Racepak data recorder created specifically for motorsports. With only two RPM inputs and two analog inputs (pressures), the 2K found its way onto and quickly back off a NASCAR vehicle, with officials deeming it not legal for use in their series. Racepak was on to something.

1982

Moving from the excursion into circle track data acquisition, the first drag racing data recorder was installed on Kenny Bernstein’s Budweiser sponsored Tempo bodied nitro funny car. This action eventually led to the development of the nitro lock up clutch, larger fuel pumps, higher output magnetos and number of additional speed and ET improving technologies. In addition, this initial relationship led to a 1985 distribution partnership with Kenny Bernstein’s King Racing.

1984

The introduction of a portable memory cartridge eliminated the necessity of connecting the users PC to the data recorder, in order to download data. While appearing large compared to modern day SD and MicroSD memory cards, the design behind the portable memory cartridge predated current removable SD memory card technology by ten years.

1988

The release of the Pro series of drag race data recorders signaled the beginning of smaller, more robust designed data loggers, incorporating the latest PC board and sensor input designs.

1992

Expanding outside of drag racing, Racepak became the dominate supplier of data loggers and digital dash products to the snow mobile industry, even becoming OEM equipment on certain snowmobiles.

1995

CANBUS. While seemingly everywhere in modern day vehicles, industrial and other commercial applications, the use of CANBUS in 1998 was unheard in the motorsports industry. Building on the available technology at that time, Racepak develop the very first CANBUS driven, smart sensor based, single cable motorsports data acquisition system. This single technology put Racepak on the worldwide motorsports map, by reducing the wiring, complexity, installation and programming issues plaguing all data systems. This in turn led to the development of an entire Racepak data logger, sensor, instrumentation and power control product line.

1998

While GPS was available to government agencies since 1995, the elimination of the Selective Availability aspect of GPS (intentional distortion of signals) in 2000 opened the door for Racepak to develop and release the first motorsports data system specifically designed for use with GPS. This technology enable Racepak to return to the closed course market with a data system providing lap times, lap numbers, speed, track mapping and G forces from nothing more than GPS data, eliminating the need for external speed sensors, trackside beacons and vehicle mounted receivers.

2000-05

The release of the SmartWire heralded the move of Racepak from a traditional data logger and instrumentation company to a power control company. The SmartWire eliminated the need for fuses and relays, while providing the ability to program, monitor and record all aspects of electronic inputs and outputs used to control vehicle devices.

2010

Racepak will continue to develop motorsports and aftermarket electronic products that exceed customer’s expectations, while utilizing the latest in hardware, software, tablet and smartphone technology.

FUTURE
### Application Chart

<table>
<thead>
<tr>
<th>Application</th>
<th>Sportsman</th>
<th>LX</th>
<th>XM</th>
<th>XG</th>
<th>SX</th>
<th>EPSP</th>
<th>Gold</th>
<th>PRO</th>
<th>MEDIA</th>
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<td>Top Fuel, Funny Car, A/Fuel</td>
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</table>
A. STANDALONE GPS V-VET MODULE 
Add GPS speed to any non-gps equipped Racepak V-Net data recorder through the use of Racepak's GPS V-Net module. Utilizing a standard V-Net tee connector, the module is installed and "read" into the DatalinkII software, providing a speed data channel for analytics, display and odometer information. Samples at 10hz.

B. TURBO WASTEGATE POSITION V-Net MODULE
Accurately monitor and record the true position of your turbo wastegate valve through the use of this V-Net module. Calibrated in inches of travel, the V-Net module pigtail includes the appropriate mating connector, making installation a snap. Compatible with both Turbosmart and Precision Turbo.

Contact manufacturer for compatible size offering.

C. VIRTUAL DASH APP
Stream and view live information from any Racepak Bluetooth enabled data recorder (optional upgrade) on both IOS and Android tablet and smartphones through this use of this app and Racepak Bluetooth module.

Available in both IQ3 or Pro Dash virtualization, each app provides four fully programmable pages and warnings, with intuitive swipe and touch commands.

Use of either app requires Racepak’s V-Net Bluetooth module and purchase of app available through the Apple Apps or Google Play.

Virtual Dash App Available at: 

D. SMART POWER BACKUP
Designed for use with the Racepak series of V300, V500, or G2X Pro data recorders, the Smart Power Backup is designed to mount underneath it’s respective data recorder, without modifications, while insuring an uninterrupted power source in the event of accidental power loss to the recorder.

More than just a reserve power supply, the Power Backup contains a microprocessor capable of determining when the vehicle is running, then supplying up to 20 seconds of reserve voltage, when loss of external voltage is detected.

V300SD Smart Power Backup 800-87-V300
V500SD Smart Power Backup 800-87-V500
A. SMARTWIRE POWER CONTROL MODULE

Based on Racepak’s exclusive single cable V-Net technology, the Racepak SmartWire module is the electronic “starting point”, with a direct main power connection from the vehicle battery to the module. Each input/output is then user defined, both in function, power requirements and current exceeding limits via a USB connection to the user’s PC. The design of the module functions to both reduce overall installation weight / clutter, while providing a quicker reacting electronic system, through the solid state switching design.

Manual activation can be achieved through use of either an optional eight switch Racepak Switch Panel or 16-channel Switch Module. From the Racepak SmartWire unit, a single small cable is routed to the Switch Panel, reducing wiring clutter. Users needing additional switch panel capabilities can easily expand through the use of a "jumper" cable to a second Racepak Switch Panel or Switch Module.

FEATURES

CAPACITY: 125 Total Amps

CHANNELS: 30 Total Channel Outputs
8 Channels @ 20 Amp Maximum
22 Channels @ 10 Amp Maximum
12 Hardwired Switch Inputs

DATA OUTPUT: Volts
Amps
State

RESPONSE: 3.0 Millisecond

PROGRAMMING: USB Interface

DIMENSIONS: 6” (L) x 5.5” (W) x 1.5” (H)
(25.2 cm x 13.9 cm x 3.8 cm)

INCLUDES: Racepak SmartWire Module
Connector Kit
USB Cable
Programming Software

A. SMARTWIRE POWER CONTROL MODULE

B. SMARTWIRE SWITCH PANEL

B. SMARTWIRE SWITCH MODULE

B. SMARTWIRE ACCESSORIES

SmartWire Switch Panel 500-SW-PNL8
SmartWire Switch Module 500-SW-5M6
Switch Panel Mount Bracket 500-MB-SP-xxxx
(Available sizes are: 1.50”, 1.625” and 1.75”)
SmartWire to Switch Panel Cable (Variety of sizes offered) 500-CA-BNSP-xxxx
SmartWire to V-Net Cable (Variety of sizes offered) 500-CA-BNSP-xxxx
SmartWire Tee Cable (Available sizes are: 1” and 4’) 500-CA-BNT-TEE
A. V300SD DATA RECORDER

The affordable V300SD data recorder is the most common recorder for Pro Stock, Pro Modified and many of the Sportsman classes. In its basic configuration, the V300SD monitors six parameters (Engine RPM, Drivetrain RPM, Lateral G, Lateral G, Battery Volts and a 12-volt event), but it can be expanded to monitor up to 67 channels of data to meet the needs of most users. The V300SD can sample data as quickly as 1000 times per second. Uploading recorded data to your computer is done via a SD memory card, which provides you with hours of recording time and the ability to store many runs prior to uploading the data. The V300SD also has multiple methods of displaying monitored data in real time. When linked by serial cable to your PC you can view all recorded functions in either graph format or on 8 virtual gauges while the vehicle is running. Any monitored function can also be displayed in real time on Racepak's optional Intelli-Gauges or either the IQ3 or Ultra Dash (UDX).

FEATURES

CHANNELS:
- 67 Total
- V-Mt: 36
- Analog: 4 Hard-Wired
- Digital: 4-Hard-Wired
- Internal: 3

SAMPLE RATE:
- V-Mt: Up to 100 per Second
- Analog: Up to 1000 per Second
- Digital: RPM and Switch Contacts Up to 100 per Second

MEMORY:
- SD Memory Card

INTERNAL SENSORS:
- Battery Voltage
- Longitudinal G-Meter (Acceleration and Deceleration)
- Lateral G-Meter (Side-to-Side Motion)

DIMENSIONS:
- 4.374” (L) x 3.030” (W) x 1.230” (H) (11.11cm x 9.994cm x 3.12cm)

WEIGHT:
- 10 Ounces (28kg)

V300SD PACKAGE INCLUDES

- SD Memory Card
- Driveshaft or Rear Wheel RPM Sensor with Split Collar and Magnet Kit
- Datalink Software Kit with Serial Programming Cable
- V-Net Tee Connector with Terminator Caps

TYPICAL USES

- Pro Mod
- Pro Stock
- Top Dragster
- Top Sportsman
- Comp Eliminator
- Super Comp
- Motorcycles
- Land Speed Cars
- Drag Boats
- Engine RPM
- Drivetrain RPM
- Battery Voltage
- Acceleration G-Force
- Lateral G-Force

B. V300SD MOUNTING Bracket

V300SD PACKAGE MONITORS

- 1.250” O.D. Tubing
- 1.500” O.D. Tubing
- 1.625” O.D. Tubing
- 1.750” O.D. Tubing

C. V500SD DATA RECORDER

If you need to monitor many channels of information while using fast sampling rates for extended recording periods, the V500SD is for you. The V500SD handles more channels of information than the V300SD data recorder, supporting up to 75 total channels of information. With that comes high sampling speed rates (up to 1000/sec.). Information can be displayed in real time on a PC monitor, uploaded to the PC for analysis using the Racepak Datalink Data Analysis software, or displayed on the optional Intelligages or either the IQ3 or Ultra Dash (UDX). The V500SD can be equipped to monitor overall timing, or individual cylinder timing on those vehicles using the proper programmable ignition system.

FEATURES

CHANNELS:
- 75 Total
- V-Mt: 96
- Analog: 8 Hard-Wired
- Digital: 8 Hard-Wired
- Internal: 3

SAMPLE RATE:
- V-Mt: Up to 100 per Second
- Analog: Up to 1000 per Second
- Digital: RPM and Switch Contacts Up to 100 per Second

MEMORY:
- SD CARD

INTERNAL SENSORS:
- Battery Voltage
- Longitudinal G-Meter (Acceleration and Deceleration)
- Lateral G-Meter (Side-to-Side Motion)

DIMENSIONS:
- 5.350” (L) x 5.550” (W) x 1.215” (H) (13.598cm x 14.09cm x 3.08cm)

WEIGHT:
- 17 Ounces (48kg)

V500SD with Data Cartridge Download 200-KT-V500-4MDC

Includes Datalink Standard

D. BLUETOOTH UPGRADE

This feature allows you to communicate wirelessly with your V500SD data logger. Eliminate your programming cable and program your data logger or view real-time data using the wireless telemetry function available with this upgrade.

Bluetooth Upgrade 200-UG-BTV500

E. V500SD MOUNTING Bracket

V500SD PACKAGE INCLUDES

- SD Memory Card
- Driveshaft or Rear Wheel RPM Sensor with Split Collar and Magnet Kit
- Datalink Software Kit with Serial Programming Cable
- V-Net Tee Connector with Terminator Caps

TYPICAL USES

- Pro Mod
- Pro Stock
- Drag Boats
- Dymometers
- Industrial Equipment
- Engine RPM
- Drivetrain RPM
- Battery Voltage
- Acceleration G-Force
- Lateral G-Force

V500SD PACKAGE MONITORS

- 1.250” O.D. Tubing
- 1.500” O.D. Tubing
- 1.625” O.D. Tubing
- 1.750” O.D. Tubing

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RACEPAK.COM 949.709.5555

15
A. SPORTSMAN DATA RECORDER

含蒙ing the same hardware and software utilized by our professional series data recorders, the Sportsman Drag Race Data Logger package offers an economical solution for the sportsman drag racer. Utilizing Racepak’s exclusive V-Net sensor input compatibility with our full V-Net product line, the 21 total sensor inputs (internal and external) provide the ideal balance of cost and features, allowing the sportsman racer to monitor information such as EGT, oil pressure, water temperature, transmission pressures, 12 volt event, air flow, etc. The use of a 32 GB memory card ensures hours of recording time and the ability to store multiple run files, before downloading. Installation is simplified by the use of factory terminated wiring harness and pre-programmed software.

FEATURES

CHANNELS: 21 Total
8 EGT
6 V-Net (Add up to 12 additional channels. See details below.)

SAMPLE RATE: V-Net: Up to 100 per Second
MEMORY: 32 MB Memory Card
Up to 8 MB SD Card

INTERNAL SENSORS:
- Engine RPM
- Driveshaft RPM
- Battery Voltage
- Start Record Button
- USB to Serial Port Adapter
- SD to USB Card Reader
- Datalink II Serial Programming Cable
- Datalink Lite Software

SPORTSMAN PACKAGE INCLUDES

- Sportsman Data logger
- User Terminated Harness
- Driveshaft Collar, Sensor & Mounting Bracket
- Start Record Button
- Datalink Download Software Kit with 6 Foot Cable
- Driveshaft RPM Sensor Kit
- Wiring Harness
- Instructional Manual

SPORTSMAN PACKAGE MONITORS

- Engine RPM
- Driveshaft RPM
- Battery Voltage
- Accel G
- Lateral G
- 12 Volt Event

TYPICAL USES

Non-Blown Sportsman
Super Comp
Super Gas

D. 500HZ VNET SHOCK TRAVEL MODULE

The 500Hz V-Net Shock Travel Module for Sportsman Data Loggers offers the ability to monitor, record and review high resolution shock data and provides:
- Plug and Play connection via Sportsman V-Net port
- Inputs for up to four individual shock sensors
- Sample rate up to 500 times per second, for each channel
- Optional shock velocity channel

When used in conjunction with Racepak’s optional shock travel kits, critical shock and chassis adjustments can now be made with confidence through the use of shock travel data.

Tip #1 Did you know you can upgrade the Sportsman data logger to a total of 18 V-Net channels? Both two and four channel upgrades are available. Contact a Racepak technician for complete details.

C. LDX LOGGER DASH EXTREME

The LDX Logger Dash combines a digital display dash with an internal data recorder, creating a compact, lightweight, all-in-one data acquisition system. The LDX Logger Dash utilizes the benefits of Racepak’s single cable V-Net technology by sharing the data from all sensors with the data logger. In addition to the wiring harness, which imports the signals from the engine RPM, drivetrain RPM, water temperature, oil pressure and battery voltage, up to 32 optional sensors may be attached via the single V-Net cable. This yields a total recording capacity of 37 sensor inputs.

Selecting what sensor data will be viewed is accomplished through the DatalinkII software. Also included are output ports to allow connection to an external shift light and warning light. Shift points can be programmed using the left and right buttons located at the bottom of the dash, while reviewing settings on the display. These same buttons are also utilized to program warning limits and review minimum and maximum values for displayed data.

FEATURES

CHANNELS: 37 Total
V-Net: 32 Digital / Analog
- Engine RPM, Driveshaft RPM, Water Temperature, Oil Pressure, Volts

SAMPLE RATE: V-Net: Up to 100 per Second
Digital: RPM and Switch Contacts Up to 100 per Second

MEMORY: 1 MB
Recording Time Depends on Number of Channels

DATALOGGED: 10,250,000 (10.250” OAL Depth)
Mounted Surface to Face, 2.00” OAL Depth

SCREEN DIMENSIONS: 7.250” x 2.625”
(18.415cm x 6.6675cm)

WEIGHT: 25 Ounces (71kg)

C. LDX LOGGER DASH EXTREME

C. LXD LOGGER DASH EXTREME

The LDX Logger Dash combines a digital display dash with an internal data recorder, creating a compact, lightweight, all-in-one data acquisition system. The LDX Logger Dash utilizes the benefits of Racepak’s single cable V-Net technology by sharing the data from all sensors with the data logger. In addition to the wiring harness, which imports the signals from the engine RPM, drivetrain RPM, water temperature, oil pressure and battery voltage, up to 32 optional sensors may be attached via the single V-Net cable. This yields a total recording capacity of 37 sensor inputs.

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FEATURES

CHANNELS: 37 Total
V-Net: 32 Digital / Analog
- Engine RPM, Driveshaft RPM, Water Temperature, Oil Pressure, Volts

SAMPLE RATE: V-Net: Up to 100 per Second
Digital: RPM and Switch Contacts Up to 100 per Second

MEMORY: 1 MB
Recording Time Depends on Number of Channels

DATALOGGED: 10,250,000 (10.250” OAL Depth)
Mounted Surface to Face, 2.00” OAL Depth

SCREEN DIMENSIONS: 7.250” x 2.625”
(18.415cm x 6.6675cm)

WEIGHT: 25 Ounces (71kg)

C. LDX LOGGER DASH EXTREME

C. LXD LOGGER DASH EXTREME

The LDX Logger Dash combines a digital display dash with an internal data recorder, creating a compact, lightweight, all-in-one data acquisition system. The LDX Logger Dash utilizes the benefits of Racepak’s single cable V-Net technology by sharing the data from all sensors with the data logger. In addition to the wiring harness, which imports the signals from the engine RPM, drivetrain RPM, water temperature, oil pressure and battery voltage, up to 32 optional sensors may be attached via the single V-Net cable. This yields a total recording capacity of 37 sensor inputs.

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FEATURES

CHANNELS: 37 Total
V-Net: 32 Digital / Analog
- Engine RPM, Driveshaft RPM, Water Temperature, Oil Pressure, Volts

SAMPLE RATE: V-Net: Up to 100 per Second
Digital: RPM and Switch Contacts Up to 100 per Second

MEMORY: 1 MB
Recording Time Depends on Number of Channels

DATALOGGED: 10,250,000 (10.250” OAL Depth)
Mounted Surface to Face, 2.00” OAL Depth

SCREEN DIMENSIONS: 7.250” x 2.625”
(18.415cm x 6.6675cm)

WEIGHT: 25 Ounces (71kg)

C. LDX LOGGER DASH EXTREME

C. LXD LOGGER DASH EXTREME

The LDX Logger Dash combines a digital display dash with an internal data recorder, creating a compact, lightweight, all-in-one data acquisition system. The LDX Logger Dash utilizes the benefits of Racepak’s single cable V-Net technology by sharing the data from all sensors with the data logger. In addition to the wiring harness, which imports the signals from the engine RPM, drivetrain RPM, water temperature, oil pressure and battery voltage, up to 32 optional sensors may be attached via the single V-Net cable. This yields a total recording capacity of 37 sensor inputs.

Selecting what sensor data will be viewed is accomplished through the DatalinkII software. Also included are output ports to allow connection to an external shift light and warning light. Shift points can be programmed using the left and right buttons located at the bottom of the dash, while reviewing settings on the display. These same buttons are also utilized to program warning limits and review minimum and maximum values for displayed data.

FEATURES

CHANNELS: 37 Total
V-Net: 32 Digital / Analog
- Engine RPM, Driveshaft RPM, Water Temperature, Oil Pressure, Volts

SAMPLE RATE: V-Net: Up to 100 per Second
Digital: RPM and Switch Contacts Up to 100 per Second

MEMORY: 1 MB
Recording Time Depends on Number of Channels

DATALOGGED: 10,250,000 (10.250” OAL Depth)
Mounted Surface to Face, 2.00” OAL Depth

SCREEN DIMENSIONS: 7.250” x 2.625”
(18.415cm x 6.6675cm)

WEIGHT: 25 Ounces (71kg)
D. UDX REPLAY DASH
Given the popularity of replay and recall gauges, the UDX Replay Dash goes one step further by providing the ability to replay up to 10 minutes of data, while also functioning as full feature LCD display dash.

FEATURES
- INCLUDES: UDX Display Dash, V-NET Tee Cable.

DISPLAY DASH PROVIDES:
- Any 21 Sensor Inputs Shift Light Output Warning Lights

DIMENSIONS: 4" (H) x 10.2" (W) x .75" (deep) * Requires 2" rear clearance (10.16cm x 25.908cm x 1.905cm)

WEIGHT: 21 ozs. (.58 kg)

B. IQ3 DASH DISPLAY
The IQ3 can be utilized with any of Racepak's V-NET series of data recorders, providing a compact LCD digital dash. The IQ3 can be utilized as a standalone display dash, independent of the V-NET port, located on the rear of the dash.

FEATURES

DIMENSIONS: 7.25" (L) x 4.000" (W) x 1.125" (deep) (18.41cm x 10.16cm x 5.39cm)

WEIGHT: 1lb. (453g)

C. IQ3 ACCESSORIES
- External Programming Buttons 280-SW-IQ3BTN
- Faux Carbon Mounting Panel 800-MB-IQ3-PCF
- Black Mounting Panel 800-MB-IQ3-PBLK
- Silver Mounting Panel 800-MB-IQ3-PAL

C. MOUNTING PANEL

F. INTELLI-GAUGES
These are not your average analog or digital gauge. They are both. In addition, they are highly accurate, stylish, dependable, and provide real time display for your monitored functions.

FEATURES

DIMENSIONS: 2.00" diameter and feature a 270° sweep needle

WEIGHT: 45g

View Selection Chart on Next Page

INSTRUMENTATION

A. UDX DISPLAY DASH
Capable of being utilized with any of Racepak's V-NET series of data recorders. UDX utilizes the same V-NET cable as the external sensors use. The UDX display is capable of "sharing" sensor data with the data logger, thus providing the ability to display or trigger warnings based on any internal or external sensor in use by the data logger.

FEATURES
- INCLUDES: UDX Display Dash, V-NET Tee Cable.

DISPLAY DASH PROVIDES:
- Any 21 Sensor Inputs Shift Light Output Warning Lights

DIMENSIONS: 4" (H) x 10.2" (W) x .75" (deep) * Requires 2" rear clearance (10.16cm x 25.908cm x 1.905cm)

WEIGHT: 21 ozs. (.58 kg)

B. IQ3 DASH DISPLAY
The IQ3 can be utilized with any of Racepak's V-NET data loggers, providing a compact LCD digital dash. The IQ3 can be utilized as a standalone display dash, independent of the V-NET port, located on the rear of the dash.

FEATURES

DIMENSIONS: 7.25" (L) x 4.000" (W) x 1.125" (deep) (18.41cm x 10.16cm x 5.39cm)

WEIGHT: 1lb. (453g)

C. IQ3 ACCESSORIES
- External Programming Buttons 280-SW-IQ3BTN
- Faux Carbon Mounting Panel 800-MB-IQ3-PCF
- Black Mounting Panel 800-MB-IQ3-PBLK
- Silver Mounting Panel 800-MB-IQ3-PAL
### INTELLI-GAUGE SELECTION CHART

<table>
<thead>
<tr>
<th>INTELLI-GAUGE</th>
<th>RANGE</th>
<th>BLACK FACE</th>
<th>WHITE FACE</th>
</tr>
</thead>
<tbody>
<tr>
<td>RPM, TACHOMETER</td>
<td>1,000-10,500 RPM</td>
<td>250-IG-100BB</td>
<td>250-IG-100WB</td>
</tr>
<tr>
<td>RPM, TURBINE PERCENTAGE, N1</td>
<td>0-120%</td>
<td>NA</td>
<td>250-IG-211WB</td>
</tr>
<tr>
<td>RPM, TURBINE PERCENTAGE, N2</td>
<td>0-120%</td>
<td>NA</td>
<td>250-IG-219WB</td>
</tr>
<tr>
<td>TEMPERATURE, WATER (STREET)</td>
<td>130°-280°F</td>
<td>250-IG-110BB</td>
<td>250-IG-110WB</td>
</tr>
<tr>
<td>TEMPERATURE, OIL</td>
<td>60°-200°F</td>
<td>250-IG-120BB</td>
<td>250-IG-120WB</td>
</tr>
<tr>
<td>TEMPERATURE, EXHAUST GAS</td>
<td>140°-280°F</td>
<td>250-IG-130BB</td>
<td>250-IG-130WB</td>
</tr>
<tr>
<td>TEMPERATURE, EXHAUST GAS #2</td>
<td>600°-1,600°F</td>
<td>250-IG-140BB</td>
<td>250-IG-140WB</td>
</tr>
<tr>
<td>TEMPERATURE, EXHAUST GAS</td>
<td>600°-1,600°F</td>
<td>250-IG-145BB</td>
<td>250-IG-145WB</td>
</tr>
<tr>
<td>TEMPERATURE, CYLINDER HEAD</td>
<td>0°-1,000°F</td>
<td>NA</td>
<td>250-IG-229WB</td>
</tr>
<tr>
<td>TEMPERATURE, TRANSMISSION</td>
<td>130°-600°F</td>
<td>250-IG-150BB</td>
<td>250-IG-150WB</td>
</tr>
<tr>
<td>PRESSURE, OIL</td>
<td>0-100 psi</td>
<td>250-IG-160BB</td>
<td>250-IG-160WB</td>
</tr>
<tr>
<td>PRESSURE, FUEL</td>
<td>0-250 psi</td>
<td>NA</td>
<td>250-IG-162WB</td>
</tr>
<tr>
<td>PRESSURE, FUEL</td>
<td>0-10 psi</td>
<td>250-IG-170BB</td>
<td>250-IG-170WB</td>
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<tr>
<td>PRESSURE, FUEL</td>
<td>0-100 psi</td>
<td>250-IG-180BB</td>
<td>250-IG-180WB</td>
</tr>
<tr>
<td>PRESSURE, FUEL</td>
<td>0-250 psi</td>
<td>NA</td>
<td>250-IG-187WB</td>
</tr>
<tr>
<td>PRESSURE, FUEL</td>
<td>0-500 psi</td>
<td>NA</td>
<td>250-IG-226WB</td>
</tr>
<tr>
<td>PRESSURE, BRAKE</td>
<td>0-1,500 psi</td>
<td>250-IG-180BB</td>
<td>250-IG-180WB</td>
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<tr>
<td>PRESSURE, NITROUS</td>
<td>0-1,600 psi</td>
<td>250-IG-175BB</td>
<td>250-IG-175WB</td>
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<td>PRESSURE, (GENERIC)</td>
<td>0-200 psi</td>
<td>250-IG-190BB</td>
<td>250-IG-190WB</td>
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<td>PRESSURE, (GENERIC)</td>
<td>0-300 psi</td>
<td>250-IG-195BB</td>
<td>250-IG-195WB</td>
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<td>PRESSURE, (GENERIC)</td>
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<td>250-IG-223WB</td>
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<tr>
<td>PRESSURE, (GENERIC)</td>
<td>0-1,000 psi</td>
<td>250-IG-197BB</td>
<td>250-IG-197WB</td>
</tr>
<tr>
<td>VACUUM</td>
<td>30 psi-0.30 in. hg</td>
<td>250-IG-215WB</td>
<td>250-IG-215WB</td>
</tr>
<tr>
<td>VACUUM</td>
<td>0-60 psi</td>
<td>NA</td>
<td>250-IG-217WB</td>
</tr>
<tr>
<td>BOOST</td>
<td>0-30 in. hg</td>
<td>250-IG-210BB</td>
<td>250-IG-210WB</td>
</tr>
<tr>
<td>AIR/FUEL RATIO</td>
<td>10-18</td>
<td>NA</td>
<td>250-IG-224WB</td>
</tr>
<tr>
<td>FLOW</td>
<td>3.5-4.5 GPM</td>
<td>NA</td>
<td>250-IG-222WB</td>
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<tr>
<td>FUEL LEVEL</td>
<td>E-F</td>
<td>NA</td>
<td>250-IG-225WB</td>
</tr>
<tr>
<td>VOLTS</td>
<td>8-20</td>
<td>250-IG-200BB</td>
<td>250-IG-200WB</td>
</tr>
<tr>
<td>VOLTS (WITH INTERNAL SENSOR)</td>
<td>8-20</td>
<td>250-IG-204BB</td>
<td>250-IG-204WB</td>
</tr>
<tr>
<td>VOLTS</td>
<td>20-32</td>
<td>NA</td>
<td>250-IG-211WB</td>
</tr>
</tbody>
</table>

### B. GAUGE TEE CABLES

Connects first gauge to V-Net cable or another V-Net module.

<table>
<thead>
<tr>
<th>Cable</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>8&quot; Cable</td>
<td>280-CA-RSG-700</td>
</tr>
<tr>
<td>16&quot; Cable</td>
<td>280-CA-RSG-7016</td>
</tr>
<tr>
<td>24&quot; Cable</td>
<td>280-CA-RSG-724</td>
</tr>
</tbody>
</table>

### B. GAUGE JUMPER CABLE

A. GAUGE TO GAUGE JUMPER CABLE

- 8" Cable 280-CA-RSG-008
- 16" Cable 280-CA-RSG-016
- 24" Cable 280-CA-RSG-024
- 48" Cable 280-CA-RSG-048
- 288" Cable 280-CA-RSG-288

Racpak’s Vehicle Network (V-Net) is a “smart data” transfer network providing the ability to transmit multiple signals from each sensor over a single cable. This technology creates a system in which the individual components interact with each other, making a simpler, more compact system which can be expanded with ease.

The key to accomplishing this is in the modular connectors that attach each of the devices to the main V-Net cable. Each module is essentially a miniature computer which houses circuit boards and a microprocessor that identifies and retrieves only the proper incoming signals and allows other signals to pass through.

Whether you will be installing a single gauge set up, or a full-blown data acquisition system, all components are attached to the system using the modular snap-together connectors. Adding components onto the system is simple. Just find a junction in the main V-Net cable, separate the connectors, and sandwich the new sensor’s module between them. Then command your software to read the new configuration. It will automatically recognize any additions or deletions from the system.

Gauge integration is another strength of the V-Net system, but don’t mistake the Racpak gauges for garden variety gauges. If your vehicle is equipped with a V-Net recording system, the gauges simply use the sensors and wiring that are already in place to provide full time display of the data being monitored.

The same holds true for Racpak’s digital display dashes. Some models of the dash will rely solely upon the data recorder’s sensors to provide the information they display, while others are stand alone requiring no data recorder. When you add Datalink II, the best Windows-based software in the business, you will see why Racpak continues to be the most popular and widely used data acquisition system in the industry.

