Racepak®

DATA SYSTEMS

ADVANCED DATA ACQUISITION SYSTEMS

2008 CATALOG

www.RACEPAK.com

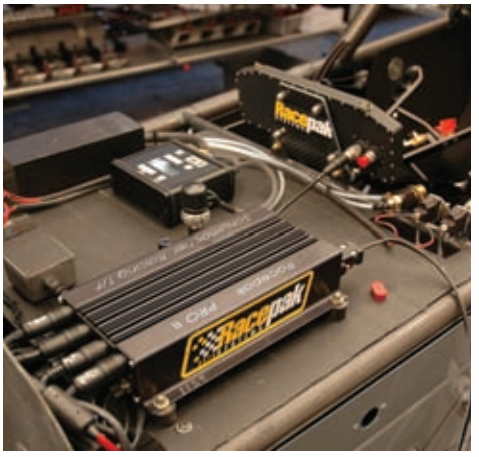
Racepak Data Systems was founded in 1984 to design and build affordable and reliable onboard data acquisition equipment. As Racepak built and refined its early data acquisition systems, the equipment found its way into many forms of motorsports before finally catching the attention of the drag racing community. Though there had been previous attempts to construct data recorders for Top Fuel and Funny Cars, none had proven reliable. Racepak knew that if they could develop onboard data acquisition that could survive in this hostile environment, that it would survive anywhere. By achieving this goal, the Racepak data recorder was established as the clear choice in data acquisition. The result is that Racepak can now be found on nearly every professional drag racing vehicle competing throughout the world.

Racepak has reinvested heavily into supporting the quest for information technology. The Racepak line has now grown to include a large selection of unique loggers, software, gauges, and ancillary equipment, for use in a variety of motorsports. This has positioned the company as a leader in the data acquisition industry, and expanded our clientele to include industrial applications, OE manufacturers, and testing facilities, as well as a broad spectrum of land, water, and snow-based motorsports. In 2005, Racepak was acquired by MSD Performance Group. Known as the leader in high-performance ignition and electronic products, MSD Ignition offered the perfect environment for Racepak's continued growth.

The team at Racepak Data Systems is proud of our accomplishments and the reputation we have developed in the motorsports community. We firmly believe that reputation is the key to our success. Racepak continues to follow the same guiding principles that have led us to the forefront of the data acquisition industry. Our unwavering goal remains to produce reliable, efficient, state of the art data recorders. It is key that they remain at a price accessible to professionals and sportsmen alike and that we support our customers with whatever service they may need. Our push for continual product advancement, dissatisfaction with status quo, and the burning desire to achieve the impossible; have made us a perfect match for the customers we serve.

Finally, we wish to thank our customers who have played an integral role in the growth of Racepak. It is through your faith in us, and the input and ongoing support of our products, that we have become the leader in data acquisition. We value that relationship and look forward to further cultivating it as we continue to grow.

Racepak systems are designed to take the intimidation factor out of purchasing a data acquisition system. Further, we are always available to answer any questions or provide component selection advice. You can contact a Racepak Customer Service representative at 949-709-5556 or check out www.racepak.com.



AN MSD® BRAND IGNITION

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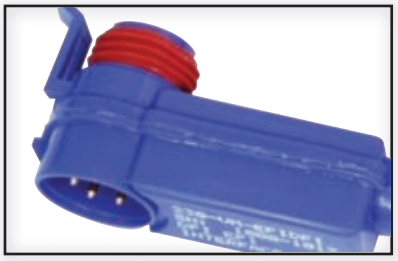

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Tech Help and Orders
Call 949-709-5555

Payment

Unless previously arranged all orders will be COD. All overseas orders must be paid in advance. **Credit Cards:** are the preferred method of payment. Racepak accepts Visa and MasterCard. When paying by credit card be sure to include card number, expiration date, and name of card holder. **Checks:** If prepaying 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 the bank for transfer fees.

Shipping

Racepak's primary method of shipping is via UPS (United Parcel Service). This includes all forms of UPS 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 UPS will incur additional charges. All shipping charges are the responsibility of the customer and will be added to the invoice.

Warranty

Racepak/CSI Data Systems makes 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.

CHOOSING A DATA RECORDER

The first step in building a data acquisition system is to select a data recorder. This may seem like a complicated decision, as several of our units have overlapping features. But the reality is that the decision is simple if you follow our guidance. The following issues will need to be addressed with your Racepak representative in order for you to attain the appropriate data system for your vehicle.

1. What is your form of motorsport?
2. What data do you wish to monitor? Have a list handy of the functions you would like to monitor on your car. This will help your Racepak representative verify that the system you have chosen is appropriate for your application.
3. Determine which sensors will be needed.
4. Where will the logger be mounted?
5. Where will the sensors be mounted?
6. Many drag racing data recording kits monitor the driveline RPM. To do this, a split collar with magnets is attached to the yoke of the rear end. In order to provide the proper inside collar diameter, we will need to know the outside dimension of the yoke just forward of the pinion seal. There is a schematic on page 35 of this catalog that will show you where this measurement is to be taken.
    - In the typical drag race 'door car' the recorder is mounted behind the passenger seat location. If the recorder will be mounted in this general location, and the ignition control box is in the front foot well on the passenger side, you can use the standard door car power/RPM wiring harness. If your installation varies from this layout, or is to be installed in a different type of vehicle, we will need to know some cable length measurements. Please try to have these lengths (as a cable would be routed) available when you call:
        - Distance from data logger to ignition control box:
        - Distance from data logger to rear end yoke:
        - Distance from data logger to switched 12 volt power:
        - Distance from data logger to momentary (start recording) button:
        - Distance from data logger to bell housing (if clutch RPM is to be monitored):
7. Which gauges or dash do you wish to use?
8. A compatible PC will be needed in order to properly upload the data from your recorder. Your Racepak representative will need to know the following information regarding your computer:
    - What operating system does your computer use (Windows XP, Vista, etc., not compatible with Mac operating systems).
    - Does your computer have a 9 pin serial port (RS-232)?
    - Does your computer have a USB port?

To further ease the decision making process, we have compiled the following chart of recommended applications for each model.

If your application is not shown, or you are still unsure as to which Racepak Data Recorder is best suited for your usage, we suggest you give our Technical Department a call. Applications utilizing extremely high cylinder pressures combined with high amperage magnetos are not shown on this chart. These applications (Top Fuel Dragsters and Funny Cars, Blown Alcohol Dragsters and Funny Cars, etc.) use our Pro Series data acquisition systems. Please consult with the Racepak Technical Department (949-709-5555) for information and pricing on these recorders.

APPLICATION	LDX DASH	V300 & V300SD	V500	G2X	G2X Pro	IQ3 Logger Dash
Drag Race/Pulling						
Pro Mod, Blown or Nitrous	■	■	■			
Pro Stock	■	■	■			
Competition Eliminator Blown or Unblown	■	■	■			
Super Stock, Stock, Brackets	■	■				
Drag Boat, Blown or Unblown, Gas, Alcohol	■	■	■			
Motorcycle Blown Fuel	■	■	■			
Motorcycle Nitrous	■	■				
Motorcycle Pro Stock	■	■				
Puller				■	■	■
Closed Course (Requiring Lap Timing)						
Circle Track				■	■	■
Road Racing				■	■	■
Club/Track Days				■		■
Puller				■	■	■
Boat, Offshore				■	■	■
Boat, Other				■	■	■
Motorcycle				■	■	■
Other						
Dynamometer	■	■	■			
Flow Bench, Clutch Dyno	■	■				

V300SD

DATA RECORDER

The V300SD series data recorder is our newest data recorder. In base configuration, the V300SD monitors five parameters, 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. This means that no download cable is required! 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, UDX dash or IQ3 display dash. Also, the V300SD can monitor overall ignition timing with the optional timing package. See page 24 for more information.

FEATURES

Channels:
67 total
V-Net: 56
Analog: 4 hard-wired
Digital: 4 hard-wired
Internal: 3

Sample Rates:
V-Net: up to 100 per second
Analog: up to 1000 per second
Digital: RPM and switch contacts up to 100 per second

Memory:
128MB SD memory card
Recording time depends on number of channels monitored and sample rates
Record multiple runs
Cabless

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 (.28 kg)

V300SD

V300SD with Datalink Lite (automotive) 200-KT-V300SDL
V300SD with Datalink Lite (motorcycle) 200-KT-V300SDLM
V300SD with Datalink Standard (automotive) 200-KT-V300SDS
V300SD with Datalink Standard (motorcycle) . . 200-KT-V300SDSM

Typical Uses:	The V300SD package monitors:	The V300 package includes:
Pro-Mod	Engine RPM	V300SD Data Recorder
Pro Stock	Driveline RPM	128MB SD memory card
Top Dragster	Engine v. Driveline RPM differential	Driveshaft or rear wheel RPM sensor with split collar and magnet kit
Top Sportsman	Battery voltage	Datalink software kit with serial programming cable
Comp Eliminator	Acceleration g-force	V-Net tee connector with terminator caps
Super Comp	Lateral g-force	Power/Ground/Engine RPM/Driveshaft Harness (clutch RPM optional)
Super Gas		
Motorcycles		
Land speed cars		
Drag Boats		

V500

DATA RECORDER

If you need to monitor many channels of information while using fast sampling rates for extended recording periods, the V500 is for you. The V500 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.) and an internal recording capacity of 4 MB of memory. 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 Intelli-Gauges, UDX dash or IQ3 display dash. The V500 can be equipped to monitor overall timing, or individual cylinder timing on those vehicles using the proper programmable ignition system, with optional timing package.

FEATURES

Channels:
75 total
V-Net: 56
Analog: 8 hard-wired
Digital: 8 hard-wired
Internal: 3

Sample Rates:
V-Net: up to 100 per second
Analog: up to 1000 per second
Digital: RPM and switch contacts up to 100 per second
Digital: Timing intervals within 1/1000 of a second

Memory:
4 MB
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)

Dimensions:
5.350" (L) X 5.550" (W) X 1.215" (H)
(13.598cm X 14.09cm X 3.08cm)

Weight:
17 ounces (48 kg)

V500

V500 with serial cable download and Datalink Lite. 200-KT-V500-4MB
V500 with data cartridge download and Datalink Standard. . .200-KT-V500-4MB

Check out the all new IQ3 Dash package on page 13!

Typical Uses:	The V500 package monitors:	The V500 package includes:
Pro Stock	Engine RPM	V500 Data Recorder
Drag Boats	Driveline RPM	Driveshaft or rear wheel RPM sensor with split collar and magnet kit
Dynamometers	Engine v. Driveline RPM differential	Datalink software kit with serial programming/download cable
Industrial equipment	Battery voltage	V-Net tee connector with terminator caps (clutch RPM optional)
	Acceleration g-force	Power/Ground/Engine RPM/Driveshaft Harness (clutch RPM optional)
	Lateral g-force	

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. With 128 MB of memory, over 20 hours of GPS data can be stored.

