CAN Hub User Manual

01 - CAN Hub - Introduction

VBOX CAN Hub simplifies equipment installation of VBOX data loggers and modules, and connection to the vehicle bus. The new hub solution is especially useful for ADAS testing setups by removing the need for a variety of splitters and additional cabling, and its footprint is the same as the VBOX 3i so it sits neatly underneath.

CAN Hub allows for an increase in the number of VCI channels to be logged natively on the VBOX 3i (max. 32), as well as the simultaneous logging and output of VBOX CAN. This is achieved by creating two separate customer VCI CAN ports.

Key Features

- Simplifies set up for ADAS testing.
- Removes the need for splitters and CAN02.
- Allows 64 channel capture (32 channels from external modules; 32 channels from external VCI input).
- Dedicated sockets for connections to DGPS modem, RS232 telemetry, and Racelogic Multifunction Display.
- Fits neatly below a VBOX 3i.
- Expands functionality of VBOX3i with a second module CAN port and splits VCI port into separate VCI input and 3rd party data logger output ports.
- Includes USB port for Racelogic Upgrader.

Inputs

- Power: 2 pin LEMO, power input to CAN hub and VBOX; VB3i is powered from the CAN hub, no need to connect two power cables.
- 2 x Module CAN: 5 pin LEMO, two functionally identical ports for connecting Racelogic modules.
- DGPS port: 5 pin LEMO, dedicated serial port for DGPS/RTK corrections.
- RS232 serial/ telemetry port: 5 pin LEMO, dedicated serial port for telemetry radios or serial connections to PCs.
- VCI input port: 5 pin LEMO, port for user configurable CAN input. No CAN data will be output on this port.
- MFD port: 5 pin LEMO, dedicated port for Multifunction display connection.
- Maintenance port: USB B Used for firmware updates.

Outputs

- 2 x VBOX3i Link ports**:** 5 pin LEMO, dedicated high speed data and power links to the VB3i.
- VCI output port: 5 pin LEMO, output port for user selected CAN messages.