In order for a function to be monitored on the V-Net, the signal from that function must pass through two components: a sensor and a module. The sensor is the unit that actually measures the input from the function (i.e. pressure, temperature, etc.), while the module converts the signal so it can be transmitted over the V-Net. In the module sensor section that follows, you will find a complete listing of these components divided into categories.
ANALOG PRE-PROGRAMMED WITH SENSORS

These pre-programmed analog function module and sensor combinations are ready for plug-and-play installation on the V-Net cable.

A. PRESSURE (48” Lead Length)
- Boost (Manifold), 0-75 psi 220-VP-PT-BST75
- Brakes, 0-1500 psi 220-VP-PT-B1500
- Fuel Carburator, 0-15 psi 220-VP-PT-CP15
- Fuel, Nozzle, 0-150 psi 220-VP-PT-NP150
- Fuel, Nozzle, 0-300 psi 220-VP-PT-NP300
- Fuel, Nozzle, 0-500 psi 220-VP-PT-NP500
- Fuel, Pump, 0-75 psi 220-VP-PT-PP75
- Fuel, Pump, 0-150 psi 220-VP-PT-PP150
- Fuel, Pump, 0-300 psi 220-VP-PT-PP300
- Fuel, Pump, 0-500 psi 220-VP-PT-PP500
- Nitrous Bottle #1, 0-1500 psi 220-VP-PT-N1
- Nitrous Bottle #2, 0-1500 psi 220-VP-PT-N2
- Nitrous Fuel #1, 0-15 psi 220-VP-PT-NF115
- Nitrous Fuel #2, 0-15 psi 220-VP-PT-NF215
- Nitrous Fuel #3, 0-15 psi 220-VP-PT-NF315
- Nitrous Fuel #4, 0-15 psi 220-VP-PT-NF415
- Oil, 0-15 psi 220-VP-PT-OP150
- Oil, 0-300 psi 220-VP-PT-OP300
- Pressure Differential, 0-40” H2O to 15 psi 220-VP-PT-PD145
- Pressure Differential 220-VP-PT-PD745
- Transmission, 0-300 psi 220-VP-PT-TP300
- Turbo Back Pressure #1, 0-75 psi 220-VP-PT-EP175
- Turbo Back Pressure #2, 0-75 psi 220-VP-PT-EP275
- Turbocharger Outlet #1, 0-75 psi 220-VP-PT-TP810
- Wheelie Bar, Left, 0-3000 psi 220-VP-PT-WBL3K
- Wheelie Bar, Right, 0-3000 psi 220-VP-PT-WBR3K
- Wheelie Bar, Left, 0-5000 psi 220-VP-PT-WBL5K
- Wheelie Bar, Right, 0-5000 psi 220-VP-PT-WBR5K

B. VACUUM
- Manifold, 30 PSI 0-30 in. hg 220-VP-PT-VAC
- Pan (Crankcase), 0-30 in. hg 220-VP-PT-PVAC

C. TEMPERATURE

Pigtail cable lengths are shown in parenthesis.
- Cylinder Head, Left, 0-600°F, (36”) 220-VP-TC-HEADL
- Cylinder Head, Right, 0-600°F, (36”) 220-VP-TC-HEADR
- Engine Oil, 0-300°F, (48”) 220-VP-TR-OIL
- Intake Manifold, Open Tip 0-600°F, (36”) 220-VP-TC-MANIF
- Intertcooler Inlet, 0-300°F, (72”) 220-VP-TR-ICTI
- Rear End Oil, 0-300°F, (72”) 220-VP-TR-RET
- Transmission Oil, 0-300°F, (72”) 220-VP-TR-TRANS
- Water, 0-300°F (72”) 220-VP-TR-WATER

D. EXHAUST GAS TEMPERATURES/CYLINDER BANK SETS

EGT junction box sets are ordered by the cylinder bank sequence they serve.
- Junction Box & 4 Probes, 1357, Small Block 220-VP-TC-1357S
- Junction Box & 4 Probes, 2468, Small Block 220-VP-TC-2468S
- Junction Box & 4 Probes, 1357, Big Block 220-VP-TC-1357B
- Junction Box & 4 Probes, 2468, Big Block 220-VP-TC-2468B
- Junction Box & 4 Probes, 1234 220-VP-TC-1234
- Junction Box & 4 Probes, 5678 220-VP-TC-5678
- Junction Box & 3 Probes, 456 220-VP-TC-456
- Junction Box & 3 Probes, Motorcycle 220-VP-TC-1234M
- Junction Box & 3 Probes, 123 220-VP-TC-123
- Junction Box & 3 Probes, 456 220-VP-TC-456
- Junction Box & 3 Probes, 135 220-VP-TC-135
- Junction Box & 3 Probes, 246 220-VP-TC-246

E. EXHAUST GAS TEMPERATURES/SINGLE CYLINDER

Single cylinder modules include the thermocouple.
- Cylinder #1 200-VP-TC-EGT1
- Cylinder #2 200-VP-TC-EGT2
- Cylinder #3 200-VP-TC-EGT3
- Cylinder #4 200-VP-TC-EGT4
- Cylinder #5 200-VP-TC-EGT5
- Cylinder #6 200-VP-TC-EGT6
- Cylinder #7 200-VP-TC-EGT7
- Cylinder #8 200-VP-TC-EGT8
A. ANALOG PRE-PROGRAMMED WITHOUT SENSORS
These analog function modules have been programmed for general usage, and have not been assigned to a specific task. Use of these modules on the V-Net cable requires the addition of a sensor and configuration of the module using your DatalinkII software.

| Voltage, 0-5 Volt Input, 5 Volt Output | 230-VM-AN-5V |
| Voltage, 0-5 Volt Input, 12 Volt Output | 230-VM-AN-12V |
| Pressure, 5 Volt | 230-VM-PT-5V |
| Position/Movement, Rotary or Linear | 230-VM-TPS |
| Temperature, Fluid-type, 0-300°F | 230-VM-TR-300 |
| Temperature, Low, 0-600°F | 230-VM-TC-600 |
| Temperature, High, 0-1800°F | 230-VM-TC-1800 |
| Air/Fuel Sensor Input, Single | 230-VM-AF |
| Air/Fuel Sensor Input, 4 Station | 230-VM-AF (CTIL In) |
| Battery Voltage | 230-VM-BVOLT |
| Voltage Differential | 230-VM-VDIFF |

ANALOG NOT PRE-PROGRAMMED WITH SENSORS
The module/sensor combinations are the same as the V-Net Modules with Sensors/Analog on pages 19-20 with the exception that they have not been pre-programmed. Each of the pressure or temperature module/sensor combinations below is designed to be attached to the V-Net cable. Once installed, they must be programmed using the Configuration File in the Datalink software.

B. PRESSURE
0-15 psi | 220-VS-15GVT |
0-75 psi | 220-VS-75GVT |
0-150 psi | 220-VS-150GVT |
0-500 psi | 220-VS-500GVT |
0-1500 psi | 220-VS-1500SVT |
Vacuum/Pressure 30 In. hg-0-30 psi | 220-VS-VB |

C. TEMPERATURE
Fluid Temperature, 0-300°F, Fluid Type Sensor | 220-VS-TR-300 |

D. FLUID TEMPERATURE SENSOR CONNECTOR KIT
Use with V-Net modules and temperature sensors having prefix number of 220-VP-TR-, 220-VS-, or 220-VM-TR-.

E. PRESSURE SENSOR CONNECTOR KIT
Use with V-Net module and pressure sensor having prefix number of 230-VP-PT-, 220-VS-, or 220-VM-PT-.

F. EXTENSION CABLES
These custom-built extensions can be used to extend the length of cables that use a 2-Pin or 3-Pin Molex connector to attach the sensor to the power harness or a module’s pigtail. Please specify length required when ordering.

F. EXTENSION CABLES

G. MOLEX TERMINAL KITS
These connector kits can be used if the need arises to shorten a cable that is terminated. Available with a two or three pin Molex connector. Kit includes both a male and female connector and pins.

02 Tip #2 Receiving a COM port error message when connecting your PC to a Racepak data logger or digital dash?

Remember, each USB port on a PC is assigned a particular COM port number, which must match the COM number in the Racepak software.

With your config file open, select Settings / Scan Com Ports in the DatalinkII software.

For simple video details on how to perform this process, check out https://www.youtube.com/user/racepakvideos/videos
A. DIGITAL PRE-PROGRAMMED MODULES WITH SENSORS
These pre-programmed digital function modules and sensor combinations are ready for plug-and-play installation on the V-Net cable. See sensors only page.

<table>
<thead>
<tr>
<th>Module Type</th>
<th>Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clutch RPM</td>
<td>220-VP-CL-1</td>
<td>Monitors magnetic pulses using a Zero Crossing sensor.</td>
</tr>
<tr>
<td>Drive Shaft RPM, Automotive</td>
<td>220-VP-DS-2</td>
<td>Monitors magnetic pulses using a Zero Crossing sensor.</td>
</tr>
<tr>
<td>Front Wheel RPM</td>
<td>220-VP-FWXZ</td>
<td>Monitors ferrous metal pulses using a Hall Effect sensor.</td>
</tr>
<tr>
<td>Turbo Speed for use with Racepak</td>
<td>220-VP-TURBOPRMP</td>
<td>V-Net Data Loggers</td>
</tr>
<tr>
<td>Turbo Speed V-Net Module only</td>
<td>230-VM-TURBO</td>
<td></td>
</tr>
<tr>
<td>Turbo Speed Sensor only</td>
<td>800-SS-SPEED</td>
<td></td>
</tr>
</tbody>
</table>

B. DIGITAL PRE-PROGRAMMED MODULES WITHOUT SENSORS
These pre-programmed digital function modules are ready for plug-and-play installation on the V-Net cable. You must add the appropriate sensor to the module.

<table>
<thead>
<tr>
<th>Module Type</th>
<th>Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zero Crossing Input</td>
<td>230-VM-ZX-1</td>
<td></td>
</tr>
<tr>
<td>Hall Effect Input</td>
<td>230-VP-RPMHE</td>
<td></td>
</tr>
<tr>
<td>Contact Closure Input</td>
<td>230-VM-CC-1</td>
<td></td>
</tr>
<tr>
<td>Event Marker Input, 12 Volt</td>
<td>230-VM-EVENT</td>
<td></td>
</tr>
<tr>
<td>Event Marker Input, Switch Closure</td>
<td>230-VM-EVENTSW</td>
<td></td>
</tr>
<tr>
<td>Flow Meter</td>
<td>230-VM-FLOW</td>
<td></td>
</tr>
<tr>
<td>Four Channel Digital Input</td>
<td>230-VM-4DIGIN</td>
<td></td>
</tr>
<tr>
<td>Four Channel Digital Output</td>
<td>230-VM-4DIGOUT</td>
<td></td>
</tr>
</tbody>
</table>

C. DIGITAL PRE-PROGRAMMED MODULES NO SENSORS REQUIRED
These modules do not require a sensor. They use the pulse from the component they are monitoring as the signal to the module. Each has been programmed for the specific use noted and is ready for plug-and-play installation on the V-Net cable.

<table>
<thead>
<tr>
<th>Module Type</th>
<th>Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engine RPM Input Module</td>
<td>220-VP-TACH-4</td>
<td></td>
</tr>
<tr>
<td>Transbrake Event 12 Volt Triggered</td>
<td>220-VP-TBRAKE</td>
<td></td>
</tr>
<tr>
<td>Wide Open Throttle Event</td>
<td>220-VP-WOTEVENT</td>
<td></td>
</tr>
<tr>
<td>Clutch Event 12 Volt Triggered</td>
<td>220-VP-CLTEVENT</td>
<td></td>
</tr>
</tbody>
</table>
A. EFI DATA INTERFACE

These V-Net modules have been created to interface with many electronic fuel injection systems on the market. Each V-NetEFI data interface module is equipped to allow direct connection with EFI. These modules allow your V-Net data recorder to share the data collected by these systems rather than having to install duplicate sensors to monitor functions that are already being monitored by the EFI system. The shared data can be recorded or displayed just as you would any function monitored independently by your Racepak V-series recorder. Caution should be exercised as you would any function monitored independently by your system. The shared data can be recorded or displayed just as you would any function monitored independently by your Racepak V-series recorder. Caution should be exercised as you would any function monitored independently by your system. The shared data can be recorded or displayed just as you would any function monitored independently by your system.

Tip #3 Does your Driveshaft RPM appear to be reading too high, or too low? Remember, the Driveshaft RPM sensor channel is only as smart as the programming.

Using a four magnet collar with a 2 magnet channel would fool the software, providing double the magnetic pulses in one revolution and double the RPM reading.

For simple video details on how to perform this process, check out https://www.youtube.com/user/racepakvideos/videos

AIR/FUEL SENSORS

Racepak has created a selection of A/F controllers and sensors created specifically for tuning race engines. The 4 channel controller is designed to be connected to the V-Net cable of Racepak V-series recorders. When ordering please be aware that the sensors are calibrated for use on specific ports of the controller and cannot be interchanged from port to port without recalibration. All sensors have a 13’’ pigtail cable, and the controller has a 37’’ cable for attachment to the sensor. These lengths cannot be altered. Controllers are ordered by cylinder bank layout.

Racepak A/F sensors are compatible with either gasoline or methanol fueled engines. Gasoline application will display A/F ratios between 9.55:1 and 20:1, while methanol is shown from 2.2:1 to 8.7:1. Please specify this type of fuel you will be using when ordering. Each sensor includes one weldment and plug.

B. 4 CHANNEL AIR/FUEL CONTROLLER

Controllers must be ordered separately

4 Channel Controller, Cylinders 1, 3, 5, 7, 220-VM-AF4-1357
For use on 1, 3, 5, 7 cylinder bank of V8, i.e. GM & Mopar

4 Channel Controller, Cylinders 2, 4, 6, 8, 220-VM-AF4-2468
For use on 2, 4, 6, 8 cylinder bank of V8, i.e. GM & Mopar

4 Channel Controller, Cylinders 5, 6, 7, 8, 220-VM-AF4-5678
For use on 5, 6, 7, 8 cylinder bank of V8, i.e. Ford

Air/Fuel Sensor Only
810-5N-AFMP

Air/Fuel Weldment & Plug
810-TX-AF6LDP
Weldments are included with purchase of controller.

Air/Fuel Harness ‘A’ Side
280-CA-LGSIA-AMP

Air/Fuel Harness ‘B’ Side
280-CA-LGSIBS-AMP

C. SINGLE AIR/FUEL CONTROLLER WITH SENSOR


AF1 Package
220-VM-AF1

D. RELAY CONTROL MODULE

A Relay Control Module is the device which permits the V-Net system to perform a host of automated tasks. It allows any information transmitted over the V-Net to be used to activate external high power devices such as a switch, solenoid, water pump, fan, or lights. Each module has two programmable output relays. Each relay can have up to two separate (analog and/or digital) control signals that must be met before the relay is engaged. For example, one relay can be programmed to turn on a water pump only when a ‘Pump’ switch is on and the water temperature is above the programmed value, while the other relay can be used to activate an ignition kill switch only if the engine RPM is above a programmed value and the oil pressure is lower than a predetermined pressure. Relays are included.

AF1 Package
220-VM-RELAY

E. STEERING SENSOR

Column mounted steering sensor package includes rotary sensor, column mount, tilt contact wheel and V-Net module. For use with Racepak V-Net data loggers.

Steering Sensor
220-VF-5K1
 INTERFACE MODULES

Interface modules are another unique component of the V-series recorders. These black 7-pin modules differ from the blue 5-pin V-Net modules in both the application and the manner in which they perform. They are designed to provide a modular method of assembly for the sensors that connect to either the hardwired RPM or Analog input ports of V300SD, V500SD or G2X Pro data recorders. Each Interface module provides the necessary signal conditioning for its attached sensor thereby allowing the sensors to communicate with the Logger via a single cable.

Interface modules do not require any programming, however you may only attach up to four Interface modules together in series. The four modules may be connected directly to each other (Daisy-chained) or they may be linked with an Interface cable as illustrated below.

The list below shows a selection of Interface modules that will help you in the task of connecting almost any type of digital or analog sensor to a V300SD, V500SD or G2X Pro recorder.

CABLES

V-Net modules and Interface modules, although similar in construction and appearance, are very different in the functions they perform. It is important that components designed for one system not be interchanged with the other. V-Net cables use a 5-pin connector, while Interface cables use a 7-pin connector. So that cables can be identified at a glance Racepak has color-coded the connectors on the end of the cables. V-Net cable connectors are blue, just like the modules to which they attach, while Interface cable connectors and modules are black.

The cables listed may be used to link the components to other listed components of the same system, or to their proper port on the recorder. The Interface cables with black connectors will only be used with modules connecting to the RPM or Analog input ports, while the V-Net cables with blue connectors will be used exclusively on items connected to the V-Net port.

CABLE LENGTH

<table>
<thead>
<tr>
<th>CABLE LENGTH</th>
<th>5-PIN BLUE V-Net</th>
<th>7-PIN BLACK INTERFACE</th>
</tr>
</thead>
<tbody>
<tr>
<td>6”</td>
<td>280-CA-VM-006</td>
<td>280-CA-IM-006</td>
</tr>
<tr>
<td>12”</td>
<td>280-CA-VM-012</td>
<td>280-CA-IM-012</td>
</tr>
<tr>
<td>18”</td>
<td>280-CA-VM-018</td>
<td>280-CA-IM-018</td>
</tr>
<tr>
<td>24”</td>
<td>280-CA-VM-024</td>
<td>280-CA-IM-024</td>
</tr>
<tr>
<td>36”</td>
<td>280-CA-VM-036</td>
<td>280-CA-IM-036</td>
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<tr>
<td>48”</td>
<td>280-CA-VM-048</td>
<td>280-CA-IM-048</td>
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<tr>
<td>60”</td>
<td>280-CA-VM-060</td>
<td>280-CA-IM-060</td>
</tr>
<tr>
<td>72”</td>
<td>280-CA-VM-072</td>
<td>280-CA-IM-072</td>
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<tr>
<td>84”</td>
<td>280-CA-VM-084</td>
<td>280-CA-IM-084</td>
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<tr>
<td>96”</td>
<td>280-CA-VM-096</td>
<td>280-CA-IM-096</td>
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<tr>
<td>108”</td>
<td>280-CA-VM-108</td>
<td>280-CA-IM-108</td>
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<tr>
<td>120”</td>
<td>280-CA-VM-120</td>
<td>280-CA-IM-120</td>
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<td>144”</td>
<td>280-CA-VM-144</td>
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<td>168”</td>
<td>280-CA-VM-168</td>
<td>280-CA-IM-168</td>
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<td>192”</td>
<td>280-CA-VM-192</td>
<td>280-CA-IM-192</td>
</tr>
<tr>
<td>216”</td>
<td>280-CA-VM-216</td>
<td>280-CA-IM-216</td>
</tr>
</tbody>
</table>

TEE CABLES

All V-Net systems must be equipped with a Tee cable. The Tee cable permits the installation of the two terminator caps (one male and one female) which are necessary to the operation of the V-Net system. Just like the ends on the V-Net cables, all V-Net Tee cables and Terminator Caps are blue.

Interface modules can also use a Tee cable, but only for the purpose of providing a branch in the system. It is not a mandatory component as it is on the V-Net system. The black Interface Tee cables and dust caps are used just for the purpose their names imply. They are not required for the system to operate properly.

Bulkhead connectors are used when a V-Net or Interface cable must pass through a firewall, body panel, or motor plate. They provide a male/female connector on each side of the panel. These are specific to the type of cable that is being used and are color coded for easy identification.

<table>
<thead>
<tr>
<th>COMPONENT</th>
<th>5-PIN BLUE V-Net</th>
<th>7-PIN BLACK INTERFACE</th>
</tr>
</thead>
<tbody>
<tr>
<td>TEE CABLE, 9”</td>
<td>280-CA-VM-009</td>
<td>280-CA-IM-009</td>
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<tr>
<td>TEE CABLE, 18”</td>
<td>280-CA-VM-018</td>
<td>280-CA-IM-018</td>
</tr>
<tr>
<td>TEE CABLE, 36”</td>
<td>280-CA-VM-036</td>
<td>280-CA-IM-036</td>
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<tr>
<td>TERMINATOR CAP, MALE</td>
<td>280-CA-VM-TCA0</td>
<td>280-CA-IM-TCA0</td>
</tr>
<tr>
<td>TERMINATOR CAP, FEMALE</td>
<td>280-CA-VM-TCAPM</td>
<td>280-CA-IM-TCAPM</td>
</tr>
<tr>
<td>DUST CAP, MALE</td>
<td>280-CA-IM-DCAPM</td>
<td>280-CA-IM-DCAPM</td>
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<tr>
<td>DUST CAP, FEMALE</td>
<td>280-CA-IM-DCAPF</td>
<td>280-CA-IM-DCAPF</td>
</tr>
<tr>
<td>BULKHEAD CONNECTOR</td>
<td>280-CA-VM-BHEAD</td>
<td>280-CA-IM-BHEAD</td>
</tr>
</tbody>
</table>
A. PRESSURE TRANSDUCERS

The small size and ruggedness of these ‘PT-type’ pressure transducers make them ideal for the measurement of pressure directly at the source. The transducer requires 5 volt DC power and provides a 0.5 to 4.5 volt output signal. Each transducer mounts using a 1/8” NPT male pipe fitting.

0-15 psi 810-PT-0015GVT
0-75 psi 810-PT-0075GVT
0-150 psi 810-PT-0150GVT
0-300 psi 810-PT-0300GVT
0-500 psi 810-PT-0500GVT
0-1500 psi 810-PT-1500HP
0-3000 psi 810-PT-3000HP

VACUUM/PRESSURE SENSOR

30 in. hg-0-30 psi, Vacuum/Boost 810-PT-VB

ADAPTER MODULES

The pressure sensors listed on page 19 can be adapted to the V-Net cable or analog port of the recorders by using the appropriate signal condition module.

V-Net Module 230-VM-PF-5V
For connection to the V-Net cable on the V-series recorders.

B. FUEL FLOW METER SENSORS

These general purpose turbine-type flow meters require an available digital channel. Gasoline and Nitro-methane flow meters are constructed of aluminum. Methanol fuel requires the use of a stainless steel flow meter. A tee fitting must be used so all fuel can be routed through the flow meter before it is divided between the hat nozzles and the port nozzles on fuel injection applications.

Flow Meter, Gas or Nitro, 8AN (1-10 GPM) 800-FM-8AN AL
Flow Meter, Gas or Nitro, 10AN (2-25 GPM) 800-FM-10AN AL
Flow Meter, Methanol, 8AN (1-10 GPM) 800-FM-8AN-MS
Flow Meter, Methanol, 10AN (2-25 GPM) 800-FM-10AN-SS
Flow Meter, Custom Order Call for information
Tee Fitting 10AN inlet two 8AN outlets Call for information

ADAPTER MODULES

V-Net Module 230-VM-FLOW
Use to connect flow meter to V-Net Cable.

C. REED SWITCH RPM SENSOR

These contact closure-type sensors use an internal, fast acting reed switch to indicate the passing of a rotating magnet.

RPM Sensor, 2-Pin 5/16” 24 dia. 800-SS-5-2
Commonly used as a driveshaft RPM sensor on pre-2001 clutch RPM sensors with Pro Series recorders.

RPM Sensor, 2 Spade Connectors, 5/16” 24 dia. 800-SS-RR-5
Commonly used for clutch, driveshaft and front wheel RPM with SC1000 recorders.

ZERO CROSSING RPM SENSORS

Zero Crossing RPM Sensor, 3-Pin 3/8” dia. 800-SS-ZC-3
This non-powered sensor is designed for monitoring magnetic pulses. It must be used with an RPM input designed for a zero crossing sensor. Used as the clutch RPM or Front Wheel RPM sensor on V-series and 2001 and newer Pro Series recorders.

Zero Crossing TDC Sensor, 3-Pin 3/8 dia. 800-SS-TDC-3
This sensor is designed specifically for use with MSD-style crank trigger wheel and magnets. It must be used with an RPM input designed for a zero crossing sensor. Commonly used for the TDC indicator on ignition timing monitor with V500 recorders.

HALL EFFECT SENSOR

Ferrous Material sensor, 3-Pin, 3/8” dia. 800-SS-MSC-3
Commonly used to sense a ferrous bolt or metal tooth, such as used when monitoring the ring gear RPM. These powered sensors require 12v power.

Magnetic Pulse Sensor, 3-Pin, 5/16” dia. 800-SS-MSC-5
Same as above, but triggered by a magnet rather than a ferrous metal.

D. ENGINE RPM WITH MAGNETO IGNITION

Occasionally, a V-series data recorder will be used to monitor the RPM of an engine that is equipped with a magneto ignition system. In this situation the engine RPM signal is acquired using the inductive pickup shown below. This sensor sources the ignition pulses between the magneto and the control box, and then transfers the signals to the onboard recorder through the wire harness or a V-Net module.

Inductive Magneto RPM Sensor 260-DM-MAGPU With connector to plug into the V300 wiring harness.
Inductive Magneto RPM Sensor 260-DM-MAGPU3 With connector to plug into the V300SD wiring harness.

ADAPTER MODULES

V-Net 220-VP-TACH-(NUMBER OF PULSES)
Adapts the Inductive Engine RPM sensor to the V-Net Cable
MSD Magneto Pickup Adapter 800-CA-MAGADPT
(MSD 12 or 20 amp mag)
Adapts the Inductive Engine RPM sensor to the V-Net Cable
A. EXHAUST GAS TEMPERATURE THERMOCOUPLES

V-Net systems and V-series recorders use two types of thermocouple setups to monitor the exhaust gas temperatures, one for an individual cylinder application and another for 3 or 4 cylinder groups. Measuring the EGTs on a single cylinder application is accomplished using a thermocouple that features an inline, two-prong mini-connector. This connector provides the union between the thermocouple and the V-Net module. A selection of single cylinder thermocouples is shown below.

The most frequently used setup is the four thermocouples with junction box combination. This setup simplifies the installation on V6 engines by grouping the four thermocouples on each cylinder bank into a common junction box. The junction box then provides a single wire connection to the V-Net module to facilitate service work. A similar setup is available for V8 engines.

V-Net applications also use two styles of thermocouples. Four cylinder motorcycles make use of the .187-inch diameter tip bullet style thermocouples, while Harley-Davidsons and the automotive applications employ the .250-inch diameter Stinger style thermocouples. When replacing a thermocouple probe, use the illustration alongside the chart to determine the length you will need. The thermocouples used with the junction boxes, and some individual thermocouple components that are often requested, are shown in the chart. See page 20 for single or four station EGT modules that include the thermocouples.

1.87” DIA. BULLETS (MOTORCYCLES, 4 CYL)

<table>
<thead>
<tr>
<th>Diameter</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>12”</td>
<td>800-TC-B3-12</td>
</tr>
<tr>
<td>16”</td>
<td>800-TC-B3-16</td>
</tr>
<tr>
<td>19”</td>
<td>800-TC-B3-19</td>
</tr>
<tr>
<td>22”</td>
<td>800-TC-B3-22</td>
</tr>
</tbody>
</table>

Set of 4 - One of each length 800-TC-B3-SET

.250” DIA. STINGERS (AUTO, H-D BIKES)

<table>
<thead>
<tr>
<th>Length</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>9”</td>
<td>800-TC-S4-09</td>
</tr>
<tr>
<td>13”</td>
<td>800-TC-S4-13</td>
</tr>
<tr>
<td>18”</td>
<td>800-TC-S4-18</td>
</tr>
<tr>
<td>21”</td>
<td>800-TC-S4-21</td>
</tr>
<tr>
<td>23”</td>
<td>800-TC-S4-23</td>
</tr>
<tr>
<td>28”</td>
<td>800-TC-S4-28</td>
</tr>
<tr>
<td>32”</td>
<td>800-TC-S4-32</td>
</tr>
</tbody>
</table>

Set of 8 800-TC-S4-SET1

Set of 8 Big Block Heads 800-TC-S4-SET2

Set of 8 Small Block Heads 800-TC-S4-SET3

Set of 8 Big Block Turbo Probes 800-TC-S4-SET4

B. SPECIAL PURPOSE THERMOCOUPLES

These Type K thermocouple assemblies (Nickel-Chrome/Nickel-Aluminium) are specifically designed for the applications listed below. Each must be used with the appropriate thermocouple amplifier module. All probes are 12” in length and are terminated with a male pin mini-connector. The Liquid and manifold assemblies are provided with a 1/8” male NPT compression style fitting.

Cylinder Head Temp, Thermocouple Assem. 800-TC-MT-ASM

Fluid Temp, Thermocouple Assem. 800-TC-FT-ASM

Manifold Temp, Thermocouple Assem. 800-TC-MT-ASM

Open end probe reacts quickly to changing temperatures in manifold plenum.

To determine the length and diameter of a thermocouple measure as shown.

DRAG RACING

C. FLUID TEMPERATURE SENSOR

This sensor is commonly used in conjunction with the modules shown below to measure the temperature of fluids such as water or engine transmission oil where the temperature does not exceed 300°F.

Fluid Temperature, Sensor Only 0-300°F 810-TR-300

Fluid Temperature, Sensor Only 0-250°F 810-TR-250

ADAPTER MODULES

V-Net Module 230-VM-TR-300

Interface Module 240-IM-FT350

D. INFRARED TEMPERATURE SENSORS

These infrared sensors are used to monitor temperatures where contact cannot be made with the item being monitored. In racing, they are commonly used to monitor temperatures across the face of a fire, but they can be used for any non-contact measurement. The sensor will measure temperatures from 0-400°F. The IR Temperature sensor has a 4:1 ratio focal point. That means that when the item being monitored is four inches away from the sensor, the focal point will be one inch in diameter. If the sensor is twelve inches away, the focal point will be three inches in diameter.

IR Sensor and V-Net Module 220-VP-IR-T-200

IR V-Net Module Only 230-VM-IR

IR Temp Sensor Only 810-SN-IR-T-200

E. ADHESIVE 0-600F THERMOCOUPLE SENSOR

Racepak’s adhesive 0-600°F thermocouple sensor eliminates the need for bung and other sensor mounting methods, making ideal for a number of surface temperature reading such as Shock Housing Temp, Engine Block Temp, Fuel Tank Temp, Fuel Pump Temp, Electric Motor Temp, Batteries, and many more. For use with V-Net module or Transducer box.

