

Gosport Model RailRoad Club

Solent Summit Sub-Division

N Scale Modular Layout Standards

Diagrams

1. Shows the board measurements. Not all need to be followed (as it may depend on the baseboard design). Critical dimensions are mentioned in the following text. The relationship of the T-nut and dowel holes must be determined from the top of the board. A template is available.
2. Details the components that go at either ends of the boards.

Track

1. **Code 55** of any make.
2. **Large radius points** to be used on main lines and passing loops.
3. **Minimum radius of 18 inches** on the mainline and 13 1/2 inches for the staging.
4. **Transition curves of at least 6 inches** are required prior to a curve on the mainline.
5. **Straight track/transition curves of at least 6 inches** are required between "S" type curve formations that are on the mainline
6. **Track to finish flush with baseboard ends** with alignment done using club jig (except on modules built as multiples). The sleepers are to be removed on the last 3/4 inch of track to allow for a little bit of flex for adjustment.
7. **Brass dowel alignment are preferred at baseboard ends**, again done using club jig and 8mm brass dowels. Brass dowels are not absolutely necessary; if they are not included, holes for the adjoining board's dowels need to be made.
8. **Rail centre line position from board to board is 4 inches from the front edge**.
9. **Track to be laid on 3/32 inch (2.4mm) cork sheet** available in rolls from Hobbycraft or Amazon (made by Darice, cheaper on Amazon).
10. **Woodland Scenics Grey Blend Fine Ballast B1393** is to be used.
11. **Track and Sleepers are to be painted in Railmatch Sleeper Grime**.
12. **The height of the baseboard top** is 40 inches above the ground.
13. **Double Track** should have 1.5 inch spacing at baseboard joints, making it 2.5inches from the front edge.

Electrics

1. Summary.

DC/DCC Bus	Red – Front Rail, Rail A	50/0.25	13 AWG
DC/DCC Bus	Black – Rail B	50/0.25	13 AWG

Spare Bus	White – Positive	24/0.2	18 AWG
Ground Bus	Yellow – Negative	24/0.2	18 AWG

24V DC Bus -ve	Blue	24/0.2	18 AWG
24V DC Bus +ve	Green	24/0.2	18 AWG

Track Feeders	Red – Under 9 inches	7/0.2	24 AWG
Track Feeders	Black – Under 9 inches or solid 1/0.6 wire 22 AWG	7/0.2	24 AWG

Track Feeders	Red – Over 9 inches	16/0.2	20 AWG
Track Feeders	Black – Over 9 inches	16/0.2	20 AWG

Frog Feed	Yellow	7/0.2	24 AWG
Point Motors – Coil	Grey	16/0.2	20 AWG
Point Motors – Coil	Violet	16/0.2	20 AWG
CDU/Stationery Decoder	Brown	16/0.2	20 AWG
CDU/Stationery Decoder	Pink	16/0.2	20 AWG

2. **Bus Connectors from board to board** are to be Powerpoles with 30 amp connectors for the red and black wires and 15 amp for the three others. Wires should extend 12 inches beyond the ends of the baseboard.

When viewed from the right hand end of the board, looking towards the connectors and along the wires the arrangement should look like:



The other end should look like this:



3. **Track Feeders.** If the track feeders are over 9 inches long (e.g. going through section switches) 16/0.2 wire (20 gauge equivalent) is to be used.
4. **Switches are to have direct feeds.** The frog is to be fed independently using the auxiliary switch on the point motor (or a switch built into the manual throwing mechanism).
5. **Switch frogs are to have both exit rails fitted with insulated rail joiners.**
6. "3M 'Suitcase' connectors and other insulation displacement connectors should not be used on the buses. There should be no break in the wires unless a Wago 221 or 222 connector or a fixed terminal strip is used. Whichever method is used there is to be no tapping into buses unless it is with a directly soldered joint, at a terminal strip or with a Wago connector."
7. **Track feeders must go to every second section of track joined by a rail joiner** (unless the rail joint is soldered).
8. **UP5s** need to be fed with a 12V DC supply, obtained from the 24VDC bus and stepped down, in order to power the unit. A 2.1/5.0mm DC Power Plug available from Maplins, or Rapid (part number 20-905) fits the back socket of the UP5. Connect the positive feed to the inside terminal.
9. **CDUs** where required, need to be positioned with the individual group of modules requiring them, and powered from the 24V DC bus.
10. **Trailing electrical connections attached to boards** should be avoided if possible with the exception of the leads for the main bus. It's better to use leads which plug into sockets built into the boards as trailing leads are vulnerable to damage.
11. **Electrical accessories on boards** are fed from the 24VDC which can be stepped down as necessary.

DCC Requirements

1. **We are basically a DCC group using Digitrax.**
2. **DC operated sections** can be set up by individuals as long as the main through track is DCC.
3. **DC operated sections** used at the same time as DCC main line operations need a 12 inch section of track between them and the main line with track breaks containing insulated fishplates at both ends. This needs to be switch-able to DC, DCC, and off, using a DPDT center off toggle switch.
4. **DC operated sections** should be connected to a local controller using two poles (red/black) of a Rapid Electronics strip connector (red to the right). These sidings should alternatively be able to be connected and run using DCC by the two pole connector mating with a pre-prepared red/black connector strip set connected to the main bus.
5. **Switching Yards** need to be isolated from the through tracks and capable of being wired up as a separate DCC section if the yard is being operated. This ensures that a short in the yard does not short out the running tracks.

Modules

1. **Modules:** The length must be a multiple of 12 inches. The width must be 12 inches at the ends, but within a set of modules built by an individual the width can vary as long as the ends are 12".
2. **Backscene** boards are 8" high and to terminate 1/16th inch short of the length of the baseboards to aid easy set up (so there is a slight gap between adjacent backscene boards).
3. **For travel, local control panels** must be either detachable or able to be stored in the underside of the baseboard (or both).
4. **For operating, local control panels** must be attachable to either the front or back of the module (depending on what side operations are from).
5. **Attaching items to modules** should be done by using a pair of 6mm pronged T-nuts spaced 200mm apart and 25mm from the bottom edge. These should be built into the front or back panel of the baseboard.
6. **Modules are joined together** using 6mm bolts and a pair of pronged T-nuts. The thread of one of the T-nuts is drilled out so that the 6mm bolt has a free passage through in order to engage with the threaded T-nut on the adjacent board. A 6mm winged nut is then tightened to draw the boards together.
7. **Legs** are to be adjustable for length to take up unevenness of the floor.
8. **Viewable woodwork** is to be painted black with matt emulsion.
9. **Module scenic ends** are to be scenicked with Woodland Scenics Earth Blend for about 2 inches.
10. **Any sky** portion of the back scene should use Dulux Azure Sky 6 as the background colour and for all of both ends.

Corner Modules

1. If corner boards can be viewable from either side; i.e. be capable of being used as an inside or an outside corner, the backscene board needs consideration.
2. If the corner board is viewable from either side, male/female connector bus converters need to be used at both ends.