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TruEbox 01R-MX8 User Guide

V1.0

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TruEbox 01R-MX8 User Guide

Product Overview

The TruEbox 01R-MX8 is a portable resistive array measurement device capable of real-time and accurate measurement of resistive array data. It transmits the data via Bluetooth to a mobile app, enabling real-time grayscale visualization, storage, and sharing of the data. The TruEbox excels in fast response speed and strong decoupling capability for resistive arrays. It is suitable for applications such as characterization of array pressure sensors, development of portable electronic products, fitness monitoring, biomedical testing, e-skin, and tactile perception.

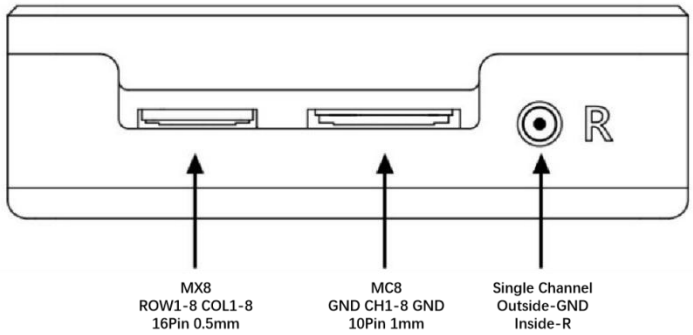
Parameter	Specification	
L×W×H	71×71×22 mm	
Weight	95 g	
Charging Interface	USB Type-C	
Test Interface	16 pins FPC connector (Array) 10 pins FPC connector (Multichannel) MCX connector (Single)	
Communication	Bluetooth	
Terminal	Phone (Android 10.0 or higher)	
Measurement Range	100Ω-200 MΩ	
Duration	4 hours	
Data Output Rate	Single	⩽500 data points/second
	Multichannel	①. Testing resistance<10MΩ , ⩽50 data points/second/channel ②. Testing resistance⩾10MΩ , ⩽5 data points/second/channel
	Array	⩽10 fps
Save	Original data: .CSV; R-t Image: .PNG; Array Image: .MP4	

Product List

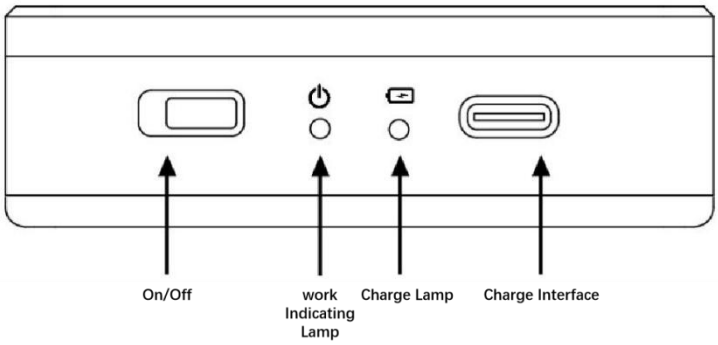
Host	X1	Single-channel MCX to dual alligator clip cable	X1
8-channel FPC + adapter board accessories	X1	8*8 array FPC + adapter board accessories	X1
Charger	X1	USB charging cable	X1
User guide	X1	Warranty certificate	X1