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.

G2X Data Recorder Kit 600-KT-G2XR
Kit without Dash 600-KT-G2XRND

FEATURES

Channels:
V-Net: 12
Internal: 4
16 Total Channels

Sample Rates:
V-Net: up to 100 per second

Memory:
128MB SD memory card
Recording time depends on number of channels monitored and sample rates
Record multiple runs
Cableless download

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

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)

G2X GPS

Typical Uses:	The G2X GPS package monitors:	The G2X GPS package includes:
Road racing	Lap Times	G2X Recorder
Oval Track racing	Lap Number	GPS Antenna
Club racing	Per Lap Gain/Loss	LED Dash Display
Driving schools	Gear Indicator	128 MB SD Memory Card
Karting	Progressive Shift Lights	Datalink II Software
Pulling	Accel G/Lateral G	Communication Cable
Motorcycles	Battery Voltage	Cigarette Lighter Adapter
Test facilities	GPS Speed	Power/Ground/Engine RPM Harness

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 55 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 brake pressure package. This package provides easy installation through the use of a module that permits the user to terminate these 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/throttle/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/finsh from the dash.

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

FEATURES

Channels:
71 Total
V-Net: 55
Analog: 8 hard-wired
Digital: 4 hard-wired
Internal: 4

Sample Rates:
V-Net: up to 100 per second
Analog: up to 1000 per second
Digital: RPM and switch contacts up to 100 per second

Memory:
128MB 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 5.5550" (W) X 1.215" (H)
(13.589cm X 14.1097cm X 3.0861cm)

Weight:
17 ozs. (.48 kg)

G2X-Pro

Check out the all new IQ3 Dash and Data Recorder package on page 13!

Typical Uses:	The G2X-Pro package monitors:	The G2X-Pro package includes:
Road racing	Accel G	G2X-Pro Recorder
Oval track racing	Lateral G	GPS Antenna
Boats	Battery Volt	128 MB SD Memory Card
Motorcycles	Track Mapping	Datalink II Software
Pulling	GPS Speed	Communication Cable
	Lap Time	Power/Ground/Engine RPM Harness
	Lap Number	
	Segment Time	

INTRO TO V-NET DASHES AND GAUGES

When Racepak introduced their series of V-Net data loggers, which allows all sensors to transmit their data back to the data logger via a single cable, the next logical progression in this technology was to add the ability to plug gauges and dashes into this same V-Net cable. By doing so, this would allow the gauge to share the sensor information with the data logger, thus providing a true "vehicle network" of data logger, sensors and gauges, all routing their data through a single cable. This design has proven to be tremendously popular, as the installation, weight and complexity of data systems and related components was greatly simplified.

Taking this design a step further, this line of "Intelli-Gauges" and LCD Digital Display Dashes could now use the data transmitted down this single V-Net cable to activate external warning and shift lights, while being programmed through this same single V-Net cable. Now, all programming, warnings, data logging and data display would be accomplished in a very efficient manner.

Digital Display Dashes

Racepak offers three series of digital displays, the UDX, the G2X and the IQ3. Each utilize Racepak's exclusive V-Net single cable technology, allowing for an extremely simple installation, while providing a variety of data for a multitude of motorsports. More information on each system follows.

Intelli-Gauges

The Intelli-Gauges are a great support component of the V-Net data recording systems. Their unique capabilities and ease of installation make them attractive for a variety of performance applications. All of the gauges are 2 5/8" diameter and feature a full 270° sweep needle, a programmable digital display and electro-luminescent lighting. See page 16 for additional information concerning the Intelli-Gauges.

UDX Street Rod Display 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 temperature, 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.

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UDX Street Rod Display Dash Instrument Panel:
Street Model. 250-KT-UDXSR

The UDX-SR Dash provides turn signals, high beam indicator, and even parking brake warning lights.

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 Viewing of:
Any 21 sensor inputs recorded be the data logger
Shift Lights
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)

UDX Street

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.

The UDX Replay Dash includes a wire loom and sensors for engine RPM, water temperature, oil pressure and battery voltage. Sensors for displaying other sensor inputs must be purchased separately.

Replay Model (Display & Replay) 250-KT-UDXRP

UDX EFI Dash

While similar to our other series of UDX display dashes, the EFI UDX Display Dash is designed as a plug and play replay and display dash for many of the popular EFI engine management systems. By utilizing an optional Racepak EFI module, the EFI Display Dash can display many of the functions monitored by the EFI controller.

UDX EFI Dash for MEFI-4B. 250-DS-UDXEFIM
UDX EFI Dash for Big Stuff 3. . . . . 250-DS-UDXBS3

Note: EFI Dashes do not come with sensors.

Programming Software & Cable Kit 250-UG-UDXPG

Provides ability to program display or add sensors on Street and Replay dashes.

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 Replay Dash
Water/Oil temperature sensor
Oil pressure sensor
Wire loom and connectors for sensor input termination

Display Dash Provides Viewing 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
(10.16cm X 25.908cm X 1.905cm)

Weight:
21 ozs. (.58 kg)

UDX Replay

LDX LOGGER DASH EXTREME

DATA RECORDER

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, driveshaft 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.

The LDX Logger Dash can record and upload data to a PC via a supplied serial cable, while at the same time displaying the input from up to 21 of those sensors on the display screen. With a simple push of a button, users can view the displayed sensor data by scrolling through four screens of information. Each page contains five user programmable sensor inputs, plus the engine RPM bar graph.

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.

One MB of memory provides a generous amount of recording time, with sampling rates available up to 100 times per second, per channel. Uploaded data is accomplished through a supplied 6' serial cable. Four threaded studs on the rear of the dash are providing for mounting. This product is typically utilized for motorsports not requiring any type of lap timing information.

LDX Logger Dash 250-KT-LDX

FEATURES

Channels:
37 total
V-Net: 32 digital/analog
Harness: 5 (engine RPM, driveshaft RPM, water temperature, oil pressure, volts)

Sample Rates:
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 monitored and sample rates

Dimensions:
10.200" (L) X 4.000" (W) X .750" (H)
(mounting surface to face, 2.000" OAL depth)
(25.908cm X 10.16cm X 1.905cm)
Screen dimensions 7.250" X 2.625"
(18.415cm X 6.6675cm)

Weight:
25 ounces (71 kg)

LDX

Typical Uses:	The LDX package monitors:	The LDX Logger Dash package includes:
Drag Racing	Engine RPM Driveshaft RPM Water Temp Oil Temp Battery Voltage	LDX Logger Dash Wiring harness Driveshaft RPM sensor kit Datalink download software kit with 6-foot cable V-Net tee connector with terminator caps Water temperature sensor Oil pressure sensor Instruction manual

IQ3 Logger Dash

NEW!

The new 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 32 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 DatalinkII software included with the IQ3 dash provides professional level data analysis capabilities, but in an easy to learn format.

IQ3 Logger Dash 250-DS-IQ3LD

The LDX Logger Dash 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
DatalinkII software and installation manual

FEATURES

Channels:
37 total
V-Net: 32 digital/analog
Internal: 5

Sample Rates:
V-Net: up to 100 per second

500 per second with optional high speed V-Net module

Memory:
512 MB (included), expandable up to 2 GB micro SD
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 5.39cm)

Weight:
1 lb. (453g)

Specifications:
32 external sensor input with optional high speed logging modules.
Internal GPS board
Display up to 28 inputs via 4 pages
512mb microSD memory
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

IQ3 Logger

Typical Uses:	Base Logger Dash Provides Viewing of:	Base Logger Dash Downloaded Data Provides:
Road Racing Circle Track Marine Pulling	GPS Lap Time and Lap Number GPS Speed Battery Voltage Accel G/Lateral G/Vertical G Engine RPM (with appropriate tach signal) 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	Speed Lap Times Section Times Track Mapping Battery Voltage Accel G Lateral G Vertical G Date Reports Full data analysis with data export and math channel capabilities

IQ3 Display Dash

NEW!

The IQ3 Display Dash can be utilized with any of Racepak's V-Net data loggers, providing a compact, fully programmable LCD digital dash for use in a variety of motorsports.

A single V-Net cable is routed to the rear of the dash, providing power and access to all sensor information transmitted to the data logger. Up to 24 different sensor inputs may be displayed on a total of four programmable pages. The blue backlight provides excellent viewing for both daylight and nighttime usage, while the low luster display screen provides excellent protection against scratches.

Progressive shift lights, eight warning lights and all inputs are easily programmable through the DatalinkII software supplied with each data logger.

IQ3 Display Dash 250-DS-IQ3

FEATURES

Specifications:
Display up to 28 inputs via 4 pages
Blue backlight
Gear Indicator
Eight user defined alarms with on screen warning text and lights
User defined 5 character sensor input names
User defined shift lights
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:
1 lb. (453g)

IQ3 Display

Typical Uses:	Base Logger Dash Provides Viewing of:	Includes:
Road Racing Circle Track Marine Pulling Drag Race	Engine RPM Shift Lights Warning Lights Gear Indicator 28 total programmable inputs on four display pages	IQ3 Display Dash

IQ3 EFI Dash

The IQ3 EFI Display Dash is designed to be a stand-alone display dash, capable of interfacing with a variety of aftermarket EFI systems. This provides a method of displaying EFI generated data in a compact, full programmable LCD digital display dash.

Up to 24 different sensor inputs may be displayed on a total of four programmable pages. The blue backlight provides excellent viewing for both daylight and nighttime usage, while the low luster display screen provides excellent protection against scratches. Progressive shift lights, 8 warning lights and all inputs are easily programmable.

IQ3 EFI Dash. 250-DS-IQ3EFI

FOR POPULAR EFI SYSTEMS!

FEATURES

Specifications:
Display up to 28 inputs via 4 pages
Blue backlight
Gear Indicator
Eight user defined alarms with on screen warning text and lights
User defined 5 character sensor input names
User defined shift lights
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:
1 lb. (453g)

IQ3 EFI

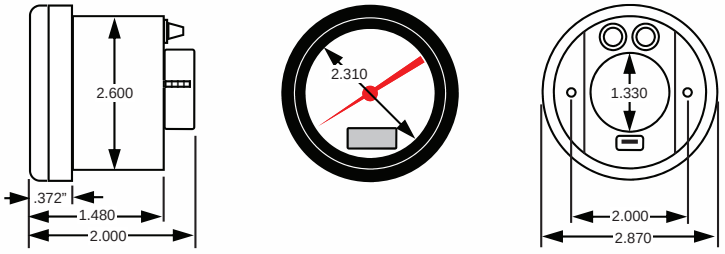
Typical Uses:	Base Logger Dash Provides Viewing of:	Includes:
Drag Racing Road Race Boats	Up to 28EFI sensor inputs via 4 pages Shift Lights Warning Lights Gear Indicator (with appropriate tach signal)	IQ3 Display Dash with EFI interrface

Intelli-Gauges

Racepak's Intelli-Gauges are the best way to relay pertinent engine and drivetrain information when using our V-Net data recording systems. The V-Net wiring capabilities means the gauges and the data acquisition components can share the same sensors to reduce wiring.

