Rebel Dash: Product Manual

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The Rebel Dash is a compact, highly flexible, rugged CAN bus display. It is extremely bright, making it ideal for vehicle development tasks, where engineers must rapidly configure it to display information for various testing tasks.

The Rebel Dash is designed to be integrated with all the Rebel range of data loggers and the K-Box instrumentation but can also be used as a standalone CAN display, and it can even be used to view RAW can messages:

- It can be used to display variables from a Rebel Data Logger. The items that should be available in the display can be added to an output signal in the Data Logger Configuration. When this is sent to the Data Logger, the Dash is automatically configured, and items can be selected within the display via the displays buttons.
- It can be used to display variables from a K-Box, load the DBC description file into the configuration utility, select the items that should be available for display and configure the Dash via USB or a supported Kvaser device. Items can then be selected within the display via the display buttons.
- It can be used to display variables broadcast on a vehicle CAN bus. Load the DBC description file into the configuration utility, select the items that should be available for display and configure the Dash via USB or a supported Kvaser device; items can then be selected within the display via the displays buttons.
- No configuration is required To use it as a CAN Message viewer. The CAN viewer is accessed via the Main Menu.

Rebel Dash device

Twist-activated suction cup with an arm type mounting system

The Rebel Dash is configurable from DiaLog or its configuration tool. With the straightforward mounting system or the optional windscreen mounting system, you can monitor vehicle data graphically within minutes.

The Rebel Dash exemplifies a product that is easy to install and use.

It can be plugged straight into the OBD2 to 9-way Sub D cable and directly into a vehicle's diagnostics CAN Bus.

The supplied cable is also directly compatible with the Influx Technology multi-connect cable available for the Rebel CT and LT data Loggers; connect it to the AUX output on the multi-connect cable. The simple cable options with standard CiA® 102 pinout allow for rapid connection and configuration, whether used in a configuration with a Rebel CT or LT Logger, standalone in a vehicle or when used with other tools.

When connected to the LT or CT data loggers through the multi-connect cable, the display is automatically switched on or off by the data logger when in sleep mode, so no user intervention is required.

The Rebel Dash display is a high-brightness QVGA (320x240 pixels) colour display that is viewable in full sunlight on a 3.5-inch colour display with integrated input and output features.

The Display is electrically and environmentally rugged. The new Rebel Dash display is ready to provide rugged, flexible and maintenance-free instrumentation in the harshest environments.

Display features:

- A list of the parameters
- Dials and digital LEDs
- A graphing mode
- A CAN trace viewer mode

What is included in the box?

- Rebel Dash device
- Standard display cable Deutsch to 9-pin D Sub
- Mounting System – The Dash can be fixed to the vehicle via the fixed mounting bracket or mounted on the windscreen via a twist-activated suction cup with an arm utilising five ball joints allowing for multi-directional adjustments (both included).

Optional Extras Available

- OBDII (type A) to 9-way D-sub
- OBDII (type B) to 9-way D-sub
- Multi-connect cable to link to a current Influx Technology CT or LT Logger

Connecting the Rebel Dash to a CT or LT Logger

The Rebel Dash can be connected to a Rebel Logger using the supplied cable and an Influx Technology Multi Connect Cable. The picture below shows the Rebel Logger powered via an OBD II to 9-pin D Sub cable.

Technical Specifications

Electrical	
Display	a-Si TFT LCD 3.5"
Resolution	320 (H) x 240 (V) QVGA
Viewing Angle	130/110 degrees from 6 O'clock
Number Of Colours	64K
Power Requirements	10V to 32V DC
Sounder	Internal Buzzer
Communications	RS232, CAN Bus 2.0B , USB2.0
Environmental	
Operating temperature	-40 to +70 Degrees Celsius
Degree of Protection	IP 66 (front) , IP67 (rear)
Mechanical	
Case material	ABS
Dimensions	95mm (W) x 95mm (H) x 23mm forward and 23mm rear (D)

The Rebel Dash Software

This section contains the details about:

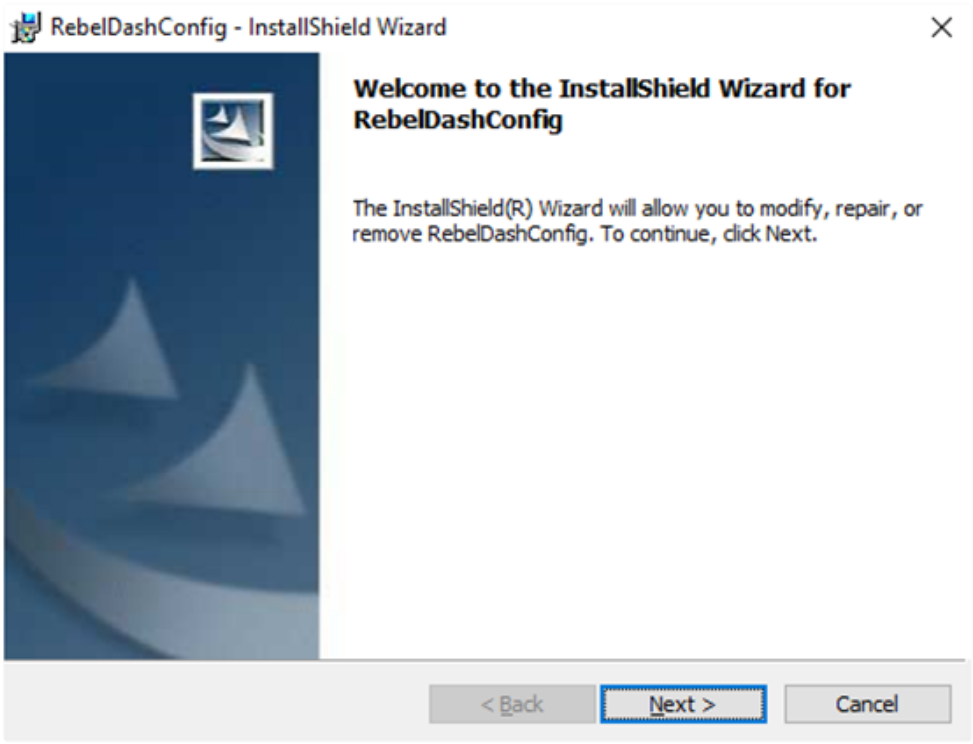
Installing the Rebel Dash Config Software

Configuring the Rebel Dash using the Rebel Dash Software

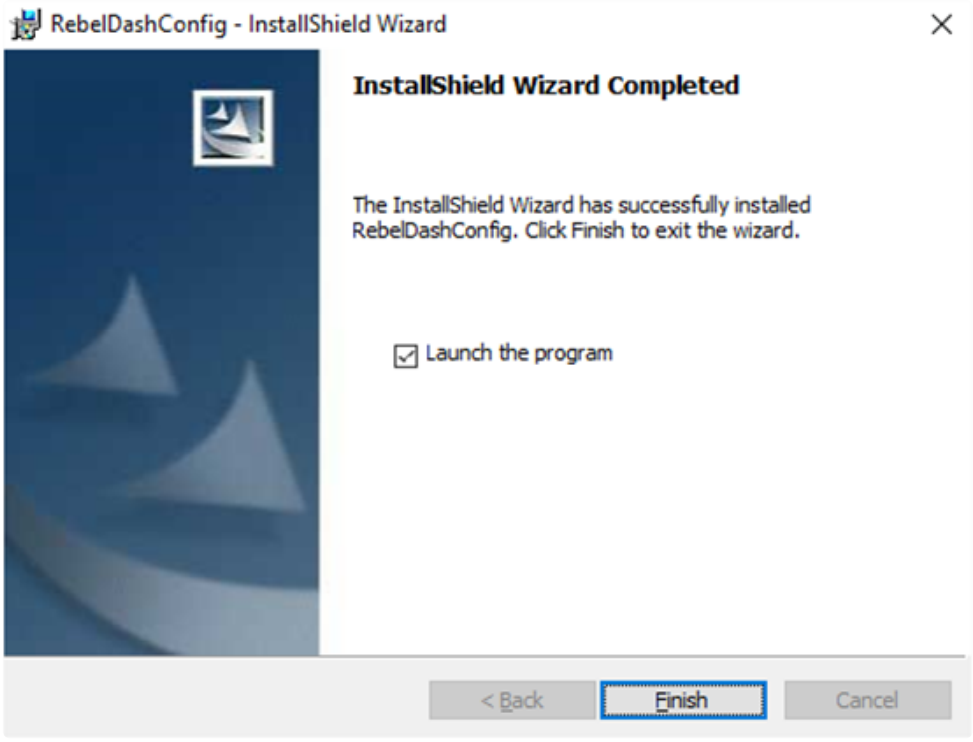
Installing the Rebel Dash Config Software

To begin the software installation, double-click the Rebel Dash Config setup icon to proceed.

A pop-up will appear for the verification of installing the software. Click 'Run' to confirm the installation of the software.



Wait till the installation is finished.



- Enable the 'Launch the program' checkbox by clicking on it.
- Click 'Finish' to launch the software.

How to install the configuration software for rebel dash.

Configuring the Rebel Dash using the Rebel Dash Software

The Rebel Dash software makes it easy for the user to configure the Rebel Dash device. Follow the simple steps below, and the device will be ready to collect the data. This is used when configuring the Dash to display data from a vehicle's CAN Bus or the K-Box instrumentation (or both). It could also be used to display data from any device that broadcasts simple CAN Messages on a CAN bus, e.g. sensors.

Creating a Configuration Ready to send to the Rebel Dash

Installing the Kvaser Drivers

Sending the Configuration via the CAN bus through a Kvaser Device

Sending the Configuration via USB Stick

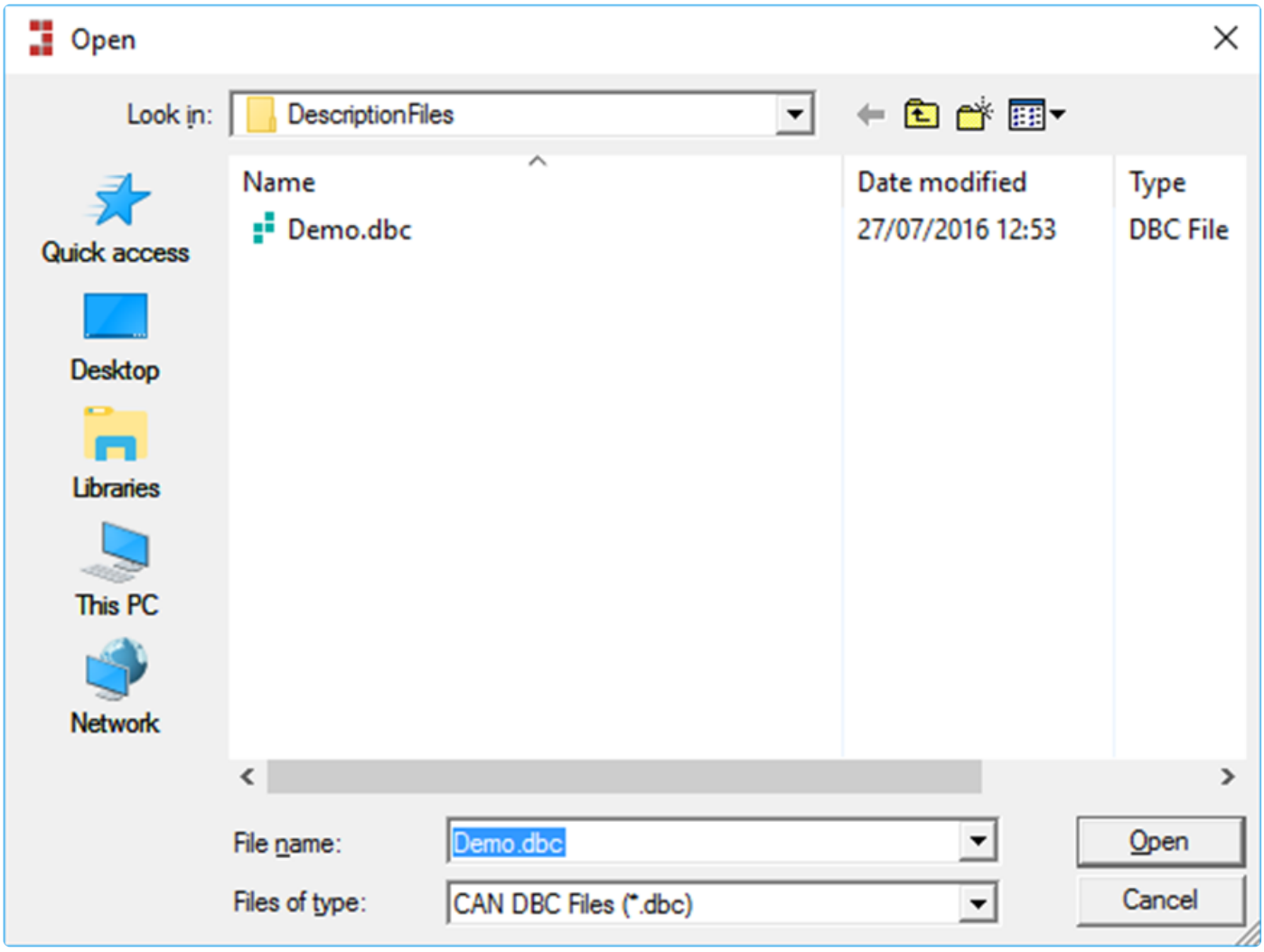
How to configure rebel dash using rebel dash software.

