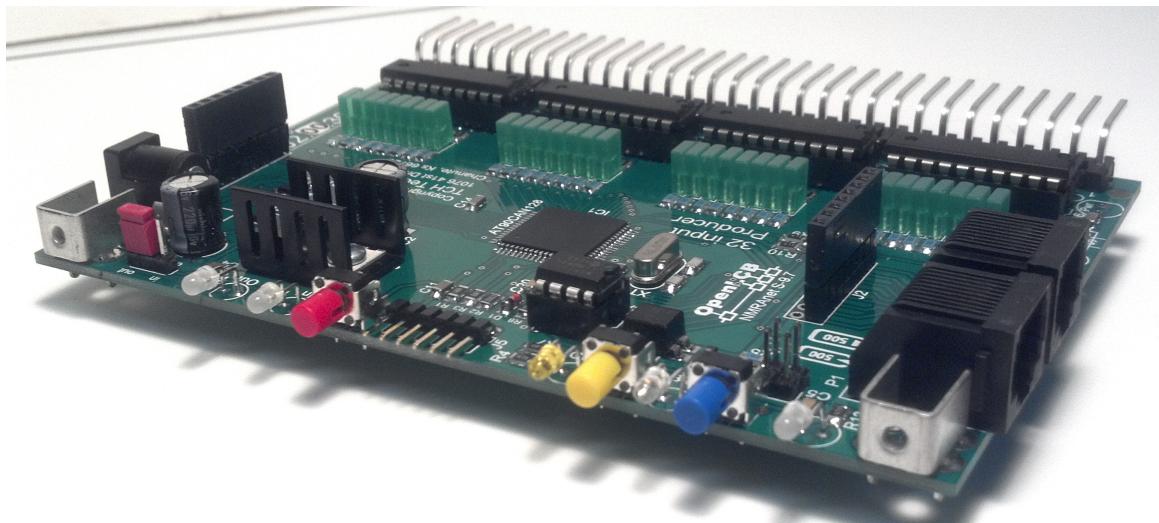


TCH Technology OpenLCB 32 Input Producer and Output Consumer Node Quick Start Manual

Written by Tim Hatch of TCH Technology

August 14, 2012



Contents

1	Hardware	5
1.0.1	OpenLCB Producer included with purchase	5
1.0.2	OpenLCB Consumer included with purchase	6
2	Provisioning the TCH Technology OpenLCB Node	7
2.1	Powering the OpenLCB Node	8
2.1.1	Power from the external jack	8
2.1.2	Power from the six pin serial connection	9
2.2	Power on the OpenLCB bus	10
2.2.1	Provide power to the OpenLCB bus	10
2.2.2	Provide power from the OpenLCB bus	10
2.3	Termination of the Bus	11
2.3.1	No termination	11
2.3.2	Resistive termination	11
2.3.3	Capacitive termination	12
3	LED Indicators	13
3.1	LED indications	13
3.1.1	Red LED indication	13
3.1.2	Blue LED indication	14
3.1.3	Gold LED indication	14
3.1.4	Single green LED indication	15
3.1.5	Two green LED indication	15
3.1.6	No green LED indication	16
4	Using JMRI Panel Pro	17
4.1	JMRI Preferences	18
4.1.1	Connections	18
4.1.2	TCH Tech Adapter	18
4.1.3	JMRI comport	19
4.1.4	JMRI baud rate	19

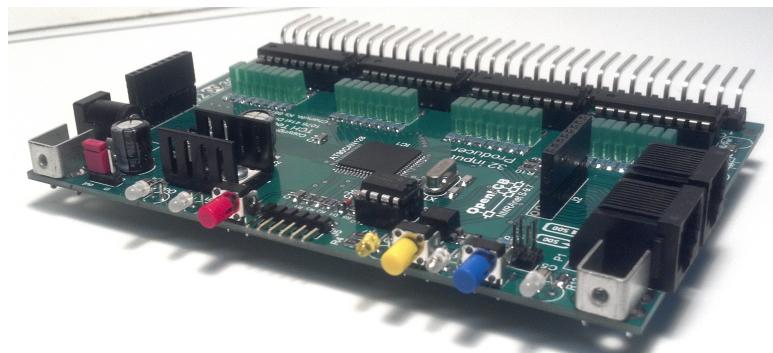
4.1.5 JMRI complete	20
-------------------------------	----