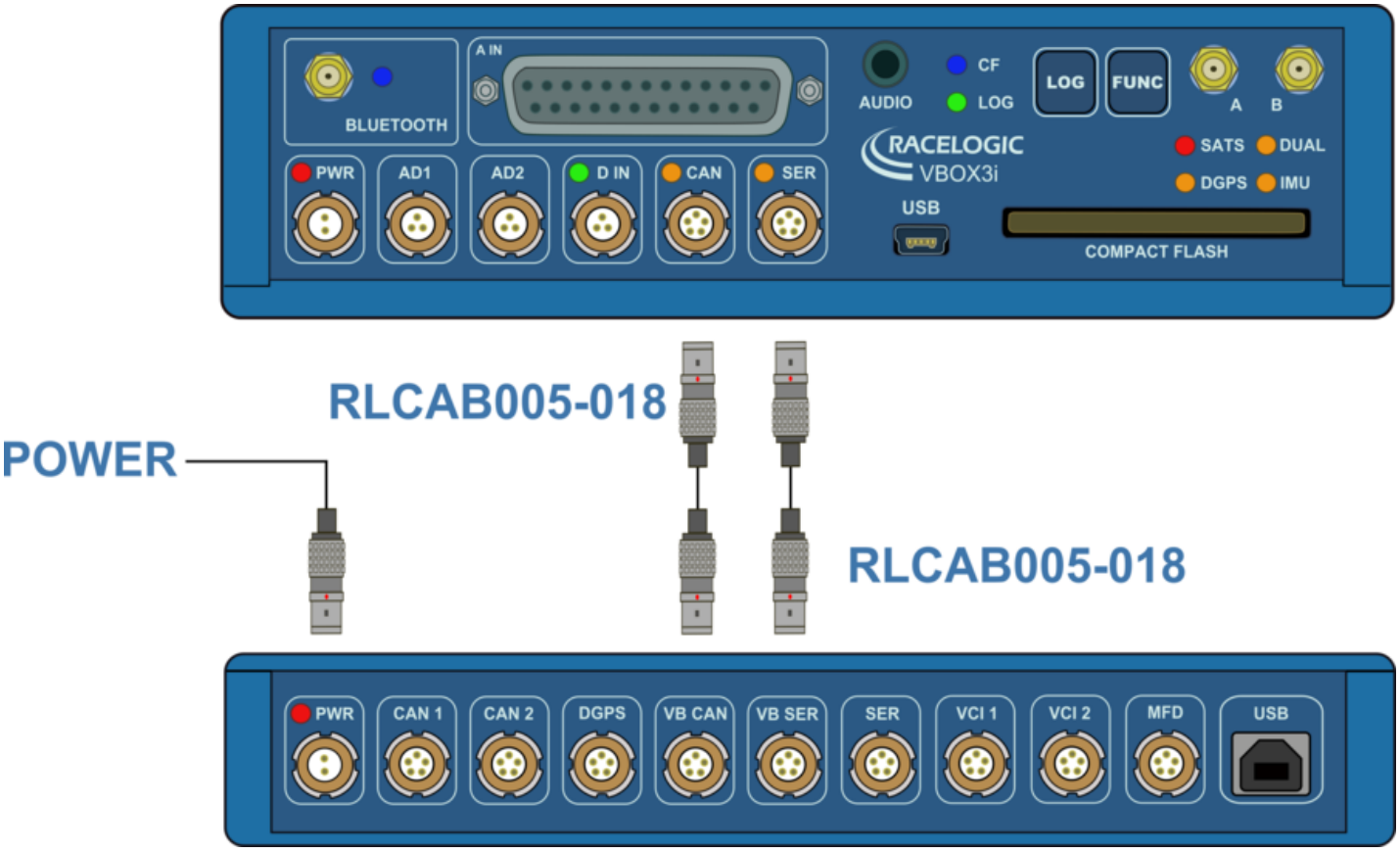
02 - CAN Hub - Configuring for VBOX

There are many ways of connecting and using CAN Hub depending on the specific application.

