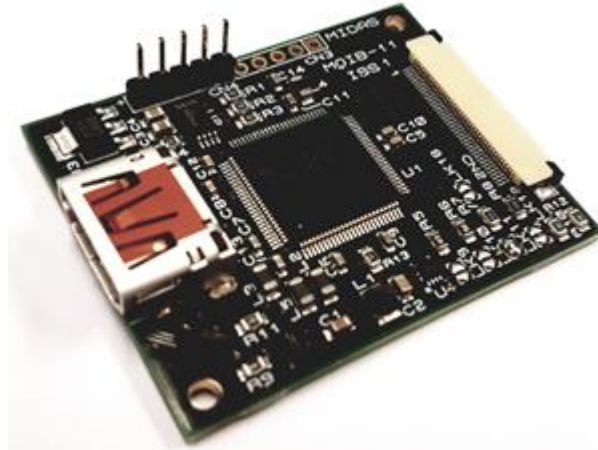


<b>HDMI to RGB converter.</b>	
Part Number:	MDIB-11-ISS1
Version:	5
Date:	16/10/2015
<b>Revision History</b>	
<b>Date</b>	<b>Description of change</b>
29/6/2015	First draft
16/10/2015	Clarified Links and Touch. Added Mechanical Drawing.
20/5/2016	CN2 Reversed, CN3 10way to 5way
20/5/2016	Added links 13,14,15,16
20/8/2018	Added LK17 & LK18
20/8/2018	Updated image
20/8/2018	Updated LED backlight current table
4/10/18	Changed part number from MCIB-11-ISS2 to MDIB-11-ISS1
4/10/18	Updated mechanical.

## MDIB-11<sub>(Iss1)</sub> HDMI to RGB

### Overview & Features

The MDIB-11 is an HDMI to RGB converter. Ideal for connecting a range of Midas TFT displays to a Single Board Computer such as the Raspberry Pi.



### Features

- Standard High Definition Multimedia Interface (HDMI) connector.
- 40 way 0.5mm pitch FFC TFT display connector.
- Connections for power, EDID programming and resistive touch screen.
- On board adjustable constant current LED backlight driver 5mA to 80mA.
- Single 5V power supply requirement.
- EEprom (24C02) for Extended Display Identification Data (EDID) storage.
- Mechanical dimensions 50 x 40 x 11 mm.
- Pin compatible with the following Midas displays:

MCT035S, MCT035G	3.5"	320 x 240
MCT039A	3.9"	480 x 128
MCT043J, MCT043C	4.3"	480 x 272
MCT046A	4.6"	800 x 320
MCT050J	5.0"	800 x 480
MCT070M, MCT070Z	7.0"	800 x 480

Other Midas TFT displays can be connected using a simple interface board.

## Connections

CN1 19PIN HDMI AMP 1747981-1	Symbol	Description
1	D2+	TDMS Data 2+
2	D2S	TDMS Data 2 Shield
3	D2-	TDMS Data 2-
4	D1+	TDMS Data 1+
5	D1S	TDMS Data 1 Shield
6	D1-	TDMS Data 1-
7	D0+	TDMS Data 0+
8	D0S	TDMS Data 0 Shield
9	D0-	TDMS Data 0-
10	DC+	TDMS Clock+
11	DCS	TDMS Clock Shield
12	DC-	TDMS Clock-
13	CEC	Consumer Electronic Control
14	NC	Not Connected
15	SCL	Display Data Channel Clock
16	SDA	Display Data Channel Data
17	GND	Ground
18	+5V	+5V power From HDMI
19	HPD	Hot Plug Detect

CN3 0.1" pitch header	Symbol	Description COMMON TO ALL VERSIONS
1	YU	Touch YU to external circuit
2	XL	Touch XL to external circuit
3	YD	Touch YD to external circuit
4	XR	Touch XR to external circuit
5	SHDN/PWM	Backlight shutdown / PWM

CN4 10PIN 0.1" pitch header	Symbol	Description
1	+5V	+5V power From HDMI
2	SCK	EDID I2C clock
3	SDA	EDID I2C data
4	GND	Ground
5	VIN	+5V Supply to Board