Adhesive 0-600°F Thermocouple Sensor 800-TC-PS-600

F. WIDE OPEN THROTTLE SENSORS

Wide open throttle event switches are used to verify when the carburetor is at full throttle and the throttle blades are wide open.

Switch Only, WOT 800-MB-WOT-SW

Cable Only, Pigtail for WOT Switch 280-CA-HARMWOT

Switch & Pigtail Only 800-MB-WOT-SWC

ADAPTER MODULES

V-Net Module 220-VP-WEVENT
A. SHOCK TRAVEL SENSORS
Monitoring suspension travel aids greatly in gaining an understanding of what the chassis is doing. The information obtained from these sensors is often the key element separating the winners from the losers, regardless of the type of racing. Racepak users can employ these linear potentiometers to record the slightest amount of suspension movement, even at high rates of speed. Shock travel sensors are usually connected through the analog port of V-series recorder and monitored at a high sample rate. Each kit contains a linear travel sensor with attached cable and an interface module. An available analog channel is used to monitor clutch throw out bearing.

Linear Travel Sensor, 0-3.0”
800-LN-TRV3

Shock Travel Sensor, 0-2”, (7.4” to 9.4”)
800-LN-TRV2

Shock Travel Sensor, 0-3”, (8.4” to 11.4”)
800-LN-TRV3

Tip #4 What makes Racepak unique among data acquisition companies? Our exclusive V-Net technology.

All Racepak V-Net data loggers, sensors, digital dashes, Intelli-Gauges and the SmartWire connect and share data telephone all arriving in your home on a single cable. Intelli-Gauges and the SmartWire connect and share data by attaching a V-Net module and pressure sensor to each wheel. Pre-programmed modules and sensors are shown below.

Wheelie Bar Load Cell, Single
800-SN-WHLOAD

Wheelie Bar Load Cell, Dual
220-VP-PT-WBLSK

Right, 0-3000 psi
220-VP-PT-WBSRK

Left, 0-5000 psi
220-VP-PT-WBLSL

Left, 0-5000 psi
220-VP-PT-WBLSL

B. LINEAR TRAVEL SENSORS
These linear potentiometers are used to monitor movement or position. They are commonly used on applications such as magneto retard devices, fuel slide valves, and linear clutch bearing position. Their use requires an appropriate signal conditioning module.

Linear Travel Sensor, 0-1.0”
800-LN-WJUL

Linear Travel Sensor, 0-3.0”
800-LN-CLV3

Used to monitor clutch throw out bearing.

ADAPTER MODULES
V-Net Module
230-VM-WJTP

For connection to V-Net cable on V-series recorders.

Interface Module
240-IM-WTRAV

For connection to Analog port of V300SD or V500SD recorders.

C. STRING POTENTIOMETER
This sensor is typically used for linear measurements, such as throttle position, when the mounting angle is not critical. The sensor is calibrated to the travel of the throttle 5.5% when closed and 5% at WOT). By using a string potentiometer, the possibility of interference with the throttle operation is eliminated. Operating range 0-7.50”.

String Potentiometer Sensor
800-LN-WSTRMSP

Can use the V-Net and Interface Module above.
A. PRO ANALOG TRANSDUCER BOX II

This is the next generation Pro Analog Transducer Box which is a smaller and lighter version than the previous analog transducer box. It is an additional method of connecting analog sensors into the V-Net recorders. Each Pro Analog Box will house up to four of the plug-in style transducer modules. The box is then connected to a single V-Net cable. Plug-in style transducers and adapter modules must be purchased separately.

Pro Analog Transducer Box II
230-VM-4TD

Frame Rail Bracket
800-MB-TB2

Adapts Pro Analog Box II to round tube.

B. TRANSDUCER MODULES, PLUG-IN STYLE II

When using the Pro Analog Transducer Box, these plug-in style transducers and signal conditioning modules are used to convert the input from various analog functions into signals that can be recognized by the recorder. Where required, a special cable is needed for connecting the sensor to the module.

Pressure Transducer, PSI
810-MD-PT2-PSI (Specify PSI)
Available in ratings of: 0 to 15/60/100/150/300/500/750/1500.

Used to measure pressure from parameters such as fuel, oil, boost, nitrous. Route your pressure line directly to the transducer. Transducer has 1/8" NPT female thread.

Vacuum Transducer, 0-30 In. hg
810-MD-PT-VAC

Typically used to monitor manifold or pan vacuum. A vacuum line is routed directly to transducer.

Thermocouple Amplifier Module, 0-500°F
810-M-TC2-500

Cable Only, Thermocouple Sensor to Module, over 3', (specify length)
800-CA-TCEXT-XL

B. PRESSURE TRANSDUCER

E. PRESSURE TRANSDUCERS OLD STYLE

Frame Rail Bracket
800-MB-ANA

ADAPTER MODULES

V-Net
230-VM-4ANA8
Adapts B-Pin Pro Analog Box to V-Net cable.

Interface
230-CA-1M-8P
Adapts B-Pin Analog Box to Analog port V-series recorders.

B. TRANSDUCER MODULES, PLUG-IN OLD STYLE

When using the Pro Analog Transducer Box, these plug-in style transducers and signal conditioning modules are used to convert the input from various analog functions into signals that can be recognized by the recorder. Where required, a special cable is needed for connecting the sensor to the module.

Pressure Transducer, PSI
810-MD-PT-PSI (Specify PSI)
Available in ratings of: 0 to 15/60/100/150/300/500/750/1500.

Used to measure pressure from parameters such as fuel, oil, boost, nitrous. Route your pressure line directly to the transducer. Transducer has 1/8" NPT female thread.

Vacuum Transducer, 0-30 In. hg
810-MD-PT-VAC

Typically used to monitor manifold or pan vacuum. A vacuum line is routed directly to transducer.

Thermocouple Amplifier Module, 0-500°F
810-M-TC-500

Cable Only, Thermocouple Sensor to Module, over 3', (specify length)
800-CA-TCEXT-XL

Cable Only, Thermocouple Sensor to Module, under 3', (specify length)
800-CA-TCEXT-XL

Used on low temp applications such as water, oil, cylinder head. Not for use with EGTs. Module, cable and sensor kit available as PN# 810-KT-TC-500. Specify use and cable length.

0-5 Volt Input Module, can output either
810-MD-0-5SV

5 or 12 volts to powered sensor

Cable Only, Sensor to module 800-CA-3PM (specify length).

Receives 0-5 volt input from powered sensor while providing 5 or 12V to power the sensor.
A. SPLIT COLLARS
These aluminum split collars provide a mounting platform for the magnets that are used to trigger the sensor when monitoring the revolutions of a shaft. They are typically used on rear end yokes or couplers to provide driveshaft RPM. Each collar is approximately .375" wide and houses two magnets which are located 180° apart. Custom size and dual magnet collars are available by special order.

<table>
<thead>
<tr>
<th>SPLIT COLLAR ONLY WITH TWO MAGNETS</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.050 (27mm)</td>
<td>B00-CL-2M-105</td>
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<tr>
<td>1.375</td>
<td>B00-CL-2M-137</td>
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<td>1.500</td>
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<tr>
<td>3.500</td>
<td>B00-CL-2M-350</td>
</tr>
</tbody>
</table>

SPLIT COLLAR ONLY WITH EIGHT MAGNETS
For use with V300SD, V500SD, Sportsman data recorders. If using a recorder other than listed, contact Racepak.

<p>| | |</p>
<table>
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<tr>
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<tr>
<td>2.187</td>
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</tbody>
</table>

B. MAGNETS
These are the rare earth magnets that are currently used in the clutch input shaft, the split collars shown above or with some front wheel RPM applications. Each magnet measures .250" OD x .200" in length. North end of magnet is painted yellow for easy identification.

| Magnet Only, Rare Earth, Single | B00-MG-SM-.25 |

C. SHIFT LIGHT
As a companion component to our programmable V-Net Shift Light Modules, Racepak has made available this high-intensity LED shift light. The light features a powerful light-emitting diode for luminosity that can’t be missed even on the brightest of race days.

Shift Light, Black Housing       B00-XP-SLMSD
A. PRO III DATA RECORDER

The Pro III Data Recorder is designed for use in applications with ultra high cylinder pressures, high amperage magneto's, and solid core secondary ignition wires. In other words, worst case scenarios. They are traditionally found on the supercharged nitro-burning engine applications such as Top Fuel Dragsters and Nitro Funny Cars. The expanded RPM and digital input capabilities of the Pro III provide the optional ability to monitor ignition timing for a complete dual magneto system.

FEATURES

PRO III Base Unit:
- 2 Engine RPM Channels
- 1 Drive Shaft RPM Channel
- Ignition timing, mag phase and timing profiles for 2 magneto's
- Internal 3-Axis G-Meter

Expandable:
- Up to 56 Channels
- Up to 16 total RPM/Digital Channels
- 8 Exhaust Gas Channels
- Add a Pro Dash to display monitored functions in real time
- Add integrated and synchronized video display to recorded data

Sample Rates:
- Up to 200 samples per second

Recording Time:
- Up to 200 seconds

Dimensions:
- 8.780" (L) x 5.110" (W) x 1.790" (H)

Weight:
- 2 pounds, 8 ounces

PRO III DATA RECORDER KIT

130-KT-PRO3

PRO III PACKAGE INCLUDES

- Pro III Data Recorder
- Drive Shaft or Ring Gear Sensor Kit
- 2 RPM Modules
- Internal 3-Axis G-Meter
- Main Wiring Harness
- Battery Charger

B. MAGNETO CURRENT KIT

PRO III DATA RECORDERS

PRO III MAGNETO CURRENT KIT

130-KT-MAGC

Add capability to monitor ignition coil output on two coils at 20,000 samples per second.

C. OPTIONAL ACCESSORY KITS

B. BLUETOOTH UPGRADE

130-UG-BTPRO3

This feature allows you to communicate wirelessly with your Pro III data logger. Eliminate your programming cable and program your data logger, or view real-time data using the wireless telemetry function available with this upgrade.

EXHAUST GAS TEMPERATURE KIT

130-KT-EGT

Add capability to monitor EGT's.

MAGNETO CURRENT KIT

130-KT-MAGC

Add capability to monitor ignition coil output on two coils at 20,000 samples per second.
A. PRO IIA DATA RECORDER

The PRO IIA Data Recorder is a downsized version of the PRO III. It is designed for use in a variety of categories from Alcohol Dragsters and Funny Cars, Nostalgia Top Fuel Dragsters and Funny Cars, and other supercharged applications that use high amperage magnetos with extreme cylinder pressure. Its rugged construction makes it ideally suited for vehicles that encounter severe tire shake.

The PRO IIA provides the basic functions required by all applications (engine RPM, drive shaft RPM, 8 exhaust gas temperatures) and also includes the ability to monitor ignition timing while having the capability of being expanded to suit each user’s individual needs. It can handle other digital channels such as clutch RPM and flow meters, plus up to 16 analog channels. The PRO IIA also supports the popular Pro Dash, a programmable onboard real time display dash.

**FEATURES**

**PRO IIA Base Unit:**
- 1 Engine RPM Channel
- 1 Drive Shaft RPM Channel
- Ignition timing, mag phase and timing profiles for 1 magneto
- Internal 3 Axis G-Meter

**Expandable:**
- Up to 16 Channels
- Up to 8 total RPM/Digital Channels
- 8 Exhaust Gas Channels
- Add a Pro Dash to display monitored functions in real time
- Add integrated and synchronized video display to recorded data

**Sample Rates:**
- Up to 200 samples per second

**Recording Time:**
- Up to 200 seconds

**Dimensions:**
- 8.780” (L) X 5.110” (W) X 1.790” (H)

**Weight:**
- 2 pounds, 6 ounce

**PRO IIA Data Recorder Kit**
- 130-KT-PRO3A

**PRO IIA Nostalgia Kit**
- 130-KT-PRO3A

---

B. OPTIONAL ACCESSORY KITS

**Exhaust Gas Temperature Kit**
- 130-KT-EGTA

**Bluetooth Upgrade**
- 130-US-BTPRO3

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D. RACEPAK PRO DASH

The Pro Dash is one of the more exciting and useful products to be introduced into data acquisition. It is both a driving instrument and a tuning tool. Although it is more frequently seen in the cockpit of many high profile dragsters it can be mounted anywhere, and it is used more by the crew chiefs than the drivers. The Pro Dash is designed for use with the Pro series data recorders. The Pro Dash will display any function that is being monitored by a Pro II or Pro IIA data recorder. Up to 36 different functions, in addition to the ever-present RPM bar, can be displayed on its three screens. Four sets of programmable displays allow the user to scroll between displays and view only those functions he needs. Commonly monitored items for display include engine RPM, EGT’s, fuel flow, pressures, ignition timing, boost, and temperatures.

**FEATURES**

**Dimensions for the Pro Dash are 9.800” tall x 0.385” wide x 6.00” deep. Total weight is a mere 17 ounces including its carbon fiber mount. It is backlit for nighttime use.**

**Racpak Pro II/IIA Dash**
- 820-D5-SASHPRO3

**Racpak Pro II/IIA Dash**
- 820-D5-SASHPRO3

---

E. RACEPAK WARNING LIGHT MODULE

Both the Pro III and Pro IIA support Racepak’s new warning light modules. Used in conjunction with a warning light transducer box (shown left), these modules monitor information from the data logger and can trigger a warning LED based on pre-programmed conditions to alert the driver of imminent danger, potentially preventing damage to the engine, the vehicle and above all, the driver.

**Racpak Warning Light Module**
- 130-WM-WARN
A. PRO ANALOG TRANSDUCER BOX II
This is the next generation Pro Analog Transducer Box which is a smaller and lighter version than the previous analog transducer box. Just like the past analog transducer box, this is an additional method of connecting analog sensors into the Pro recorders. Each box features a 5-pin Autosport connector at either end, allowing users the option of connecting several transducer boxes to one another to expand their system. Plug-in style transducers and adapter modules must be purchased separately.

Pro Analog Transducer Box II
130-VM-TB2

Frame Rail Bracket
600-MB-TB2

Adapts Pro Analog Box II to round tube.

B. TRANSDUCER MODULES, PLUG-IN STYLE II
When using the Pro Analog Transducer Box these plug-in style transducers and signal conditioning modules are used to convert the input from various analog functions into signals that can be recognized by the recorder. Where required, a special cable is needed for connecting the sensor to the module.

Pressure Transducer, PSI
810-MD-PT2-(SPECIFY PSI)
Available in ratings of: 0 to 15/60/100/150/300/500/750/1500. Used to measure pressure from parameters such as fuel, oil, boost, and a variety of gases. Route your pressure line directly to the transducer. Transducer has 1/8” NPT female thread.

Vacuum Transducer, 0-30 In. hg
810-MD-PT2-VAC
Typically used to monitor manifold or pan vacuum. A vacuum line is routed directly to transducer.

Thermocouple Amplifier Module, 0-500°F
810-MD-TC2-500

0-5 Volt Input Module, can output either 5 or 12 volts to powered sensor
810-MD-0-5V2
Receives 0-5 volt input from powered sensor while providing 5 or 12v to power the sensor.

Battery Voltage Module
810-MD-BATV2
Monitor 0-25 volt input.

Shift Light Module
810-MD-SHFT2
Program and activate a shift light.

RPM Module
810-MD-RPM2
Add additional square wave RPM inputs.

ZX RPM Module
810-MD-ZXRPM2
Add additional zero crossing RPM inputs.

C. PRO ANALOG TRANSDUCER BOX OLD STYLE
The Pro Analog Transducer Box allows the monitoring of analog inputs into the Pro 1, Pro 1B and the Pro II data recorders. Each Pro Analog Box will house up to four of the plug-in style transducer modules. The box is connected to either the Analog A or B port. Each System can support up to four boxes (two pass-thru and two end boxes) for a total of 16 analog inputs. Plug-in style transducers and adapter modules must be purchased separately.

Pro Analog Transducer Box II
810-MD-4A

Pass-Thru Box
810-MD-4APT

Frame Rail Bracket
800-MB-ANA
Adapts Pro Analog Box II to round tube.

Cable (Specify Length)
800-MB-ANA
Connects Analog Box to another box or data recorder.

D. TRANSDUCER MODULES, PLUG-IN OLD STYLE
When using the Pro Analog Transducer Box these plug-in style transducers and signal conditioning modules are used to convert the input from various analog functions into signals that can be recognized by the recorder. Where required, a special cable is needed for connecting the sensor to the module.

Pressure Transducer, PSI
810-MD-PT-(SPECIFY PSI)
Available in ratings of: 0 to 15/60/100/150/300/500/750/1500. Used to measure pressure from parameters such as fuel, oil, boost, nitrous. Route your pressure line directly to the transducer. Transducer has 1/8” NPT female thread.

Vacuum Transducer, 0-30 In. hg
810-MD-PT-VAC
Typically used to monitor manifold or pan vacuum. A vacuum line is routed directly to transducer.

Battery Voltage Module
810-MD-BATV
Monitor 0-25 volt input.

Shift Light Module
810-MD-SHFT
Program and activate a shift light.

RPM Module
810-MD-RPM
Add additional square wave RPM inputs.

ZX RPM Module
810-MD-ZXRPM
Add additional zero crossing RPM inputs.

CAR Module
810-MD-CAM
Integrate with MSD Power Grid.

Electrical Connections

A. PRO ANALOG TRANSDUCER BOX II
(Shown with optional frame rail bracket)
**PRO DRAG RACING**

**EFT SENSORS & KITS**

**A. 5-PIN AUTOSPORT CABLE**

**B. 13-PIN AUTOSPORT CABLE**

**C. EGT KIT (CABLES NOT SHOWN)**

**D. EGT BOX**

**E. MEASURING THERMOCOUPLES**

**PRO III/IIIA CABLES**

Dash cable - Pro III  
130-CA-DASH

2-Pin cable, Module to Sensor  
800-CA-2PM

3-Pin cable, Module to Sensor  
800-CA-3PM

5-Pin Autosport Cable  
800-CA-AS05-XX

13-Pin Autosport Cable  
800-CA-AS13-XX

Voltage Cable  
800-CA-VOLT

Delay Box Pigtail Pro III - MSD 8971  
800-CA-DBX-P3

Flow Cable  
800-CA-FM-XX

Pro III EGT Cable  
800-CA-HR12-XX

Mag Phase Cable Amp  
800-CA-PHASE-A

Mag Phase Cable Deutsch  
800-CA-PHASE-D

Pro III On/Off Cable with Switch Pigtail  
800-CA-PWR3

Pro IIIA – MSD PowerGrid Adapter Cable  
800-CA-PGRID-XX

Pro III – MSD Top Fuel PowerGrid Adapter Cable  
800-CA-PGRIDTF-XX

Temp cable, Module to Thermocouple over 3’  
800-CA-TCEXT-XL

Temp cable, Module to Thermocouple under 3’  
800-CA-TCEXT-XX

TDC Cable  
800-CA-TDC-XX

Low Temp Cable, Module to Thermocouple over 3’  
800-CA-TREXT

**B. PRO 1, 1B & PRO II CABLES**

Dash cable - Pro II  
110-CA-DASH

2-Pin cable, Module to Sensor  
800-CA-2PM

3-Pin cable, Module to Sensor  
800-CA-3PM

Delay Box Cable MSD  
800-CA-DBXMSD

Delay Box Pigtail - MSD 8971  
800-CA-DBX-P3

Flow Cable  
800-CA-FM-XX

Mag Phase Cable Deutsch  
800-CA-PHASE-D

Mag Phase Cable  
800-CA-PHASE-A

Pro II On/Off Cable with Switch Pigtail  
800-CA-PWR

Temp cable, Module to Thermocouple over 3’  
800-CA-TCEXT-XL

Temp cable, Module to Thermocouple under 3’  
800-CA-TCEXT-XX

TDC Cable  
800-CA-TDC-XX

Low Temp Cable, Module to Thermocouple over 3’  
800-CA-TREXT

**C. EXHAUST GAS TEMPERATURE KITS**

Monitoring and relaying the EGT signals from each of the cylinders are done using components from three groups: the thermocouple which actually measures the exhaust temperature, the junction box which gathers the four thermocouple cables on each cylinder bank into a group, and an EGT module that connects the two junction boxes to the recorder’s network of sensors.

**PRO III EGT Kit**  
130-KT-EGT

Includes 8 Bullet EGT probes, 2 EGT boxes and cables, EGT module, 8 nuts, ferrules and weldments.

**PRO IIIA EGT Kit**  
130-KT-EGTA

Same as above kit with Stinger EGT probes.

**D. EGT COMPONENTS**

- Junction Box, 1357  
  130-JB2-1357

- Junction Box & 4 Probes, 2468, Small Block  
  130-JB2-2468

- EGT Module  
  130-MD-EGT

**E. REPLACEMENT EGT COMPONENTS**

- Junction Box, 1357  
  130-JB2-1357

- Junction Box & 4 Probes, 2468, Small Block  
  130-JB2-2468

- EGT Module  
  130-MD-EGT

**F. THERMOCOUPLES**

- .250” DIA. BULLETS (NITROMETHANE)
  - 9”  
    800-TC-B4-09
  - 13”  
    800-TC-B4-13
  - 18”  
    800-TC-B4-18
  - 23”  
    800-TC-B4-23
  - Set of 8  
    800-TC-B4-SET

- .250” DIA. STINGERS (GAS & ALCOHOL)
  - 9”  
    800-TC-S4-09
  - 13”  
    800-TC-S4-13
  - 18”  
    800-TC-S4-18
  - 23”  
    800-TC-S4-23
  - Set of 8  
    800-TC-S4-SET

**G. ADDITIONAL COMPONENTS**

- Weldment, Nut & Ferrule Assembly  
  800-TX-WASM4

- Weldment Only, Single  
  800-TX-WELD4

- Weldment Only, Set of 8  
  800-TX-WELD8

- Ferrule Only  
  800-TX-F4

- Nut Only  
  800-TX-WNUT4

- Cap Only  
  800-TX-CAP4

- Nut & Ferrule Only  
  800-TX-NF4
A. PRO III INPUT MODULES

In order to reduce the number of wires that would be required to connect all of the digital / RPM sensors directly to the recorder (clutch, drive shaft, front wheel, or ring gear sensors, flow meter, etc.), Racepak has developed RPM Modules to simplify and sanitize the job. The RPM Modules collect the inputs from the various sensors and then transfers the signals to the recorder via a single cable. The RPM Modules are designed to mount on a tubular frame member.

PRO III INPUT A MODULE 130-MD-INPA

B. HIGH-SPEED ANALOG MODULES

The Pro III data logger features high speed monitoring of up to 8 analog channels in its traditional configuration. With the optional Mag Current Kit (130-KT-MAGC), two channels in the box are dedicated to sampling ignition coil output at 20,000 samples per second, leaving the remaining two which are capable of sampling at 1000 samples per second.

4 STATION 1-4 ANALOG BOX 130-MD-4ANA-1-4

4 STATION 5-8 ANALOG BOX 130-MD-4ANA-5-8

C. MANIFOLD/CLUTCH TEMPERATURE SENSOR

These Type-K thermocouple assemblies (Nickel-Chromium/Nickel-Aluminum) are specifically designed for the applications listed below. Each must be used with the appropriate thermocouple amplifier module. All probes are 12" in length and are terminated with a male two pin mini-connector. The liquid and manifold assemblies are provided with a 1/8" male NPT compression style fitting.

Cylinder Head Temp. Thermocouple Assem. 800-TC-MT-ASM

Fluid Temp. Thermocouple Assem. 800-TC-FT-ASM

Manifold Temp. Thermocouple Assem. 800-TC-MT-ASM

D. FLUID TEMPERATURE SENSOR

This sensor is commonly used in conjunction with the modules shown below to measure the temperature of fluids such as water or engine and transmission oil where the temperature does not exceed 300°F.

 Fluid Temperature, Sensor Only 0-300°F 810-TR-300

E. INFRARED TEMPERATURE SENSOR

These infrared sensors are used to monitor temperatures where contact cannot be made with the item being monitored. In racing, they are commonly used to monitor temperatures across the face of a tire, but they can be used for any non-contact measurement. The sensor will measure temperatures from 0-400°F. The IR Temperature sensor has a 4:1 ratio focal point. That means that when the item being monitored is four inches away from the sensor, the focal point will be one inch in diameter. If the sensor is twelve inches away, the focal point will be three inches in diameter.

Fluid Temperature, Sensor Only 0-300°F 810-TR-300

F. ADHESIVE 0-600°F THERMOCOUPLE SENSOR

Racepak’s adhesive 0-600°F thermocouple sensor eliminates the need for bung and other sensor mounting methods, making ideal for a number of surface temperature reading such as Shock Housing Temp, Engine Block Temp, Fuel Tank Temp, Fuel Pump Temp, Electric Motor Temp, Batteries, and many more. For use with V-Net module or Transducer box.

Adhesive 0-600°F Thermocouple Sensor 800-TC-PD-600

G. THROTTLE SENSORS

Linear Travel Sensor, 0-1.0" Used to monitor throttle pedal.

Linear Travel Sensor, 0-1.3" 800-LN-FUEL
A. TRAVEL SENSORS
Racepak users can employ these linear potentiometers to record the slightest amount of clutch travel, suspension or linkage movement, even at high rates of speed. Travel sensors are usually connected through the high-speed analog box or transducer box on a Pro series recorder and monitored at a high sample rate. A 0-5v module and 3-pin cable is required for each travel or linear sensor.

Travel Sensor, 0-2”, (7.4” to 9.4”) 800-LN-TRV2
Travel Sensor, 0-3”, (8.4” to 11.4”) 800-LN-TRV3
Travel Sensor, 0-4”, (9.7” to 13.7”) 800-LN-TRV4
Travel Sensor, 0-3”, R (12.6” to 20.6”) 800-LN-TRV5

B. LINEAR SENSORS
These linear potentiometers are used to monitor movement or position. They are commonly used on applications such as magneto retard devices, fuel slide valves, and linear clutch bearing position. Their use requires an appropriate signal conditioning module.

Linear Travel Sensor, 0-1.0” 800-LN-FUEL
Used to monitor slide valve fuel system controller.
Linear Travel Sensor, 0-3.0” 800-LN-CLV3
Used to monitor clutch throw out bearing.
Linear Travel Sensor, 0-4.0” 800-LN-CLV4
Used to monitor clutch throw out bearing.

C. STRING POTENTIOMETER
This sensor is typically used for linear measurements, such as throttle position, when the mounting angle is not critical. The sensor is calibrated to the travel of the throttle (i.e. 0% when closed and 100% at WOT). By using a string potentiometer, the possibility of interference with the throttle operation is eliminated. Operating range 0-4.750”.

String Potentiometer Sensor 800-LN-STRINGP
Can use the V-Net and Interface Adapter Modules above.

D. WHEELIE BAR LOAD CELL
By incorporating these load cells into each of the wheelie bars, a record of how long and how hard the car was on the wheelie bars, and whether both sides register equal loading pressure, gives a visual record of how the car is reacting to the set-up. Monitoring and graphing the pressures generated in these load cells is accomplished by attaching a V-Net module and pressure sensor to each load cell. Pre-programmed modules and sensors are shown below.

Wheelie Bar Load Cell, Single 800-SN-WBLOAD
0-3000 psi 810-MD-RM3000
0-5000 psi 810-MD-RM5000

F. RIDE HEIGHT SENSOR
Infrared sensors are used to monitor the distance to an object, relative to the sensor, when contact cannot be made with the object. This makes them ideal for use in setting up the suspension by monitoring chassis ride height in relation to the moving ground plane. Infrared Ride Height sensors and modules are commonly attached to the V-Net cable of any V-series recorder. If desired, they can also be attached to the analog port by using an Interface module rather than a V-Net module. These sensors are designed for use in measuring distances ranging from 3.00 to 15.75 inches. Each sensor must be used with the appropriate V-Net module.

Sensor Only, Ride Height 810-SK-RHB-M3

G. G-FORCE SENSORS (ACCELEROMETER)
These G-force sensors can be adapted to any V-Net system (Note: V300 & V500 data recorders all contain internally mounted G-meters) to measure longitudinal and lateral forces. The externally mounted G-meter measures 2.0” x 2.0” x 1.250”.

G-Meter, 0-10 G 810-SK-GM
G-Meter Kit 800-SK-ACCEL6
Includes G-meter, cable and module.
A. PRESSURE TRANSDUCERS

The small size and ruggedness of these ‘PT-type’ pressure transducers make them ideal for the measurement of pressure directly at the source. The transducer requires 0-5 volt module and 3-pin cable and provides a 0.5 to 4.5 volt output signal. Each transducer mounts using a 1/8” NPT male pipe fitting.

B. FUEL FLOW METER SENSORS

These general purpose turbine-type flow meters require an available digital channel. Gasoline and Nitro-methane flow meters are constructed of aluminum. Methanol fuel requires the use of a stainless steel flow meter. A tee fitting must be used so all fuel can be routed through the flow meter before it is divided between the hat nozzles and the port nozzles on fuel injection applications.

C. REED SWITCH RPM SENSOR

These contact closure-type sensors use an internal, fast acting reed switch to indicate the passing of a rotating magnet.

D. ENGINE RPM WITH MAGNETO IGNITION

Occasionally, a V-series data recorder will be used to monitor the RPM of an engine that is equipped with a magneto ignition system. In this situation the engine RPM signal is acquired using the inductive pickup shown below. This sensor sources the ignition pulses between the magneto and the control box, and then transfers the signals to the onboard recorder through the RPM module.

