

# MKS Base2

## Overview

1. For metal casing printers, it is prone to produce interference via connecting cable between main board . MKS Base2 solves this problem by integrating the SD card directly on the main board.
2. MKS Base2 Uses 8825 instead of 4982, which can support 32 and 16 microsteps.
3. In order to reduce the interference, MKS Base2 increases large filter capacitance on power section.
4. Other functions are exactly the same with MKS - Base.

## Features :

- 1.All functions integrate in one board that simplifies combination of interfaces on Ramps1.4 and solves failure-prone problem.
2. Use 8825 as motor drive, pack in SOP .
- 3.4 layers PCB, optimize heat dissipation.
- 4.Support 12V-24V power input.
- 5.Can be directly connected Ramps1.4, 2004LCD control panel and 12864LCD control panel.

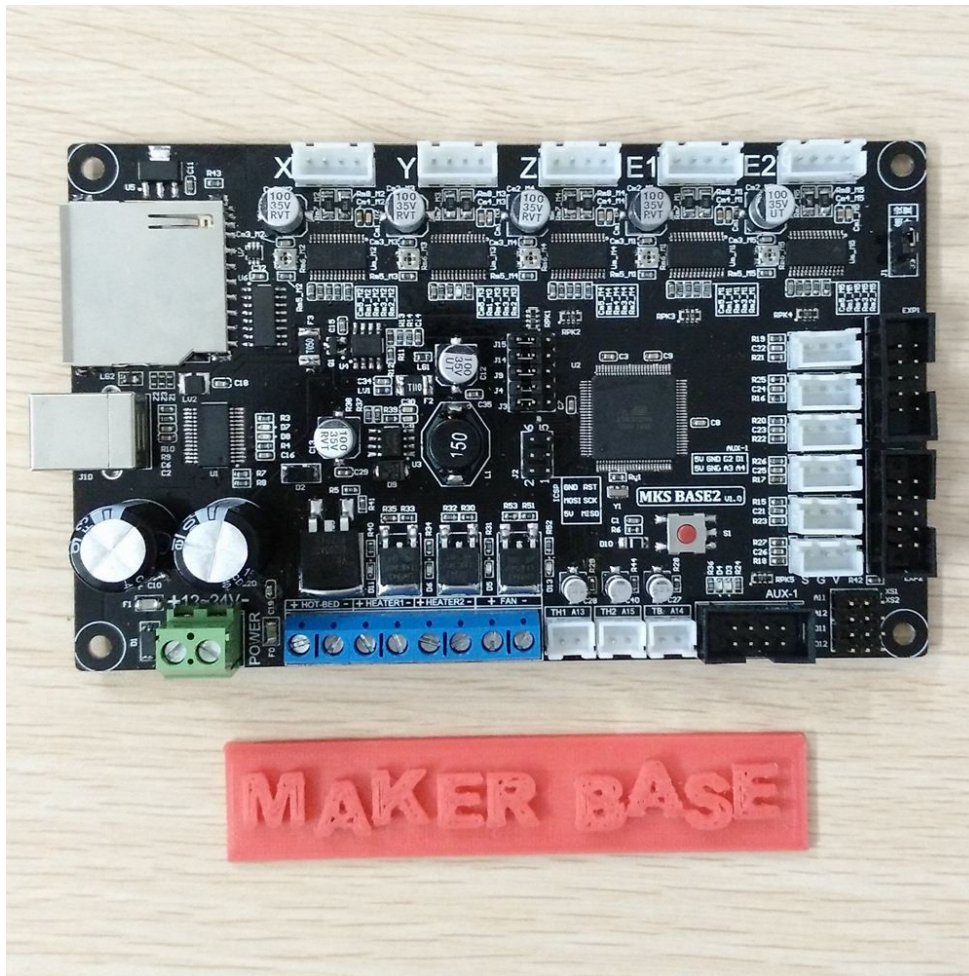
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6.Firmware can use the same configuration as ramps1.4 .

