Multiplex Instructions

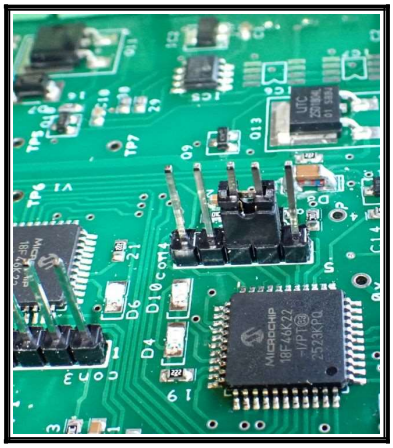
Multiplexing allows up to 8 ECUs to be controlled by one handheld at the same time on separate tracks, each track must be electrically isolated.

Each track will have its own ECU.

Each Track can be individually programmed by the single remote for record playback, and manual. The points and signals on each of the tracks can be programmed by the single remote.

A unique number must be allocated to each ECU **before** they are wired up.

In a multiplex system The ECU has a jumper that goes on Con4 pins 3-4
as in the photo.



Fit this jumper once the Track number has been entered

To Enter the track number:-
1) Remove the jumper, power up and wait for flashing green
2) Key in 134 *beep* track number eg 134 *beep* 2
3) Power off and fit the jumper to Con4 pins 3 to 4
4) Repeat for the other ECU's

The wiring between the ECUs is shown below.

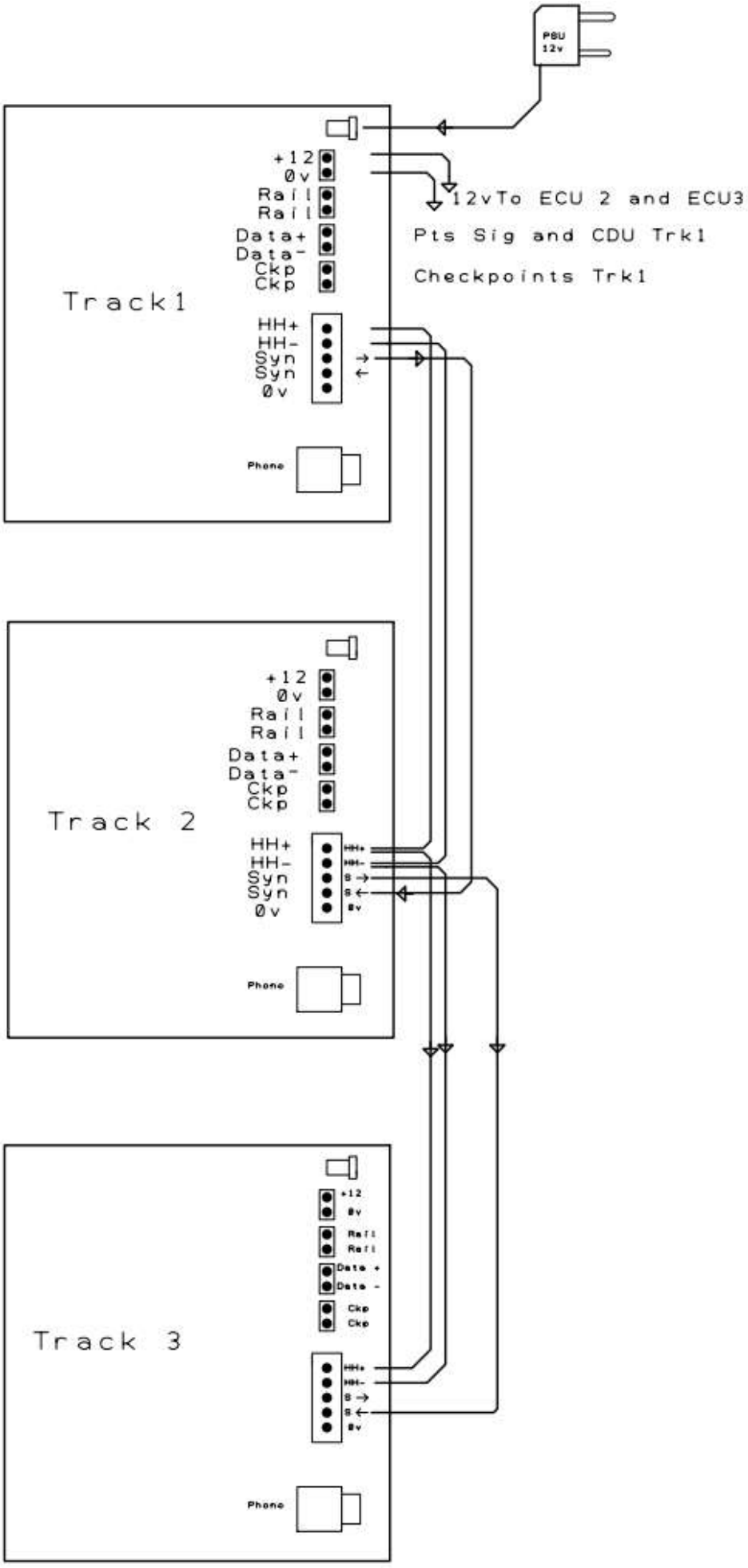
The 2 terminals marked +12 and 0V DC are for power to the other boards. Simply daisy-chain the +12 and 0v to the other boards – usually red and black wires for this.