Chapter 1

Hardware

1.0.1 OpenLCB Producer included with purchase

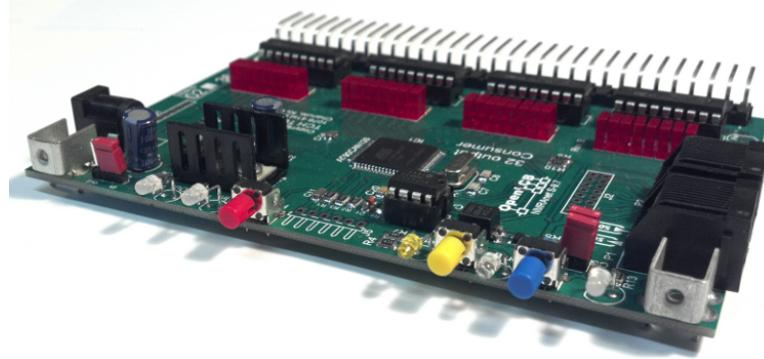
One OpenLCB 32 Input Producer Node



The TCH Technology 32 Input Producer Node is used for connecting various input devices such as a pushbutton switch or a TCH Technology Sensa-Bloc Elite to the OpenLCB CAN network. The 32 Input Producer Node is a plug and play device. Provisioning is by selection of various jumpers.

1.0.2 OpenLCB Consumer included with purchase

One OpenLCB 32 Output Consumer Node



The TCH Technology 32 Output Consumer Node is used for connecting various output indicators such as an LED or turnout control to the OpenLCB CAN network. The 32 Output Consumer Node is a plug and play device. Provisioning is by selection of various jumpers.

Chapter 2

Provisioning the TCH Technology OpenLCB Node



Figure 2.1: TCH Technology 32 Input Producer Node jumpers and connecters

TCH Technology OpenLCB Nodes have various jumpers that need to be provisioned before it will work with other OpenLCB boards.

2.1 Powering the OpenLCB Node

TCH Technology OpenLCB Nodes can be powered in one of three ways:

- From an external power supply.
- Via the OpenLCB bus.
- Via a USB six (6) pin connection from a PC.

2.1.1 Power from the external jack

You may power the Nodes using an external power supply that provides a 2.1mm center-positive plug, and between 9 and 15V DC at 500mA or more of current. See §2.2.

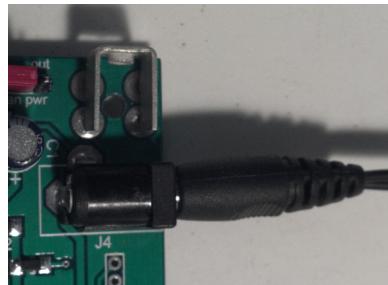


Figure 2.2: Providing power from line in jack

2.1.2 Power from the six pin serial connection

Powering the Nodes from the six pin serial connector. The six pin serial jack (J5) is provided for uploading new firmware into the node using a USB to serial adapter. See §2.3 and also §3.6

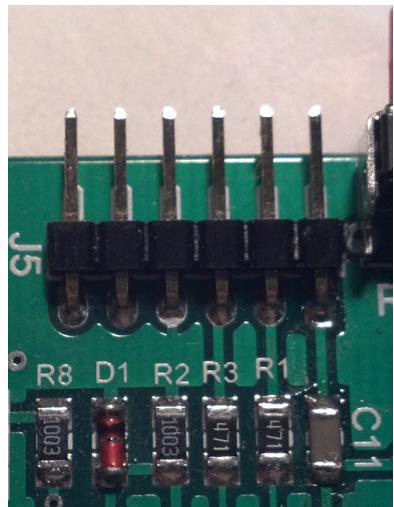


Figure 2.3: Six pin serial connection

2.2 Power on the OpenLCB bus

Note: Drawing power from the OpenLCB bus requires that at least one other node be configured to provide power to the OpenLCB bus. If the Nodes are configured to use an external power supply, optionally they can be configured to provide power to the OpenLCB bus.