**MKS Base2** prototype photo



## Motor Driver

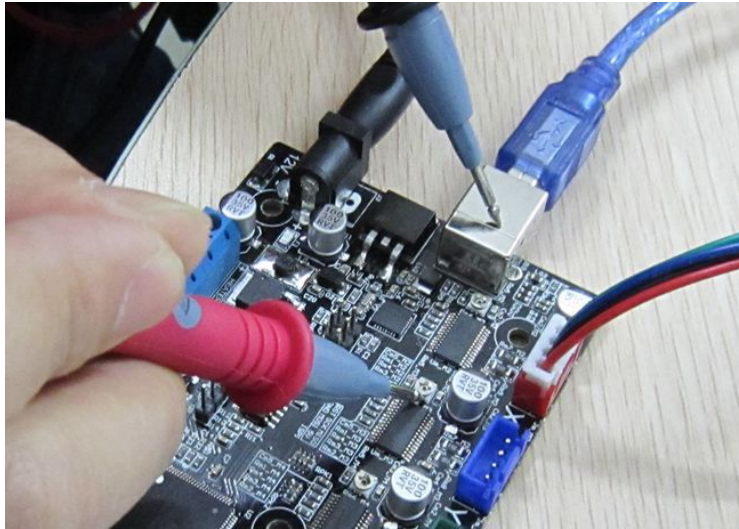
$I = V\_REF * 2$ ,  $V\_REF$  can be checked as the picture:

MKS Base2's DRV8825 Microstepping default is 16 microsteps, and can be changed to 32 microsteps.

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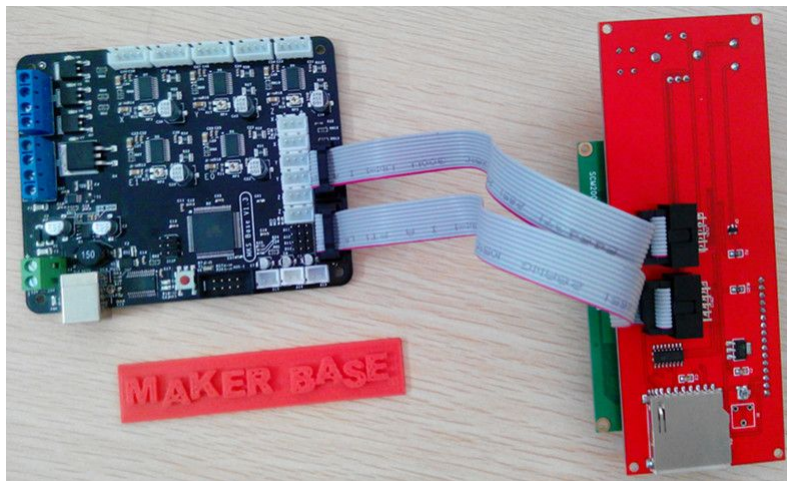
Stepper DRV8825

## SmartController

MKS Base can easy use [RepRapDiscount Smart Controller](#) and [RepRapDiscount Full Graphic Smart Controller](#) and MKS TFT28

You only need connect Smart Controller's Exp1 to MKS Base's Exp1,Smart Controller's Exp2 to MKS Base's Exp2.