Creating a Configuration Ready to send to the Rebel Dash

A DBC file (containing the description of the messages broadcast on the CAN bus) can be loaded to configure the Rebel Dash.

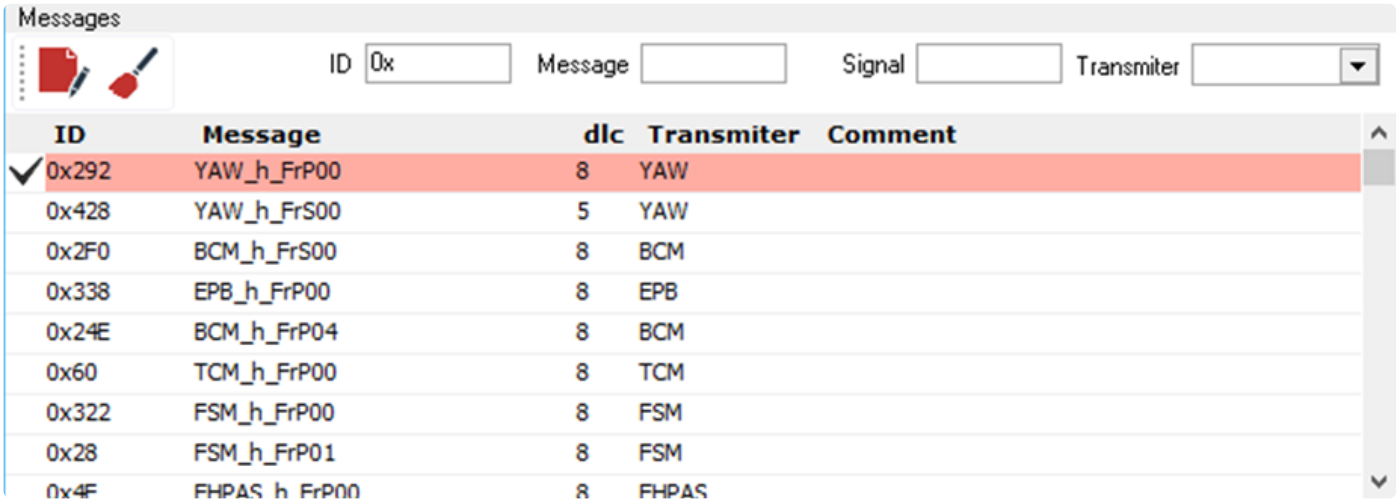
Click on the Open icon on the toolbar.

Locate the DBC file using the window browser.



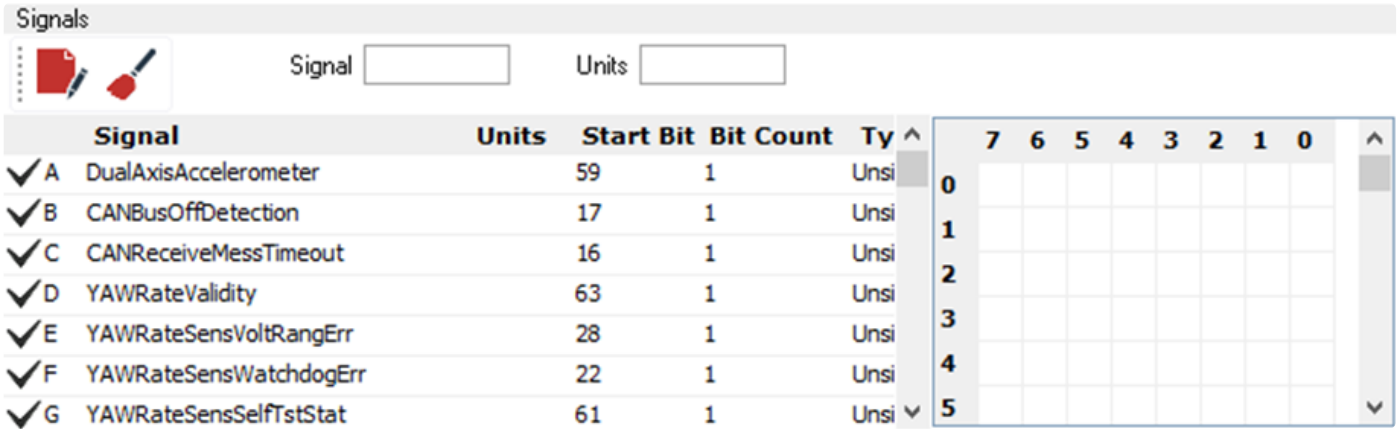
Select the Open option to import it.

A list of messages from the DBC file will then appear on the "Messages" panel.

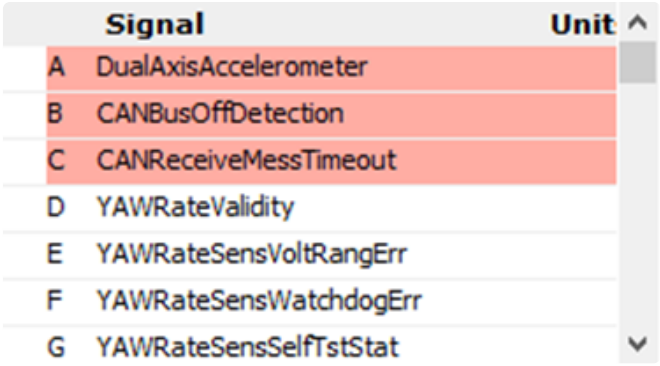


The user can select the signal or identifier to be imported into the configuration setup. In this case, follow steps 5-8; alternatively, all items may be added by pressing the button.

To choose the signal(s) to be logged onto the Rebel Dash, click on an identifier to select it, and a list of available signal(s) will appear under the 'Signal' panel.



The user can choose the available signal(s) by clicking on the signal's name.



The user can then click on the ' ' button to add the signal to the configuration or the ' ' button to undo the process.

Repeat Steps 5 to 8 until all the signals that are desired in the configuration have been added.

Configuration [Signals: 5]

ID 0x Message Signal Units

ID	Message	Signal	Units	Minimum	Maximum
0x292	YAW_h_FrP00	DualAxisAccelerometer		0	0
0x292	YAW_h_FrP00	CANBusOffDetection		0	0
0x292	YAW_h_FrP00	CANReceiveMessTimeout		0	0
0x428	YAW_h_FrS00	SensorOscFreqDev		-64	63.5
0x60	TCM_h_FrP00	GearBoxInputSpeed		0	8191

Installing the Kvaser Drivers

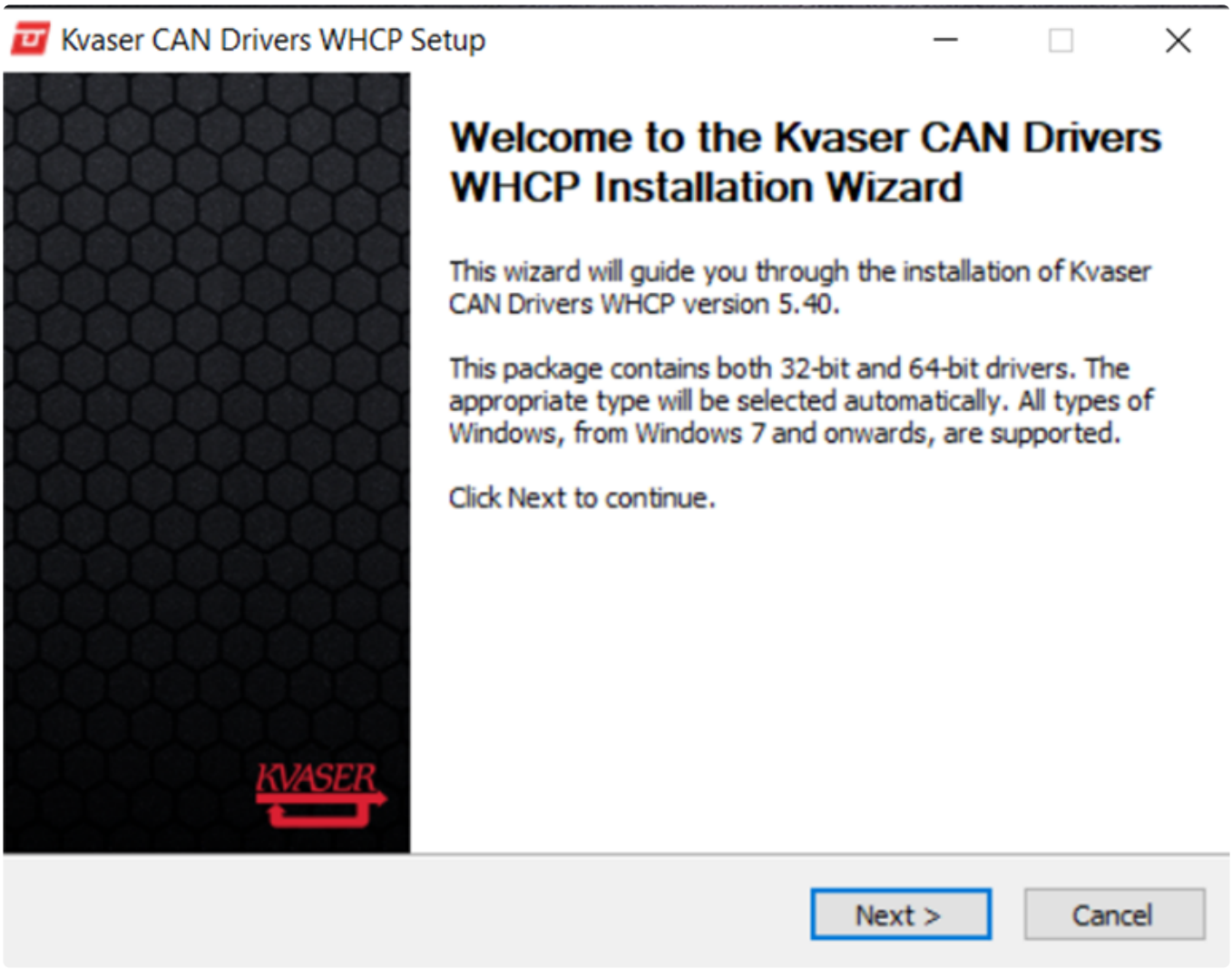
(Only required to configure the Rebel Dash through a Kvaser Device)

Download the Kavaser Drivers for Windows from the link below:

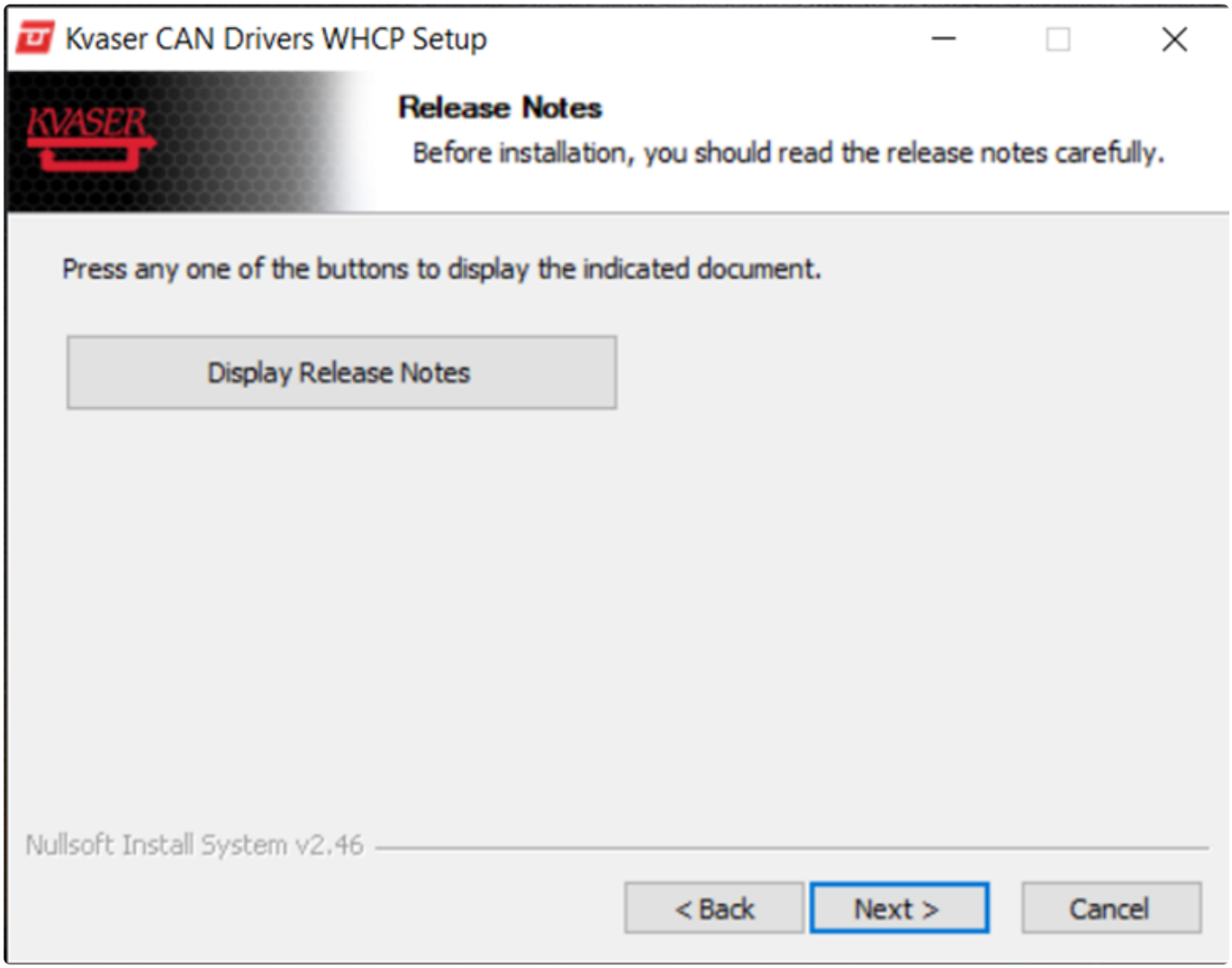
https://www.kvaser.com/downloads/

Run kvaser_drivers_setup.exe.

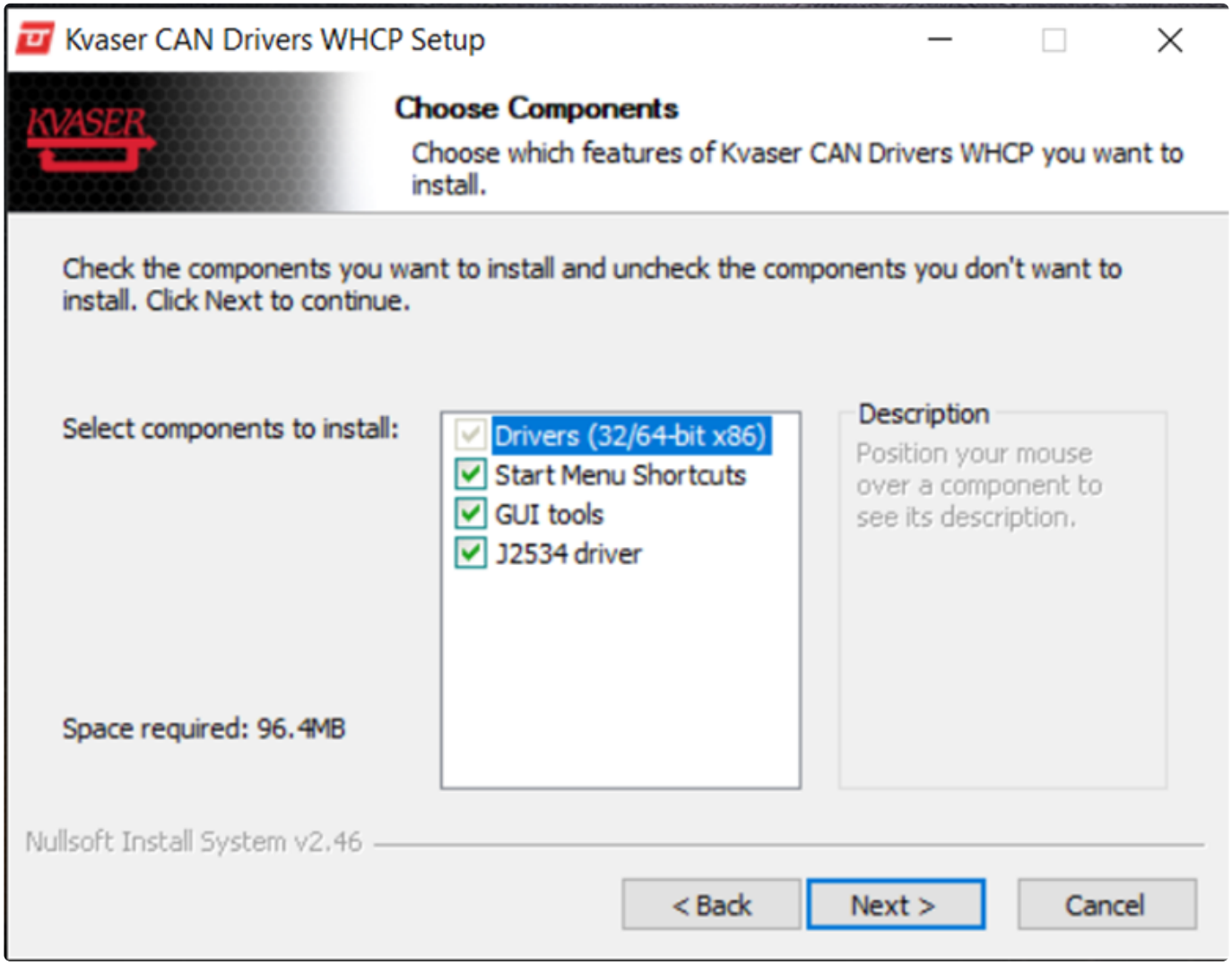
Click "Next" to start the installation.



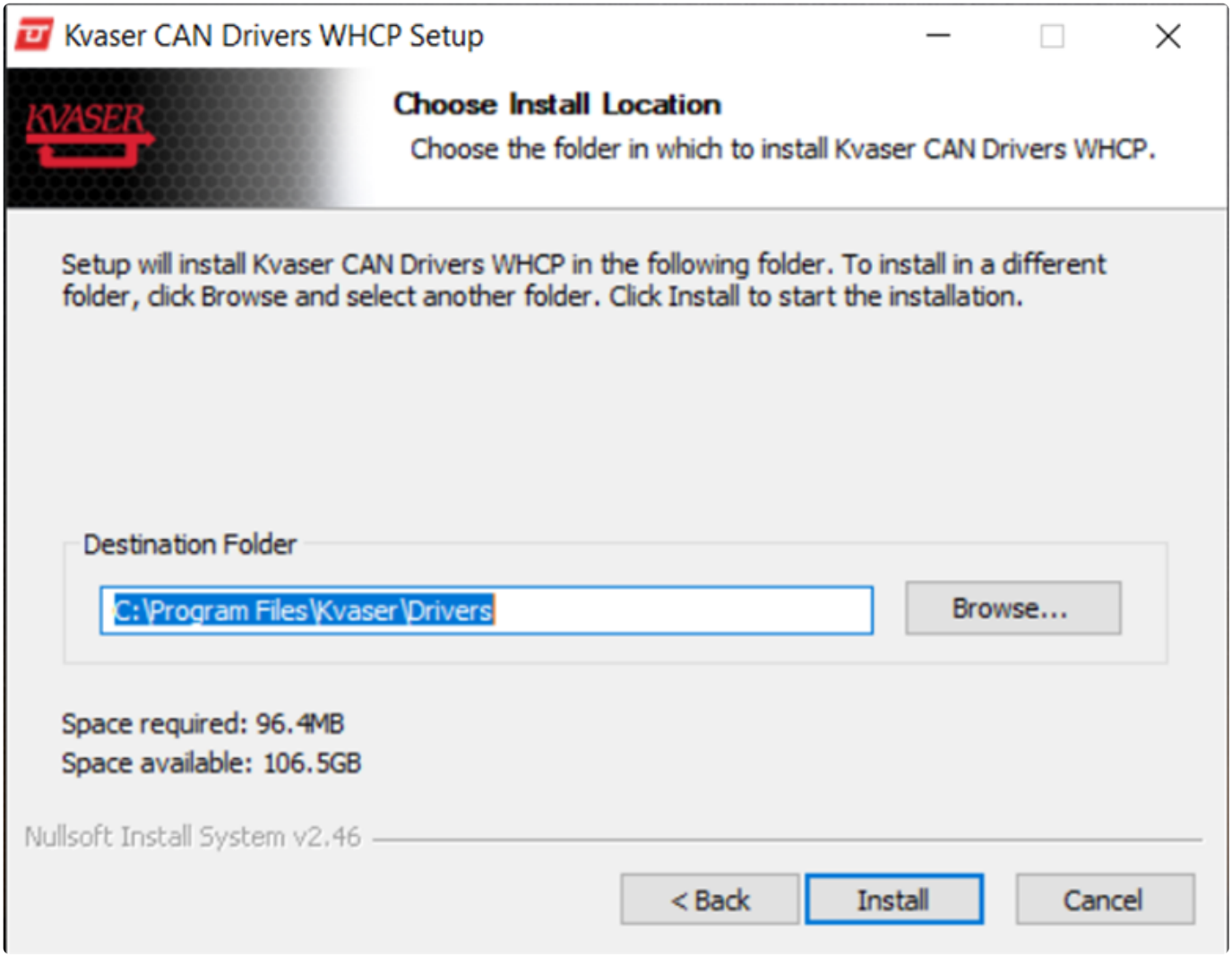
Click "Next" after viewing the 'Display Release Notes' (optional).



