

## 280-KT-BELTTEMP - RZR Belt Temperature Kit

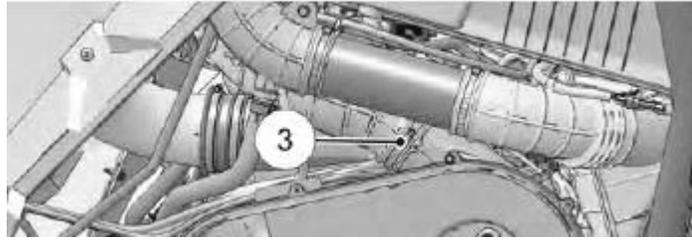
### CONTENTS:

810-TR-BELT	1/8" NPT 0-300°F Temp Sensor
680-CA-D2144	Cable for USM, Deutsch, 144"

This kit is designed to work with the Racepak IQ3 RZR Dash kit. This kit also requires a Universal Sensor Module (USM) #280-KT-USMRZR. The below instructions assumes the IQ3 RZR dash has been previously properly installed.

### Hardware Installation:

1. Remove the clutch outlet (exhaust) duct (labeled 3 in below photo) from the top of the clutch housing. This is the rubber tube with the metal outlet duct screen that routes towards the exhaust header.



2. Once removed use a 1/4" drill bit to drill a hole to install the temperature sending unit. Although anywhere in this duct is fine, it is preferred to do this on the inside of the duct, closest to the motor, to protect the sender.
3. Since the duct is made of a pliable rubber, simply press the sender into the hole. Insure the sensor is pressed in all the way and cannot simply rattle out.
4. Re-install the clutch outlet (exhaust) duct on the top of the clutch housing.
5. Start engine and check for leaks. If leaks are found, shut engine off, fix leaks, then restart engine to insure there are no leaks.



### Notes:

- For the most part, the cooler your belt runs, the longer it will last. Overheating is the cause of 99% of all belt failures.
- Optimal operating temperature range is 120°F to 160°F. The idea is to keep your belt as cool as possible. The hotter it gets the weaker it becomes.
- This sensor kit is a tool to help you optimize belt life. Utilize the reading from this kit to understand what driving style creates the heat and alter your driving style if possible. If your belt is excessively hot, alter driving style or slow to a normal constant speed in order to cool it down.

## USM Installation

The rugged nature of the USM housing enables mounting in a variety of locations. As with any electronic device, care should be taken to avoid certain mounting locations.

The USM unit should be mounted in a manner that avoids:

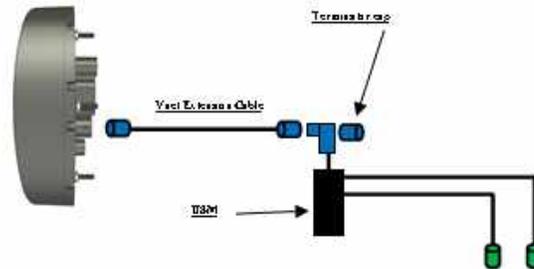
1. Excessive heat and vibration (exhaust or engine)
2. Excessive electrical interference (ignition systems)
3. Abuse from track or vehicle debris (rubber, rocks, etc)
4. Avoid direct spray from water (such as when washing vehicle)

### Mounting Tip

The mounting location determines the exiting route for each sensor cable. Try to pre-plan the route that each sensor cable will take as this allows for proper orientation of the module, to best accommodate the connection of the sensor cables to the module. The USM is equipped with a 9" Vnet T cable. Insure the mounting location provides easy access to the IQ3 RZR Dash.

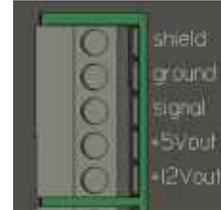
The USM housing includes four mounting pads, with each pad containing a #8 (.164" dia. / .416 cm) mounting hole. Insure the housing is securely mounted, utilizing all four mounting pads.

Optional, a V-Net extension cable is available should you wish to mount the USM further from the dash (shown below).



