BYONICS

The Byonics TinyTrak3Plus hardware has been updated to version 2 rev E to switch from a through hole to a mostly surface mount design. The main processor and firmware code have not changed. This document will address the differences between the new and previous version.

J8 - Radio PTT type selector (underside of the board)

On the previous TinyTrak3Plus hardware, selecting a radio interface with a separate PTT line (usually for Kenwood compatibles and mobiles) was done by clipping or removing R8. On the new board, jumper J8 on the underside of the board will accomplish this. The jumper should be on both pins (closed) for Yaesu and Icom HTs. For all other radios, which have a separate PTT line, the jumper should be removed (open), and is similar to cutting or removing R8 on the old boards. The jumper can be stored by just placing on only one post. The default case as shipped from Byonics is with the jumper on.

Y1, R1, R2, R3 and R4 - Resonator and Resistor Ladder Removed

Several years ago, the main processor on the TinyTrak3Plus was changed from a PIC16F628A to a PIC16F1827. This allowed use of a faster, internal oscillator, and the external oscillator Y1 was no longer used, even if it was included on the board. This new chip also provided a PWM output to generate higher resolution packet audio, so the 4-bit digital to analog resistor ladder was no longer needed. These components have been removed in the new design.

U2 - Voltage Regulator Changed

The 7805 voltage regulator on the older TinyTrak3Plus provided 1A of output current for external GPSs. It was determined this was overkill, so U2 was changed to a 78L05 regulator providing up to 100mA.

J7 - GPS Power Voltage Selector (underside of the board)

J7 is 3 pads to select a voltage to power an external GPS on J2 pin 4. The original TinyTrak3Plus board had a solder blob to default to the 5V setting. The new board has a trace between the center and lower 5V pad. If the 12V option is needed, the 5V trace must be first cut to disconnect from the 5V side. A solder blob can then be placed between the center and top 12V pads.

J5 & J6 - Rotated

Jumper pads J5 and J6 were rotated, but remain in the lower right corner of the board.
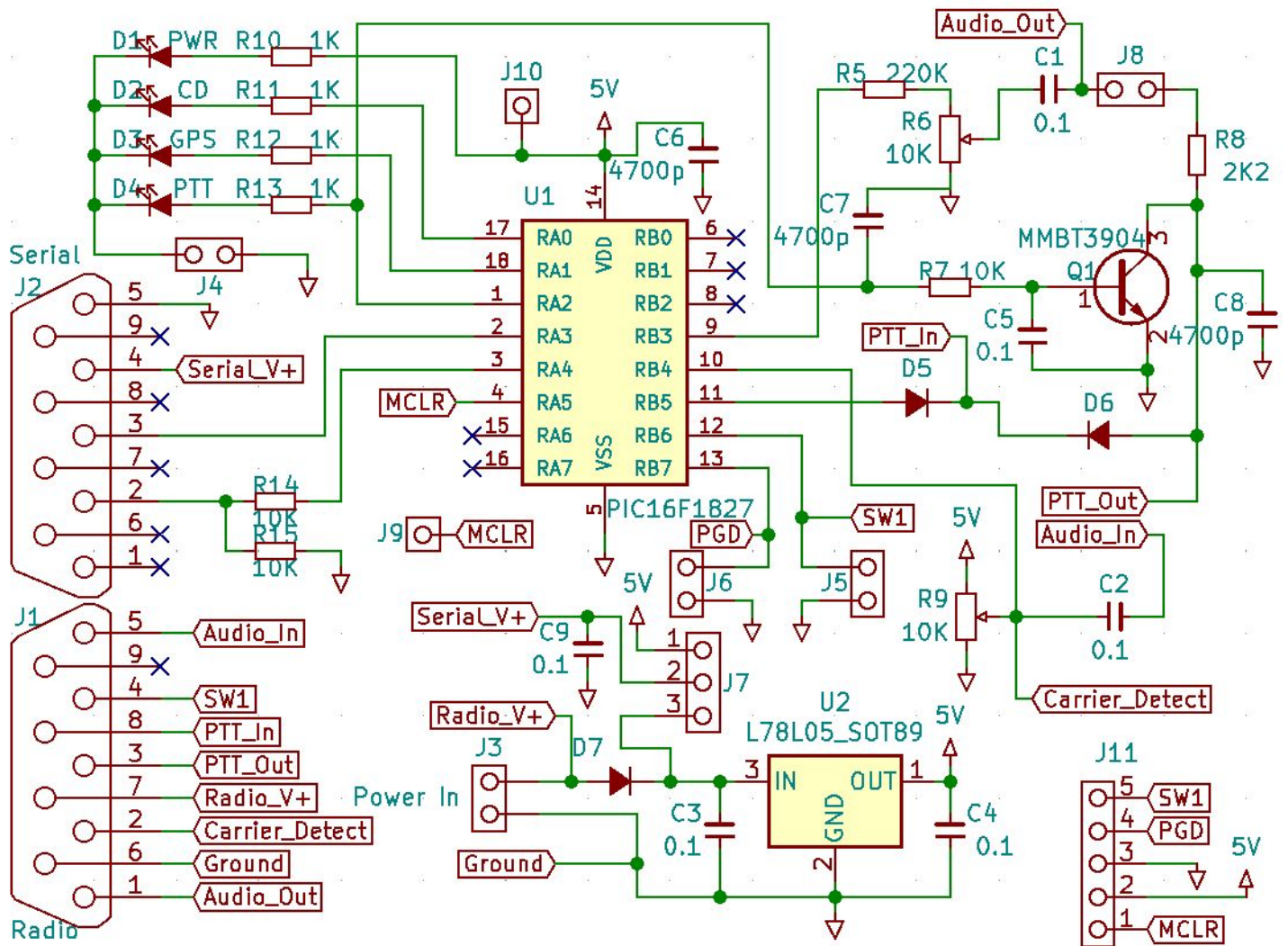
Other pads