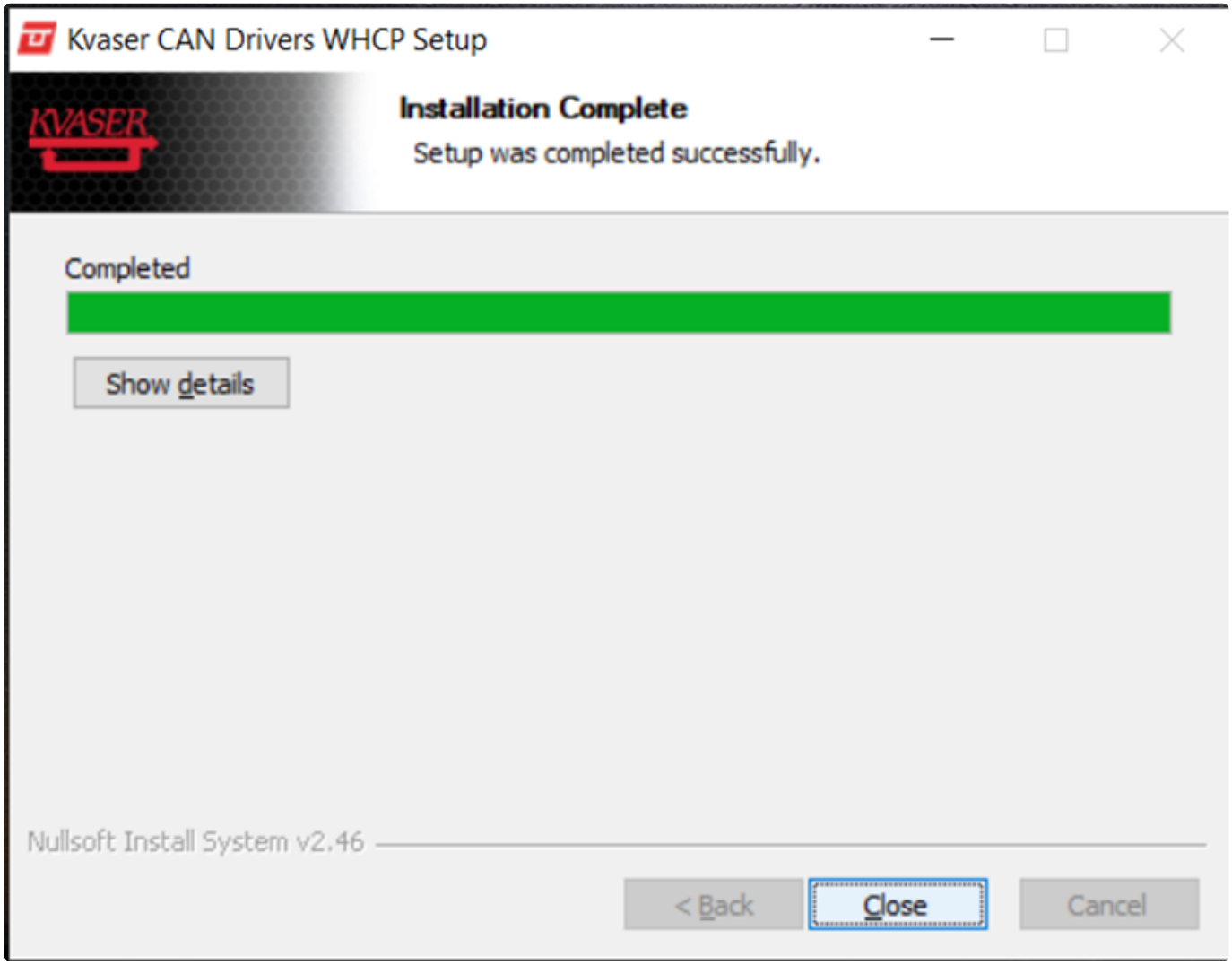
Select the item(s) you wish to install. Drivers will be installed automatically.



Choose or confirm the location where you wish to install the drivers.



Click "Close" once the process is complete and the Drivers are installed.


Kvaser CAN Drivers WHCP Setup
KVASER
Installation Complete
Setup was completed successfully.
Completed
Show details
Nullsoft Install System v2.46
< Back
Close
Cancel

Sending the Configuration via the CAN bus through a Kvaser Device

Once the configuration is ready, it can be uploaded to the Rebel Dash via the CAN bus.

If the PC and the Rebel Dash are connected to the same CAN Bus via a Kvaser device, the user can send the configuration directly onto the Rebel Dash from the PC. The Kvaser drivers must be installed if you wish to use this method to configure the Rebel Dash. Installing the Kvaser drivers is explained in section 2.2.2. Alternatively, the Rebel dash can be configured via USB, as explained in section 2.2.4.

Connect a Kvaser interface device from the PC to the Rebel Dash.

Ensure the CAN Bus is correctly terminated.

Click on the 'Devices' icon. Click on the box next to the name of the interface device to expand to select the Channel.

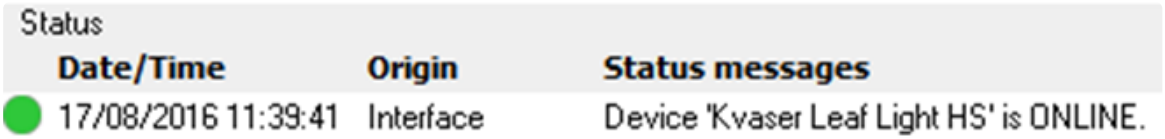
Click the + button to expand your Kvaser device, and click on the Channel you wish to use.

Select the baud rate by pressing the down arrow button on the baud rate option.

The baud rate needs to be adjusted to be the same as the baud rate used by the Rebel Dash device for the interface to work.

Click 'OK' to close the pop-up window.

Check the Status message at the bottom of the screen to ensure that the Kvaser device can communicate with the Rebel Dash.



Troubleshooting

Status

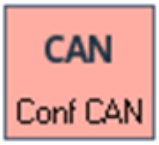
Date/Time	Origin	Status messages
17/08/2016 14:20:45	Interface	Device 'Kvaser Leaf Light HS' is OFFLINE.

If the status message at the bottom of the screen shows that the Kvaser device is 'OFFLINE', the user should investigate the cause of this problem; possibilities include:

- There is no power to the Rebel Dash
- The CAN bus is terminated incorrectly
- The baud rate is set incorrectly
- The Kvaser drivers are not installed correctly

After making changes, you must repeat Steps 3-8 to check if the issue has been resolved.

Click the 'Conf CAN' icon to send the Configuration to the Rebel Dash.



The application will show the data is being transferred to the Rebel Dash and will notify once the Rebel Dash has been configured.

Status

Date/Time	Origin	Status messages	Ident	D0	D1	D2	D3	D4	D5	D6	D7
17/08/2016 15:17:34	Config by CAN	Send Data	0x07E7	72	00	00	00	29	3E	2D	00
17/08/2016 15:17:34	Config by CAN	End Package	0x07E7	73	01	26	79	17	00	00	00
17/08/2016 15:17:34	Config by CAN		0x07E6	72	00	01	00	00	00	00	00
17/08/2016 15:17:34	Config by CAN	End Configuration	0x07E7	74	01	00	00	00	00	00	00
17/08/2016 15:17:34	Config by CAN		0x07E6	72	00	01	00	00	00	00	00
17/08/2016 15:17:34	Config by CAN	Configuration transfer is done.									

> Notes:
>
> - A max of 500 signals can be set to the Rebel dash, if you select more signals only the first 500 will be loaded.

How to configure rebel dash via CAN bus through a Kvaser device.

Sending the Configuration via USB stick

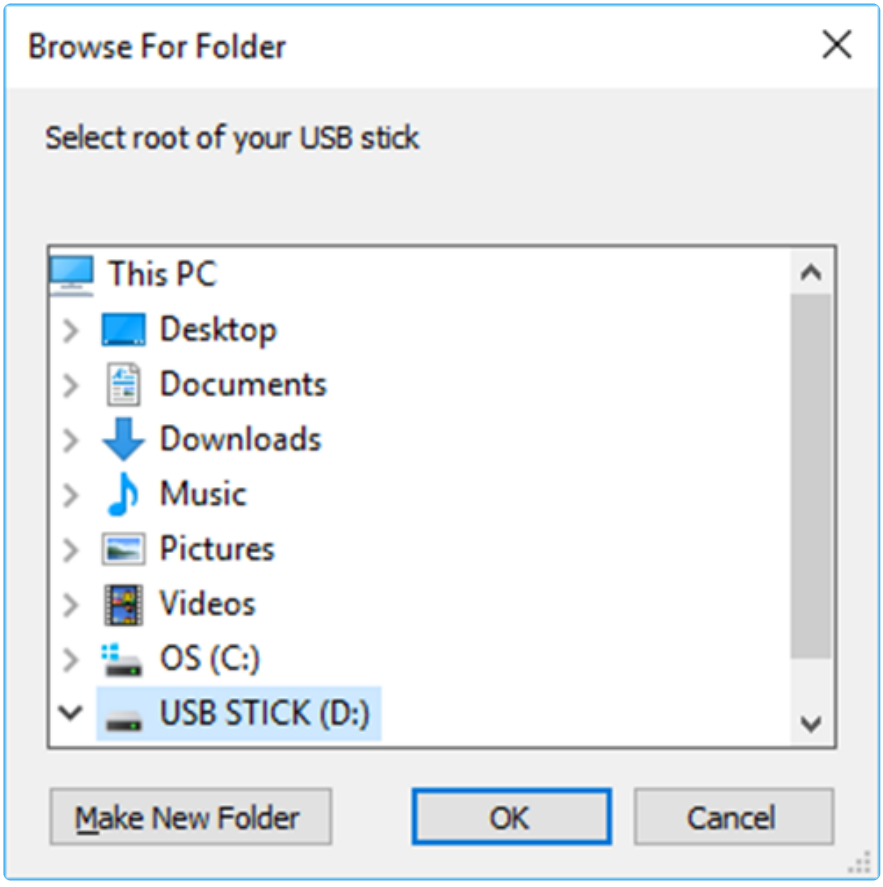
Prepare the configuration for the Rebel Dash.

Insert a FAT-32 formatted USB stick into the PC or Laptop.

> Notes:
>
> - The USB stick must be compatible with the Rebel Dash and physically small enough to fit into the USB socket on the Rebel Dash. Influx Technology can provide suitable USB sticks. If you need one, contact Influx Technology.

Click on the Conf USB button.

Select the root of your USB stick.



Safely eject the USB stick from the PC.

Insert the USB stick into the USB port of the Rebel Dash.

Wait while the following message is displayed, making sure that the power is not removed and also that the USB stick is not removed.

When you see the following message, please remove the USB stick.

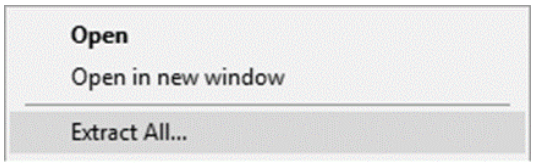
Wait for the Rebel Dash to reboot for a few seconds, and it will be ready to be used.

How to send the configuration to rebel dash via USB stick.

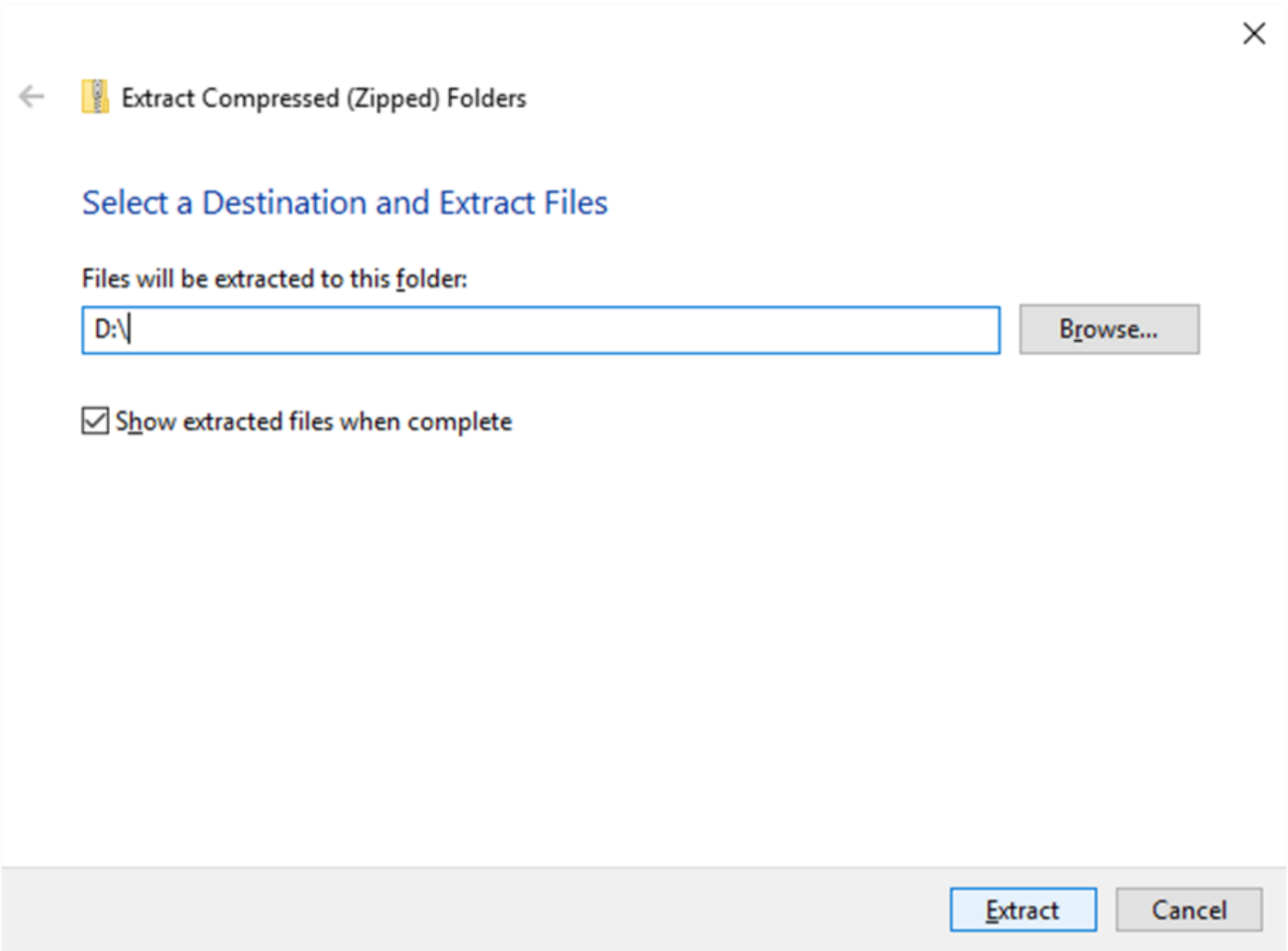
Updating the Firmware in the Rebel Dash

To update the Rebel Dash, insert an empty USB stick that is compatible with the Rebel Dash into your PC.