All of the gauges are 2 5/8" diameter and feature a 270° sweep needle along with a programmable digital display. The gauges are available with a black or white face and are easy to view thanks to electro-luminescent lighting. Page 17 shows all of the available gauges.

INTELLI-GAUGE DIMENSIONS



SIDE

REAR

FEATURES

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

GAUGES

INTELLIGENT 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.

WARNING ALARM: Intelli-Gauges can act as a watchdog. Each gauge can monitor user-programmable minimum or maximum limits and flash the digital display (and/or a remote light) when either threshold is exceeded.

EASY INSTALLATION: If a function is currently being monitored on the V-Net, simply plug the gauge online and it shares the signals from that function's sensor. If not, install a sensor and its module for the function you wish to monitor, plug both modules onto the V-Net cable, and the installation is complete.

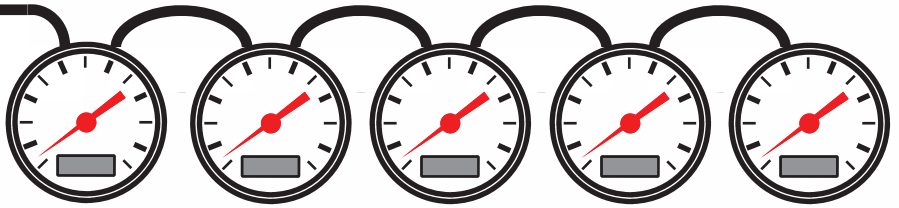
ENGINEERED FOR LOOKS AND PERFORMANCE: When you combine the looks and performance of these gauges you have an unbeatable combination of elegance and function. Intelli-Gauge cases and connectors are sonic welded to provide maximum protection against contaminating elements. They weigh a mere 49 grams. Their smart looks can be attributed to an easy-to-read dial face that uses wide spread increment marks in the prime operating range, a digital display to complement the needle movement, and a smooth curved bezel that surrounds your choice of a white of black dial face.

ELIMINATE THE CLUTTER: Using the Intelli-Gauge with one of our data acquisition systems is a great way to eliminate some of the wiring clutter under the hood. These gauge derive their signal from the data acquisition system's sensors, so there is no duplication of wiring or sensors as you would have with other stand-alone gauges.

INTELLI-GAUGE SELECTION CHART (Gauge includes connector cable. Sensor and modules available on page 24-30)			
INTELLI-GAUGES	**RANGE**	**BLACK FACE**	**WHITE FACE**
RPM, TACHOMETER	1,000-10,500 RPM	250-IG-100BB	250-IG-100WB
RPM, TURBINE PERCENTAGE, N1	0-120%	NA	250-IG-218 WB
RPM, TURBINE PERCENTAGE, N2	0-120%	NA	250-IG-219WB
TEMPERATURE, WATER (Street)	100°-280°F	250-IG-110BB	250-IG-110WB
TEMPERATURE, WATER (Race)	60°-200°F	250-IG-120BB	250-IG-120WB
TEMPERATURE, OIL	140°-280°F	250-IG-130BB	250-IG-130WB
TEMPERATURE, EXHAUST GAS	600°-1,600°F	250-IG-140BB	250-IG-140WB
TEMPERATURE, EXHAUST GAS #2	600°-1,600°F	250-IG-145BB	250-IG-145WB
TEMPERATURE, EXHAUST GAS	0-1000°C	NA	250-IG-220WB
TEMPERATURE, CYLINDER HEAD	100°-600°F	250-IG-150BB	250-IG-150WB
TEMPERATURE, TRANSMISSION	50°-350°F	250-IG-135BB	250-IG-135WB
PRESSURE, OIL	0-100 psi	250-IG-160BB	250-IG-160WB
PRESSURE, OIL	0-250 psi	NA	250-IG-162WB
PRESSURE, FUEL	0-15 psi	250-IG-170BB	250-IG-170WB
PRESSURE, FUEL	0-100 psi	250-IG-165BB	250-IG-165WB
PRESSURE, FUEL	0-250 psi	NA	250-IG-167WB
PRESSURE, FUEL	0-500 psi	NA	250-IG-226WB
PRESSURE, BRAKE	0-1,500 psi	250-IG-180BB	250-IG-180WB
PRESSURE, NITROUS	0-1,600 psi	250-IG-175BB	250-IG-175WB
PRESSURE, Generic	0-200 psi	250-IG-190BB	250-IG-190WB
PRESSURE, Generic	0-300 psi	250-IG-193BB	250-IG-193WB
PRESSURE, Generic	0-500 psi	NA	250-IG-223WB
PRESSURE, Generic	0-1,000 psi	250-IG-197BB	250-IG-197WB
BOOST / VACUUM	30 psi-0-30 In. hg	250-IG-215BB	250-IG-215WB
BOOST	0-60 psi	NA	250-IG-217WB
VACUUM	0-30 In. hg	250-IG-210BB	250-IG-210WB
AIR/FUEL RATIO	10-18	NA	250-IG-224WB
FLOW	3.5-4.5 GPM	NA	250-IG-222WB
FUEL LEVEL	E-F	NA	250-IG-225WB
VOLTS	8-20	250-IG-200BB	250-IG-200WB
VOLTS (with internal sensor)	8-20	250-IG-204BB	250-IG-204WB
VOLTS	20-32	NA	250-IG-221WB

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.



Gauge Cables	Length	PN#
Gauge to Gauge Jumper Cables 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.	8”	280-CA-RGG-008
	16”	280-CA-RGG-016
	24”	280-CA-RGG-024
	48”	280-CA-RGG-048
	288”	280-CA-RGG-288
Gauge Tee Cables Connects first gauge to V-Net cable or another V-Net module.	8”	280-CA-RGG-T008
	16”	280-CA-RGG-T016
	24”	280-CA-RGG-T024

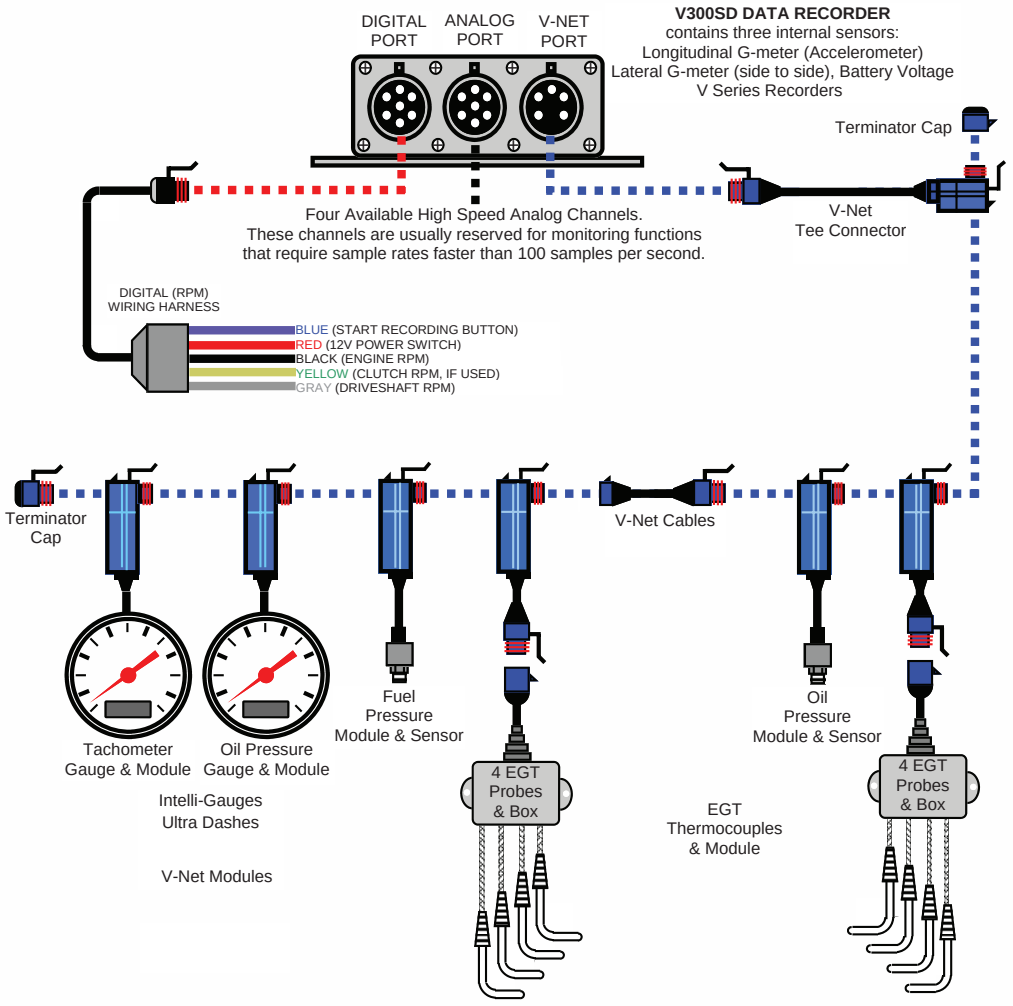
Racepak's Vehicle Network (V-Net) is a "smart data" transfer network providing the ability to transmit multiple signals from each sensor over a single cable. This technology creates a system in which the individual components interact with each other; making a simpler, more compact system which can be 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 Racepak 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 Racepak'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 Racepak 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. To make it easy for you to select the proper components, Racepak offers a variety of manners, as shown below. In the module sensor section that follows, you will find a complete listing of these components divided into the following categories:

Analog V-Net Modules:	Digital V-Net Modules:
with sensor (pre-programmed)	with sensor (pre-programmed)
without sensor (pre-programmed)	without sensor (pre-programmed)
with sensor (not pre-programmed)	no sensor required (pre-programmed)

Analog V-Net Modules with Sensors (pre-programmed)

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

PRESSURE

(Note: All pressure and vacuum modules have a 48" pigtail cable between the V-Net module and the sensor.)

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-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-PP075
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
Manifold Absolute, (MAP), 0-30 In. hg 220-VP-PT-MAP
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
Oil, 0-150 psi 220-VP-PT-OP150
Oil, 0-300 psi 220-VP-PT-OP300
Pressure Differential, 0-40" H^2O to 15 psi 220-VP-PT-PD145
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-TB1O
Wheelie Bar, Left, 0-3000 psi 220-VP-PT-WBL3K
Wheelie Bar, Right, 0-3000 psi 220-VP-PT-WBR3K

Fuel Pressure 0-75 psi

VACUUM

Manifold, 30 psi-0-30 In. hg 220-VP-PT-BVAC
Pan (Crankcase), 0-30 In. hg 220-VP-PT-PVAC

TEMPERATURE

(Note: 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**
Intake Manifold, Closed Tip, 0-300°F, (72") **..... 220-VP-TR-MANIF**
Intercooler 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**

Fluid Temp 0°-300°F

TEMPERATURE, continued

Exhaust Gas Temperatures/Cylinder Bank Sets

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

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

EGT Junction

Exhaust Gas Temperatures/Single Cylinder:

(Single cylinder modules include the thermocouple.)

