LinkZill

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TruEbox 04MD (256x256) User Guide

V1.0

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TruEbox 04MD (256x256) User Guide

Product Overview

This product supports signal driving of array light-emitting devices with a maximum resolution of 256*256. It can provide 32+8 channels of Scan signals, 64+4 channels of Data Read signals, and dual channels of DC bias signals. Through the wireless Bluetooth module, the Android mobile phone terminal transmits the compiled array signal to the array light-emitting device through the compatible APP to realize the custom display on the device. With the supporting thin film transistor array chip, the TruEbox 04MD may power devices such as QLED and perovskite LED for display lighting.

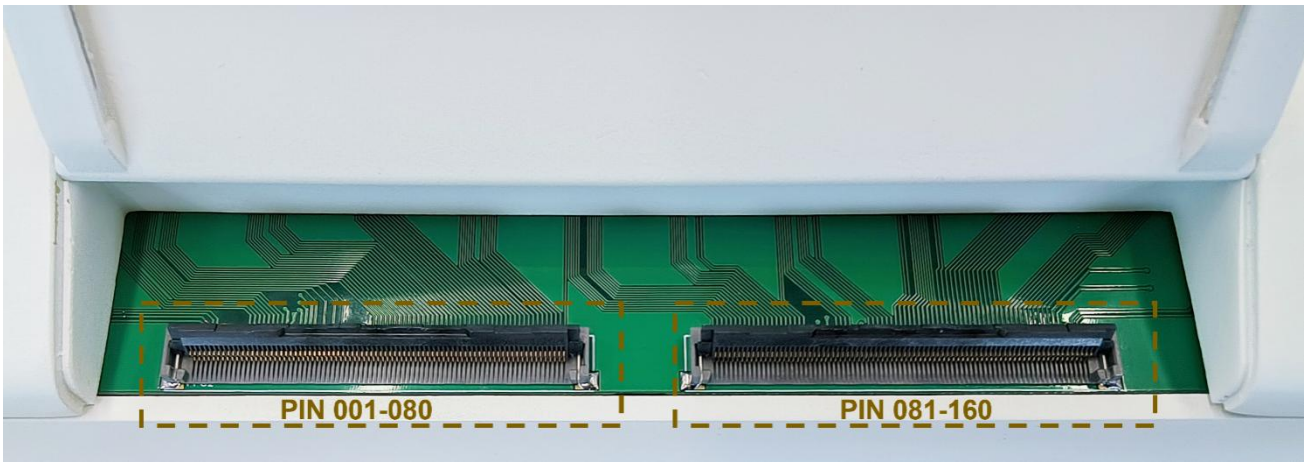
Parameter	Specification
L*W*H	158×148.5×39 mm
Weight	600 g
Charging interface	DC005-5.5*2.1mm
General	32+8 channel pulse row signals, voltage range: -15V~+15V 2 channel DC bias: -15V~+15V 64+4 channel pulse column signals: voltage range: -15V~+15V
Communication	WiFi
Terminal	Phone (Android 9.0, 6GB RAM or higher)
Display form	Letters, checkerboard, all bright, all dark, bitmap, vedio
Duration	>4 hours
Refresh Rate	1~60 Hz is adjustable

Product List

Host	X1
Charger	X1
User guide (online)	X1

Pinout Description

160 Pin FPC pin assignment (left to right)：



Pinout	8, 33, 37, 112	5-7, 157-158	34-36, 102-103	SCAN: 123-154 MUX: 115-122	DATA: 38-101 MUX: 25-32	Hign level signal: 19 Low level signal: 20-21, 113-114
Definition	DUMMY	Vss	Vdd	32+8 channel pulse row signals	64+4 channel pulse column signals	Row select high and low level

*The pins not listed in the above table are reserved for debugging purposes and do not need to be concerned by the customer during normal use.

1. The Von and Voff in the app correspond to the selected and unselected voltage of the 32+8 channels of the Scan signal, with an adjustable range between -15V to +15V. Please use 15V and -15V for Von and Voff when driving devices from LinkZill;

2. The Vh and Vl in the app correspond to the open and close voltage of the 64+4 channels of the Data Read signal, with an adjustable range between -15V to +15V. Please use 6V and -6V for Vh and Vl when driving devices from LinkZill;

3. The Vdd and Vss in the app are two channels of DC bias voltages that correspond to the load voltage and common electrode coltage for the driven device, with an adjustable range between -15V to +15V. During the testing after the completion of the manufacturing process, adjust gradually from small (±3) to large to avoid burning the material.

Operating Manual

1. App Installation:

Install the APP by scanning the QR code with the default browser and press to download. The TruEbox App will show on the desktop after installation. Please instal the app with the provided apk file. The file may change its suffix to apk.1., and you may need to delete the ".1" to instal.