Right Click the file C:\Program Files (x86)\Influx Technology\Rebel Dash Config\firmware\RebelDash1.04.zip and select Extract All.

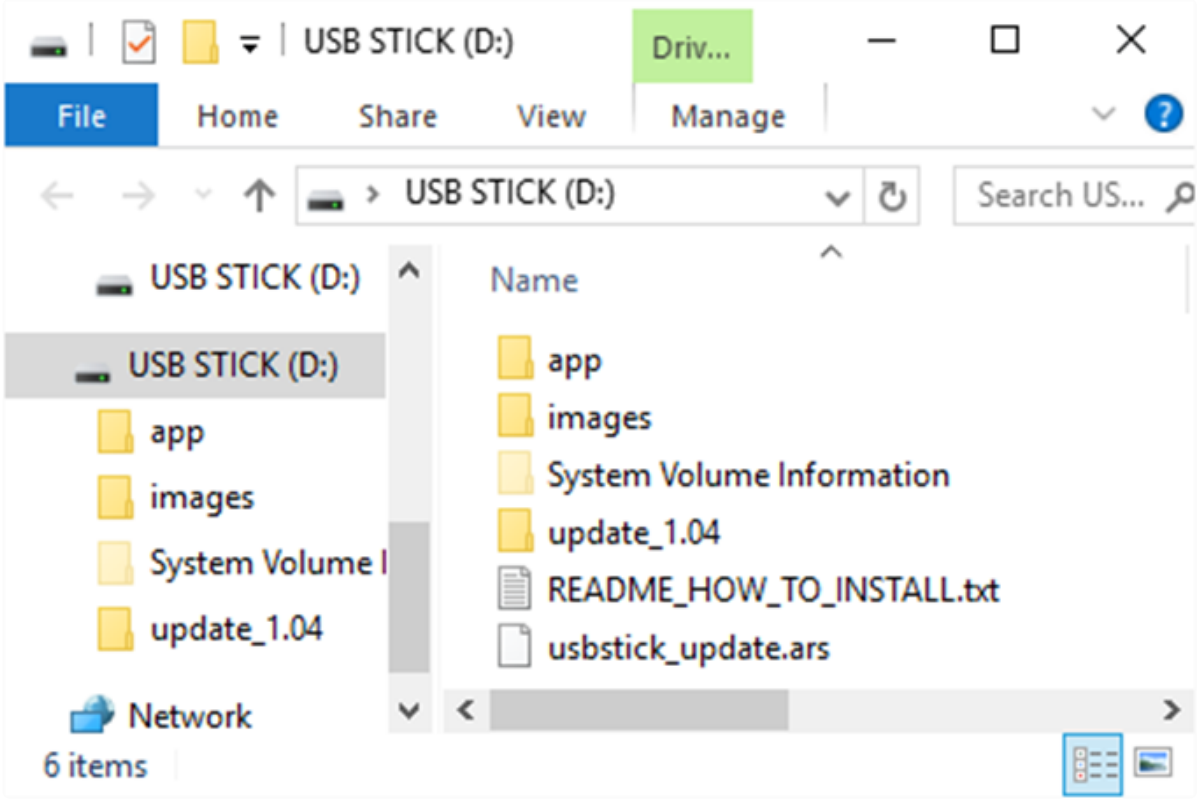


Then select the Root directory of your USB stick (in this case, D:\). Click Extract.



Open the USB sticks' root directory.

The USB stick will then contain the following files:



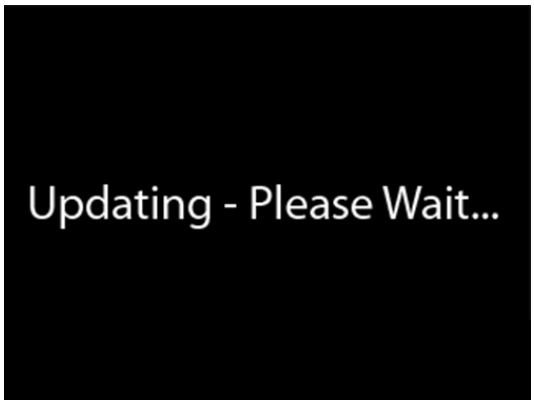
You will note in the picture above usbstick_update.ars is in the root directory of the memory stick (in this case, D:\)

There are also three other folders in the following root directory of the memory stick (in this case, D:\app, D:\images and D:\update_1.04). If all the files are not in the correct location because they have been extracted via a different method, e.g. WinZip, then you will need to move them to the correct location.

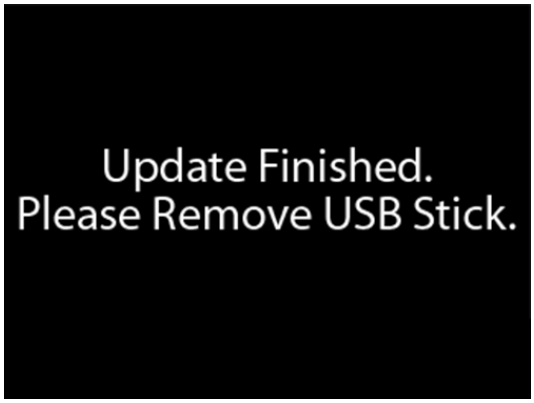
Safely Remove the USB Stick From your PC.

Insert the Stick into the Rebel Dash;

On its screen, you will see:



You will then see



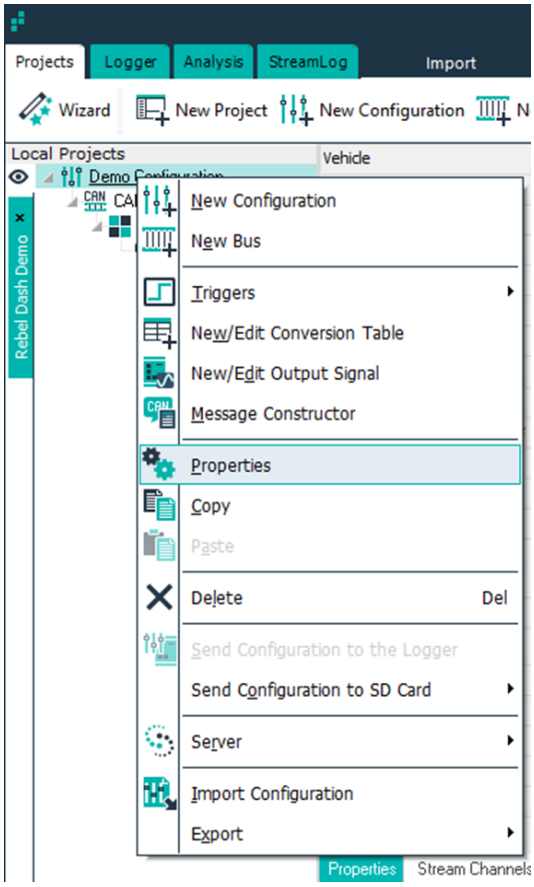
The firmware update is complete.

Configuring the Rebel Dash using DiaLog

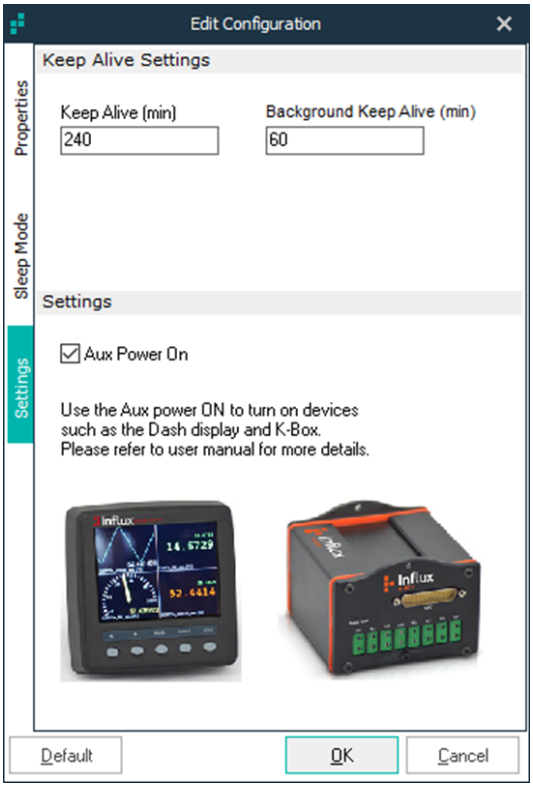
If you are using the Dash to display data from a Rebel CT or LT Logger, you will use DiaLog to configure the Dash. You should be familiar with using DiaLog to configure the Logger and have the Project that you wish to display items from created already before performing the following steps:

Enable within the Logger Configuration the AUX Power setting

Configure the Logger to supply power to the display by right-clicking on the Project you want to configure and selecting 'Properties'.

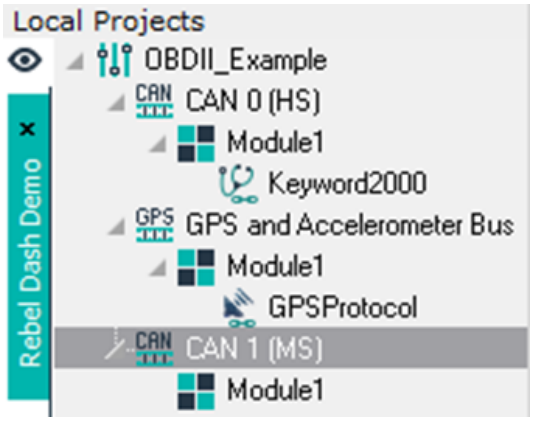


Once the Edit Configuration window is displayed, Click on the 'Settings' Tab and put a Check mark in Aux Power On.

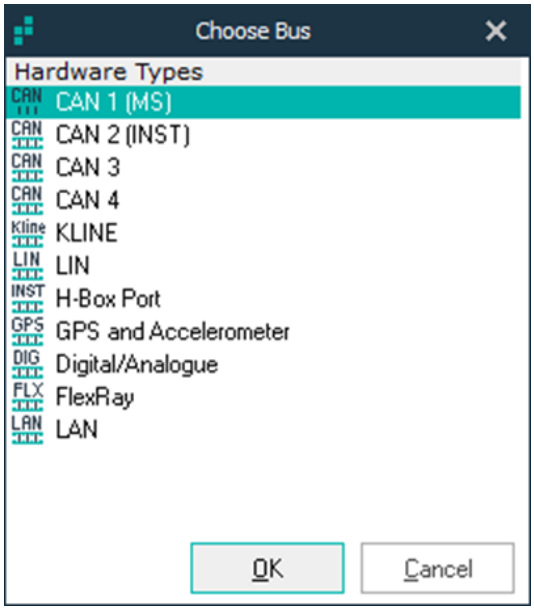


Then Click OK

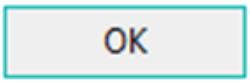
The configuration must contain CAN 1 (MS) so that the Dash connected on CAN 1 can be configured automatically; check if it is there.



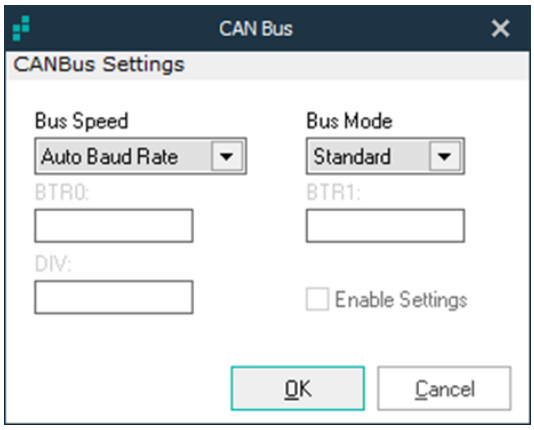
If CAN 1 (MS) is not already there, click + New Bus to add it.