CN2 40Pin 0.5mm pitch Display Connector	Symbol	Description
1	K	LED Backlight -
2	A	LED Backlight +
3	GND	Ground
4	VDD	+3.3V
5	R0	Red Data 0
6	R1	Red Data 1
7	R2	Red Data 2
8	R3	Red Data 3
9	R4	Red Data 4
10	R5	Red Data 5
11	R6	Red Data 6
12	R7	Red Data 7
13	G0	Green Data 0
14	G1	Green Data 1
15	G2	Green Data 2
16	G3	Green Data 3
17	G4	Green Data 4
18	G5	Green Data 5
19	G6	Green Data 6
20	G7	Green Data 7
21	B0	Blue Data 0
22	B1	Blue Data 1
23	B2	Blue Data 2
24	B3	Blue Data 3
25	B4	Blue Data 4
26	B5	Blue Data 5
27	B6	Blue Data 6
28	B7	Blue Data 7
29	GND	Ground
30	PCLK	Pixel Clock
31	DISP/LR	Display On / Left/Right
32	HSYNC	Horizontal Sync
33	VSYNC	Vertical Sync
34	DEN	Display Enable
35	UD	Up/Down
36	#RST	#RESET
37	XR	Touch XR
38	YD	Touch YD
39	XL	Touch XL
40	YU	Touch YU

## Electrical Specifications

Absolute Maximum Ratings		
Operating temperature	0 to +70	°C
Storage temperature	-40 to +125	°C
VIN	6.0	V
CN1,2,3 inputs and outputs w.r.t VSS	-0.3 to +3.6	V
CN4 inputs and outputs w.r.t VSS	-0.3 to VIN+0.3	V

Typical Electrical Characteristics				
Parameter	Min	Typ	Max	Unit
Supply Voltage VIN	4.75	-	5.5	V
Supply Current iIN (board only no HDMI signal)	-	12	-	mA
Supply Current iIN (3.5" TFT 40mA backlight current + HDMI signal)	-	190	-	mA
LED Backlight voltage	-	-	27	V
LED Backlight current	-	-	80	mA

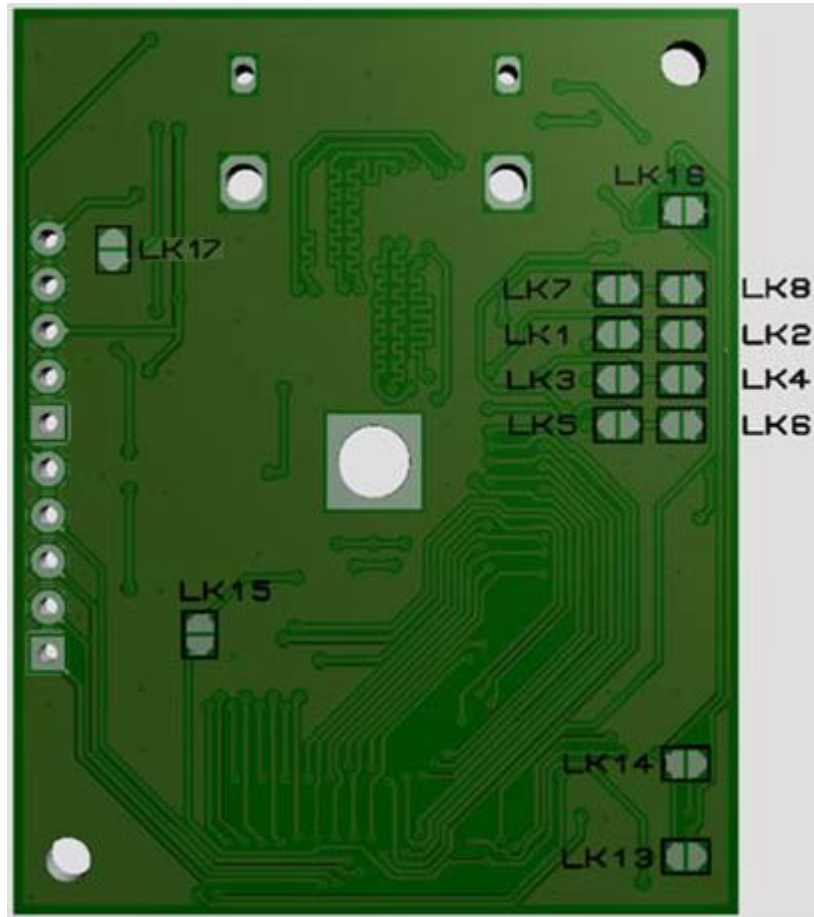
## LED Backlight Current

The LED Backlight is driven by a constant current circuit which can be set for various currents using LK9, LK10, LK11, and LK12. Below is a Table showing the LED Backlight currents available:

LED Backlight Current selection 0=open 1=linked				
LK12	LK11	LK10	LK9	Current mA
0	0	0	1	20
0	0	1	0	30
0	0	1	1	50
0	1	0	0	40
0	1	0	1	60
0	1	1	0	70
0	1	1	1	90
1	0	0	0	95
1	0	0	1	115
1	0	1	0	125
1	0	1	1	145
1	1	0	0	135
1	1	0	1	155
1	1	1	0	165
1	1	1	1	185

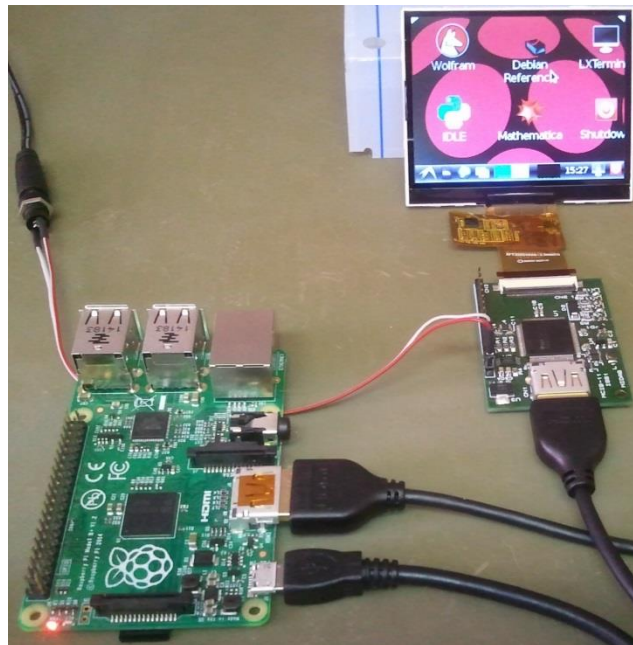
## Solder Links on back of PCB

There are 13 solder links on the back of the PCB to set various options for the IC and display



Link	Signal	Function when linked
LK1	ST	High RGB Data drive strength (LK2 open)
LK2	ST	Low RGB Data drive strength (LK1 open) DEFAULT
LK3	PIX	Two pixels per clock (LK4 open)
LK4	PIX	One pixel per clock (LK3 open) DEFAULT
LK5	#STAG	Simultaneous pixel output (LK6 open)
LK6	#STAG	Staggered pixel output (LK5 open) DEFAULT
LK7	Pixel clock	RGB Data clocked on +Ve edge (LK8 open)
LK8	Pixel clock	RGB Data clocked on -Ve edge (LK7 open) DEFAULT
LK13	CN2 pin 31	DISP/LR = HDMI Sync Detect (SCDT) (LK14 open) DEFAULT
LK14	CN2 pin 31	DISP/LR = GND (LK13 open) If LK13 and LK14 both open then DISP/LR = +3.3V
LK15	CN2 pin 34	DEN = DE (DEFAULT). If open DEN = GND
LK16	CN2 pin 35	UD = Down if linked . If open UD = Up (DEFAULT).
LK17	HDMI 5V	VIN = HDMI +5V.
LK18	CN2 pin 36	If linked = GND. If open =100K to #RESET. NOTE: Top PCB

## Example



## Raspberry Pi Application

Below is an example of the additional lines to be inserted into the config.txt file which can be used to force the Raspberry Pi Raspbian operating system to configure the HDMI output to the required resolution. (Note: # = comment)

```
# Uncomment the below line to select 3.5" 320 x 240 setup  
hdmi_timings=320 0 20 2 66 240 0 4 1 17 0 0 0 75 0 6500000 1
```