Product Interface Information

Front View



Rear View

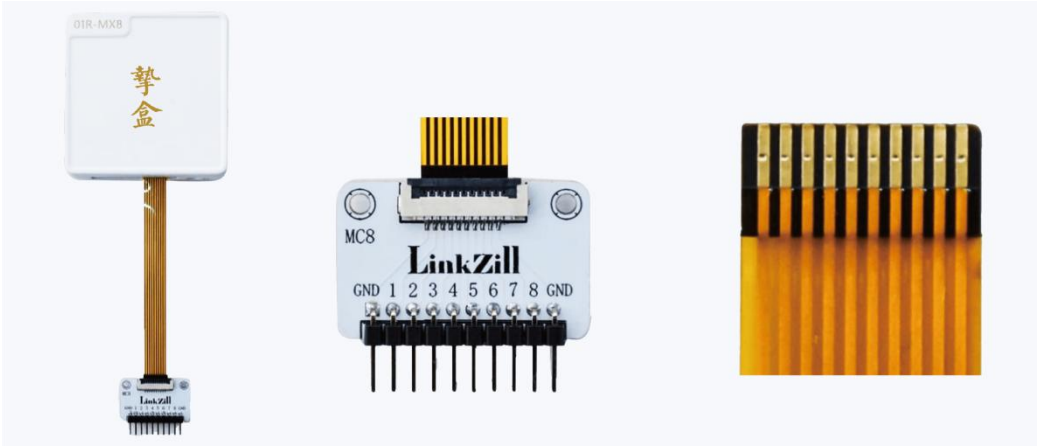


Product Accessories Description

1. Single-channel MCX to dual alligator clip cable

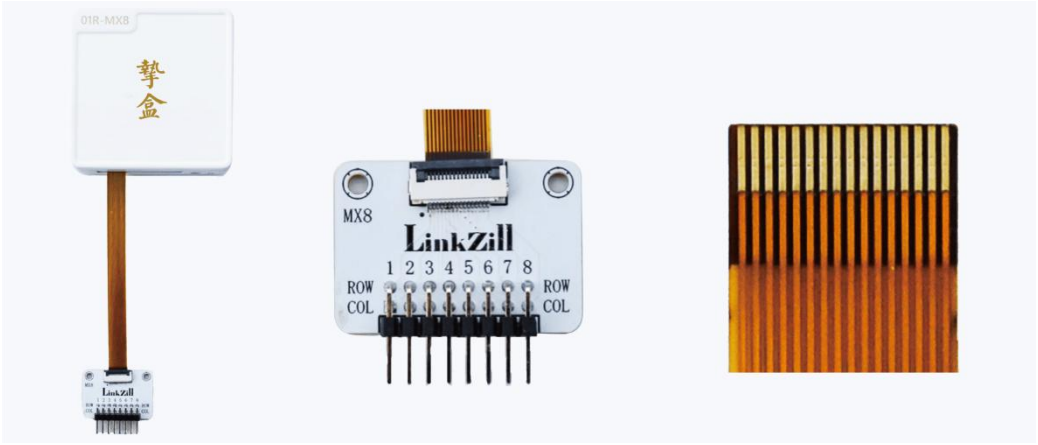
(Red corresponds to the R test channel, and black corresponds to GND)

2. 8-channel FPC + adapter board accessories



(1*10-pin single row header with 2.54mm pitch)　(10-pin FPC with 1mm pitch)

3. 8*8 array FPC + adapter board accessories



(2*8-pin dual row header with 2.54mm pitch)　(16-pin FPC with 0.5mm pitch)

Product Specification

Measurement Range and Accuracy

Resistance Range	Accuracy	Measurement Accuracy
100 Ω ~ 1 KΩ	0.1 Ω	0.5%+3*accuracy/measured resistance
1 KΩ ~ 10 KΩ	1 Ω	
10 KΩ ~ 100 KΩ	10 Ω	
100 KΩ ~ 1 MΩ	100 Ω	
1 MΩ ~ 10 MΩ	1 kΩ	1.5%+5*accuracy/measured resistance
10 MΩ ~ 200 MΩ	10 kΩ	10%+10*accuracy/measured resistance

*** Notice:**

1. The above data is based on single-channel testing;

2. To meet the requirements for multi-channel measurement accuracy, the following conditions must be satisfied:

a. Similar resistance on every channel; b. Good electromagnetic shielding; c. Temperature 23±5℃.

3. For array channels, the primary metric is "resistor array decoupling to reduce crosstalk and enable accurate imaging," with the following precision:

(An 8*8 array of 1KΩ resistors (with 0.1% precision) is used. Test data is provided in the table below.)

