POWERFLEET®

People Powered AIoT

Version 1

RIBAS™

Installation Guide

Introduction

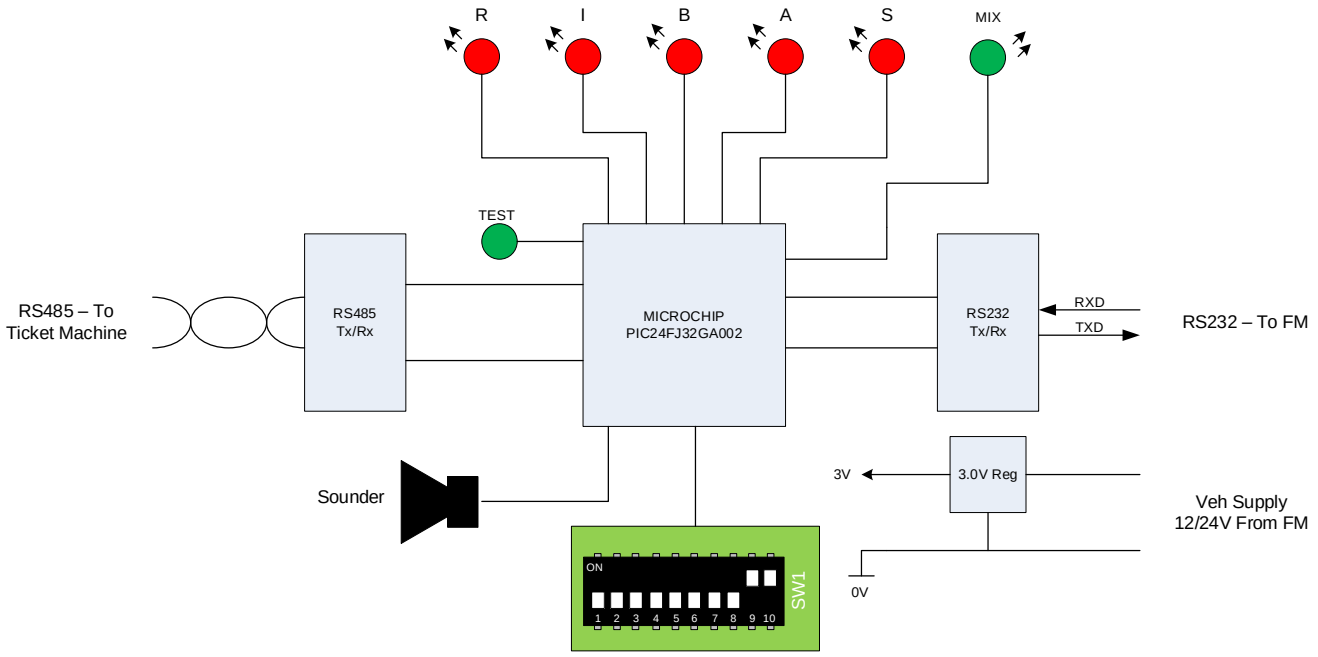
RIBAS™ is an in-cab display designed to assist driver in improving driving styles, by alerting the driver to pre-configured vehicle or driver events.

Vehicle and Driver events are recorded with the Powerfleet On-Board Computer (OBC) such as the MiX4000 and communicated to MiX Fleet Manager for analysis and reporting. The RIBAS™ display provides the Driver with Real-time event information in a visual and audible form.

This effectively provides and in-cab virtual instructor reminding drivers of the desired driving parameters, resulting in improved fuel economy, driver efficiency, customer travelling comfort and reduction of wear and tear on the vehicle.

The RIBAS™ display can also connect to a range of industry standard Electronic Ticket Machines (ETM) via an RS485 interface to read driver ID.

Block Diagram

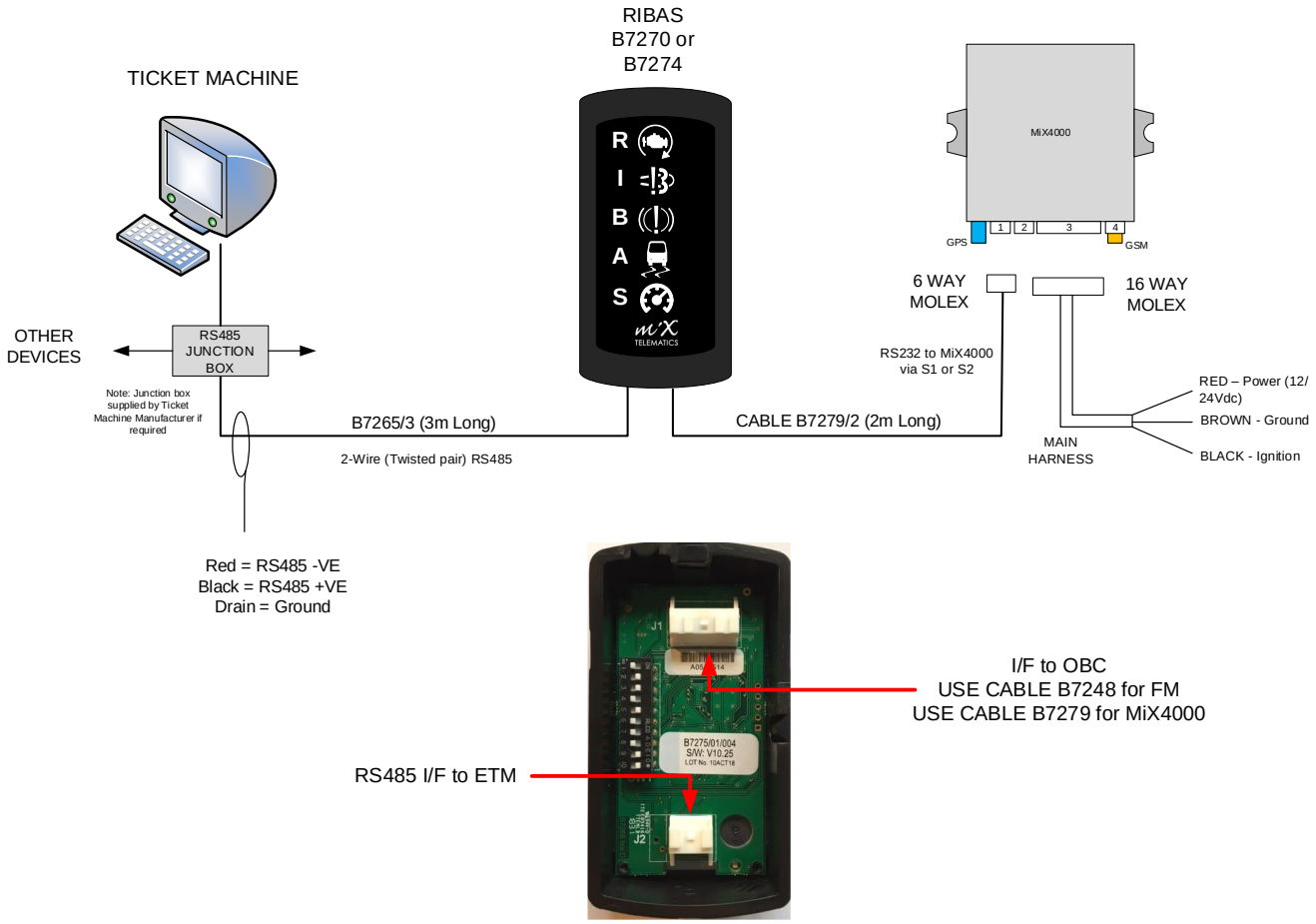


The RIBAS™ design simply provides a microprocessor between 2 serial interfaces. The RS232 connects to the MiX4000 OBC (power is also provided by the OBC) and the RS485 connects to the ETM.

On power up the processor reads the DIP switch settings (if switch settings are changed the unit must always be power cycled) and then starts to communicate with the OBC. The DIP switch settings define the mode of operation and ETM interface as defined in the "Switch Settings" document provided with every f/w release. The OBC provides all the event warnings (Amber) and final event (Red) when triggered for RIBAS to display accordingly.

The RS485 protocol is defined by the DIP switch settings and allows RIBAS™ to communicate with the connected ETM in order to extract the driver ID. The driver ID will then be passed to the OBC via the RS232 interface.