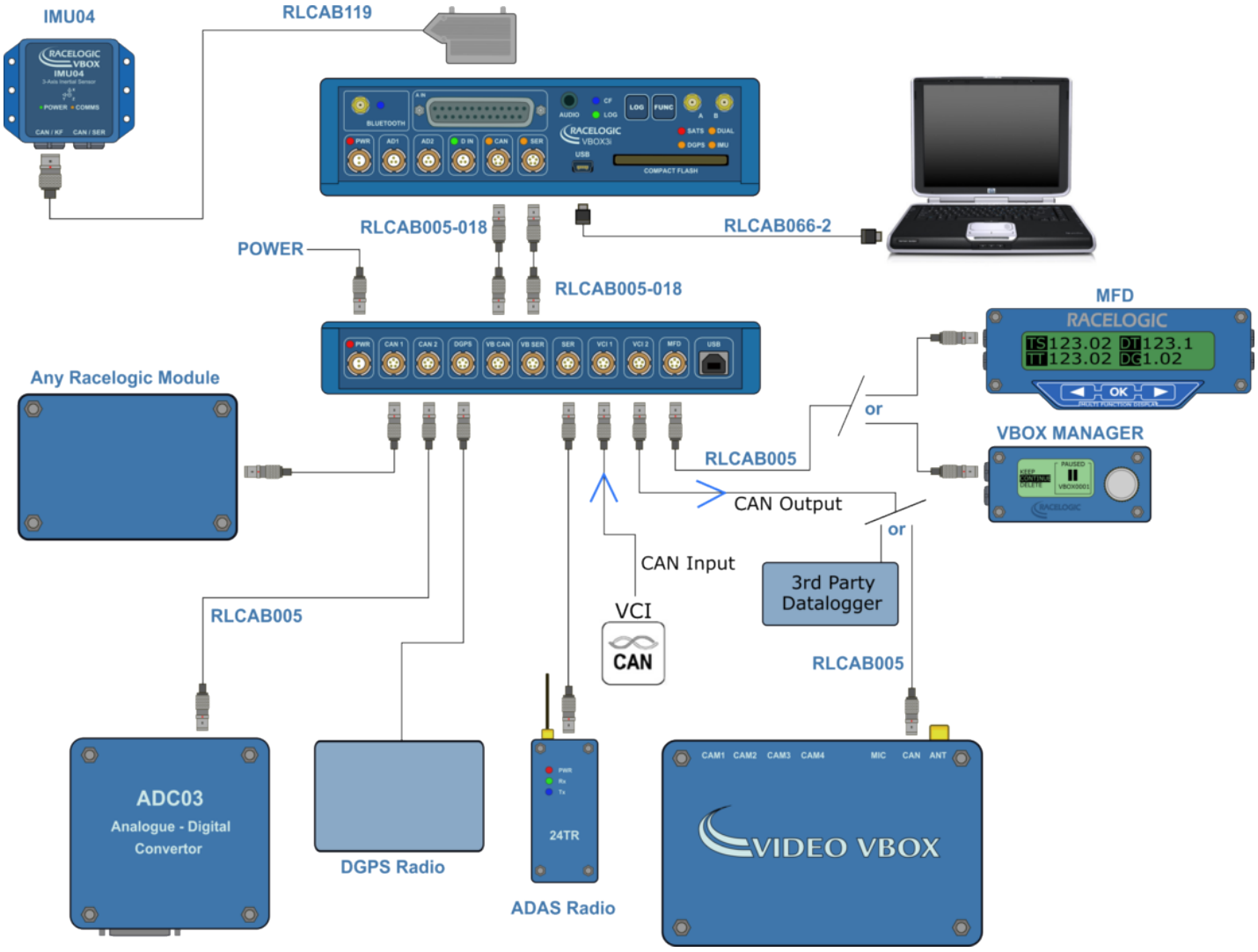
Connection of CAN HUB to VBOX 3i

Using the 5 way LEMO to 5 way LEMO cables (RLVBCAB05-018) connect the **CAN** and **SER** sockets of the VBOX to the respective **VB CAN** and **VB SER** ports on the CAN Hub module.

Power the VBOX and CAN Hub via the **PWR** port on the CAN Hub using either the mains adaptor or a fully charged battery pack.



Example ADAS connection setup using CAN Hub



Notes:

- *CAN profile of VB3i must be set to default (Racelogic CAN on the CAN port).*
- *VBOX Manager must be running v2.55 b2844 or later if used with CAN Hub. Can be connected to a MFD or to one of the CAN ports.*
- *MFD must be running v13.05 or later if used with CAN Hub. Baud rate must be set to 1 MB/s.*
- *If ADC03 or TC8V1 are used, they should be isolated on their own in either CAN port.*
- *VCI 1 is an input port, VCI 2 is an output port.*
- *CAN1 and CAN2 ports are isolated.*

03 - CAN Hub - Technical Properties

CAN Hub - Firmware Upgrade

CAN Hub - Inventory and Accessories

CAN Hub - PIN OUTS

CAN Hub - Technical Specification

CAN Hub - Firmware Upgrade

It is recommended to check the website periodically for updates. To upgrade the CAN Hub firmware, download the following from the VBOX Automotive website.

1. **The CAN Hub latest firmware file (.RUF extension file)**
2. **Racelogic Upgrader software**

Connect the USB (port 11) of CAN Hub to the PC via the RLCAB042 USB cable and apply power to CAN Hub.

Double click on the .RUF upgrade file, which auto runs the Upgrader Software. Ensure the correct COM port is selected in Racelogic Upgrader, then click ‘Upgrade’ to start the procedure.

When this is complete, powering CAN Hub off and back on will complete the process.

Note: To confirm which COM port is assigned to CAN Hub, check device manager. Ensure that other software which may try and use the COM port communications, such as VBOX Tools, is closed.

CAN Hub - Inventory and Accessories

Description	Qty	Product Code
64 channel VBOX CAN Hub	1	VBCANHUB-V1
Lemo 5W Plug – Lemo 5W Plug - 0.18 m cable	2	RLCAB005-018

Optional Accessories

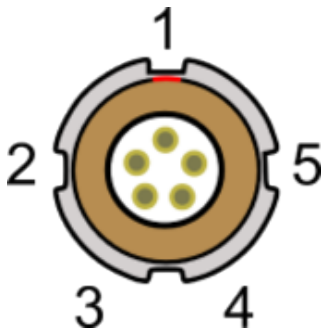
Description	Product Code
USB ‘A’ to USB ‘B’ Lead - 2 m cable	RLCAB042
Lemo 5W Plug – Lemo 5W Plug - 2 m cable	RLCAB005-C

CAN Hub - PIN OUTS

Connector 1 - POWER (Lemo 2 PIN)

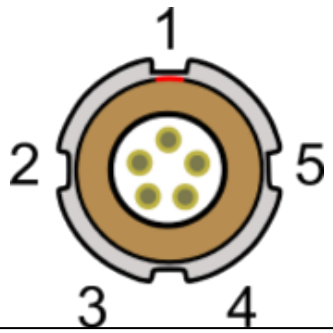
PIN	I/O	Function
1	I/O	Power
2	I/O	Ground
Chassis		Ground

Connector 2 - CAN 1 (Lemo 5 PIN)



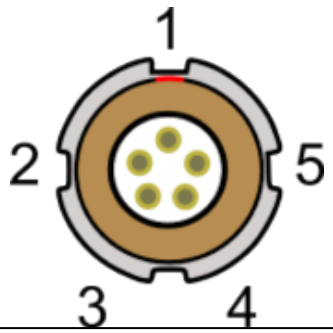
PIN	I/O	Function
1	-	NC
2	-	NC
3	I/O	CAN High
4	I/O	CAN Low
5	O	Power

Connector 3 - CAN 2 (Lemo 5 PIN)