EGT, Cylinder #1 . . . . . 220-VP-TC-EGT1
EGT, Cylinder #2 . . . . . 220-VP-TC-EGT2
EGT, Cylinder #3 . . . . . 220-VP-TC-EGT3
EGT, Cylinder #4 . . . . . 220-VP-TC-EGT4
EGT, Cylinder #5 . . . . . 220-VP-TC-EGT5
EGT, Cylinder #6 . . . . . 220-VP-TC-EGT6
EGT, Cylinder #7 . . . . . 220-VP-TC-EGT7
EGT, Cylinder #8 . . . . . 220-VP-TC-EGT8

Thermocouple Only, .187" Diameter: specify 18" or 27" length
Thermocouple Only, .250" Diameter: specify 9", 18" or 28" length

EGT Cylinder 1

Analog V-Net Modules without Sensors (pre-programmed)

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 (see sensors page 31) 230-VM-PT-5V
Position/Movement, Rotary or Linear 230-VM-TPS
Temperature, Fluid-type, 0-300°F 230-VM-TR-300

For use with Racepak sensor #810-TR-300 only, see page 31.

Temperature, Low, 0-600°F 230-VM-TC-600

For use with type K thermocouples only, see page 30.

Temperature, High, 0-1800°F 230-VM-TC-1800

For use with type K thermocouples only, see page 30-31.

Air/Fuel Sensor Input, Single 230-VM-AF
Air/Fuel Sensor Input, 4 Station . . . . . 230-VM-AF (cyl #s)
Battery Voltage 230-VM-BVOLT
Voltage Differential 230-VM-5VDIFF

Voltage 0-5 Input

Universal Sensor Module 230-VM-USM

4 channel programmable multi-use inputs.

Universal Sensor Module

Analog V-Net Modules with Sensors (NOT pre-programmed)

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.

PRESSURE

0-15 psi 220-VS-15GVT
0-15 psi Absolute 220-VS-15AVT
0-75 psi 220-VS-75GVT
0-150 psi 220-VS-150GVT
0-300 psi 220-VS-300GVT
0-500 psi 220-VS-500GVT
0-1500 psi 220-VS-1500SVT
Vacuum/Pressure, 30 In. hg-0-30 psi 220-VS-VB

To measure pressure functions using sensors seen on page 28.

0-75 psi

TEMPERATURE

Fluid Temperature
Temperature, 0-300°F, Fluid-type Sensor 220-VS-TR-300

Uses the #810-TR-300 sensor seen on page 36,

0°-300° F Temperature

QUICK DISCONNECT TERMINAL KIT

Thee connector kits provide you with the components that will allow you to shorten the pigtail cable between the V-Net module and pressure sensor or a TR-type temperature sensors. Each kit includes enough components for one module.

Fluid Temperature Sensors 810-CN-TR2P

Use with V-Net modules and temperature sensors having prefix number of 220-VP-TR-, 220-VM-TR-, or 230-VM-TR-.

Pressure Sensors 810-CN-TI3P

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

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 800-CA-EXT2P
3-Pin Molex Cable, Specify Length 800-CA-EXT3P

MOLEX TERMINAL KITS

These connector kits can be used if the need arises to shorten a cable that is 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 250-BC-CONNKIT
Pin Molex Connector Kit 800-CN-MOL3
Crimp Tool (for Molex Terminal Pins) 800-XP-CRIMP-01F

3-Pin Molex Connector

2-Pin Molex Connector

Digital V-Net Modules with Sensors (Pre-Programmed)

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

Driveshaft RPM

Digital V-Net Modules without Sensors (Pre-Programmed)

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 (see page 29) **230-VM-ZX-1**
Hall Effect Input (see page 29) **230-VM-RPMHE**
Contact Closure Input (see page 29) **230-VM-CC-1**
Inductive Spark Pickup Input **230-VM-INDRPM-1**
Event Marker Input, 12 Volt **230-VM-EVENT**
Event Marker Input, Switch Closure **230-VM-EVENTSW**
Flow Meter (see page 28) **230-VM-FLOW**
Four Channel Digital Input **230-VM-4DIGIN**
Four Channel Digital Output **230-VM-4DIGOUT**

Zero Crossing Input

Digital V-Net Modules, No Sensor Required (Pre-programmed)

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

(Choose the pre-programmed module that matches the number of pulses your ignition system emits per cycle):

One Pulse (typical two cylinder, four stroke) **220-VP-TACH-1**
Two Pulse (typical four cylinder) **220-VP-TACH-2**
Three Pulse (typical six cylinder, not odd fire) ... **220-VP-TACH-3**
Four Pulse (typical eight cylinder) **220-VP-TACH-4**
Odd-Fire Six Cylinder **220-VP-TACH-ODD**
Transbrake Event
(monitors transbrake solenoid) **220-VP-TBRAKE**
Wide Open Throttle Event
(See switch page 31) **220-VP-WOTEVENT**
Clutch Event
(Monitors two step clutch pedal switch) **220-VP-CLTEVENT**

Four Pulse RPM Sensor

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 into the EFI system. 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.

V-NET EFI INTERFACE MODULES

If your EFI System is not listed, contact Racepak at 949-709-5555 to see if it is available.

Accel DFI, Gen 7. . . . . 230-VM-EFIDFI
AEM 230-VM-EFIAEM
Autronic (Except SM4 model) 230-VM-EFIAUT
Autronic, SM4 . . . . . 230-VM-EFIAUT4
Big Stuff 3 . . . . . See Note Below
Fast 230-VM-EFIFST

Note: The Big Stuff 3 EFI system does not require a V-Net module to input its data into your Racepak V-series recorder, as it is equipped with a cable and V-Net module for this purpose. However, the Racepak recorder does need to be modified to accept this data. It will be necessary for you to return your recorder and software to Racepak to have this modification performed before you can access and display the BS3 data.

Monitored Data	ACCEL DFI	AEM	AUTRONIC	BIG STUFF 3 (see note above)	FAST
Engine RPM	X	X	X	X	X
Engine Load		X			
Throttle Position	X	X	X	X	X
Air/Fuel Ratio	X	X	X	X	X
EFI Voltage	X	X		X	X
Battery Voltage			X		
Water Temperature	X	X	X	X	X
Charge Temperature					X
Ambient Temperature			X		
Manifold Temperature		X	X		
Intake Air Temperature	X				
Manifold Pressure (Boost)	X		X	X	X
Boost Stage				X	
Turbo RPM				X	
Exhaust Gas Temperature		X			
Exhaust Back Pressure			X		
Ignition Timing	X		X	X	X
Knock Retard	X				X
Injector Pulse Width	X		X		X
O^2 Diagnostic	X				X
O^2 Correction	X				X
Power Adder Enable	X				X
Power Adder	X				X
Mile Per Hour			X		
Speed			X	X	
Gear Indicator		X		X	
Fuel Pressure				X	
Oil Pressure				X	
Crankcase Vacuum				X	

Shift Light/Replay Tach Module

The Shift Light Module allows you to use any LED-style light (300 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. See Shift Light on page 36.

Shift Light Module (Light not included) 230-VM-SHIFTLT

Taking this technology a step further, you can also add full function replay tach capabilities to any electric tachometer. One little V-Net module and any electric tach and you have the ability to replay your run in any of five different modes (real time, step forward, step backwards, fast forward or fast backwards). Add a shift light to the tach and you have the equivalent of a pro system for considerably less money. Replay capabilities require the use of a V50 Record/Playback Module and Keypad.

Replay Tach/Shift Light Module (Tach not included) . . 230-VM-RTSL

Shift Light Module

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 Inductive RPM Pickup, Black G2X 680-SN-GMR
Red G2X 680-SN-RGMR

GMR Inductive Pickup

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.

Ignition Timing Kit, Overall, V500 Only 800-KT-TIMINGOV
Ignition Timing Kit, Individual, V500 Only 800-KT-TIMING

Ignition Timing Kit Overall for V500

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
- DatalinkII standard software required
- Contact Racepak for complete details

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

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 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 10:1 and 15:1, while methanol is shown from 3:1 to 8:1. Please specify the type of fuel you will be using when ordering. Each sensor includes one weldment and plug.

AIR/FUEL CONTROLLERS (SENSORS MUST BE ORDERED SEPARATELY)

2 Channel Controller 220-VM-LSU12
For use with 2 A/F sensors.

4 Channel Controller, Cylinders 1, 3, 5, 7 . . . . . 220-VM-LSU1357
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-LSU2468
For use on 2, 4, 6, 8 cylinder bank of V8, i.e. GM & Mopar.

4 Channel Controller, Cylinders 1, 2, 3, 4 . . . . . 220-VM-LSU1234
For use on 1, 2, 3, 4 cylinder bank of V8, i.e. Ford.

4 Channel Controller, Cylinders 5, 6, 7, 8 . . . . . 220-VM-LSU5678
For use on 5, 6, 7, 8 cylinder bank of V8, i.e. Ford.

Air/Fuel Sensor Only 810-SN-AFLSU

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

Air/Fuel Harness 'A' (Gray), w/ heater wires 280-CA-LSUA

Air/Fuel Harness 'B' (Black) 280-CA-LSUB

Air/Fuel Harness to Sensor Extension Cable, 36". . 280-CA-LSUEXT

2 Channel Air/Fuel Controller

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.

Relay Control Module 230-VM-RELAY

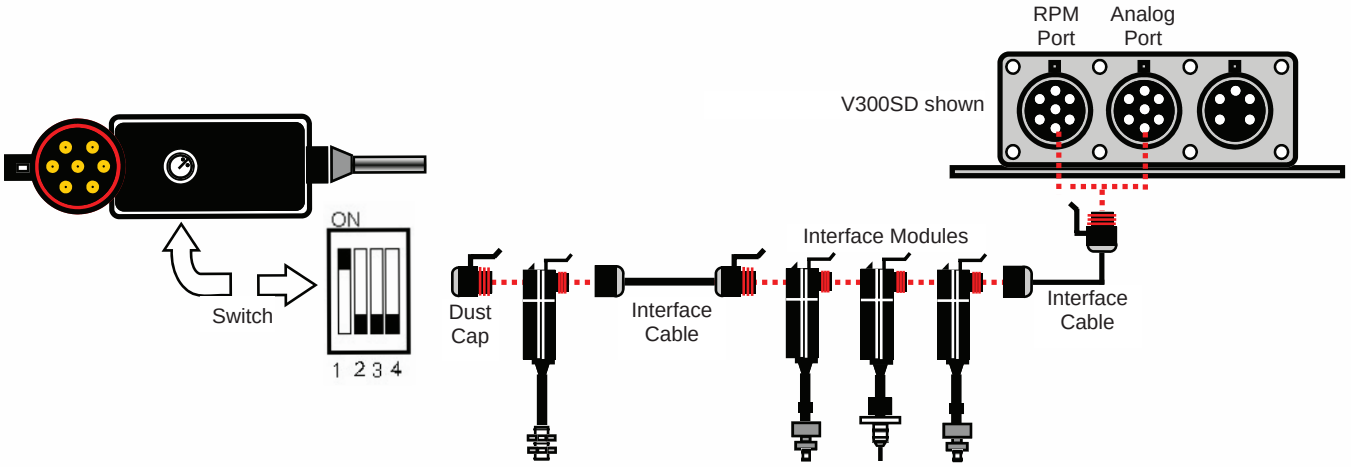
Relay Control Module

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 module 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.