## Wiring installation:

1. Install sensor end of cable onto sensor
2. Route cable to USM unit. Insure routing of cable is not near any exhaust or moving parts such as suspension or drivetrain items.
3. Remove the 6 screws from the lid of the USM.
4. Remove lid and set aside.
5. Mounted inside are four terminal strips, one for each channel corresponding to ports that are labeled 1-4 on the housing lid (shown right is a picture of one terminal strip for one channel)
6. Select a port for the sensor you are installing. Note what port is used as it will be needed for programming later.
7. To ease connection of wires as well as to prevent dropping of any wire strands into USM unit, the terminal blocks are removable. Carefully remove the terminal block on the port you have chosen. The terminal block slides off the round metal posts. Pliers or a flat headed screw driver can be used to gently pry the terminal block straight up.

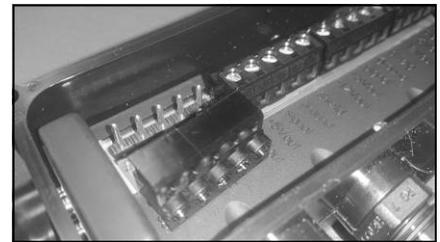
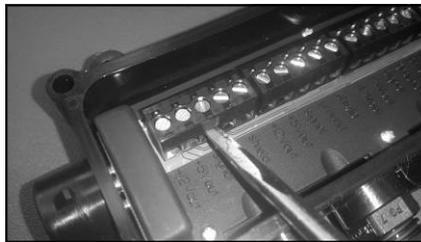


**Shield**  
Sensor cable shield wire (if cable is equipped)

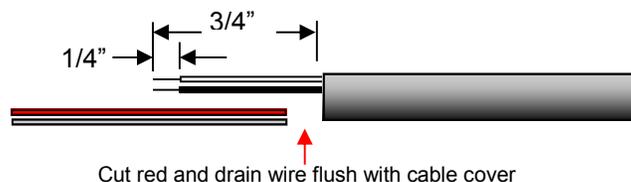
**Ground**  
Sensor ground / earth

**Signal**  
Signal from sensor to IQ3 RZR Dash

**+5V or +12V**  
Power for sensor

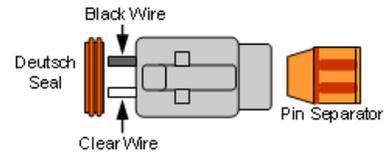


8. Remove strain relief cable nut from USM unit for that port and slide it over the cable.
9. Insert cable into port on USM unit and pull through about 4-5 inches to ease working with the wires.
10. Carefully strip approximately .750" from the main cable jacket. Be sure not to damage internal wires.
11. **Cut the Red and Shield** wires flush with jacket as these are not needed for this application
12. Carefully strip approximately .250" of insulation from each sensor wire. (Black and Clear)



13. Resistive Belt temperature sensor will use the following wires:

**Ground = Black Wire**  
**Signal = Clear Wire**



14. Loosen the appropriate screws on terminal strip

15. Connect the correct wires to the terminal strip and tighten each terminal screw.

16. Gently pull cable back out of USM until terminal block can be pressed back onto the 5 round metal posts in the USM unit.

17. Slide strain relief nut to strain relief on USM unit and secure tightly.

18. Reinstall the housing lid and 6 screws

## DatalinkII Software Installation (if not previously installed)

The DatalinkII software is utilized to program the IQ3 RZR Dash unit. If a previous version of DatalinkII exists on the programming PC, update to the latest DatalinkII software (version 4.5.2 or higher), included with the IQ3 RZR Dash package.



**During the program installation (step 7), select the unit to be utilized. Be sure to select “IQ3 RZR”, as this will install the necessary files needed for the IQ3 RZR Dash unit.**

1. Close all/any programs before beginning the DatalinkII installation
2. Insert Racepak USB Memory Flash Drive into a USB port of the Laptop/PC
3. After a few seconds, the installation program should automatically start
4. **“Welcome to the Install Wizard for DatalinkII”. Click Next**
5. **“License Agreement”**. After reading, **Click Yes**
6. **“Choose Destination Location”** Default C:\Program Files\DatalinkII, **Click Next**
7. **“Data Logger Installation and Support”**, Select the check box for **IQ3 RZR Config**, **Click Next**
8. **“Select Program Folder”**, Default is DatalinkII, **Click Next**
9. Install will start as noted by progress bar
10. Installing for the first time, a **“Welcome to the Install Wizard for PL-2303 USB-to-Serial”** window will open, **Click Next**
11. **“License Agreement”**, after reading, **Click YES**
12. Installation PL-2303 Wizard Complete, **Click Finish**
13. Installing for the first time, a **“Welcome to the Install Wizard for ST Driver”** window will open, **Click Next**
14. **“License Agreement”**, after reading, **Click YES**
15. Installation Wizard Complete, **Click Finish**
16. DatalinkII will now open
17. Software Installation Complete

Upon completion of installation, a new shortcut icon (shown right) will be added to the PC desktop with a title “DatalinkII Program”. Double click on the icon to start the DatalinkII software.



