

RocRail & Dinamo OC32 (UK Signal Setup)



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RocRail & Dinamo OC32 (UK Signal Setup)

Please note the following information in relation to the instructions provided in this document. These instructions were captured during the setup of a Dinamo OC32 DCC board (coupled to a Dinamo DS32) which was connected to a Windows 7 PC and a Dinamo U485 USB serial interface. The instructions in this document are also based on the configuration of a 4 aspect common negative LED aspect signal connected to the first 4 ports on the DS32.

Dinamo U485 Setup

Ensure you have installed the driver package first before you connect your U485 USB dongle to your PC. Once the drivers are installed when you connect your U485 to your PC it should install the drivers required automatically and register itself as a com port as per the example screen shot below



Dinamo OC32 Setup

Firstly once you have installed the OC32Config onto your PC you must then copy any definitions you may have into the same folder where OC32Config was installed, typically *c:\program files (x86)\OC32Config*

When you first launch OC32Config the default screen will be something similar to that shown below

rt: 💽 Refresh Module.	Address 1 🔆 🔽 Start number	ering at 1 🔽 Bidirectional Comm. Ied Addr	Save File Load File
Activate Transparent Mode Use Dinarr	oTunneling 🥅	Verify All	Read All Write All
General	OC32 Event Control	OC32 Device Configuration	Test
Firmware Version: Unknown ID String ID String	Request Version Read String	LED Control Green LED function Orange L Basic DCC Packet DCC c eXtd DCC Packet 0M32 Message	ED function Read Settings Checksum Error Write Settings
	write sturig	🔲 OC32 Message	
DCC Basic Decoder Addr 1 \rightarrow Output 1 3 Basic Packet State Invert Allow Addr Extended Dec. Addr 1 \rightarrow Output 1 3 Packet Retention C 62.5ms C 125m Module eXtended Addressing OM32 Flex-Address Start 1 \rightarrow Er Module eXtended Address 1 \rightarrow Er Erase Flash	2 Read Settings ess 0 Vite Settings 2 s • 250ms • 500ms mable Read Settings Write Settings Write Settings 1 1 1 1 1 1 1 1 1 1 1 1 1	✓ Idle Flash ✓ All R Hardware Config Pin Pin 18 Sink Driver □ Source Driver □ Serial Port □ Baudrate 9600 Parity <> No C Even	eceived Datagrams

One important note to remember with the OC32Config application is that whatever are the settings configured within the software at the time you run it, will be written to the OC32 when you commit changes to the board. This means if you have previously set an option and the OC32Config does not have this set at the point you commit your changes the OC32 will not maintain the settings. To ensure this does not happen you can either always ensure you click the option "*Read All*" at the top of the screen before you make any changes and/or you can click "*Load File*" from the top of the screen and select a configuration file you have previously saved containing all the settings as you have defined them.

Firstly select the com port for you U485 device in the top left of the screen from the drop down list. If you com port is not listed hit the refresh button. (Note if you have another application running which is communicating with the com port this list may not display the U485 device, if so make sure no other applications are running which could be talking to the com port).

Next select the "*Request Version*" next to *Firmware Version* to perform a quick and easy validation you have communication with the OC32.

Assuming this reported back the current firmware of the OC32 you are ready to start to configure the board. As these instructions ae based on there being an U486 USB dongle connected to your PC you can ignore the **DCC** and **Module eXtended Addressing** section on the General tab and you just need to concentrate on the bottom right corner and the Serial Port settings. Here you need to enable and set the **serial port** settings

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through which you will later configure Rocrail to communicate with the OC32, as described later in this document. For the purpose of using an OC32 with Rocrail the following settings are recommended

- Baud Rate = 38400
- Bits = 8
- Parity = No
- Stop = 1
- Enabled = True

Once these settings are written to the OC32 you should be able to communicate with Rocrail once the OC32 is configured as a controller with that software. Please note that a baud rate of 38400 appears to be the highest value that will work with Rocrail.

