



Australian T-TRAK-N Guidelines

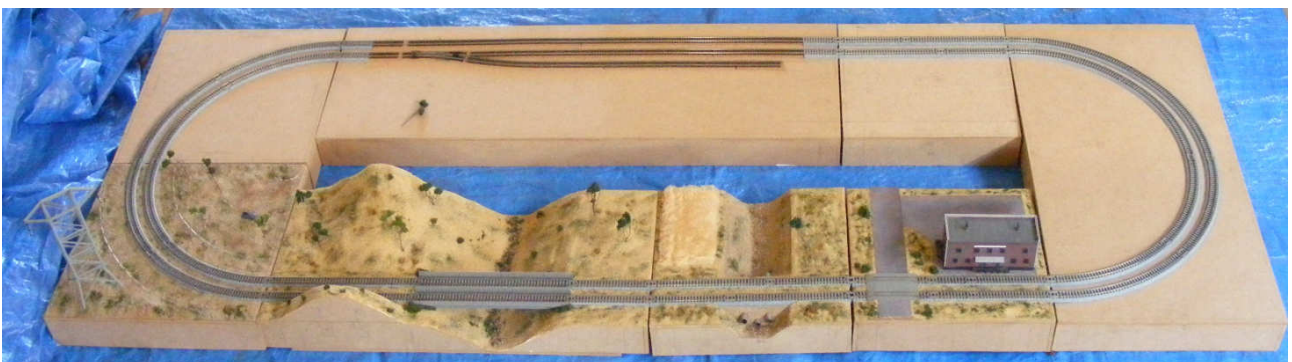
Includes standards and recommendations for the use of *N Scale* T-TRAK-N modules in Australia

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1. Introduction

T-TRAK is a versatile, dual-track, tabletop N Scale modular model railway system that can be used in many ways. It is useful for people who want to have a model railway but either lack sufficient room to have a permanent layout or for people who want have a layout that can be easily transported in a standard car and also joined with other people's modules to form larger layouts quickly and easily.

These guidelines show the standards, recommendations, and options available to someone building standard straight and corner T-TRAK modules. Information on module variations are also incorporated within these guidelines

It is useful to think of the T-TRAK system as something like the LEGO® building brick system. LEGO® has its standard 4 by 2 stud plastic building brick, but there are other sizes and types of bricks that join directly onto, and work with, the standard brick. There are still other bricks and special pieces that can be joined to the standard brick via converter bricks. Other shapes and sizes of T-TRAK modules can be made, but they must be able to join onto a standard module either directly or via a converter module. Just as LEGO® bricks can be used to build small objects or large objects, T-TRAK modules can be used to make small layouts to fit on the kitchen table at home, or be assembled into large layouts for exhibitions, model railway club gatherings or T-TRAK "Meets".



The T-TRAK concept was developed by Lee Monaco-FitzGerald of the USA after she saw an original concept being proposed in Japan in 2000.

The T-TRAK concept relies upon the interlocking qualities of Kato Unitrack®, which not only join the tracks together but also physically holds the modules together and makes a good electrical connection between adjacent modules.

Kato Unitrack® is more expensive than the usual style of track, but the extra cost is offset by the lack of the need for separate power connectors between individual modules and the sheer ease of joining and separating T-TRAK modules compared to the usual methods of bridging tracks and clamps.

As the modeller's experience grows, other types of Code 80 (most common size of rail used) N gauge track can be used in between sections of Unitrack® laid at each end of the module (this is discussed later in the guidelines).

Internationally, T-TRAK has two options with regards to track spacing (designated "Basic"-25mm spacing or "Alternate"-33mm spacing). These Australian Guidelines have stipulated the 33mm track centre to centre spacing and a preferred module width of 300mm. Variations in module width are permissible, as discussed later in these guidelines.

The Australian T-TRAK Group, which defines these Guidelines, consists of a national coordinator and State/Territory representatives.

These Guidelines should be used in conjunction with the T-TRAK specifications defined at the international T-TRAK website: www.t-trak.org



A single length (308mm) straight module.



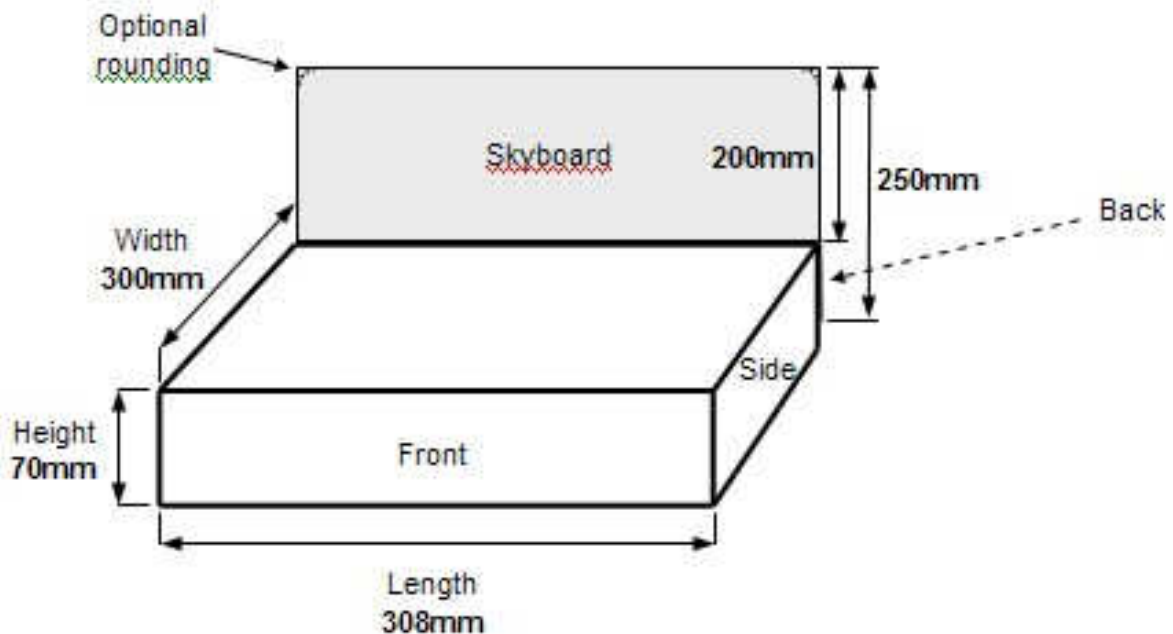
A triple length (928mm) module incorporating a station.

2. The Standard Single Straight Module

The basic T-TRAK module is best thought of as a box (with a rear skyboard attached) of the following dimensions:

Base (L x W x H) – 308mm x 300mm x 70mm

Construction materials: Common construction materials used are 6mm MDF and 6mm and 9mm plywood.



2.1 Height Adjustment

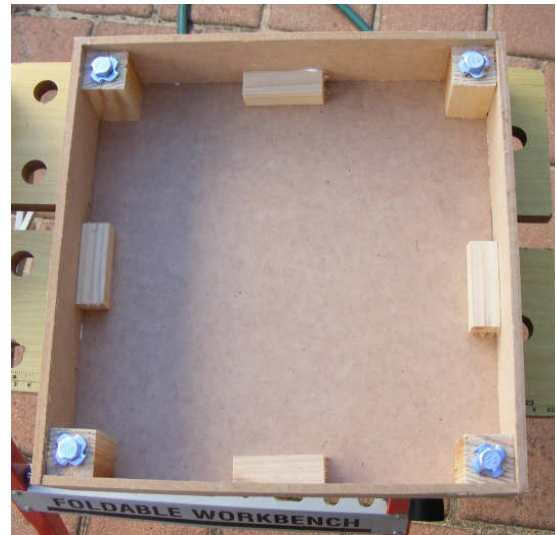
Adjustable “feet” under each corner of the module permit adjustments for alignment between modules when tabletops are either uneven or adjacent tables are of slightly

different heights. Ideally, if the tables at a T-TRAK gathering are all level and the same height, then the adjustable feet will not need to be used at all.

