MIDAS Starter Kit

MDT0700A11OS-RGBHDMI-KIT1
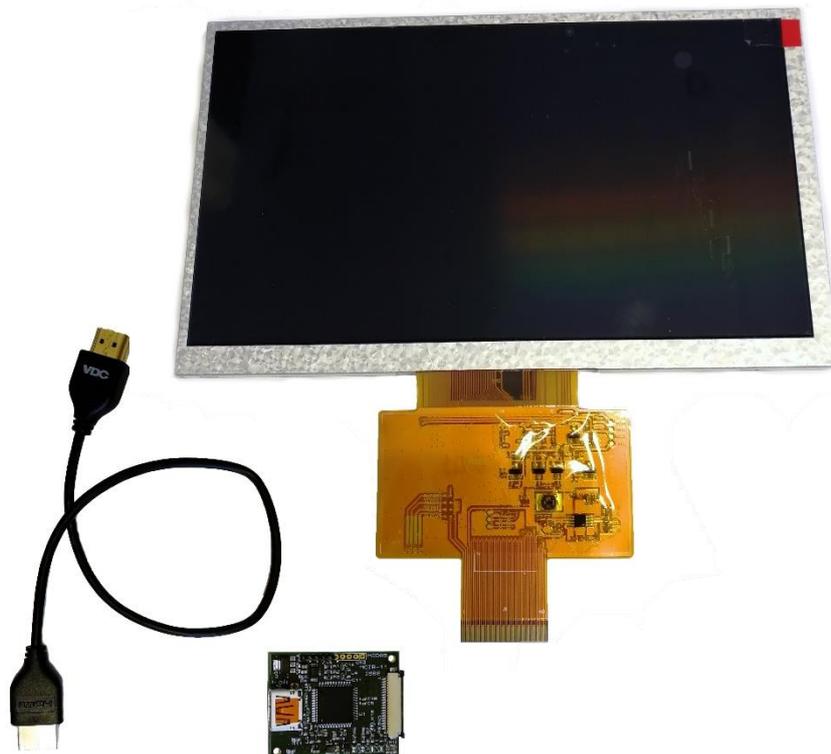
Document history

| Issue #	Author/ Editor	Issue Date	Changes to this document.
Preliminary	IA	24/05/2019	Started Document
1.0	IA	29/05/2019	First Release
2.0	IA	06/08/2019	Updated part list & description.
3.0	MW	21/08/19	Highlighted solder link configuration and updated RPI config.txt data.

Table of Contents

1. Introduction

Just as the name suggests, the MIDAS Starter Kit is here to get you started with your project using our range of products. Our starter components included with this kit will make it easier to connect and setup the display with a Raspberry Pi or other compatible devices (see chapter 3.2).

1.1. Components included (parts list)

- MDT0700A11OS-RGB (display)
- MDIB-11
- HDMI cable
- 2-pin 5V power cable

1.2. Obtainable from link on box label

- MDT0700A110S-RGB Specification
- Application Note (this document)
- MDIB-11 Specification
- RPI config.txt file (see chapter 3.1)
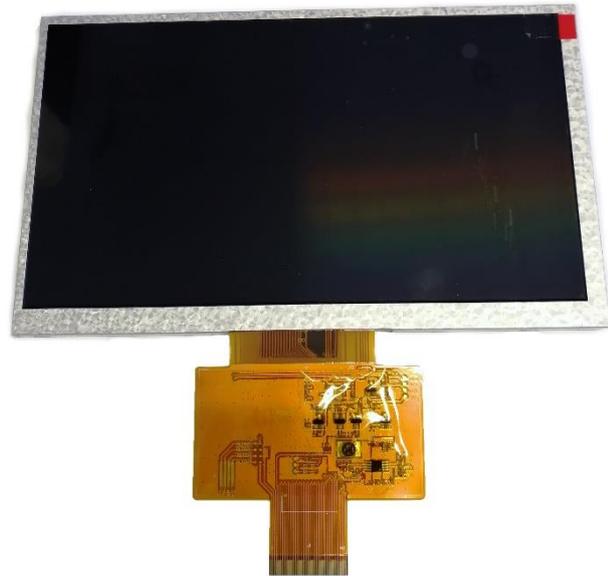
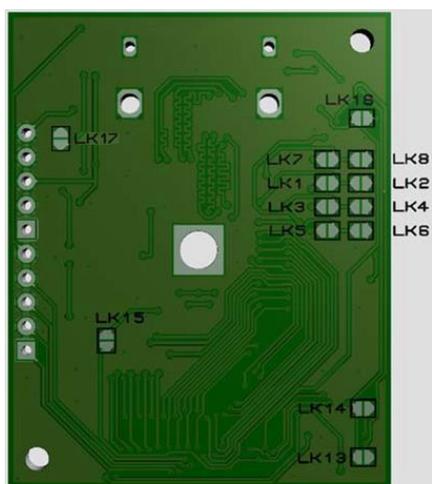**MDT0700A11OS-RGB**