Analog Interface Modules without Sensor

Pressure Input, 5 Volt 240-IM-PT-5V
Pressure Input, 12 Volt 240-IM-PT-12V
Temperature, Thermocouple Input, 0-600°F 240-IM-TC600
Temperature, Thermocouple Input, 0-1800°F 240-IM-TC1800
Position/Travel Input 240-IM-TRAV
Shock Travel, Right Front, 28" Pigtail (Std.) . . . 240-IM-TRAV28RF
Shock Travel, Right Front, 38" Pigtail 240-IM-TRAV38RF
Shock Travel, Left Front, 65" Pigtail (Std.) 240-IM-TRAV65LF
Shock Travel, Right Rear, 48" Pigtail (Std.) 240-IM-TRAV48RR
Shock Travel, Right Rear, 72" Pigtail 240-IM-TRAV72RR
Shock Travel, Left Rear, 48" Pigtail 240-IM-TRAV48LR
Shock Travel, Left Rear, 84" Pigtail (Std.) 240-IM-TRAV84LR

Digital Interface Modules without Sensor

Tach Input 240-IM-TACH
Zero Crossing Sensor Input 240-IM-ZX
Contact Closure Sensor Input 240-IM-CC
Contact Closure Sensor, 12v Output 240-IM-CC-12V

Shock Travel Interface Module

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	5-PIN, BLUE V-NET	7-PIN, BLACK INTERFACE
6”	280-CA-VM-006	280-CA-IM-006
12”	280-CA-VM-012	280-CA-IM-012
18”	280-CA-VM-018	280-CA-IM-018
24”	280-CA-VM-024	280-CA-IM-024
36”	280-CA-VM-036	280-CA-IM-036
48”	280-CA-VM-048	280-CA-IM-048
60”	280-CA-VM-060	280-CA-IM-060
72”	280-CA-VM-072	280-CA-IM-072
84”	280-CA-VM-084	280-CA-IM-084
96”	280-CA-VM-096	280-CA-IM-096
108”	280-CA-VM-108	280-CA-IM-108
120”	280-CA-VM-120	280-CA-IM-120
144”	280-CA-VM-144	280-CA-IM-144
168”	280-CA-VM-168	280-CA-IM-168
192”	280-CA-VM-192	280-CA-IM-192
216”	280-CA-VM-216	280-CA-IM-216

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.

COMPONENT	V-NET	INTERFACE
Tee Cable, 9”	280-CA-VM-T009	280-CA-IM-TEE
Tee Cable, 18”	280-CA-VM-T018	
Tee Cable, 36”	280-CA-VM-T036	
Terminator Cap, Male	280-CA-VM-TCAPM	
Terminator Cap, Female	280-CA-VM-TCAPF	
Dust Cap, Male		280-CA-IM-DCAPM
Dust Cap, Female		280-CA-IM-DCAPF
Bulkhead Connector	280-CA-VM-BHEAD	280-CA-IM-BHEAD

SENSORS

In the section that follows, you will find a selection of sensors that are applicable to every type of recording device. These sensors will provide you with the means of expanding your system to record or display almost any function you wish. It is important to use the appropriate type of signal conditioning module and cable for each application when applying any of these sensors to the various recorder systems.

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 .5 to 4.5 volt output signal. Each transducer mounts using a 1/8" NPT male pipe fitting.

0-15 psi 810-PT-0015GVT
0-15 psi Absolute 810-PT-0015-AVT
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

PSI Sensors

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 (see page 18) 230-VM-PT-5V

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

Interface Module (see page 26) 240-IM-PT-5V

For connection to the Analog port on V-series recorders.

Fuel Flow Meter Sensors

Monitoring pressure to evaluate your fuel system will only give you half of the picture. To know the exact status of how it is affecting your engine you must also know the fuel volume. 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

Additional flow meter types and rates available on special order.

Flow Meter Tee Fitting, -10AN inlet, two –8AN outlets . . 800-FM-TEE

Flow Meter for Methanol

Flow Meter Tee

ADAPTER MODULES

V-Net Module 230-VM-FLOW

Use to connect flow meter to V-Net cable.

Interface Module 240-IM-FLOW

Use to connect flow meter to digital port of V300 or V500 if no digital wiring harness is being used.

RPM

REED SWITCH 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 on pre-2001 clutch RPM sensor with Pro Series recorders.

RPM Sensor, 2 Spade Connectors, 5/16”-24 dia. 800-SS-RB-5

Commonly used for clutch, driveshaft and front wheel RPM with SC1000 recorders.

RPM 2-Pin Sensor

RPM 2-Spade Sensor

ZERO CROSSING SENSORS:

Zero Crossing RPM Sensor, 3-Pin, 3/8” 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, 3/8” 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 a RPM input designed for a zero crossing sensor. Commonly used for the TDC indicator on ignition timing monitor with V500 recorders.

Zero Crossing RPM Sensor

Zero Crossing TDC Sensor

RPM SENSOR APPLICATION CHART					
	Clutch	Driveshaft (Car) Rear Wheel (Bike)	Front Wheel	TDC	Ring Gear
V300	800-SS-ZX-3	800-SS-PRO-5 Cars 800-SS-ZX-3 Bikes	800-SS-ZX-3	NA	800-SS-MSC-3
V300SD	800-SS-ZX-3	800-SS-MSC-5 Cars 800-SS-ZX-3 Bikes	800-SS-ZX-3	NA	800-SS-MSC-3
V500	800-SS-ZX-3	800-SS-PRO-5	800-SS-ZX-3	800-SS-TDC-3	800-SS-MSC-3
SC1000	800-SS-RB-5	800-SS-RB-5	800-SS-RB-5	NA	800-SS-MSC-3

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.

Adapter Modules, V-Net . . . . . See page 29

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

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

(MSD 12 or 20 amp mag) 800-CA-MAGADPT

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

Magneto Pickup Adapter

Exhaust Gas Temperature Thermocouples

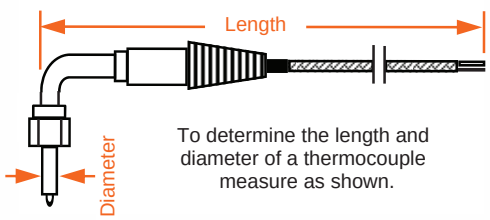
V-Net systems and V-series recorders use two types of thermocouple setups to monitor the exhaust gas temperatures, one for an individual cylinder application and another for 3 or 4 cylinder groups.

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 the chart. See page 20 for single or four station EGT modules that include the thermocouples.



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

THERMOCOUPLES ONLY Thermocouple only. Does not include weldment, nut or ferrule.		
Length (See method of measurement at left of chart)	**.187" Dia. Bullets** (Motorcycle, 4 cyl.)	**.250" Dia. Stingers** (Automotive & H-D bikes)
9"		800-TC-S4-09
12"	800-TC-B3-12	
13"		800-TC-S4-13
16"	800-TC-B3-16	
18"		800-TC-S4-18
19"	800-TC-B3-19	
21"		800-TC-S4-21
22"	800-TC-B3-22	
23"		800-TC-S4-23
28"		800-TC-S4-28
32"		800-TC-S4-32
Set of 4 (one of each length)	800-TC-B3-SET	
Set of 8 (two of each length noted)		800-TC-S4-SET1 (2 each: 9", 13", 18", 23")
	Big block Heads 'B' sets	800-TC-S4-SET2 (2 each: 18", 23", 28", 32")
	Small block Heads 'S' sets	800-TC-S4-SET3 (2 each: 13", 18", 21", 28")

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.

MISCELLANEOUS EGT COMPONENTS		
Weldment, Nut & Ferrule Assembly	800-TX-WASM3	800-TX-WASM4
Weldment Only, Single		800-TX-WELD4
Weldment Only, Single, Stainless		800-TX-WELD4SS
Weldment Only, Set of 4		800-TX-WELD404
Weldment Only, Set of 8		800-TX-WELD408
Ferrule Only		800-TX-F4
Nut Only		800-TX-WNUT4
Cap Only		800-TX-CAP4
Nut & Ferrule Only		800-TX-NF4

Cylinder Head Temperature Thermocouple Assembly . . 800-TC-MT-ASM

Ring type sensor is used to monitor temperature of the metal, not the coolant.

Fluid Temperature Thermocouple Assembly 800-TC-FT-ASM

Used where the probe can be immersed in liquid, such as in a dry sump tank.

Manifold Temperature Thermocouple Assembly 800-TC-MT-ASM

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

Thermocouple Assembly

THERMOCOUPLE ADAPTER MODULES

V-Net Module 230-VM-TC-600
Used to connect the thermocouple sensors, on previous page, to the V-Net cable.

Interface Module 240-IM-TC-600
Used to connect the thermocouple sensors, on previous page, to the Analog port.

Pro Analog Plug-In Style Transducer 810-MD-TC-500
Used to connect the thermocouple sensors, on previous page, through a Pro Analog Box.

Fluid Temperature Sensors

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 (for use with V-Net modules) 810-TR-300
Fluid Temperature, Sensor Only,
0-250°F (for use on Ultra Dash only) 810-TR-250

0°-300°F Fluid Temperature Sensor

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.

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 0-500°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.

The steel housing of the sensor is .750" diameter and 3.500" in length. The outer diameter is threaded (¾-16) to facilitate installation.

IR sensors are used on the V-Net bus using the module shown below.

Infrared Temperature Sensor (sensor includes a
3-pin female Molex connector) 810-SN-IR-TEMP
Adapter Modules V-Net 30-VM-AN-12V

Infrared Temperature Sensor

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
Bracket Only, WOT, Holley 750 Style 800-MB-WOT-750
Bracket Only, WOT, Dominator Style 800-MB-WOT-DOM
Bracket with Switch & Pigtail Cable,
Dominator Style Carb 800-MB-WOT-SCB

Wide Open Throttle Switch

ADAPTER MODULE

V-Net Module 220-VP-WOTEVENT

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" 280-KT-SHKTRVF
Kit, Rear Shock Travel, V-Series
Data Recorders, 0-8" 280-KT-SHKTRVR

Uses Interface module for connection to hardwired analog port of V300 or V500.