Next on this General tab we need to setup the "*hardware config*" in line with the peripheral devices to be connected. For the purpose of these instructions and as outlined at the start of this document the LED aspect lights used were of a common negative type. This type of LED light requires the default sink driver chips to be changed on the OC32 for a set of resistor array chips. If your LED lights are common positive then the default sink driver chips do not need to be changed. If you are using the default sink drivers the under the "Hardware Config" section on the general tab ensure the option next to sink driver is ticked for each bank of 8 ports you have your LED lights connected. If you have replaced the sink driver chips with resistor arrays then you leave all the tick boxes blank for each set of 8 ports you have you LEDs connected.

In the box entitled *ID String* you can enter a word here that can be written to the OC32 by means of an descriptive identifier. This option does not a requirement in order for the OC32 and rocrail to function together however if in te future there are more than one OC32 modules connected to your PC it may be advisable to set a string ID for each of your OC32 board in order to easily identify which one you are communicating with.

It is recommended at this point that you click the "*Save File*" button at the top of the page and create a configuration file for your basic OC32 settings. Once you have saved these basic settings you should click the "*Write All*" button to commit the changes to the OC32 board.

	Use eXten	ded Addr	Load File
Activate Transparent Mode Use Dinam	oTunneling 🥅	Verify All Read All	Write All
General	OC32 Event Control	OC32 Device Configuration	Test
Firmware Version: Unknown	Request Version	LED Control Green LED function Green LED function Basic DCC Packet DCC Checksum Error	Read Settings
D String THOMAS	Read String Write String	eXid DCC Packet OM32 Message OC32 Message	write Settings
Basic Decoder Addr 1 1 0utput 13 Basic Packet State Invert Allow Addr Extended Dec. Addr 1 1 Output 13	2 Read Settings ess 0 Write Settings 2	Idle Flash I⊄ All Received Datagrams	
	s (• 2000s (° 00000s	Pin 18 916 1724 2532	Read Config
Module eXtended Addressing		Source Driver	Write Config
Module eXtended Address	Write Settings	Serial Port Baudrate 38400 ▼ I⊽ Enable Bits ⊂ 7 ⊙ 8	Read Settings
aXt Group Mask 0 1 2 3 4 5 6	7 8 9 10 11 12 13 14 15	Parity No C Even C Odd Stop 1 C 2	Write Settings

The screen shot above shows an OC32 configured to run on port 5 (the com port the U485 has registered itself on). There is an *ID String* set to Thomas and the *serial port* configuration is set to the following

- Baudrate = 38400
- Enabled = True
- Bits = 8
- Parity = No
- Stop = 1

This example also shows that the LED signals are all common negative and thus all the boxes under the *Hardware Config* box have been left blank. This example screen shot also shows that as this is the only OC32 board connected the module address is set to 1 as per the block of red switches on the board (see bottom right of the image below as an example)



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In readiness for configuring the ports it is worth just quickly reviewing the physical connecting of the wires for an LED signal. As mentioned earlier this instructions are based on a 4 aspect common negative LED signal connected to a DS32 and controlled by an OC32 DCC module. The common wire from the LED signal was connected to this terminal block on the DS32 and the signal's LED colour wires were connected as follows



The next stage is to configure the ports on the OC32 so as they will drive the LED signal in the manner expected.

OC32 Config				
Port: 5 💌 Refresh	Module Address 1	✓ Start numbering Use eXtended A	at 1 🔽 Bidirectional Comm.	Save File Load File
Activate Transparent Mode	Jse Dinamo Tunneling 🛛 🗌		Verify All	Read All Write All
General	OC32 Event C	Control	OC32 Device Configuration	Test
	✓ Load Device	Reload DD	Definitions Loaded:	Generic 2015/06/10
Pin 1 📫 (4)GB: 4 Aspect (N+0	I]=Red	D	evice Pin 1 Device Name (4)G	3: 4 Aspect
Serial	B-DCC X-DCC	🔽 Show E	Details Save Device	Read Device Write Device
Address 1.1 1				Read All Devices Write All Devices
Init 🔲 📩 Aspects 🔿 0 6	4 C 12	Ĩ	Get Pin Config Set Pin Confi	9
Aspect 0 🕂 Stop	Test	Write Single	Clear Servo	PWM Input
# Instruction 0 Multibit 4 1 -	0 1 0	0 00:00.00	Drive Mode © Logaritmic C Linear	Acceleration 28 ÷
2. 🗸	0 0 0	0 00:00.00	Celeration Mode C Linear	On-Level 31
3 . • 4 . • 5 . •	0 0 0 0 0 0	0 00:00.00 0 00:00.00 0 00:00.00	☐ Inverted	
6. 🔽	0 0 0	0 00:00.00		
7 . •	0 0 0 0 0	0 00:00.00 0 00:00.00	Į	< 0 Level Jump Slow
Le				Release 3.0.1

RocRail - Controller Setup

These setup instructions are based on the assumption you have the RS485 USB interface connected to your PC and that the drivers are loaded with the USB device registering itself in Windows as a COM port.