## Configuration Files

To modify the settings of the IQ3 RZR Dash unit, most basic settings can be modified through the use of the programming buttons; however, the use of a PC/laptop will be required to install the newly added sensors.

A configuration file on the PC/laptop will be opened and synced (READ from) the unit. Once the settings are read from the IQ3 RZR Dash, changes are made, and SENT/WRITE back to the IQ3 RZR Dash.

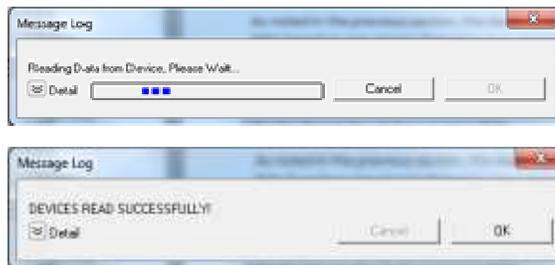
When utilizing the IQ3 RZR Dash it will use the factory car configuration file which was copied onto the PC during the DatalinkII software installation, listed as **IQ3\_RZR\_Config**. This configuration file contains the setup information for the IQ3 RZR Dash unit, and each of the internal channels connected to the IQ3 RZR Dash unit.

1. Connect the programming cable to the IQ3 RZR Dash unit using the 3.5mm pin type programming cable supplied with the IQ3 RZR Dash unit system. The programming port is located on the rear of the dash.
2. Plug either the 9pin serial connection OR the USB-to-serial adapter into the PC
3. Ensure the main power is turned on for the IQ3 RZR Dash. The dash backlight will be on and lit when power is on.
4. Start the DatalinkII program by double clicking on the DatalinkII Program icon located on the Windows desktop of PC (shown right).
5. Open the car configuration file. To open the car configuration file, select **File** located in the main menu bar across the top of the screen and select **Open Car Configuration**. (Shown right).
6. The dialog box (shown right) will be displayed.
7. The list on the left-hand side of the **Select Configuration** dialog box will display all of the file folders in the RacePakData subdirectory (C:\RacePakData) that contain valid configuration files with a .rcg file extension. Select the IQ3 listing by selecting with the cursor.
8. The list on the right will now contain the list of configuration files contained in this folder. The factory configuration file for the IQ3 RZR Dash unit will be located here. Select the OK button.
9. The configuration file for the IQ3 RZR dash will now be opened. (Shown right).



## Adding USM Sensor Channels to configuration file

1. Once the RZR configuration file is opened, Select Edit
2. Select Read Vnet Config from the dropdown list
3. Click Edit on the menu bar and select Read V-NET Config.
4. A dialog box (shown right) will appear asking if you wish to make this configuration the default configuration file. If this is the only Racepak system you will be programming, select the top option to default it. If using this PC to program more than one Racepak system, select the second box. If defaulted, the selected configuration file will automatically be selected for all future programming allowing the READ button located in the toolbar to be used as a one-step read once the DatalinkII software is opened.
5. A message log will appear and should begin reading your system configuration. When finished the message log should display \*\*\*\*\*DEVICES READ SUCCESSFULLY\*\*\*\*\*.



6. Select OK
7. Select Save in the DatalinkII Main Menu

This action will automatically add the four sensors channels from the USM, to the Configuration file, as shown. The AMod Chan numbers correspond with the numbers molded in the USM lid, above each cable input.

AMod Chan #1	N/S
AMod Chan #2	N/S
AMod Chan #3	N/S
AMod Chan #4	N/S

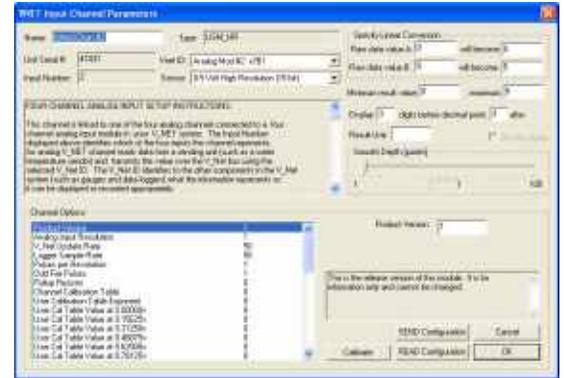


Note that the Read function adds the 1-4 Channel Buttons regardless if any sensors are connected to the USM.