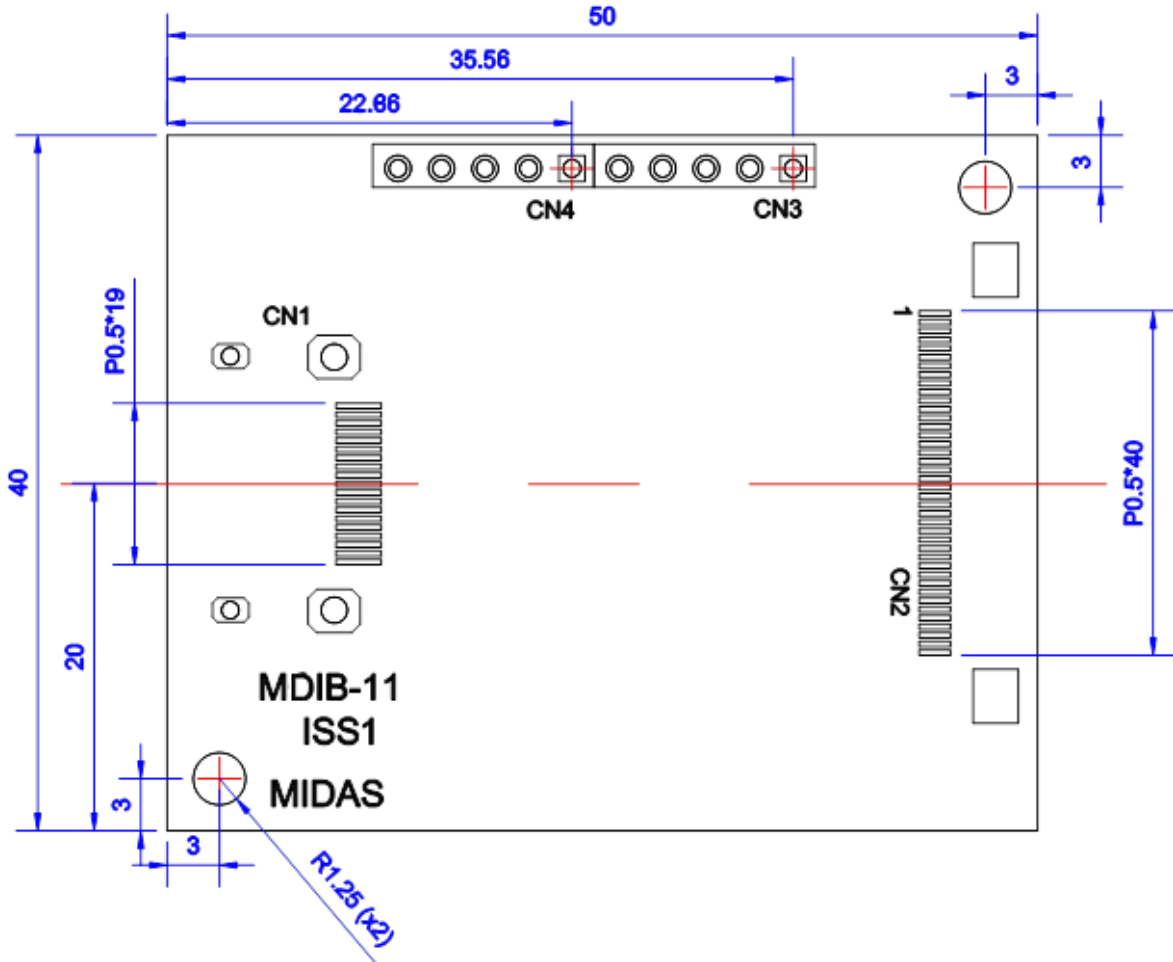
```
# Uncomment the below line to select 4.3" 480 x 272 setup  
#hdmi_timings=480 0 16 64 120 272 0 1 3 16 0 0 0 75 0 16000000 3
```

```
# Uncomment the below line to select 5.0" 800 x 480 setup  
#hdmi_timings=800 0 40 48 40 480 0 13 3 29 0 0 0 75 0 33000000 3
```

```
# Uncomment the below line to select 7" 800 x 480 setup  
#hdmi_cvt 800 480 60 6 0 0 0
```

```
config_hdmi_boost=4  
disable_overscan=1  
hdmi_group=2  
hdmi_mode=87
```

## Mechanical Drawing



\*Note all measurement are in mm unless stated otherwise.