2.2.1 Provide power to the OpenLCB bus



Figure 2.4: CAN POWER jumper set to provide power to the OpenLCB bus

Set the “can power” jumper to “out”, as per §2.4.

2.2.2 Provide power from the OpenLCB bus

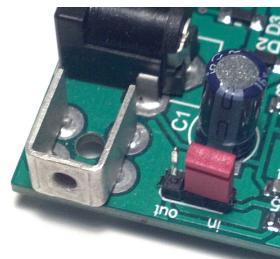


Figure 2.5: CAN POWER jumper set to provide power from the OpenLCB bus

Set the “can power” jumper to “in”, as per §2.5. Note: Remove the “can power” jumper entirely if the 32 Input Producer Node will neither draw power from nor provide power to the OpenLCB bus.

2.3 Termination of the Bus

You must determine if you need to terminate your bus. If your Node is at the beginning of the CAN bus or at the end of the CAN bus you need to terminate the bus.

2.3.1 No termination

To use no termination, the red shorting jumpers (JU2) shall be in the non-shorting position or removed entirely. See §2.6.

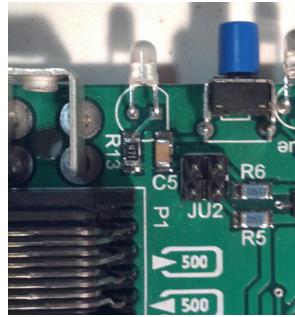


Figure 2.6: No termination

2.3.2 Resistive termination

Resistive termination uses the red shorting jumpers on JU2 set at a right angle with the two surface mount resistors R5 and R6. See §2.7

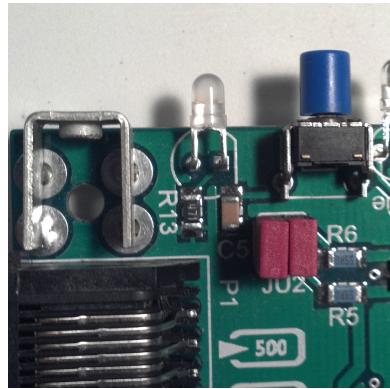


Figure 2.7: Resistive termination

2.3.3 Capacitive termination

Capacitive termination uses two red shorting jumpers in parallel. See §2.8

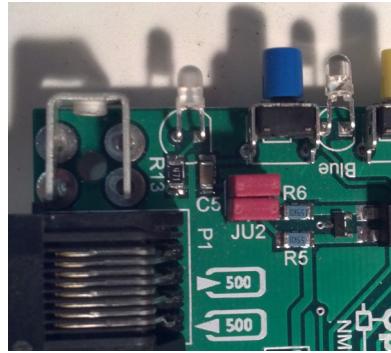


Figure 2.8: Capacitive termination

Chapter 3

LED Indicators

3.1 LED indications

The TCH Technology OpenLCB Nodes have 5 LED indicators. These are, red, blue, gold and two green indicators.

3.1.1 Red LED indication

The Red LED indicates the Node is powered up and ready. See §3.1

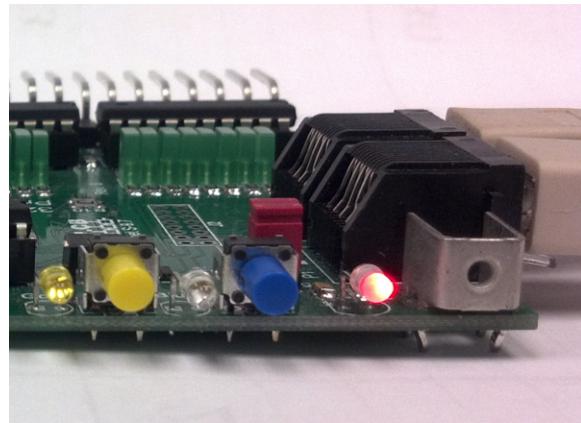


Figure 3.1: Red Power LED

3.1.2 Blue LED indication

The Blue LED indicates the Node is receiving CAN packets from the CAN bus. It will flash for each set of packets received from the CAN bus. See §3.2

