Important Information

Congratulations and thank you for your purchase of the Delptronics WiiChuck module kit!

Once you have built the kit, download the User Manual to learn how to use all of the features.
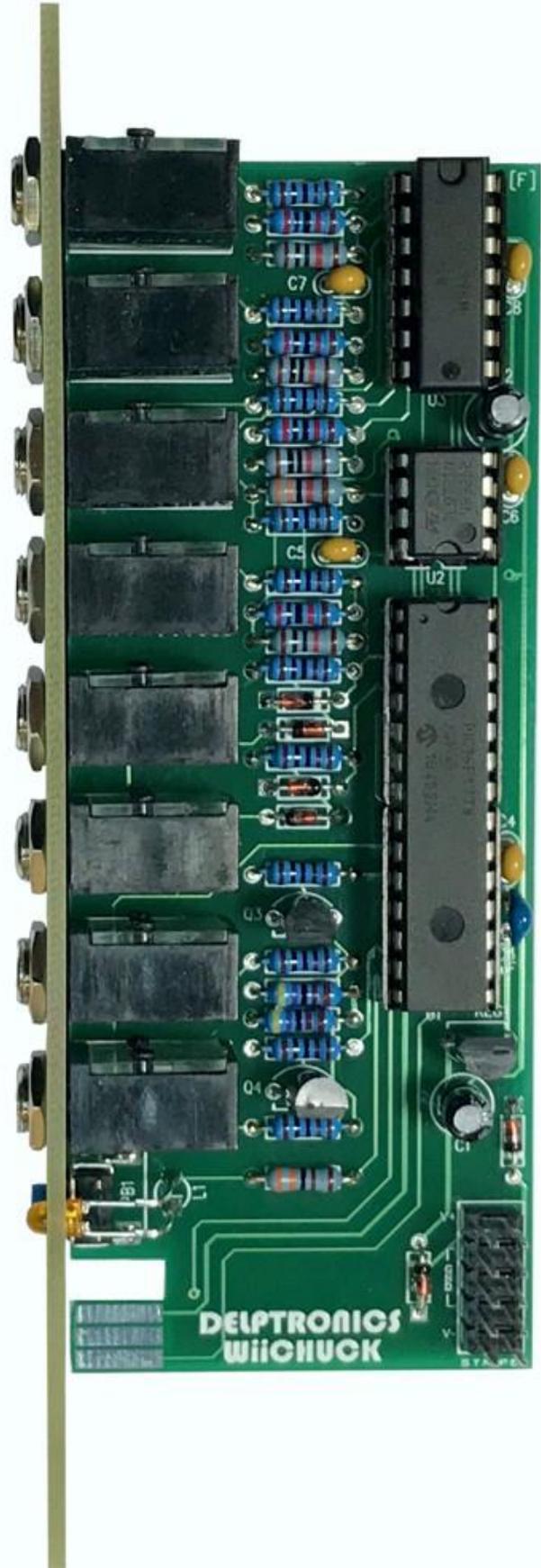
Before you start, please read the Electronic Kit Soldering Tutorial. It contains important and useful information even for experienced kit builders. This is a good first electronic kit. It is relatively straightforward to assemble, and there are not that many different parts. Take your time and be careful to put the right part in the right place, and, where applicable, in the right orientation. It is difficult to de-solder parts if you make a mistake.

The parts for the kit are in multiple bags. One or more bags contain discreet components like resistors and capacitors, and the other bag contains electromechanical parts like jacks, and buttons. The discreet components are soldered first. Before you start, separate the parts by type. When you are ready to solder parts of a particular type, separate them by value. In general, the order that the parts are soldered onto the PCB is shortest to tallest.

The complete bill of materials (parts list) is on the last page of this document.

The PCB is marked with the part refdes (reference designator), For example, R1 refers to resistor number one and C1 refers to capacitor number one. In the case of the resistors, the value is also printed on the PCB.

Refer to the picture of an assembled kit to the right for guidance on part placement and orientation.