Typical Setup



The setup shown above is typical of a bus installation where RIBAS™ interfaces to a ticket machine (ETM) via the RS485 interface. The switch settings on the DIP switch will determine the protocol for the RS485 comms to the ETM.

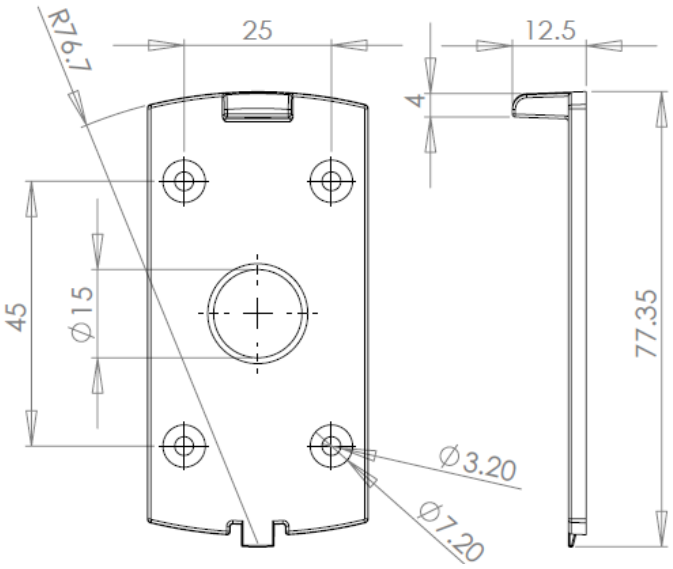
Part Numbers

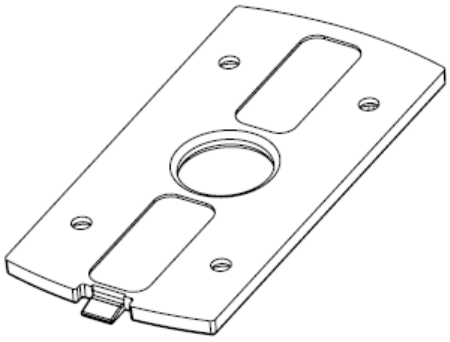
Part ID	Description
B7275/01	RIBAS MK2 Tri-Colour 10-Way Assembly - UK Variant
B7275/03	RIBAS MK2 Tri-Colour 10-Way Assembly - STRAV Variant
B7275/04	RIBAS MK2 Tri-Colour 10-Way Assembly - STIB (RIBAC)
B7279/x	RIBAS to MiX4000/6000 Interface Cable (/x = Cable Length)
B7265/x	RIBAS MK2 RS485 Interface Cable (/x = Cable Length)
B7248/x	FM300 Event Indicator Cable (/x = Cable Length)

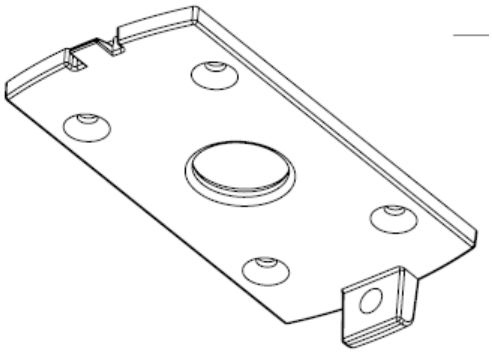
Mechanical

RIBAS is a 2-part design with a top assembly containing the pcb and LED panel and a base plate. The base plate is fixed to the top housing using a T10 Torx security screw (supplied). The base plate is fixed to the vehicle panel using 4 x M3 countersunk posi-head screws (supplied).

All cables can be routed through the larger 15mm diameter hole in the centre of the base plate.

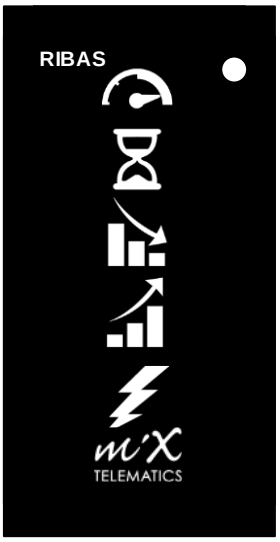




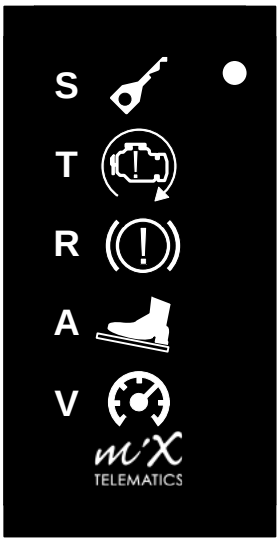


Product Variants

Within the RIBAS product range there are 2 other variants with different panel inserts. These variants were requested by bus operators in Belgium where the LED's represent slightly different events and in a different language.



B7275/01 RIBAS™



B7275/03 STRAV

B7275/04 RIBAC

Installation Location

RIBAS™ is an In-Cab Driver Training aid and so it needs to be placed on or around the dashboard area of the vehicle so that the driver can glance at the display when alerted.

Always consult with the customer as to the best place to fit the RIBAS display.

DIP Switch Settings

Each release of f/w includes an updated version of the Switch Setting document as shown below. Please contact the Powerfleet Support Team for the Switch Setting document specific to the specific RIBAS f/w version

RIBAS/STRAV Tri-Colour B7275

Software Version V10.34
Prerequisites

NOTE switch 8 turns on Test mode (see below)
Ensure correct RIBAS/STRAV/RIBAC overlay is fitted.
Switch Settings

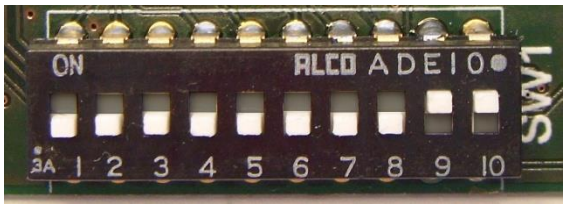


Figure 1 - Switch 0-8 off 9 -10 on (Normal RIBAS™ setting) down (0) = off, up (1) = on

CFG.	Description	Switch 1,2,3,4,5,6,7,8,9,10
0	Normal Ribas (Switches as figure 1)	0000000011
1	No Beep Normal Ribas	1000000011
2	Normal Ribas with background green	0100000011
3	No Beep Normal Ribas with background green	1100000011
4	De Lijn (no driver sends ID = 2. Note 1) (No ACKS)	0010000000
5	Keolis	1010000011
6	STIB (Original Version 1)	0110000011
7	Snapper (NZ)	1110000011
8	Thales (NZ)	0001000011
9	AVMS (Singapore)	1001000011
10	Wayfarer (Yellow bus)	0101000011
11	British Truck Racing (Not yet implemented)	1101000011
12	ERG Go Ahead	0011000011
13	ERG Go Ahead (With real-time data) (Note 2)	1011000011
14	Translink (With real-time data) (Note 2)	0111000011
15	Parkeon	1111000011
16	Translink	0000100011
17	WilliamsHybrid (Not yet implemented)	1000100011
18	Dundee	0100100011
19	STIB (2014 format) No driver sends ID = 2 (Note 1)	1100100011
20	ERG Go Ahead (With real-time data and ack if no ACIS) (Note 2)	0010100011
21	STIB (2014 format) No driver sends nothing	1010100011
22	Ticketer 2014	0110100011
23	Snapper (NZ) no Green	1110100011
24	Thales (NZ) no Green	0001100011
25	DTCO	1001100011
26	Bus Eireann (note switches 9 and 10 set to 0)	0101100000
27	Blackpool Bus (No ACK's)	1101100000
28	Blackpool Bus (With ACK's – untested!)	0011100011
29	Nottingham Bus INIT interface	1011100011
30	Ticketer – For GAG with VIX (note 9 and 10 off)	0111100000
31	Kuwait City bus Real Time Data (see note a and b)	11111000??
32	Ticketer – For GAG with no VIX (not the normal setting)	0000010011
33	Stoneridge DTCO	1000010011
34	Stoneridge DTCO **TEST ONLY** beeps on good data	0100010011
35	R and G Plus	1100010011
36	Trapeze (IBIS) Beep only	0010010011
37	De Lijn (no driver sends ID = 2. Note 1) (With ACKS)	1010010011
38	Trapeze (IBIS) Background Green and Beep	0110010011
39	Trapeze (IBIS) No Beep	1110010011
40	Trapeze (IBIS) Background Green and No Beep	0001010011
255	Test Led's	1111111111