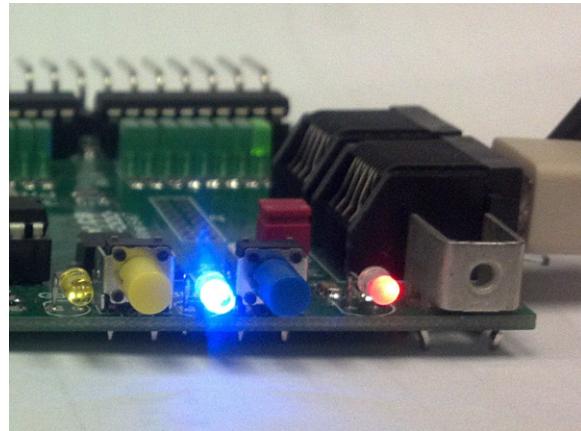


Figure 3.2: Blue Receive LED

3.1.3 Gold LED indication

The Gold LED indicates the Node is transmitting CAN packets to the CAN bus. Also there is a steady heartbeat flash indicating that the unit is alive and operational. See §3.3

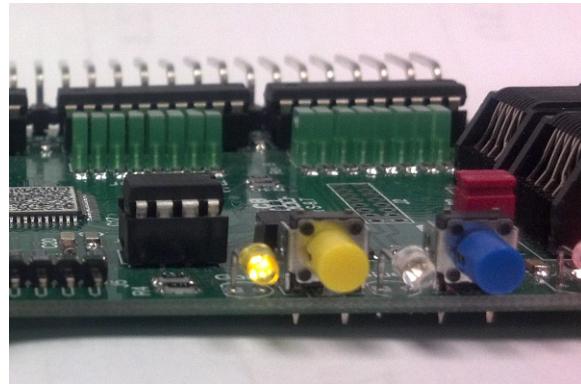


Figure 3.3: Gold Transmit LED

3.1.4 Single green LED indication

The two green LED indicators will show how the node is being powered. If only a single green LED is on, then the node is being powered by the 2.1mm input jack and can be delivering power to other nodes. This is depended on how the CAN power jumper is set. See §3.4

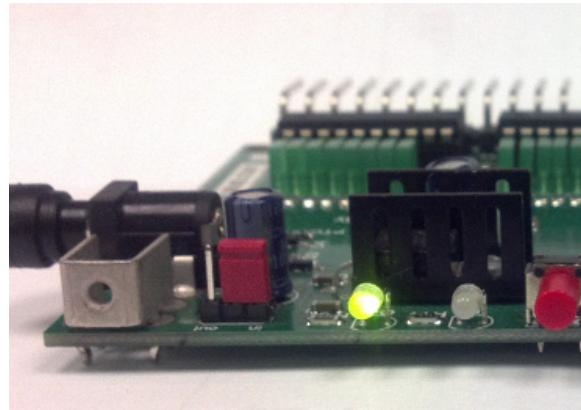


Figure 3.4: Green Power Out LED

3.1.5 Two green LED indication

If the two green LED's are on, then the power is being delivered from the CAN bus. See §3.5

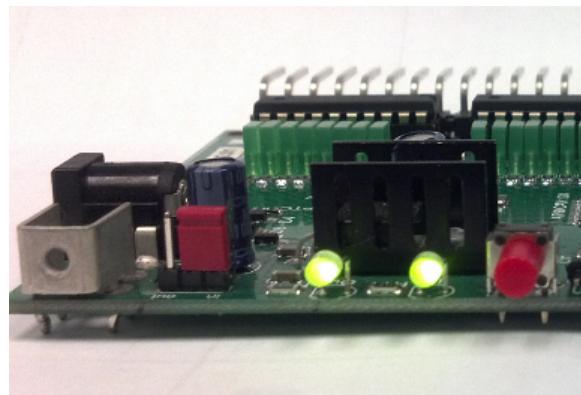


Figure 3.5: Two Green Power LEDs

3.1.6 No green LED indication

If both green LEDs are extinguished and the red LED is on, then the node it being powered by the six pin serial connector. See §3.6