MDIB-11

2-pin power cable

**HDMI cable**

FIGURE 1 – ALL PARTS INCLUDED IN THIS KIT

2. How to connect

Before you start, please ensure that the solder links on the MDIB-11 board are correctly soldered. These pins will select the appropriate current for the display and if they are not set correctly they could cause damage.

Link	Signal	Function
LK2	ST	Low RGB Data drive strength (LK1 open) DEFAULT
LK4	PIX	One pixel per clock (LK3 open) DEFAULT
LK6	#STAG	Staggered pixel output (LK5 open) DEFAULT
LK8	Pixel Clock	RGB Data clocked on -Ve edge (LK7 open) DEFAULT

For more details check the MDIB-11 specification
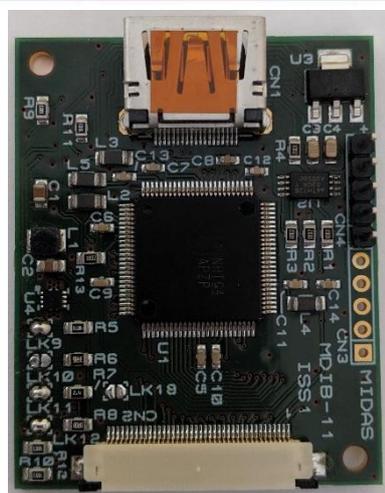
LED Backlight Current selection 0=open 1=linked				
LK12	LK11	LK10	LK9	Current
1	1	0	1	155mA

For more details check the MDIB-11 specification

Our hardware is designed to be "plug & play" meaning that you simply need to plug the components together as shown in the picture below:
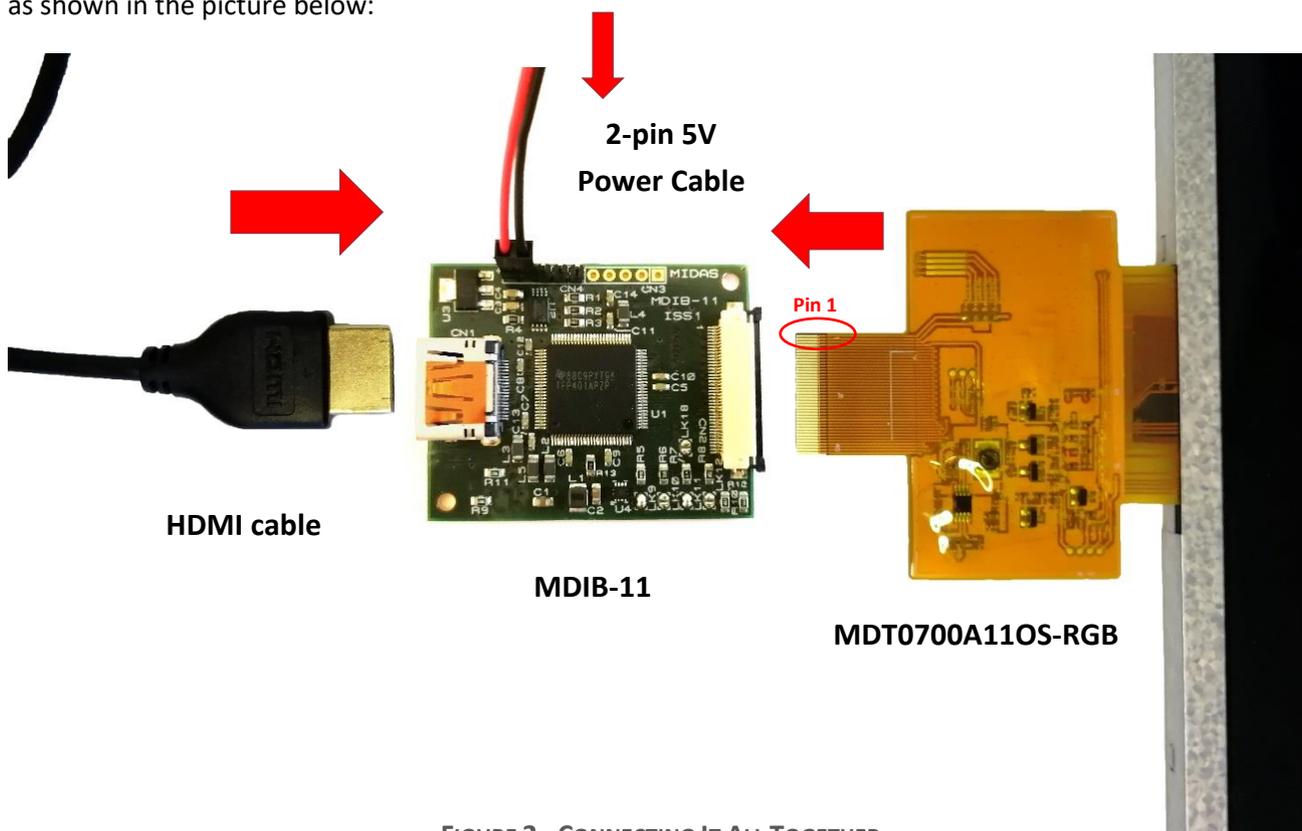