Resistors

O | R16 10K | O

The value of a resistor is indicated by colored stripes on its body. In all cases the fifth stripe is brown (indicating 1% tolerance), so that stripe has been omitted from the chart below. In addition to the refdes, the resistor value is printed right on PCB.

The resistor leads need to be bent close to the body of the resistor. Hold the resistor body and press down on each lead right at the body to make a U shape. It does not matter which lead goes in which PCB hole.

Value	Marking (colored stripes)	Quantity	Refdes
1K	Brown, Black, Black, Brown	11	R2, R3, R4, R5, R6, R7, R10, R11, R12, R13, R14
3K3	Orange, Orange, Black, Brown	1	R1
4K7	Yellow, Violet, Black, Brown	2	R8, R9
10K	Brown, Black, Black, Red	4	R16, R17, R18, R19
20K	Red, Black, Black, Red	4	R20, R21, R22, R23
33K	Orange, Orange, Black, Red	1	R15

Resistor Value Map

Diodes

There are 6 diodes. They are the same type (BAT85). The diodes are red and black glass tubes. When inserted into the PCB, the black side of the diode must line up with the stripe on the part outline on the PCB. The diode leads need to be bent close to the body of the diode. Hold the diode body and press down on each lead right at the body to make a U shape.

Chip Sockets
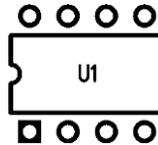
There is one 8-pin socket and three 14-pin sockets. Sockets are marked with a small notch that must line up with the outline on the PCB. Once the socket is soldered in place, the PCB outline will not be visible, so it is important that the sockets are oriented correctly in order to ensure that the chips are inserted into the sockets correctly.

Note that two of the 14-pin sockets go right next to each other to accommodate the 28-pin U1.

Ceramic Capacitors

Ceramic capacitors are small tan or blue blobs. Their value is marked on them with a three-digit code. The marking is rather tiny, so you may have to use a magnifying glass to read them. It does not matter which lead goes in which PCB hole.

We recommend that you start with the 1 uF capacitor, because there is only one of them. The rest are all 0.1 uF.

Value	Marking	Quantity	Refdes
0.1 uF	104	5	C4, C5, C6, C7, C8
1 uF	105	1	C3

Electrolytic Capacitors

Electrolytic capacitors look like a little tin can. There are two of them, and they are both the same value.

Electrolytic capacitors are polarized, so which lead goes in which hole is important. The negative lead on the capacitor is the shorter one and it is indicated by gray stripe on the capacitor body. The positive lead is longer. The positive hole on the PCB has a square pad and is marked with a plus sign.

Voltage Regulator

There is one voltage regulator (refdes REG1). It is marked KY5033. They have the same shape as a transistor, so make sure that you look at the part marking to verify which one is the regulator,

Make sure that the flat side of the part lines up with the flat side of the outline on the PCB. Push the leads through the holes, and bend the two outer leads apart to keep it in place while soldering. They will not sit flush against the PCB, and that is fine. Do not force them.

Voltage regulators and transistors are more heat sensitive than most of the parts in this kit, so take care not to let the soldering iron linger too long. If you are unsure, then solder one lead at a time and let the part fully cool off before soldering the next lead.

Transistors

There are two 2N3904 transistors. They are marked on the PCB with refdes Q3 and Q4. There is no Q1 or Q2. For soldering tips, refer to the paragraphs above relating to the voltage regulator.

Pushbutton

The pushbutton can only be inserted one way. The actuator (that you press) faces away from the PCB. It snaps into place and will stay put while you solder it. Make sure it is fully inserted and seated flush against the PCB.

