## ZZ8727 Without Bootloader

You may find that your ZZ8727 does not have a bootloader pre-flashed. Burning the bootloader is a very easy process however, and only requires a few components.

| Qty | Code          | Description                   |
|-----|---------------|-------------------------------|
| 1   | <u>XC4410</u> | traditional Arduino UNO       |
| 1   | <u>ZZ8727</u> | the ZZ8727 without Bootloader |
| 1   | <u>RR2798</u> | 10K resistor                  |
| 1   | <u>PB8817</u> | Small Breadboard              |

Step 1. Arduino ISP

Connect your Arduino using USB cable and burn the Arduino ISP example from *File->Examples->11.ArduinoISP->ArduinoISP* 

| 💿 ArduinolSP   Ard             | luino 1.8.5                      |   |             |               |
|--------------------------------|----------------------------------|---|-------------|---------------|
| File Edit Sketch To            | ols Help                         |   |             |               |
| New C<br>Open C                | Ctrl+N<br>Ctrl+O                 |   |             |               |
| Open Recent<br>Sketchbook      | 1                                | ∆<br>Built-in Examples                      |             |               |
| Examples                       | ;                                | 01.Basics                                   | >           |               |
| Close C<br>Save C<br>Save As C | Ctrl+W<br>Ctrl+S<br>Ctrl+Shift+S | 02.Digital<br>03.Analog<br>04.Communication | ><br>><br>> | e.php         |
| Page Setup C<br>Print C        | Ctrl+Shift+P<br>Ctrl+P           | 05.Control<br>06.Sensors<br>07.Display      | ><br>><br>> | oller.        |
| Preferences C                  | Ctrl+Comma                       | 08.Strings                                  | >           | and SCK are u |
| Quit C                         | Ctrl+Q                           | 09.058<br>10.StarterKit_BasicKit            | >           | can be found  |
| 13 //                          |                                  | 11.ArduinoISP                               | ;           | ArduinoISP    |

## Step 2. Connect new chip

Use a small breadboard to connect the chip, as below:



• Also note that a resistor connects between pins 1 and 7 on the ZZ8727 Chip.

| ZZ8727 Pin | Labeled | Connect to                 |
|------------|---------|----------------------------|
| 1          | RST     | Arduino pin 10             |
| 7          | VCC     | Arduino 5V                 |
| 8          | GND     | Arduino GND                |
| 9          | X1      | Crystal included in ZZ8727 |
| 10         | X2      | Crystal included in ZZ8727 |
| 17         | D11     | Arduino pin 11             |
| 18         | D12     | Arduino pin 12             |
| 19         | D13     | Arduino pin 13             |
| 20         | AVCC    | Arduino 5V                 |
| 22         | GND     | Arduino GND                |

Connection table: Remember that chip pins are counter clockwise from the top left notch

## Step 3. Burn Bootloader

Once the Arduino has the ISP program on it (from step 1) and it is connected to the chip (step 2) you can start to burn the bootloader.

In the *tools* menu:

- 1. Select Arduino as ISP as your Programmer
- 2. Confirm correct port is selected
- 3. Then click Burn Bootloader

| 💿 ArduinoISP   Arduino 1.8.5 |       |            |                       |                                     |              |     |  |  |
|------------------------------|-------|------------|-----------------------|-------------------------------------|--------------|-----|--|--|
| File Ed                      | it Sl | ketch      | Tools                 | Help                                |              |     |  |  |
|                              |       |            |                       | Auto Format                         | Ctrl+T       | L   |  |  |
|                              |       |            | Archive Sketch        |                                     | I.           |     |  |  |
| ArduinoISP                   |       | 1          | Fix Encoding & Reload |                                     |              |     |  |  |
| 1                            | 11    | Ardı       | :                     | Serial Monitor                      | Ctrl+Shift+M |     |  |  |
| 2                            | 11    | Copy       |                       | Serial Plotter                      | Ctrl+Shift+L |     |  |  |
| 3                            | 11    | If :       |                       |                                     |              | -   |  |  |
| 4                            | 11    | <u>htt</u> |                       | WiFi101 Firmware Updater            |              | ₽   |  |  |
| 5                            | 11    |            |                       | Board: "Arduino/Genuino Uno"        |              | >   |  |  |
| 6                            | 11    | This       |                       | Port: "COM18 (Arduino/Genuino Uno)" |              | , B |  |  |
| 7                            | 11    |            |                       | Cat Passed Info                     |              |     |  |  |
| 8                            | 11    | Pin        | _                     | Get Board Info                      |              | Þ   |  |  |
| 9                            | 11    |            | 1                     | Programmer: "Arduino as ISP"        | :            | >   |  |  |
| 10                           | 11    | Ву о       |                       | Burn Bootloader                     |              | a   |  |  |
| 11                           | 11    | wit.       | T.ne                  | target. Un all Arguinos.            | these bins   | - C |  |  |

Wait a few seconds for it to work and you should get a confirmation. If there are any errors, make sure your wires are connected up properly, a common fault is swapping the D11/12/13 pins.

Step 4. Swap and check

Once the bootloader is on there, it should work just like the regular Arduino. You can check this by carefully prying off the old ATMEGA chip from your Arduino board and mounting the new ZZ8727 chip, with the duinotech label closer to the edge of the board.



Open up the Blink example (from *File->Examples->01.Basics->Blink*) and select ArduinoISP as your program, upload to the new board and you should see your L light blinking.