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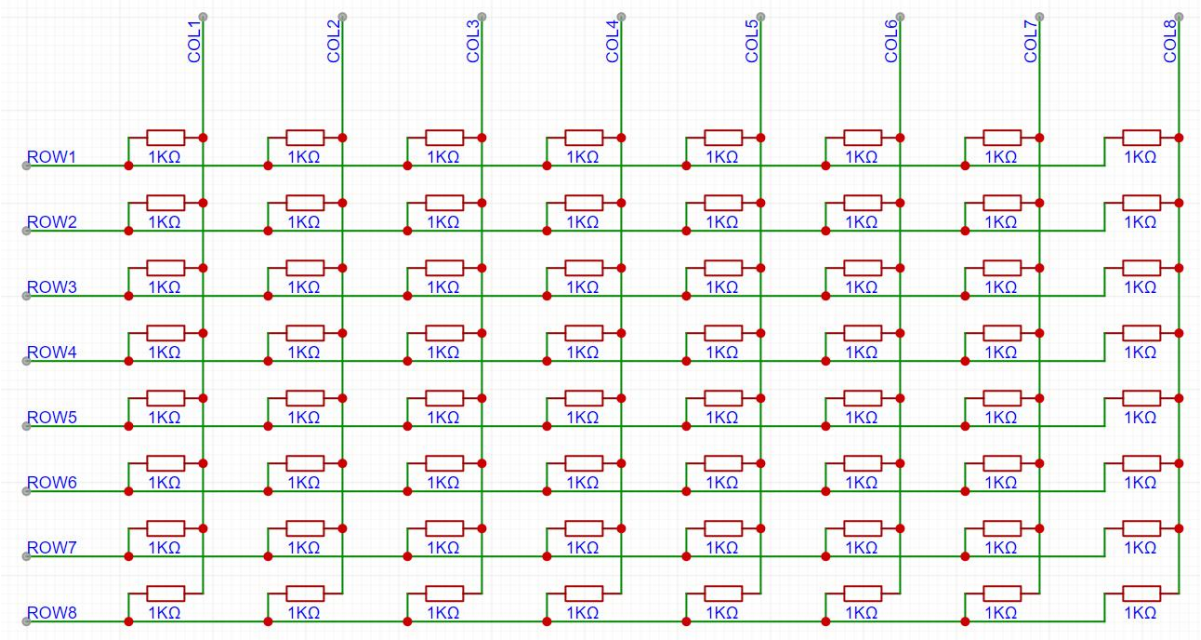
(Real-time test data chart)



(Array test wiring diagram)

The relationship between the measured resistance and the test current is as follows:

Range of Measured Resistance	Test Current
(0 Ω, 100 Ω]	(30 mA, 15 mA]
(100 Ω, 1 KΩ]	(15 mA, 2.73 mA]
(1 KΩ, 10 KΩ]	(1.5 mA, 273 μA]
(10 KΩ, 100 KΩ]	(150 μA, 27.3 μA]
(100 KΩ, 1 MΩ]	(15 μA, 2.73 μA]
(1 MΩ, 10 MΩ]	(1.5 μA, 273 nA]
(10 MΩ, 200 MΩ]	(150 nA, 14.29 nA]

Operating Manual

1. APP Installation:

The after-sales staff will send the APP to you by email.

⚠ **This APP is limited to use on Android system smartphones (Android 10.0 or higher versions). It is recommended for installation on OPPO/VIVO brand phones. To ensure the normal operation of the app, it requires access to the user's Bluetooth, location services, and storage card read/write permissions during installation. Please feel free to use it, as these permission requests will not affect the security of your phone.**

2. Device Connection:

a. Move the power switch of TruEbox 01R-MX8 to the side near the operation indicator light. The device will wait for 1 second before the blue indicator light turns on. If the light does not illuminate, it indicates that the device's battery is low, please charge the device.

b. Open the “TruEbox” APP. For the first use, please grant the necessary permissions for Bluetooth and location as prompted. The app will automatically scan and connect to the device's Bluetooth. Once connected, a floating notification will appear stating "Bluetooth connection successful."

3. Measurement:

a. Click the setting button : You can choose the sampling speed, where a lower sampling speed results in higher measurement accuracy and interference resistance. You can also enable or disable the "Speed Priority Mode." When enabled, the maximum range is 10MΩ; when disabled, the maximum range can reach 200MΩ. In the Resistance interface, you can select single/multi-channel mode, modify the view time, and set the Max and Min values for grayscale calculation in the image in the Resistance Array interface.

b. Click the start button to start the test; **click the pause button** to stop the test. During the test, please do not modify settings in the Settings page to avoid data loss.

c. Click the save button to save the measurement data. In the Resistance interface, all raw data and curve images on the chart will be saved at once. In the Resistance Array interface, the raw data and video images between the first and second clicks of the Save button will be recorded. By default, files are saved in the folder named "01R-MX8" under the "Documents" folder in the root directory of your phone. Select the files you want to share and click Share to send the test data via Bluetooth, email, WeChat, etc.

d. In the Resistance Array interface, **click the Select button** to choose 1-8 points, then **click again** to enter the R-t curve interface for real-time observation of the selected points' change curves. After returning, **double-click the Select button** to exit the selection mode.

Warnings:

⚠ In scenarios where precision and display effects are critical, it is not recommended to charge simultaneously during testing, as charging may introduce electromagnetic interference. Avoid using the device in areas with complex electromagnetic environments (e.g., near power strips (outlets) and devices powered by them within approximately 2 meters). The test environment, test subjects, and fixtures must remain dry and clean.

⚠ 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. To avoid damaging the system, please unplug the charger when the system is fully charged.

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

⚠ Please don't shake the device violently or drop it from a height to prevent damage to the device.