Sensor Only, Shock Travel, 0-2", (7.4" to 9.4") 800-LN-TRV2
Sensor Only, Shock Travel, 0-3", (8.4" to 11.4") 800-LN-TRV3
Sensor Only, Shock Travel, 0-4", Front, (9.7" to 13.7") 800-LN-TRV4
Sensor Only, Shock Travel, 0-8", Rear, (12.6" to 20.6") 800-LN-TRV8

Dimension in parenthesis is compresses and extended eyelet center to center distance.

Interface Module Only . . . . . See page 26

Front Shock Travel

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

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

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

Typically used to monitor the movement of a clutch throw out bearing.

Linear Travel Sensor

ADAPTER MODULES

Use these modules to adapt travel sensors to V-series recorders:

V-Net Module (see page 20) 230-VM-TPS

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

Interface Module (see page 26) 240-IM-TRAV

For connection to Analog port of V300 or V500 recorders.

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

String Potentiometer

ADAPTER MODULES

Use these modules to adapt string potentiometers to V-series recorders:

V-Net Module (see page 20) 230-VM-TPS

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

Interface Module (see page 26) 240-IM-TRAV

For connection to Analog port of V300 or V500 recorders.

Wheelie Bar Load Cell

Savvy drag racers monitor the pressure exerted against their wheelie bars when they are in contact with the ground as a method of evaluating their chassis set-up. By incorporating these load cells into each of their 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

WHEELIE BAR PRESSURE SENSORS

V-Net Module & Sensor, Wheelie Bar Pressure (Load cell not included)

Left, 0-3000 psi 220-VP-PT-WBL3K
Right, 0-3000 psi 220-VP-PT-WBR3K
Wheelie Bar Load Cell, Single 800-SN-WBLOAD

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 3.93 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

Kit includes V-Net module & sensor. Please specify position.

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

Sensor Only, Ride Height 810-SN-RHB

Ride Height Sensor

G-force Sensors (Accelerometer)

For years, engineers and enthusiasts have been measuring the longitudinal and lateral forces of a vehicle as a method of evaluating its acceleration, braking, or handling performance. You can do the same with these G-meters. These G-force sensors can be adapted to any V-Net system (Note: V300 & V500 data recorders all contain internally mounted G-meters). The externally-mounted G-meter measures 2.0" x 2.0" x 1.250".

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

G-force Sensor

ADAPTER MODULE

V-Net Module Only 230-VM-AN-12V

Adapts external G-meter to V-Net cable.

Pro Analog Transducer Box

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 then 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.

Pro Analog Transducer Box 810-MB-8P

Pro Analog Transducer Box

ADAPTER MODULES

V-Net 230-VM-4ANA8

Adapts 8-Pin Pro Analog Box to V-Net cable.

Interface 280-CA-IM-8P

Adapts 8-Pin Analog Box to Analog port of V-series recorders.

FRAME RAIL BRACKET

Adapts Pro Analog Box to round tube 800-MB-ANA

Transducer Modules, Plug-In 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 1.5/15/30/60/100/150/200/300/400/500/600/1000/1500. 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-VAC

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

Pressure Transducer

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

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

Cable Only, Thermocouple
Sensor to Module, under 3' . . . 800-CA-TCEXT-XX (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. See sensors only on page 30.

Travel/Position Module, Rotary Position 810-MD-RPOS

Travel/Position Module, Linear Travel 810-MD-LIN

Cable Only, Sensor to Module,
Linear or Rotary . . . . . 800-CA-POS (specify length)

See sensors on page 32.

Pressure Transducer

G-Meter Interface Module 810-MD-GM

Cable Only, G-Meter to Module . . . . . 800-CA-GM3 (specify length)

See sensor on page 33.

Air/Fuel Interface Module 810-MD-A/F

Cable Only, NGK Sensor to Transducer 800-CA-AF (specify length)

Contact Racepak Technical Department for information on ordering A/F sensors from NGK.

0-5 Volt Input Module,
outputs 5 volts to powered sensor 810-MD-0-5-5V

0-5 Volt Input Module,
outputs 12 volts to powered sensor 810 MD-0-5

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

Receives 0-5 volt input from powered sensor while providing 5 or 12v to power the sensor.

0-5 Volt Input, Output 5 Volt

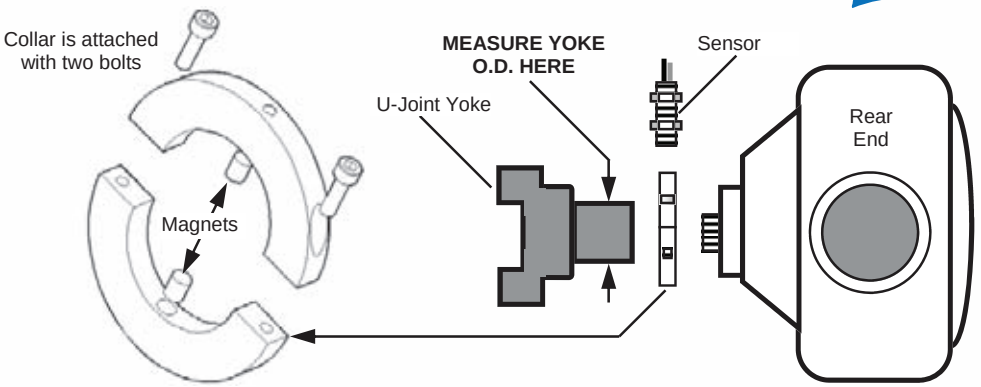
Split Collars

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

1.375" ID, (1 3/8")..... 800-CL-2M-137
1.625" ID, (1 5/8")..... 800-CL-2M-162
1.812" ID, (1 13/16")..... 800-CL-2M-181
1.875" ID, (1 7/8")..... 800-CL-2M-187
2.125" ID, (2 1/8")..... 800-CL-2M-212
2.187" ID, (2 3/16")..... 800-CL-2M-218
3.187" ID, (3 3/16")..... 800-CL-2M-318
3.250" ID, (3 1/4")..... 800-CL-2M-325
3.500" ID, (3 1/2")..... 800-CL-2M-350
8-Magnet, 2.187" ID (2 3/16"..... .800-CL-8M-2187 NEW!

Two Magnet Split Collar



Split Collar and Sensor Kits

The following kits are provided to aid in monitoring the revolutions of a shaft, or as replacement sensors and split collars for the recorders indicated. They include the sensor, bracket and the split collar with magnets.

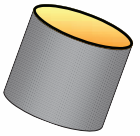
Split Collar Sensor Kit

	V300/V300SD/V500 2 Magnets	SC1000 2 Magnets	2K-3K & 4K Large Single Magnet
Collar I.D.	Uses sensor #800-SS-PRO5 (V300/V500) #800-SS-MSC-5 (V300SD)	Uses sensor #800-SS-RB-5	Kit replaces the old obsolete brass sensor and 7/8" diameter single magnet. Uses a #800-SS-RB-5 sensor.
1.750"	800-KT-2MP-175		
1.812"	800-KT-2MP-181	800-KT-2MR-181	800-KT-1MR-181
1.875"	800-KT-2MP-187	800-KT-2MR-187	800-KT-1MR-187
2.125"	800-KT-2MP-212	800-KT-2MR-212	800-KT-1MR-212
2.187"	800-KT-2MP-218	800-KT-2MR-218	800-KT-1MR-218

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 800-MG-SM-.25



Rare Earth Magnet

Shift Light

As a companion component to our programmable V-Net Shift Light Modules (page 24), 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 Shift Light must be used with either a V-Net Shift Light Module, a V-Net Replay Tach/ Shift Light Module or an Ultra Dash with shift light output. Detailed information about the shift light modules can be found on page 24, 890-XP-V.

LED Shift Light

Warning Light

These small warning lights are used as a supplement to the warning issued on the digital display of the Intelli-Gauges. The lights provide a bright warning light that is visible at day or night, and can be remotely mounted in any location. The panel mount light can be mounted on any flat surface, while the two other stand-alone lights incorporate a built-in mounting stand. All models pick up their signal information and power source directly from the tang on the back of the Intelli-Gauges. The stand-alone lights have an aluminum housing that measures 5/8" O.D. x 4 1/2" long and stands 2" tall. It is available with a silver or black finish. Panel mounted light (shown below) features a 3/4" diameter bulb lens and requires a 11/16" OD round hole for the bulkhead style mounting. Warning Lights can be used in conjunction with any Intelli-Gauge.

Warning Light, Stand-alone, Black Housing 800-XP-WLBLK
Warning Light, Stand-alone, Silver Housing 800-XP-WLSLV
Warning Light, Dash Mount 800-XP-WLDASH

Warning Light

Recorder Mounting Brackets

Mounting a V300, V300SD or G2X Pro/V500 data recorder is easy with these lightweight, billet aluminum mounting brackets. These brackets are designed to clamp firmly around a chassis tube and provide a pre-drilled and tapped platform for mounting the recorder. Dual recorder mounting holes allow the brackets to be installed on either a longitudinal or lateral chassis tube. Brackets are anodized gloss black finish.

V300 Recorder Mounting Brackets,
for 1.250" O.D. tubing 800-MB-V300-125
V300 Recorder Mounting Brackets,
for 1.500" O.D. tubing 800-MB-V300-150
V300 Recorder Mounting Brackets,
for 1.625" O.D. tubing 800-MB-V300-162
V300 Recorder Mounting Brackets,
for 1.750" O.D. tubing 800-MB-V300-175
G2X Pro/V500 Recorder Mounting Brackets,
for 1.250" O.D. tubing 800-MB-V500-125
G2X Pro/V500 Recorder Mounting Brackets,
for 1.500" O.D. tubing 800-MB-V500-150
G2X Pro/V500 Recorder Mounting Brackets,
for 1.625" O.D. tubing 800-MB-V500-162
G2X Pro/V500 Recorder Mounting Brackets,
for 1.750" O.D. tubing 800-MB-V500-175

Recorder Mounting Brackets

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.

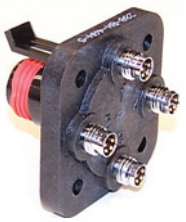
Also, there are two versions of the G2X. The original G2X (600-KT-G2X) was in a black housing and a new version was introduced in mid 2007 in a red housing. There are different harnesses available for the two models. The components listed here are for the original black housing design. For replacement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

Cables, G2X

	ORIGINAL BLACK HOUSING	RED HOUSING
V-Net Adapter, 7' (Auxiliary port to V-Net modules)	680-CA-AUX-084	None Required
GPS Antenna, 5'	ANTG-ANN-05	ANTG-ANN-05
Power/RPM, 6' (Hard wire into vehicle)	680-CA-PWR-4P	680-CA-PWR-R4P
Power/RPM (Cigarette lighter adapter)	680-CA-PWR-CLA	680-CA-PWR-R4P
Power/RPM, Pigtail Extension Only	680-CA-PWR-WPT	680-CA-PWR-R4P
Serial Cable, 6'	680-CA-SR-G2X	280-CA-ST140SR
Dash Extension, 6'	680-CA-EXT-5P72	
Second RPM, 15' (Used with 800-SS-MSC-3 sensor)	680-CA-RPM-4P15	680-CA-RPM-R2
Memory Card	CARD-MEM-CF128M	CARD-MEM-SD128

Cables and Components, G2X Pro

V-Net Module	230-VM-4ANA7HR
Serial Cable	680-CA-SR-G2XP
Cable, Turck Molex, 192"	680-CA-TKM-192
Cable, Turck Packard, 192"	680-CA-TKP-192
Turck Cable Connector	800-CN-5143F
Bulkhead Connector, 5 volt out	280-BH-4ANA-5
Bulkhead Connector, 12 volt out	280-BH-4ANA-512
Memory Card, 128MB	CARD-MEM-SD128
Cover Plug, Memory Card	800-SD-COVER



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 with a single part number.