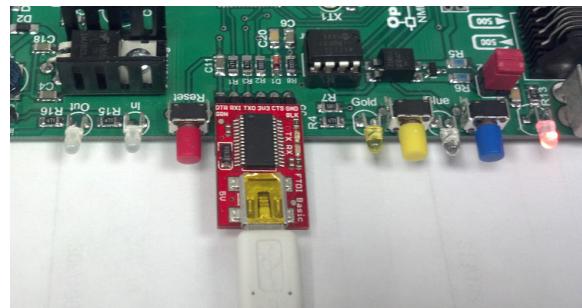


Figure 3.6: Serial Programming connection powering the node

Chapter 4

Using JMRI Panel Pro

JMRI Main Screen



Figure 4.1: JMRI Panel Pro

4.1 JMRI Preferences

4.1.1 Connections

JMRI Preferences Screen. Select OpenLCB for your connection.

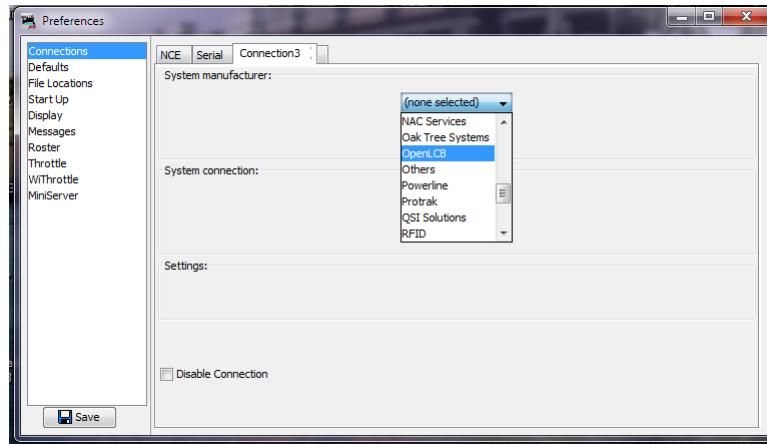


Figure 4.2: JMRI Preferences

4.1.2 TCH Tech Adapter

Select the “CAN via TCH Tech CAN/USB adapter”

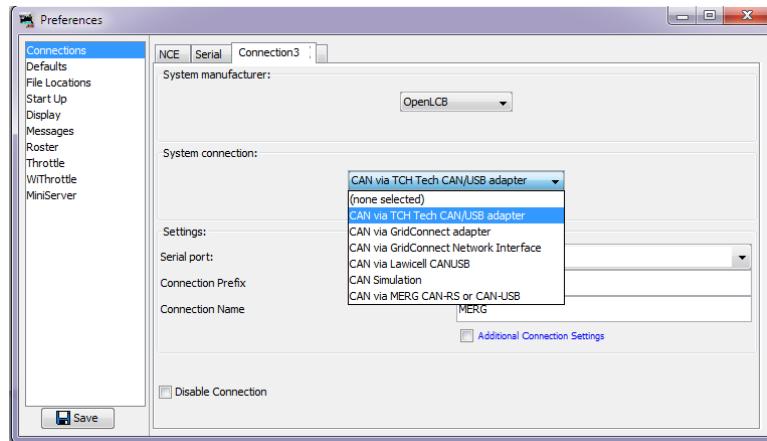


Figure 4.3: JMRI TCH Tech Adapter

4.1.3 JMRI comport

Select the “COM Port”