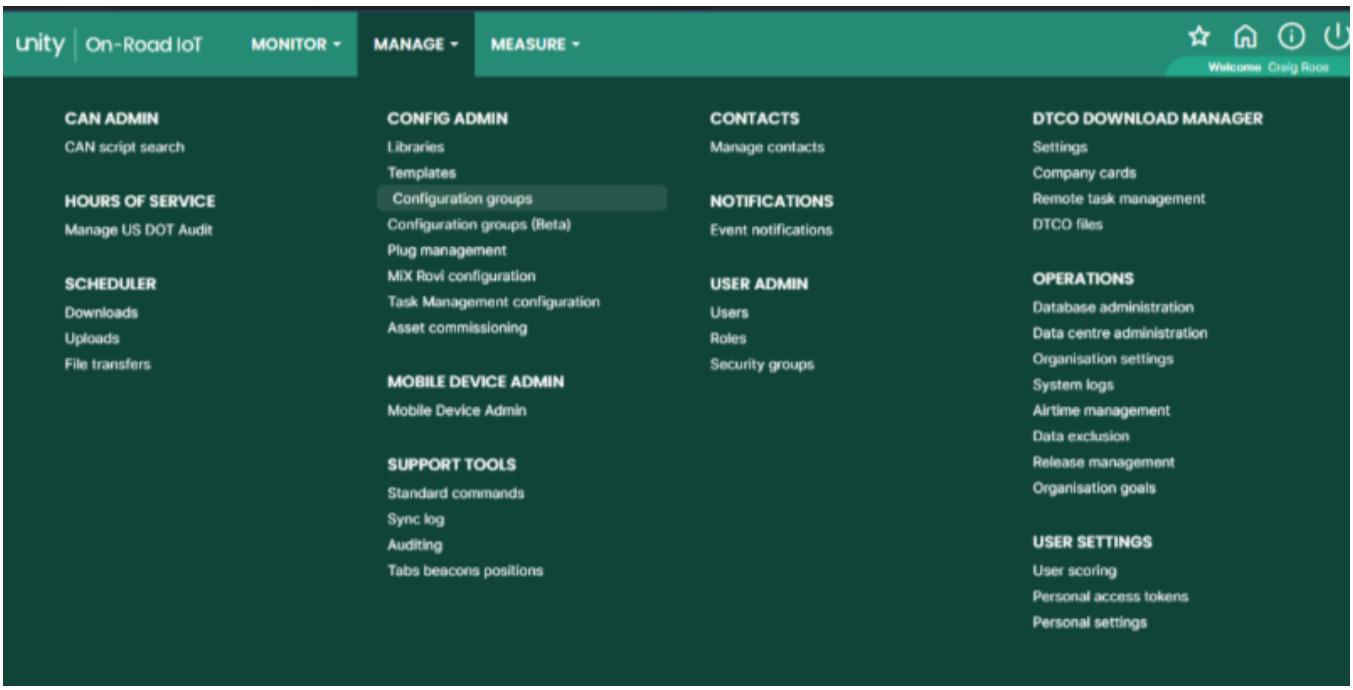
OBC Configuration

The RIBAS™ display can be used on MiX OBC's with the relevant setup.
Note: RIBAS™ will not work with FM Tracers.

The OBC needs to be setup using the Unity Application with the following:

- Configure a suitable serial port to add the RIBAS™ display as an extended device
- System events
- Custom events

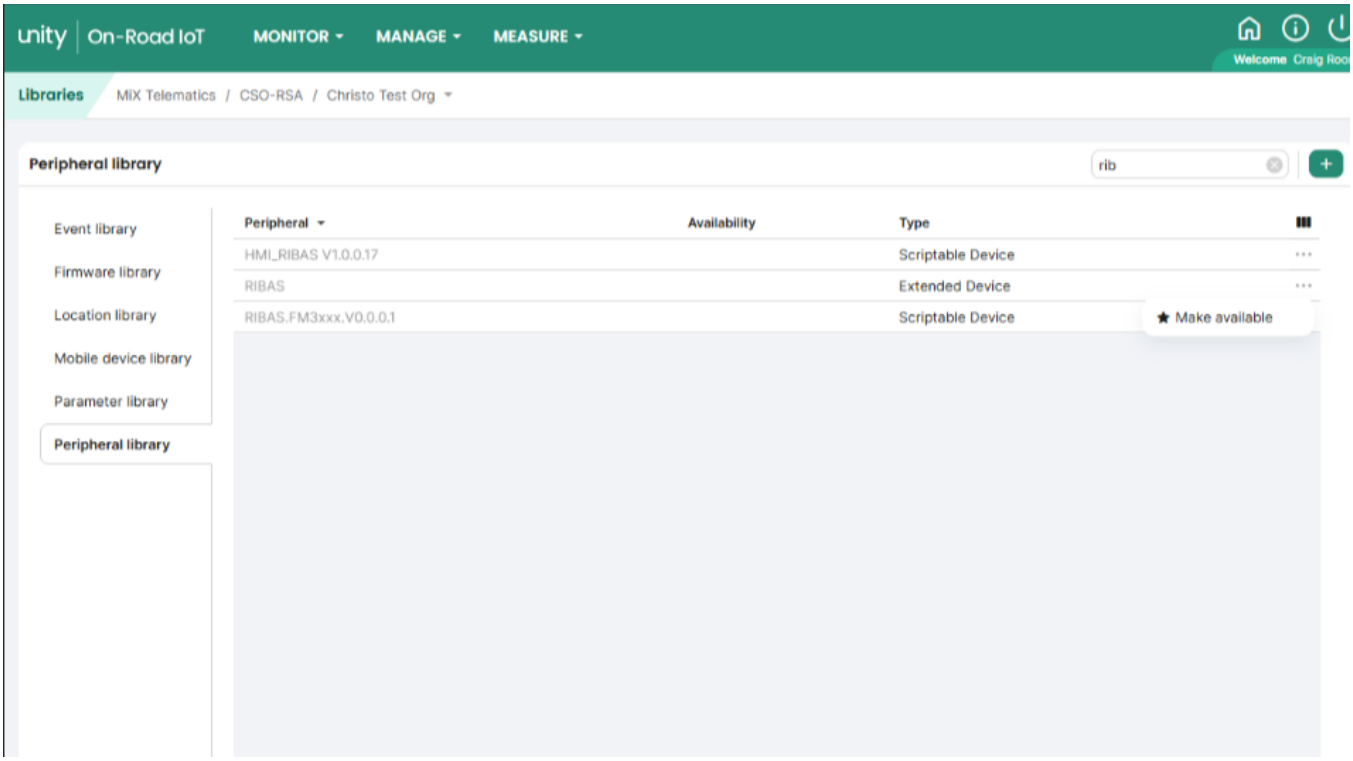
See screenshot of the **Unity Application**:



Configure Serial Port to use an Extended Device

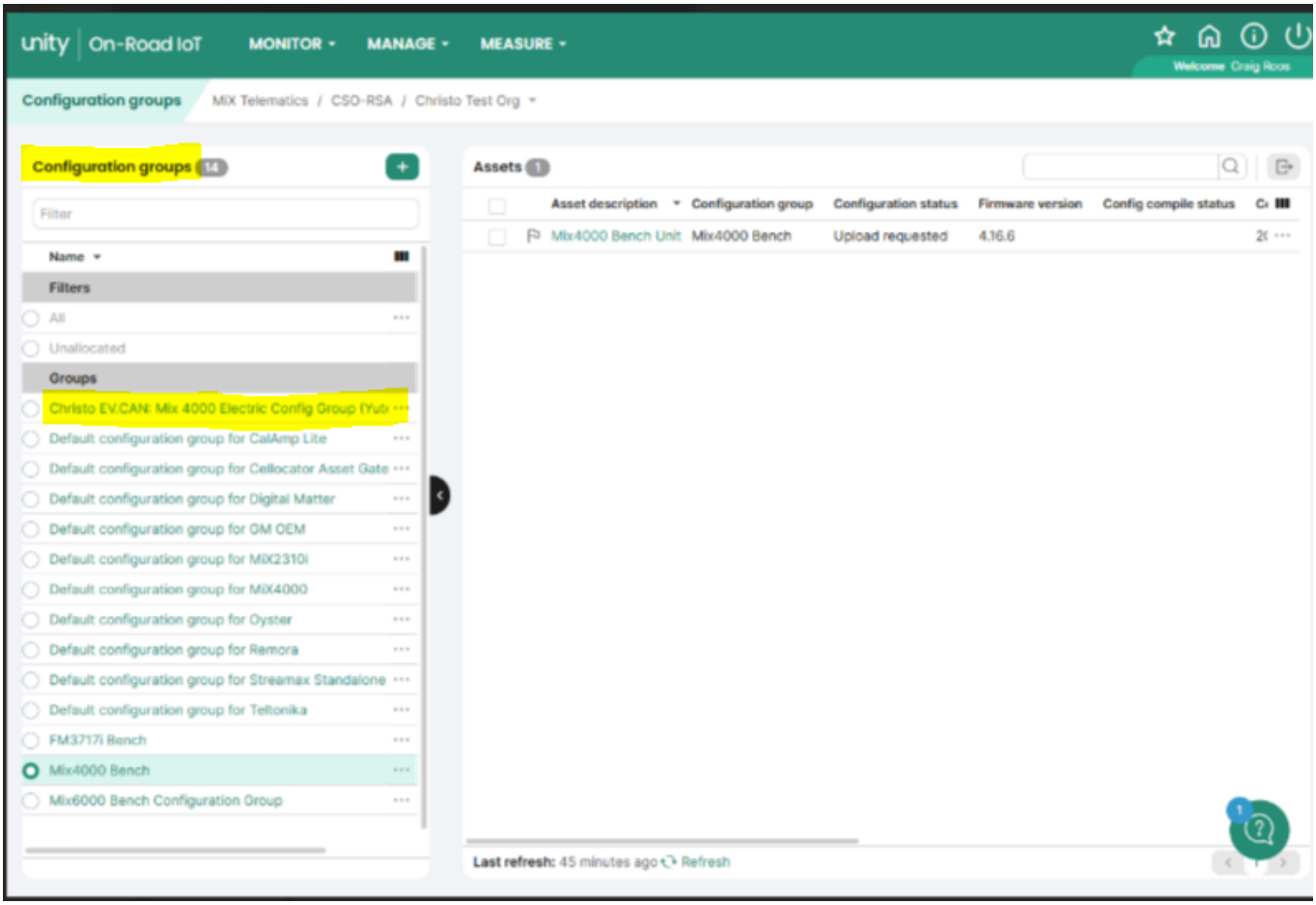
Once the selected RIBAS™ display has been connected to the serial port of the OBC, the device needs to be configured in Configuration Groups, using the **Unity Application** as shown below (E.g., S1 on a MiX4000). See below: How to setup S1 as an Extended Device, called RIBAS.

Firstly, make the RIBAS Extended Device available from the Peripheral Library **Manage – Config Admin - Libraries**

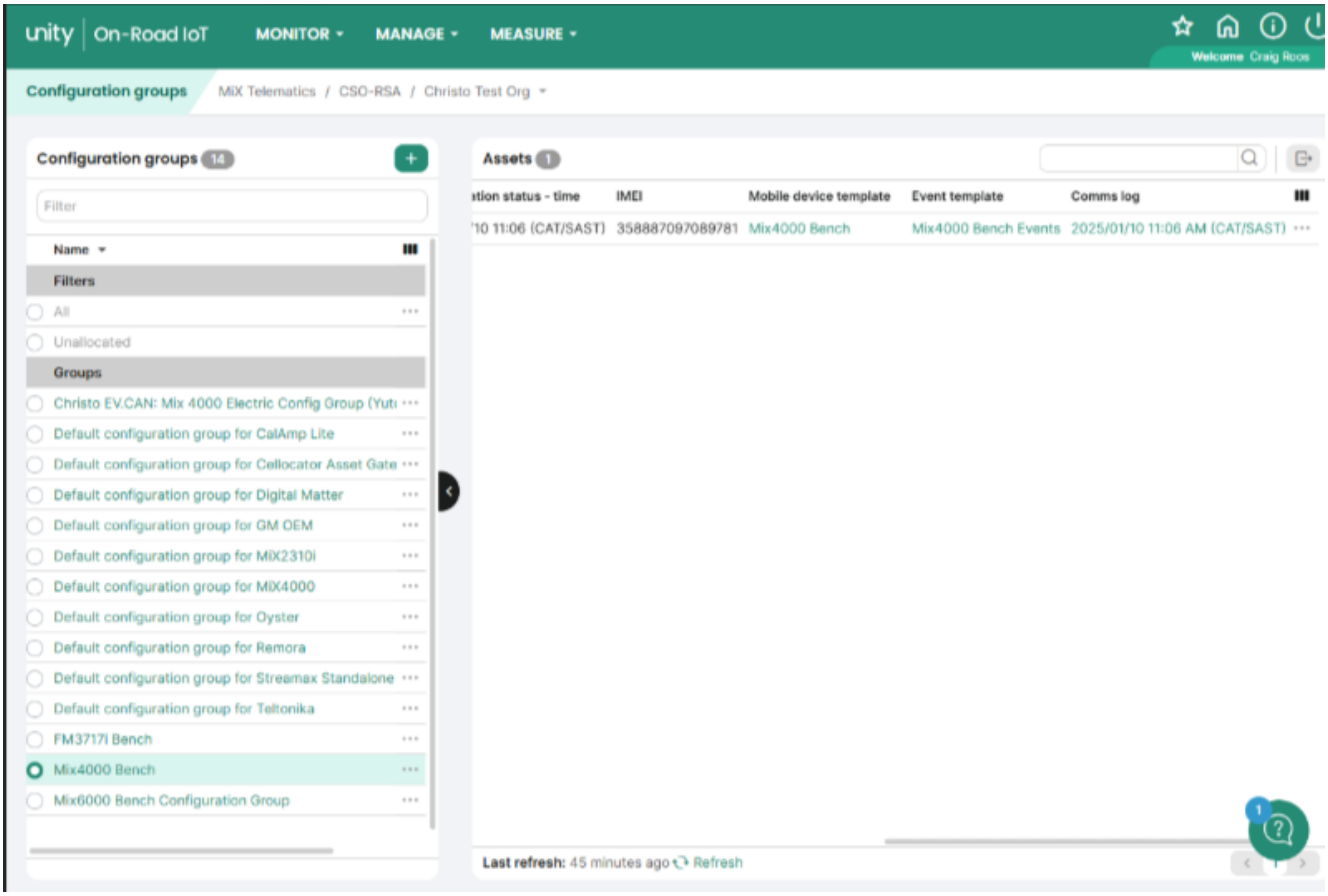


If the RIBAS Extended Device is greyed out, make it available by clicking on the 3 dots to the right of the device and select Make Available.