First you need to add the OC32 as a controller to RocRail. This is done via selecting *File* from the menu at the top and then selecting *Rocrail Properties*. On the window that will then appears select the *Controller* tab and the window should look similar to the screenshot below.

eneral	Trace	Service	Automatic	Controlle	er R2Rnet	Analy	ser Roc	Web Finder	Comma	ind map	ping	 	
Interfac	e ID 🛛	Controller	Sub-Library	Device	Hostname	Port	Descript	ion					
NEW	(om32	default	com5		0							
													Þ
•							III						ł
terface	ID @		[Description	n @								4
e terface	ID @	r command	C Ignor	Description re power o	n @ ff on ghost		III						4
terface	ID @ : powe ete	r command	ds Ignor	Description re power o Defaul	n @	Modify							4
∢ terface] Ignore Del	ID @ : powe ete	r command	ds 🔲 Ignor perties	Description re power o Defaul	n @ ff on ghost t	Modify							4
 Ignore Del 	ID @ : powe ete	r command	ds Ignor)escriptior e power o Defaul	n @ ff on ghost t	Modify	/						4
 iterface Ignore Del New barjut 	ID @ : powe ete	r command	ds 🔲 Ignor perties)escriptior re power o Defaul	n @ ff on ghost t	Modify	·····					 Add	•
 Ignore Del New barjut 	ID @ : powe ete	r command	ds 📄 Ignor perties	Descriptior re power o Defaul	n @ ff on ghost t	Modify	/					 Add	•
 Ignore Ignore Del New barjut Options 	ID @ epowe ete	r command	ds Ignor	Description e power o Defaul	n @ ff on ghost t	Modify	/					 Add	
 Ignore Ignore Del New barjut Options Pow 	ID @ epowe ete	r command Proj	ds Ignor perties [Description re power o Defaul	n @ ff on ghost t E Shutdo	Modify wn on e	exit V	No device cł	eck at start	tup		 Add	•
 Ignore Ignore Del New barjut Options Pow 	ID @ epowe ete	r command	ds Ignor perties [Description re power o Defaul	n @ ff on ghost t m Shutdo	Modify wn on e	exit 🗸	No device ch	eck at start	tup		 Add	

Towards the bottom of this window you will see a button labelled *Add* and to the left of this a drop down box. Here select "*OM32*" from the list and then clock *Add* (As per the screenshot below)

Interface ID @	Description @	
🔲 Ignore power comma	nds 🔲 Ignore power off on ghost	
Delete	roperties Default Modify	
New		
om32		- Add
_		

The new controller should now be listed, alongside any other controller you already have defined, and will most likely have the interface ID of NEW. Select the newly added controller from the list at the top of the window and then click the **properties** button the a window similar to that shown below should appear

		Sensors
nterface ID	NEW	Number 0
Port	com5 👻	Offset 0
Туре	om32	Sleep 200
Baudrate	Hardware Flow	Program 0
2400	one	Poll
4800	© cts	Reset
9600	🔘 dsr	BIDI
19200	🔘 xon	Options
 38400 57600 115200 230400 500000 1000000 		 Programming track System info Locomotives Switches Overrule throttle V 0 on emergency break Echo commands
_		Version 0
Timeout 10	00 👘 mS	Switch time (ms) 250
		OK Cancel Help

Here is where you configure the communication settings for Rocrail to talk to the OC32. It is recommended you change the interface ID to something other than NEW, for example change it to OC32. You need to change the Port to that which the RS485 has registered itself to. The drop down may or may not list all the com ports Rocrail has found, if it does not provide a list then you can manually enter the com port number by entering "COM" and then the number of the port, for example COM5.