VACUUM/PRESSURE SENSOR

| Range: 30 in. hg-0-30 psi, Vacuum/Boost | Part Number 810-MD-RMVAC |

B. FUEL FLOW METER SENSORS

<table>
<thead>
<tr>
<th>Type</th>
<th>Part Number</th>
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<tbody>
<tr>
<td>Flow Meter, Gas or Nitro, 8AN (1-10 GPM)</td>
<td>800-FM-AN8-AL</td>
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<tr>
<td>Flow Meter, Gas or Nitro, 10AN (2-25 GPM)</td>
<td>800-FM-AN10-AL</td>
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<tr>
<td>Flow Meter, Gas or Nitro, 12AN (2-70 GPM)</td>
<td>800-FM-AN12-AL</td>
</tr>
<tr>
<td>Flow Meter, Methanol, 8AN (1-10 GPM)</td>
<td>800-FM-AN8-SS</td>
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<tr>
<td>Flow Meter, Methanol, 10AN (2-25 GPM)</td>
<td>800-FM-AN10-SS</td>
</tr>
<tr>
<td>Tee Fitting 10AN inlet two 8AN outlets</td>
<td>800-FM-TEE</td>
</tr>
</tbody>
</table>

C. ZERO CROSSING RPM SENSOR

This non-powered sensor is designed for monitoring magnetic pulses. It must be used with an RPM input designed for a zero crossing sensor. Used as the clutch RPM or Front Wheel RPM sensor on V-series and 2001 and newer Pro Series recorders.

Zero Crossing TDC Sensor, 3 Pin 3/8 dia. | 800-SS-TDC-3 |

Zero Crossing TDC Sensor, 3 Pin 3/8 dia. | 800-SS-TDM-3 |

D. INDUCTIVE MAGNETO RPM SENSOR

With connector to plug into 3-pin cable.

Inductive Magneto Sensor, 3-pin, 3/8" dia. | 800-SS-MIG-3 |

Inductive Magneto Sensor, 3-pin, 3/8" dia. | 800-SS-MIC-3 |

D. MSD MAGNETO PICKUP ADAPTER

With connector to plug into 3-pin cable.

Inductive Magneto RPM Sensor | 280-SN-MAGU |

Inductive Magneto RPM Sensor | 280-SN-MADU |

ADAPTER MODULE

<table>
<thead>
<tr>
<th>Type</th>
<th>Part Number</th>
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<tbody>
<tr>
<td>MSD Magneto Pickup Adapter</td>
<td>800-CA-MAGU</td>
</tr>
<tr>
<td>(MSD 12 or 20 amp mag)</td>
<td>800-CA-MADU</td>
</tr>
</tbody>
</table>

Adapt the Inductive Engine RPM sensor to the V-Net Cable.
A. SPLIT COLLARS
Those aluminum split collars provide a mounting platform for the magnets that are used to trigger the sensor when monitoring the revolutions of a shaft. They are typically used on rear end yokes or couplers to provide driveshaft RPM. Each collar is approximately .375” wide and houses two magnets which are located 180° apart. Custom size and dual magnet collars are available by special order.

**SPLIT COLLAR ONLY WITH TWO MAGNETS**

<table>
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<tr>
<th>Size (inches)</th>
<th>Part Number</th>
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<tr>
<td>3.500</td>
<td>800-CL-2M-350</td>
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**SPLIT COLLAR ONLY WITH EIGHT MAGNETS**

For use with V300SD, V500SD, Sportsman data recorders. If using a recorder other than listed, contact Racepak.

<table>
<thead>
<tr>
<th>Size (inches)</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.875</td>
<td>800-CL-8M-1875</td>
</tr>
<tr>
<td>2.125</td>
<td>800-CL-8M-2125</td>
</tr>
<tr>
<td>2.187</td>
<td>800-CL-8M-2187</td>
</tr>
</tbody>
</table>

B. MAGNETS
These are the rare earth magnets that are currently used in the clutch input shaft, the split collars shown above or with some front wheel RPM applications. Each magnet measures .250” OD x .200” in length. North end of magnet is painted yellow for easy identification.

<table>
<thead>
<tr>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>800-MG-SM-.25</td>
</tr>
</tbody>
</table>

C. SHIFT LIGHT
As a companion component to our programmable V-Net Shift Light Modules, Racepak has made available this high intensity LED shift light. The light features a powerful light emitting diode for luminosity that can’t be missed even on the brightest of race days.

**Shift Light, Black Housing**

800-XP-SLMSD

**Pro III/Pro IIIA Battery Charger**

800-BC-L11

**Pro 1, 1B & Pro II Battery Charger**

800-BC-N12

**Tip #5** What can a Racepak digital dash display? Both the UDX and IQ3 can display any valid sensor data connected to the dash, but the flexibility of each dash allows the user to decide which data channel and where it will be displayed on the dash.

Complete details can be found at https://www.youtube.com/user/racepakvideos/videos
A. SMARTWIRE POWER CONTROL MODULE

Based on Racepak’s exclusive single cable V-Net technology, the Racepak SmartWire module is the electronic “starting point”, with a direct main power connection from the vehicle battery to the module. Each input/output is then user-defined, both in function, power requirements and current exceeding limits via a USB connection to the user’s PC. The design of the module functions to both reduce overall installation weight / clutter, while providing a quicker reacting electronic system, through the solid state switching design.

Manual activation can be achieved through use of either an optional eight switch Racepak Switch Panel or 16-channel Switch Module. From the Racepak SmartWire unit, a single small cable is routed to the Switch Panel, reducing wiring clutter. Users needing additional switch panel capabilities can easily expand through the use of a “jumper” cable to a second Racepak Switch Panel or Switch Module.

FEATURES

CAPACITY:
125 Total Amps

CHANNELS:
30 Total Channel Outputs
8 Channels @ 20 Amp Maximum
22 Channels @ 10 Amp Maximum
12 Hardwired Switch Inputs

DATA OUTPUT:
Volts
Amps
State

RESPONSE:
3.0 Millisecond

PROGRAMMING:
USB Interface

DIMENSIONS:
6” (L) x 5.5” (W) x 1.5” (H)
(25.2 cm x 13.9 cm x 3.8 cm)

INCLUDES:
Racepak SmartWire Module
Connector Kit
USB Cable
Programming Software

B. SMARTWIRE ACCESSORIES

SmartWire Switch Panel
500-SW-PNL8

SmartWire Switch Module
500-SW-SM86

Switch Panel Mount Bracket
500-MB-SP-xxxx
(Available sizes are: 1.50”, 1.625” and 1.75”)

SmartWire to Switch Panel Cable
500-CA-BN5P-xxxx
(Variety of sizes offered)

SmartWire to V-Net Cable
500-CA-BN5P-xxxx
(Available sizes are: 9”, 18” and 36”)

SmartWire Tee Cable
500-CA-8H-TEE
(Available sizes are: 1”)
A. IQ3 DATA LOGGER DASH
The IQ3 merges Racepak’s V-Net single cable sensor technology and proven GPS based data logging with a fully programmable display, creating a complete data center.

The full feature dash includes an internal 42 sensor channel data logger, while track mapping and speed is obtained by the internal GPS board and 3 axis G meter thus eliminating the need for an external data logger, beacon receiver and wheel speed sensor. No sensor wiring harness is required, as all external sensor data is routed to the rear of the dash by a single V.Net cable. The Datalink II software included with the IQ3 dash provides professional level data analysis capabilities, but in an easy to learn format.

FEATURES

CHANNELS:
47 total
V-Net: 42 digital/analogue
Internal: 5

SAMPLE RATE:
V-Net: up to 100 per second

MEMORY:
Up to 16GB microSD Memory Card
Recording time depends on number of channels monitored and sample rates

DIMENSIONS:
7.23" (L) X 4.007" (W) X 1.125" (H)
(18.41cm X 10.16cm X 1.125cm)

WEIGHT:
1 lb (453g)

SPECIFICATIONS
42 external sensor input with optional high speed logging module.
Internal GPS board
Display up to 28 inputs via 4 pages microSD Memory Card
Blue backlight
3 Axis G meter (accel, lateral, vertical)
Gear Indicator
Eight user defined alarms with on screen warning text and lights
User defined 5 character sensor input names
User defined shift lights
GPS Track Mapping
GPS Speed and Lap Time
Power/Ground/Engine RPM
Remote Programming harness
Shielded, low luster display for sunlight viewing
Metric and English capable

TYPICAL USES
Road Racing
Circle Track
Marine
Pulling

IQ3 PACKAGE INCLUDES
IQ3 Data Logger Dash
Power/Ground/Engine RPM/Remote Programming harness
Rear V-Net connector/GPS antenna connector
512mb microSD memory card
GPS antenna and cable
Programming cable
Datalink II software and installation manual

IQ3 PACKAGE MONITORS
GPS Lap Time and Lap Number
GPS Speed
Battery Voltage
Accel G/Lateral G/Vertical G
Engine RPM (with appropriate tach signal)
SNAP
Shift Lights
Warning Lights
Gear Indicator (with appropriate tach signal)
Data logging of included internal sensors and optional external sensors
28 total programmable inputs on four display pages

B. IQ3 ACCESSORIES
External Programming Buttons
CNC Machined Mounting Bracket

B. MOUNTING PANEL

C. G2X-PRO MOUNTING BRACKET

D. G2X-PRO MOUNTING BRACKET

D. G2X-PRO MOUNTING BRACKET

OFF ROAD / CLOSED COURSE
DATA RECORDERS

A. IQ3 DATA LOGGER DASH

B. IQ3 ACCESSORIES

DATA RECORDERS

B. MOUNTING PANEL

C. G2X-PRO MOUNTING BRACKET

D. G2X-PRO MOUNTING BRACKET

C. G2X-PRO DATA RECORDER

The G2X-Pro builds on the G2X’s already impressive capabilities by allowing the user to monitor up to 71 channels, while providing lap and segment timing along with speed and track mapping functions through the use of GPS information. The G2X-Pro utilizes our exclusive V-Net plug and play technology which allows the data from up to 56 sensors to be transmitted via a single cable to the data recorder. The G2X-Pro brings with it more hardware in the form of our steering position, throttle position, and brakes pressure package. This package provides easy installation through the use of a module that permits the user to terminate those sensor cables to the desired length. A single cable then links the module to the G2X-Pro recorder. Suspension and ride height data may also be obtained by purchasing the appropriate shock and ride height sensor package, which installs and transmits data in the same method as the steering/trottle/brake package. In addition, any V-Net sensor may be used with the G2X-Pro.

The G2X-Pro can utilize any of our three available display dashes, depending upon the user’s requirements. The UDX provides 21 programmable inputs, but does not allow the ability to set start/finish from the dash. The G2X mini dash (standard G2X dash) allows the user to set start/finish, while programming any two sensor inputs along with shift lights, for display. The IQ3 display dash provides the 24 programmable inputs shift lights, warning lights and the ability to set start/finish from the dash.

FEATURES

CHANNELS:
72 Total
V-Net: 56
Analogue: 8 hard-wired
Digital: 4 hard-wired
Internal: 4

SAMPLE RATE:
V-Net: up to 100 per second
Analogue: up to 1000 per second
Digital: RPMs
Contact switch contacts up to 100 per second

MEMORY:
Up to 16GB SD Memory Card
Recording time depends on number of channels monitored and sample rates

INTERNAL SENSORS:
Battery Voltage
Longitudinal g-meter (acceleration and deceleration)
Lateral g-meter (side-to-side motion)
GPS

DIMENSIONS:
5.350" (L) X 5.550" (W) X 1.215" (H)
(13.6cm X 14.1cm X 3.1cm)

WEIGHT:
17 ozs. (.48 kg)

G2X-Pro Data Recorder
600-KT-G2X-PRO

A. IQ3 LOGGER DASH

B. IQ3 ACCESSORIES

DATA RECORDERS

B. MOUNTING PANEL

C. G2X-PRO MOUNTING BRACKET

D. G2X-PRO MOUNTING BRACKET

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Digital: RPMs
Contact switch contacts up to 100 per second

MEMORY:
Up to 16GB SD Memory Card
Recording time depends on number of channels monitored and sample rates

INTERNAL SENSORS:
Battery Voltage
Longitudinal g-meter (acceleration and deceleration)
Lateral g-meter (side-to-side motion)
GPS

DIMENSIONS:
5.350" (L) X 5.550" (W) X 1.215" (H)
(13.6cm X 14.1cm X 3.1cm)

WEIGHT:
17 ozs. (.48 kg)

G2X-Pro Data Recorder
600-KT-G2X-PRO
A. G2X DATA RECORDER

The key to the G2X is its ability to interpret signals from GPS satellites to quickly establish the position and movement of the vehicle. From this monitored data other performance parameters can then be calculated. The G2X has the ability to provide track mapping, lap times/number/distance, segment times, speed, lateral G-force, and acceleration G-force.

Enhancing the features of the G2X is its versatile digital display dash that will provide the driver with a display of lap times, lap number, per lap gain/loss, gear indicator, progressive shift light, battery voltage, and G-forces. Engine RPM is available to those with an ignition system that provides a tach signal output, and three additional inputs from external sensors can be displayed on the dash. When the vehicle is stationary the gear indicator becomes a display of the number of satellite currently being monitored. The dash is also used to provide a means of defining the start/finish line while on the track, thus providing immediate access to displayed data. The dash can be attached to a steering wheel or mounted on the dash panel. A single cable provides the connection between the G2X and the dash for programming purposes.

FEATURES

CHANNELS:

- V-Net: 18
- Internal: 4
- 16 Total Channels

SAMPLE RATE:

- V-Net: up to 100 per second

MEMORY:

- Up to 16GB SD Memory Card
- Recording time depends on number of channels monitored and sample rates
- Record multiple runs
- Cableless download

DIMENSIONS:

- 5.6" (L) X 4.00" (W) X 1.5" (H) (14.2cm X 10.16cm X 3.81cm)

WEIGHT:

- Logger: 13 oz. (.37 kg)
- Kit: 1 lb. 13 oz. (.81 kg)

INTERNAL SENSORS:

- Battery Voltage
- Longitudinal g-meter (acceleration and deceleration)
- Lateral g-meter (side-to-side motion)
- GPS

G2X GPS PACKAGE INCLUDES

- G2X Recorder
- GPS Antenna
- LED Dash Display
- SD Memory Card
- DataLink II
- Software
- Communication Cable
- Cigarette Lighter Adapter
- Power/Ground/Engine RPM Harness

TYPICAL USES

- Road racing
- Oval Track racing
- Club racing
- Driving schools
- Karting
- Pulling
- Motorcycles
- Test Facilities

G2X GPS PACKAGE MONITORS

- Lap Times
- Lap Number
- Per Lap Gain/Loss
- Gear Indicator
- Progressive Shift Lights
- Accel G/Lateral G
- Battery Voltage
- GPS Speed

B. UDX DISPLAY DASH

Capable of being utilized with any of Racetap’s V-Net series of data recorders. UDX Utilizes the same V-Net cable the external sensors use. The UDX display is capable of “sharing” sensor data with the data logger, thus providing the ability to display or trigger warnings based on any internal or external sensor in use by the data logger.

FEATURES

SPECIFICATIONS:

- Display up to 21 Sensor Inputs via 4 pages
- Adjustable Backlighting
- User Defined Warning Lights
- Minimum/Maximum Recall

INCLUDES:

- UDX Display Dash

DISPLAY DASH PROVIDES:

- Any 21 Sensor Inputs Shift Light Output Warnings

DIMENSIONS:

- 4” (H) x 10.2” (W) x .75”(Deep) * Requires 2” rear clearance

WEIGHT:

- 21 ozs. (.58 kg)

UDX DISPLAY

250-DS-UDX

E. UDX MOUNTING PANEL

- 2. Faux Carbon Mounting Panel
  800-MB-UDX-PAL
- 3. Black Mounting Panel
  800-MB-UDX-PBLK
- 4. Silver Mounting Panel
  800-MB-UDX-PAL

Tip #6: Own a 2008 or later vehicle and looking for the coolest instrumentation panel around? Racetap’s 0802 module is just the answer.

Combined with a Racetap I02 digital dash, the 0802 module can provide complete instrumentation, with setup and programming taking just a few minutes, instead of the typical hours of mounting and wiring gauges.

For additional details, check out https://www.youtube.com/user/racepakvideos/videos
**A. IQ3 DASH DISPLAY**

The IQ3 can be utilized with any of Racepak’s V-Net data loggers, providing a compact LCD digital dash. The IQ3 can be utilized as a standalone display dash, independent of a Racepak V-Net data logger, through the use of optional sensors off of the V-Net port, located on the rear of the dash.

**FEATURES**

**SPECIFICATIONS:**
- Display up to 28 inputs via 4 pages
- Blue backlight
- Gear Indicator
- Eight user defined alarms
- User defined 5 character sensor input names
- User defined shift light output
- Shielded, low luster display for sunlight viewing
- Metric and English capable

**DIMENSIONS:**
- 7.25" (L) x 4.000" (W) x 1.125" (deep)
- (18.41cm x 10.16cm x 5.39cm)

**WEIGHT:**
- 1lb. (453g)

**B. IQ3 ACCESSORIES**

- External Programming Buttons
  280-SW-IQ3BTN
- Faux Carbon Mounting Panel
  800-MB-IQ3-PCF
- Black Mounting Panel
  800-MB-IQ3-PBLK
- Silver Mounting Panel
  800-MB-IQ3-PAL

**C. INTELLI-GAUGES**

These are not your average analog or digital gauge. They are both. In addition, they are highly accurate, stylish, dependable, and provide real time display for your monitored functions.

**FEATURES**

**SPECIFICATIONS:**
- User Programmable warning levels
- Download recorded data to PC Plug-and-play installation
- Analog and digital display
- Lightweight, sonic welded
- Electro-luminescent radial lighting

**DIMENSIONS:**
- 2 5/8" diameter and feature a 270° sweep needle

**WEIGHT:**
- 49g

View Selection Chart on Next Page

---

**INTELLI-GAUGE SELECTION CHART**

<table>
<thead>
<tr>
<th>INTELLI-GAUGE</th>
<th>RANGE</th>
<th>BLACK FACE</th>
<th>WHITE FACE</th>
</tr>
</thead>
<tbody>
<tr>
<td>RPM, TACHOMETER</td>
<td>1,000-10,500 RPM</td>
<td>250-IG-100BB</td>
<td>250-IG-100WB</td>
</tr>
<tr>
<td>RPM, TURBINE PERCENTAGE, N1</td>
<td>0-120%</td>
<td>NA</td>
<td>250-IG-218WB</td>
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<td>TEMPERATURE, WATER (STREET)</td>
<td>130°-280°F</td>
<td>250-IG-110BB</td>
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<tr>
<td>TEMPERATURE, WATER (RACE)</td>
<td>60°-200°F</td>
<td>250-IG-120BB</td>
<td>250-IG-120WB</td>
</tr>
<tr>
<td>TEMPERATURE, OIL</td>
<td>140°-280°F</td>
<td>250-IG-130BB</td>
<td>250-IG-130WB</td>
</tr>
<tr>
<td>TEMPERATURE, EXHAUST GAS</td>
<td>600°-1,600°F</td>
<td>250-IG-140BB</td>
<td>250-IG-140WB</td>
</tr>
<tr>
<td>TEMPERATURE, EXHAUST GAS #2</td>
<td>600°-1,600°F</td>
<td>250-IG-145BB</td>
<td>250-IG-145WB</td>
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<tr>
<td>TEMPERATURE, CYLINDER HEAD</td>
<td>120°-600°F</td>
<td>250-IG-150BB</td>
<td>250-IG-150WB</td>
</tr>
<tr>
<td>TEMPERATURE, TRANSMISSION</td>
<td>50°-350°F</td>
<td>250-IG-155BB</td>
<td>250-IG-155WB</td>
</tr>
<tr>
<td>PRESSURE, OIL</td>
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<td>250-IG-160BB</td>
<td>250-IG-160WB</td>
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<tr>
<td>PRESSURE, FUEL</td>
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<td>250-IG-170BB</td>
<td>250-IG-170WB</td>
</tr>
<tr>
<td>PRESSURE, FUEL</td>
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<td>250-IG-165BB</td>
<td>250-IG-165WB</td>
</tr>
<tr>
<td>PRESSURE, FUEL</td>
<td>0-250 psi</td>
<td>NA</td>
<td>250-IG-167WB</td>
</tr>
<tr>
<td>PRESSURE, FUEL</td>
<td>0-500 psi</td>
<td>NA</td>
<td>250-IG-167WB</td>
</tr>
<tr>
<td>PRESSURE, FUEL</td>
<td>0-1,000 psi</td>
<td>NA</td>
<td>250-IG-167WB</td>
</tr>
<tr>
<td>PRESSURE, BRAKE</td>
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<td>NA</td>
<td>250-IG-197WB</td>
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<td>PRESSURE, NITROUS</td>
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<td>250-IG-193WB</td>
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<td>PRESSURE, NITROUS</td>
<td>0-500 psi</td>
<td>NA</td>
<td>250-IG-197WB</td>
</tr>
<tr>
<td>PRESSURE, NITROUS</td>
<td>0-1,000 psi</td>
<td>250-IG-197BB</td>
<td>250-IG-197WB</td>
</tr>
<tr>
<td>PRESSURE, NITROUS</td>
<td>0-1,500 psi</td>
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<td>250-IG-210WB</td>
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<tr>
<td>PRESSURE, NITROUS</td>
<td>0-200 psi</td>
<td>250-IG-200BB</td>
<td>250-IG-200WB</td>
</tr>
<tr>
<td>PRESSURE, NITROUS</td>
<td>0-300 psi</td>
<td>250-IG-204BB</td>
<td>250-IG-204WB</td>
</tr>
<tr>
<td>PRESSURE, NITROUS</td>
<td>0-500 psi</td>
<td>NA</td>
<td>250-IG-221WB</td>
</tr>
<tr>
<td>PRESSURE, NITROUS</td>
<td>0-200 psi</td>
<td>250-IG-200WB</td>
<td>250-IG-200WB</td>
</tr>
<tr>
<td>PRESSURE, NITROUS</td>
<td>0-300 psi</td>
<td>250-IG-204WB</td>
<td>250-IG-204WB</td>
</tr>
<tr>
<td>PRESSURE, NITROUS</td>
<td>0-500 psi</td>
<td>NA</td>
<td>250-IG-221WB</td>
</tr>
<tr>
<td>PRESSURE, NITROUS</td>
<td>0-1,000 psi</td>
<td>250-IG-197WB</td>
<td>250-IG-197WB</td>
</tr>
<tr>
<td>BOOST / VACUUM</td>
<td>10-18</td>
<td>250-IG-215BB</td>
<td>250-IG-215WB</td>
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<tr>
<td>BOOST</td>
<td>0-60 psi</td>
<td>NA</td>
<td>250-IG-217WB</td>
</tr>
<tr>
<td>VACUUM</td>
<td>0-60 in. hg</td>
<td>250-IG-210BB</td>
<td>250-IG-210WB</td>
</tr>
<tr>
<td>AIR-FUEL RATIO</td>
<td>10-18</td>
<td>NA</td>
<td>250-IG-222WB</td>
</tr>
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<td>FUEL LEVEL</td>
<td>3.5-4.5 GPM</td>
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<td>250-IG-222WB</td>
</tr>
<tr>
<td>FUEL LEVEL</td>
<td>E-F</td>
<td>NA</td>
<td>250-IG-222WB</td>
</tr>
<tr>
<td>VOLTS</td>
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<td>250-IG-200WB</td>
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<td>0-16</td>
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<tr>
<td>VOLTS</td>
<td>0-100</td>
<td>NA</td>
<td>250-IG-221WB</td>
</tr>
</tbody>
</table>

**A. GAUGE TO GAUGE JUMPER CABLE**

Used to connect each gauge in series after the first gauge. Each end of the cable has the small round connector that plugs directly into the back of the Intelli-Gauges.

<table>
<thead>
<tr>
<th>CABLE LENGTH</th>
<th>CODE</th>
</tr>
</thead>
<tbody>
<tr>
<td>8&quot; Cable</td>
<td>280-CA-RGG-008</td>
</tr>
<tr>
<td>16&quot; Cable</td>
<td>280-CA-RGG-016</td>
</tr>
<tr>
<td>24&quot; Cable</td>
<td>280-CA-RGG-024</td>
</tr>
<tr>
<td>48&quot; Cable</td>
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<tr>
<td>88&quot; Cable</td>
<td>280-CA-RGG-228</td>
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**B. GAUGE TEE CABLES**

Connects first gauge to V-Net cable or another V-Net module.

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<tr>
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<td>24&quot; Cable</td>
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---

**INTELLI-GAUGE DIMENSIONS**

**SIDE**

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</table>
Racap’s Vehicle Network (V-Net) is a “smart data” transfer network providing the ability to transmit multiple signals from each sensor over a single cable. This technology creates a system in which the individual components interact with each other; making a simpler, more compact system which can be expanded with ease.

The key to accomplishing this is in the modular connectors that attach each of the devices to the main V-Net cable. Each module is essentially a miniature computer, which houses circuit boards and a microprocessor that identifies and retrieves only the proper incoming signals and allows other signals to pass through.

Whether you will be installing a single gauge set up, or a full-blown data acquisition system, all components are attached to the system using the modular snap-together connectors. Adding components onto the system is simple. Just find a junction in the main V-Net cable, separate the connectors, and sandwich the new sensor’s module between them. Then command your software to read the new configuration. It will automatically recognize any additions or deletions from the system.

Gauge integration is another strength of the V-Net system, but don’t mistake additions or deletions from the system. The same holds true for Racap’s digital display dashes. Some models of the dash will rely solely upon the data recorder’s sensors to provide the information they display, while others are stand-alone requiring no data recorder. When you add Datatlink II, the best Windows®-based software in the business, you will see why Racap continues to be the most popular and widely used data acquisition system in the industry.

In order for a function to be monitored on the V-Net, the signal from that function must pass through two components: a sensor and a module. The sensor is the unit that actually measures the input from the function (i.e. pressure, temperature, etc.), while the module converts the signal so it can be transmitted over the V-Net. In the module sensor section that follows, you will find a complete listing of these components divided into categories.

The OFF ROAD / CLOSED COURSE V-Net technology includes:

**V-Net Modules**
- Tachometer
- Oil Pressure
- Fuel Pressure
- EGT
- Probes & Box
- Oil Pressure Module & Sensor
- Exhaust Gas Temperature Module & Sensor
- Coolant Temperature Module & Sensor
- Steady Load Tachometer

**V-Net Cables**
- Four Available High Speed Analog Channels

**V-Net Terminators**
- Digital Wire Harness
- Analog Wire Harness

**V-Net Sensors and Modules**
- A. Pressure
- B. Vacuum
- C. Fuel
- D. Oil
- E. Nitrous
- F. Brakes
- G. Boost
- H. Water Temperature

**V-Net Recorders**
- V300SD Data Recorder
- V Series Recorders

**V-Net Software**
- Datalink II

**V-Net Technology**
- Analog Pre-programmed with Sensors
- Digital Pre-programmed with Sensors

**V-Net Columns**
- Digital Port
- Analog Port
- V-Net Port

**V-Net Sensors**
- Fuel Pressure
- Vacuum
- Oil Pressure

**V-Net Modules**
- Fuel & Module
- Oil Pressure & Module
- Tachometer & Module
- EGT & Module
- Probes & Box

**V-Net Cables**
- Four Available High Speed Analog Channels

**V-Net Terminators**
- Digital Wire Harness
- Analog Wire Harness

**V-Net Sensors and Modules**
- A. Pressure
- B. Vacuum
- C. Fuel
- D. Oil
- E. Nitrous
- F. Brakes
- G. Boost
- H. Water Temperature

**V-Net Recorders**
- V300SD Data Recorder
- V Series Recorders

**V-Net Software**
- Datalink II

**V-Net Technology**
- Analog Pre-programmed with Sensors
- Digital Pre-programmed with Sensors

**V-Net Columns**
- Digital Port
- Analog Port
- V-Net Port

**V-Net Sensors**
- Fuel Pressure
- Vacuum
- Oil Pressure

**V-Net Modules**
- Fuel & Module
- Oil Pressure & Module
- Tachometer & Module
- EGT & Module
- Probes & Box

**V-Net Cables**
- Four Available High Speed Analog Channels

**V-Net Terminators**
- Digital Wire Harness
- Analog Wire Harness

**V-Net Sensors and Modules**
- A. Pressure
- B. Vacuum
- C. Fuel
- D. Oil
- E. Nitrous
- F. Brakes
- G. Boost
- H. Water Temperature

**V-Net Recorders**
- V300SD Data Recorder
- V Series Recorders

**V-Net Software**
- Datalink II

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- Analog Pre-programmed with Sensors
- Digital Pre-programmed with Sensors

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- Digital Port
- Analog Port
- V-Net Port

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- Fuel Pressure
- Vacuum
- Oil Pressure

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- Fuel & Module
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- EGT & Module
- Probes & Box

**V-Net Cables**
- Four Available High Speed Analog Channels

**V-Net Terminators**
- Digital Wire Harness
- Analog Wire Harness

**V-Net Sensors and Modules**
- A. Pressure
- B. Vacuum
- C. Fuel
- D. Oil
- E. Nitrous
- F. Brakes
- G. Boost
- H. Water Temperature

**V-Net Recorders**
- V300SD Data Recorder
- V Series Recorders

**V-Net Software**
- Datalink II
A. TEMPERATURE

Digital cable lengths are shown in parenthesis.

- Cylinder Head, Left, 0-600°F, (36”) 220-VP-TC-HEADL
- Cylinder Head, Right, 0-600°F, (36”) 220-VP-TC-HEADR
- Engine Oil, 0-300°F, (48”) 220-VP-TR-OIL
- Intake Manifold, Open Tip 0-600°F, (36”) 220-VP-TC-MANIF
- Intercooler Intlet, 0-300°F, (72”) 220-VP-TR-ICT1
- Rear End Oil, 0-300°F, (72”) 220-VP-TR-RET
- Transmission Oil, 0-300°F, (72”) 220-VP-TR-TRANS
- Water, 0-300°F (72”) 220-VP-TR-WATER

B. EXHAUST GAS TEMPERATURES/CYLINDER BANK SETS

EGT junction box sets are ordered by the cylinder bank sequence they serve.

- Junction Box & 4 Probes, 1357, Small Block 220-VP-TC-1357S
- Junction Box & 4 Probes, 2468, Small Block 220-VP-TC-2468S
- Junction Box & 4 Probes, 1357, Big Block 220-VP-TC-1357B
- Junction Box & 4 Probes, 2468, Big Block 220-VP-TC-2468B
- Junction Box & 4 Probes, 1234 220-VP-TC-1234
- Junction Box & 4 Probes, 5678 220-VP-TC-5678
- Junction Box & 4 Probes, Motorcycle 220-VP-TC-1234M
- Junction Box & 3 Probes, 123 220-VP-TC-123
- Junction Box & 3 Probes, 456 220-VP-TC-456
- Junction Box & 3 Probes, 135 220-VP-TC-135
- Junction Box & 3 Probes, 246 220-VP-TC-246

C. EXHAUST GAS TEMPERATURES/SINGLE CYLINDER

Single cylinder modules include the thermocouple.