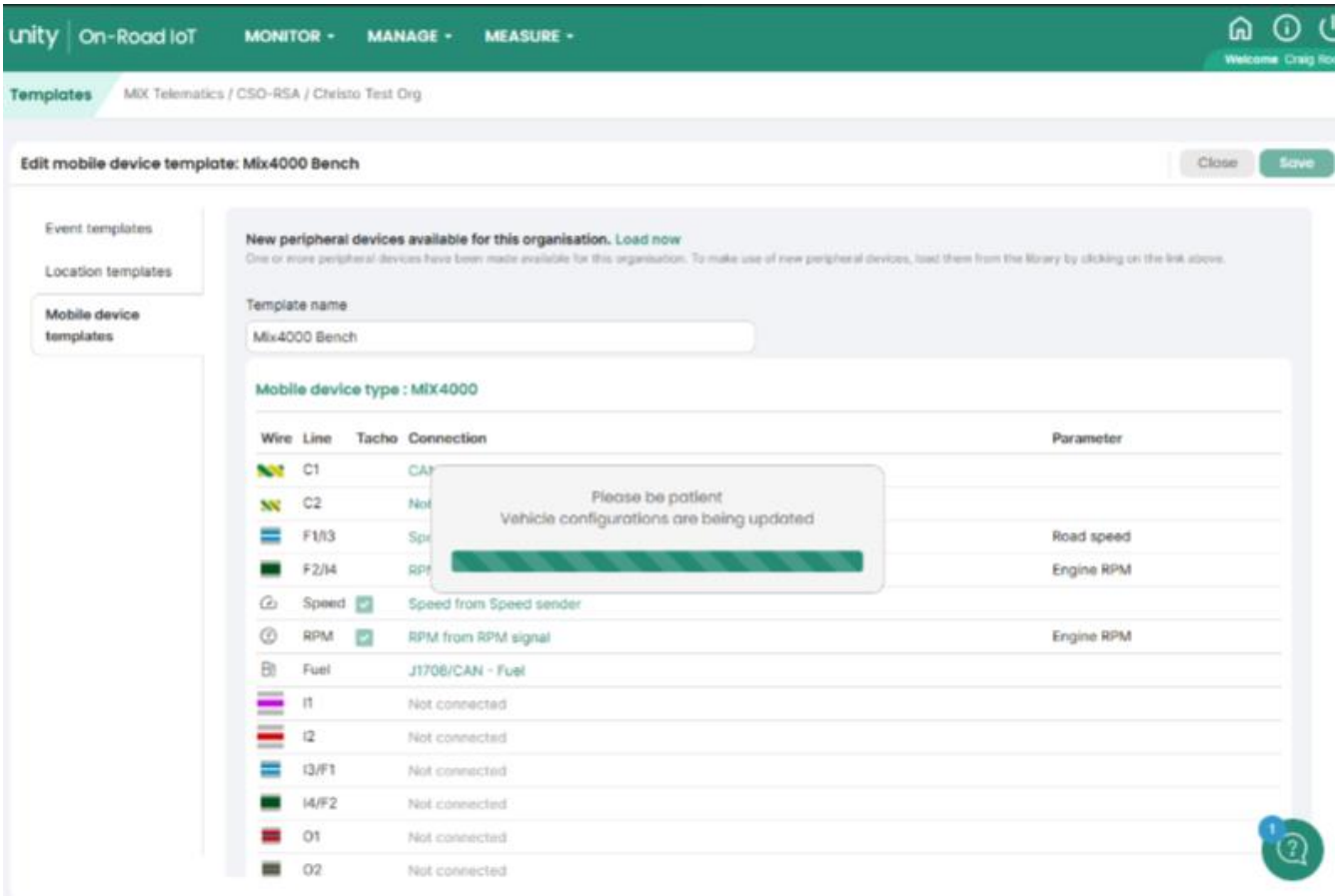
Now select the asset that needs to be modified for RIBAS **Manage – Configuration Groups**



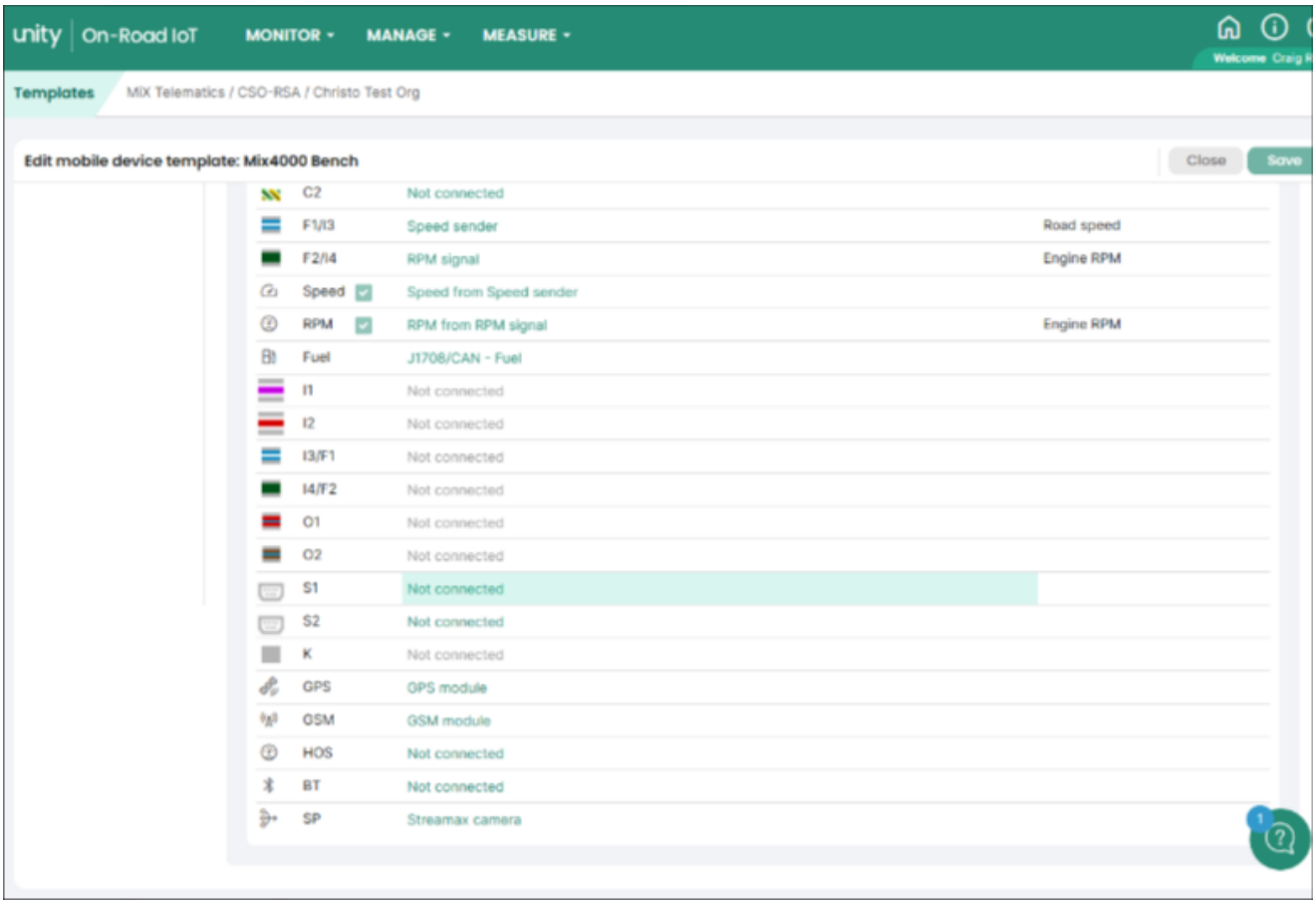
Click on the green Mobile Device Template (Mix4000 Bench in the example below) – modifications to the device should be made at the template level.



