Assembly Notes
And User Guide

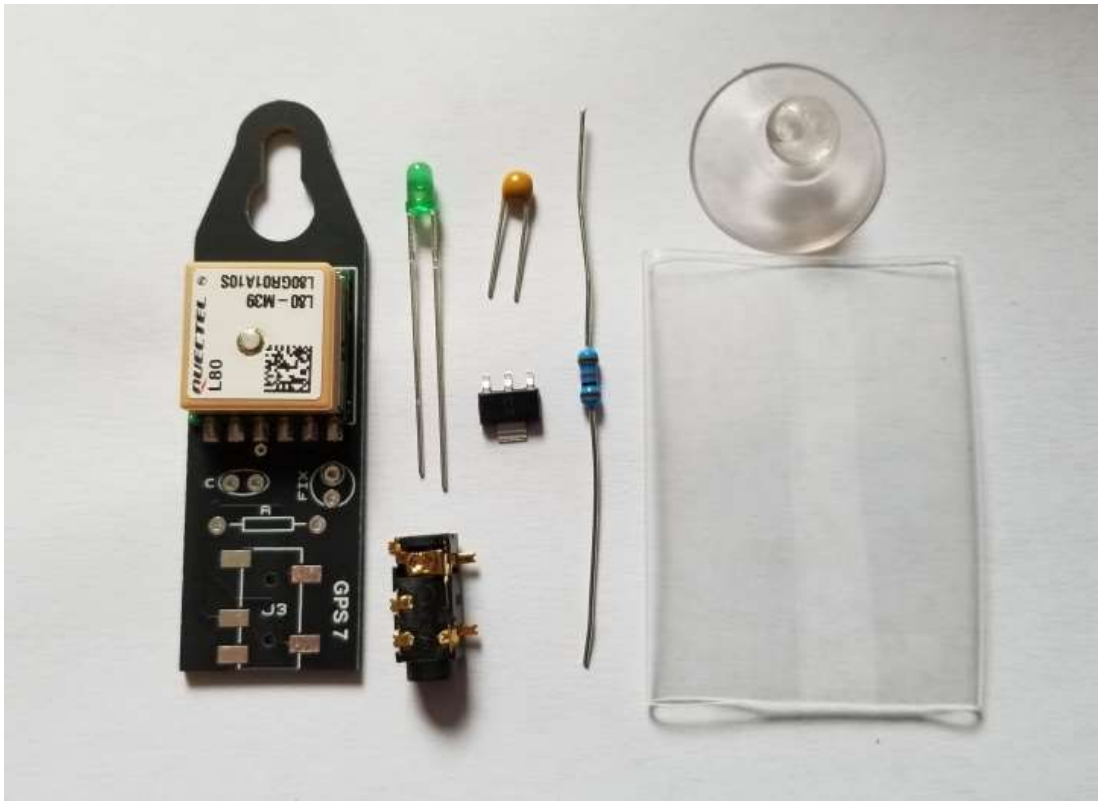
Time Receiver For
Nixie Clock
GPS 7

REVISION HISTORY

Issue Number	Date	Reason for Issue
1	18 March 2023	New Document

1. PACK CONTENTS

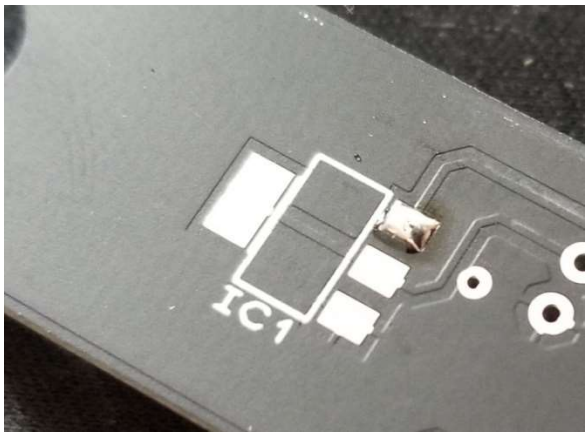
Component	Qty
1.2 metre (4 ft) cable	1
PCB with GPS module soldered	1
SMD Jack socket	1
TLV1117 3.3V LDO regulator	1
100nF Capacitor	1
3mm Green LED	1
1K Resistor	1
Rubber suction cup	1
Heat shrink 4.5cm	1

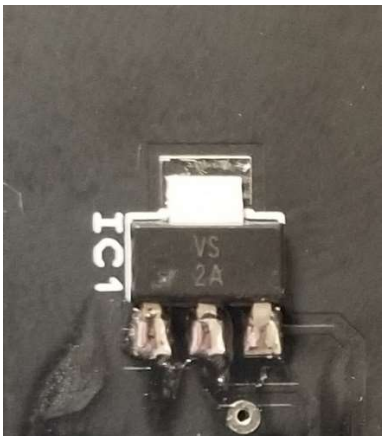


2. ASSEMBLY

2.1 Solder the TLV1117

First, apply solder to one of the 3 end pads as shown below. Then position the part over the pads, and applying gentle pressure, re-melt the soldered pad and the part will become attached. Then solder the remaining 3 pads. Soldering the tab is not necessary.





