Railroad Layout Standards

Baseboard Wiring

Source: http://huntervalleylines.com/

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1 Overview

This document sets out the wiring standards used on all of my model railway modules/layouts. Readers should note that this document will change from time to time. All changes will be reflected in the live document (this word document). When this electronic copy is output to print or PDF it should be no longer considered a controlled document.

2 Document Control

Version	Notes	Authority	Date
1.0	First published version	Andrew Martin	18/06/2015
1.1	Updated internal links; rebuilt index, and republished online	Andrew Martin	16/07/2019

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3 Conventions

The following conventions are used in this document:

BUS	Consists of two or more solid or twisted core conductors, usually sheathed in a non-conductive coating, whose purpose is supplying the master power rails for a baseboard or module.
Module or baseboard front	For all modules 'Front' will be the viewing side. When the viewing side is not obvious (where a module is designed to be a dual viewing side peninsula for example) it will be marked on the module ends.

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4 DCC BUS

All my layouts are wired for DCC control. All layouts will have DCC wiring installed. The following DCC BUS colour code and wiring standards will apply.

4.1 DCC BUS Colour Code

DCC is polarity agnostic without a positive or a negative. To assist in the correct orientation of wires on all Modules / Baseboards a standard colour code and naming will be used as set out below:

- DCC Feed (Positive +) wiring colour will be BLUE
- DCC Return (Negative -) wiring colour will be BROWN
- DCC Feed (Positive +) will be located closest to the front of the Module / Baseboard.

4.2 DCC BUS Wiring Standard

1) The DCC BUS will be wired as two separate conductors that constitute the DCC BUS.
2) The conductors will be a minimum of 1 mm cross section (stranded or solid cored) and rated for 240 Volts at 10 Amps.
3) BUS conductors will be offset by 50 mm, toward the front of the module / baseboard from the centreline.
4) BUS conductors will be separated from each other on 50 mm centres
5) Each BUS cable will be a minimum 400 mm longer than the length of module baseboard
6) Each BUS pair will terminate into a:
    a) MOLEX @ Pin M1625-2P PIN PLUG HOUSING (Left side of Module / Baseboard)
    b) MOLEX 2 Pin M1625-2R SOCKET HOUSING (Right side of Module / Baseboard)

The Molex parts being proposed for use can be found in Section 6: Resources on page 6; see sub-section 6.2 Molex Parts.

Readers should note that I have not determined as of this publication date whether I will use a 2 pin or 4 pin interface for the wiring joiners.

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5 DC BUS

When required on a layout build a DC 12v power bus will be installed. When installed, the following DC BUS colour code and wiring standards will apply.

5.1 DC BUS Colour Code

DC is polarity based with a positive and a negative. To assist in the correct orientation of wires on all Modules / Baseboards a standard colour code will be used as set out below:

- DC Feed (Positive +) wiring colour will be RED
- DC Return (Negative -) wiring colour will be BLACK

DC Feed (Positive +) will be located closest to the front of the Module / Baseboard.

5.2 DC BUS Wiring Standard

1) The DC BUS will be wired as two separate conductors that constitute the DC BUS.
2) The conductors will be a minimum of 1 mm cross section (stranded or solid cored) and rated for 240 Volts at 10 Amps.
3) BUS conductors will be offset by 50 mm, toward the rear of the module / baseboard from the centreline.
4) BUS conductors will be separated from each other on 50 mm centres
5) Each BUS cable will be a minimum 350 mm longer than the length of module baseboard
6) Each BUS pair will terminate into a:
    a) MOLEX @ Pin M1625-2P PIN PLUG HOUSING (Left side of Module / Baseboard)
    b) MOLEX 2 Pin M1625-2R SOCKET HOUSING (Right side of Module / Baseboard)

The Molex parts being proposed for use can be found in Section 6: Resources on page 6; see sub-section 6.2 Molex Parts.

I have not determined as of this publication date whether I will use a 2 pin or 4 pin interface for the wiring joiners.

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6 Resources

6.1 Retail source

Parts at this time will be sourced from: Wiltronics (Ballarat) http://www.wiltronics.com.au.

Supplier will change in late 2019 to early 2020. This will be reflected in the next update to the document.

6.2 Molex Parts

Part #	Description
CN5502	M1545-P 2 PIN PLUG HOUSING
CN5504	M1490-P 4 PIN PLUG HOUSING

6.3 Wire

Part #	Description
CB4100BLU	BLUE 100M
CB4100BRN	BROWN 100M
CB4100RED	RED 100M
CB4100BLK	BLACK 100M

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