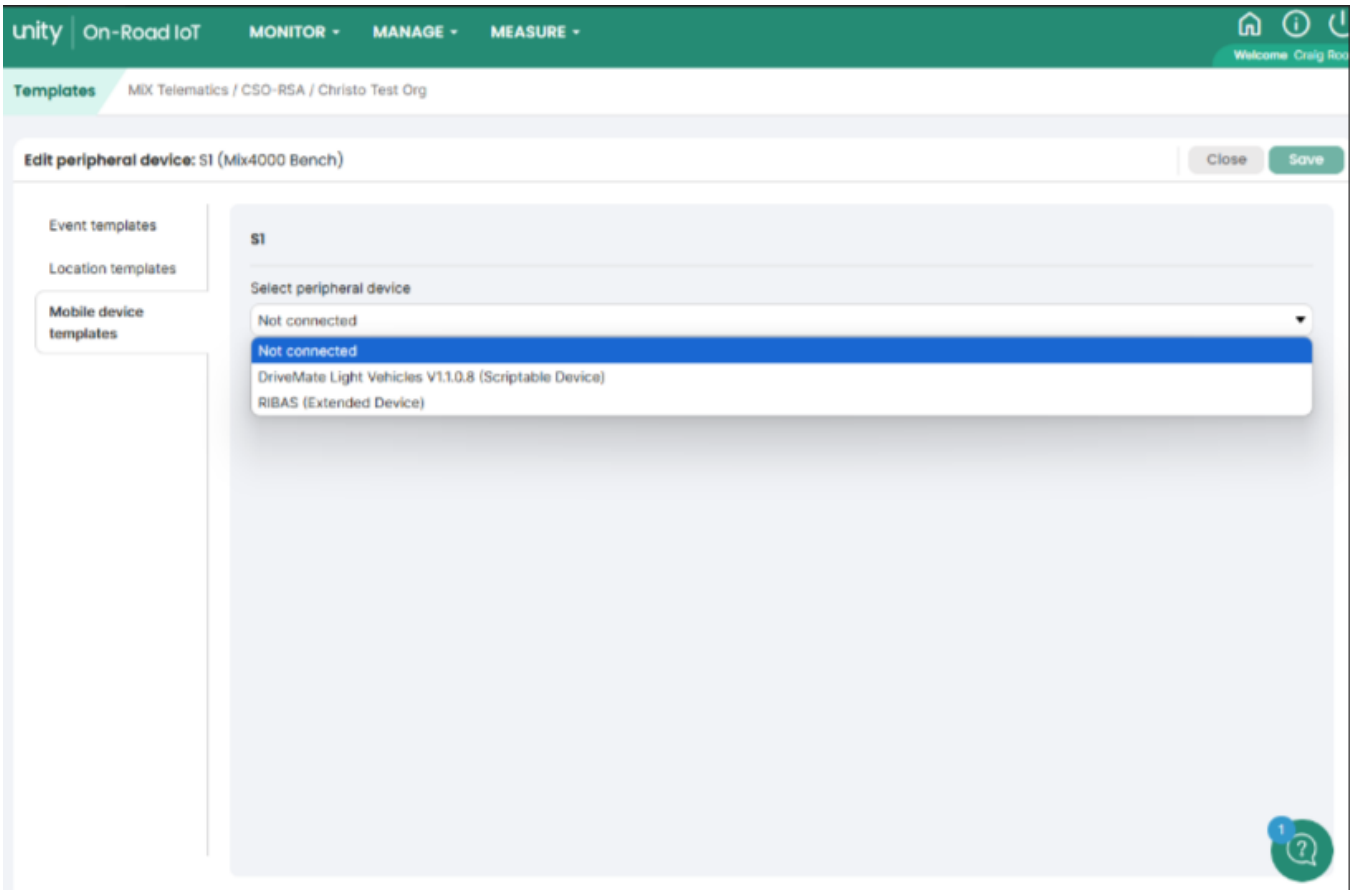
If the green "Load now" message appears against the "New peripheral devices available for this organisation" so the new device can be loaded.

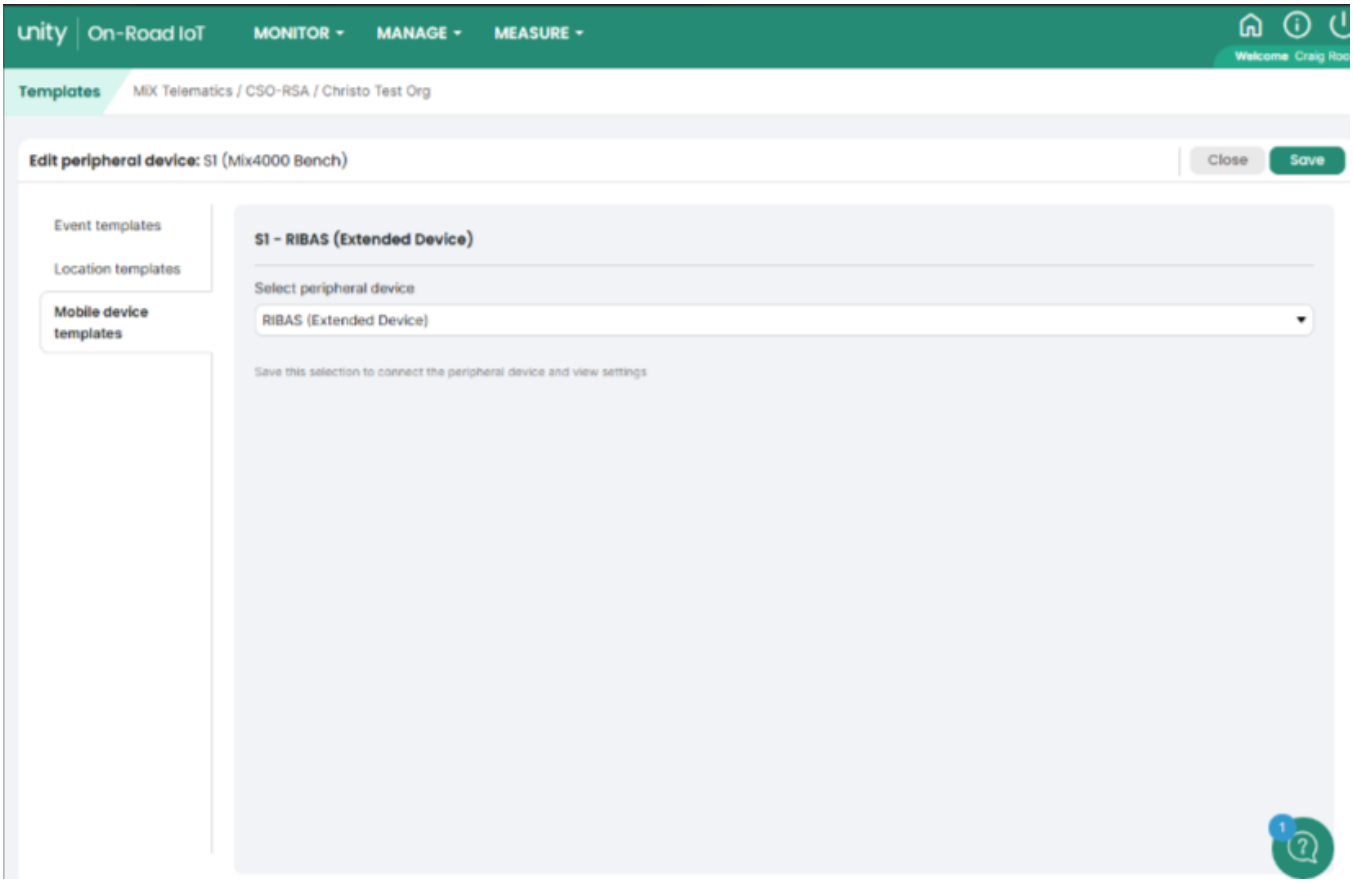


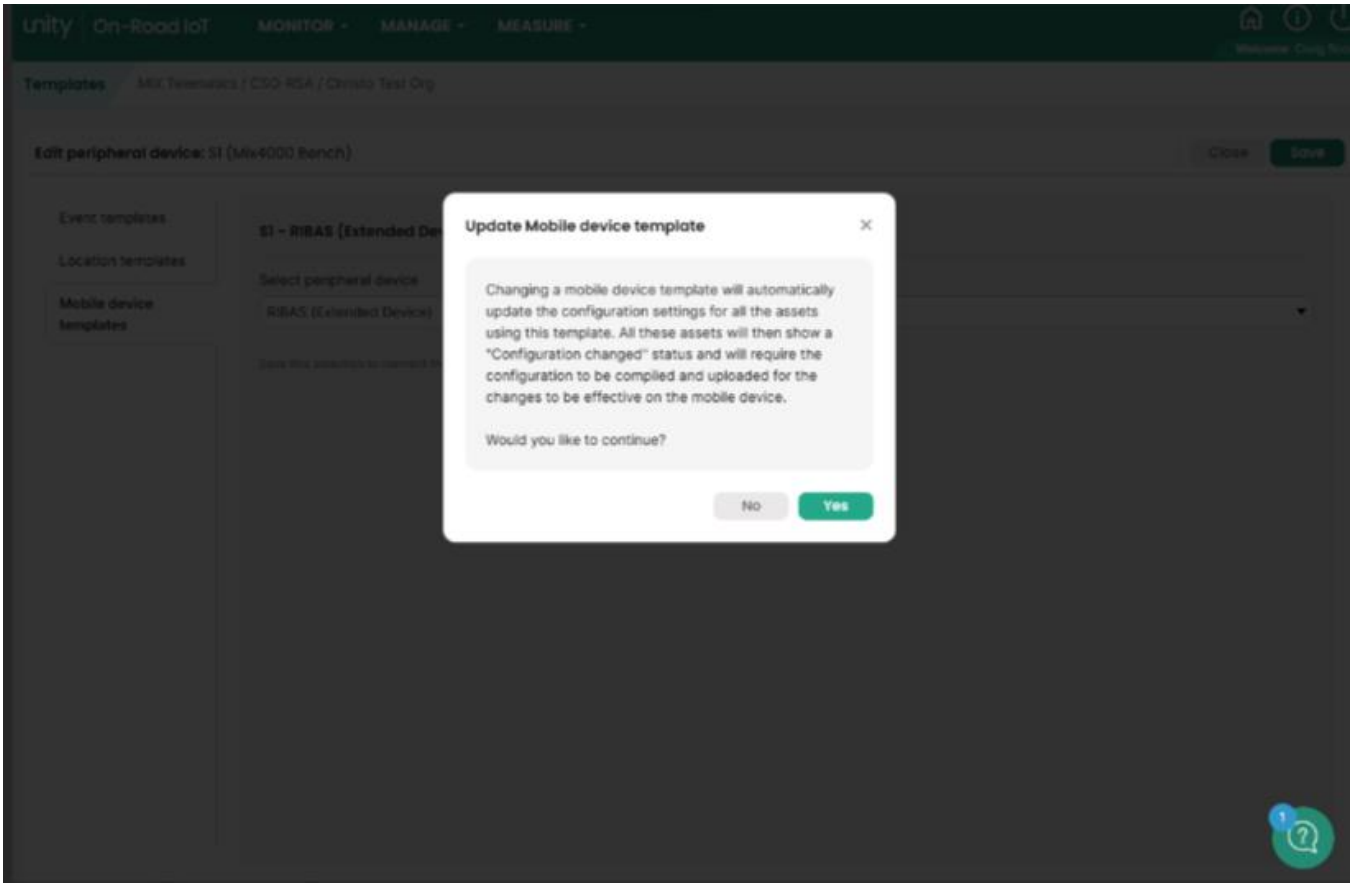
Select the serial port which RIBAS is connected to, either S1 or S2 and click on “Not connected”