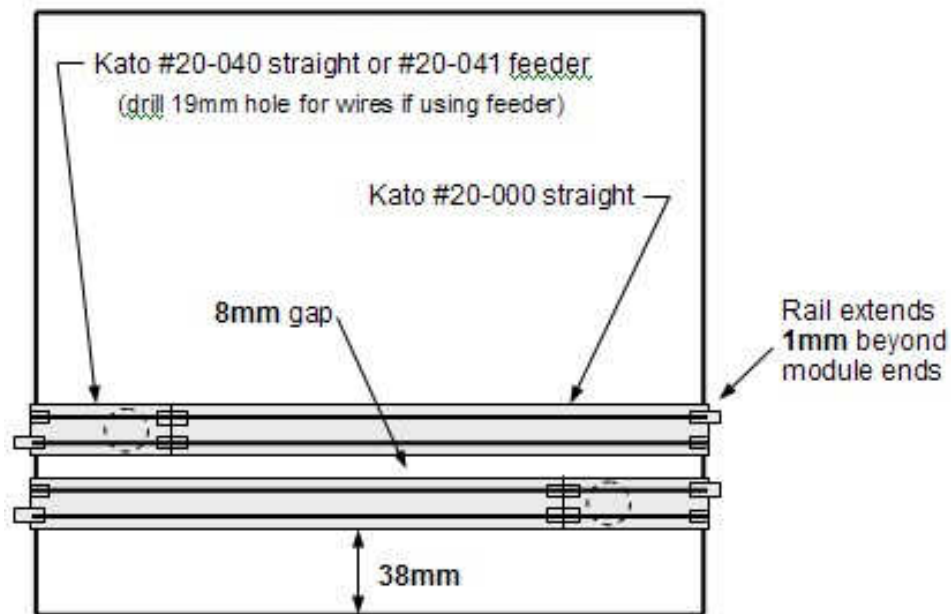
A good approach is to think of 70mm as the minimum and preferred height. The adjustable feet are required to be able to raise the top surface of the module to a maximum height of 100mm above the table top.

When measuring, cutting and fixing in place the height adjustment blocks make sure that there is sufficient room for the tee nut and bolt to clear the bottom edge of the module when the bolt is in the fully retracted position.

Details of how to construct T-TRAK modules out of wood and suggestions of other construction techniques are provided later in these guidelines.



2.2 Straight Module Track Locations

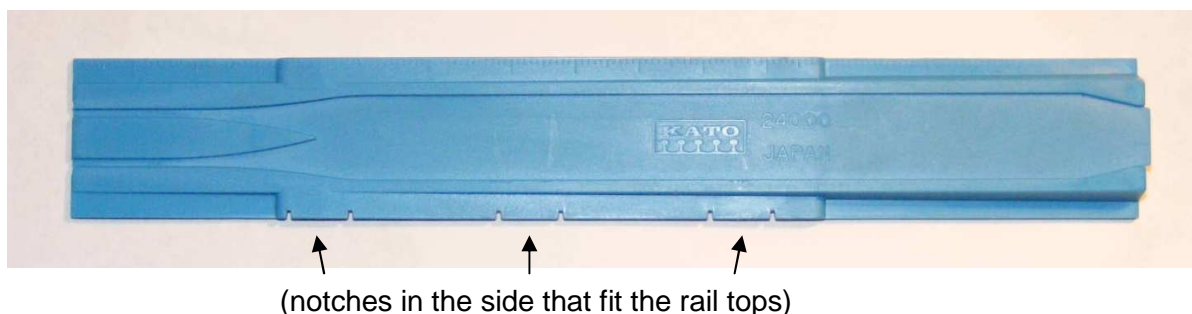


Front track location – 38mm from edge of module front face to track **ballast edge**

Track spacing (Alternate) – 33mm from front ballast base edge of the front track to the front base edge of the rear track.

(because the Unitrack® base is 25mm wide, the 33mm track spacing results in an 8mm space between the track bases of the mainlines)

CORRECT SPACING OF THE TWO MAINLINES IS CRUCIAL to ensure proper connectivity between modules. Therefore, use the Kato Re-Railer/Track Spacing Tool when laying your track.



(notches in the side that fit the rail tops)

The rerailer in the Kato Rerailer and Unijoiner Tool set (#24-000) has notches in the side that fit the rail tops and are the correct distance for track separation. They may be purchased from a Kato products supplier.

Kato Unitrack® must be used on the standard straight module. Flexible-track may be used on longer modules, but Kato Unitrack® must be used at the module joining faces.

Fixing: It is preferable to use track pins as some glues can attack the plastic base of Unitrack®. Acrylic contact adhesives have been used with no observable effect upon the Unitrack®, but track pins are still used to hold the track in position until the glue dries. To use track pins first drill a very small hole in the track base from below via the opening in the protruding “posts” underneath the track section. This will then give the modeller a hole in the top of the track to insert the track pin through to hammer into the baseboard.

Alternative method – use #00 Phillips head hobby screws at 6mm (1/2in) long [available in USA from TrainAidsA (www.trainaidsa.com). Availability in Australia currently unknown]. Drill out the Unitrack® mounting hole with a 1.6mm (1/16in) bit, push in screw and screw down with a small, sharp Phillips head screwdriver. As the screws are very sharp they self-tap into the wood base. If you use black screws, the head blends in well with the track base.

3. Corner Module

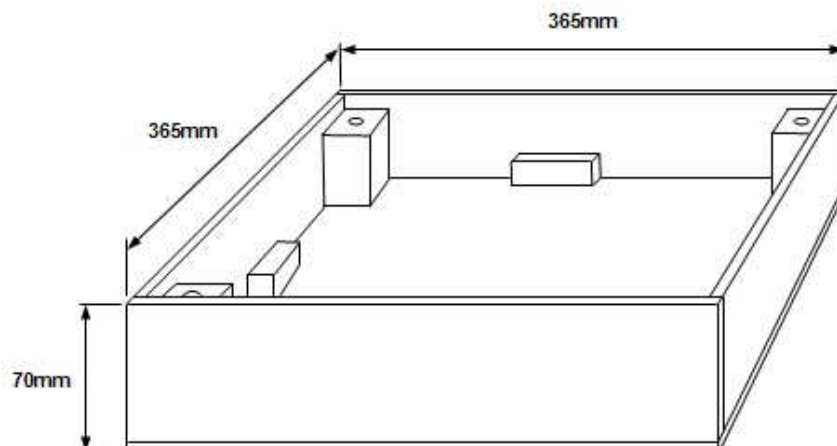
Corner modules allow the track to turn through 90° of curvature. Two corner modules placed together create a “U-turn” in the track that allows a T-TRAK modular layout to fit onto a table of 760mm or greater width. This has become the usual way that modules are displayed at exhibitions. Obviously 4 corners are required to create a circular or oval T-TRAK layout. Corner modules offer both challenges and opportunities for scenery and structures.

The two radii of track used are 282mm and 315mm. 99% of all N scale rollingstock and locomotives can travel through these curves with little or no difficulty.

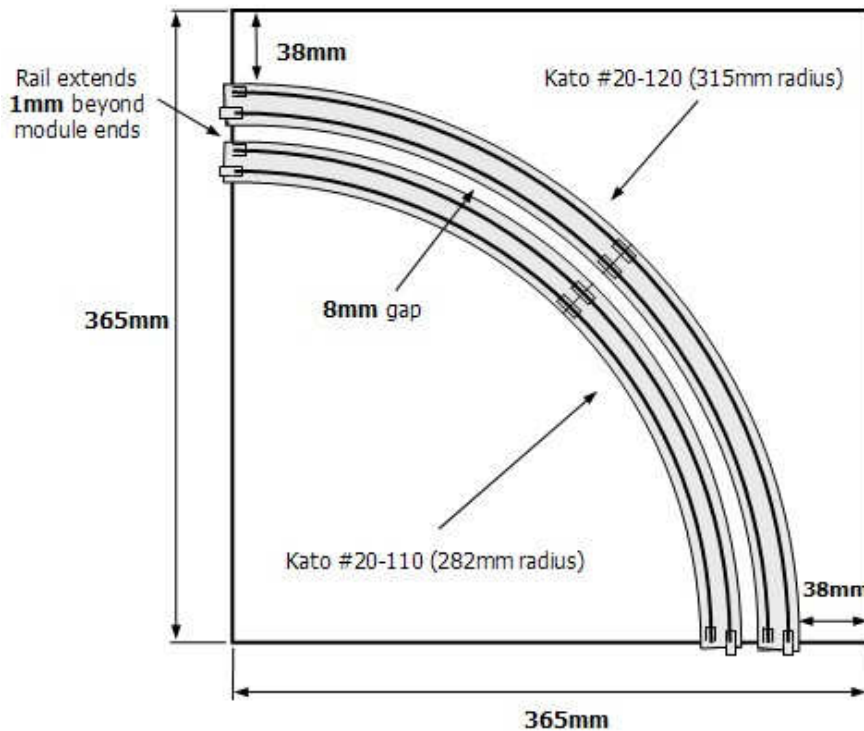
Corner modules do not usually feature skyboards, see further discussion on this topic in Section 9.3



