

Table 1
GPS Adapter Parts List

Reference	Part Description
C1	Capacitor, 47 uF, 25 V, radial electrolytic
C2	Capacitor, 0.1 uF, 50 V, ceramic
R1	Resistor, 1 k Ω , 1/4 W, 5%
pcb	0.062-inch perforated copper stripboard

have the RX and TX connections to J5 reversed, depending on your interpretation of the jack symbol.) The data jack is connected to a MAX3221 RS-232C transceiver IC, which requires RS-232C RX and TX signal levels (3 to 12 V space, -3 to -12 V mark) for the GPS icon to appear on the ID-880H display.

I used a 1 A fuse, as recommended by Garmin, which can be either on or off the circuit board, as best suits your assembly. Capacitors C1 and C2 are there as “good practice” to decouple any conducted noise on the +5 V supply line. The 3-millimeter green LED is a “power on” indicator and is mounted 1/4 inch above the board by a nylon spacer. This brings it closer to the top of the box, and also lessens the possibility of LED damage when soldering. You may have to adjust the value of R1 to accommodate the LED you use.

USB Cable Preparation

The USB plug cable (Jameco 229682) can be adapted from almost any unused or extra USB cable you have around. Some of the cheaper ones use very thin wire and may not be very robust. A good-quality cable will be marked as using two #28 AWG wires and two #24 AWG wires. The #24 AWG wires are usually the red and black, used for the +5 V supply.

I used an old printer USB cable that had the USB A on one end and the USB B on the other. I simply cut off the USB B end and separated the wires. Keep the red and black, and cut off the others, which are usually green and white. Note: there are some badly made cables that don’t adhere to the color code, therefore, verify that the red and black are indeed the +5 V lines by using a voltmeter while plugging the USB A connector into a known good USB outlet.

2.5-Millimeter Plug and Cable

I used the Digi-Key CP-2203-ND cable for my project. Pre-made stereo audio cables can *sometimes* be found with a 3.5-millimeter plug on one end, and a 2.5-millimeter plug on the other. Simply clip off the 3.5-millimeter end, unless you want to have the cable detachable, then use it with a 3.5-millimeter jack wired to H2.

Assembly and Options

Referring to Figure 1, I mounted the few parts needed (see Table 1) onto a small piece of stripboard [Perforated board with copper traces running horizontally on one side. — *Ed.*] about 1 x 2 inches (see Figures 2 and 3), which fit nicely into a Jameco 18922 plastic box. I installed straight, single-row male pin headers for H1, H2, and H3 (Jameco 68339 cut to size). These made easy attachment points for the cables that make up the USB, radio, and GPS connections. You can solder the wires directly to them or use mating inline female headers.

You could also solder cable wires directly to the underside of the stripboard. Another possibility would be to trim the stripboard down to about 1 x 1.5 inches and use large diameter heat-shrink tubing in place of the box.

In the stripboard layout (see Figure 2), the four double crosses mark four points where the copper strip on the reverse should be cut. Mounting hole locations are shown by the crosshairs. There are also five wire jumpers shown in addition to the components.

This simple adapter is all that’s needed to make your position data available for your D-STAR operations. — 73, Don Dorward, VA3DDN, va3ddn@arrl.net

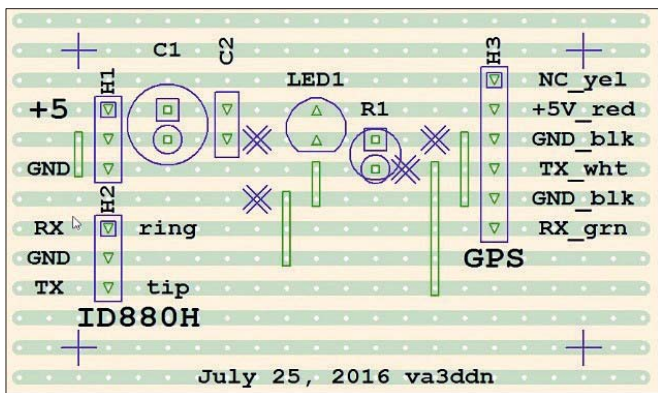


Figure 2 — The parts layout used for the adapter. The layout isn’t critical and can be modified to fit your needs. The material is 0.062-inch perforated copper stripboard, cut to 1.2 x 2.1 inches (www.veroboard.com). [Don Dorward, VA3DDN, photo]

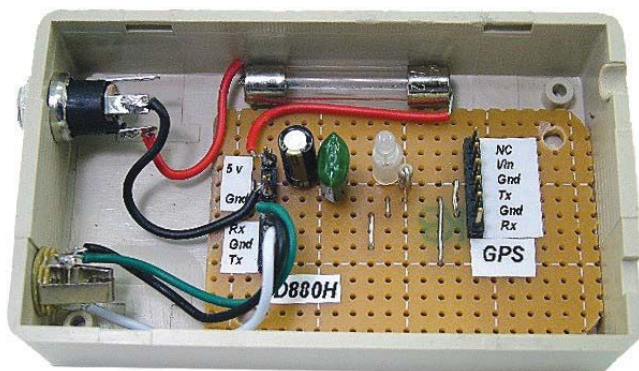
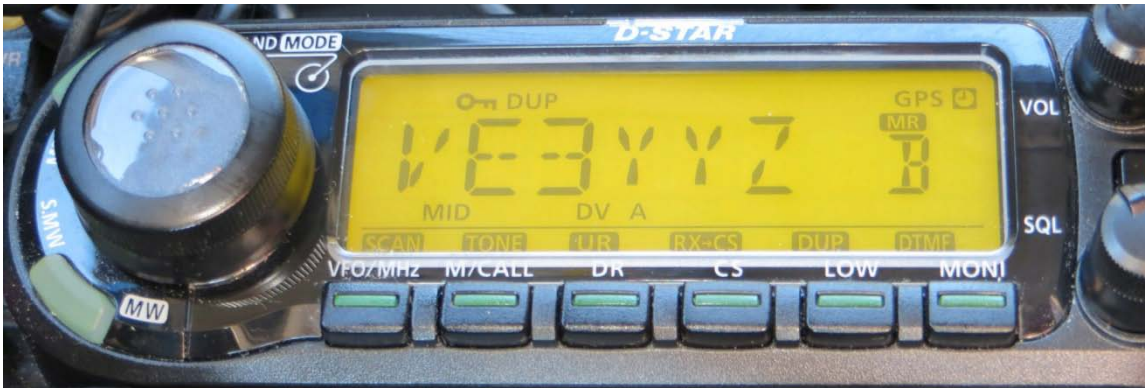


Figure 3 — The assembled adapter mounted in its case. [Don Dorward, VA3DDN, photo]

Reprinted with the permission of ARRL. Copyright © ARRL

Additional Photos not included in the QST article:



NOTE GPS ICON SHOWN IN UPPER RIGHT CORNER OF THE ID-880H DISPLAY



MAIN SYSTEM COMPONENTS (GPS, ADAPTER INTERFACE , CABLES)

Reprinted with the permission of ARRL. Copyright © ARRL



GARMIN GPS-18X MOUNTED ON DASH OF CAR



DSO DISPLAY SHOWING RS-232C OUTPUT SIGNAL FROM GARMIN
(NOTE THE + AND - LOGIC LEVELS, APPROX +/- 9v)