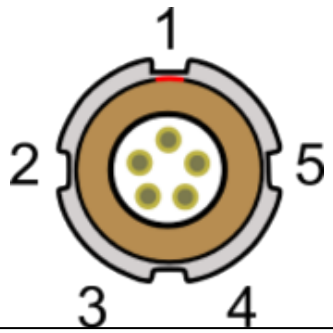
PIN	I/O	Function
1	-	NC
2	-	NC
3	I/O	CAN High
4	I/O	CAN Low
5	O	Power

Connector 4 - DGPS SERIAL (Lemo 5 PIN)



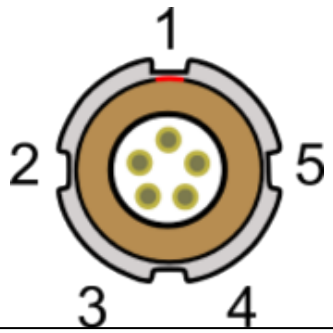
PIN	I/O	Function
1	O	Tx-RS232
2	I	Rx-RS232
3	-	NC
4	-	NC
5	O	Power

Connector 5 - VBOX CAN (Lemo 5 PIN)



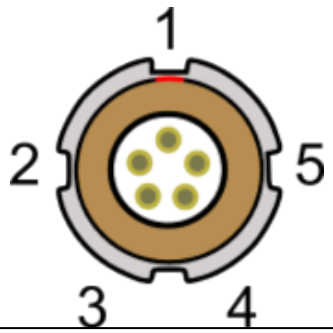
PIN	I/O	Function
1	O	Tx-RS232
2	I	Rx-RS232
3	I/O	CAN High
4	I/O	CAN Low
5	O	Power

Connector 6 - VBOX SER (Lemo 5 PIN)



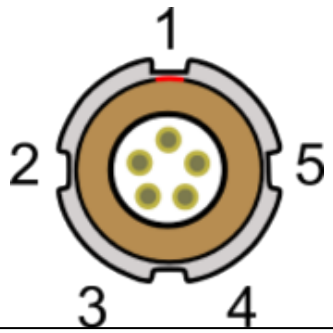
PIN	I/O	Function
1	O	Tx-RS232
2	I	Rx-RS232
3	I/O	CAN High
4	I/O	CAN Low
5	O	Power

Connector 7 - SER SERIAL (Lemo 5 PIN)



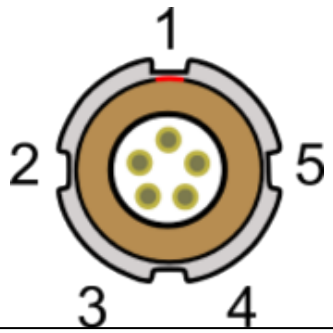
PIN	I/O	Function
1	O	Tx-RS232
2	I	Rx-RS232
3	I/O	CAN High
4	I/O	CAN Low
5	O	Power

Connector 8 - VCI 1 (Lemo 5 PIN)



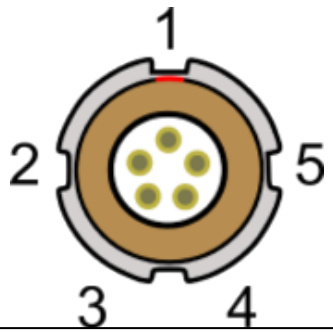
PIN	I/O	Function
1	O	Tx-RS232
2	I	Rx-RS232
3	I/O	CAN High
4	I/O	CAN Low
5	O	Power

Connector 9 - VCI 2 (Lemo 5 PIN)



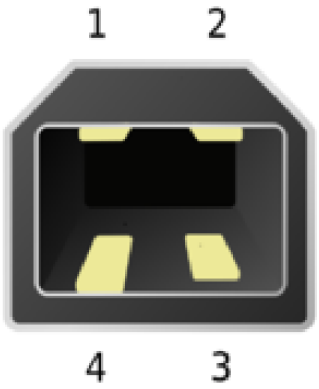
PIN	I/O	Function
1	-	NC
2	-	NC
3	I/O	CAN High
4	I/O	CAN Low
5	O	Power

Connector 10 - MFD (Lemo 5 PIN)



PIN	I/O	Function
1	O	Tx-RS232
2	I	Rx-RS232
3	I/O	CAN High
4	I/O	CAN Low
5	O	Power

Connector 11 - USB (USB B)



PIN	I/O	Function
1	I	Power
2	I	Data -
3	I/O	Data +
4	I/O	Ground
Chassis	I	Ground

CAN Hub - Technical Specification

Specification

Dimensions	170 mm x 123.25 mm x 30 mm (w x l x h)
Weight	620 g
Input Voltage Range	7 – 30 V DC
Power Consumption	<1.5 W
Operating Temperature	-20°C to +70°C
Storage Temperature	-30°C to +80°C

Module Dimensions (mm)