The HH+ and HH- are the Handheld and are in parallel with the phono sockets. Daisy chain the HH+ and HH- between the boards. This means you can plug the handheld in to any of the phono sockets, not just Track1. Check the HH+ goes to HH+ and HH- to -.

The Synchronising signal goes from Track1 Sync OUT to Track 2 Sync IN, then from Track2 Sync OUT to Track 3 Sync IN etc. The Sync 0v is the system 0v so you don't need to use this if its all being powered from one PSU.

You switch between tracks by going *1 *2 or *3 etc. The # key does nothing.

To return an ECU to stand-alone, disconnect the sync, HH and power wires remove the jumper and power up.


PSU
12v
+12
0v
Rail
Rail
Data+
Data-
Ckp
Ckp
12vTo ECU 2 and ECU3
Pts Sig and CDU Trk1
Checkpoints Trk1
Track1
HH+
HH-
Syn
Syn
0v
Phone
Track 2
Track 3

For multiplexes with more than one operator, up to 5 individual remotes can be used if two users select the same channel, a continuous bleep will sound.

Note: when using more than one remote if you unplug your remote and move it round to a different position on the track layout the remote will remember the information for period of one minute while it has been disconnected from the track and reconnected providing sleep mode has been enabled.

Estop

Press the speed control in briefly and the loco will stop and power is removed from the track. A Green light in the ECU will light (Red in the future!)

Press and hold the speed control for 2 seconds and Estop will apply to ALL tracks.

Unset the Estop by short pressing again, you will need to select the other tracks with *2 etc to unset their Estops.

Estop is effectively a Track Enable or Track Disable toggle. This means that if Tracks 2 and 3 are in Estop you can physically link the tracks together with a switch or perhaps points to make track 1 a bigger layout as long as the other tracks remain in Estop.

Large multiplex systems

You can operate large systems with more than one handheld (max = 5) but you must not select a track that is already occupied by another handheld. If you do there will be a continuous beep from the handhelds.

You can unplug a handheld and move to another location and plug in to a remote socket without losing the settings provided you put the handheld into sleep mode before unplugging. Do this with command 138. You have 60 seconds to get to the other location and plug in to the remote phono socket associated with your track. Wake up the handset by moving the speed control or command.

Power supply requirements

For N gauge a single 12 volt 2 amp power supply will be ok for 3 tracks
For TT 120 or 00 gauge a 3 amp 12 volts supply or two 12 volts 2 amp supply can be used
You can use a separate PSU for each track providing the +12v wire links between boards are removed. The 0v will need to be common for all tracks. The DC 0v terminal and the Sync 0v terminal are both system 0v. The data Bus 0v is **not** system 0v, this is the 0v that goes to the CDU Points and signals boards.

Handheld Commands in the Encoder Version

A	Record (wait for the double beep before starting)
B	Playback (long beep several seconds after the end of the routine)
C	Manual operation (use this often)
D	Long beep Points Mode, Short beep Signals Mode Toggle
*	Switch tracks in multiplex installations *1 *2 *3 etc
#	does nothing
110	Zero speed beep off
111	Zero speed beep on default is ON
121	points and signals start address 1 to 25 see video instructions
122	number of flashing signals 0 to 2 see video instructions
125	Repeat routine over and over (C to stop)
128	wipe signals memory
129	wipe single signal memory (eg 129 beep 4)
130	Record signals – routine automatically starts
131	adjust acceleration/deceleration Values 1 – 20
132	maximum points in system
134	set pcb number up for multiplexing
135	Lock recording – disables the A key and sounds a beeeeep
136	Unlock recording
138	Put the handset into sleep mode for 60 seconds when changing locations in a big layout
200	set feed back gain 1 to 18 use 200 beep 12 as a start
201	set sample time 1= 600 uS 2= 1mS
202	no feedback=2
202	feedback= 1
203	system default settings