Corner (Alternate – 33mm center to center track separation) – 365mm x 365mm



3.1 Corner Module Track Locations

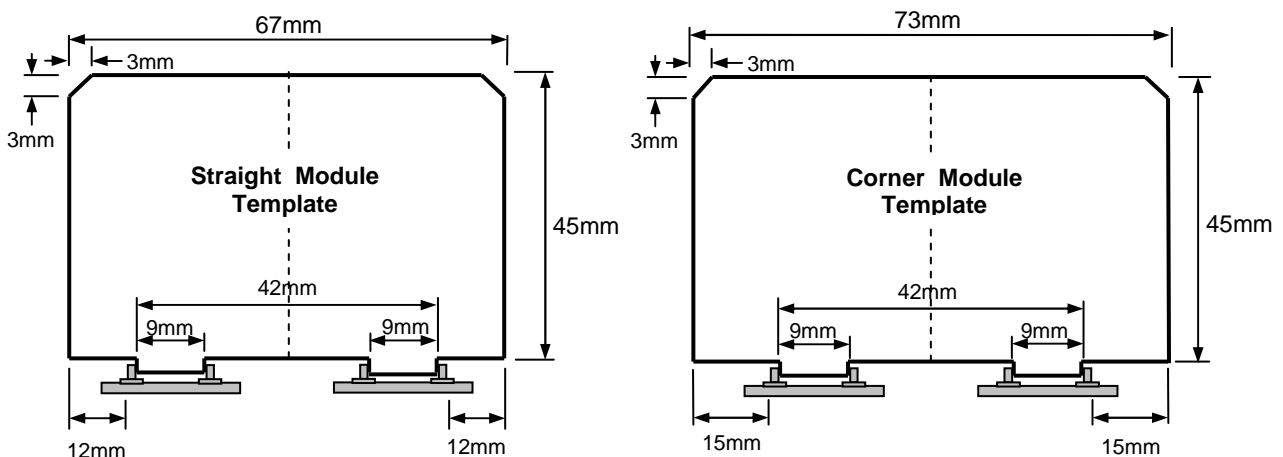


4. Track Clearances & Grades

Track Clearances:

Track clearance refers to the minimum distance an edge of an object can be from the railway track before it is likely to be hit by passing trains. Vertical Clearance refers to the minimum distance above the top of the rails (eg. for bridges) and Side Clearance refers to the minimum distance from the side of the outermost rails (see diagrams below). Because of the overhang that results when an item of rollingstock travels over a curved section of track the Side Clearance for corner modules is greater than that for straight modules. The Clearance dimensions may seem overly large to some modellers but they have been chosen to allow almost every type of N scale rollingstock manufactured to travel through a T-TRAK module, including the large U.S. double-stack container wagons and car carrying auto-racks.

In short: scenery and structures (including fences and bridge supports) are to be added adjacent to the track on a module at the discretion of the modeller, however the following clearances must be ensured:



Vertical Clearance from rail top: 45mm

Side Clearance from rail edge (not track centre):

On Straight Modules

12mm on each side from outer edge of the corresponding rail top.

On Corner Modules

Inside of inner curved track - 15mm (minimum) measured from the edge of the rail top.

Outside of outer curved track - 15mm (min) measured from the edge of the rail top.

It is advisable for the modeller to make cardboard cut-outs of these diagrams and use them as templates to place on the track while placing structures near or over the tracks.

A downloadable diagram of the above templates, with a scale included so that the user knows it has printed out to the exact size, is available under Guidelines in the menu at the Australian T-TRAK website - <http://users.picknowl.com.au/~austnscale/austrak.htm>

Print out the template diagram on paper then stick the paper to some cardboard and cut along the lines to create the cardboard cut-outs.

Tunnel Entrances have created a problem in that most, if not all, commercially available model tunnel entrances are not large enough meet the clearances for track on a corner module. **To be fully exhibition compliant tunnel entrances must conform to the clearance diagram to allow a variety of locomotives and rollingstock to be run.** This leaves the module builder with the following choices:

- a) Modifying an existing commercial tunnel entrance by cutting and splicing two entrances together.
- b) Building a compliant tunnel entrance from scratch.
- c) Adapting a downloadable tunnel entrance paper & cardboard "kit" from www.scalesscenes.com
- d) Using the Peco N scale Stone Pattern Road Bridge for double track (NB34) as tunnel entrance and elevating it enough for the vertical clearance.
- e) If the module builder does not primarily intend to have his/her tunnel module in exhibition layouts and he/she does not run large clearance locomotives and rollingstock then they should try to install the commercial tunnel entrance as close to the clearance diagram as practical, eg raising the base line of the tunnel entrance 3 to 6mm above the baseboard. **HOWEVER when bringing such modules to an exhibition/meet** the T-TRAK module co-ordinator for that exhibition/meet must be informed **before** the exhibition/show that the tunnel entrance is less than the Australian T-TRAK clearance diagram. **Use of a non-conforming tunnel module will be at the sole discretion of the Meet Co-ordinator.**

Vertical clearance for trains has to be allowed for when placing bridges over the mainlines or when placing tunnel entrances so as to avoid situations such as shown below:



Keeping the 33mm track centre to centre spacing all along the track is important to ensure clearance between long items of rollingstock, as shown below:



Track Grades:

Track gradient is the measure of the steepness of the slope of track as it changes elevation (height). At present, all mainline track is to be laid at zero gradient. That is, it is to be level and not change height.

5. Electrical

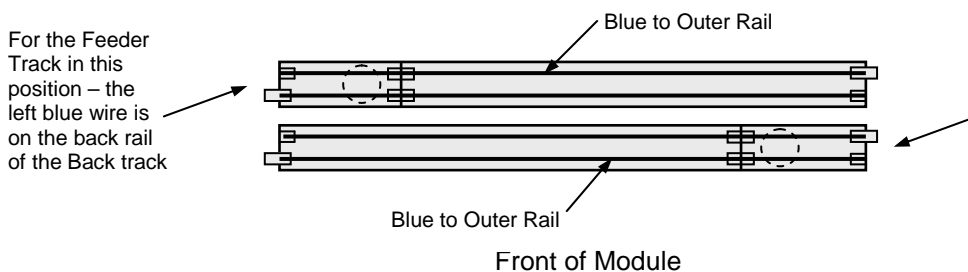
Normally only one module in a T-TRAK layout is needed to be wired up for electrical input; the Unitrack® UniJoiners® doing the rest. This module uses the Unitrack® Feeder Track (#20-041) into which the supplied Blue wire and White wire cable is plugged and then connected to a train controller. To ensure standardization, observe the following procedures (extract from the T-TRAK Specifications):

One module should have #20-041 feeder tracks which have Blue & White connector wires. Placing these short track pieces, as shown, will place the right blue wire on the front rail, front track and the left blue wire on the back rail, back track. The polarity is then the same for everyone. This is the trouble-free standard for track power, to date.

“BLUE to Outer Rails”

The holes for the wires are placed 45mm (1-3/4 inch) in from the edge of the module to allow access for socket replacement and keep them free of the joining area. No measurable resistance was found up to a 9 metre (30 feet) layout of modules tested.

(the recommended hole size is 19mm diameter)



5.1 Unitrack® Electrical Connectors

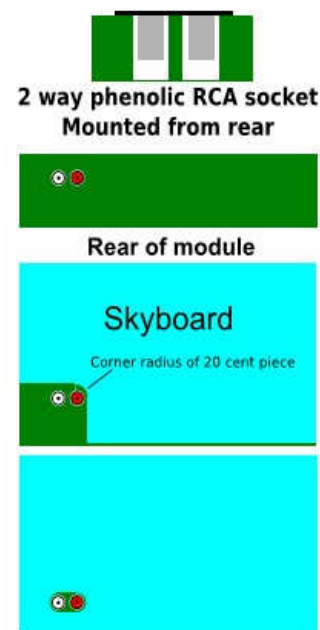
Kato Unitrack® compatible connector sockets (Tamiya Mini brand) are generally expensive and difficult to obtain, even from model aircraft hobby shops. Therefore the following alternative power connectors are recommended for T-TRAK modules.

5.2 Power Feed Connectors

The readily available RCA twin sockets board can be mounted on the module backboard or mounted internally and holes drilled into the backboard to allow RCA plugs to be pushed through into the RCA twin sockets. It is recommended that the White socket be on the left when facing the sockets.

If using single socket bases, to ensure sufficient room for the corner strengthening piece, locate the socket closest to an end at least 100mm from that end. A separation of about 35mm between single socket bases is ideal.