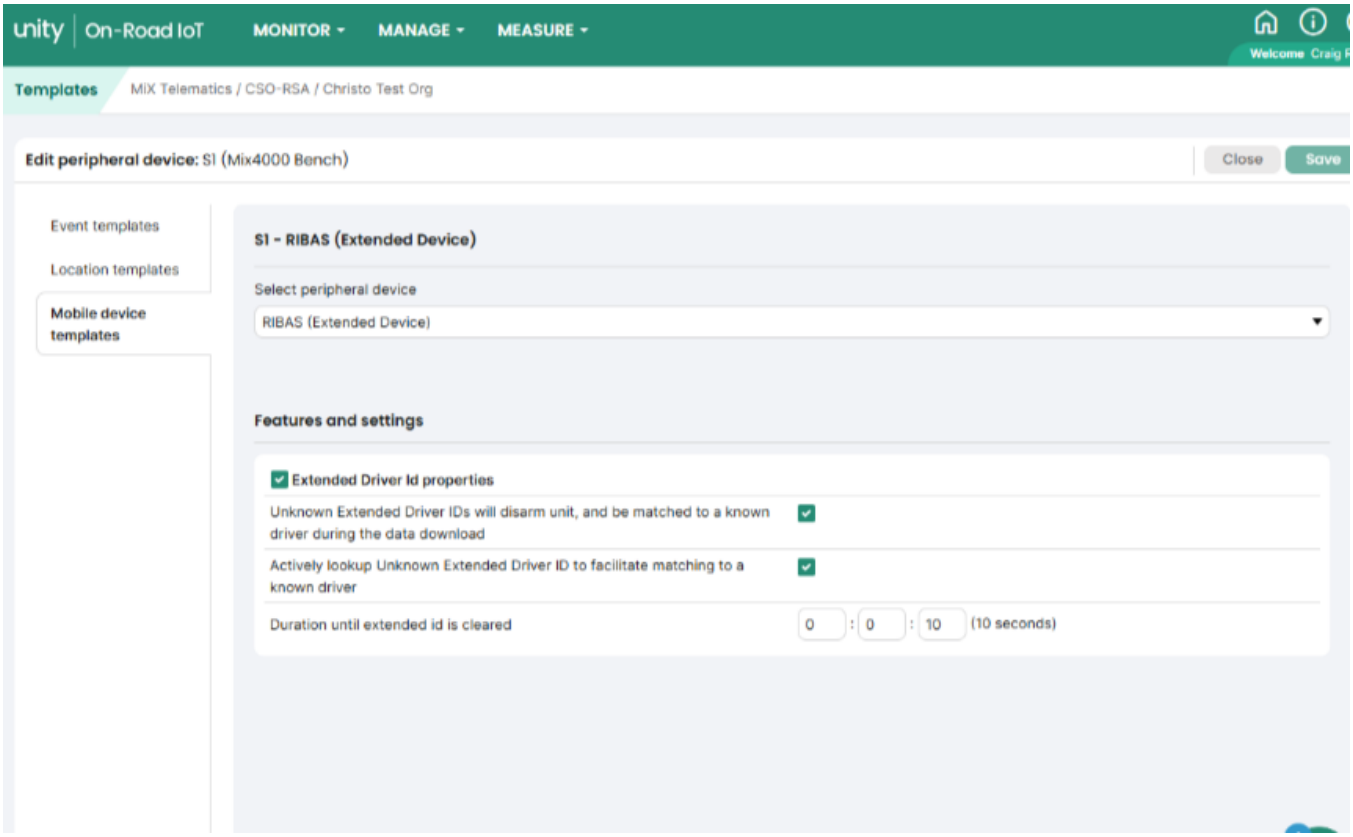
Select the RIBAS (Extended Device) from the drop down list.