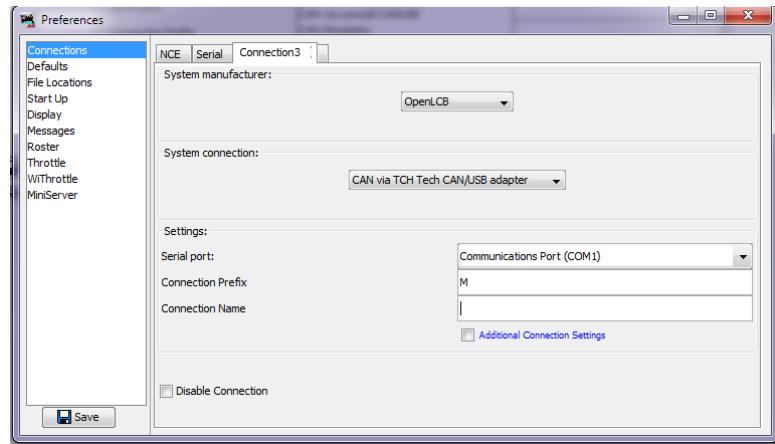


Figure 4.4: JMRI comport

4.1.4 JMRI baud rate

Type in your “Connection Name” usually “OpenLCB”. Click on the box for Additional Connection Settings. Select the “comport baud rate”

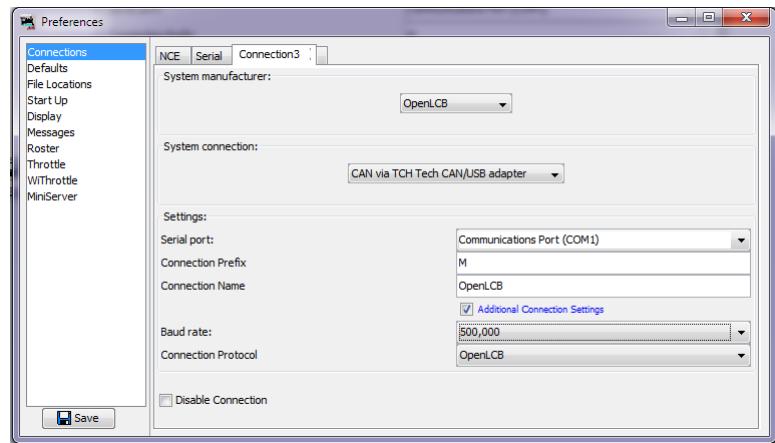


Figure 4.5: JMRI baud rate selection

4.1.5 JMRI complete

Your connection to JMRI should now be complete.

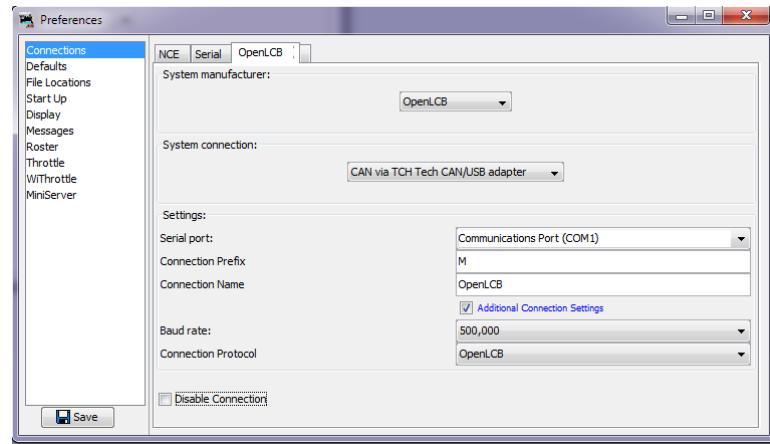


Figure 4.6: JMRI Completion

Index

JMRI

 Panel Pro, using, 17

LED

 Indications, 13
 No Green Indication, 16
 Red Indication, 13
 Two Green Indication, 15
 Blue Indication, 14
 Gold Indication, 14
 Single Green Indication, 15

Power

 power, from 2.1 mm input, 8
 power, from usb, to usb, 8
 from 2.1mm Jack, 8
 OpenLCB, from bus, 10
 OpenLCB, to bus, 10

Termination

 Capacitive, 12
 None, 11
 Resistive, 11

TCH TechnologyTMis a trademark of Timothy C. Hatch