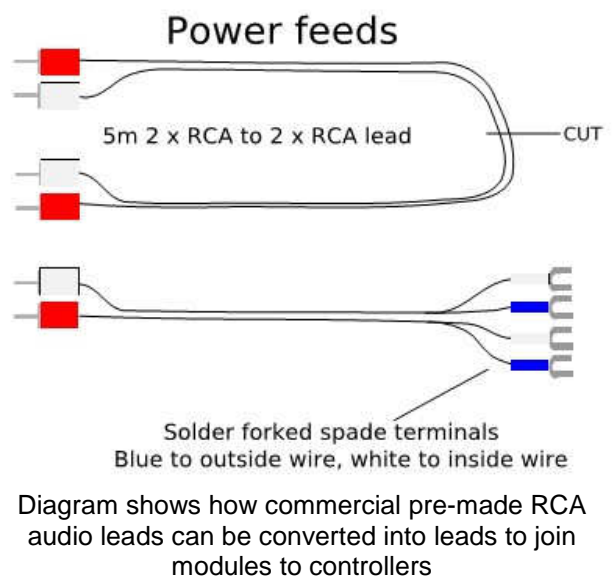
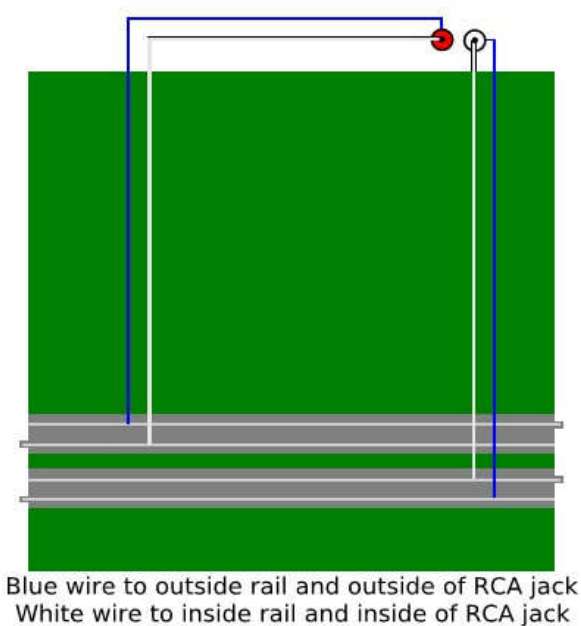
Pre-drilling holes before assembly is easier than drilling after assembly.



The White socket is connected to the Front track and the Red socket is connected to the Back track. For each socket, the Inner pin connects to the Inner rail and the Outer skirt connects to the Outer rail.

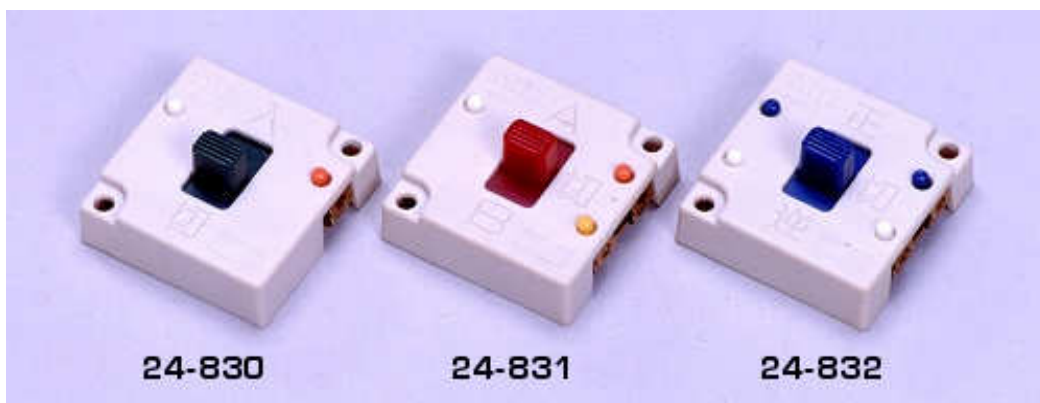


The individual module builder is permitted to use either Kato connectors or some other form of connector system provided that, when attending a T-TRAK gathering/exhibition, he/she not only notifies the co-ordinator of the gathering, but also supplies and fits adapter cords that result in white and red RCA in-line sockets of the standard polarity.



5.3 Electrical Isolation

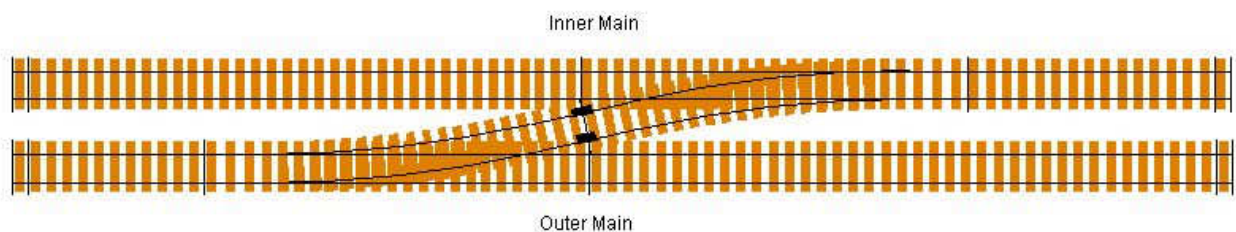
Electrical isolation of a siding, yard or passing-loop is automatically performed by the associated point (turnout). Additionally, a section of a siding can be further isolated by using a Connector Switch (Kato Unitrack® #24-830). A Feeder Track (Kato Unitrack® #20-041) would need to be included in the section of the siding that is to be isolated. Also, one rail of the isolated section will need to have an Insulated Unijoiner (Kato Unitrack® #24-816) where the isolation is to start.



However, if local control is required by the use of an independent local controller, then electrical isolation needs to be incorporated to avoid “short-circuiting” of controllers in case points are switched unintentionally. Isolation is achieved by using Insulated Unijoiners® (Kato Unitrack® #24-816) for each rail where the siding/loop connects to the mainline point. If it is a passing loop, then both points have to have Insulated Unijoiners® on each rail. A Selector Switch (Kato Unitrack® #24-831) is used to switch the siding/loop power between the mainline track and the local controller.

If using Peco points and Peco track (see Section 14) for sidings, yards or passing-loops, a single-pole single-throw switch would be used instead of a Connector Switch and a double-pole double-throw switch would be used instead of a Selector Switch.

The Front and Back tracks can be connected physically by the various arrangements of points (turnouts) that can be made. However, it is vital that both tracks remain electrically isolated from each other to reduce the chances of electrical shorts in normal power supply situations and conflict in situations such as DCC control on one track and DC control being used on the other track.



5.4 Throttle Connection

Connecting the power feed module(s) to the controllers normally requires running the wires from the inside of the loop of modules to a point outside it. There are two main methods for doing this. The first is to file or cut a small notch in the bottom edge of the power module’s front and back large enough for the wires to pass through without lifting up the module when it is placed on the table top. The second is to drop the wires down through a small gap between adjacent tables.

6. Control

Because of its simple wiring and the electrical isolation between the Front and Back tracks, T-TRAK is compatible with both traditional DC operation and the more recent DCC system, however, the DCC aspects are still to be defined from a standards point of view.

If both DC and DCC are to be used on a layout, then the Front and Back tracks are to be electrically isolated.

The decision whether to use DC only, DCC only or a combination of both is up to the discretion of individual modellers with regards to their home layouts, and to the organizers of a T-TRAK “Meet”.

7. Joining and Separating Modules

Joining modules is fairly straightforward. Align Unijoiners®, adjust feet if necessary to ensure good alignment, and then complete joining by pushing the modules together.

When separating modules, it helps if a “tool” is used to avoid the sometimes “damaging” force that can be applied when using the hands to directly separate the modules. The tool to use is an ordinary 300mm (12in) steel ruler (or metal of similar size and shape). It is just slid between the modules and twisted sideways until the modules “spring” apart.

8. Varying Module length and/or Width

VARIATIONS IN STRAIGHT MODULE LENGTH AND WIDTH

Large scenes and track arrangements other than the plain two main lines will require modules that are longer than a single module. For multiple length modules the track length of the module is to be always a multiple of 310mm. Because the Unitrack® has to extend 1mm past each side of a T-TRAK module to ensure a good connection between individual modules, the actual base of a T-TRAK module is always 2mm shorter than a multiple of 310mm. See below:

<i>Single-length</i> module	:	Module length 308mm	Track length 310mm
<i>Double-length</i> module	:	Module length 618mm	Track length 620mm
<i>Triple-length</i> module	:	Module length 928mm	Track length 930mm

The standard width of an Australian T-TRAK module is 300mm. The original width of T-TRAK modules was 210mm. Module builders are free to build modules to the 210mm width but at “meets” with other module owners some form of transition module must be provided by either the owner of the 210mm wide module or another module owner at the meet. This should be discussed with the meet co-ordinator before the meet.