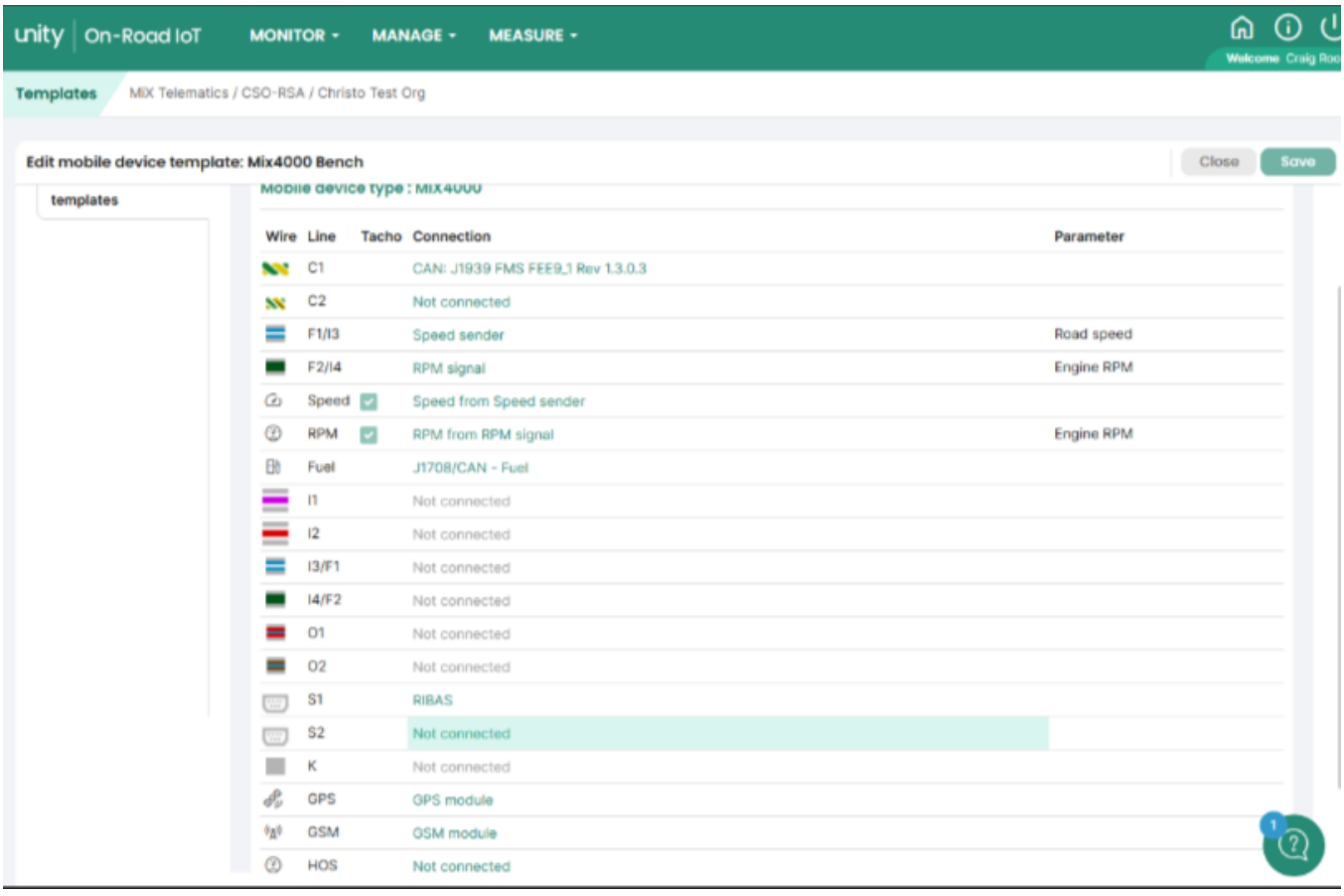

unity | On-Road IoT
MONITOR
MANAGE
MEASURE
Templates
MiX Telematics / CSO-RSA / Christo Test Org
Edit peripheral device: S1 (Mix4000 Bench)
Close
Save
Event templates
Location templates
Mobile device templates
S1 - RIBAS (Extended Device)
Select peripheral device
RIBAS (Extended Device)
Save this selection to connect the peripheral device and view settings


Update Mobile device template
Changing a mobile device template will automatically update the configuration settings for all the assets using this template. All these assets will then show a "Configuration changed" status and will require the configuration to be compiled and uploaded for the changes to be effective on the mobile device.
Would you like to continue?
No
Yes

Now configure the Extended Device – if connecting to a Ticket Machine for Driver ID then the Extended Driver ID Properties need to be selected – do not select if Driver ID is not required via RIBAS

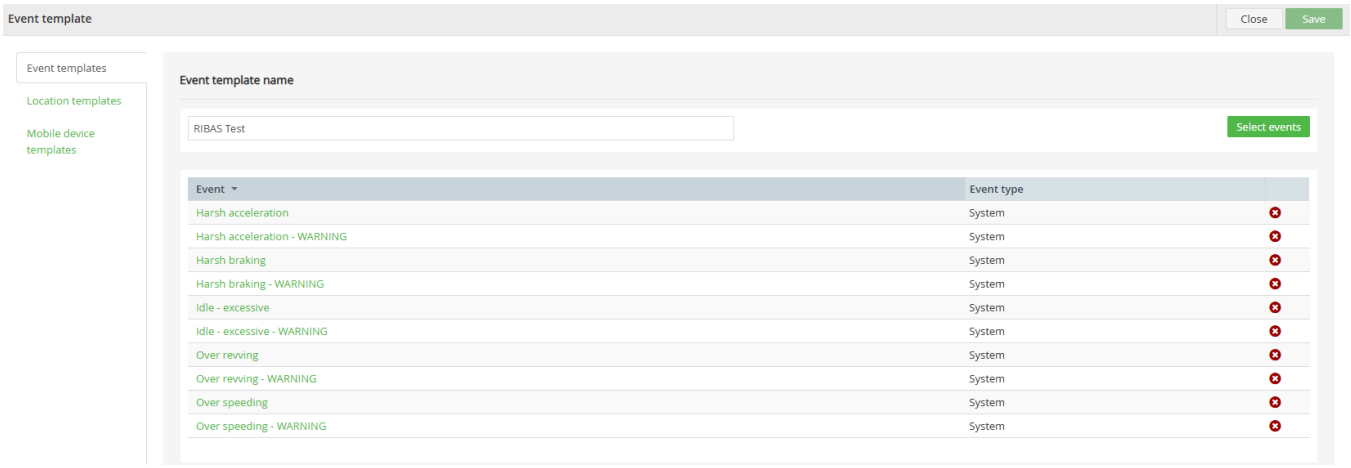


When "Save" is selected the RIBAS device will appear in the Mobile Device Template as below.

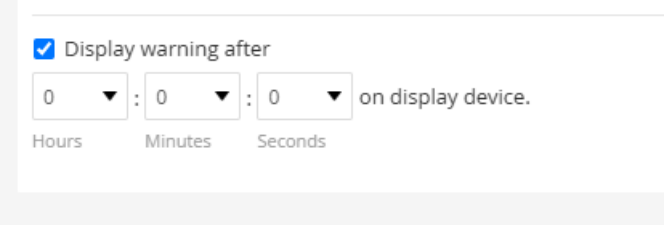


RIBAS Events

RIBAS uses system events to trigger each LED. The Event Template example shows the system events that need to be selected where applicable i.e. if Warning events are not required do not select them.



In order for the event to be displayed on RIBAS then each event needs to be configured for "Display warning after" as shown below – if this is not ticked then the event will not be displayed on RIBAS.

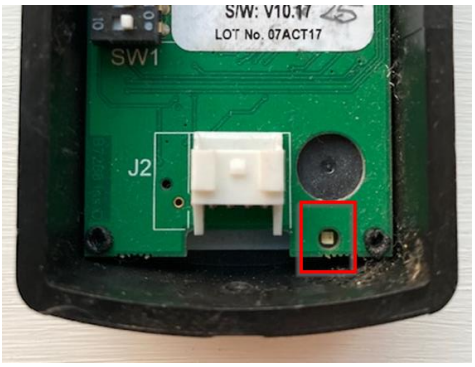


Event parameters need to be customised to each customers requirement.

Installation Verification

Once RIBAS is connected to the OBC and powered up the green LED behind the MiX logo on the display should illuminate. This is effectively the power-on LED.

Next check the function LED on the RIBAS pcb. The top assembly must be removed from the base plate to access the LED as shown below.



The green LED will flash differently depending on the status of the RS232 and RS485 communication lines.

RS232 Comms to OBC - The green LED will change from Off to On if RIBAS can communicate with the OBC. If the LED remains off it usually indicates that there is no comms with the OBC – check cable or OBC config. The RIBAS will reset periodically, and hence the green LED will go off, until comms has been restored.

RS485 Comms to ETM – The green LED will quickly switch off for ½ second when an ETM message has been decoded.

If the message contains a new Driver ID the sounder will "click" momentarily and the OBC should double beep indicating that the Driver ID has been accepted.

RIBAS Functionality – Check that the idling event works by leaving the engine running for the period set for the event – when the time has exceeded the "I" (Idle) LED will illuminate, and a beep will be sounded.

Limitations

RIBAS must only be used with a compatible Powerfleet OBC.

RIBAS must NOT be connected to the vehicle supply – the power circuitry is only designed for the peripheral supply lines on compatible OBC products. Failure to comply will result in permanent damage to the RIBAS display.

Technical Specification

Physical

Dimensions	80mm x 62mm x 20mm
Case	Black 2 part ABS (recycled) enclosure Snap together parts with single Torx screw fixing
Weight	70grams - RIBAS™ Panel only 350grams - RIBAS™ Panel plus Cable
Mounting	Two slots in enclosure base to take pan-head no.8 self-tapping screws or M3 bolts
Cable Length	Optional Lengths: 2, 4 or 6 metres (Terminated with Molex Micro-Fit 10-way receptacle)

Power Supply

Voltage	7 to 32 VDC (can only be powered from MiX OBC)
Power	120mW (operational)
Protection	Reverse polarity Internal 1A resettable fuse Automotive 24V load dump protection

Communication

Interface	RS232 Full duplex serial data communications interface to FM OBC Electrical RS232, Speed 9600bps, Handshaking Hardware RS485 Multi-drop interface for communication with Ticket Machines[1] 2-wire or 4-wire, simplex or half duplex operation, configurable. [1]Contact MiX Telematics Europe Ltd for more information

Driver Warning	Five LED indicators Over revving, Excessive Idle, Harsh Braking, Harsh Acceleration and Over Speeding Internal buzzer for audible warning of new event

Environmental

Temperature	-20 and 60 °C
IP rating	IP50

Certification

E11	EMC Vehicle EMC Directive Reg.10.06
UKCA	UK Conformity Assessed (marked on the packaging label only)
CE	EU Radio Equipment Directive (RED) 2014/53/EU