

Mid West Model Railroaders Rules and Standards

Last updated 21st January 2007

Electrical Specifications And Standards

Per NMRA recommendations, each piece of rail is to be wired with appropriate colour coded feeders (droppers) soldered to the main pair of wires. The wire colour for the front rail of any track is red. The wire colour for the rear rail of any track is black (a carry over from Module SIG standards as some existing members modules from that group are now part of MWMR. The main track power bus and accessories bus looms should be adequately attached to the underside of the modules to both keep neat and tidy and prevent electrical faults.

Mid West Model Railroaders Uses the NCE power house DCC system, with both wired and wireless handsets. As the NCE UTP Fascia Panels are used, throttle cables require RJ12 terminals on both ends NCE 524-0209. At least one mobile phone holder swivel mount shall be provided for each module to locate a handpiece when not in use. The socket is to be mounted near the UTP on each module. The plug is mounted on the cab bus handpiece. Modules with busy switching areas may add extra swivel mounts.

Module Power Bus (from the above loom to droppers)

The standard is 8 gauge trailer wire Red + Black This should be attached to the under surface of the module with 5mm flat cable clips or equivalent attaching device

Track Droppers

The standard is 10 x 0.25 mm stranded single core flex, rated at 4.5A nominal

- Front rail - Red DSE W2240 or equivalent
- Rear rail - Black DSE W2242 or equivalent

Accessory Power Bus

The standard is 8 gauge trailer wire Brown + Green (accessory bus cable)

Carries 15 volts AC load 4 amps direct from transformer. Can be converted to 12 volts DC through a bridge rectifier for DC

auxiliary power on each module individually if required.

Cab Bus

The standard is a cable supplied by MWMR being 1600mm Cat 5e cable with RJ12 terminals on each end applied in line with NCE requirements

Powered Frogs

The standard is 10x 0.25 mm stranded single core flex, rated at 4.5A nominal

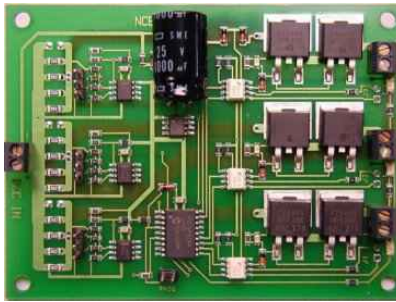
- Front rail to microswitch - Red DSE W2240
- Rear rail to microswitch - Black DSE W2242
- Johnny switch to frog - Yellow DSE W2244

All electrical joints are to be soldered and insulated. Insulation standard is Heatshrink or Jaycar Starbrite Liquid Electrical Tape.

Module Short Circuit Protection

Sets of modules will have short circuit protection provided by utilising NCE **Circuit Breaker EB 3**. **Each set of modules will be called a District**. The EB3 allows our existing single booster to be split into 3 separate outputs (districts), resulting in no more complete layout shutdowns in the event of a short circuit.

The EBs features selectable 2,3 & 4 amp outputs for each district. Easy hook up using a screwdriver with LED status outputs. Additional optional isolated circuits are to provided to feed signal circuits or control panel indicators. Short circuit response time and power up times are provided to accommodate start up of sound decoder equipped locomotives.



Due to the intention of running high speed passenger services and heavy main line freights the EBs will be set to 4 amp load ratings by MWMR.

Districts

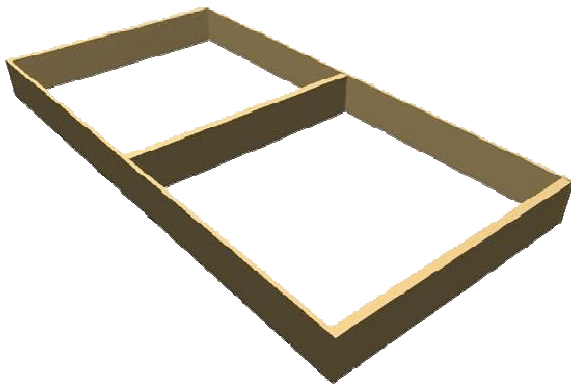
At each operating session the modules will be set up in 3 districts. District 1 will always be the yard and Y modules. District two will be any modules east of the Yard dispatcher, District 3, any modules west of the yard dispatcher.

Parts Required to build a standard MWMR module:

- 1 x 1200mm x 600mm x 9mm Plywood Top dressed on one side
- 2 x 1200mm x 9.8mm x 9mm Plywood sides
- 3 x 582mm x 9.8mm x 18mm Plywood ends and centre braces
- 4 MWMR made leg sockets with 3961762 Cornall 5/16 Tri-wheels