8.1 Transition Modules

Examples of transition modules can be seen below:



Details of how to build transition modules will be incorporated in Section 14.2 in further editions of the Guidelines. In the mean time module builders can make enquiries via the Australian T-TRAK Discussion Forum as listed in Section 17 Further Resources.

8.1 Width Extension

Modules can vary in width from the standard 300mm/210mm in two ways. In defining the extension of the width of the standard T-TRAK module, the front edge of a standard module is the point from which all dimensions are measured.

The first way to vary the width of a T-TRAK module is to extend it further to the rear. Because a corner module has a width of 365mm, the furthest that the module width can be extended to the rear is 360mm, this is to allow space for the module's skyboard to be fitted without it interfering with the modules behind it. All modules that are extended to the rear and are intended for use at exhibitions, meets etc. must have some way to have their skyboards match up with the skyboards of a standard 300mm wide module, either by shaping the skyboard at the ends of the module, or by providing an appropriate adapter module for each end.

The second way to vary the width of a module is to extend out from the front of the module. In planning this type of extension the module builder must allow for the front height adjusting bolts to stay in the same position relative to the mainline tracks as they would for a standard module. This is to make sure that the bolts will not hang out beyond the edge of the table the module is placed upon. The module builder must also consider how far over the edge of the table the module front will protrude. A maximum extension of 50mm is recommended. In the illustration at the right the front of a standard 300mm width module has been extended approximately 20mm by attaching a length of 19X42mm pine to allow for the building of a front platform and station building.



9. Painting Modules, Scenery and Structures

9.1 Track Ballast

Module builders often ballast the 8mm gap between the Front and Back tracks. When non-Kato track is used on the module this also needs to be ballasted. The choice of ballast colour/brand is at the discretion of the module owner. Kato manufacture a ballast that matches their Unitrack® but it can be difficult to obtain. Close matches available in Australia are Woodland Scenics FINE GRAY (stock No B1375) and Chuck's Ballast Supplies SOFT GREY, LIGHT GREY, and DIRTY PLATFORM TOPPING (Chuck's Ballast has a degree of variation due to its natural crushed rock composition and so modellers are encouraged to do a direct comparison with a sample of Kato track before making a final selection). For those who wish to use Peco track, a 3mm underlay (eg cork) is exactly the correct height with Peco track on top to match the Kato track height (see section on Non-Unitrack® Track Usage).

9.2 Front and Side Colours

The colour(s) of the front and sides of the module base is the modeller's choice and often will be chosen to compliment the scenery on the module and from what is readily available. In the interests of visual compatibility with other modules at gatherings/exhibitions it is recommended that either Black or the following Green colours be considered among the module builder's first choices for painting the front and sides of his/her module:

- Stratco/Colorbond Wilderness "Rivergum"
- OR British Paints "Colorbond Wilderness" [code 269] (www.britishpaints.com.au/index.asp?page=55)
- OR Dulux "Blade Green" (code P22.E7) (www.dulux.com.au/html/specifier/colour_atlas.aspx)
- OR similar

(NOTE – 300g spray cans of Colorbond Wilderness "Rivergum" is available from some hardware stores)

9.3 Skyboard

The Skyboard provides a backdrop for the scenery on the module. Its visible height is 200mm above the top of the box. It is recommended that the total height of the skyboard board be 250mm to allow sufficient area for fixing to the module box. The top corners of the skyboard may be rounded if the modeller prefers, but it should not be larger than the radius of a 20c coin, ie 18mm (3/4in) radius.

Skyboards are required for exhibition display when modules are joined to modules built by others who have used skyboards. They may not always suit a modeller's personal preferences or fit in with the modeller's use of their module at home. If this is the case, it is recommended that they be made removable by the use of self-adhesive "Velcro" type patches applied to the back of the module base and the bottom of the skyboard or a pair of bolts and wing nuts. Alternative methods are: use 50mm fold-up type bull-dog paper clips or dowels and 25mm clips, or 3mm plastic moulding available from hardware stores and cut to length and glued to the back base.

(see the forthcoming "Hints & Tips" supplement to these Guidelines for further details)

Because corner modules do not have a "back" side in the way that straight modules do, they do not have conventional skyboards. Individual modellers are invited to be creative on how they fill in the skyboard gap. Suggestions include: having two very short skyboards mounted at the inner corner of the module, or using a scenery filler such as a large hill/mountain, a dense forest, or a building.

The preferred colour of the skyboard is a light blue and is the modeller's choice according to individual preference and local availability of paint. In the interests of visual compatibility with other modules at gatherings/exhibitions it is recommended that the following be considered as first options:

- Berger "Polar Breeze" (www.berger.com.au/pages/colours_fullrange_blue.html)
- OR British Paints "Tear Drop" [code 201] (www.britishpaints.com.au/index.asp?page=54)
- OR Dulux "Sky Bus Quarter" [code P35.C1Q] (www.dulux.com.au/html/specifier/colour_atlas.aspx)
- OR Taubmans "Blue Seclusion" [code T70-2] (www.taubmans.com.au/homePainters/colour/profiler.asp)
- OR similar

(Note - some colours or close colours may be available in 100ml sample pots, for about \$4)

9.4 Base Colour

The soil base colour for scenery is at the discretion of the module owner. It is preferable that the base not to be plain wood. Again, it is the modeller's choice according to individual preference and local availability of paint. Recommendations for base "earthy" colour:

- Berger "Safari Dust" {brown} (www.berger.com.au/pages/colours_neutral.html)
- OR British Paints "Pure Earth" [code 101] {brown} (www.britishpaints.com.au/index.asp?page=49)
- OR British Paints "Fox Hunt" [code 282] {grey} (www.britishpaints.com.au/index.asp?page=56)
- OR Dulux "Grey Scape" [code P04.A2] {grey} (www.dulux.com.au/html/specifier/colour_atlas.aspx)
- OR Taubmans "?" (www.taubmans.com.au/homePainters/colour/profiler.asp)
- OR similar

(Note - some colours or close colours may be available in 100ml sample pots, for about \$4)

9.5 Ground Scatter

Ground scatter is at the discretion of the module owner according to their scenery plans and available materials.

One recommendation for grass effect ground scatter is Woodland Scenics® "Burnt Grass" (comes in two sizes of packets - T44 small or T1344 large).

10. Materials

10.1 For Standard Module (with skyboard)

300mm x 900mm x 6mm nominal sheet (plywood or MDF) * see note below
300mm long of 32mm x 32mm stock standard timber (for glue blocks)

4 each – M6 Tee nuts
4 each – M6 x 50mm long full thread carriage bolts

Wood glue * see note below

Track Pins (to hold track down as some glues can attack plastic)

Track: 2 each – Kato Unitrack® #20-000 (248mm straight)
2 each – Kato Unitrack® #20-041 (62mm feeder track)
or Kato Unitrack® #20-040 (62mm straight)

10.2 For Corner Module (with partial skyboard)

450mm x 900mm x 6mm nominal sheet (plywood or MDF) * see note below
300mm long of 32mm x 32mm stock standard timber (for glue blocks)

4 each – M6 Tee nuts
4 each – M6 x 50mm long full thread carriage bolts

Wood glue * see note below

Track Pins (to hold track down as some glues can attack plastic)

Track: 2 each – Kato Unitrack® #20-110 (282mm radius)
2 each – Kato Unitrack® #20-120 (315mm radius)

Note: Although flexible-track can be used (plus Kato Unitrack® #20-045 Adaptor track at module joining faces), it is preferred that all Unitrack® is used.

10.3 For Double Length Module

900mm x 600mm x 6mm nominal sheet (plywood or MDF) * see note below
300mm long of 32mm x 32mm stock standard timber (for glue blocks)

4 each – M6 Tee nuts
4 each – M6 x 50mm long full thread carriage bolts

Wood glue * see note below

Track Pins (to hold track down as some glues can attack plastic)

Track: 4 each – Kato Unitrack® #20-000 (248mm straight)
2 each – Kato Unitrack® #20-020 (124mm straight)
OR
4 each – Kato Unitrack® #20-000 (248mm straight)
2 each – Kato Unitrack® #20-040 (62mm feeder track)
2 each – Kato Unitrack® #20-041 (62mm straight)

* **Note:** Be aware that some plywoods may warp, that MDF is prone to water damage if not sealed well and that some glues may not stick well. For plywood, use at least 'B' bond exterior ply (which is water resistant) if not 'A' bond marine ply (which is waterproof). 'C' and 'D' bond interior ply is non-structural and not water resistant.