- Cylinder #1 200-VP-TC-EGT1
- Cylinder #2 200-VP-TC-EGT2
- Cylinder #3 200-VP-TC-EGT3
- Cylinder #4 200-VP-TC-EGT4
- Cylinder #5 200-VP-TC-EGT5
- Cylinder #6 200-VP-TC-EGT6
- Cylinder #7 200-VP-TC-EGT7
- Cylinder #8 200-VP-TC-EGT8

D. ANALOG PRE-PROGRAMMED WITHOUT SENSORS

These analog function modules have been programmed for general usage, and have not been assigned to a specific task. Use of these modules on the V-Net cable requires the addition of a sensor and configuration of the module using your DatalinkII software.

- Voltage, 0-5 Volt Input, 5 Volt Output 230-VM-AN-5V
- Voltage, 0-5 Volt Input, 12 Volt Output 230-VM-AN-12V
- Pressure, 5 Volt 230-VM-PT-5V
- Position/Movement, Rotary or Linear 230-VM-TPS
- Temperature, Fluid-type, 0-300°F For use with sensor #180-TR-300 only 230-VM-TC-300
- Temperature, Low, 0-600°F For use with type K thermocouples only 230-VM-TC-600
- Temperature, High, 0-1800°F For use with type K thermocouples only 230-VM-TC-1800
- Voltage Differential 230-VM-5VDIFF
- Universal Sensor Module 230-VM-USM

E. PRESSURE

0-15 psi 220-VS-15GVT
0-75 psi 220-VS-75GVT
0-500 psi 220-VS-500GVT
0-150 psi 220-VS-150GVT
0-1500 psi 220-VS-1500GVT
Vacuum/Pressure 30 In. hg-0-30 psi 220-VS-VB

F. TEMPERATURE

Fluid Temperature, 0-300°F, Fluid Type Sensor 220-VS-TR-300 Uses the #180-TR-300 sensor
A. FLUID TEMPERATURE SENSOR  
B10-CR-TR2P  
Use with V-Net modules and temperature sensors having prefix number of 220-VP-TR-, 220-VM-TR-, or 230-VM-TR-.

B. PRESSURE SENSOR  
B10-CR-T13P  
Use with V-Net module and pressure sensor having prefix number of 220-VP-PT-, 220-VM-PT-, or 230-VM-PT-.

C. EXTENSION CABLES  
These custom built extensions can be used to extend the length of cables that use a 2-Pin or 3-Pin Molex connector to attach the sensor to the power harness or a module’s pigtail. Please specify length required when ordering.

2-Pin Molex Cable, Specify Length  
B00-CA-EXT2P

3-Pin Molex Cable, Specify Length  
B00-CA-EXT3P

D. MOLEX TERMINAL KITS  
These connector kits can be used if the need arises to shorten a cable that terminate. Available with a two or three pin Molex connector. Kit includes both a male and female connector and pins.

2-Pin Molex Connector Kit  
B10-CR-MOL2

3-Pin Molex Connector Kit  
B10-CR-MOL3

Crimp Tool for Molex Terminal Pins  
800-XP-CRIMP-01F

E. DRIVESHAFT RPM  

F. ZERO CROSSING INPUT  

G. ENGINE RPM INPUT  

E. DIGITAL PRE-PROGRAMMED MODULES WITH SENSORS  
These pre-programmed digital function modules and sensor combinations are ready for plug-and-play installation on the V-Net cable. See sensors only page.

CLUTCH RPM  
220-VP-CL-1  
Monitors magnetic pulses using a Zero Crossing sensor.

Drive Shaft RPM, Automobile  
220-VP-DS-2  
Contact Closure Sensor, includes split collar, magnet, and bracket kit.

Drive Shaft/Rear Wheel RPM, Motorcycle  
220-VP-ZXDS-2  
Monitors magnetic pulses using a Zero Crossing sensor.

Front Wheel RPM  
220-VP-FW2X  
Monitors ferrous metal pulses using a Hall Effect sensor.

Front Wheel RPM  
220-VP-FWHE3  
Monitors ferrous metal pulses using a Hall Effect sensor.

Turbo Speed for use with Racepak V-Net Data Loggers  
220-VP-TURBORPM

Turbo Speed V-Net Module only  
230-VM-TURBO

Turbo Speed Sensor only  
800-SS-SPEED

F. DIGITAL PRE-PROGRAMMED MODULES WITHOUT SENSORS  
These pre-programmed digital function modules are ready for plug-and-play installation on the V-Net cable. You must add the appropriate sensor to the module.

Zero Crossing Input  
230-VM-ZX-1

Hall Effect Input  
230-VM-RPHE

Contact Closure Input  
230-VM-CC-1

Event Marker Input, 12 Volt  
230-VM-EVENT

Event Marker Input, Switch Closure  
230-VM-EVENTSW

Flow Meter  
230-VM-FLOW

Four Channel Digital Input  
230-VM-4DIGIN

Four Channel Digital Output  
230-VM-4DIGOUT

G. DIGITAL PRE-PROGRAMMED MODULES NO SENSORS REQUIRED  
These modules do not require a sensor. They use the pulse from the component they are monitoring as the signal to the module. Each has been programmed for the specific use noted and is ready for plug-and-play installation on the V-Net cable.

Engine RPM Input Module  
220-VP-TACH-4

Transbrake Event 12 Volt Triggered  
220-VP-TBRAKE

Wide Open Throttle Event  
220-VP-WOTEVENT

Clutch Event 12 Volt Triggered  
220-VP-CLTEVENT
A. EFI DATA INTERFACE

These V-Net modules have been created to interface with many electronic fuel injection systems on the market. Each V-Net EFI Data Interface module is equipped to allow direct connection with EFI. These modules allow your V-series data recorder to share the data collected by these systems rather than having to install duplicate sensors to monitor functions that are already being monitored by the EFI system. The shared data can be recorded or displayed just as you would any function monitored independently by your Racepak V-series recorder. Caution should be exercised to ensure that you do not exceed the maximum number of V-Net channels supported by your particular logger.

The individual functions monitored by each EFI system are outlined in the chart below. For use with Racepak V-Net data loggers.

B. SHIFT LIGHT/EVENT MODULE

The Shift Light Module allows you to use any LED-style shift light (50 milliamp maximum) as a fully-programmable, stand-alone shift light. By accessing the engine RPM off of the V-Net you can program up to six separate shift alarm signals. Each shift point is user-programmable using the DataLink II software. Shift light module does not include the shift light. See Shift Light on page 36. This module will also show you when the shift light was triggered to come on.

Shift Light/Event Module 230-VM-SHIFTLTE

C. GMR SENSOR

The GMR (Giant Magneto Resistive) sensor acquires a tach signal inductively from a current carrying wire, and provides an RPM sign of 30% duration when the ignition coil fires. It can be used on the following types of ignition coil systems: Capacitive Discharge Ignition, Inductive Coil per Cylinder ignition, Distributorless Coil Pack ignition, or Diesel Injector. Complete instructions for installation on each type of ignition system are provided with the sensor.

No cutting or splicing required.

GMR Sensor 810-SN-GMR

D. AIR/FUEL CONTROLLERS

Sensors must be ordered separately

4 Channel Controllers, Cylinders 1, 3, 5, 7, 220-VM-AF4-1357
For use on 1, 3, 5, 7 cylinder bank of V8, i.e. GM & Mopar.

4 Channel Controllers, Cylinders 2, 4, 6, 8, 220-VM-AF4-2468
For use on 2, 4, 6, 8 cylinder bank of V8, i.e. GM & Mopar.

4 Channel Controllers, Cylinders 1, 2, 3, 4, 220-VM-AF4-1234
For use on 1, 2, 3, 4 cylinder bank of V8, i.e. Ford.

4 Channel Controllers, Cylinders 5, 6, 7, 8, 220-VM-AF4-5678
For use on 5, 6, 7, 8 cylinder bank of V8, i.e. Ford.

Air/Fuel Sensor Only 810-SN-AF4MP

Air/Fuel Wideband & Plug 810-TX-AFWLP
Wideband sensors are included with purchase of controller.

Air/Fuel Harness ‘A’ Side 280-CA-LSUA-AMP

Air/Fuel Harness ‘B’ Side 280-CA-LSUB-AMP

E. SINGLE AIR/FUEL CONTROLLER WITH SENSOR

Single channel air/fuel sensor package. Includes controller, (1) Bosch LSU air/fuel sensor, weld bung, wiring harness, instructions, includes 0-5V reference output for external devices. For use with Racepak V-Net data loggers.

AF1 Package 220-VM-AF1

F. RELAY CONTROL MODULE

A Relay Control Module is the device which permits the V-Net system to perform a host of automated tasks. It allows any information transmitted over the V-Net to be used to activate external high power devices such as a switch, solenoid, water pump, fan, or lights. Each module has two programmable output relays. Each relay can have up to two separate analog and/or digital control signals that must be met before the relay is engaged. For example, one relay can be programmed to turn on a water pump only when both an ‘Enable’ signal is on and the water temperature is above the programmed value, while the other relay can be used to activate an ignition kill switch only if the engine RPM is above a programmed value and the oil pressure is lower than a programmed value. Each relay has two programmable output relays.

Relay Control Module 230-VM-RELAY

G. AIR/FUEL SENSORS

Racepak has created a selection of A/F controllers and sensors created specifically for tuning race engines. Each of these 2 and 4-channel controllers are designed to be connected to the V-Net cable of Racepak V-series recorders. When ordering please be aware that the sensors are calibrated for use on specific ports of the controller and cannot be interchanged from port to port without recalibration. All sensors have a 3’ foot cable for attachment to the sensor. These lengths cannot be altered. Controllers are ordered by cylinder bank layout.

Racepak A/F sensors are compatible with either gasoline or methanol fueled engines. Gasoline application will display A/F ratios between 9.55:1 and 20:1, while methanol is shown from 4:1 to 1:1. Please specify the type of fuel you will be using when ordering. Each sensor includes one weldment and plug.

Air/Fuel Harness Only 280-CA-LSUA-AMP

Air/Fuel Harness ‘B’ Side 280-CA-LSUB-AMP

Weldments are included with purchase of controller.

Weldments include one weldment and plug.

Weldments are included with purchase of controller.

Weldments are included with purchase of controller.

Weldments are included with purchase of controller.

Weldments are included with purchase of controller.

Weldments are included with purchase of controller.

Weldments are included with purchase of controller.
A. STEERING/THROTTLE/BRAKE KIT

GPS-based systems like the G2X and G2X-Pro are commonly used for the purpose of assessing a vehicle’s handling characteristics in response to the driver’s input. Popular functions that are monitored in this evaluation are the driver’s steering input, throttle position, and front and rear brake pressures. Racepak has made it easy to add this commonly used selection of sensors to either the G2X or G2X-Pro by packaging all sensors and cables in a kit.

B. SHOCK TRAVEL KIT (G2X PRO ONLY)

Monitoring the extension and compression travel of the shock absorbers is one of the prime methods of evaluating the suspension movement and chassis setup. This Shock Travel Kit provides the necessary components to provide that information. The kit includes four 0-8 inch travel sensors and cables. Also included are four Turck connectors which simplify the job of custom tailoring the length of the cables for your application, as well as two Turck bulkhead connectors. Center-to-center distances on the shock travel sensor mounting points are 12.6 inches collapsed and 20.6 inches extended.

C. RIDE HEIGHT KIT (G2X PRO ONLY)

The Ride Height Kit has been packaged to provide the components used to monitor the distance between the ground and the sensor at the four corners of the car. The kit consists of four infrared sensors, cables and the connectors that allow you to custom tailor the length of the cables to a Turck bulkhead connector. NOTE: Prior installation of our Shock Travel Kit (PN 620-KT-4SHOCK, shown above) is required as the ride height sensors share the bulkhead connectors used in the shock kit. If the Shock Travel Kit is not used you must add two 280-BH-4ANA-512 bulkhead connectors to this kit.

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D. G2X AND G2X-PRO

Both the G2X and the G2X-Pro recorders are somewhat unique within the Racepak line of data acquisition systems. Although they share many components that are also used with other V-Net recorders, the optional and replacement components shown below can only be used with these GPS-based systems.

Also, there are two versions of the G2X. The original G2X (600-KT-G2X) was in a black housing and a new version was introduced in mid-2007 in a red housing. There are different harnesses available for the two models. The components listed here are for the original black housing design. For replacement parts for the red housing contact Racepak at 949-709-5555.

---

E. G2X PRO CABLES AND COMPONENTS

The components listed below are for the original black housing design. For replacement parts for the red housing contact Racepak at 949-709-5555.
CABLES

V-Net modules and Interface modules, although similar in construction and appearance, are very different in the functions they perform. It is important that components designed for one system not be interchanged with that of the other. V-Net cables use a 5-pin connector, while Interface cables use a 7-pin connector. So that cables can be identified at a glance, Racepak has color-coded the connectors on the end of the cables. V-Net cable connectors are blue, just like the modules to which they attach, while Interface cable connectors and modules are black.

The cables listed may be used to link the components to other listed components of the same system, or to their proper port on the recorder. The Interface cables with black connectors will only be used with modules connecting to the RPM or Analog input ports, while the V-Net cables with blue connectors will be used exclusively on items connected to the V-Net port.

## Cable Connectors

<table>
<thead>
<tr>
<th>Component</th>
<th>5-Pin Blue V-Net</th>
<th>7-Pin Black Interface</th>
</tr>
</thead>
<tbody>
<tr>
<td>TEE CABLE, 6”</td>
<td>280-CA-VM-006</td>
<td>280-CA-IM-006</td>
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<tr>
<td>TEE CABLE, 12”</td>
<td>280-CA-VM-012</td>
<td>280-CA-IM-012</td>
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<tr>
<td>TEE CABLE, 18”</td>
<td>280-CA-VM-018</td>
<td>280-CA-IM-018</td>
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<tr>
<td>TEE CABLE, 24”</td>
<td>280-CA-VM-024</td>
<td>280-CA-IM-024</td>
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<tr>
<td>TEE CABLE, 36”</td>
<td>280-CA-VM-036</td>
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<tr>
<td>TEE CABLE, 48”</td>
<td>280-CA-VM-048</td>
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<td>TEE CABLE, 60”</td>
<td>280-CA-VM-060</td>
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<td>TEE CABLE, 72”</td>
<td>280-CA-VM-072</td>
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<td>TEE CABLE, 96”</td>
<td>280-CA-VM-096</td>
<td>280-CA-IM-096</td>
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<td>TEE CABLE, 108”</td>
<td>280-CA-VM-108</td>
<td>280-CA-IM-108</td>
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<tr>
<td>TEE CABLE, 120”</td>
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<tr>
<td>TEE CABLE, 144”</td>
<td>280-CA-VM-144</td>
<td>280-CA-IM-144</td>
</tr>
<tr>
<td>TEE CABLE, 168”</td>
<td>280-CA-VM-168</td>
<td>280-CA-IM-168</td>
</tr>
<tr>
<td>TEE CABLE, 192”</td>
<td>280-CA-VM-192</td>
<td>280-CA-IM-192</td>
</tr>
<tr>
<td>TEE CABLE, 216”</td>
<td>280-CA-VM-216</td>
<td>280-CA-IM-216</td>
</tr>
</tbody>
</table>

VACUUM/PRESSURE SENSOR

30 lb. in. - 30 psi, Vacuum/Boost

## Adapter Modules

The pressure sensors listed on page 19 can be adapted to the V-Net cable or analog port of the recorders by using the appropriate signal condition module.

### Flow Meter Modules

<table>
<thead>
<tr>
<th>Component</th>
<th>5-Pin Blue V-Net</th>
<th>7-Pin Black Interface</th>
</tr>
</thead>
<tbody>
<tr>
<td>INTERFACE MODULES</td>
<td>280-CA-IM-T036</td>
<td>280-CA-IM-T036</td>
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<tr>
<td>INTERFACE MODULES</td>
<td>280-CA-IM-T018</td>
<td>280-CA-IM-T018</td>
</tr>
<tr>
<td>INTERFACE MODULES</td>
<td>280-CA-IM-T009</td>
<td>280-CA-IM-T009</td>
</tr>
</tbody>
</table>

## Fuel Flow Meter Sensors

These general purpose turbine-type flow meters require an available digital channel. Gasoline and nitro-methane flow meters are constructed of aluminum. Methanol fuel requires the use of a stainless steel flow meter. A tee fitting must be used so all fuel can be routed through the flow meter before it is divided between the hat nozzles and the port nozzles on fuel injection applications.

### Flow Meter Modules

<table>
<thead>
<tr>
<th>Component</th>
<th>5-Pin Blue V-Net</th>
<th>7-Pin Black Interface</th>
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<tbody>
<tr>
<td>INTERFACE MODULES</td>
<td>280-CA-IM-T036</td>
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<tr>
<td>INTERFACE MODULES</td>
<td>280-CA-IM-T009</td>
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</table>

### Pressure Transducers

The small size and ruggedness of these ‘PT-type’ pressure transducers make them ideal for the measurement of pressure directly at the source. The transducer requires 5-volt DC power and provides a 0.5 to 4.5 volt output signal. Each transducer mounts using a 1/8” NPT male pipe fitting.

<table>
<thead>
<tr>
<th>Component</th>
<th>5-Pin Blue V-Net</th>
<th>7-Pin Black Interface</th>
</tr>
</thead>
<tbody>
<tr>
<td>INTERFACE MODULES</td>
<td>280-CA-IM-T036</td>
<td>280-CA-IM-T036</td>
</tr>
<tr>
<td>INTERFACE MODULES</td>
<td>280-CA-IM-T018</td>
<td>280-CA-IM-T018</td>
</tr>
<tr>
<td>INTERFACE MODULES</td>
<td>280-CA-IM-T009</td>
<td>280-CA-IM-T009</td>
</tr>
</tbody>
</table>
A. REED SWITCH RPM SENSOR
These contact closure-type sensors use an internal, fast-acting reed switch to indicate the passing of a rotating member.

RPM Sensor, 2-Pin 5/16" 24 dia. 800-SS-PRD-5
Commonly used as a driftshaft RPM sensor on pre-2001 clutch RPM sensor with Pro Series recorders.

RPM Sensor, 2 Spade Connectors, 5/16" 24 dia. 800-SS-RR-5
Commonly used for clutch, driftshaft and front wheel RPM with SC1000 recorders.

ZERO CROSSING RPM SENSORS

Zero Crossing RPM Sensor, 3-Pin 5/16" dia. 800-SS-ZX-3
This non-powered sensor is designed for monitoring magnetic pulses. It must be used with an RPM input designed for a zero crossing sensor. Used as the clutch RPM or Front Wheel RPM sensor on V-series and 2001 and newer Pro Series recorders.

Zero Crossing TDC Sensor, 3-Pin 5/16" dia. 800-SS-TDC-3
This sensor is designed specifically for use with MSD-style crank trigger wheels and magnets. It should be used with a RPM input designed for a zero crossing sensor. Commonly used for the TDC indicator on ignition timingmonitoring with V500 recorders.

HALL EFFECT SENSOR

Ferrous Material sensor, 3-Pin, 5/16" dia. 800-SS-MSC-3
Commonly used to sense a ferrous bolt or metal tooth, such as used when monitoring the ring gear RPM. These powered sensors require 12v power.

Magnetic Pulse Sensor, 3-Pin, 5/16" dia. 800-SS-MSC-5
Same as above, but triggered by a magnet rather than a ferrous metal.

B. ENGINE RPM WITH MAGNETO IGNITION
Occasionally, a V-series data recorder will be used to monitor the RPM of an engine that is equipped with a magneto ignition system. In this situation the engine RPM signal is acquired using the inductive pickup shown below. This setup simplifies the installation on V8 engines by grouping the four thermocouples with junction box combination shown below. This setup amplifies the installation on V8 engines by grouping the four thermocouples on each cylinder bank into a common junction box. The junction box then provides a single wire connection to the V-Net module to facilitate service work. A similar setup is available for V6 engines.

V-Net applications also use two styles of thermocouples. Four cylinder motorcycles make use of the .187-inch diameter tip bullet-style thermocouples, while Harley-Davidsons and the automotive applications employ the .250-inch diameter Stinger-style thermocouples. When replacing a thermocouple probe, use the illustration alongside the chart to determine the length you will need. The thermocouples used with the junction boxes, and some individual thermocouple components that are often requested, are shown in this chart. See page 20 for single or four station EGT modules that include the thermocouples.

C. EXHAUST GAS TEMPERATURE THERMOCOUPLES
V-Net systems and V-series recorders use two types of thermocouple setups to monitor the exhaust gas temperatures, one for an individual cylinder application and another for 3 or 4 cylinder groups. Measuring the EGTS on a single cylinder application is accomplished using a thermocouple that features an inline, two-prong mini-connector. This connector provides the union between the thermocouple and the V-Net module. A selection of single cylinder thermocouples is shown below.

The most frequently used setup is the four thermocouples with junction box combination shown below. This setup simplifies the installation on V8 engines by grouping the four thermocouples on each cylinder bank into a common junction box. The junction box then provides a single wire connection to the V-Net module to facilitate service work. A similar setup is available for V6 engines.

V-Net applications also use two styles of thermocouples. Four cylinder motorcycles make use of the .187-inch diameter tip bullet-style thermocouples, while Harley-Davidsons and the automotive applications employ the .250-inch diameter Stinger-style thermocouples. When replacing a thermocouple probe, use the illustration alongside the chart to determine the length you will need. The thermocouples used with the junction boxes, and some individual thermocouple components that are often requested, are shown in this chart. See page 20 for single or four station EGT modules that include the thermocouples.

D. THERMOCOUPLE ASSEMBLY
These Type-K thermocouple assemblies (Nickel-Chromium/Nickel-Aluminum) are specifically designed for the automotive applications. Each must be used with the appropriate thermocouple amplifier module. All probes are 12" in length and are terminated with a male two pin mini-connector. The liquid and manifold assemblies are provided with a 1/8" male NPT compression style fitting.

Cylinder Head Temp. Thermocouple Assm. 800-TC-MT-ASM
Ring type sensor is used to monitor temperature of the metal, not the coolant.

Fluid Temp. Thermocouple Assm. 800-TC-FT-ASM
Used where the probe can be immersed in liquid, such as in a dry sump tank.

Manifold Temp. Thermocouple Assm. 800-TC-MT-ASM
Open end probe reacts quickly to changing temperatures in manifold plenum.

MISCELLANEOUS EGT COMPONENTS

Weldment, Nut & Ferrule Assembly 3/16" 800-TC-WASM3 1/4" 800-TC-WASM4
Weldment Only, Single 800-TC-WELD4
Weldment Only, Single, Stainless 800-TC-WELD4S
Weldment Only, Set of 4 800-TC-WELD4F
Weldment Only, Set of 8 800-TC-WELD4L
Ferrule Only 800-TC-F4
Nut Only 800-TC-WNUT4
Cap Only 800-TC-WELD4C
Nut & Ferrule Only 800-TC-WMP4

To determine the length and diameter of a thermocouple measure as shown.

D. SPECIAL PURPOSE THERMOCOUPLES
These Type-K thermocouple assemblies (Nickel-Chromium/Nickel-Aluminum) are specifically designed for the applications listed below. Each must be used with the appropriate thermocouple amplifier module. All probes are 12" in length and are terminated with a male two pin mini-connector. The liquid and manifold assemblies are provided with a 1/8" male NPT compression style fitting.

Cylinder Head Temp. Thermocouple Assm. 800-TC-MT-ASM
Ring type sensor is used to monitor temperature of the metal, not the coolant.

Fluid Temp. Thermocouple Assm. 800-TC-FT-ASM
Used where the probe can be immersed in liquid, such as in a dry sump tank.

Manifold Temp. Thermocouple Assm. 800-TC-MT-ASM
Open end probe reacts quickly to changing temperatures in manifold plenum.
A. FLUID TEMPERATURE SENSOR
This sensor is commonly used in conjunction with the modules shown below to measure the temperature of fluids such as water or engine and transmission oil where the temperature does not exceed 300°F.

Fluid Temperature, Sensor Only 0-300°F 810-TR-300
For use with V-Net module.

Fluid Temperature, Sensor Only 0-250°F 810-TR-250
For use with V-Net module.

ADAPTER MODULES

V-Net Module 230-VM-TR-300
Used to connect the 810-TR-300 sensor to the V-Net cable.

Interface Module 240-IM-FT350
Used to connect the 810-TR-300 sensor to the Analog Port.

B. INFRARED TEMPERATURE SENSORS
These infrared sensors are used to monitor temperatures where contact cannot be made with the item being monitored. In racing, they are commonly used to monitor temperatures across the face of a tire, but they can be used for any non-contact measurement. The sensor will measure temperatures from 0-400°F. The IR Temperature sensor has a 4:1 ratio focal point. That means that when the item being monitored is four inches away from the sensor, the focal point will be one inch in diameter. If the sensor is twelve inches away, the focal point will be three inches in diameter.

IR Sensor and V-Net Module 220-VP-IR-T-200
IR V-Net Module Only 230-VM-IR
IR Temp Sensor Only 810-6N-IR-200

C. STRING POTENTIOMETER
This sensor is typically used for linear measurements, such as throttle position, when the mounting angle is not critical. The sensor is calibrated to the travel of the throttle (i.e. 0% when closed and 100% at WOT). By using a string potentiometer, the possibility of interference with the throttle operation is eliminated. Operating range 0-4.750”.

String Potentiometer Sensor 220-VP-IR-TRANS

ADAPTER MODULES

V-Net Module 220-VP-WOTEVENT
Use for adapting string potentiometers to V-series recorders.

Interface Module 220-VP-WOTEVENT
Use for connection to Analog port of V300 or V500 recorders.

D. RIDE HEIGHT SENSOR
Infrared sensors are used to monitor the distance to an object, relative to the sensor, when contact cannot be made with the object. This makes them ideal for use in setting up the suspension by monitoring chassis ride height in relation to the moving ground plane. Infrared Ride Height sensors and modules are commonly attached to the V-Net cable of any V-Net recorder. If desired, they can also be attached to the analog port by using an Interface module rather than a V-Net module. These sensors are designed for use in measuring distances ranging from 3.03 to 15.75 inches. Each sensor must be used with the appropriate V-Net module.

Ride Height Sensor Kit, V-Net, Left Front 220-VP-RHLEFT
Ride Height Sensor Kit, V-Net, Right Front 220-VP-RHLEFT
Ride Height Sensor Kit, V-Net, Left Rear 220-VP-RHLREAR
Ride Height Sensor Kit, V-Net, Right Rear 220-VP-RHLREAR

Module Only, Ride Height, V-Net, Left Front 220-VM-RHLEFT
Module Only, Ride Height, V-Net, Left Rear 220-VM-RHLEFR
Module Only, Ride Height, V-Net, Right Front 220-VM-RHREAR
Module Only, Ride Height, V-Net, Right Rear 220-VM-RHLREAR

Sensor Only, Ride Height 810-6N-RH

E. ADHESIVE 0-600°F THERMOCOUPLE SENSOR
Racepak's adhesive 0-600°F thermocouple sensor eliminates the need for bung and other sensor mounting methods, making ideal for a number of surface temperature readings such as shock housing temp, engine block temp, fuel tank temp, fuel pump temp, electric motor temp, batteries, and many more. For use with V-Net module or Transducer box.

Adhesive 0-600°F Thermocouple Sensor 800-TC-PS-600

F. G-FORCE SENSORS (ACCELEROMETER)
These G-force sensors can be adapted to any V-Net system (Note: V300 & V500 data recorders all contain internally mounted G-meters) to measure longitudinal and lateral forces. The externally-mounted G-meter measures 2.0” x 2.0” x 1.250”.

G-Meter, 0-6 G 220-VP-6M

ADAPTER MODULES

V-Net Module Only 220-VM-6G-12V
Adapts external G-meter to V-Net cable.
RACEPAK OFFERS A NUMBER OF DATA LOGGERS AND SENSORS, TO FIT YOUR PULLING NEEDS. REFER TO THE DRAG SECTION OF THIS CATALOG, FOR ADDITIONAL SENSOR AND DATA LOGGER PRODUCTS.

BELOW ARE RECOMMENDED DATA SYSTEM KITS FOR THE PULLING COMPETITOR.

A. G2X PRO
Recommended for multi-engine or vehicles requiring a large number of sensor inputs. Includes 71 channel G2X Pro data logger, power/rpm harness, 3 RPM sensors, 10 magnets, throttle position sensor, cables and connectors.

G2X Pro Puller Kit 620-KT-G2XPROPL

B. IQ3
Recommended for 4WD, 2WD, Super style classes or vehicles requiring an all-in-one instrumentation/data logger design with 32 sensor inputs. Includes 32 channel IQ3 Data Logger Dash, four sensor input module, 3 RPM sensors, 10 magnets, throttle position sensor, cables and connectors.

IQ3 Puller Kit 620-KT-IQ3LDPL
IQ3 Puller Kit/4WD 620-KT-IQ3LDPL4

C. IQ3 STOCK/SUPER STOCK FARM TRACTOR APPLICATIONS
The IQ3 Stock/Super Stock Farm Puller system will monitor Engine RPM, Battery Volts, 2-G-Meters (Lat & Long), GPS Speed, Driveshaft RPM (could be used for Engine RPM on Diesels), 2 Rear Wheel RPM, Turbo Speed, and Boost Pressure 0-150psi. Default Engine RPM input designed for battery ignition, special adapters/sensors may be required for Diesel or Magneto applications, sold separately.

IQ3 Pro Puller Kit 620-KT-G2XPROPL

D. G2X
Above are recommended data system kits for the pulling competitor. Racepak offers a number of data loggers and sensors, to fit your pulley needs. Refer to the Drag section of this catalog, for additional sensor and data logger products.