- 4 MWMR made Capril aluminium 1200mm x25mm square tube legs with P306 Cornall 5/16 threaded glide adapters and Cornall P750 5/16 glides fitted
- Mid West Products Co Cork track bed
- PVA glue
- Mainline Ballast = Woodland Scenics B94
- Preferred Scenery turf = Woodland Scenics T49 & T50 blends
- Code 83 Peco rail, MWMR code 83 hand made turnouts
- Each module has one Universal Throttle Panel Assembly – (UPT) mounted on the opposite side of the module on either side of it.
- 1600mm MWMR made Cab bus cable
- 500mm MWMR made power bus joining cable
- Jaycar terminal strip HM-3202 Use four male terminals at each end.
- 8 gauge trailer wire Red + Black (power bus cable)
- 8 gauge trailer wire Brown + Green (accessory bus cable)
- 8 gauge trailer wire Blue + White (signal cable) from Johnny switch to signals only
- 2 hooks for mounting cab bus loom

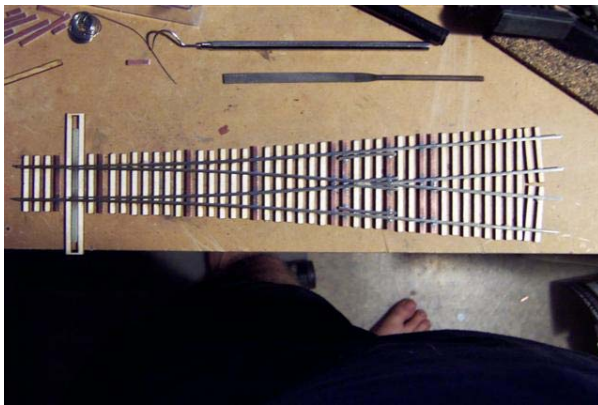


Basic frame design.

Note: the 3 braces are 3 x 582mm x 9.8mm x 18mm Plywood. The sides are 2 x 1200mm x 9.8mm x 9mm Plywood. This keeps construction robust but reasonably light. The plywood is also resistant to warping/distortion.



Assembled module less track and scenery.
 Note: the standard drill holes. Holes are required to be in exact position on all modules for the purpose of mounting modules together. The plywood top is 1200mm x 600mm x 6mm



All turnouts with the exception of the yard are supplied at cost to members by MWMR. Due to the decision to use Peco Code 83 rail, and most turnout styles not being commercially available by Peco the MWMR group decided to make their own turnouts, wyes and double crossovers. The result is far superior, smoother track as demonstrated in the picture.

All modules are to comply with a centred double track mainline operation. Track will be tested to comply using jig from MWMR.

Yard Modules

There are currently 6 yard modules in construction that have the following standards:

- 1 x 1200mm x 600mm x 9mm Plywood Top dressed on one side
- 2 x 1200mm x 9.8mm x 9mm sides
- 3 x 582mm x 9.8mm x 18mm ends and centre braces
- 4 MWMR made leg sockets with 3961762 Cornall 5/16 Tri-wheels
- 4 MWMR made Capril aluminium 1200mm x25mm square tube legs with P306 Cornall 5/16 threaded glide adapters and Cornall P750 5/16 glides fitted
- Mid West Products Co Cork track bed
- Mainline Ballast = Woodland Scenics B94
- Preferred Scenery turf = Woodland Scenics T49 & T50 blends
- Code 100 Peco rail & electrofrog turnouts
- 2 yard throats and 4 sections of yard
- Each module is exactly symmetrical such that a module can be installed in reverse and remain an exact match to its mate on either side.
- Centre tracks match centre tracks of all modules There is no offset.
- Each module has one Universal Throttle Panel Assembly – (UPT) mounted on the opposite side of the module on either side of it.
- Each set of rails on either end of the yard is fitted with ½ a code 100 Atlas rerailer to ensure track remains correctly aligned and eliminate derailments at module joins.
- All track on the yard modules to be ballasted and scened in case of being on display and for purposes of strength for holding track in place during transportation
- All turnouts are fitted with a “MWMR Johnny switch” which switches power to the frogs and signals and ensures turnout switches into position correctly.
- 1600mm MWMR made Cab bus cable
- 500mm MWMR made power bus joining cable
- Jaycar terminal strip HM-3202 Use four male terminals at each end.
- 8 gauge trailer wire Red + Black (power bus cable)
- 8 gauge trailer wire Brown + Green (accessory bus cable)
- 8 gauge trailer wire Blue + White (signal cable) from Johnny switch to signals only
- 2 hooks for mounting cab bus loom
- All turnouts provisioned with likelihood of having Peco snap motor and LS150 Lenz accessory decoder fitted for JMRI operation by dispatcher.

ROAD CROSSINGS, BUILDING & PLATFORM CLEARANCES

All parts of any road crossing will be 0.5mm lower than the rail. Flangeways through such crossings will comply with NMRA standards. A scale 3 feet (10.5mm) is the minimum clearance required between the outer edge of the closest rail and any obstruction. It is recommended that all clearances be checked with the NMRA Standards Gauge where applicable.

LOCOMOTIVES AND ROLLING STOCK USED ON THE MWMR

- Locomotives are to be fitted with a DCC Decoder that complies with NMRA standards.
- All rolling stock be correctly weighted to comply with NMRA recommended practice.
- All rolling stock be fitted with Kadee metal knuckle couplers.
- All rolling stock be fitted with metal wheels, properly gauged.