## Programming Individual Sensor Channels

Following the Read function completed in the above section, Channel Buttons are added to the Configuration file. Each button represents an individual sensor input.

Access to each sensor channel programming is gained by placing the mouse cursor over the desired Channel Button and right clicking, which opens a Vnet Input Channel as shown.



While this window appears to contain a large amount of information, there are two areas used for sensor programming.

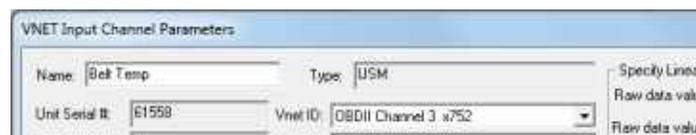
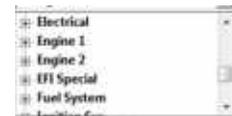
- A. **Vnet ID:** This input box assigns the sensor Channel Name and ID used for data transmission. Since we are transmitting all sensor data over the same two wires, it is necessary to assign a unique ID to each sensor. The sensor channel names are grouped according to their type and location on the vehicle.
- B. **Sensor:** This input box defines the type of sensor, which in turn automatically programs the calibration, graph scaling values and number of digits to display.

## Programming Sensor Channel Name / Vnet ID

At this time, locate the sensor Channel Button which corresponds with the sensor to be programmed. For the following example, we are going to install a 0-300°F temperature sensor to be installed on Channel 1. We will program this sensor as an Belt Temperature sensor.

**Oil Pressure is factory programed on the fourth page if the CAN ID Oil Pressure x204 is selected**  
**Belt Temperature is programed on the fourth page if the CAN ID OBDII Channel 3 x752 is selected**  
**Oil Temperature is factory programed on the fourth page if the CAN ID Oil Temperature x203 is selected**  
**Boost Pressure is programed on the fourth page if the if the CAN ID Boost Pressure x202 is selected**

1. Right click over AMod Chan #1. This will open the Vnet Input Channel Parameter window
2. ▼ Using the pull down arrow found in the Vnet ID input box, locate OBDII, then select the + in front of it
3. This will expand OBDII to reveal a large list of channels
4. Continue to use the pull down arrow to scroll through the list until OBDII Channel 3 x752 is located
5. Select OBDII Channel 3 x752
6. Note that OBDII Channel 3 is automatically assigned as Name, you can now change it to Belt Temperature if desired



## Programming Sensor Type

The final action is to select the type of sensor.

**Oil Pressure will require the sensor listed as 0-150 PSI Pressure Sensor to be selected**

**Belt Temperature will require the sensor listed as GM Manifold Air Temperature DegF to be selected**

**Oil Temperature will require the sensor listed as Racepak Two Wire Temp DegF to be selected**

**Boost Pressure will require the sensor listed as 0-75 PSI Pressure Sensor to be selected**

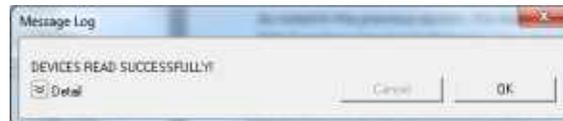
1. Using the drop/pull down arrow ▼ found in the Sensor input box, scroll down, locate and select the GM Manifold Air Temperature DegF Sensor



2. Note this action inserts the type of sensor in the Sensor input area and automatically assigns calibration (Raw Data Values A/B) and the graph scaling values (Minimum / Maximum Values) along with value before and after decimal point
3. The last action is to update the changes to the IQ3 RZR Dash by use of the Send button. This button is found in the lower right corner of the Vnet Input Channel Parameters window. Following selection of the Send button and progress window will open.



4. When the send action is complete, as indicated by the Devices Read Successfully, select the OK button.



Insure power to the IQ3 RZR Dash is on, before the Send process. If the PC will not communicate with the IQ3 RZR Dash, turn the IQ3 RZR Dash power off / on. If a USB to serial adapter is in use, disconnect the adapter from the PC and reconnect.