2-pin 5V Power Cable

HDMI cable

MDIB-11

Pin 1

MDT0700A11OS-RGB

After you connect the MDIB-11 with the display, HDMI and power cable, please connect the other end of the HDMI cable to a Raspberry Pi or other device[1] of your choice that has a HDMI port. IMPORTANT NOTICE: Please ensure you connect the FFC the correct way round, otherwise you could damage the display. Both the board and FFC/FPC are labelled with "1" for pin 1, indicating which side to connect them (see figure 2 above).

For more advanced options, the MDIB-11 can be set up for specific functions. For these options you will need a soldering iron, as the board is equipped with solder links that are used for making a selection. For example, the board supplies 5V to the display's backlight from the HDMI port. If you wish to supply power to the display from the HDMI connection, you can solder Link 17 from the back of the MDIB-11. Please refer to the MDIB-11 datasheet for more details.
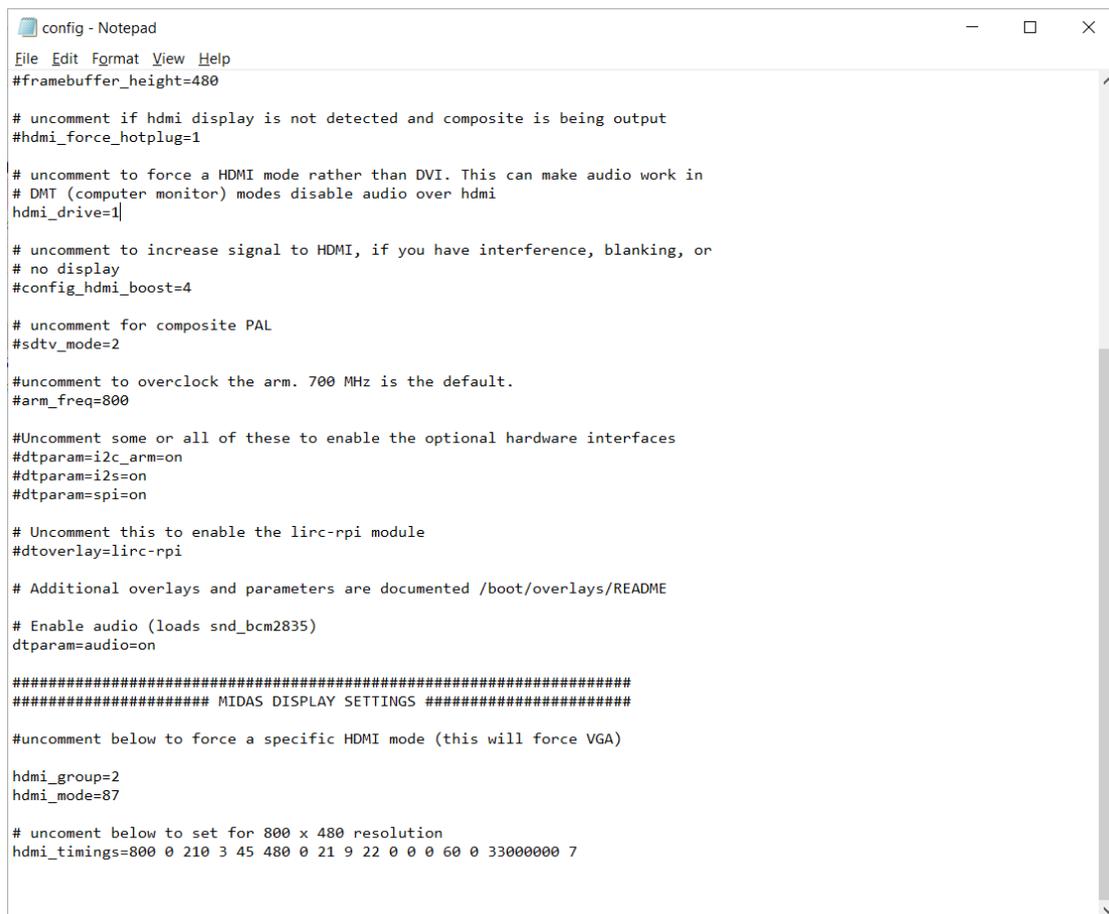
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[1] Please be aware that this guide is for using Raspberry Pi with the Raspbian OS, so if you choose an alternative device or OS (operating system) you may need to use different configuration settings (see chapter 3.2).