ASSEMBLY TIPS

- Ensure edges are square
- Use a good wood glue (eg Bostik MDF Glue, Yella Terra Aliphatic adhesive)
- Use clamps, weights or nails until dry
- If using a clear coat finish, a choice of construction is to cut the front piece 70mm high and the top 308mm x 203mm (no front plywood edge will show)
- Use the Kato Unitrack® #24-000 Rerailer for 33mm track spacing (it has notches that fit the rail tops)
- Cut off ends of track pins that penetrate the baseboard too far

11. Kits & Packages

Straight module kits and Corner module kits are currently available from two sources, one in Perth and one in Brisbane. Assembled modules in various states of assembly are available from the Brisbane source. Details and pricing are available at the relevant websites.

John Rumming (WA) produces a Straight module kit, a Corner module kit and a Beginner's Set.



Straight Module Kit



Corner Module Kit



2 x Straight Module Kit
plus

4 x Corner Module Kit

Beginner's Kit Set

Details of John's kits and pricing can be viewed at:

<http://home.iprimus.com.au/nuggles58/t-trak-kit.pdf>

The kits are available by Mail Order only from:

Money Order payable to: John Rumming

T-TRAK Kit
C/o John Rumming
58 Lewis Jones Cross
STRATTON WA 6056

Modular Train Tables (QLD) produces a variety of model train tables and now includes T-TRAK modules of various types and different stages of assembly, including with Kato track laid. The track laid Straight module versions do provide the option of including Feeder Tracks if required. The following modules are currently available as Kit Only or Assembled Module or Assembled Module with Kato Track Laid:

Single straight, Double straight, Triple straight, Corner, Double Corner and Inside Corner

The kits and assembled modules are currently available by Mail Order only. Internet ordering is under consideration. Details and pricing can be viewed at the Modular Train Tables website at:

<http://www.modulartraintables.com.au>

Mail Order address: PO Box 6209, Upper Mt Gravatt QLD 4122 Fax (07) 3349 0235

Paul's site refers to both the 25mm and 33mm track centre-to-centre spacing and also has dimensions in inches, not metric. Therefore take time to read his material with discernment and you will be well rewarded.

OTHER

Other forms of construction and varieties of materials will be added to these guidelines and discussed on the Australian T-TRAK Yahoo! Group:

http://groups.yahoo.com/group/Australian_T-TRAK

14. Non-Unitrack[®] Track Usage



The above photograph shows a triple length module fitted out with Peco flexible track between sections of Kato Unitrack[®] at the ends. 3mm cork underlay is placed under the Peco track to keep it at the same height as the Kato rails (cork is recommended over rubber type underlay, especially for new modellers, as rubber yields too much).

It is recommended that code 80 rail track and points be used to do items such as yards and multiple length modules. This is the size of rail that is used by Peco and Atlas and most other manufacturers in their main N gauge lines.

A smaller sized rail is used in Atlas code 55 track, but it is not directly compatible with the rail used in Kato Unitrack[®] and is not compatible with the wheels of a lot of N scale rollingstock and locomotives. Peco manufacture a code 55 track that can be worked to be compatible with Kato Unitrack[®] and does accept all N scale locomotives and rollingstock. Use of Peco Code 55 will be covered in the forthcoming "Hints & Tips" supplement to these Guidelines.

Joining Method 1

The simplest, but also the most expensive, way to fit non-Unitrack[®] track between Kato end pieces is to place at each end the 62mm long Adaptor Straight (#20-045).

This directly joins Kato Unitrack[®] to more conventional types of N Scale track such as Peco and Atlas. It even has a ledge to rest the non-Kato track on before you start laying the 3mm cork under the non-Kato track. Normal rail-joiners must be fitted to BOTH rails of the non-Kato track.

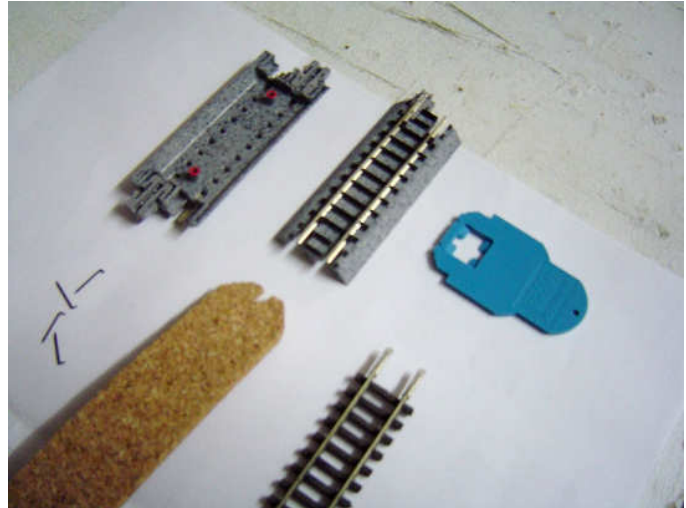


Joining Method 2

The next simplest way is to use 62mm straight Unitrack® sections and, using the special tool that comes with the Kato re-railer, remove one of the Uni-joiners (described below).

Again, rail joiners must be fitted to BOTH rails of the non-Kato track. Also the 3mm cork underlay must be brought up all the way to the Unitrack® section. The photo shows how the end of the cork strip has been shaped to slide inside the plastic ballast section of the Unitrack® and around the track-pin tube.

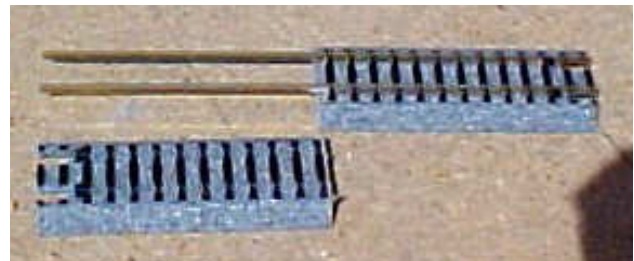
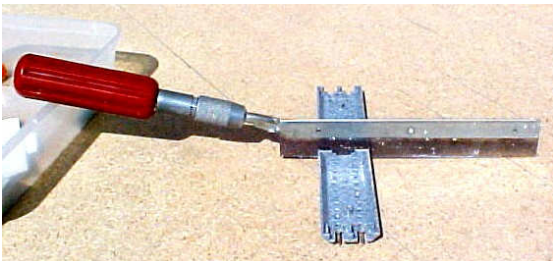
Shorter lengths of Unitrack® are available in the Unitrack® pack: 20-091 - Short Track Assortment 29mm [8 pcs], 45.5mm [2 pcs]



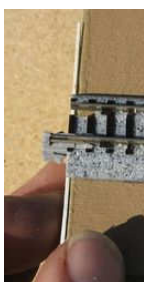
Joining Method 3

A cheaper, but more labour intensive way, is to cut a 124mm length of Unitrack® into two halves and use the halves for the module connection tracks as outlined below.

Begin by cutting through the Unitrack® base from the underside with a razor saw, making sure that the actual rail is not cut. The rail will stay attached to one half of the track base and the other half will slide off.



Remove enough of the sleeper webbing from a length of Peco Code 80 flexible track to match the Kato Unitrack® base that has been removed from the rails. This sleeper webbing can be slid onto the exposed Kato Unitrack® rails to make a piece of composite based track. The module builder can use this piece of composite base track for the module connection at one side of the module.



The next step is to fix the composite base track to one end of the module.

When fixing down the Unitrack® the module builder must make sure that it is protruding no more than 1mm beyond each end of the module base otherwise the module's track length will be longer than the standard multiple of 310mm.

A piece of 1mm (0.040in) thick styrene held against the side of the module while the Unitrack® is fitted into place is a useful guide in this situation.

When this is done, the Unitrack® base has to be slid onto the flexible track.

First fix this Unitrack® base end into its rightful place on the module. Then, to make sure that the flexible track's rails do not slide past the end of the Unitrack® base, clip a section of Unitrack® on to the end of the base section. Lay the strip of 3mm thick cork (or other material that you are using for underlay) between the two fixed sections of Kato Unitrack®.