Steering/Throttle/Brake Kit

Steering/Throttle/Brake Kit

620-KT-STBB

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.

Shock Travel Kit 620-KT-4SHOCK

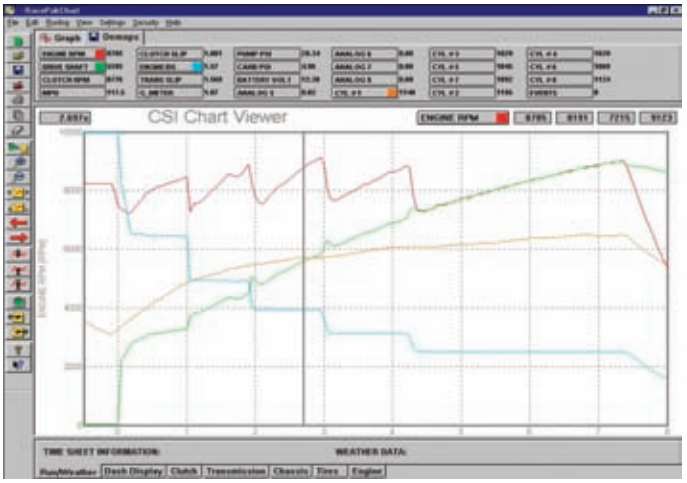
Shock Travel Kit

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.

Ride Height Kit 620-KT-RIDEHT

Ride Height Kit



Racepak's DatalinkII family of software programs are the finest available to motorsports. DatalinkII is easy to learn, user-friendly in terms of working within the programs, and above all, capable of quickly and clearly providing the 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 a 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 DatalinkII.

DATALINKII LITE: is the base version software used with all Racepak V-series data recorders. It provides the 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 DatalinkII 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.

DATALINKII 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 driveshaft turns, shock rates data in inches per second. If you have a G-meter, you can integrate speed and distance traveled. The combinations are endless.

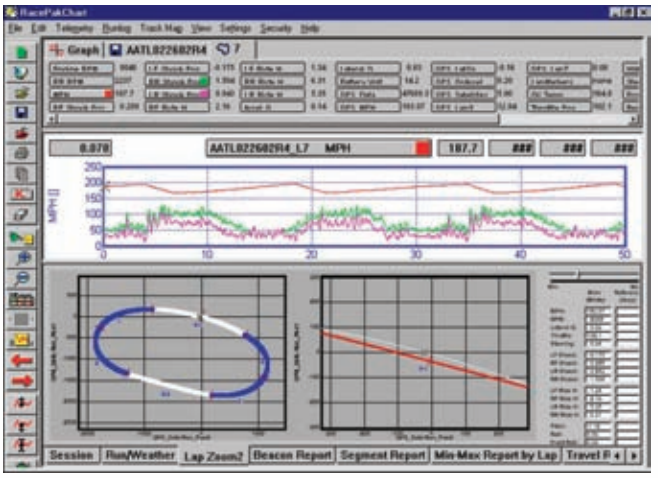
DATALINKII PRO: is a favorite with professional racers or those who spend a lot of time 'crunching' the numbers. It adds full access to the Racer's Logbook. The user can create their own custom log pages which can include calculation spreadsheets, x-y plots, histograms, gauges, and more.

PC Requirements

200 MHZ (Pentium II) CPU.
Large screen monitor with 1024 x 768 pixel minimum resolution.
200 MB of available hard drive space
Windows® 98, 2000, ME, XP or Vista operating system.
16 MB of RAM.
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 or Vista.

The graphics on page 39 and 40 are typical of the screen views you will see when using the DatalinkII data analysis software. If you currently use a computer you will already be familiar with many of DatalinkII's Windows®-based navigational tools. Displaying additional channels or files, or maneuvering around the program, is simply a matter of point-and-click on the icons. An extensive, easy-to-understand, instruction manual, plus online help, are also included with all DatalinkII data analysis programs. Check out a few of the great DatalinkII features:



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: When moving the vertical cursor on a graph, the numeric value of each monitored function, at the cursor's position, will be displayed alongside its channel button. The time from the start of the run to the cursor's location is also shown.

OVERLAY FILES: All DatalinkII 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 RACE FEATURES: 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 time, split times, entry speed, exit speed, 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 DatalinkII Pro you can create your own customized log book pages and use the math functions to perform those tedious fuel system, clutch management, chassis set up, 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.

Important information for buyers and sellers

The purchase of a Datalink data analysis program includes a licensing agreement. All Datalink programs are licensed to the recorder on which they are to be used. They are not licensed to an individual, nor are they transferable between systems. Due to the customized nature of the software program for the recorder on which it is used 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.

Integrated Video

With this new option it is now possible for you to combine and synchronize the video you shoot of each run with the data that is collected by the onboard recorder. No longer will it be necessary for you to try to align to two with each other in order to obtain a visual image that enhances the onboard information you have collected.

This program allows you to control Play, Stop, Fast Forward, Rewind, and Frame Step functions within the video capture software using the mouse of your computer. This makes it easy to view and select just the portion of the video you want to integrate into your run file.

To equip your data acquisition system for integrated video display, your computer will need to be equipped with Racepak's Windows®-based DatalinkII Standard (or higher version) software. Along with this you must purchase the Racepak Video Capture software, an IEEE 1394 Firewire card that is OHCI (open host controller interface) compliant, plus the logger configuration set up for video support. These items can be purchased as a kit using the one of part numbers below:

Data Acquisition Video Kit
(for desk top computers) 890-UG-VIDEOPCI
Data Acquisition Video Kit
(for laptop computers) 890-UG-VIDEOPCM
Data Acquisition Video Software & Manual Only . . 890-UG-VIDEO

890-UG-VIDEO is for computers that are already equipped with the Firewire components.

Additionally you must purchase separately a digital video camera (Mini DV format only) with IEEE 1394 (also known as Firewire or iLink).

Minimum computer system requirements for use of intregrated video software

600 MHZ (Pentium III) or equivalent CPU.
10 GB of available hard drive space (7200 RPM recommended).
128 MB of RAM.
Video screen resolution of 1024 x 768 pixel (1280 x 1024 is recommended).
Video card with 64 MB RAM.
Windows® 98SE, Me, 2000, XP or Vista operating system (XP is recommended).

The Racepak Video Capture software lets you display and review your video recording to select just the portion you want to integrate with your onboard data.

For more information on Racepak's video software package, or for answers to question you may have about this system, please contact Racepak's Technical Department.

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.

DatalinkII Software Kits (includes CD disc, licensing disc, manual).

DatalinkII File Viewer 890-DL-FV
DatalinkII Lite 890-DL-LITE
DatalinkII Standard 890-DL-STD
DatalinkII Pro 890-DL-PRO

Use these programs to upgrade from an existing Racepak Windows®-based software program to the latest version of a higher level of DatalinkII.

Upgrade DatalinkII Lite to DatalinkII Standard . . 890-UG-LITESTD
Upgrade DatalinkII Lite to DatalinkII Pro 890-UG-LITEPRO
Upgrade DatalinkII Standard to DatalinkII Pro . . 890-UG-STDPRO

Replacement Data Cables and Cartridges

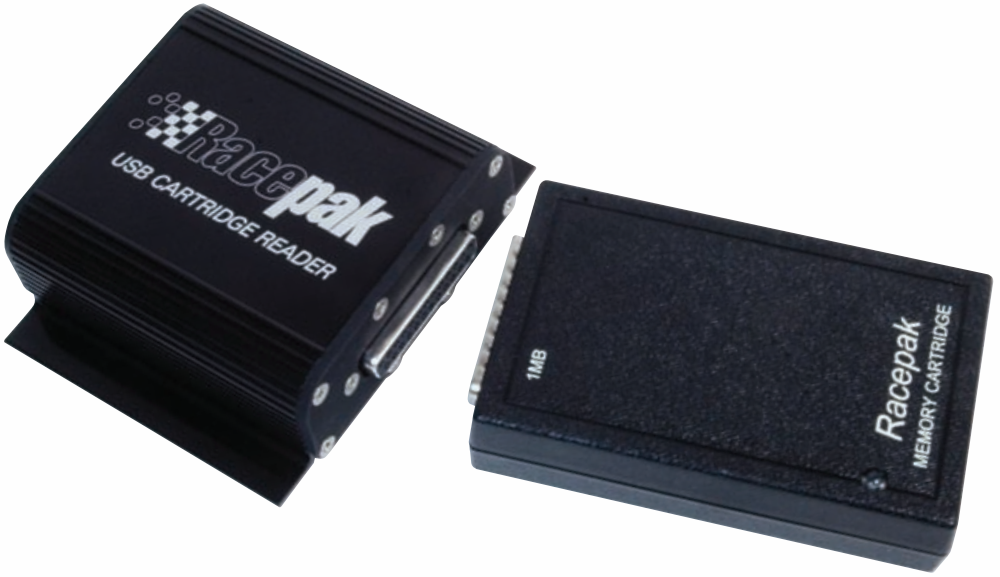
In addition to the kits the individual cartridges and the USB reader only are also shown below should a replacement be required. When purchasing a cartridge, make sure the replacement has as much or more memory as your data recorder.

Data Cartridge Download Kit (See minimum requirements on page 41).

Using 1 Megabyte cartridge 890-KT-CART1
Using 2 Megabyte cartridge 890-KT-CART2
Using 4 Megabyte cartridge 890-KT-CART4
Data Cartridge Only, 1 Megabyte capacity 890-DR-CART-1M
Data Cartridge Only, 2 Megabyte capacity 890-DR-CART-2M
Data Cartridge Only, 4 Megabyte capacity 890-DR-CART-4M
USB Cartridge Reader Only 890-KT-USB

The serial cables used for downloading data from the V50/V300/V500 are unlike those found in computer stores. If you need a replacement for your serial cable, choose the proper cable from the selection below.