G2X Pro Puller Kit 620-KT-G2XPROPL
A. SMARTWIRE POWER CONTROL MODULE

Based on Racepak’s exclusive single cable V-Net technology, the Racepak SmartWire module is the electronic “starting point”, with a direct main power connection from the vehicle battery to the module. Each input/output is then user defined, both in function, power requirements and current exceeding limits via a USB connection to the user’s PC. The design of the module functions to both reduce overall installation weight / clutter, while providing a quicker reacting electronic system, through the solid state switching design.

Manual activation can be achieved through use of either an optional eight switch Racepak Switch Panel or 16-channel Switch Module. From the Racepak SmartWire unit, a single small cable is routed to the Switch Panel, reducing wiring clutter. Users needing additional switch panel capabilities can easily expand through the use of a “jumper” cable to a second Racepak Switch Panel or Switch Module.

FEATURES

CAPACITY:
125 Total Amps

CHANNELS:
30 Total Channel Outputs
8 Channels @ 20 Amp Maximum
22 Channels @ 10 Amp Maximum
12 Hardwired Switch Inputs

DATA OUTPUT:
Volts
Amps
State

RESPONSE:
3.0 Millisecond

PROGRAMMING:
USB Interface

DIMENSIONS:
6” (L) x 5.5” (W) x 1.5” (H)
(25.2 cm x 13.9 cm x 3.8 cm)

INCLUDES:
Racepak SmartWire Module
Connector Kit
USB Cable
Programming Software

B. SMARTWIRE ACCESSORIES

SmartWire Switch Panel 500-SW-PNL8
SmartWire Switch Module 500-SW-SM66
Switch Panel Mount Bracket 500-MB-SP-xxxx
(Available sizes are: 1.00", 1.05" and 1.15")
SmartWire to Switch Panel Cable (Variety of sizes offered)
500-CA-BN5P-xxxx
SmartWire to V-Net Cable (Variety of sizes offered)
500-CA-BN5P-xxxx
SmartWire Tee Cable (Available sizes: 1”)
500-CA-01R-TEE
A. UDX STREET ROD DASH

Taking the technology from our race proven LCD dashes and applying it to the street vehicle market, the UDX Street Rod Dash is a complete dash panel replacement. Containing all the amenities required on a street driven vehicle, this product provides all the information necessary for highway use.

Through a combination of your existing sensors and those included with this kit, the dash will provide the ability to display engine RPM, speedometer, odometer, water and oil temperatures, oil pressure, battery voltage and fuel level. Indicator lights are included for items such as low oil pressure, high water temperature, turn signals, high beam and parking brake. Additional features can be displayed with the purchase of the appropriate V-Net sensor and module combination. A relay for an electric fan controller along with a minimum/maximum recall function is included.

FEATURES

SPECIFICATIONS:
- Display up to 21 sensor inputs via 4 pages.
- Adjustable backlighting
- User defined warning lights
- Minimum/Maximum recall
- Turn signal, high beam, engine warning lights

INCLUDES:
- UDX Street Rod Display Dash
- Water/Oil temperature sensor
- Oil pressure sensor
- Wire loom and connectors for sensor input termination

DISPLAY DASH PROVIDES VIEW OF:
- Any 21 sensor inputs recorded by the data logger
- Shift Lights
- Warning Lights

DIMENSIONS:
- 4” (H) x 10.2” (W) x .75” (deep*)
- Requires 2” rear clearance

WEIGHT:
- 21 ozs. (.58 kg)

B. UDX ACCESSORIES

- Faux Carbon Mounting Panel 800-MB-UDX-PCF
- Black Mounting Panel 800-MB-UDX-PBLK
- Silver Mounting Panel 800-MB-UDX-PAL

C. UDX DISPLAY DASH

Capable of being utilized with any of Racepak’s V-Net series of data recorders. UDX Utilizes the same V-Net cable the external sensors use. The UDX display is capable of “sharing” sensor data with the data logger, thus providing the ability to display or trigger warnings based on any internal or external sensor in use by the data logger.

FEATURES

SPECIFICATIONS:
- Display up to 21 Sensor Inputs via 4 pages.
- Adjustable Backlighting
- User Defined Warning Lights
- Minimum/Maximum Recall

INCLUDES:
- UDX Display Dash
- V-Net Tee Cable

DISPLAY DASH PROVIDES:
- Any 21 Sensor Inputs Shift Light Output Warning Lights

DIMENSIONS:
- 4” (H) x 10.2” (W) x .75” (deep*)
  - Requires 2” rear clearance
  - 10.16cm x 25.908cm x 1.905cm

WEIGHT:
- 21 ozs. (.58 kg)

D. IQ3 DASH DISPLAY

The IQ3 can be utilized with any of Racepak’s V-Net data loggers, providing a compact LCD digital dash. The IQ3 can be utilized as a standalone display dash, independent of a Racepak V-Net data logger, through the use of optional sensors off of the V-Net port, located on the rear of the dash.

FEATURES

SPECIFICATIONS:
- Display up to 28 inputs via 4 pages
- Blue backlit
- Gear Indicator
- Eight user defined alarms
- User defined 5 character sensor input names
- User defined shift light output
- Shielded, low luster display for sunlight viewing
- Metric and English capable

DIMENSIONS:
- 7.25” (L) x 4.000” (W) x 1.125” (deep)
  - 18.41cm x 10.16cm x 5.39cm

WEIGHT:
- 1lb. (453g)

E. IQ3 ACCESSORIES

- External Programming Buttons 280-SW-IQ3BTN
- Faux Carbon Mounting Panel 800-MB-IQ3-PCF
- Black Mounting Panel 800-MB-IQ3-PBLK
- Silver Mounting Panel 800-MB-IQ3-PAL
A. EFI DATA INTERFACE
These V-Net modules have been created to interface with many electronic fuel injection systems on the market. Each V-Net EFI data interface module is equipped to allow direct connection with EFI. These modules allow your V-series data recorder to share the data collected by these systems rather than having to install duplicate sensors to monitor functions that are already being monitored by the EFI system. The shared data can be recorded or displayed just as you would any function monitored independently by your Racepak V-series recorder. Caution should be exercised to ensure that you do not exceed the maximum number of V-Net channels supported by your particular logger. The individual functions monitored by each EFI system are outlined in the chart below. For use with Racepak V-Net data loggers.

- Accel DFI Gen VII 230-VM-EFIDFI
- AEM 230-VM-EFIAEM
- Automtic SMC & SM2 230-VM-EFIAUT
- Automtic SMC V107 & V109 230-VM-EFIAUT1
- Big Stuff 3 230-VM-EFIB3
- Corvette C6 OBDII GM3 (2006 and Later) 230-VM-EFIC6
- EFI Technologies 230-VM-EFITECH
- FAST XFI CAN 230-VM-EFIFST
- FAST Serial 230-VM-EFIHAL
- Generic J1939 CAN 230-VM-EFICAN
- Haltech 230-VM-EFIHAL
- Holley EFI 230-VM-EFIII
- Honda KPro 230-VM-EFIIKPRO
- Megasquirt I 230-VM-EFIM1
- Megasquirt II 230-VM-EFIM2
- MEFI 4B J1939 (GM PN 15254952, 15257476) 230-VM-EFII4B4
- Motec M400, M600, M600, M64 230-VM-EFIMOTEC
- Motec M4, M48 230-VM-EFIMOTECRT
- Omex 230-VM-EFIMOEX
- Omnitrack EC44 230-VM-EFIC44
- PRO EFI 230-VM-EFIPRO
- Viper 230-VM-EFIVIPER
- WOLF V500 230-VM-EFIV500
- Atomic LS 230-VM-EFIALS
- Atomic TBI 230-VM-EFIATBI
- FuelTech 230-VM-EFIFUEL

B. OBDII DATA INTERFACE
Provides the ability to gather OBDII data, for data logging or display via Racepak’s line of digital dash/Intelli-Gauge products. For use with Racepak V-Net data loggers.

OBDII Module 230-VM-OBDII

C. USM FOUR SENSOR INPUT MODULE
Provides the ability to input and program up to 4 individual sensors. Each input has multi-function programming capabilities. RPM, analog, temperature or event. Internal terminal strip provides sensor power (12V or 5V) ground, shield and signal for each input. For use with Racepak V-Net data loggers.

- USM Module 230-VM-USM
  - Racepak temperature sensor cable (144" long) and mating connector 680-CA-A144
  - Racepak pressure sensor cable (144" long) and mating connector 680-CA-A144
  - Racepak travel sensor cable (144" long) and mating connector 680-CA-M144

Racepak continues to follow the same guidelines and desires that have placed us atop the data acquisition industry. Our unavering goal to produce reliable, efficient, state of the art data recorders, at a price accessible to professionals and sportsmen alike, and back them with whatever service our customers may need, is as strong today as it was in 1984. The dedicated team at Racepak is proud of our accomplishments and the accolades that have come our way, but at the same time we believe that our future is directly linked to our reputation. Consequently, quality equipment and customer service continue to be more than just an advertising slogan at Racepak. Our push toward constant improvement, a lack of satisfaction with the status quo, and the burning desire to achieve the impossible, have made us a perfect match for the customers we serve.
The affordable V300SD data recorder is the most common recorder for Land Speed. In its base configuration, the V300SD monitors six parameters (Engine RPM, Wheel Speed, Driveshaft RPM, Accel G, Lateral G, Battery Volts), but it can be expanded to monitor up to 67 channels of data to meet the needs of most users. The V300SD can sample data as quickly as 1000 times per second.

Uploading recorded data to your computer is done via a SD memory card, which provides you with hours of recording time and the ability to store many runs prior to uploading the data. The V300SD also has multiple methods of displaying monitored data in real-time. When linked by serial cable to your PC you can view all recorded functions in either graph format or on 8 virtual gauges while the vehicle is running. Any monitored function can also be displayed in real-time on Racepak’s optional Intelli-Gauges or either the IQ3 or Ultra Dash (UDX).

FEATURES

CHANNELS:
- Total: 67
- V-Net: 56
- Analog: 4 Hard-Wired
- Digital: 4 Hard-Wired
- Internal: 3

SAMPLE RATE:
- V-Net: Up to 100 per Second
- Analog: Up to 1000 per Second
- Digital: RPM and Switch Contacts Up to 100 per Second

MEMORY:
- SD Memory Card
- Recording Time Depends on Number of Channels Monitored and Sample Rates
- Record Multiple Runs Cableless

INTERNAL SENSORS:
- Battery Voltage
- Longitudinal G-Meter (Acceleration and Deceleration)
- Lateral G-Meter (Side-to-Side Motion)

DIMENSIONS:
- 4.374” (L) x 3.935” (W) x 1.230” (H)
- (11.11cm x 9.994cm x 3.12cm)

WEIGHT:
- 10 Ounces (28kg)

V300SD PACKAGE INCLUDES
- V300SD Data Recorder
- SD Memory Card
- Driveshaft and Wheel RPM Sensor with Split Collar and Magnet Kit
- DataLink Software Kit with Serial Programming Cable
- V-Net Tee Connector with Terminator Caps
- Power / Ground / Engine RPM / Driveshaft / Wheel Speed Harness

V300SD PACKAGE MONITORS
- Engine RPM
- Driveline RPM
- Engine v. Driveline RPM Differential
- Battery Voltage
- Acceleration G-Force
- Lateral G-Force
- Wheel MPH / RPM
- Distance

B. V300SD MOUNTING BRACKET

1.250” O.D. Tubing
- 800-MB-V300-125

1.500” O.D. Tubing
- 800-MB-V300-150

1.625” O.D. Tubing
- 800-MB-V300-162

1.750” O.D. Tubing
- 800-MB-V300-175
### LAND SPEED

**DATA RECORDERS**

**A. IQ3 DATA LOGGER DASH**

The IQ3 merges Racepak’s V-Net single cable sensor technology and proven GPS based data logging with a fully programmable display, creating a complete data center. The full feature dash includes an internal 47 sensor channel data logger, while track mapping and speed is obtained by the internal GPS board and 5 axis G meter thus eliminating the need for an external data logger, and wheel speed sensor. No sensor wiring harness is required, as all external sensor data is routed to the rear of the dash by a single V-Net cable. The Datalink II software included with the IQ3 dash provides professional level data analysis capabilities, but is in an easy to learn format.

**FEATURES**

- **CHANNELS:**
  - 47 total
- **V-Nat:** 42 digital/analog
- **Internal:** 5
- **SAMPLE RATE:**
  - V-Nat: up to 100 per second
- **MEMORY:**
  - Up to 16GB microSD Memory Card
  - Recording time depends on number of channels monitored and sample rates
- **DIMENSIONS:**
  - 7.25” (L) X 4.000” (W) X 1.125” (deep)
  - (18.41cm X 10.16cm X 2.87cm)
- **WEIGHT:**
  - 1 lb. (453g)

**SPECIFICATIONS**

42 external sensor input with optional high speed logging modules. Internal GPS board Display up to 26 inputs via 4 pages microSD Memory Card Blue backlight 3 Axis G meter (Accel, lateral, vertical) Gear Indicator Eight user defined alarms with on screen warning text and lights User defined 5 character sensor input names User defined shift lights GPS Track Mapping GPS Speed Power/Ground/Engine RPM/Remote Programming harness

**IQ3 PACKAGE INCLUDES**

- IQ3 Data Logger Dash
- Power/Ground/Engine RPM/Remote Programming harness
- Rear V-Net connector/GPS antenna connector
- Micro SD Memory Card
- GPS Antenna and Cable
- Programming Cable
- Driveshaft Speed Sensor
- Datalink II Software and Installation Manual

**IQ3 PACKAGE MONITORS**

- GPS Speed
- Distance
- Engine RPM
- Driveshaft RPM
- Battery Votage
- Accel G-Meter
- Lateral G-Meter/Vertical G-Meter

**IQ3 LOGGER DASH**

| CHANNELS | 47 total |
| V-Nat: | 42 digital/analog |
| Internal: | 5 |
| SAMPLE RATE | V-Nat: up to 100 per second |
| MEMORY | Up to 16GB microSD Memory Card |
| DIMENSIONS | 7.25” (L) X 4.000” (W) X 1.125” (deep) |
| WEIGHT | 1 lb. (453g) |

**B. IQ3 ACCESSORIES**

- External Programming Buttons
- Faux Carbon Mounting Panel
- Black Mounting Panel
- Silver Mounting Panel
- CNC-Machined Mounting Bracket

**C. G2X-PRO DATA RECORDER**

The G2X-Pro builds on the G2X’s already impressive capabilities by allowing the user to monitor up to 72 channels. The G2X-Pro utilizes our exclusive V-Net plug and play technology which allows the data from up to 56 sensors to be transmitted via a single cable to the data recorder. A single cable links the module to the G2X-Pro. Suspension and ride height data may also be obtained by purchasing the appropriate shock and ride height sensor package. In addition, any V-Net sensor may be used with the G2X-Pro.

The G2X-Pro can utilize any of our three available display dashes, depending upon the user’s requirements. The UDX provides 21 programmable inputs, but does not allow the ability to set start/finish from the dash. The G2X mini dash (standard G2X dash) allows the user to set start/finish from the dash, while programming any two sensor inputs along with shift lights, for display. The IQ3 display dash provides the 24 programmable inputs, shift lights, warning lights and the ability to set start/finish from the dash.

**FEATURES**

- **CHANNELS:**
  - 72 Total
- **V-Nat:** 56
- **Analog:** 8 hard-wired
- **Digital:** 4 hard-wired
- **Internal:** 4
- **SAMPLE RATE:**
  - V-Nat: up to 100 per second
  - Analog: up to 1000 per second
- **MEMORY:**
  - Up to 16GB microSD Memory Card
  - Recording time depends on number of channels monitored and sample rates
- **INTERNAL SENSORS:**
  - Battery Voltage
  - Longitudinal g-meter (acceleration and deceleration)
  - Lateral g-meter (side-to-side motion)

**G2X-PRO PACKAGE INCLUDES**

- G2X-Pro Recorder
- GPS Antenna
- Up to 16GB 8GB Memory Card
- Datalink II Software Communication Cable
- Power/Ground/Engine RPM/Driveshaft Harness
- Driveshaft Sensor

**G2X-PRO PACKAGE MONITORS**

- GPS Speed
- Distance
- Engine RPM
- Driveshaft RPM
- Battery Voltage
- Accel G-Meter
- Lateral G-Meter

**G2X-PRO MOUNTING BRACKET**

- 1.250” D. O. Tabung 100-MB-V500-125
- 1.500” D. O. Tabung 100-MB-V500-150
- 1.625” D. O. Tabung 100-MB-V500-162
- 1.750” D. O. Tabung 100-MB-V500-175

**D. IQ3 MOUNTING PANEL**

- 17 ozs. (.48 kg)

**D. G2X-Pro Data Recorder**

| CHANNELS | 72 Total |
| V-Nat: | 56 |
| Analog: | 8 hard-wired |
| Digital: | 4 hard-wired |
| Internal: | 4 |
| SAMPLE RATE | V-Nat: up to 100 per second |
| Analog: | up to 1000 per second |
| MEMORY | Up to 16GB microSD Memory Card |
| Dimensons | 5.580” (L) X 5.550” (W) X 1.215” (H) |
| WEIGHT | 17 ozs. (.48 kg) |

**B. MOUNTING PANEL**

| CHANNELS | 72 Total |
| V-Nat: | 56 |
| Analog: | 8 hard-wired |
| Digital: | 4 hard-wired |
| Internal: | 4 |
| SAMPLE RATE | V-Nat: up to 100 per second |
| Analog: | up to 1000 per second |
| MEMORY | Up to 16GB microSD Memory Card |
| Dimensions | 5.580” (L) X 5.550” (W) X 1.215” (H) |
| Weight | 17 ozs. (.48 kg) |
A. G2X DATA RECORDER

The key to the G2X is its ability to interpret signals from GPS satellites to quickly establish the position and movement of the vehicle. From this monitored data other performance parameters can then be calculated.

Enhancing the features of the G2X is its versatile digital display dash that will provide the driver with a display of gear indicator, progressive shift light, battery voltage, and G-forces. Engine RPM is available to those with an ignition system that provides a tach signal output, and three additional inputs from external sensors can be displayed on the dash. When the vehicle is stationary the gear indicator becomes a display of the number of satellite currently being monitored. The dash can be attached to a steering wheel or mounted on the dash panel. A single cable provides the connection between the G2X and the dash for programming purposes.

FEATURES

CHANNELS:
V-Net: 18
Internal: 4
16 Total Channels

SAMPLE RATE:
V-Net: up to 100 per second

MEMORY:
Up to 16GB SD Memory Card
Recording time depends on number of channels monitored and sample rates
Record multiple runs
Cableless download

DIMENSIONS:
5.6" (L) X 4.00" (W) X 1.5" (H)
(14.2cm X 10.16cm X 3.81cm)

WEIGHT:
Logger: 13 oz. (.37 kg)
Kit: 1 lb. 13 oz. (.81 kg)

INTERNAL SENSORS:
Battery Voltage
Longitudinal g-meter (acceleration and deceleration)
Lateral g-meter (side-to-side motion)
GPS

G2X GPS PACKAGE INCLUDES

G2X Recorder
GPS Antenna
LED Dash Display
SD Memory Card
Datalink II Software
Communication Cable
Cigarette Lighter Adapter
Battery Voltage Sensor

G2X GPS PACKAGE MONITORS

G2X Data Recorder Kit
600-KT-G2XLSR

B. G2X MOUNTING BRACKET

1.250" O.D. Tubing
610-MB-125
1.500" O.D. Tubing
610-MB-150
1.625" O.D. Tubing
610-MB-1625
1.750" O.D. Tubing
610-MB-175

B. G2X MOUNTING BRACKET

A. UDX DISPLAY DASH

Capable of being utilized with any of Racepak’s V-Net series of data recorders. UDX utilizes the same V-Net cable the external sensors use. The UDX display is capable of “sharing” sensor data with the data logger, thus providing the ability to display or trigger warnings based on any internal or external sensor in use by the data logger.

FEATURES

SPECIFICATIONS:
Display up to 21 Sensor Inputs via 4 pages.
Adjustable Backlighting
User Defined Warning Lights
Minimum/Maximum Recall

INCLUDED:
UDX Display Dash

DISPLAY DASH PROVIDES:
Any 21 Sensor Inputs Shift Light Output Warning Lights

DIMENSIONS:
4" (H) x 10.2" (W) x .75" (deep) * Requires 2” rear clearance
(10.16cm x 25.90cm x 1.90cm)

WEIGHT:
21 ozs. (.58 kg)

UDX DISPLAY
250-DS-UDX

Tip #7 Adding a V-Net module and sensor to your V-Net data recorder or digital dash?

Before the data recorder or dash “knows” the sensor is there, you will need to add the sensor to the software, using the Read function in the DatalinkII software.

Connect your PC to the data logger or dash with the Racepak programming cable, power up and select Edit and Read in the main menu of the DatalinkII software.

For additional details, check out https://www.youtube.com/user/racepakvideos/videos
A. IQ3 DASH DISPLAY

The IQ3 can be utilized with any of Racepak’s V-Net data loggers, providing a compact LCD digital dash. The IQ3 can be utilized as a standalone display dash, independent of a Racepak V-Net data logger, through the use of optional sensors off of the V-Net port, located on the rear of the dash.

**FEATURES**

**SPECIFICATIONS:**
- Display up to 28 inputs via 4 pages
- Blue backlight
- Gear Indicator
- Eight user defined alarms
- User defined 5 character sensor input names
- User defined shift light output
- Shielded, low luster display for sunlight viewing
- Metric and English capable

**DIMENSIONS:**
- 7.25” (L) x 4.000” (W) x 1.125” (deep) (18.41cm x 10.16cm x 5.39cm)

**WEIGHT:**
- 1lb. (453g)

B. IQ3 ACCESSORIES

- External Programming Buttons 280-SW-IQ3BTN
- Faux Carbon Mounting Panel 600-MB-IQ3-PCF
- Black Mounting Panel 800-MB-IQ3-PBLK
- Silver Mounting Panel 800-MB-IQ3-PAL

B. MOUNTING PANEL

B. EXTERNAL PROGRAMMING BUTTON

F. INTELLI-GAUGES

These are not your average analog or digital gauge. They are both. In addition, they are highly accurate, stylish, dependable, and provide real time display for your monitored functions.

**FEATURES**

**SPECIFICATIONS:**
- User Programmable warning levels
- Download recorded data to PC Plug-and-play installation
- Analog and digital display Lightweight, sonic welded
- Electro-luminescent radial lighting

**DIMENSIONS:**
- 2.60” diameter and feature a 270° sweep needle

**WEIGHT:**
- 49g

View Selection Chart on Next Page

The first Intelli-Gauge connects to the V-Net cable using a Gauge Tee Cable. After the first gauge each subsequent gauge is connected with a gauge to gauge jumper cable.
INTELLI-GAUGE SELECTION CHART

<table>
<thead>
<tr>
<th>INTELLI-GAUGE</th>
<th>RANGE</th>
<th>BLACK FACE</th>
<th>WHITE FACE</th>
</tr>
</thead>
<tbody>
<tr>
<td>RPM, TACHOMETER</td>
<td>0-10,500 RPM</td>
<td>250-IG-100BB</td>
<td>250-IG-190WB</td>
</tr>
<tr>
<td>RPM, TURBINE PERCENTAGE, N1</td>
<td>NA</td>
<td>250-IG-218WB</td>
<td></td>
</tr>
<tr>
<td>RPM, TURBINE PERCENTAGE, N2</td>
<td>NA</td>
<td>250-IG-199WB</td>
<td></td>
</tr>
<tr>
<td>TEMPERATURE, WATER (STREET)</td>
<td>0°-120°F</td>
<td>250-IG-110BB</td>
<td>250-IG-110WB</td>
</tr>
<tr>
<td>TEMPERATURE, OIL</td>
<td>0°-120°F</td>
<td>250-IG-120BB</td>
<td>250-IG-120WB</td>
</tr>
<tr>
<td>TEMPERATURE, EXHAUST GAS</td>
<td>0°-120°F</td>
<td>250-IG-130BB</td>
<td>250-IG-130WB</td>
</tr>
<tr>
<td>TEMPERATURE, EXHAUST GAS #2</td>
<td>0°-120°F</td>
<td>250-IG-140BB</td>
<td>250-IG-140WB</td>
</tr>
<tr>
<td>TEMPERATURE, CYLINDER HEAD</td>
<td>0°-120°F</td>
<td>250-IG-150BB</td>
<td>250-150WB</td>
</tr>
<tr>
<td>TEMPERATURE, TRANSMISSION</td>
<td>0°-120°F</td>
<td>250-IG-160BB</td>
<td>250-IG-160WB</td>
</tr>
<tr>
<td>PRESSURE, OIL</td>
<td>0-250 psi</td>
<td>250-IG-165BB</td>
<td>250-IG-165WB</td>
</tr>
<tr>
<td>PRESSURE, FUEL</td>
<td>0-250 psi</td>
<td>250-IG-170BB</td>
<td>250-IG-170WB</td>
</tr>
<tr>
<td>PRESSURE, FUEL</td>
<td>0-100 psi</td>
<td>250-IG-165BB</td>
<td>250-IG-165WB</td>
</tr>
<tr>
<td>PRESSURE, FUEL</td>
<td>0-500 psi</td>
<td>250-IG-165BB</td>
<td>250-IG-165WB</td>
</tr>
<tr>
<td>PRESSURE, FUEL</td>
<td>0-1,500 psi</td>
<td>250-IG-180BB</td>
<td>250-IG-180WB</td>
</tr>
<tr>
<td>PRESSURE, FUEL</td>
<td>0-1,500 psi</td>
<td>250-IG-180BB</td>
<td>250-IG-180WB</td>
</tr>
<tr>
<td>PRESSURE, NITROUS</td>
<td>0-1,600 psi</td>
<td>250-IG-190BB</td>
<td>250-IG-190WB</td>
</tr>
<tr>
<td>PRESSURE, (GENERIC)</td>
<td>0-1,600 psi</td>
<td>250-IG-190BB</td>
<td>250-IG-190WB</td>
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<tr>
<td>PRESSURE, (GENERIC)</td>
<td>0-300 psi</td>
<td>250-IG-193BB</td>
<td>250-IG-193WB</td>
</tr>
<tr>
<td>PRESSURE, (GENERIC)</td>
<td>0-500 psi</td>
<td>250-IG-223WB</td>
<td></td>
</tr>
<tr>
<td>PRESSURE, (GENERIC)</td>
<td>0-1,000 psi</td>
<td>250-IG-197BB</td>
<td>250-IG-197WB</td>
</tr>
<tr>
<td>BOOST / VACUUM</td>
<td>0-60 psi</td>
<td>250-IG-170BB</td>
<td>250-IG-170WB</td>
</tr>
<tr>
<td>VACUUM</td>
<td>0-30 in. hg</td>
<td>250-IG-210BB</td>
<td>250-IG-210WB</td>
</tr>
<tr>
<td>AIR/FUEL RATIO</td>
<td>10-18</td>
<td>250-IG-222WB</td>
<td></td>
</tr>
<tr>
<td>FUEL LEVEL</td>
<td>E-F</td>
<td>250-IG-222WB</td>
<td></td>
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<tr>
<td>VOLTS</td>
<td>8-20</td>
<td>250-IG-208BB</td>
<td>250-IG-208WB</td>
</tr>
<tr>
<td>VOLTS</td>
<td>20-32</td>
<td>250-IG-208BB</td>
<td>250-IG-208WB</td>
</tr>
</tbody>
</table>

Racalpa's Vehicle Network (V-Net) is a “smart data” transfer network providing the ability to transmit multiple signals from each sensor over a single cable. This technology creates a system in which the individual components interact with each other, making a simpler, more compact system that can be expanded with ease.

The key to accomplishing this is in the modular connectors that attach each of the devices to the main V-Net cable. Each module is essentially a miniature computer, which houses circuit boards and a microprocessor that identifies and retrieves only the proper incoming signals and allows other signals to pass through.

Whether you will be installing a single gauge setup, or a full-blown data acquisition system, all components are attached to the system using the modular snap-together connectors. Adding components onto the system is simple. Just find a junction in the main V-Net cable, separate the connectors, and sandwich the new sensor’s module between them. Then command your software to read the new configuration. It will automatically recognize any additions or deletions from the system.

Gauge integration is another strength of the V-Net system, but don’t mistake the Racalpa gauges for garden variety gauges. If your vehicle is equipped with a V-Net recording system, the gauges simply use the sensors and wiring that are already in place to provide full time display of the data being monitored.
ANALOG PRE-PROGRAMMED WITH SENSORS

These pre-programmed analog function module and sensor combinations are ready for plug-and-play installation on the V-Net cable.

A. PRESSURE (48” Lead Length)
- Boost (Manifold), 0-75 psi
  - 220-VP-PT-BST75
- Brakes, 0-1500 psi
  - 220-VP-PT-B1500
- Fuel Carburetor, 0-15 psi
  - 220-VP-PT-CF15
- Fuel, Nozzle, 0-150 psi
  - 220-VP-PT-NP150
- Fuel, Nozzle, 0-300 psi
  - 220-VP-PT-NP300
- Fuel, Nozzle, 0-500 psi
  - 220-VP-PT-NP500
- Fuel, Pump, 0-75 psi
  - 220-VP-PT-P075
- Fuel, Pump, 0-150 psi
  - 220-VP-PT-P150
- Fuel, Pump, 0-300 psi
  - 220-VP-PT-P300
- Fuel, Pump, 0-500 psi
  - 220-VP-PT-P500
- Nitrous Bottle #1, 0-1500 psi
  - 220-VP-PT-N1
- Nitrous Bottle #2, 0-1500 psi
  - 220-VP-PT-N2
- Nitrous Fuel #1, 0-15 psi
  - 220-VP-PT-NF115
- Nitrous Fuel #2, 0-15 psi
  - 220-VP-PT-NF215
- Nitrous Fuel #3, 0-15 psi
  - 220-VP-PT-NF315
- Nitrous Fuel #4, 0-15 psi
  - 220-VP-PT-NF415
- Oil, 0-15 psi
  - 220-VP-PT-OP150
- Oil, 0-300 psi
  - 220-VP-PT-OP300
- Pressure Differential, 0-40” H2O
  - 220-VP-PT-PD45
- Pressure Differential 0-5 psi
  - 220-VP-PT-PD25
- Transmission, 0-300 psi
  - 220-VP-PT-TP300
- Transmission, 0-500 psi
  - 220-VP-PT-TP500
- Turbo Back Pressure #1, 0-75 psi
  - 220-VP-PT-EP175
- Turbo Back Pressure #2, 0-75 psi
  - 220-VP-PT-EP275
- Turbocharger Outlet #1, 0-75 psi
  - 220-VP-PT-TBO10
- Wheelie Bar, Left, 0-3000 psi
  - 220-VP-PT-WBL3K
- Wheelie Bar, Right, 0-3000 psi
  - 220-VP-PT-WBR3K
- Wheelie Bar, Left, 0-5000 psi
  - 220-VP-PT-WBL5K
- Wheelie Bar, Right, 0-5000 psi
  - 220-VP-PT-WBR5K

B. VACUUM

- MANIFOLD, 30 PSI 0-30 in. hg
  - 220-VP-PT-BVAC
- Pan (Crankcase), 0-30 in. hg
  - 220-VP-PT-PPAC

C. TEMPERATURE

Pigtail cable lengths are shown in parenthesis.

