12LEDstick Assembly Manual

Here are the quick and easy assembly instructions for the 12LEDstick kit. These instructions apply to PCB revision 0.1. The PCB version number is printed along the top edge of the PCB. See Figure 1.

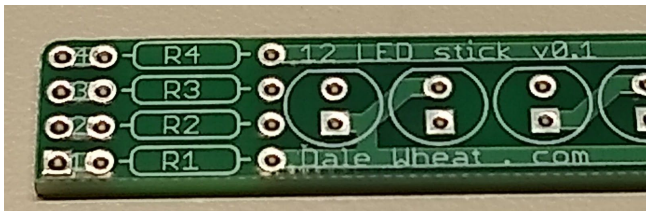


Figure 1. The PCB revision number (v0.1) is printed on the top edge of the PCB

Step 1 Check Kit Contents

Make sure your 12LEDstick kit contains all of the following components. See Figure 2.

- Qty 1: Printed circuit board (PCB) v0.1
- Qty 4: 47Ω 1/4W 5% resistors
  (purple yellow brown gold stripes)
- Qty 1: 4 pin header
- Qty 12: 5mm LEDs

Figure 2. The contents of the 12LEDstick kit

Step 2 Gather Required Tools

You will need the following tools to build the 12LEDstick kit:

- Soldering iron
- Solder
- Side cutters, also called flush- or diagonal-cutters
- Safety glasses

Step 3 Install Resistors

Bend the leads of one of the resistors so they both point the same way. See Figure 3.

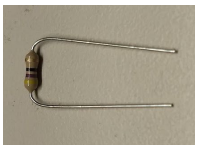
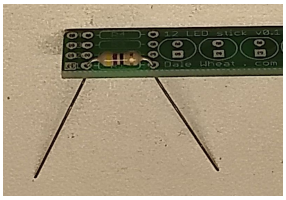


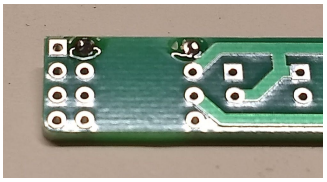
Figure 3. Form the leads of the resistor as shown



Install the resistor in the position labeled R1 on the PCB by threading the leads through the holes in the PCB marked as R1. Spread the leads apart slightly to prevent the resistor from falling back out of the PCB. Note: Holes on the end of the PCB are for the header. See Figure 4.

Figure 4. Install the resistor flush against the PCB and spread the leads

Step 3 Continued



Flip the PCB over and solder the leads to the PCB. Trim the excess leads using the side cutters. See Figure 5.

Figure 5. Solder the leads to the PCB and trim the excess

Repeat for the remaining resistors.

Step 4 Install the LEDs

Important Note: The LED components are polarized and will only work properly when installed in the correct orientation. The longer lead of each LED goes in the hole with the square pad. See Figure 6.

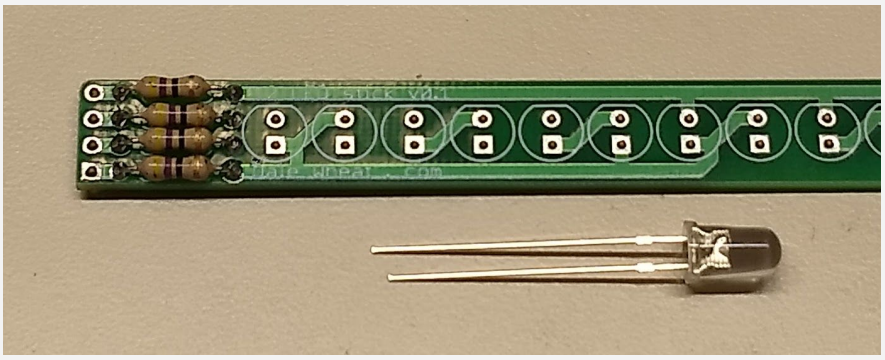


Figure 6. The long lead (anode) goes in the hole with the square pad

Artistic License: The “standard” method of installing the LEDs is to mount them flush with the PCB. This is not a strict requirement. As long as the long lead goes in the “square hole”, you can mount them as you see fit - even from the backside of the PCB.

Install the first LED as you see fit. See “Artistic License”. Flip the board over, if necessary. Solder only one lead. Flip the board back over and check the alignment of the body of the LED. Adjust as necessary. Then solder the other lead to the PCB. Trim excess leads.

Repeat for the remaining LEDs.

Step 5 Install the Pin Header

Depending on how you intend to connect the assembled 12LEDstick to your project, you can install the pin header on the top of the PCB, on the bottom or omit it entirely and solder wires (not included) directly.

Step 5 Continued

Solder only one pin of the header and then check for proper alignment of the pins. Adjust as necessary. Solder the remaining pins.

Step 6 Testing

Check the assembled circuit for missed solder connections. Check also for excessive solder “blobs” that could potentially short from one signal to an adjacent signal.

Attach the assembled to an Arduino or almost any other microcontroller. An Arduino library with example sketches is available for download from the 12LEDstick product page:

https://www.dalewheat.com/product/12-led-stick/

In the absence of a computer to test the 12LEDstick, you can apply no more than 5VDC between two of the pins of the header to light each LED individually. See Table 1.

LED	Pin 1	Pin 2	Pin 3	Pin 4
1	+5V	0V	-	-
2	0V	+5V	-	-
3	-	+5V	0V	-
4	-	0V	+5V	-
5	0V	-	+5V	-
6	+5V	-	0V	-
7	+5V	-	-	0V
8	0V	-	-	+5V
9	-	+5V	-	0V
10	-	0V	-	+5V
11	-	-	+5V	0V
12	-	-	0V	+5V

Table 1. Connections required to illuminate individual LEDs on the 12LEDstick.

Completion

Congratulations on successfully completing the assembly of the 12LEDstick kit. If you have experienced any difficulty with either the assembly of the kit or its operation, please contact your vendor for assistance.

Thank You

Thank you for your support of Dale Wheat . com. Please let us know if you have any questions or suggestions about this or any other product: https://www.dalewheat.com/contact/