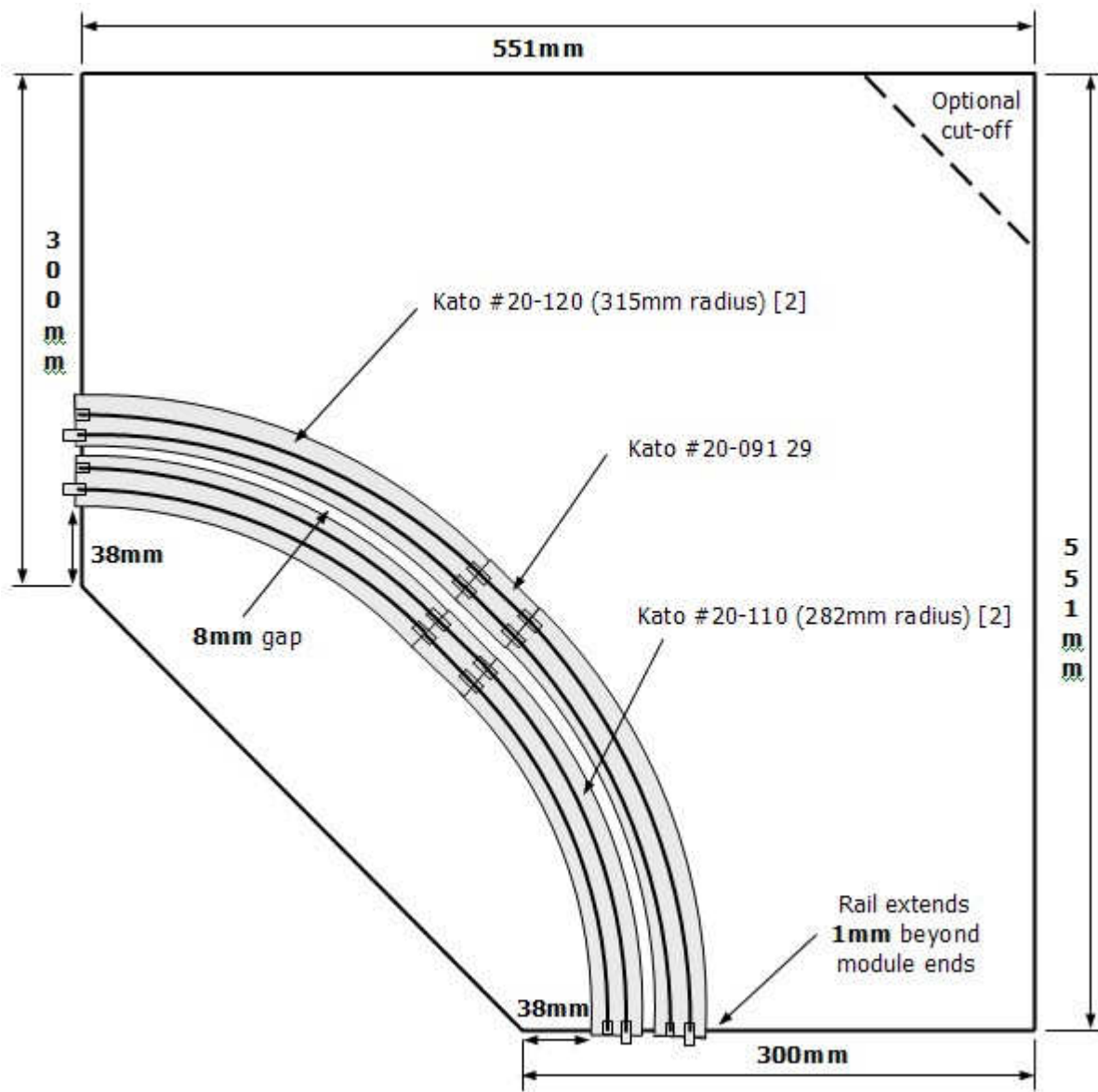
The next step is to slide the flexible track that has had the sleeper webbing cut off it into the rail-less Unitrack® base.

Now line up the “free” section of the flexible track with the rails of the fixed track at the other end. The flexible track can then be cut to length and the new “end” is connected to the composite base track section, giving a clean run of track from one end of the module to the other, as shown.



15. Other Module Types

15.1 Inside Corner Module



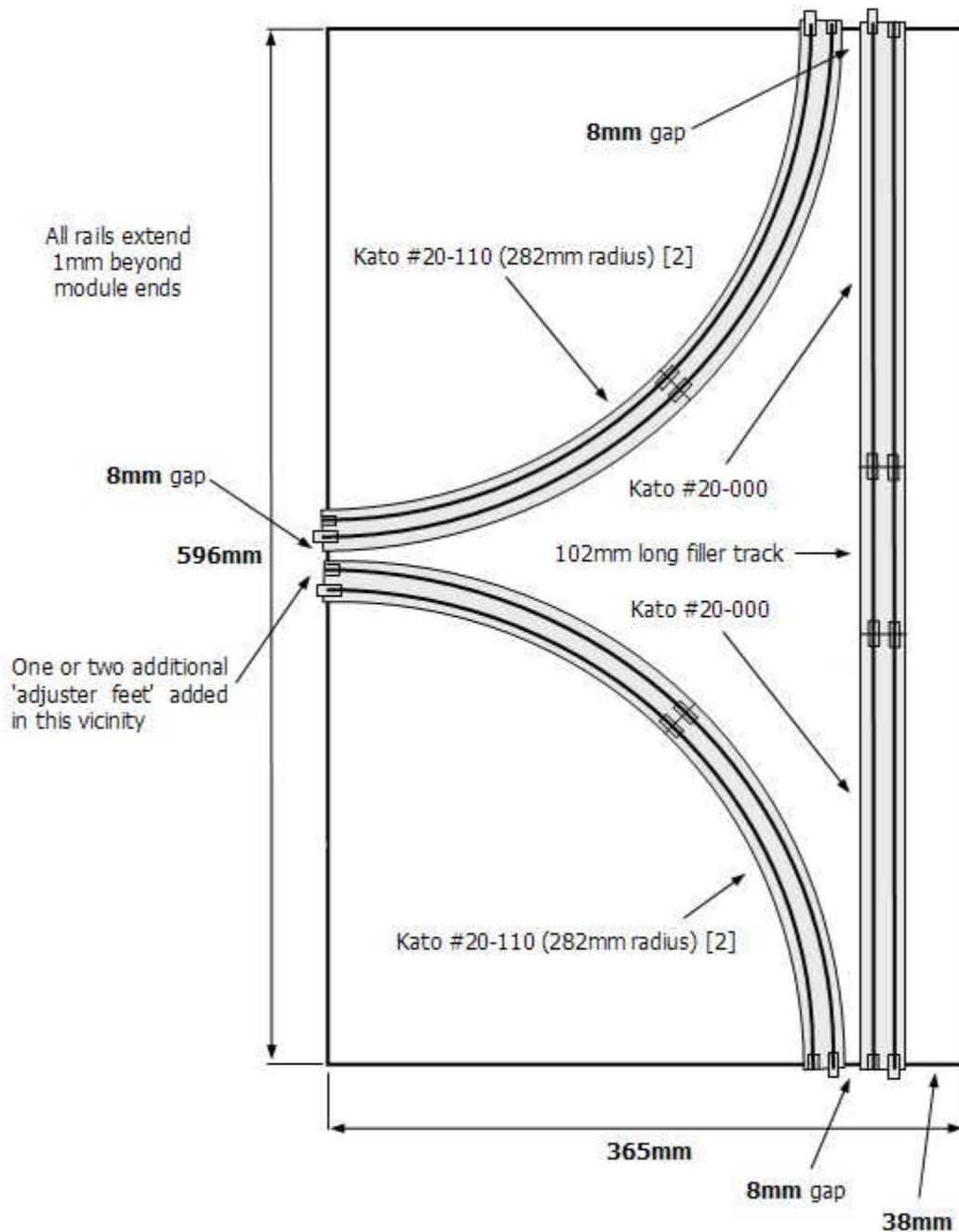
The "Inside Corner" module allows the assembling of T-TRAK layouts of an "L" shape or more complicated arrangements.

Skyboards are fitted to the "top" and "right hand" sides, as referenced from the above diagram.



15.2 T-Junction Module

This style of module allows for more variety in the shape of T-TRAK layouts, both at home and at exhibitions and meets.