- Cylinder Head, Left, 0-600°F, (36”)
  - 220-VP-TC-HEADL
- Cylinder Head, Right, 0-600°F, (36”)
  - 220-VP-TC-HEADR
- Engine Oil, 0-300°F, (48”)
  - 220-VP-TC-TRANS
- Intake Manifold, Open Tip 0-600°F, (36”)
  - 220-VP-TC-OIT
- Intercooler Inlet, 0-300°F, (72”)
  - 220-VP-TC-ICTI
- Rear End Oil, 0-300°F, (72”)
  - 220-VP-TC-RET
- Transmission Oil, 0-300°F, (72”)
  - 220-VP-TC-TRANS
- Water, 0-300°F (72”)
  - 220-VP-TC-WATER

D. EXHAUST GAS TEMPERATURES/CYLINDER BANK SETS

EGT junction box sets are ordered by the cylinder bank sequence they serve.

- Junction Box & 4 Probes, 1357, Small Block
  - 220-VP-TC-1357S
- Cylinder #1
  - 200-VP-TC-EGT1
- Cylinder #2
  - 200-VP-TC-EGT2
- Junction Box & 4 Probes, 1234
  - 220-VP-TC-1234
- Cylinder #3
  - 200-VP-TC-EGT3
- Cylinder #4
  - 200-VP-TC-EGT4
- Junction Box & 4 Probes, 2468, Big Block
  - 220-VP-TC-2468B
- Cylinder #5
  - 200-VP-TC-EGT5
- Cylinder #6
  - 200-VP-TC-EGT6
- Junction Box & 3 Probes, 123
  - 220-VP-TC-123
- Cylinder #7
  - 200-VP-TC-EGT7
- Cylinder #8
  - 200-VP-TC-EGT8

E. EXHAUST GAS TEMPERATURES/SINGLE CYLINDER

Single cylinder modules include the thermocouple.

- Cylinder #1
  - 200-VP-TC-EGT1
- Cylinder #2
  - 200-VP-TC-EGT2
- Cylinder #3
  - 200-VP-TC-EGT3
- Cylinder #4
  - 200-VP-TC-EGT4
- Cylinder #5
  - 200-VP-TC-EGT5
- Cylinder #6
  - 200-VP-TC-EGT6
- Cylinder #7
  - 200-VP-TC-EGT7
- Cylinder #8
  - 200-VP-TC-EGT8

RACEPAK.COM 949.709.5555
### A. ANALOG PRE-PROGRAMMED WITHOUT SENSORS
These analog function modules have been programmed for general usage, and have not been assigned to a specific task. Use of these modules on the V-Net cable requires the addition of a sensor and configuration of the module using your DatalinkII software.

<table>
<thead>
<tr>
<th>Description</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voltage, 0-5 Volt Input, 5 Volt Output</td>
<td>220-VM-AN-5V</td>
</tr>
<tr>
<td>Voltage, 0-5 Volt Input, 12 Volt Output</td>
<td>220-VM-AN-12V</td>
</tr>
<tr>
<td>Pressure, 5 Volt</td>
<td>220-VM-PT-5V</td>
</tr>
<tr>
<td>Position/Movement, Rotary or Linear</td>
<td>220-VM-TPS</td>
</tr>
<tr>
<td>Temperature, Fluid-type, 0-300°F</td>
<td>220-VM-TR-300</td>
</tr>
<tr>
<td>Temperature, Low, 0-600°F</td>
<td>220-VM-TC-600</td>
</tr>
<tr>
<td>Temperature, High, 0-1800°F</td>
<td>220-VM-TC-1800</td>
</tr>
<tr>
<td>Air/Fuel Sensor Input, Single</td>
<td>220-VM-AF</td>
</tr>
<tr>
<td>Battery Voltage</td>
<td>220-VM-BVOLT</td>
</tr>
<tr>
<td>Voltage Differential</td>
<td>220-VM-VDIFF</td>
</tr>
</tbody>
</table>

### ANALOG NOT PRE-PROGRAMMED WITH SENSORS
The module/sensor combinations are the same as the V-Net Modules with Sensors/Analog on pages 19-20 with the exception that they have not been pre-programmed. Each of the pressure or temperature module/sensor combinations below is designed to be attached to the V-Net cable. Once installed, they must be programmed using the Configuration File in the Datalink software.

#### B. PRESSURE
- 0-15 psi            | 220-VS-150VT
- 0-75 psi            | 220-VS-750VT
- 0-150 psi           | 220-VS-1500VT
- 0-300 psi           | 220-VS-3000VT
- 0-500 psi           | 220-VS-5000VT
- 0-1500 psi          | 220-VS-15000VT
- Vacuum/Pressure 30 lbs. hg-0-30 psi | 220-VS-VB

#### C. TEMPERATURE
Fluid Temperature, 0-300°F Fluid Type Sensor Uses the #180-TR-300 sensor 220-VM-TR-300

#### D. FLUID TEMPERATURE SENSOR
- 810-CN-TR2P
- 810-CN-TR3P
- 2-Pin Molex Cable, Specify Length 800-CA-EXT2P
- 3-Pin Molex Cable, Specify Length 800-CA-EXT3P
- Pin Molex Connector Kit 810-CN-MOL2
- Crimp Tool for Molex Terminal Pins 800-XP-CRIMP-01F

#### E. PRESSURE SENSOR
- 810-CN-TS2P
- 810-CN-TS3P
- 810-CN-MOL2
- 810-CN-MOL3
- 800-XP-CRIMP-01F

#### F. EXTENSION CABLES
These custom-built extensions can be used to extend the length of cables that use a 2-Pin or 3-Pin Molex connector to attach the sensor to the power harness or a module’s pigtail. Please specify length required when ordering.

#### G. MOLEX TERMINAL KITS
These connector kits can be used if the need arises to shorten a cable that is terminated. Available with a two or three pin Molex connector. Kit includes both a male and female connector and pins.

- 2-Pin Molex Connector Kit 810-CN-MOL2
- Pin Molex Connector Kit 810-CN-MOL3
- Crimp Tool for Molex Terminal Pins 800-XP-CRIMP-01F
**LAND SPEED**

**V-NET SENSORS AND MODULES**

**A. DIGITAL PRE-PROGRAMMED MODULES WITH SENSORS**

These pre-programmed digital function modules and sensor combinations are ready for plug-and-play installation on the V-Net cable. See sensors only page.

- **CLUTCH RPM**
  - 230-VP-CL-1
  - Monitors magnetic pulses using a Zero Crossing sensor.

- **Drive Shaft RPM, Automotive (Contact Closure Sensor)**
  - 220-VP-DS-2
  - Contact Closure sensor, includes split collar, magnet, and bracket kit.

- **Drive Shaft/Rear Wheel RPM, Motorcycle**
  - 220-VP-ZXDS-2
  - Monitors magnetic pulses using a Zero Crossing sensor.

- **Front Wheel RPM**
  - 220-VP-FWZX
  - Monitors magnetic pulses using a Hall Effect sensor.

- **Turbo Speed for use with Racepak V-Net Data Loggers**
  - 220-VP-TURB0RPM

- **Turbo Speed V-Net Module only**
  - 230-VM-TURBO

- **Turbo Speed Sensor only**
  - 800-55-SPEED

**B. DIGITAL PRE-PROGRAMMED MODULES WITHOUT SENSORS**

These pre-programmed digital function modules are ready for plug-and-play installation on the V-Net cable. You must add the appropriate sensor to the module.

- **Zero Crossing Input**
  - 230-VM-ZX-1

- **Hall Effect Input**
  - 230-VM-RPHE

- **Contact Closure Input**
  - 230-VM-CC-1

- **Event Marker Input, 12 Volt**
  - 230-VM-EVENT

- **Event Marker Input, Switch Closure**
  - 230-VM-EVENTSW

- **Flow Meter**
  - 230-VM-FLOW

- **Four Channel Digital Input**
  - 230-VM-4DIGIN

- **Four Channel Digital Output**
  - 230-VM-4DIGOUT

**C. DIGITAL PRE-PROGRAMMED MODULES NO SENSORS REQUIRED**

These modules do not require a sensor. They use the pulse from the component they are monitoring as the signal to the module. Each has been programmed for the specific use noted and is ready for plug-and-play installation on the V-Net cable.

- **Engine RPM Input Module**
  - 220-VP-TACH-4

- **Transbrake Event 12 Volt Triggered**
  - 220-VP-TBRAKE

- **Wide Open Throttle Event**
  - 220-VP-WOTEVENT

- **Clutch Event 12 Volt Triggered**
  - 220-VP-CLTEVENT

**D. SHIFT LIGHT/EVENT MODULE**

The Shift Light Module allows you to use any LED-style light (50 milliamp maximum) as a fully-programmable, stand-alone shift light. By accessing the engine RPM off of the V-Net you can program up to six separate shift alarm signals. Each shift point is user-programmable using the DatalinkII software. Shift light module does not include the shift light. This module will also show you when the shift light was triggered to come on.

- **Shift Light Module (Light Not Included)**
  - 230-VM-SHIFTLTE

**E. TACH CONVERTER**

The output signal that is used to trigger magnets is different than a conventional electronic ignition. This compact device converts the Pro Mag's coil signal into a 12 volt square wave signal so common tachometers designed for electronic ignitions can be used with the Pro Mag.

- **MSD Pro Mag Tach Converter**
  - 810-SN-MAG-CONV

- **MSD Magneto Pickup Adapter**
  - (MSD 12 or 20 amp mag)
  - 800-CA-MAGADPT

- **Cable provides easy connection for RPM sensor between magneto and coil.**

**F. IGNITION TIMING KIT**

By equipping the V500 data recorder with this kit it can track the overall timing, or if you are using a battery ignition system that provides adjustable individual cylinder timing, you can monitor the timing on each cylinder as well. These kits provide the components to compare the crankshaft’s position to the firing pulse(s) of the ignition. Magneto equipped engines, or battery ignition engines without individual cylinder timing capabilities, would use the overall timing kit.

- **V500 Overall Ignition Timing Kit**
  - 800-KT-TIMINGOV

- **V300SD Overall Ignition Timing Kit**
  - 200-UG-TIMV300S

V300SD customers can monitor overall ignition timing utilizing Racepak’s V300SD Timing Kit. Use of this package requires removal of the start logging button, which is replaced by a crankshaft rpm sensor. Start logging is then initiated by another channel (engine rpm, etc) or by use of a V-Net event module which then allows use of the start logging button.

**Note the following requirements:**

- Any V300SD not ordered with this option must be returned to Racepak for upgrade.
- Engine must utilize flying magnet crank trigger wheel
- Datalink standard software required
- Contact Racepak for complete details

- **Ignition Timing Kit, Overall, V300SD**
  - 200-UG-TIM300S

**LAND SPEED**

**V-NET SENSORS AND MODULES**

**CLUTCH RPM**

**Drive Shaft RPM, Automotive (Contact Closure Sensor)**

**Drive Shaft/Rear Wheel RPM, Motorcycle**

**Front Wheel RPM**

**Turbo Speed for use with Racepak V-Net Data Loggers**

**Turbo Speed V-Net Module only**

**Turbo Speed Sensor only**

**Zero Crossing Input**

**Hall Effect Input**

**Contact Closure Input**

**Event Marker Input, 12 Volt**

**Event Marker Input, Switch Closure**

**Flow Meter**

**Four Channel Digital Input**

**Four Channel Digital Output**

**Engine RPM Input Module**

**Transbrake Event 12 Volt Triggered**

**Wide Open Throttle Event**

**Clutch Event 12 Volt Triggered**

**Shift Light Module (Light Not Included)**

**MSD Pro Mag Tach Converter**

**MSD Magneto Pickup Adapter**

**Cable provides easy connection for RPM sensor between magneto and coil.**

**Ignition Timing Kit, Overall, V500 Only**

**Ignition Timing Kit, Individual, V500 Only**

**V500 Overall Ignition Timing Kit**

**V300SD Overall Ignition Timing Kit**

**V300SD customers can monitor overall ignition timing utilizing Racepak’s V300SD Timing Kit. Use of this package requires removal of the start logging button, which is replaced by a crankshaft rpm sensor. Start logging is then initiated by another channel (engine rpm, etc) or by use of a V-Net event module which then allows use of the start logging button.**

**Note the following requirements:**

- Any V300SD not ordered with this option must be returned to Racepak for upgrade.
- Engine must utilize flying magnet crank trigger wheel
- Datalink standard software required
- Contact Racepak for complete details
**A. EFI DATA INTERFACE**

These V-Net modules have been created to interface with many electronic fuel injection systems on the market. Each V-Net EFI Data Interface module is equipped to allow direct connection with EFI. These modules allow your V-series data recorder to share the data collected by those systems rather than having to install duplicate sensors to monitor functions that are already being monitored by the EFI system. The shared data can be recorded or displayed just as you would any function monitored independently by your Racepak V-series recorder. Caution should be exercised to ensure that you do not exceed the maximum number of V-Net channels supported by your particular logger.

For additional details, check out **https://www.youtube.com/user/racepakvideos/videos**

For use with Racepak V-Net data loggers.

**B. SINGLE AIR/FUEL CONTROLLER**

For use on specific ports of the controller and cannot be interchanged from port to port without recalibration. All sensors have a 13” pigtail cable, and the controller has a 37” cable for attachment to the sensor. These lengths cannot be altered. Controllers are ordered by cylinder bank layout.

Racepak A/F sensors are compatible with either gasoline or methanol fueled engines. Gasoline application will display A/F ratios between 9.55:1 and 20:1, while methanol is shown from 4.22:1 to 8.7:1. Please specify the type of fuel you will be using when ordering. Each sensor includes one weldment and plug.

**C. SINGLE AIR/FUEL CONTROLLER WITH SENSOR**

Includes one weldment and plug.

**D. RELAY CONTROL MODULE**

A Relay Control Module is the device which permits the V-Net system to perform a host of automated tasks. It allows any information transmitted over the V-Net to be recognized by the module. For use with Racepak V-Net data loggers.

Each relay can have up to two separate (analog and/or digital) control signals that must be met before the relay is engaged. For example, one relay can be programmed to turn on a water pump only when a ‘Pump’ switch is on and the water temperature is above the programmed value, while the other relay can be used to activate an ignition kill switch only if the engine RPM is above a predetermined pressure. Relays are included.

**E. STEERING SENSOR PACKAGE**

Column electronic steering sensor package includes rotary sensor, column mount, tilt contact wheel and V-Net module. For use with Racepak V-Net data loggers.
**INTERFACE MODULES**

Interface modules are another unique component of the V-series recorders. These black 7-pin modules differ from the blue 5-pin V-Net modules in both the application and the manner in which they perform. They are designed to provide a modular method of assembly for the sensors that connect to either the hardwired RPM or Analog input ports of V300SD, V500 or G2X Pro data recorders. Each interface module provides the necessary signal conditioning for its attached sensor thereby allowing the sensors to communicate with the Logger via a single cable.

Interface modules do not require any programming, however you may only attach up to four interface modules together in series. The four modules may be connected directly to each other (Daisy-chained) or they may be linked with an Interface cable as illustrated below.

The list below shows a selection of Interface modules that will help you in the task of connecting almost any type of digital or analog sensor to a V300SD, V500 or G2X Pro recorder.

**CABLES**

V-Net modules and Interface modules, although similar in construction and appearance, are very different in the functions they perform. It is important that components designed for one system not be interchanged with the other. V-Net cables use a 5-pin connector, while Interface cables use a 7-pin connector. So that cables can be identified at a glance Racepak has color-coded the connectors on the end of the cables. V-Net cable connectors are blue, just like the modules to which they attach, while Interface cable connectors and modules are black.

The cables listed may be used to link the components to other listed components of the same system, or to their proper port on the recorder. The Interface cables with black connectors will only be used with modules connecting to the RPM or Analog input ports, while the V-Net cables with blue connectors will be used exclusively on items connected to the V-Net port.

**CABLE LENGTH**

<table>
<thead>
<tr>
<th>5-PIN BLUE V-Net</th>
<th>7-PIN BLACK INTERFACE</th>
</tr>
</thead>
<tbody>
<tr>
<td>6&quot;</td>
<td>280-CA-VM-006</td>
</tr>
<tr>
<td>12&quot;</td>
<td>280-CA-VM-012</td>
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<td>18&quot;</td>
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<tr>
<td>216&quot;</td>
<td>280-CA-VM-216</td>
</tr>
</tbody>
</table>

**TEE CABLES**

All V-Net systems must be equipped with a Tee cable. The Tee cable permits the installation of the two terminator caps (one male and one female) which are necessary to the operation of the V-Net system. Just like the ends on the V-Net cables, all V-Net Tee cables and Terminator Caps are blue.

Interface modules can also use a Tee cable, but only for the purpose of providing a branch in the system. It is not a mandatory component as it is on the V-Net system. The black Interface Tee cables and dust caps are used just for the purpose their names imply. They are not required for the system to operate properly.

Bulkhead connectors are used when a V-Net or Interface cable must pass through a firewall, body panel, or motor plate. They provide a male/female connector on each side of the panel. Those are specific to the type of cable that is being used and are color-coded for easy identification.

---

**COMPONENT**

<table>
<thead>
<tr>
<th>5-PIN BLUE V-Net</th>
<th>7-PIN BLACK INTERFACE</th>
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</thead>
<tbody>
<tr>
<td>TEE CABLE, 9&quot;</td>
<td>280-CA-VM-009</td>
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<td>TEE CABLE, 18&quot;</td>
<td>280-CA-VM-018</td>
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<tr>
<td>TEE CABLE, 36&quot;</td>
<td>280-CA-VM-036</td>
</tr>
<tr>
<td>TERMINATOR CAP, MALE</td>
<td>280-CA-VM-TCPAP</td>
</tr>
<tr>
<td>TERMINATOR CAP, FEMALE</td>
<td>280-CA-VM-TCPF</td>
</tr>
<tr>
<td>DUST CAP, MALE</td>
<td>280-CA-VM-MHEAD</td>
</tr>
<tr>
<td>DUST CAP, FEMALE</td>
<td>280-CA-VM-FHEAD</td>
</tr>
<tr>
<td>BULKHEAD CONNECTOR</td>
<td>280-CA-VM-MHEAD</td>
</tr>
</tbody>
</table>
A. PRESSURE TRANSDUCERS
The small size and ruggedness of these ‘PT-type’ pressure transducers make them ideal for the measurement of pressure directly at the source. Each transducer requires 5 volt DC power and provides a 0.5 to 4.5 volt output signal. Each transducer mounts using a 1/8” NPT male pipe fitting.

- 0-15 psi 810-PT-0015GVT
- 0-75 psi 810-PT-0075GVT
- 0-150 psi 810-PT-0150GVT
- 0-300 psi 810-PT-0300GVT
- 0-500 psi 810-PT-0500GVT
- 0-1500 psi 810-PT-1500HP
- 0-3000 psi 810-PT-3000HP
- 0-5000 psi 810-PT-5000HP

VACUUM/PRESSURE SENSOR
- 30 in. hg – 0-30 psi, Vacuum/Boost 810-PT-VB

ADAPTER MODULES
The pressure sensors listed on page 19 can be adapted to the V-Net cable or analog port of the recorders by using the appropriate signal condition module.

- V-Net Module 220-VM-P5V
- For connection to the V-Net cable on the V-series recorders.

B. FUEL FLOW METER SENSORS
These general purpose turbine-type flow meters require an available digital channel. Gasoline and Nitro-methane flow meters are constructed of aluminum. Methanol fuel requires the use of a stainless steel flow meter. A tee fitting must be used so all fuel can be routed through the flow meter before it is divided between the hat nozzles and the port nozzles on fuel injection applications.

- Flow Meter, Gas or Nitro, 8AN (1-10 GPM) 800-FM-AN8-AL
- Flow Meter, Gas or Nitro, 10AN (2-25 GPM) 800-FM-AN10-AL
- Flow Meter, Gas or Nitro, 12AN (2-70 GPM) 800-FM-AN12-AL
- Flow Meter, Methanol, 8AN (1-10 GPM) 800-FM-AN8-SS
- Flow Meter, Methanol, 10AN (2-25 GPM) 800-FM-AN10-SS
- Flow Meter, Custom Order Call for information
- Tee Fitting 10AN inlet two 8AN outlets Call for information

ADAPTER MODULES
V-Net Module 220-VM-FLOW
Use to connect flow meter to V-Net Cable.

C. RPM 2-PIN CONNECTOR
C. ZERO CROSSING RPM SENSOR
C. ZERO CROSSING TDC SENSOR

D. INDUCTION MAGNETO RPM SENSOR
D. MSD MAGNETO PICKUP ADAPTER

C. REED SWITCH RPM SENSOR
These contact closure-type sensors use an internal, fast acting Reed switch to indicate the passing of a rotating magnet.

- RPM Sensor, 2-Pin 5/16” 24 dia. 800-SS-PRO-5
  Commonly used as a driveshaft RPM sensor V300

- RPM Sensor, 2 Spade Connectors, 5/16” 24 dia. 800-SS-NB-5
  Commonly used for clutch, driveshaft and front wheel RPM with SC1000 recorders.

ZERO CROSSING RPM SENSORS
Zero Crossing RPM Sensor, 3-Pin 3/16” dia. 800-SS-ZX-3
This non-powered sensor is designed for monitoring magnetic pulses. It must be used with an RPM input designed for a zero crossing sensor. Used as the clutch RPM or Front Wheel RPM sensor on V-series and 2001 and newer Pro Series recorders.

Zero Crossing TDC Sensor, 3 Pin 3/16” dia. 800-SS-TDC-3
This sensor is designed specifically for use with MSD-style crank trigger wheel and magnets. It must be used with a RPM input designed for a zero crossing sensor. Commonly used for the TDC indicator on ignition timing monitor with V500 recorders.

HALL EFFECT SENSOR
Ferrus Material sensor, 3-Pin, 3/8” dia. 800-SS-MSC-3
Commonly used to sense a ferrous bolt or metal tooth, such as used when monitoring the ring gear RPM. These powered sensors require 12v power.

Magnetic Pulse Sensor, 3-Pin, 5/16” dia. 800-SS-MS-5
Same as above, but triggered by a magnet rather than a ferrous metal.

D. ENGINE RPM WITH MAGNETO IGNITION
Occasionally, a V-series data recorder will be used to monitor the RPM of an engine that is equipped with a magneto ignition system. In this situation the engine RPM signal is acquired using the inductive pickup shown below. This sensor sources the ignition pulses between the magneto and the control box, and then transfers the signals to the onboard recorder through the wire harness or a V-Net module.

- Inductive Magneto RPM Sensor 280-SN-MAGPU
  With connector to plug into the V300 wiring harness.

- Inductive Magneto RPM Sensor 280-SN-MAGPU3
  With connector to plug into the V300SD wiring harness.

ADAPTER MODULE
V-Net 220-VP-TACH (NUMBER OF PULSES)
Adapts the Inductive Engine RPM sensor to the V-Net Cable

MSD Magneto Pickup Adapter 800-CA-MAGADPT
(MSD 12 or 20 amp mag)Adapts the Inductive Engine RPM sensor to the V-Net Cable
A. EXHAUST GAS TEMPERATURE THERMOCOUPLES

V-Net systems and V-Series recorders use two types of thermocouple setups to monitor the exhaust gas temperatures, one for an individual cylinder application and another for 3 or 4 cylinder groups. Measuring the EGTs on a single cylinder application is accomplished using a thermocouple that features an inline, two-prong mini-connector. This connector provides the union between the thermocouple and the V-Net module. A selection of single cylinder thermocouples is shown below.

The most frequently used setup is the four thermocouples with junction box combination shown below. This setup simplifies the installation on V8 engines by grouping the four thermocouples on each cylinder bank into a common junction box. The junction box then provides a single wire connection to the V-Net module to facilitate service work. A similar setup is available for V6 engines.

V-Net applications also use two styles of thermocouples. Four cylinder motorcycles make use of the .187-inch diameter tip bullet style thermocouples, while Harley-Davidsons and the automotive applications employ the .250-inch diameter Stinger-style thermocouples. When replacing a thermocouple probe, use the illustrated alongside the chart to determine the length you will need. The thermocouples used with the junction boxes, and some individual thermocouple components that are often requested, are shown in the chart. See page 20 for single or four station EGT modules that include the thermocouples.

B. SPECIAL PURPOSE THERMOCOUPLES

These Type-K thermocouple assemblies (Nickel-Chromium/Nickel-Aluminum) are specifically designed for the applications listed below. Each must be used with the appropriate thermocouple sensor module. All probes are 12” in length and are terminated with a male two pin mini-connector. The liquid and manifold assemblies are provided with a 1/8” male NPT compression style fitting.

| Cylinder Head Temp, Thermocouple Assem. | 800-TC-HT-ASM |
| Fluid Temp, Thermocouple Assem. | 800-TC-FT-ASM |
| Manifold Temp, Thermocouple Assem. | 800-TC-MT-ASM |

C. FLUID TEMPERATURE SENSOR

This sensor is commonly used in conjunction with the modules shown below to measure the temperature of fluids such as water or engine oil, or monitoring the transmission oil when the temperature does not exceed 300°F.

| Fluid Temperature, Sensor Only 0-300°F | 810-TR-300 |

D. INFRARED TEMPERATURE SENSORS

These infrared sensors are used to monitor temperatures where contact cannot be made with the item being monitored. In racing, they are commonly used to monitor temperatures across the faces of a lire, but they can be used for any non-contact measurement. The sensor will measure temperatures from 0-400°F. The IR Temperature sensor has a 4:1 ratio focal point. That means that when the item being monitored is four inches away from the sensor, the focal point will be one inch in diameter. If the sensor is twelve inches away, the focal point will be three inches in diameter.

| IR Sensor and V-Net Module | 220-VP-IR-T-200 |
| IR Temp Sensor Only | 810-IRNT-200 |

E. ADHESIVE 0-600F THERMOCOUPLE SENSOR

Racepak’s adhesive 0-600F thermocouple sensor eliminates the need for bung and other sensor mounting methods, making ideal for a number of surface temperature reading such as Shock Housing Temp, Engine Block Temp, Fuel Tank Temp, Fuel Pump Temp, Electric Motor Temp, Batteries, and many more. For use with V-Net module or Transducer box.

| Adhesive 0-600F Thermocoupler Sensor | 800-TC-PS-600 |

F. WIDE OPEN THROTTLE SENSORS

Wide open throttle event switches are used on Holley® carburetors to verify when the carburetor is at full throttle and the throttle blades are wide open. Two styles of mounting brackets are available. Both bolt directly to the side of the carburetor main body. Monitoring WOT requires an available V-Net channel.

| Switch Only, WOT | 800-MB-WOT-SW |
| Cable Only, Pigtail for WOT Switch | 280-CA-HARNWOT |
| Switch & Pigtail Only | 800-MB-WOT-SWC |

| ADAPTER MODULES | 220-VP-WOTEVENT |
A. SHOCK TRAVEL SENSORS
Monitoring suspension travel aids greatly in gaining an understanding of what the chassis is doing. The information obtained from these sensors is often the key element separating the winners from the losers, regardless of the type of racing. Racepak users can employ these linear potentiometers to record the slightest amount of suspension movement, even at high rates of speed. Shock travel sensors are usually connected through the analog port of V-series recorder and monitored at a high sample rate. Each kit contains a linear travel sensor with attached cable and an interface module. An available analog channel is required for each sensor. A separate kit is required for each wheel monitored.

Kit Front Shock Travel, V-Series
Data Recorders 0-4”
260-KT-SHKTRVF

Kit Rear Shock Travel, V-Series
Data Recorders 0-8”
260-KT-SHKTRVR

Shock Travel Sensor, 0-2”, (7.4” to 9.4”)
800-LN-TRV2

Shock Travel Sensor, 0-3”, (8.4” to 11.4”)
800-LN-TRV3

Shock Travel Sensor, 0-4”, (9.5” to 13.5”)
800-LN-TRV4

Shock Travel Sensor, 0-5”, (12.6” to 20.6”)
800-LN-TRV5

B. LINEAR TRAVEL SENSORS
These linear potentiometers are used to monitor movement or position. They are commonly used on applications such as magneto retard devices, fuel slide valves, and linear clutch bearing position. Their use requires an appropriate signal conditioning module.

Linear Travel Sensor, 0-1.0”
800-LN-FUEL

Used to monitor pneumatic magneto retard or slide valve fuel system controller.

Linear Travel Sensor, 0-3.0”
800-LN-CLV3

Used to monitor clutch throw out bearing.

V-Net Modules
220-VM-TPS
220-VM-AN-12V

For connection to V-Net cable on V-series recorders.

Interface Module
240-IM-TRAV

For connection to Analog port of V300 or V500 recorders.

C. STRING POTENTIOMETER
This sensor is typically used for linear measurements, such as throttle position, when the mounting angle is not critical. The sensor is calibrated to the travel of the throttle (i.e., 0% when closed and 100% at WOT). By using a string potentiometer, the possibility of interference with the throttle operation is eliminated. Operating range 0-4.750”.