You can connect MKS TFT on AUX-1



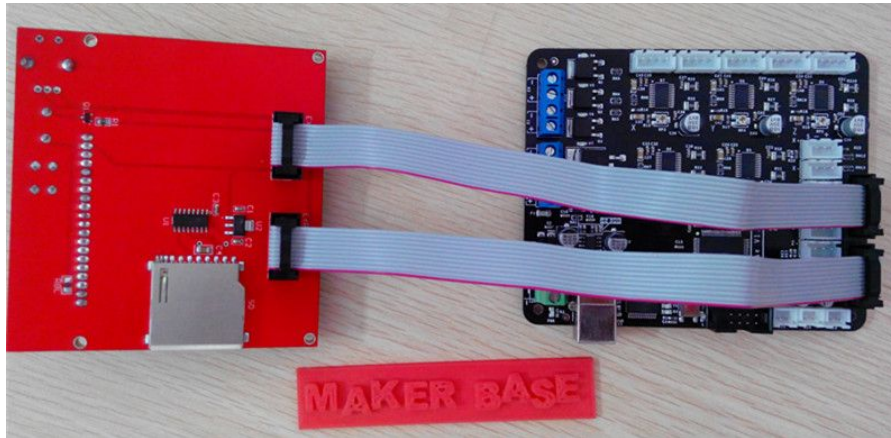
MKS Base Board and 2004LCD

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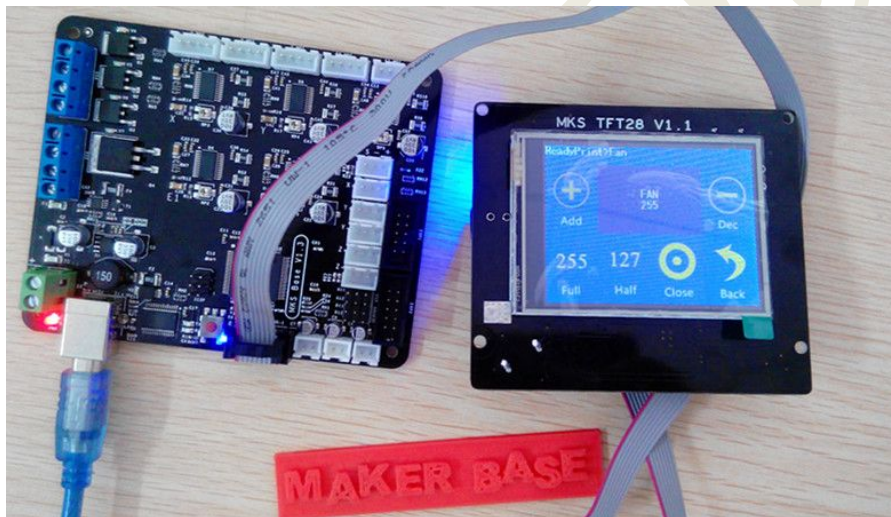
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**MKS Base Board and 12864LCD**



**MKS Base Board and MKS TFT**

## Wiring

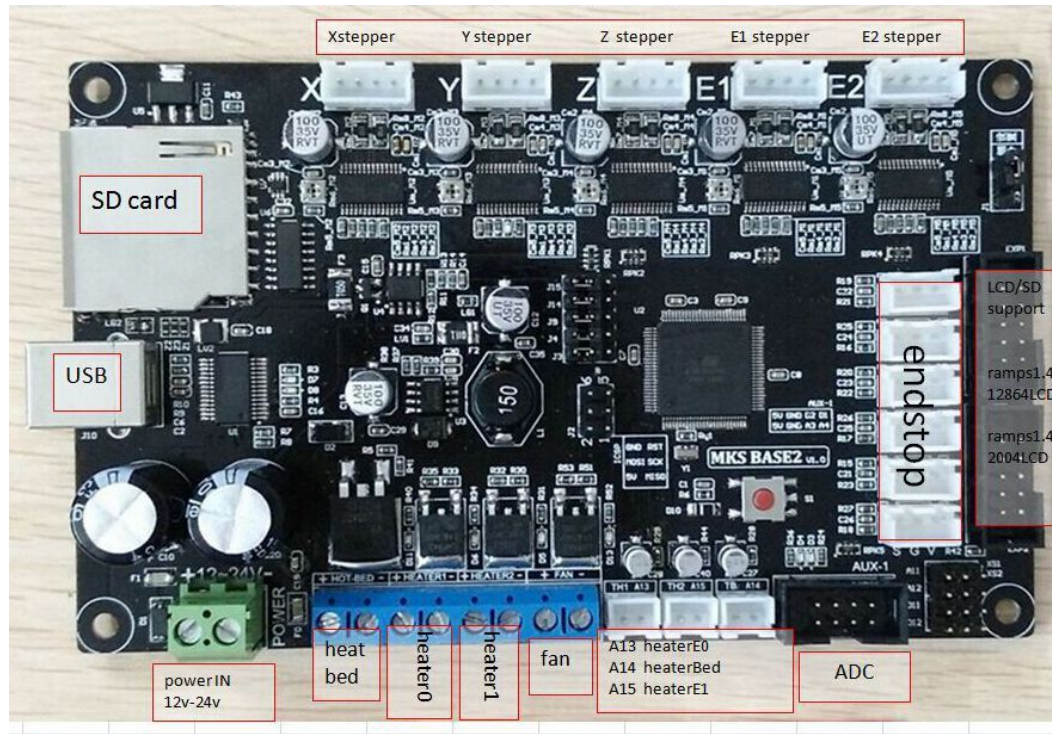
Wiring plan based on available information