3. Other configurations

Apart from setting up the hardware, you may need to do some software configurations for better compatibility. Typically displays with an RGB, LVDS or HDMI interface require specific timings for correctly displaying an image. These timings are usually configured and stored in an EDID file (usually found in desktop monitors). Our MDIB-11 boards are already programmed (flashed) with EDID settings, but sometimes the EDID may not be recognised by the device connected to the display, in which case additional settings will be required. Fortunately Raspberry Pi offers an easy solution to configure these settings, and that is through a configuration file called "config.txt" and we will discuss this below.

3.1. Raspberry Pi config file

The config.txt file is stored in the /boot directory on the Micro SD card, where the Raspbian OS (operating system) is stored. This file contains various lines of code/instructions for various configurations, including HDMI timings. Here you can manually customize the timings for the display that you want to use or you can simply use our pre-customized config.txt file (see figure 3).

FIGURE 3 - EXAMPLE OF A CONFIG FILE

If you download our config file, then simply use it to replace the current config file in the boot folder. Alternatively, if you choose to edit the file manually, you can just add the following lines of code at the end of the existing config.txt file.

```
hdmi_group=2
hdmi_mode=87
hdmi_timings=800 0 210 3 45 480 0 21 9 22 0 0 0 60 0 33000000
```

Congratulations! You can now use the MDT0700A11OS-RGB display with your Raspberry Pi.

For more information about the Raspberry Pi config settings please refer to the following website: https://www.raspberrypi.org/documentation/configuration/config-txt/video.md

3.2. Alternative Solutions

Our kit is designed and tested to work with Raspberry Pi and Raspbian OS, but also offers compatibility for alternative solutions. If you are planning to use an alternative device or a different OS, then you may need to find similar settings. The most important configuration is to have the correct resolution set-up, which is usually defined along with the HDMI timings or in some display/monitor menu. The HDMI timings for this display can be found in the MIDAS Specification document (also available on Farnell).

If you still need more help for using an alternative device or OS, feel free to contact our technical support team and one of our engineers will guide you through a solution. In the future we hope to add more information on this guide for alternative solutions.

Other useful links:

- https://wiki.ubuntu.com/X/Config/Resolution   For Ubuntu OS installed on Raspberry Pi.
- https://elinux.org/RPiconfig   More information on RPi config.

4. Troubleshooting

Please ensure that you follow all the instructions correctly. If you are still having trouble getting your display to work, then feel free to contact us (details on the front cover page).

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