String Potentiometer Sensor
Can use the V-Net and Interface Adapter Modules above.

800-LN-STRNGP

D. RIDE HEIGHT SENSOR (Asphalt Only)
Infrared sensors are used to monitor the distance to an object, relative to the sensor, when contact cannot be made with the object. This makes them ideal for use in setting up the suspension by monitoring chassis ride height in relation to the moving ground plane. Infrared Ride Height sensors and modules are commonly attached to the V-Net cable of any V-series recorder. If desired, they can also be attached to the analog port by using an Interface module rather than a V-Net module. These sensors are designed for use in measuring distances ranging from 3.90 to 15.75 inches. Each sensor must be used with the appropriate V-Net module.

Ride Height Sensor Kit, V-Net; Left Front
220-VP-RIDEHTLF

Ride Height Sensor Kit, V-Net; Right Front
220-VP-RIDEHTRF

Ride Height Sensor Kit, V-Net; Left Rear
220-VP-RIDEHTLR

Ride Height Sensor Kit, V-Net; Right Rear
220-VP-RIDEHTRR

Module Only, Ride Height, V-Net, Left Front
220-VM-RHBLF

Module Only, Ride Height, V-Net, Left Rear
220-VM-RHBLR

Module Only, Ride Height, V-Net, Right Front
220-VM-RHBFR

Module Only, Ride Height, V-Net, Right Rear
220-VM-RHBRR

Module Only, Ride Height
810-SN-RHB

E. G-FORCE SENSORS (ACCELEROMETER)
These G-force sensors can be adapted to any V-Net system. Note: V300 or V500 data recorders all contain internally mounted G-meters to measure longitudinal and lateral forces. The externally-mounted G-meter measures 2.0” x 2.0” x 1.250”.

G-Meter, 0-6 G
220-VP-06G

ADAPTER MODULES
V-Net Module Only
220-VM-AN-12V

Adapts external G-meter to V-Net cable.
A. PRO ANALOG TRANSDUCER BOX II

This is the next generation Pro Analog Transducer Box which is a smaller and lighter version than the previous analog transducer box. Just like the past analog transducer box, this is an additional method of connecting analog sensors into the V-Net recorders. Each Pro Analog Box will house up to four of the Plug-In style transducer modules. This box is then connected to a single V-Net cable. Plug-In style transducers and adapter modules must be purchased separately.

B. TRANSDUCER MODULES, PLUG-IN STYLE II

When using the Pro Analog Transducer Box these plug-in style transducers and signal conditioning modules are used to convert the input from various analog functions into signals that can be recognized by the recorder. Where required, a special cable is needed for connecting the sensor to the module.

- **Pressure Transducer, PSI**
  - Available in ratings of: 0 to 15/60/100/150/300/500/750/1500.
  - Used to measure pressure from parameters such as fuel, oil, boost, nitrous.
  - Route your pressure line directly to the transducer. Transducer has 1/8” NPT female thread.

- **Vacuum Transducer, 0-30 In. hg**
  - Typically used to monitor manifold or pan vacuum.
  - A vacuum line is routed directly to transducer.

- **Thermocouple Amplifier Module, 0-500°F**
  - Cable Only, Thermocouple Sensor to Module, over 3’, (specify length)
  - Used on low temp applications such as water, oil, cylinder head. Not for use with EGTs. Module, cable and sensor kit available as PN# 810-KT-TC-500. Specify use and cable length.

**0-5 Volt Input Module, can output either**

- 5 or 12 volts to powered sensor
  - Cable Only, Sensor to module 800-CA-3PM (specify length), Receives 0-5 volt input from powered sensor while providing 5 or 12v to power the sensor.

**Tip #9**

- Trying to decide between a V300SD or Sportsman data logger, for your drag race vehicle?
  - The first question to be answered is, how many external sensors will you be adding?
  - The Sportsman is limited to 18 total V-Net sensors (with optional upgrades), for use with unblown or vehicles that do not utilize magneto ignitions, while the V300SD provides for 56 V-Net channels out of the box.
  - Looking for overall cylinder timing or shock sensors? The V300SD will be your choice.

For additional details, check out [https://www.youtube.com/user/racepakvideos/videos](https://www.youtube.com/user/racepakvideos/videos)

D. PRESSURE TRANSDUCERS

- **Pressure Transducer, PSI**
  - 810-MD-PT-(SPECIFY PSI)
  - Available in ratings of: 0 to 15/60/100/150/300/500/750/1500.
  - Used to measure pressure from parameters such as fuel, oil, boost, nitrous. Route your pressure line directly to the transducer. Transducer has 1/8” NPT female thread.

- **Vacuum Transducer, 0-30 In. hg**
  - 810-MD-PT-VAC
  - Typically used to monitor manifold or pan vacuum.
  - A vacuum line is routed directly to transducer.

- **Thermocouple Amplifier Module, 0-500°F**
  - 810-M-TC-500
  - Cable Only, Thermocouple Sensor to Module, under 3’, (specify length)
  - Used on low temp applications such as water, oil, cylinder head. Not for use with EGTs. Module, cable and sensor kit available as PN# 810-KT-TC-500. Specify use and cable length.

- **0-5 Volt Input Module, outputs 5 volts to powered sensor**
  - 810-MD-O-5
  - Cable Only, Sensor to module 800-CA-3PM (specify length), Receives 0-5 volt input from powered sensor while providing 5 or 12v to power the sensor.

C. PRO ANALOG TRANSDUCER BOX OLD STYLE

The Pro Analog Transducer Box offers an additional method of connecting analog sensors into the V-Net recorders. Each Pro Analog Box will house up to four of the Plug-In style transducer modules. The box is the connected to either the V-Net cable or the analog port, via a single cable, by using one of the appropriate adapter modules shown below. Plug-In style transducers and adapter modules must be purchased separately.

- **Frame Rail Bracket**
  - 800-MB-ANA

**ADAPTER MODULES**

- **V-Net**
  - 230-VM-4ANA8
  - Interface

- **V-Net**
  - 230-CA-1M-8P
  - Adapts B-Pin Pro Analog Box to Analog port V-series recorders.
A. SPLIT COLLARS

These aluminum split collars provide a mounting platform for the magnets that are used to trigger the sensor when monitoring the revolutions of a shaft. They are typically used on rear end yokes or couplers to provide driveshaft RPM. Each collar is approximately .375” wide and houses two magnets which are located 180° apart. Custom size and dual magnet collars are available by special order.

SPLIT COLLAR ONLY WITH TWO MAGNETS

<table>
<thead>
<tr>
<th>Size (mm)</th>
<th>Code</th>
</tr>
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<tbody>
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<td>800-CL-2M-318</td>
</tr>
<tr>
<td>3.250</td>
<td>800-CL-2M-325</td>
</tr>
<tr>
<td>3.500</td>
<td>800-CL-2M-350</td>
</tr>
</tbody>
</table>

SPLIT COLLAR ONLY WITH EIGHT MAGNETS

For use with V300SD, V500SD, Sportsman data recorders. If using a recorder other than listed, contact Racepak.

B. MAGNETS

These are the rare earth magnets that are currently used in the clutch input shaft, the split collars shown above or with some front wheel RPM applications. Each magnet measures .250” OD x .200” in length. North end of magnet is painted yellow for easy identification.

Tip #10: Lost your configuration file, or maybe data run files, on your PC?

The search function in your Windows PC will quickly locate those files.

Locate and select the Start icon in the lower left corner of your PC screen.

In the search box, type .rcg. This will locate any configuration file on your PC.

For data Runfiles, type .rpk. For additional details, check out https://www.youtube.com/user/racepakvideos/videos

C. SHIFT LIGHT

As a companion component to our programmable V-Net Shift Light Modules, Racepak has made available this high intensity LED shift light. The light features a powerful light emitting diode for luminosity that can't be missed even on the brightest of race days.

Shift Light, Black Housing 800-XP-SLMSD

A. TWO MAGNET SPLIT COLLAR

B. RARE EARTH MAGNET

C. SHIFT LIGHT
**A. G2X MOUNTING PLATE**
Includes loggers mounting plate, black anodized billet aluminum clamp bracket.
- G2X 1.250” dia tube 610-MB-125
- G2X 1.500” dia tube 610-MB-150
- G2X 1.625” dia tube 610-MB-1625
- G2X 1.750” dia tube 610-MB-175

**B. G2X MOUNTING PANELS**
Trim to fit, vacuum formed plastic mounting panel.
- Faux Carbon 600-MB-G2XPCF
- Black 600-MB-G2X-DBLK
- Silver 600-MB-G2X-SPAL

**C. UDX MOUNTING PANELS**
Trim to fit, vacuum formed plastic mounting panel.
- Faux Carbon 800-MB-UDX-PCF
- Black 800-MB-UDX-PBLK
- Silver 800-MB-UDX-PAL

**D. MOUNTING BRACKETS**
- V300/V300SD for 1.250” O.D. tubing 800-MB-V300-125
- V300/V300SD for 1.500” O.D. tubing 800-MB-V300-150
- V300/V300SD for 1.625” O.D. tubing 800-MB-V300-162
- V300/V300SD for 1.750” O.D. tubing 800-MB-V300-175
- G2X Pro/V500 for 1.250” O.D. tubing 800-MB-V500-125
- G2X Pro/V500 for 1.500” O.D. tubing 800-MB-V500-150
- G2X Pro/V500 for 1.625” O.D. tubing 800-MB-V500-162
- G2X Pro/V500 for 1.750” O.D. tubing 800-MB-V500-175

**E. IQ3 MOUNTING PANELS**
Trim to fit, vacuum formed plastic mounting panel.
- Faux Carbon 800-MB-IQ3-PCF
- Black 800-MB-IQ3-PBLK
- Silver 800-MB-IQ3-PAL

**F. IQ3 PROTECTIVE COVER**
Vacuum formed, crystal clear protective cover for IQ3 dash.
- Cover with flange 250-DS-IQ3-CVRWF
- Cover without flange 250-DS-IQ3-CVR

**G. IQ3 MOUNT**
CNC-machined, black anodized mounting bracket. Pre-drilled for corresponding IQ3 mounting stud and pattern.
- IQ3 Mount Bracket 800-MB-IQ3
A. SERIAL COMMUNICATION CABLES
The serial cables that are used to communicate or download data from the V300/V300SD/V500 recorders are unlike those found in computer stores. If you need a replacement for your serial cable choose the proper cable from the selection below.

<table>
<thead>
<tr>
<th>CABLE DESCRIPTION</th>
<th>PART NUMBER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Serial Communication Cable, V300, 25'</td>
<td>280-CA-SR-V300</td>
</tr>
<tr>
<td>Serial Communication Cable, V500, 15'</td>
<td>280-CA-SR-V500</td>
</tr>
<tr>
<td>Serial Cable, GX2 Pro, 35'</td>
<td>680-CA-SR-G2XP</td>
</tr>
<tr>
<td>Serial Cable, GX2 Black, 6'</td>
<td>680-CA-SR-G2X</td>
</tr>
<tr>
<td>Serial Cable, UX Dashes, 6'</td>
<td>280-CA-SR-UX</td>
</tr>
<tr>
<td>Serial Cable Extension, (used to extend length of above cables), 25'</td>
<td>890-CA-DB9X-025</td>
</tr>
<tr>
<td>USB Adapter, Serial to USB Port (For PC's that do not have a Serial Port)</td>
<td>890-CA-USB2SER</td>
</tr>
<tr>
<td>USB Cable Extension, (For PC's that do not have a Serial Port), 6'</td>
<td>890-CA-USBAA-6</td>
</tr>
</tbody>
</table>

B. SD & MICRO SD COMPONENTS

<table>
<thead>
<tr>
<th>COMPONENT DESCRIPTION</th>
<th>PART NUMBER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Memory Card to SD Card Adapter</td>
<td>890-KT-CARTSD</td>
</tr>
<tr>
<td>SD Memory Card (V300SD, Sportsman, GX2, GX2 Pro)</td>
<td>890-SD-WC-4GB</td>
</tr>
<tr>
<td>Micro SD Memory Card (IQ3)</td>
<td>890-SD-84GB</td>
</tr>
<tr>
<td>Cover Plug, for SD Memory Card</td>
<td>800-SD-COVER</td>
</tr>
</tbody>
</table>

C. MEMORY CARD KIT
Eliminate the memory cartridge and USB to cartridge reader with this kit. Data is downloaded to users PC via a commonly available SD memory card. Use with Racepak V-Net data loggers utilizing memory cartridge download.

<table>
<thead>
<tr>
<th>KIT DESCRIPTION</th>
<th>PART NUMBER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Memory Card to SD Card Adapter</td>
<td>890-KT-CARTSD</td>
</tr>
</tbody>
</table>

D. CHASECAM START RECORD MODULE
Sync Racepak data loggers and Chasecam PDR100 camera recording with this programmable V-Net module.

<table>
<thead>
<tr>
<th>MODULE DESCRIPTION</th>
<th>PART NUMBER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chasecam Module</td>
<td>230-VM-CHASECAM</td>
</tr>
</tbody>
</table>

Tip #11 Is your graphed RPM data erratic?
Often times, it can be traced to one of two issues. If the graphed data appears to randomly spike downward then instantly back up, the RPM data is, for a brief moment, lost.
If the RPM data spikes upward, that is a sign of too many data points, and can be attributed to noise or an RPM sensor too close to the trigger point.
For additional details, check out https://www.youtube.com/user/racepakvideos/videos

E. INTEGRATED VIDEO CAPTURE FOR DATALINK
Merge your onboard video with Racepak Data. Contact Racepak for details.

F. TRACKVISION SOFTWARE
Overlay Racepak data over video. Create customized dash panels, save/export for online video replay.

Trackvision System Package 890-UG-VIDEOAD
Datalink II family of software programs are the finest available to motorsports. Datalink II is easy to learn, user-friendly in terms of working within the programs, and above all, capable of quickly and clearly providing information you need to achieve success. An enormous amount of thought and work has gone into designing this software. Writing software programs that are useful to racers, whether they are drag, oval track, or road racer, as well as those gathering data not associated with a vehicle, require years of development. Through this process we arrived at three levels of Datalink II.

**Datalink II Lite:** is the basic version software used with all Racepak V-series data recorders. It provides this ability to upload recorded information to your PC allowing you to view the data, in both a numeric and graphic format. Each monitored function will have a channel button displaying the numeric value of that channel (at the cursor’s location), while also permitting you the option of displaying the channel’s data on the scaled graph. Special channels are included to provide clutch and transmission slip curves when the appropriate sensors are installed in your onboard system. A log book section is included to keep records of each run file. This program also allows data transmitted from all V-Net systems and recorders to be displayed on the computer screen in real-time. A typical downloaded Datalink II Lite screen view contains three panels. The top panel contains the run file tabs and channels buttons for selecting the run file or graph lines you wish to display. Displayed alongside each channel button is that channel’s numeric value coinciding with the location of the graph’s vertical cursor. In the center is the graph panel. The graphs are displayed with a timeline across the bottom and the scale value along the left edge. The bottom panel contains the tabs to access the log pages related to the file being displayed.

**Datalink II Standard:** adds full math channels support. The math channels provide you with the ability to create your own channels to display information that is derived from a combination of other collected or known data. For instance, you can create channels that display total wheel or drivetrain slippage, shock rates data in inches per second. If you have a G-meter, you can integrate speed and distance traveled. The combinations are endless.

**Datalink II Pro:** is a favorite with professional racers or those who spend a lot of time ‘crunching’ the numbers. It adds full access to the Racepak’s Logbook. The user can create their own custom log pages which can include calculation spreadsheet, x-y plots, Histograms, gauges, and more.

### MINIMUM SOFTWARE REQUIREMENTS

- **200 MHz Pentium II CPU**
- Large screen monitor with 1024 x 768 pixel minimum resolution.
- 200 MB of available hard drive space.
- Windows® XP, Vista, or Windows 7 (32 bit operating system).
- 200 MB of available hard drive space
- Large screen monitor with 1024 x 768 pixel minimum resolution.
- 200 MHZ (Pentium II) CPU.
- One available RS-232 serial port (or USB to serial cable adapter).
- CD/ROM drive.
- If you will be using the data cartridge download system your computer must have a USB port and be equipped with Windows® 98, ME, 2000, XP, Vista, or Windows 7 (32 bit operating system).

### REPLACEMENT SOFTWARE

Purchase of a V-series recorder includes the data analysis software. However, should a replacement become necessary use the part numbers shown below. It will be necessary for you to provide Racepak with a copy of an existing file so we may configure your software to match your existing setup. Datalink II Software KIts (includes CD disc, licensing disc, manual).

<table>
<thead>
<tr>
<th>Software</th>
<th>Part Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Datalink II File Viewer</td>
<td>890-DL-FV</td>
</tr>
<tr>
<td>Datalink II Lite</td>
<td>890-DL-LITE</td>
</tr>
<tr>
<td>Datalink II Standard</td>
<td>890-DL-STD</td>
</tr>
<tr>
<td>Datalink II Pro</td>
<td>890-DL-PRO</td>
</tr>
</tbody>
</table>

### UPGRADE SOFTWARE

Use these programs to upgrade from an existing Racepak Windows®-based software program to the latest version of a higher level of Datalink II.

<table>
<thead>
<tr>
<th>Upgrade Software</th>
<th>Part Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upgrade Datalink II Lite to Datalink II Standard</td>
<td>890-US-LITESTD</td>
</tr>
<tr>
<td>Upgrade Datalink II Lite to Datalink II Pro</td>
<td>890-US-LITEPRO</td>
</tr>
<tr>
<td>Upgrade Datalink II Standard to Datalink II Pro</td>
<td>890-US-STDPRO</td>
</tr>
</tbody>
</table>

### ACCESSORIES & SOFTWARE

- **Upgrades:**
  - **Datalink II Lite:** Datalink II Standard 890-UG-LITESTD
  - **Datalink II Lite:** Datalink II Pro 890-UG-LITEPRO
  - **Datalink II Standard:** Datalink II Pro 890-UG-STDPRO

**GRAPHS**

Clicking the channel buttons allow you to display a single function, or as many functions at once as you desire. Graphs can be expanded or compressed, or you can zoom in on any area of interest. The zero point of the graph’s timeline can be set by the user. This allows the occurrence of any event to be measured from a standard reference point.

**NUMERIC VALUES**

All Datalink II programs have the ability to overlay the graphs from multiple files. This gives you the ability to visually compare any recording against another. Evaluating the results of tuning changes or driving techniques becomes instantly obvious.

### CIRCLE TRACK AND ROAD RACING

With the Pro software you can create a detailed track map of every circuit you run from the information you generate. GPS will allow you to plot the exact position of the car as it travels around the track. You will then be able to compare individual lap times within a recording session, or against laps from previously recorded sessions. You can further divide the track to user-defined segments, such as turns and straights, for comparisons. Each report will contain lap or segment elapsed times, split times, average speed, fuel used, minimum and maximum speed, acceleration and braking G-force, lateral G-force, altitude, GPS heading, velocity and more.

### LOG BOOK

You can keep track of run times, weather data, track information or whatever information you care to note in the comments section. The higher level programs contain detailed logging of engine, tune up, and conditions data. With Datalink II Pro you can create your own customized log book pages and use the math functions to perform those tedious fuel system, clutch management, chassis setup, or segmented lap time calculations.

### REAL TIME

By connecting the onboard recorder to your computer with the serial cable you have the ability to view your recorded functions while they are being monitored. A dynamometer-style screen allows you to display all functions on a graph, or up to eight user-defined virtual gauges. Think of how useful this can be during warm ups in the pits.

The purchase of a Datalink data analysis program includes a licensing agreement. All Datalink programs are licensed to the recorder on which they are loaded. You are not licensed to an individual, nor are they transferable between systems. Due to the customized nature of the software program for each recorder it is highly suggested that when purchasing or selling a data recorder that the software be regarded as a component of that particular recorder, keep the two together as a unit.
In every form of motorsports, where engine performance is critical, weather becomes an important factor. Knowing the amount of oxygen that is available for making horsepower, or knowing how much a change in the weather will affect a car’s ability to run on a dial-in, has become an integral part of tuning a car. In order to make proper decisions related to the weather you need a quality weather station. As a service to our customers Racepak is pleased to be able to offer one of the best, the AltaCom II weather station by AltaLab Instruments. This weather station is used by professionals and sportman racers in NHRA, IHRA, NASCAR, SCCA, Formula I, and offshore boat racing.

The AltaCom II is designed for superior infield operation. From sensor specification and board design to the remote sensing, paging functions, and software, the AltaCom II is manufactured to provide you with stable, accurate data. Of particular importance to those who use a Racepak data recorder is the ability of the AltaCom II to import its weather data right into the Racepak run files.

The trailer based AltaCom II monitors the four prime weather parameters using a mast mounted, fan aspirated remote sensor station. From the four prime parameters it then calculates seven other weather values. Each value is updated every 20 seconds. The optional pager allows you to stay current with changing conditions even when you are away from the console’s LCD display.

AltaCom II Kit Monitors:
- Temperature
- Absolute Barometric Pressure
- Relative Humidity
- Ambient Light

AltaCom II Kit Calculates:
- Density Altitude
- Adjusted Altitude
- Grains of Water
- Absolute Humidity
- Vapor Pressure
- Dew Point
- Air Density Ratio

The base AltaCom II kit includes the display console, remote sensor housing, mounting mast, pager, antenna, serial cable, power cable, Merlin Windows software. Additional pager and anemometer can be added as options.
### A. LOGO CAP
Caps Sports Racepak 880-PM-CAP2
Caps Sports Racepak S-M 880-PM-SSBK-XL
Caps Sports Racepak L-XL 880-PM-SSBK-XXL
Caps Sports Racepak XXL 880-PM-CAP2XL

### B. MOUSE PAD
Racepak Logo Mouse Pad 880-PM-MPAD

### C. LAPTOP PAD
Racepak Logo Laptop Pad 880-PM-MPADXL

### D. CAR LOGO T-SHIRT
Racepak T-Shirt Black MD-Small 880-PM-MTBKM-S
Racepak T-Shirt Black MD-Medium 880-PM-MTBKM-M
Racepak T-Shirt Black MD-Large 880-PM-MTBKM-LRG
Racepak T-Shirt Black MD-1X Large 880-PM-MTBKM-XL
Racepak T-Shirt Black MD-2X Large 880-PM-MTBKM-XXL

### E. PALM TREE LOGO T-SHIRT
Racepak T-Shirt Black PT-Small 880-PM-MTBKP-S
Racepak T-Shirt Black PT-Medium 880-PM-MTBKP-M
Racepak T-Shirt Black PT-Large 880-PM-MTBKP-LRG
Racepak T-Shirt Black PT-X Large 880-PM-MTBKP-XL
Racepak T-Shirt Black PT-2X Large 880-PM-MTBKP-XXL
Racepak T-Shirt Black PT-3X Large 880-PM-MTBKP-3XL

### F. BLACK RACEPAK LOGO SWEATSHIRT
Racepak Sweatshirt Blk MD Medium 880-PM-SSBKSM-M
Racepak Sweatshirt Blk MD Large 880-PM-SSBKSM-L
Racepak Sweatshirt Blk MD X Large 880-PM-SSBKSM-XL
Racepak Sweatshirt Blk MD 2X Large 880-PM-SSBKSM_2X

### G. GREY HOODIE WITH PALM TREES LOGO
Racepak Sweatshirt Hood PT Small 880-PM-SSBKP-S
Racepak Sweatshirt Hood PT Medium 880-PM-SSBKP-M
Racepak Sweatshirt Hood PT Large 880-PM-SSBKP-L
Racepak Sweatshirt Hood PT X Large 880-PM-SSBKP-XL
Racepak Sweatshirt Hood PT 2X Large 880-PM-SSBKP-2X
Racepak Sweatshirt Hood PT 3X Large 880-PM-SSBKP-3X

### H. BLACK HOODIE WITH LOGO
Racepak Sweatshirt Hood PT Small 880-PM-SSBKP-S
Racepak Sweatshirt Hood PT Medium 880-PM-SSBKP-M
Racepak Sweatshirt Hood PT Large 880-PM-SSBKP-L
Racepak Sweatshirt Hood PT X Large 880-PM-SSBKP-XL
Racepak Sweatshirt Hood PT 2X Large 880-PM-SSBKP-2X
Racepak Sweatshirt Hood PT 3X Large 880-PM-SSBKP-3X
**Analog:** This term simply refers to a sensor or signal having a large number of potential values. For instance, a water temperature sensor is an analog sensor as the output of the sensor varies continuously with the temperature. This type of sensor is also called a voltage output sensor. Pressure, temperature, vacuum, linear and rotary travel, would all be examples of analog channels.

**Data Cartridge:** A small rectangular device used to transfer data from the onboard data recorder to a PC without connecting a serial cable between the two. It is used just like you might use a floppy disc to transfer files from one PC to another.

**Data Recorder:** The onboard hardware device that collects and stores the information transmitted from the sensors. Sometimes referred to as a Data Logger or 'Computer'.

**Digital:** This term refers to a sensor or signal having only two values. For example, a wide open throttle switch is either on or off. Digital channels, by counting or timing the transitions from off to on, can also be used to measure RPM. For instance by monitoring the number of pulses from the ignition tach output, a data recorder can determine and monitor the engine RPM.

**Download:** The common term for the process of transferring the information stored in the data recorder to a device, such as a data cartridge, for the purpose of loading it into another piece of hardware, such as a desktop computer for analysis. Also see Upload.

**EGT:** Abbreviation for Exhaust Gas Temperature. EGT’s are commonly used as an indicator of whether a cylinder is running rich (cool) or lean (hot). Thermocouple probes in the exhaust headers are used to monitor the EGT’s.

**K or KB:** Abbreviation for Kilobyte. Each sample of recorded data represents approximately two bytes. A kilobyte is 1024 bytes. It takes about 1 KB to display one page of double spaced text on your computer screen. See MB or megabyte.

**MB:** Abbreviation for Megabyte. A megabyte is one million bytes (technically correct 1,048,576), or one thousand (1,024) kilobytes. Most large novels could fit into a MB with room to spare. Your auto insurance policy disclaimer would not.

**Memory:** The capacity of a data recorder or PC to store information, usually expressed in Kilobytes or Megabytes. The length of available recording time is dependent upon how much memory is available. As the number of channels and/or sampling rates per second increase, the recording time is decreased. Purchase a data recorder with lots of memory.

**Sampling Rate:** The number of times per second the data recorder logs a sample of the incoming information on each channel. Many times the number of samples per second can be changed to suit your needs. A common myth is that faster sampling rates are better. This isn’t always true.

**Software:** The program, usually installed on your PC’s hard drive from a CD and/or floppy disc, that provides the instructions enabling your PC to display and process the information uploaded from your data recorder.

**Telemetry:** The ability to view your monitored functions in real time. V-series recorders using the Datalink Lite or higher version software can display the monitored functions on the computer screen while the vehicle is running by connecting the onboard recorder to the PC. Recorders equipped with radio transmitters can display their recorded data in real time without requiring a serial cable connection.

**Thermocouple:** A probe inserted into the header, usually near the exit of the exhaust port. This is the ‘sensor’ for the exhaust gas temperatures. Thermocouples differ from other temperature probes due to the higher range of temperatures in which they must operate.

**Transducer:** A device that converts a physical property, such as pressure or position, into a voltage signal that the data recorder can understand. Used on temperature, pressure, vacuum, or movement signals.

**Transducer Box:** A rectangular box that houses up to four hard wired, strain-type pressure transducers or signal conditioning modules. Commonly used as a junction box for pressure lines which are then connected to the V-Net cable with a single module.

**Upload:** The process of transferring information from a data recorder or data cartridge directly to a laptop or desktop computer.

**USB Port:** The type of communication port used on newer model computers to connect peripheral equipment such as a mouse or printer. The Racepak data cartridge uploads recorded information into the newer computers through the USB port.

**V-Net:** An exclusive Racepak system that allows the input or output of information from many sources over a single cable. V-Net greatly reduces the need for wiring, while increasing the capabilities of the system. V-Net allows multiple components (gauges, data recorder, controller motors, etc.) to share the signals being transmitted over the V-Net cable.

**Windows:** Is a registered trademark name of the Microsoft Corporation. The term has become generic when referring to the most common method of navigating your way around a computer program. It uses point-and-click on icons, rather than the need for written commands as used with the older DOS programs. Racepak’s Datalink software is a Windows-based program.

**GLOSSARY**

**Racepak's Datalink software is a Windows-based program.**

**RACEPAK.COM**

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**PAYMENT**

All orders are credit card or wire transfer. All international orders are wire transfer. Credit Cards are the preferred method of payment. Racepak accepts Visa, MasterCard and Amex. When paying by credit card be sure to include card number, expiration date, and name of card holder. Checks: If preparing by check please allow ten days for the check to clear your bank. Bank Drafts: If paying by bank draft allow three days for transmission of the draft to our account. International accounts allow five days. Also please remember to include sufficient funds to cover the amount deducted by your bank for transfer fees.

**SHIPPING**

Racepak’s primary method of shipping is via Fed Ex. This includes all forms of Fed Ex delivery options for domestic and international services. Please specify which method you prefer at the time of your order. If a method is not specified Racepak will use the least expensive option available. Requesting a shipping carrier other than Fed Ex will incur additional charges. All shipping charges are the responsibility of the customer and will be added to the invoice.

**WARRANTY**

Racepak/CSI Data System’s make every effort to insure that our products and services are of the highest quality and standards. It is our intention to maintain a mutually beneficial and cordial relationship with each and every one of our customers.

Racepak/CSI warrants all merchandise manufactured by Racepak against defects in workmanship or materials for a period of six months after the date of purchase. This warranty applies to the first retail purchaser and covers only those products exposed to normal use or service. It does not apply to those products used for a purpose for which it was not designed, or which has been altered in any way that would be detrimental to the performance or life of the product, or misapplication, misuse, negligence, or accident. Any part or product found to be defective after examination by Racepak will be repaired or replaced. Racepak assumes no responsibility for diagnosis, removal and/or installation labor, loss of vehicle use, loss of time, inconvenience or any other consequential expenses.

This warranty is in lieu of any other expressed or implied warranties, including any implied warranty of merchantability or fitness, and any other obligation on the part of Racepak or selling dealer.