3.5mm Jacks
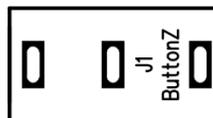
The eight 3.5mm jacks are inserted with their openings facing away from the PCB. The jacks do not snap in and will not stay in place by themselves. Insert the jacks and flip the PCB over onto your work surface. They are the tallest part on the PCB, so they will rest flat on your work surface. Solder only one pin of each jack. Then, check to make sure each jack is flush against the PCB. If it is not flush, simply reheat the one solder joint while pressing the jack into place. Once all jacks are all flush, go back and solder the other pins.
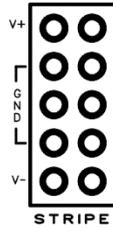
Power Header

The power header does not snap in and will not stay in place by itself. Insert the shorter pins into the PCB, and flip the PCB over onto your work surface. Solder only one pin. Then, turn the PCB over and check to make sure that the header is flush against the PCB. If it is not flush, simply reheat the one solder joint while pressing the header into place. Once it is flush, go back and solder the other pins.

Chips

There are three chips, each one is a different size, so it is easy to find the right socket for each chip. Carefully insert each chip into its appropriate socket, making sure not to bend any of the pins. Note the direction of the chips before inserting them. The notch on the chip must line up with the notch on the socket, which lines up with the notch printed on the PCB.

The pins of the chips come from the factory a little bit splayed out, not pointing straight down. You may need to bend them inward a little before you insert them. Hold the body of the chip and rest all of the pins on one side against the table top and gently press down just a little bit. Then do the other side. If the pins do not line up well with the socket, repeat the straightening procedure.

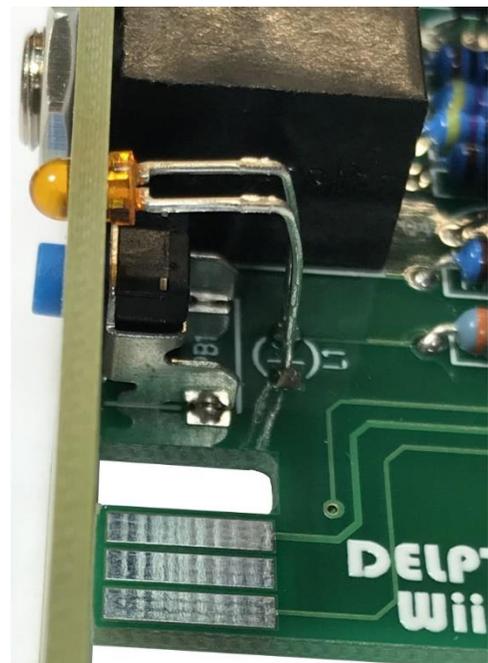| Value	Pins	Quantity	Refdes
PIC16F1778	24	1	U1
TL072	8	1	U2
TL074	14	1	U3

LED

The panel must be attached and the nuts screwed onto the jacks before the LED can be installed.

Bend the LED's leads at a 90° angle. The bend goes just below the thicker part of the leads. The LED is polarized. The short lead goes in the square PCB hole. Make note of the short lead before bending it.

Insert the leads into the PCB, push the LED through the panel, turn the PCB upside down, and solder the leads.

Complete!

Congratulations! Your WiiChuck module is now assembled and useable.

Bill of Materials

Name	Value	Quantity	RefDes
Schottky Diode	BAT85	6	D1, D2, D3, D4, D5, D6
Resistor	1K	11	R2, R3, R4, R5, R6, R7, R10, R11, R12, R13, R14
Resistor	3K3	1	R1
Resistor	4K7	2	R8, R9
Resistor	10K	4	R16, R17, R18, R19
Resistor	20K	4	R20, R21, R22, R23
Resistor	33K	1	R15
Ceramic Capacitor	0.1uF	5	C4, C5, C6, C7, C8
Ceramic Capacitor	1uF	1	C3
Electrolytic Capacitor	10uF	2	C1, C2
NPN Transistor	2N3904	2	Q3, Q4
3.3V Regulator	LM7833	1	REG1
MCU	PIC16F1778	1	U1
Op Amp	TL072	1	U2
Op Amp	TL074	1	U3
LED		1	L1
Jacks		8	J1-J8
Pushbutton		1	PB1
8-pin Socket		1	
14-pin Socket		3	
10-Pin Power Header		1	
PCB		1	
Panel		1	
Power Cable		1	
Screws		4	