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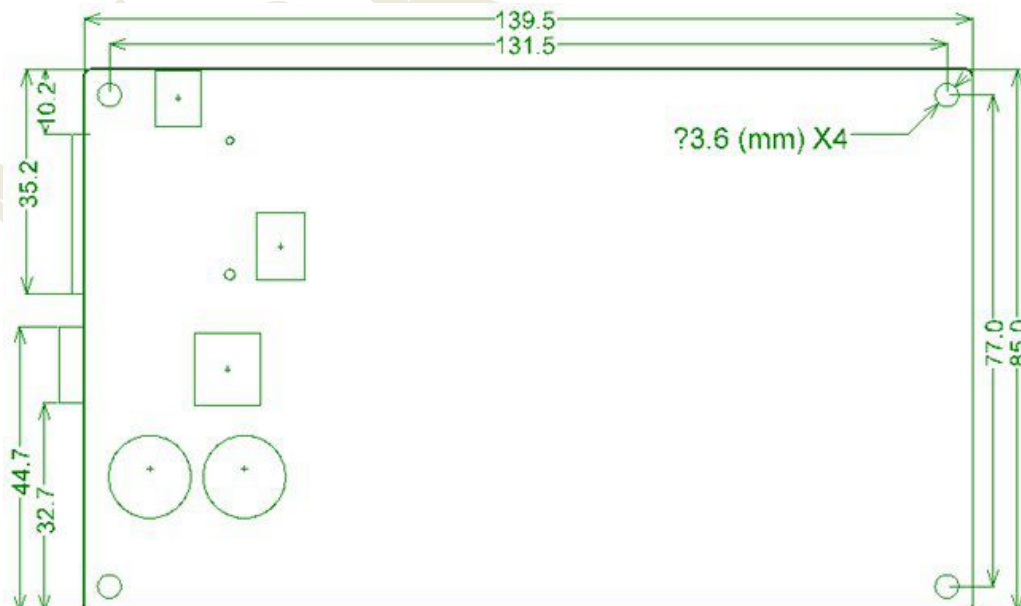
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## MKS Base2 Connectors