Serial Cable, V50 Playback/Download Module, 25' . 280-CA-SR-V50
Serial Cable, V300 Recorder, 25' 280-CA-SR-V300
Serial Cable, V500 or V600 Recorder, 35' 280-CA-SR-V500
Adapter, Serial Cable to USB Port 890-CA-USB/SER



Flash Memory Card

The V300SD, G2X Pro and G2X (red housing) all utilize the same SD memory card and holder. Racepak offers replacement cards and readers.

Cover Plug, Memory Card SD 800-SD-Cover
Compact Flash Card for Black G2X Card-Mem-CF128m
SD Card with Cover 890-MEM-SDWC
SD Flash Card Reader 890-SD-READER

WEATHER STATION

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 profession and sportsman racers in NHRA, IHRA, NASCAR, SCCA, Formula I, and offshore boat racing.

Shown above is the AltaCom II display console, pager, and remove sensor station.

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 it's 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.

AltaCom II Weather Station Kit 830-WS-ALTAII
Pager (Add a second pager to your weather station) . . . 830-WS-PAGER
Anemometer Kit (Add wind speed & wind direction to monitored parameters) 830-WS-ANEMO

The remote sensor housing is mounted on the PVC mast under the aluminum solar roof. Also shown is the optional anemometer which provides wind speed and wind direction.

Jackets

These handsomely-styled heavy duty jackets feature a black wool body and sleeves that are accentuated by a pair of rich gold stripes around the sleeves. The button-down front flap conceals a stainless steel zipper while the inside has a luxurious quilted soft satin liner to keep you warm on the coldest of nights. Top this off with the finely detailed gold and white Racepak logos that are embroidered on the chest and the back and you have a jacket that will both impress and protect.

Jacket, Black with Gold Leather Accents, Medium 880-PM-WJBK-M
Jacket, Black with Gold Leather Accents, Large 880-PM-WJBK-L
Jacket, Black with Gold Leather Accents, X-Large 880-PM-WJBK-XL
Jacket, Black with Gold Leather Accents, XX-Large 880-PM-WJBK-XXL

Sweatshirts

Our black long sleeve sweatshirts with elastic crew neck collar and cuffs keep the cold out and the warmth in. A small embroidered Racepak logo on the front and a larger version on the back tells everyone that you are there gathering some serious data.

Sweat Shirt, Black, Large 880-PM-SSBK-L
Sweat Shirt, Black, X-Large 880-PM-SSBK-XL
Sweat Shirt, Black, XX-Large 880-PM-SSBK-XXL

Cap

Your racing cap collection won't be complete until you have added this good looking black cap with embroidered Racepak logo to yours. An adjustable band means one size fits all.

Cap 880-PM-CAP

Tee Shirts

Dazzle your friends and intimidate your competitors by letting them know you are plugged into the world of data acquisition. These heavy duty black cotton Racepak Tee Shirts feature a small silk screened Racepak logo on the front and a larger version on the back.

Tee Shirt, Black, Medium 880-PM-MTBK-M
Tee Shirt, Black, Large 880-PM-MTBK-L
Tee Shirt, Black, X-Large 880-PM-MTBK-XL
Tee Shirt, Black, XX-Large 880-PM-MTBK-XXL

Adding Sensors To a GPS Based Data System

Racepak offers three types of GPS based data systems, varying in total sensor inputs and types. The following information is intended to assist the customer when ordering sensors. Adding sensors to any of the following data loggers is as simple as:

1. Determine the mounting location of the data logger
2. Determine the mounting location of the sensor/V-Net module(s). Each sensor will have a corresponding V-Net module and cable.

V-Net modules that are in close proximity can be connected to each other. Following this, measure from the data logger to the closest V-Net module/sensor, and from each V-Net module to the next (if unable to connect to each other. Round each measurement to the closest 12" (.3 meter) increment, refer to page 27 of this catalog and order the appropriate V-Net cable(s).

G2X

Black Housing

This G2X provides input for 12 external sensors, which are connected to the data logger by means of an AUX to V-Net Cable PN 680-CA-AUX-084.

Red Housing

This G2X contains Racepak's standard V-Net port, thus connecting sensors to the data logger by use of any standard V-Net extension cable, as found on page 27 of this catalog. U to 12 sensors may be added.

Either version of the G2X can utilize any of Racepak's V-Net sensors, in addition to the Steering/ Throttle/Brake/Brake package, PN 600-KT-STBB.

G2X Pro

The G2X Pro contains a standard V-Net port, along with one 4 input RPM port and two analog input ports (analog 1-4 and analog 5-8) This design allows the customer to connect up to 56 Vent sensors to the V-Net port, using our standard V-Net cables as found on page 27 of this catalog. In addition, up to 8 total analog sensors may be connected to the Analog ports (4 sensors through 1-4 and 4 sensors through 5-8). Three additional RPM inputs may be connected to the RPM 1-4 port. The 8 analog inputs provide logging rates up to 500HZ. Racepak has created the following sensor packages for use with the G2X Pro:

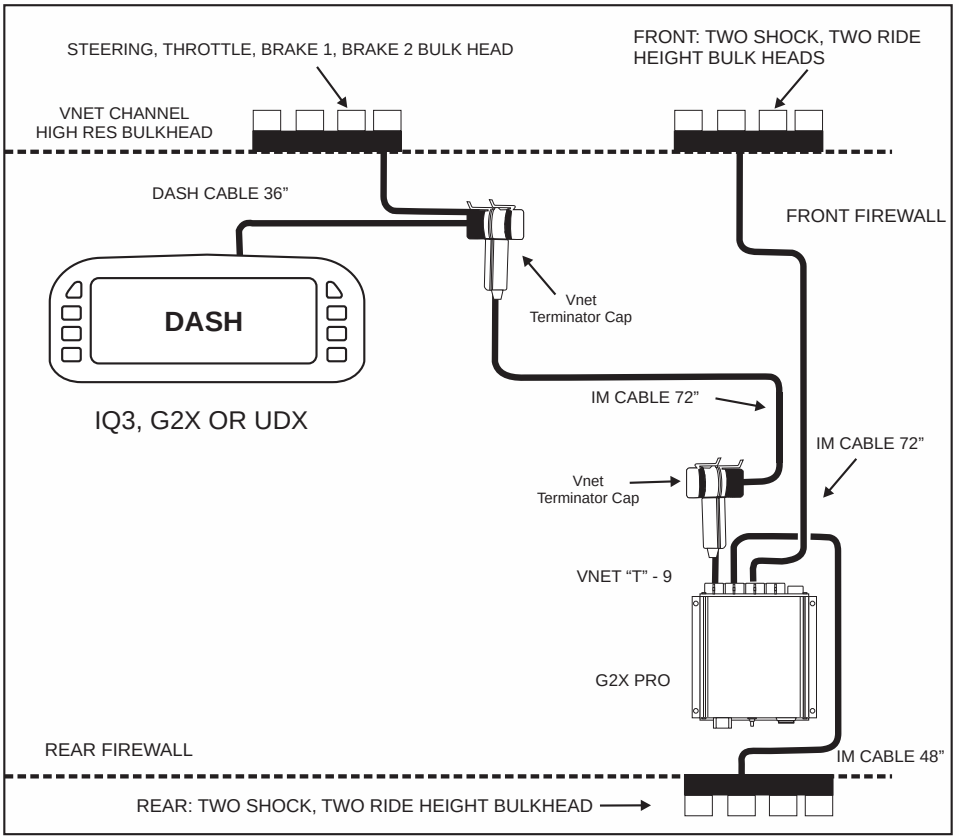
1. Steering/Throttle/Brake/Brake PN: 600-KT-STBB
2. Four Shock Package PN: 600-KT-4SHOCK
3. Four Ride Height Package PN: 600-KT-RIDEHT

A schematic is provided on page 46 of this catalog, displaying a typical installation utilizing a G2X Pro and the above sensor packages.

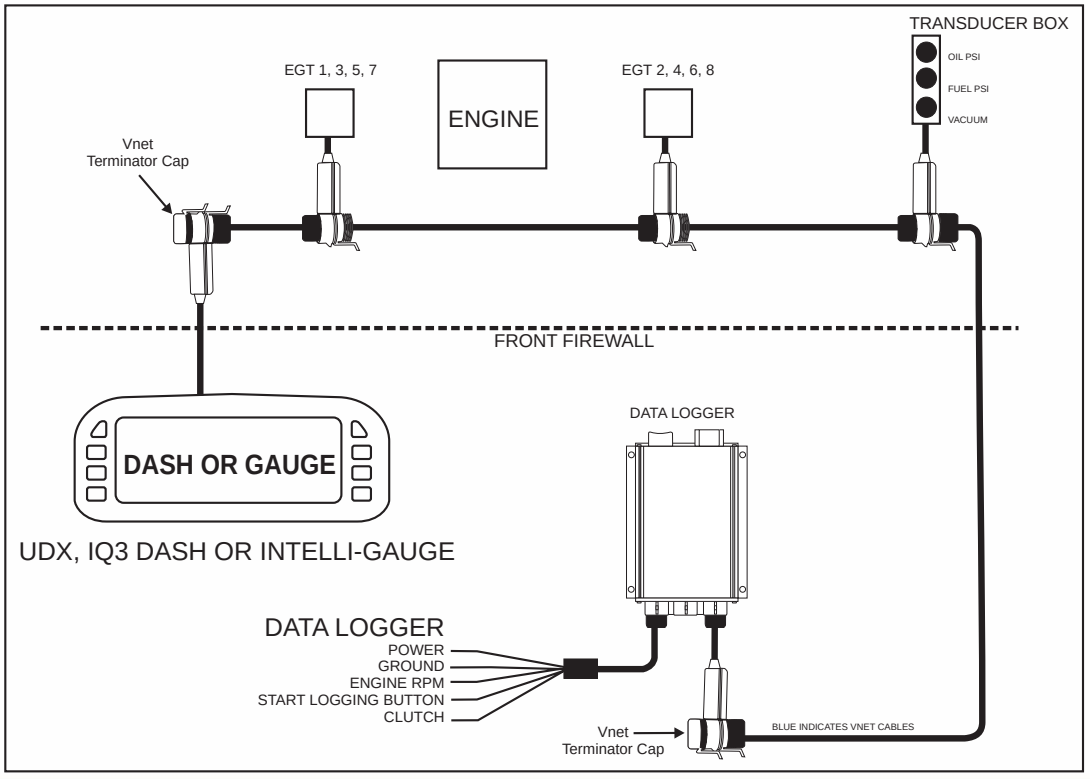
IQ3 Logger Dash

The IQ3 logger dash contains a standard V-Net port on the rear of the dash, allow up to 32 sensors to be connected to the dash, using our standard V-Net cables as found on page 27 of this catalog. Sensors can be added to the IQ3 using the information found at the top of this page.

Typical wiring diagram for Circle Track/Road Course.



Typical wiring diagram for Drag Racing.



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 dependant 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.

www.RACEPAK.com

For Orders and Technical Assistance:
949-709-5555
Fax 949-709-5556
30402 Esperanza, Rancho Santa Margarita, California 92688

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