Select CAN 1 (MS) and press OK.



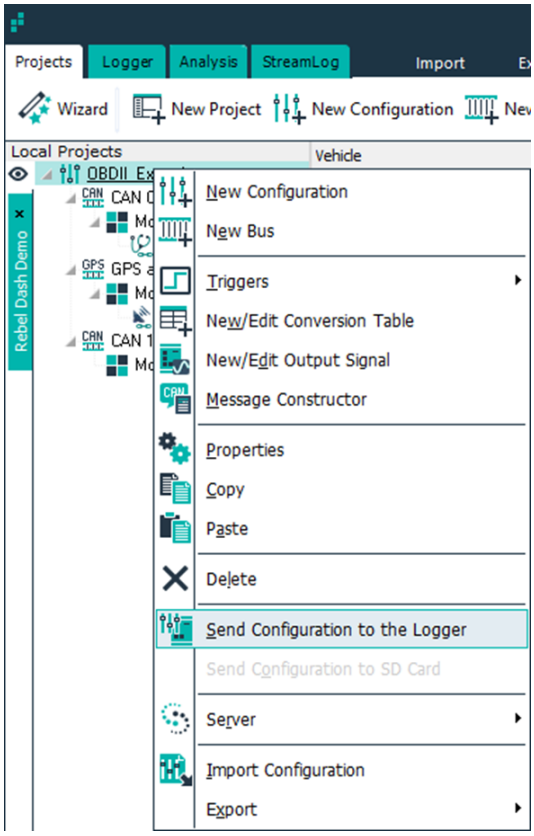
Select Auto Baud Rate and press OK.



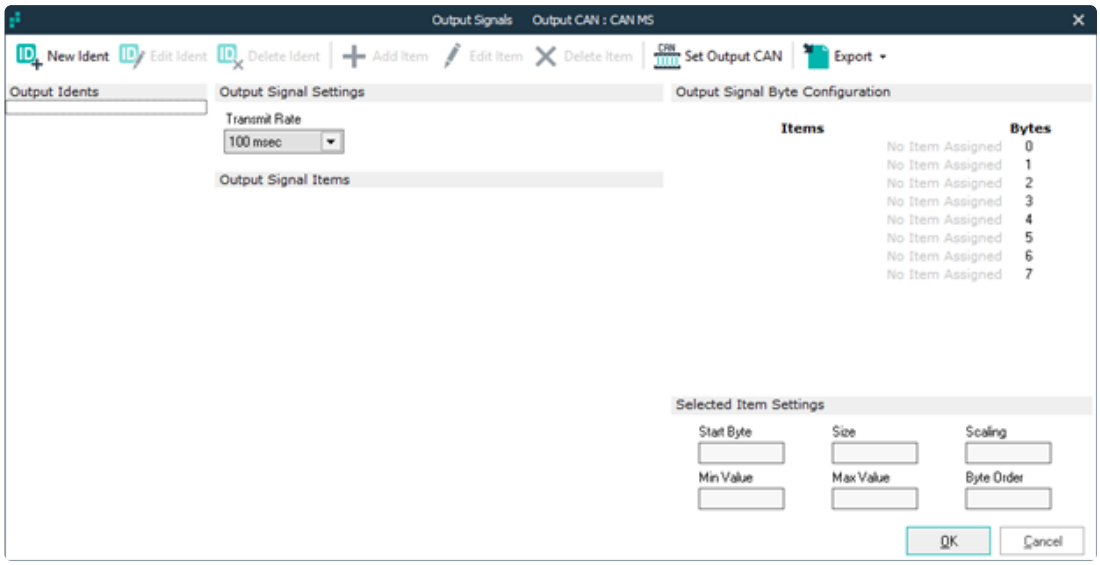
To send the configuration to the Logger, right-click on the Project and choose "Send Configuration to the Logger".

Once the Dash is on, we can proceed to configure the Logger to output the desired information on the CAN bus and create a Rebel Dash Configuration to allow it to be selected for display.

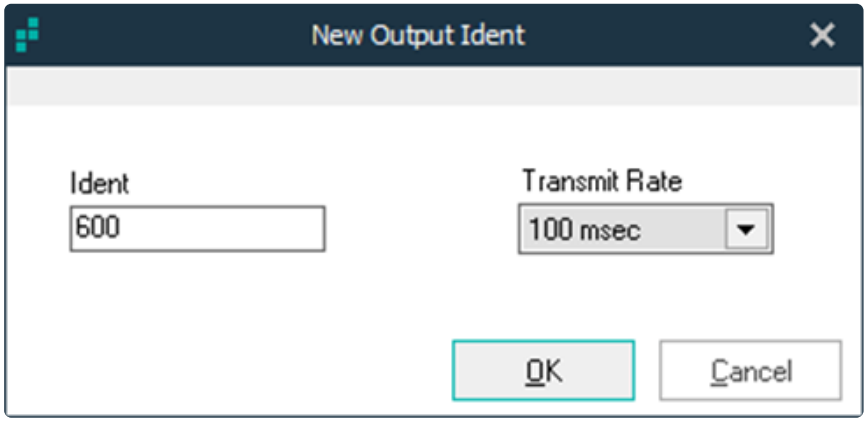
Select the accessible Items on the Rebel Dash by right-clicking on the Project and choosing "New/Edit Output Signal".



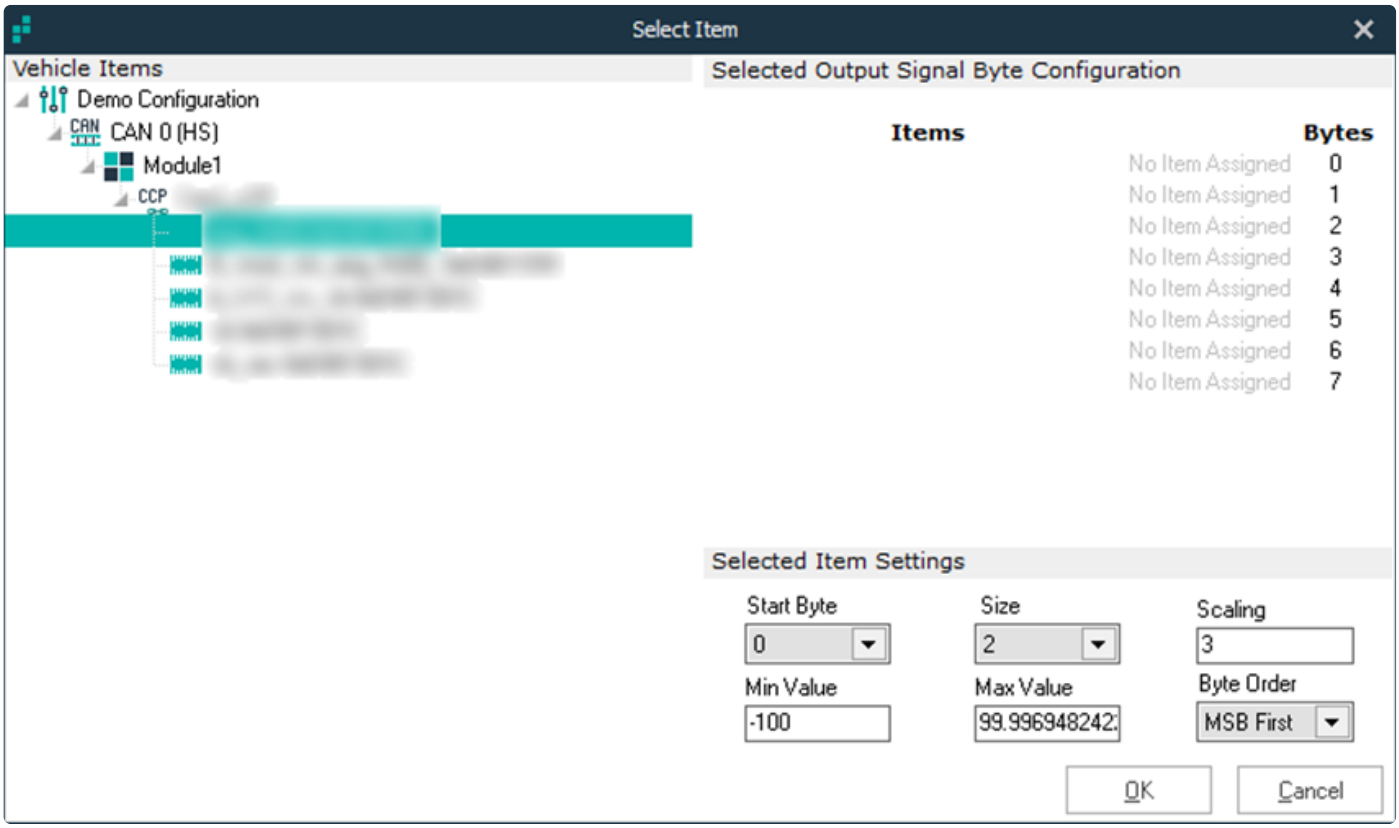
Click 'New Ident' to set up the CAN Identifier you wish to broadcast.



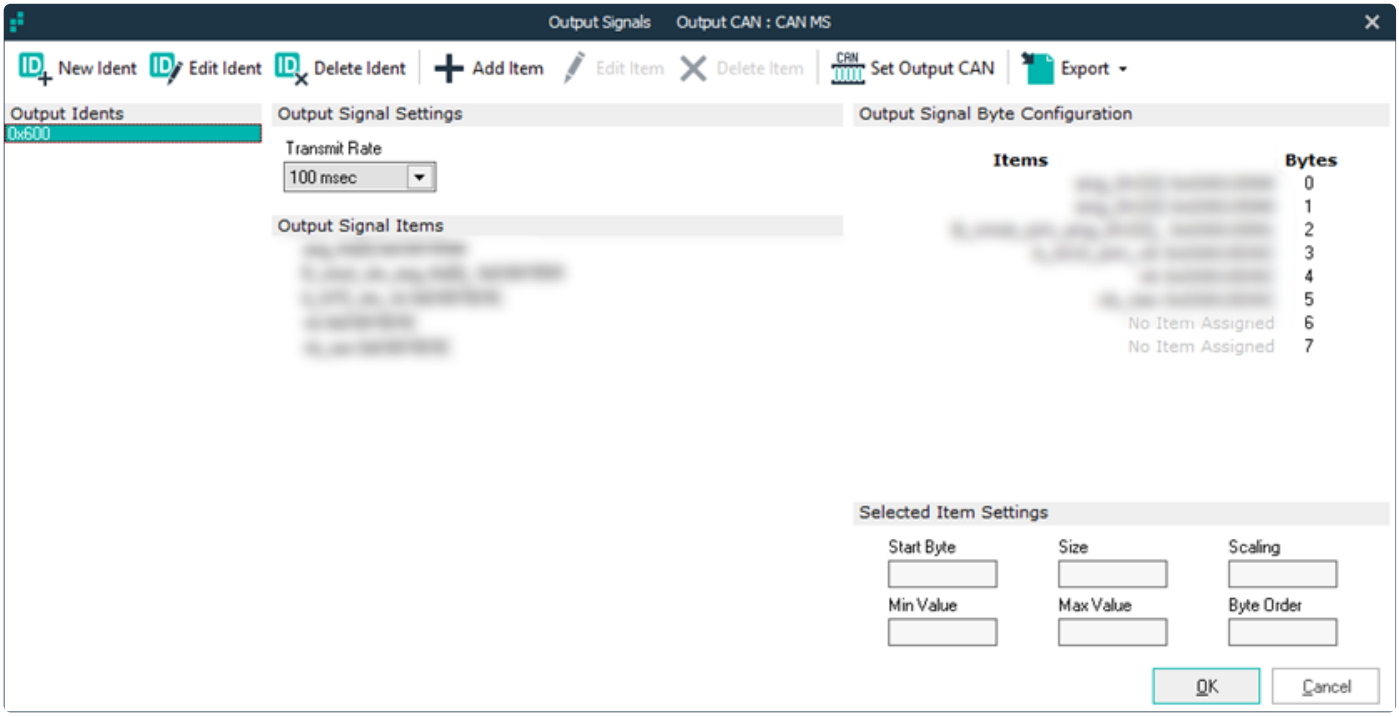
For example, we will choose CAN Identifier 600 and broadcast every 100ms. You may choose any CAN Identifier you wish to use.