Now select the baud rate and the flow control as per you configured in the OC32Config application. For Rocrail the maximum baud rate is 38400.

Once done click the OK button to save the changes.

Signal Configuration

(The following screenshot were taken from a signal which was configured as a 4 aspect signal)

Next add a signal item to your track design and the select the properties for that signal.

On the window that appears select the Interface tab and the screen should look similar to below

Index Gen	eral Interface	Wiring	Details	Usage		
Interface ID	NEW					
Bus	0	0x0000000	UID-	Name		
RED						Control
Add	dress	Port				Default
1	1		· · · · · · · · · · · · · · · · · · ·	red	green	Patterns
GREEN						Aspect numbers
						© Linear
1	2		×	red	🔘 green	Binary
YELLOW						Accessory
						Туре
1	- 3		•	red	green	Output
WHITE						Ights
						Servo
1	4		•	red	🔘 green	Sound
						Motor
Protocol	Dinamo OC32	•				Analog
						Macro
Invert	🗌 Pair g	ates 📃	Switch	Swit	ch time (ms)	
Command t	time 0	🚔 ms				

- Where it says *Interface ID* at the top of the window, select the new OC32 controller you have just created from the drop down list.
- Towards the bottom of this window is the word *protocol*, next to this is a drop down list select "*Dinamo OC32*" from the list.
- Next untick the box next to the word *Accessory* and then select *Lights* from the list which is now available to select.
- Next under the box headed *Control* select *Aspect Numbers*.

The final actions on this window are to set the address and port details. In Rocrail double yellow is handled by the option listed as WHITE. In the example shown in the diagram above there is only one OC32 module connected and its address is set as 1. The first 4 ports have been configured in OC32Config as a 4 aspect signal with the following details

- Port 1 = Red
- Port 2 = Green

- Port 3 = Yellow
- Port 4 = Double Yellow

In the Address box you enter the address of the OC32 module, 1 in this example, and for the ports you enter the corresponding numbers to equal that of the lights as per configured in OC32Config. Leave the bus number at the top of the windows as zero and UID-Name blank. Also the Invert, Pair gates, Switch & Switch Time (ms) are all left unticked along with leaving the Command time and time next to the option Switch Time (ms) set to zero. The Options of Red and Green next to each of the port addresses are also left as default which is Red.

Next we need to configure the aspect order so as Rocrail displays the light sequence in the correct order.

Select the Details tab and the window should change to something like the one shown below

Signal SIG2													
Index 0	General I	nterface	Wiring	Details	Usage	•							
-Signal t	уре						Signif	ication					
 Sema Light 	aphore sigi t signal	nal					🔘 Dis 🔘 Shu	tant signa unting sig	al 🧿 Inal 🔘	Main si Block st	gnal ate		
Aspects Prefix	4	×					Dwa Dwa	rf signal prefix					
							Patterr	ns					
Aspect:		RED Addr	ess:		GRE	EN Add	ress:	Nur	nber:	Value	2:		
RED	© R1) G1	⊚ N	۲	R2) G2	© N	0	•	0	×		
GREEN	© R1) G1	© N	۲	R2) G2	© N	3	×	0	×		
YELLOW	© R1) G1	© N	۲	R2) G2	© N	2	×	0	* *		
WHITE	© R1) G1	© N	۲	R2) G2	© N	1	•	0	×		
BLANK	© R1) G1	© N	۲	R1) G1	© N	0	×	0	×		
Aspect na	ames												
<		>				+		ОК		Cance		Apply	Help

- Firstly set the number of aspects to match that of your signal next to the word *Aspect.* (** This document has been written using a 4 aspect signal detail around setting up a signal with more than 4 aspects you will need to experiment to work out the correct settings)
- Make sure the *Signal Type* is set to *Light Signal*
- Assuming you signal is a main signal make sure the *Signification* is set to *Main Signal*

Next we need to set the aspect order, this is done by entering the values under the Number column. In this column the first colour needs to be set to zero and then 1,2,3 and so on. So in the example above this has the following aspect order set

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- 0 = Red
- 1 = White (Double Yellow)
- 2 = Yellow
- 3 = Green