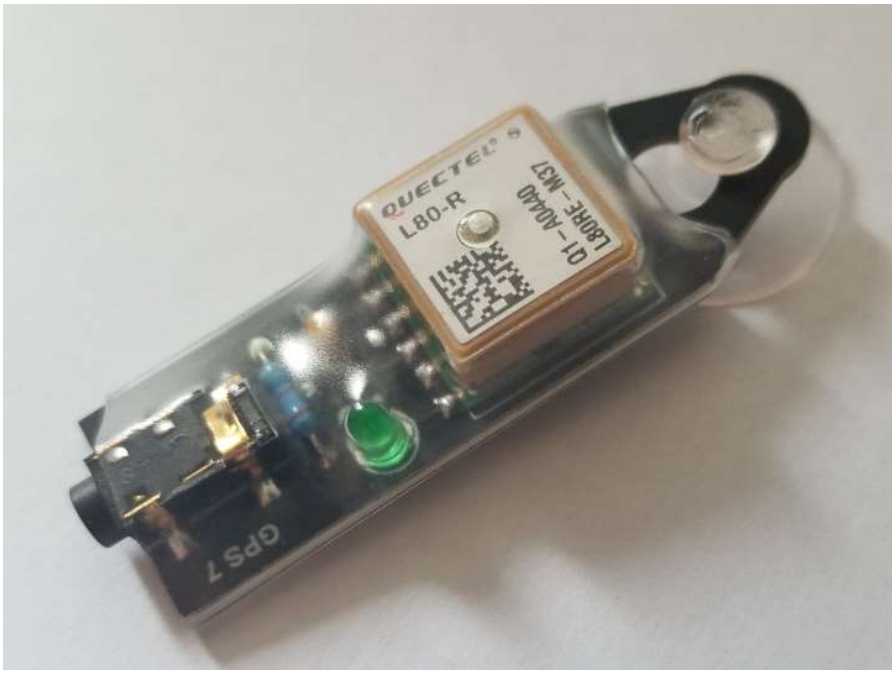
2.2 Jack Socket, Capacitor, LED, Resistor

Solder the remaining parts. The longer lead of the LED goes in the hole with the small white circle around it. When soldering the Jack Socket, use the same method as you did for soldering the TLV1117. After soldering, neatly trim off all the excess leads.

2.3 Heatshrink and Rubber Sucker

Prior to placing the heatshrink you might want to test the module as decribed below, section 3.
Check the heatshrink is 45mm long – if oversize, cut with scissors to 45mm. Then push the module into the heatshrink so that the Jack Socket is level with the end of the heatshrink. Use a hot air gun to shrink both sides, then let it cool.

The suction cup is optional, it can be used if you want to attach to a surface such as a window, however the module does not need to be right at a window to work, it just needs to be within 3-4 metres of a window.



3. CONFIGURING AND USING THE GPS 7 TIME RECEIVER

3.1 Refer to the manual for your clock to find the appropriate configuration settings to enable GPS reception, and set baud rate to 9,600 bps. Usually this is as follows:
Parameter 12 = 4
Parameter 13 = 1

Also set parameters 14, 15, 16 to tell the clock your location's time zone offset from UTC (GMT). GPS only knows UTC, it has no time zone information.

3.2 **Never connect or disconnect the module with the clock powered**.
Use the cable supplied to connect the module to the clock. Place the module as close to a window as possible, for the best view of the sky. The closer to the window, the faster the module will find satellites and synchronise your clock.

3.3 Place the module as close to a window as possible, for the best view of the sky. The closer to the window, the faster the module will find satellites and synchronise your clock.

3.4 The green LED will flash 1 pulse per second when it has found satellites, but it may take some further time before enough data has been received for it to update the clock.

If the clock does not synchronise. Please allow at least 24 hours before contacting us.

3.5 If you find the flashing LED bothersome, you can either eliminate it by clipping one lead of the resistor, or make it dimmer by replacing the resistor with a 2,7K or 3,3K resistor.

4. BASIC TROUBLESHOOTING

4.1 If your clock does not synchronise within 24 hours, please initially remove the module from the cable, and check the jack socket on the cable from the clock, to see if you have approx 5V as per the diagram below.

Also, with the clock powered off, check if you have continuity between the middle 'signal' barrel of the jack plug and pin 18 of the main clock processor, PIC16F193x.