Once you have added the Ident, you can add the items you wish to broadcast by clicking 'Add Item'.

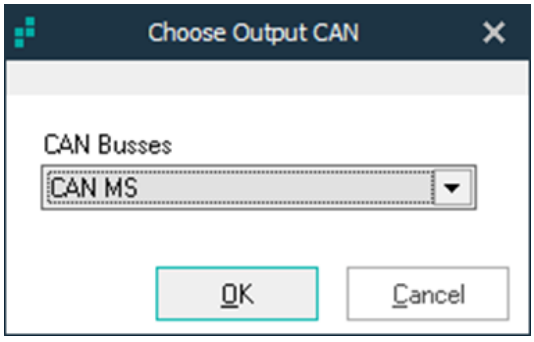


Keep clicking add an item and selecting items until you have chosen all the items you wish to display:



You will see how "full" your CAN message is on the right. In this case, you can see we are using 6 of the available bytes in our CAN message to broadcast the items. Add Idents until you have all the items you wish to broadcast if necessary.

Now click Set Output CAN; you must choose CAN MS to select CAN 1, which is connected to the AUX connector of the multi-connect cable if you are attaching the Rebel Dash to that connector.



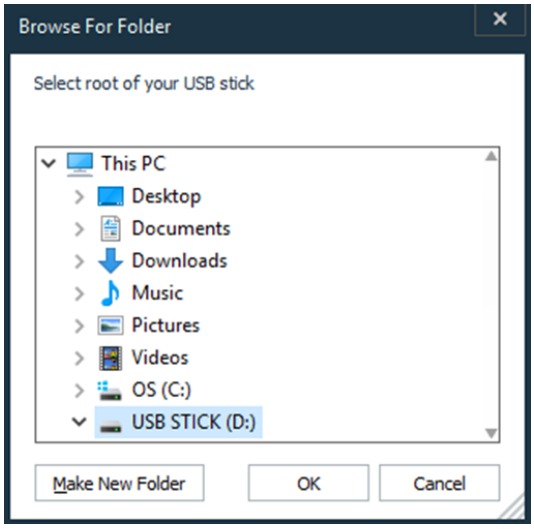
Once finished, click 'OK'.

Optional Steps

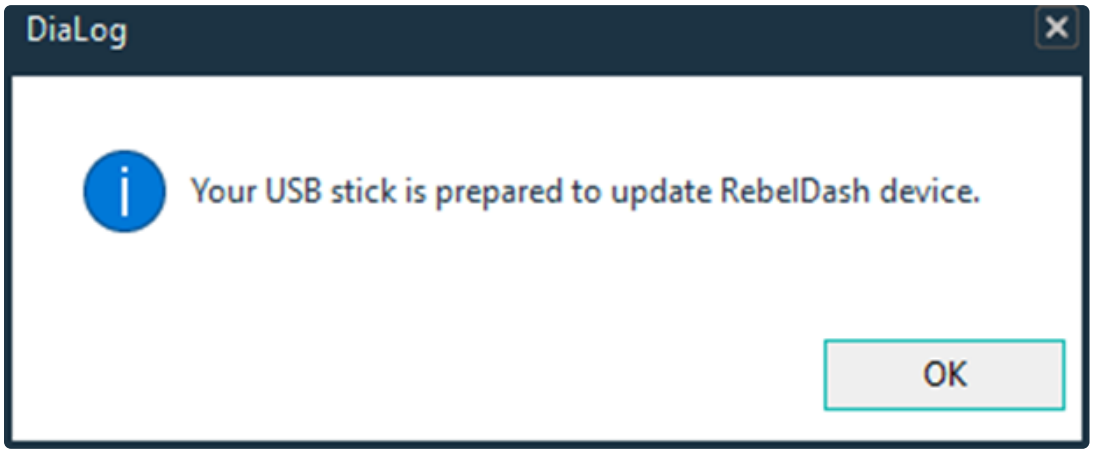
If you want to create a Rebel Dash configuration that can be used to configure the Dash via USB (Not required as the Dash will be configured when you send the configuration to the Logger if it is attached)

You can press 'Export' and Select the Rebel Dash.

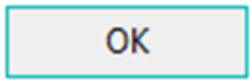
You will be prompted for the Location of your blank memory stick that is formatted with FAT32 that you will use to Configure the Rebel Dash:



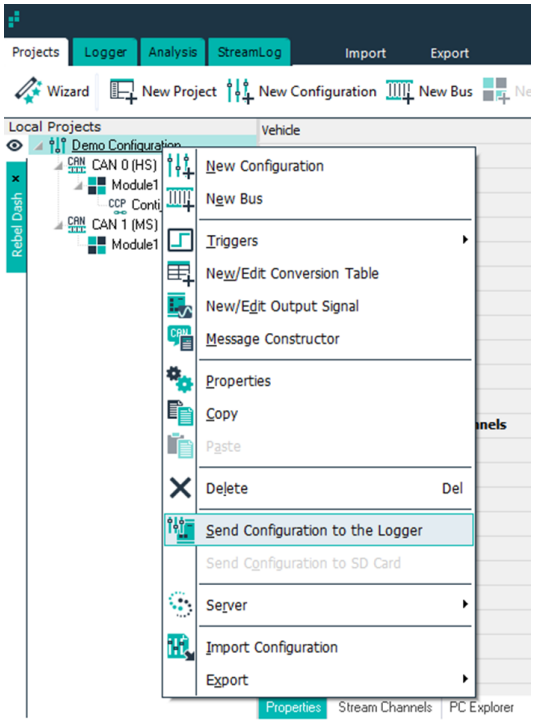
Once found, click "OK" and wait for the following message to appear:



Press OK again to update the configuration.



Right-click on the Project and choose "Send Configuration to the Logger".



This will also update the Dash if it is attached and on.

Alternatively, once the Dash is on, proceed to configure the Dash with the USB Stick created in the optional step; insert the stick, and the Dash will notify you that the configuration file has been copied. Once you remove the USB stick, the Dash will reboot and be available to display your signals.

Using the Rebel Dash to Display the Signals

Once configured via the configuration program or Dialog (or not at all if you only want to use the CAN viewer), you are ready to use the Rebel Dash. The following gives details of

Config Menu

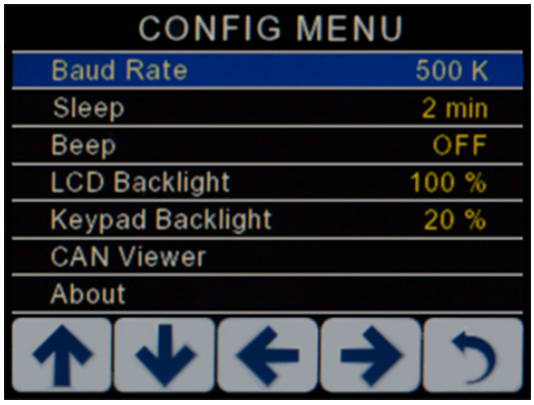
Changing between Signals

Changing the Display Mode

How to display signal in the Rebel Dash.

Config Menu

The Config Menu of the Rebel Dash device, which allows the user to change the device's settings, is accessed by holding the View Key for 1 second.



To Navigate to Options, press the '^' and 'v' arrow buttons until the desired setting is highlighted.

To toggle the option, press the '<' and '>' arrow buttons until the preferred option is highlighted.

To configure the selected option, press the 'Mode' and 'Select' buttons to represent the "left" and "right" functions to adjust it.

Baud Rate

To select the transmission speed of the CAN bus signal on the device.

Sleep

To set the time for the device to go into sleep mode when no CAN message is received.

Beep

Configure the device to produce a sound from the buzzer whenever a button is pressed.

LCD Backlight

To change the brightness of the LCD backlight by percentage.

Keypad Backlight

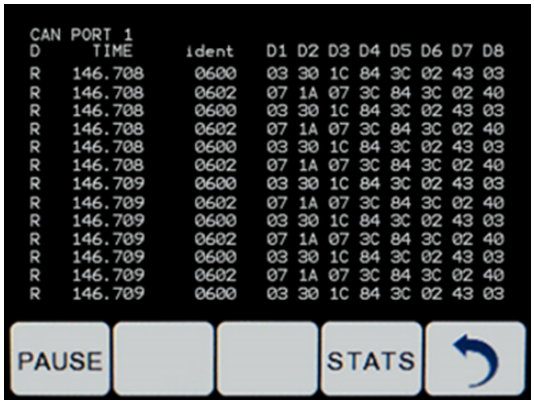
To change the brightness on the keypad backlight by percentage.

CAN Viewer

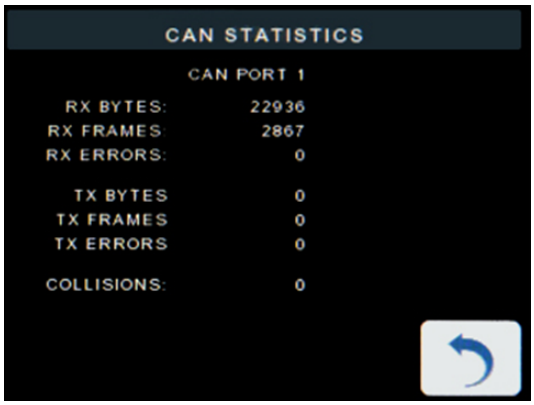
To view the CAN messages received on the device.

CAN Viewer

The CAN viewer allows the user to view the CAN message on the CAN bus, decoded in hexadecimal format, along with the identifier and the time stamp.



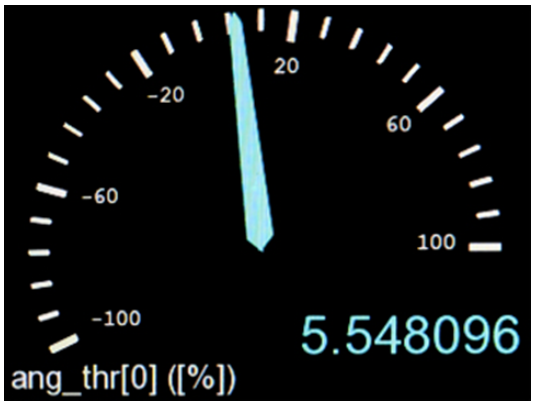
Select the "STATS" by pressing the "Select" button to show a brief overview of the CAN messages being received and transmitted on the CAN bus.



Changing between Signals

- Just press the '<' and '>' arrow buttons to change the signal to be viewed on display.
- Change the mode to display the signal, e.g. from Meter Display Mode to Binary Display Mode press mode.
- To change between single and multi-display, press view; using the select button then allows you to change to the quadrant you want to configure), then pressing the '<' and '>' arrow buttons allow you to change the signal to be viewed in that quadrant, and pressing mode allows you to change the display mode once you have finished press select again until nothing is selected.
- To change the viewer mode on the Rebel Dash, press the "Mode" button to toggle the option.

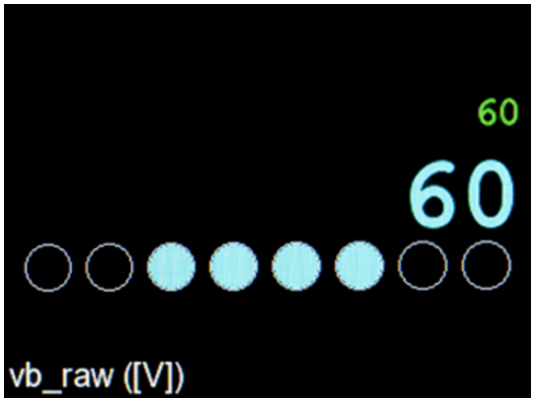
Meter Display



Just press the '<' and '>' arrow buttons to change the signal to be viewed on display.

Press' Mode' to change the mode to display the signal from Meter Display Mode to Binary Display Mode.