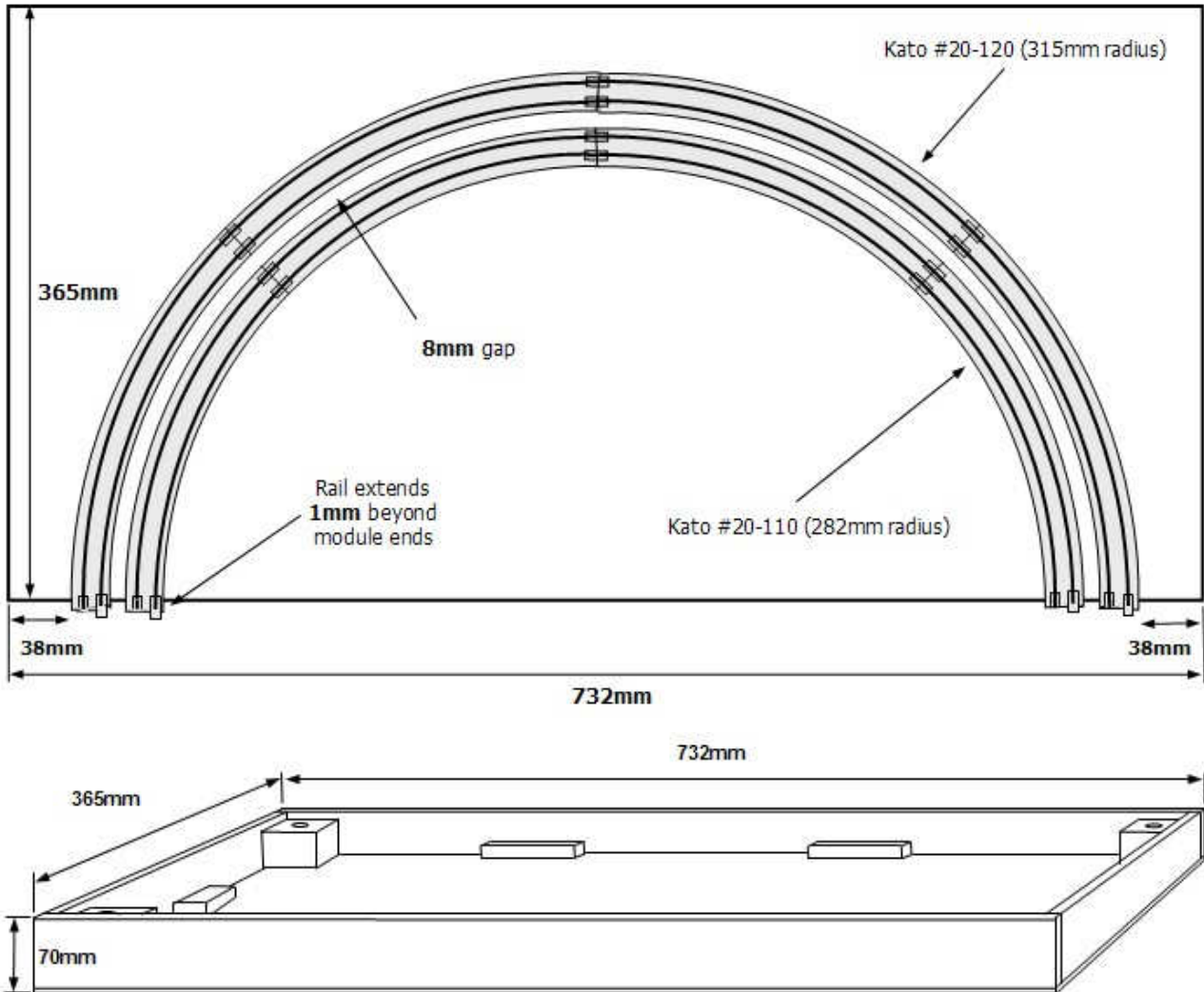
The module uses standard Unitrack® pieces except for the 102mm long filler track. There are a number of options for creating this filler track:

- 1) Cut a piece of Unitrack® to make up the odd length
- 2) Use the Unitrack® Expansion Track (#20-050), expansion range is 78mm-108mm
- 3) Use the Unitrack® Short Track Assortment pack (#20-091) if making two Junction modules (although this actually makes two odd lengths of 103.5mm [29mm + 29mm + 45.5mm], it just means that both curved tracks can be “stretched” to overhang the module end an extra 0.75mm adjacent to the straight track)

NOTE - Due to the length of the Junction module being short of a double length straight module by 22mm, it is preferable to have two Junctions opposite each other in a layout to avoid gap problems.

15.3 Double Corner

Some modellers have found that it is easier to have a single “Double Corner” than using two 90 degree corner modules to use at the ends of their T-TRAK layouts. The dimensions for this type of module are as follows:



15.4 Other Types of Modules

Other module types (eg Transition module, End-Loop) will be added to future editions of these guidelines and to the forthcoming “Hints & Tips” supplement to these Guidelines. They will also be discussed on the Australian T-TRAK Yahoo! Group:

http://groups.yahoo.com/group/Australian_T-TRAK

16. Storage/Carrying Cases

Plastic carrying containers, from stores such as Big W, are ideal for storing or transporting modules and are reasonably cheap in price. A container of about 57litres volume will generally hold a single straight module.

Other suggestions and ideas will be covered in the forthcoming “Hints & Tips” supplement to these Guidelines.

17. Recommendations for “Meets” / “Gatherings”

MODULE OWNERS

- Put your name on each module (preferably on the back)
- Bring spare power feed modules (they are usually in short supply)
- Add power feeds to corner modules (a most convenient location)
- Have spare of partially made modules to show interested members of the public
- Ensure any boxes, bags, etc are placed under tables/trestles out of sight of the public

ORGANISER

Before Event:

- Send out Module Information Form to module owners (Form under Files section at forum)
- Register operators with “umbrella event” organisation if required
- If supplying own table, tables 760mm W x 1830mm L x 730mm H (**folding version**) are available from Bunnings, Office Works or similar stores

At Event:

- Tables/trestles must be at least 750mm wide
- Arrange the supply of a sufficient number of tables
- Provide suitable table covers
- Preferable for table covers to “drop” just above the floor (enables boxes, etc to be hidden)
- Align and level tables before placing covers
- Group modules together by owner or club/group (for set-up convenience)
- Stick a tag on each module with descriptive name and origin State or city/town
- Ensure that sufficient “power feed” modules are available
- Ensure that sufficient power supplies and controllers are available (and spares)
- Provide a guest controller (if possible)
- Mains supply electrical equipment and power leads must be “tested & tagged” (*State requirements vary, so check the regulations for your locality*)
- Supply mains power “safety adaptor” RCD (residual current detector)
- Provide “Australian T-TRAK” logo signs for display
- Provide T-TRAK publicity handouts
- Allow for part of a table (or an additional small table) for demo modules and publicity items

18. Further Resources

INTERNET SITES

- Australian T-TRAK website: <http://t-trak.nscale.org.au>
- Australian T-TRAK Discussion Forum: http://groups.yahoo.com/group/Australian_T-TRAK
- International T-TRAK website: www.t-trak.org
- “*The Unofficial T-TRAK Handbook*” website: <http://t-trak.cincy.home.insightbb.com>

19. Summary of Standards and Options

PART	Standard	Option
BOX		
Standard Straight Module	308mm L x 300mm W x 70mm H	-
International Module	-	210mm to 365mm Wide
Multiple Length Modules	-	2 x , 3 x , 4 x
Corner Module	365mm x 365mm	Double Corner 365mm x 732mm
Junction Module	-	365mm x 596mm
Module Front & Sides Colour	Modeller's choice	Recommendation: Black or following green: Colorbond/Stratco "Wilderness"/"Rivergum" or British Paints "Colorbond Wilderness" or Dulux "Blade Green" or similar
SKYBOARD		
Skyboard Height (above module)	200mm Make removable (eg use 'velcro' patches)	-
Skyboard Top Corners	-	Rounded 20c coin radius or less (18mm [3/4in] radius or less)
Skyboard Colour	Light blue	Recommendation: Berger "Polar Breeze" or British Paints "Tear Drop" or Dulux "Sky Bus Quarter" or Taubmans "Blue Seclusion" or similar
TRACK		
Track Distance from Front	38mm (from Front to ballast edge of Front track)	-
Track Spacing	33mm	-
Track for <u>Single</u> 210mm & 300mm Wide Modules	All Kato Unitrack®	-
Track for Other Modules	All Kato <u>OR</u> Kato for module connectors	User choice for module non-connectors (Peco recommended)
Track Ballast (for non-Kato track)	-	User choice
SCENERY & STRUCTURES		
Base 'Earthy' Cover	Modeller's choice	Recommendation: Berger "Safari Dust" or British Paints "Pure Earth" or British Paints "Fox Hunt" or Dulux "Grey Scape" or similar
Ground Scatter	Modeller's choice	Recommendation: (eg Woodland Scenics® "Burnt Grass" - T44 small or T1344 large)
Side tangent Clearance (from rail edge)	Straight track – 12mm minimum Curved track – 15mm minimum	-
Height vertical Clearance (from rail top)	45mm minimum	-
ELECTRICAL		
Connector: Kato Unitrack® compatible	Mini Tamiya socket only (from model aircraft hobby shops)	-
Number of modules with Power Feed	For DC - one every 9m (30ft)	-
Power Feed Connectors	RCA twin sockets White to Front track, Red to Back track Inner pin connects to Inner rail Outer skirt connects to Outer rail	-
CONTROL		
System	DC (Direct Current)	DCC aspects still to be defined (DCC preferred on Back track)

20. Miscellaneous

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20.3 Revision History

- Version 1.0, 26 March 2008 – Initial release
- Version 2.0, 22 December 2009 – Various additions and minor corrections

Australian T-TRAK-N Guidelines