

## General Guidance on WIT Control (4)

WIT stands for Wire-in-tube, and is a cost-effective and satisfying method used by railway modellers to mechanically control turnouts, semaphore signals and the like.

The general principle is that a Control Wire is passed through a fixed Tube which guides the Control Wire between the controlling Lever and the device being controlled. The Tube can be bent to the required path and is normally located out of sight below the baseboard.

As well as MODRATEC Interlocking Lever Frames, MODRATEC provides a range of WIT components including the following:

**WT** - 1/8" (3.2mm) diameter Annealed Copper Tube.

**WF** - Flex-wit Cable Tube - an economical alternative and more suitable for adding WIT control to an existing layout.

**WM100** - 1.00mm diameter polished steel Music Wire (piano wire) for general WIT runs.

**WM115** - 1.15mm diameter polished steel Music Wire (piano wire) suitable for un-tubed sections where extra wire rigidity is necessary.

**WM050** - 0.50mm diameter polished steel Music Wire (piano wire) suitable for semaphore push rods, particularly in larger scales.

**WM035** - 0.35mm diameter polished steel Music Wire (piano wire) suitable for semaphore push rods, particularly in smaller scales.

**WC** - Clamp-wit is intended to fix copper tube to a flat surface such as the underside of a baseboard.

**WK** - Crank-wit is a seven-ratio 90-degree crank suitable for changing the operating direction, for example, below a semaphore signal where vertical operation is required.

**WP** - Point-wit is used to control turnout points. It couples directly to a plain wire automatically permitting excess wire travel.

**WG** - Sig-wit is used to control semaphore signals. It allows accurate setting of the danger and clear positions while permitting over-travel of the control wire.

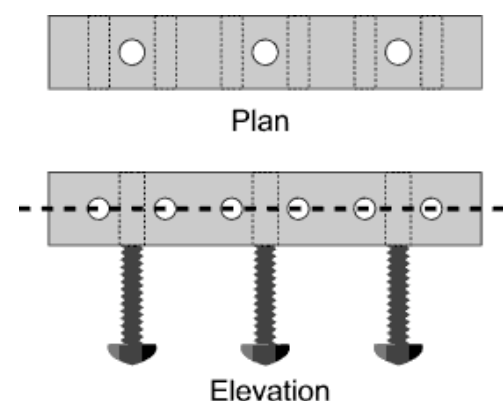
**WL** - Link-wit is for linking Control Wires across baseboard joins.

**WS** - Slot-wit is a mechanical "logic" gate which allows signals to be slotted (operated by more than one lever/frame). Slot-wit can provide the logical AND or OR function and is available in 2- and 4-input versions.

**TB** - MODRATEC provides 12-way 5A terminal blocks. In addition to their electrical use, the brass inserts can be easily removed and used as wire joiners for WIT Control Wires and links.

### Setting Up a WIT Run

Cut the Tube to the required length. For copper tube use a fine razor saw or a special tube-cutting tool. Ensure that the ends are smooth, particularly the entries to the hollow. Flex-wit tube is easily cut with standard wire cutters. Cut the Control Wire to length with a little to spare. Smooth the end which will be passed into the tube to prevent snagging. Insert the Wire before bending and/or fixing the tube. Keep copper tube bends smooth with a minimum radius of 75mm (3"). A lubricant should be smeared onto the Wire as it is fed into the tube particularly for long and/or "bendy" runs. Arrange to clamp the Tube securely at each of its ends. Additional support may also be required along the length of the run but this need not be as secure as at the ends.

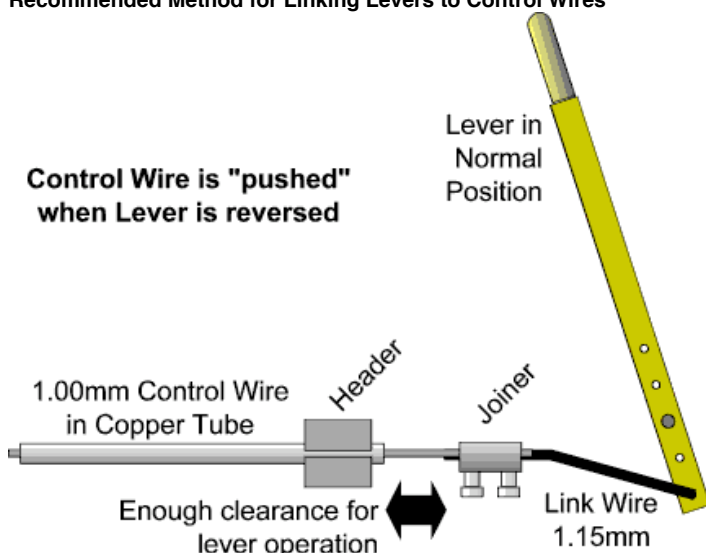


### To Make a Header

The diagram to the left shows what is required for a header. It is made from timber about 11 to 13mm square. The illustration is for 6 levers but the principle can be extended. The exact spacing between Levers is 9.7mm, but for the header a 10mm spacing (or 3/8") is near enough. To accommodate Copper Tubes, drill 1/8" (or 3mm) holes as shown in the elevation. For Flex-wit tube, drill 5/32" (or 4mm). On the other axis, as shown in the plan, drill holes **located between each pair of Tubes** and of a size to give clearance to your selected mounting screws. After all holes have been drilled, saw the Header in two along the dotted line - use a thin bladed saw such as a hacksaw. The Header is then screwed to the underside of the baseboard and acts as a multiple clamp.

**NOTE** that Terminal Blocks (see TB above) may also be used as headers. For Flex-wit, strip the plastic outer sheath at the end to be clamped. **Secure between each pair of tubes.**

### Recommended Method for Linking Levers to Control Wires



The above diagram illustrated the recommended arrangement for connecting Levers to corresponding Control Wires. Note that Flex-wit tube may replace the copper tube shown. The Header is easily made as described below and serves to clamp multiple Tubes. The link is formed from 1.15mm piano wire. A right-angle bend at the Lever end passes through the desired hole in the Lever, the projecting end being again bent to "capture" the link. The other end is bent to suit the orientation of the Control Wire. The distance between the fulcrum of the Lever and the edge of the Header should be approximately 40mm. The Joiner couples the Link to the Control Wire and adjustment of Control Wire travel is always possible at this point. Note that if your Lever Frame has Auxiliary Switches fitted, you can remove the Switch Setting Bar to access these joiners.

A complementary arrangement is possible using the Lever holes above the fulcrum as shown below.