⚠ **The app only supports terminal devices of Android 6.0 or higher and 6GB RAM or higher. The app needs permission to access the Bluetooth/location/storage for full functionalities. Such access will not do any harm to the terminal devices.**

2. Device Connection:

(The illustration is based on the compatible device of a 256*256 TFT array with quantum dot luminescent material on top.)

a. Before connecting the TFT array to the system, please make sure the system is switched off.

b. Flip the lid on the system and connect the FPC interface with the system with the golden pin facing down and the black side facing up.

c. Close the lid.

3. App Connection：

a. Switch on the TruEbox 04MD, and you should see the lighting of the white indicator light and screen on the system. If not, please charge the system for the low battery.

b. Turn off the WIFI and open the hotspot on the phone or tablet. Follow the instruction on the screen and set the hotspot's name as "Hi-Res" with the password "12345678". The system will be automatically connected to the terminal device's hotspot.

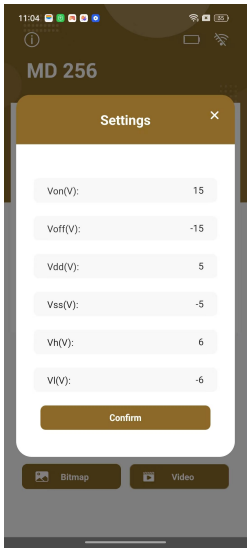
C. If successfully connected, the system will show "waiting for connect" and its IP/MAC address on the screen. If not, please shut the hotspot and redo the previous procedures again.

d. Open the APP and press the WIFI button on the top right, and a window called “Available Devices” will pop up. Select the option with the same IP address shown on the screen of the system. If the correct option is not available, please type in the System’s IP address manually. If successfully connected, the system will show the “LinkZill”.

4. Device Driving:

(The illustration is based on the compatible device of a 256*256 TFT array with quantum dot luminescent material on top.)

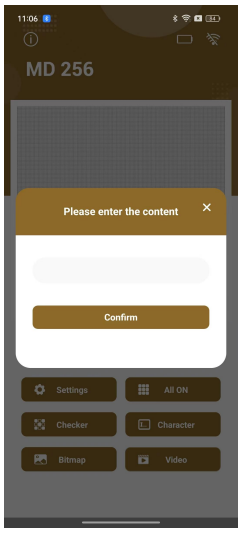
a. Click the “Setting” button to set the voltage for Von, Voff, Vdd, Vss, Vdh, and Vdl. In the demonstration with the compatible 256*256 device, Von=15V, Voff=-15V, Vdd=5V, Vss=-5V, Vh=6V, and Vl=-6V. Press the “Confirm” button to finish the setting (shown in the following screenshot). Long press the "Settings" button to set the device refresh frequency, which can be adjusted from 1 to 60Hz as a whole number.



b. Press the "All ON" button to light up all the pixels on the panel. Press again to turn off the pixels.

c. Press the "Checkerboard" button to realize the checkerboard display by lighting up every other pixel. Press again to switch the lit pixel. Press again to turn off all the pixels.

d. Press the "Character" button and a window would pop out for you to insert characters. Put in the word and press "Confirm" to realize the display of the given characters, with each character occupying 32*32 pixels and 64 characters max to be shown at the same time. If the content exceeds the limit, the system will display characters alternatively (e.g. for 70 characters, the first 64 characters would be displayed, the last 6 characters would be shown later, and the first 64 characters would be shown again as a cycle).



e. Press the "Bitmap" button and a window would pop out for you to choose the file. Select the desired bmp files to show the pictures. When multiple files were selected, the pictures would change in order every second, and you can adjust the refresh rate between 1s to 10s by holding on to the "Bitmap" button.

f. Long press the video button to select a prepared video file (must be a black and white video with a resolution of 256*256 and a frame rate of 30Hz) for transmission. After the transmission progress reaches 100% and the transmission window disappears, click the video button to play the video. Systems that have previously transmitted the video do not need to retransmit; you can directly click the video button to play.

⚠ Please use bmp pictures with a resolution of 256*256 for the best performance.

Warnings:

⚠ Please don't use the matrix readout system while charging. Avoid using the system in complex electromagnetic environments (strong power, AC magnetic field et. al).

⚠ Please use the original charger to avoid damage.

⚠ The charging indicator is red when the system is charging and change to green when the battery is full. The full charge time is about 8 hours. To avoid damaging the system, please unplug the charger when the system is fully charged.

⚠ Please don't use the system in hot or humid environments. Don't throw the system into fire or water to avoid damage or explosion.

⚠ Please don't bash or drop the system from height to avoid damage.