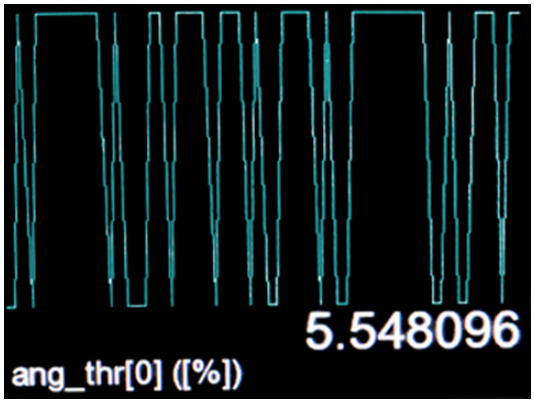
Binary Display



Just press the '<' and '>' arrow buttons to change the signal to be viewed on display.

Press' Mode' to change the mode to display the signal from Binary Mode to Graphical Display Mode.

Graphical Display



To change the mode of the display in a reading mode.

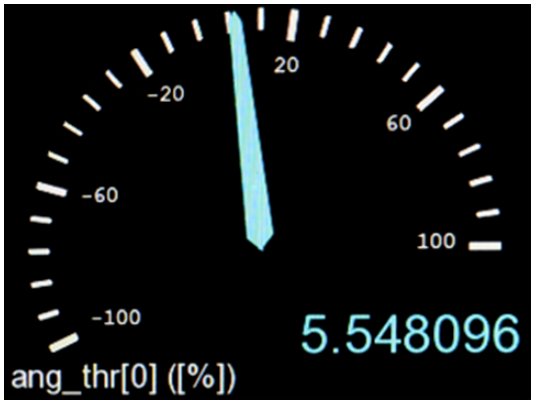
Just press the '<' and '>' arrow buttons to change the signal to be viewed on display.

Press' Mode' to change the mode to display the signal from Graphical Display Mode to Meter Mode.

Changing the Display Mode

To change the display option on the Rebel Dash, press the "View" button to toggle the option.

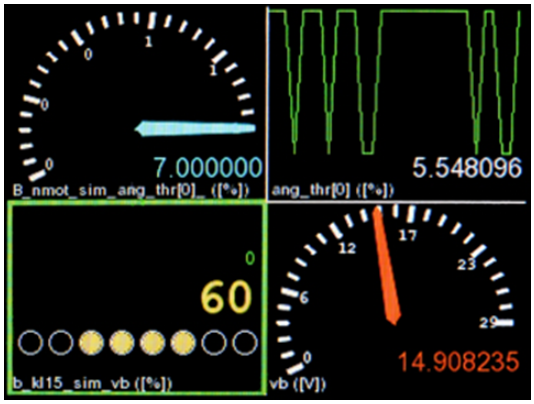
Single Display



To view a signal in a single display.

Press "View" to change to Multi Display Mode.

Multi-Display

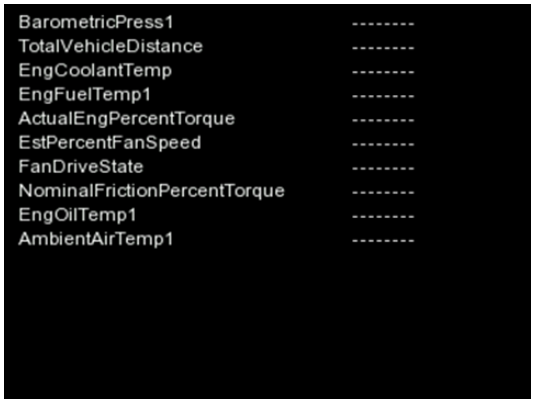


To view the reading of multiple signals at the same time.

You may use the select button (press several times until you are in the quadrant you want to configure), then pressing the '<' and '>' arrow buttons allow you to change the signal to be viewed in that quadrant, and pressing mode allows you to change the display mode once you have finished press select again until nothing is selected.

Press "View" to change to List Mode.

List Display



To view the readings of the signals in a list.

Press "View" to change to Single Display Mode.

Pinout Details: Rebel Dash

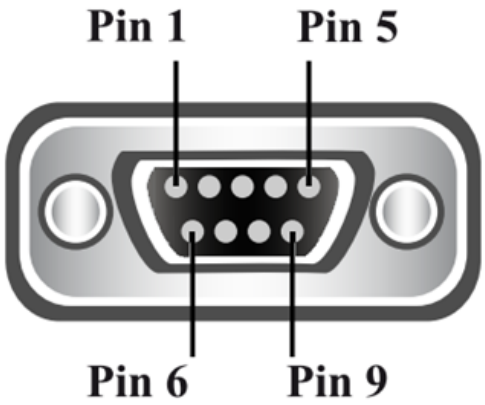
Pinout of the Rebel Dash Cable

Pinout of the OBD2 to DB9 Cable

Pinout of the Multi Connect Cable

Pinout of the Rebel Dash Cable

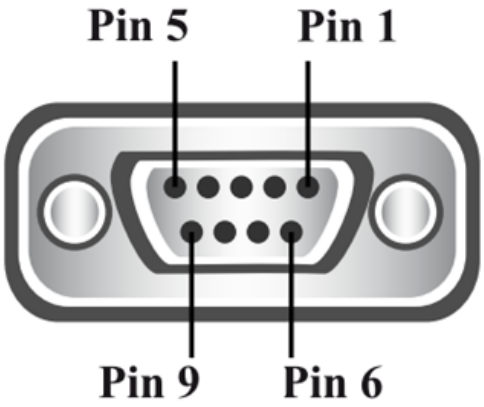
The Rebel Dash Cable has been designed with CiA® 102 pinout for the CAN bus and power to make connecting the device as simple as possible. The Standard Display Cable may be connected directly to DB9 connectors with CiA® 102 pinout, CAN, and power is required to make the device power up and display data. The pinout is as follows:



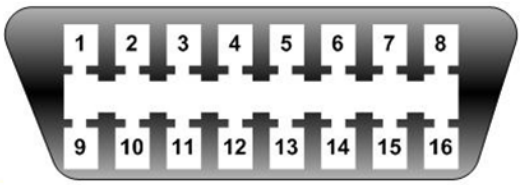
DB9	Pin Function
Pin 2	CAN L
Pin 3	Ground (alternatively, pin-5 may be used)
Pin 5	Ground (alternatively, pin-3 may be used)
Pin 7	CAN H
Pin 9	Power Supply 10-32V

Pinout of the OBD2 to DB9 Cable

The Standard Display Cable may be connected to the optional DB9 to OBD2 Cable for direct connection to the Diagnostics CAN bus and power in a vehicle. The pinout of that cable is as follows:



DB9	Pin Function
Pin 2	CAN L
Pin 3	Ground
Pin 5	Ground
Pin 7	CAN H
Pin 9	Power Supply 10-32V

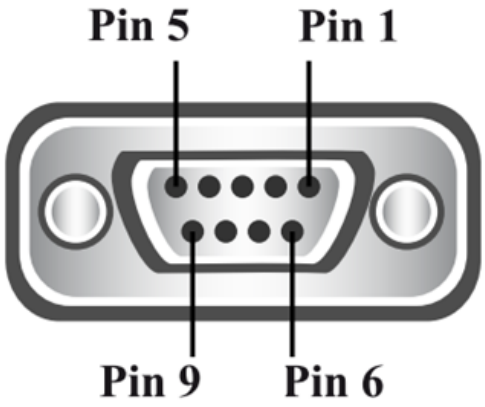


OBD2	Pin Function
Pin 14	CAN L
Pin 4	Ground
Pin 5	Ground
Pin 6	CAN H
Pin 16	Battery Power

Pinout of the Multi Connect Cable

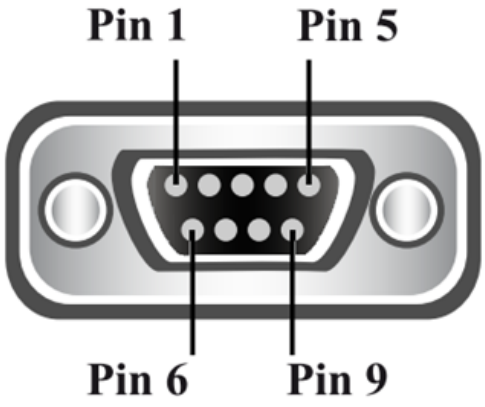
The Standard Display Cable may be connected to the multi-connect cable's AUX cable to connect it to the Rebel CT or LT Loggers. The pinout is as follows:

AUX (The port of the Multi Connect Cable that is typically used with the Rebel Dash)



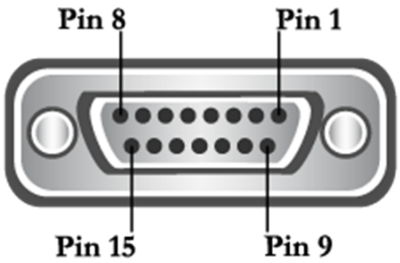
DB9	Pin Function
Pin 2	CAN 1(MS) L
Pin 3	Ground
Pin 5	Ground
Pin 7	CAN 1(MS) H
Pin 9	Power Supply Switched

CAN+PWR (This Connector is used to power the Logger, e.g. it could be powered via the diagnostics connector of a vehicle connected to the OBD2 to DB9 Cable)



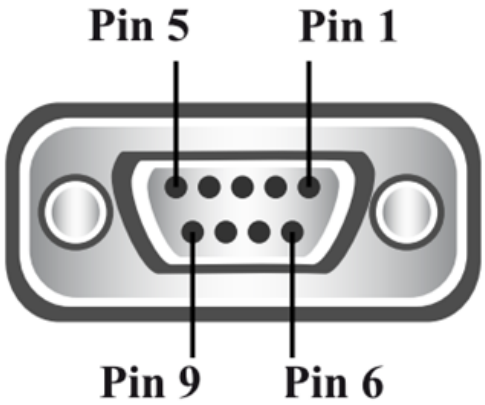
DB9	Pin Function
Pin 1	CAN 1 (MS) L
Pin 2	CAN 0 (HS) L
Pin 3	Ground
Pin 4	K-Line
Pin 5	Power Ground
Pin 7	CAN 0 (HS) H
Pin 8	CAN 1 (MS) H
Pin 9	Power Supply 4.5-36V (10-32V is required for the Rebel Dash to operate)

Digital/Analog (This Connector is used to connect Digital and Analog signals to the Logger)



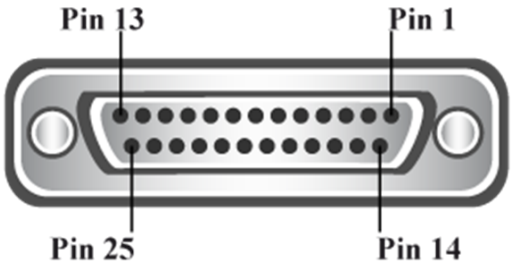
DB15	Pin Function
Pin 2	Digital I/0 1
Pin 3	+4.5V Instrumentation
Pin 4	Ground
Pin 6	Analog Ground
Pin 7	Ain1 inst
Pin 8	Ain3 inst
Pin 9	Digital I/0 0
Pin 10	Digital I/0 2L
Pin 11	Ground
Pin 13	Wake-Up #
Pin 14	Ain0 inst
Pin 15	Ain2 inst

LAN/CAN (Used for connecting CAN2 and Ethernet to the Logger)



DB9	Pin Function
Pin 1	Lan RX-
Pin 2	CAN 2 (Inst) L
Pin 3	Power Ground
Pin 4	Lan TX+
Pin 5	Ain0 inst
Pin 6	Lan RX+
Pin 7	CAN 2 (Inst) H
Pin 8	Lan TX-
Pin 9	Digital I/O 3 or Power Supply Switched

OBD&INST (The multi-connect cable attaches to the Logger via this connector)



DB25	Pin Function
Pin 1	Ain3 inst
Pin 2	LAN RX-
Pin 3	LAN TX-
Pin 4	Ain1 inst
Pin 5	Wake-UP#
Pin 6	CAN 1 (MS) L
Pin 7	CAN 0 (HS) L
Pin 8	K-Line
Pin 9	4.5-36V (10-32V is required for the Rebel Dash to operate)
Pin 10	+4.5V instrumentation
Pin 11	Digital I/O 2
Pin 12	Digital I/O 0
Pin 13	CAN 2 (INST) L
Pin 14	Ain2 inst
Pin 15	LAN TX+
Pin 16	LAN RX+
Pin 17	Ain0 inst
Pin 18	Analog Ground
Pin 19	CAN 1 (MS) H
Pin 20	CAN 0 (HS) H
Pin 21	Ground
Pin 22	Power Ground
Pin 23	Digital I/O 3/+Vd
Pin 24	Digital I/O 1
Pin 25	CAN 2 (INST) H