

MagicBox Connector and Mounting Hole Locations

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Questions have been raised concerning the location of MagicBox connectors and the accuracy of the drilling template provided on the 4 State QRP web site. This document will address some of those issues.

Using the PCB layout, the author constructed the table show below of the various connectors and their locations relative to the left edge and bottom of the PCB. These measurements should be useful when laying out the hole locations prior to drilling a Ten Tec TP-41 case, recommended to house the MagicBox.

All dimensions are in inches. The table format is Connector ID, X-axis dimension from the left edge of PCB looking down from top with connectors oriented up, and Z-axis dimension from the bottom of the PCB. The hole diameters shown on the 4 State QRP drilling template are correct and should be used.

J4, X=0.50 Z=0.3125	J3, X=1.40 Z=0.3125	J2, X=2.30 Z=0.3125	J6, X=3.10 Z=0.1857	J5, X=3.70 Z=0.1857	J9, X=4.30 Z=0.1857	J8, X=4.90 Z=0.1857
Hole, X=0.25 Y=3.75					J1, X=4.60 Z=0.3438	Hole, X=5.05 Y=3.75

When comparing the PCB width to that of a TP-41 case, a difference of 0.080 inches exists, with the width of the PCB being 5.300 inches and that of the TP-41 measured at 5.380 inches (advertised as 3.375 inches). Therefore, if the edge of the TP-41 case is used as a reference, nominally, 0.040 inches needs to be added to the table above X-axis dimensions. From the edge of a TP-41 case, the following X-axis layout dimensions would be correct and those are shown in the table below.

J4, X=0.54 Z=0.3125	J3, X=1.44 Z=0.3125	J2, X=2.34 Z=0.3125	J6, X=3.14 Z=0.1857	J5, X=3.74 Z=0.1857	J9, X=4.34 Z=0.1857	J8, X=4.94 Z=0.1857
Hole, X=0.29 Y=3.80					J1, X=4.64 Z=0.3438	Hole, X=5.09 Y=3.80

The Z-axis dimensions (vertical) need to have two values added to them if one uses the bottom of the TP-41 case as a reference. The first value is the thickness of the case itself, which is nominally 0.050 inches. In addition to that value, the height of the spacer used under the rear of the PCB should be added. As an Example, if a 0.500 inch spacer is used, then the total value added would be 0.550 inches to the Z values shown in the table. A value of 0.05 inches (case thickness again) also needs to be added to the mounting hole location Y-axis dimensions when the front of the case is used as a reference. The required values are also shown in the second table