## MKS Base2 Size

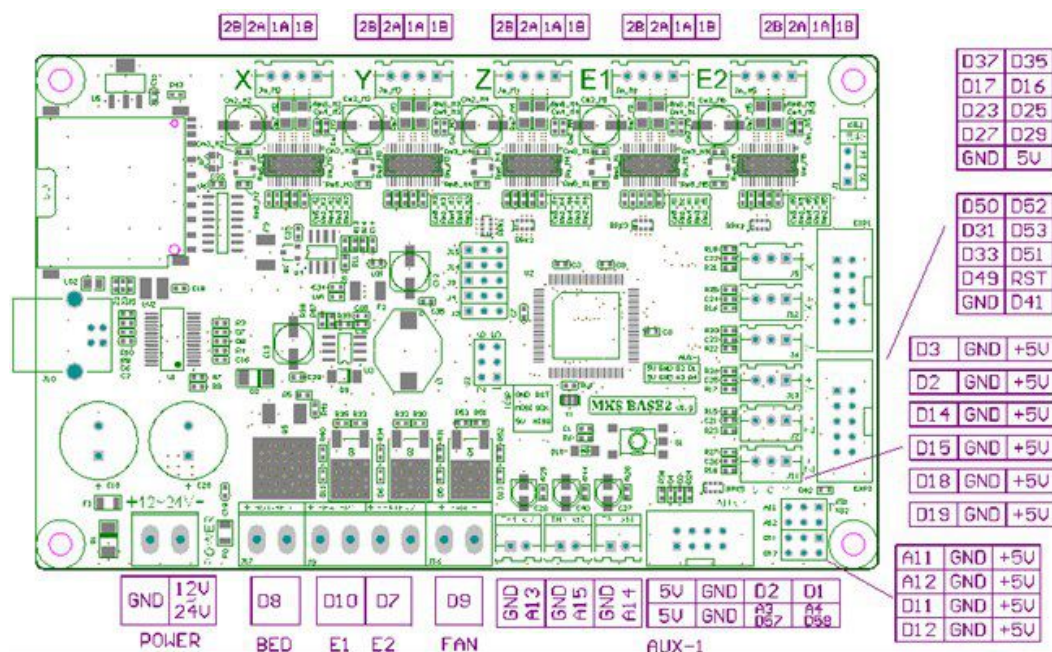


## MKS Base2 PIN

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## Firmware

This section will show you how to get firmware into your controller and run it with basic settings.

Software required: FTDI USB drivers, Arduino IDE, Choice of firmware ( Marlin or Repetier or Sprinter ), Pronterface.

1. USB VCP Drivers - MKS Base uses the newer FT232 USB to UART chip and it needs the updated VCP(virtual com port) drivers from the manufacturer's website . Download the correct version for your operating system or you can get the executable version for Windows(easier).

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Windows Vista/7 may try to do an update to locate the proper drivers but it is recommended to install the FTDI drivers for better performance.

The VCP drivers will install a COM Port on your computer for the MKS Base, you can check what port number was assigned by going to your device manager and click on Ports(COM & LPT) look for something that says "USB Serial Port(COM3)" where COM3 is you assigned port number(will vary from PC to PC). Remember this number as you will be using it later in configuring other software.

2. Install Arduino IDE - Download and extract the Arduino IDE .
3. Get your firmware - While you can use most firmwares out there, we will use Marlin as an example. Download and extract Marlin or any other forks of the firmware that you prefer/need.
4. Upload firmware - Run the Arduino IDE (arduino.exe).

Select your board - Click on Tools -->Board -->Arduino Mega 2560,  
Select your serial port - Click on Tools-->Serial Port-->(select your COM port for the X3 USB, you can check this in Device manager)

On Arduino click File-->Open -- then point to your Marlin Download and select Marlin.pde. With Marlin loaded on the IDE window, click on the tab that says "configuration.h". These are the basic entries that you need to change to get the X3 working.

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```
#define BAUDRATE 250000 //This will work fine for the MKS Gen  
  
#define MOTHERBOARD 33 //33 is for RAMPS which the MKS GEN is  
compatible with MOTHERBOARD 34  
  
#define TEMP_SENSOR_0 3 //If you have the NTC 100K  
  
#define TEMP_SENSOR_1 0  
  
#define TEMP_SENSOR_2 0  
  
#define TEMP_SENSOR_BED 3 //If you have the NTC 100K
```

These entries are the only ones you need just to get the MKS Gen running. Once you get it to upload you can now test most features of the board. You will need to tweak the settings on the configuration file for your printer.

#### 5. Upload(or compile to test) Marlin - While still on the Arduino window

Click on the Triangle inside the circle to do a test compile, this makes sure that the firmware does not contain errors( you can skip this)

Click on the arrow pointing to the right inside a square frame to upload firmware to the board. If everything goes well you'll see a "Done Uploading" message near the bottom of the Arduino window.

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