The pads above J5 and under U1 are used to factory program U1 and are not meant for the end user.

R11 and R12 Values

The values for R11 and R12 may be changed on some boards from the values shown in the schematic below to adjust the brightness of the yellow and green LEDs.

Schematic

D1 PWR R10 1K
D2 CD R11 1K
D3 GPS R12 1K
D4 PTT R13 1K

Serial
J2
J4
Serial_V+

Audio_Out
C1 0.1
J8
R5 220K
R6 10K
C7 4700p
R7 10K
MMBT3904
Q1
C5 0.1
R8 2K2
C8 4700p

J10
5V
C6 4700p

U1
RA0 VDD RB0 6
RA1 RB1 7
RA2 RB2 8
RA3 RB3 9
RA4 RB4 10
RA5 RB5 11
RA6 VSS RB6 12
RA7 RB7 13
PIC16F1827

MCLR
R14 10K
R15 10K
J9 MCLR

PTT_In
D5
D6
PTT_Out
Audio_In

5V
PGD
J6
J5
SW1
R9 10K
C2 0.1
Carrier_Detect

J1
5 Audio_In
9
4 SW1
8 PTT_In
3 PTT_Out
7 Radio_V+
2 Carrier_Detect
6 Ground
1 Audio_Out
Radio

Serial_V+
C9 0.1
Radio_V+
J3
Power In
D7
Ground

J7
U2
L78L05_SOT89
IN OUT
GND
C3 0.1
C4 0.1
5V

J11
5 SW1
4 PGD
3 5V
2
1 MCLR

PCB

J3
D1 R10 D2 R11 D3 R12 D4 R13
J4
D7
C3
C9
BYONICS TinyTrak3Plus v2 rev E
J1 F
C2 D6 D5
U2
J2 M
C8
Q1
R15
R14
R8 C5 R7 C7
U1
C6
C1
R6 R9 R5
J11
C4 J5
J6

J4
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TinyTrak3Plus v2 rev E
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J7 12 5
J3
J5
J6
J8