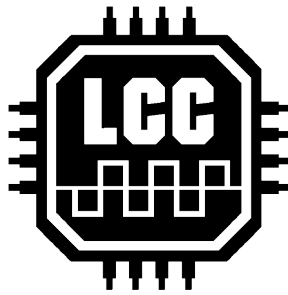


# NMRA LCC January 2024



# Layout Command Control

## What is LCC?

LCC stands for “Layout Command Control”. It is a protocol for controlling all the functions on your layout – things like detection, signals, building lighting, as well as the traditional layout control functions.

## Will LCC work with my DCC layout?

Yes, DCC and LCC compliment, not replace, one another. LCC does not make DCC obsolete. The LCC bus takes accessory traffic off of the DCC bus. Only locomotive control needs to remain on the rails.

## Will LCC work on my DC layout?

Yes, and also with any other train control method.

## Is LCC bi-directional?

Yes, LCC, unlike most DCC decoders, can both send and receive data over the same LCC bus. This allows detectors, turnout feedback, local fascia controls, etc., to each talk to one another. Additional features such as status reporting, intelligent configuration, initialization, and easy upgrades of the products are now possible.

DCC (Digital Command Control), the existing NMRA standard for train control, is essentially a one way bus that allows only a single master command station to control mobile and stationary decoders over the rails.

## Is the LCC High Speed?

The currently available LCC products operate an order of magnitude faster than DCC by using the automotive CAN bus. There is plenty of room for extra traffic. LCC may also be operated over other, even faster networks, such as Ethernet or WiFi.

## Do I need a new LCC Master unit?

No! LCC is a peer-peer network. This means that any LCC devices may communicate directly with one another without going through a central command station, such as DCC or many legacy control systems require. A computer does make things easier to configure, but it is not a requirement for operation.

## The NMRA and LCC?

Just like the NMRA set the standards for DCC over 25 years ago, they have now set the standards for LCC. A group of independent volunteers, both modelers and experts in electronics, have together developed the concepts, protocols, interface standards, and documents, for LCC. This OpenLCB group established the standards which the NMRA has approved as LCC.

The NMRA has no vested interest in any particular manufacturer or products. They simply set the standards that all manufactures may use license free.

## Why is LCC so special?

Like people, each LCC product is unique. No more need for the user to assign and keep track of device addresses to prevent conflicts. New nodes may be added to any existing system with no data collisions... ever! The protocol is also expandable for adding functions that we have not even thought of yet.

## Is LCC inter-operable?

Yes, that is why having standards is important. Any manufacturer’s LCC products will inter operate seamlessly with the LCC products from any others.

## Is anyone making LCC products?

Several manufacturers are currently shipping LCC related products.

**Logic Rail Technologies** (Fast Clock, Light Control)  
<https://www.logicrailtech.com/>

**TCS** (Train Control Systems) (Command Stations)  
<http://www.tcsdcc.com/>

**RR-CirKits** (See reverse)  
<http://www.rr-cirkits.com>

**Deepwoods Software** (MRS)  
<https://www.deepsoft.com/home/products/modelrailroadsystem/>

**Other LCC manufacturers are in development.**

# These products are available from RR-CirKits, Inc.\*

More info and photos at: [www.rr-cirkits.com](http://www.rr-cirkits.com)

## **LCC-Buffer-USB**

**NMRA CAN bus LCC® to USB interface.** 2,500 Volt Digital isolation between CAN bus LCC® and USB port. Type B USB connector for PC connection. Compatible with JMRI.

## **LCC-PowerPoint**

**LCC Power-Point ties together 2 LCC jacks, a Traffic Monitor, and a power supply.** Create a powered LCC bus for simple wiring by powering your LCC Nodes over the cable.

## **LCC-Terminator Pair**

**NMRA CAN bus LCC® Termination Pair.** Used to provide the required termination at each end of the CAN bus LCC®

## **LCC – LocoNet® Gateway**

**LCC – LocoNet® interface.** Includes built in LCC® – USB interface and stand alone LocoNet® option. This unit translates LocoNet® messages into LCC® messages, beta firmware version now supports using LocoNet® throttles to create train nodes on LCC® command stations.

## **LCC Repeater**

**LCC Repeater.** Bit level repeater connects two LCC® CAN bus segments.

## **Tower-LCC**

**16 Line Input/Output node for NMRA CAN bus LCC®.** Logic level interface compatible with other standard RR-CirKits I/O modules.

## **Tower-LCC+Q**

**16 Line Input/Output node for NMRA CAN bus LCC® With Logic.** Logic level interface compatible with other standard RR-CirKits I/O modules, plus Structured Text Logic.

## **Signal-LCC-S/P**

**16 Led drivers plus 8 line Input/Output node for NMRA CAN bus LCC®.** Logic level I/O port compatible with other standard RR-CirKits I/O modules. Miniature Screw Terminals or 10pin headers for LED connections.

## **Signal-LCC-32H**

**32 head addressable signal controller plus 8 line Input/Output node for NMRA CAN bus LCC®.** 3 wire servo extension cables used for daisy chain signal head driver connections.

\*Subject to parts availability