Tablet Oscilloscope
Quick Guide
For tBook Series

Shenzhen Micsig Instruments Co., Ltd.
Copyright

Copyright © Shenzhen MicSig Instruments Co., Ltd. All Rights Reserved.

Version

Version: MKX2015-001; Product information subject to change without notice. Please visit MicSig official website: www.micsig.com to get the latest information.

Trademark Information

MicSig is a registered trademark of Shenzhen MicSig Instruments Co., Ltd.

Product certification

MicSig guarantees this product conforms to national and industrial standards in China as well as the CE standard. Other international standard conformance certification is in progress.

Notices

1. **Warning**: Read “Safety Information” before using this instrument.

2. MicSig products are covered by P.R.C and foreign patents, issued and pending.

3. MicSig reserves the right to modify or change parts of or all the specifications and pricing policies at company’s sole decision.

4. Information in this publication replaces all previously corresponding material.

5. Any part of this document is forbidden to be copied, photo copied or rearranged without prior written approval of MicSig.
Learn more about Tablet Oscilloscope

Feature

<table>
<thead>
<tr>
<th>Simple and new experience on new generation oscilloscope.</th>
<th>Tablet compact design, multi-touch operation. All operation by tap or slide, more humanized.</th>
</tr>
</thead>
<tbody>
<tr>
<td>10.1” display, 1024*600 high resolution, display waveform details perfectly.</td>
<td>High capture rate to capture abnormal events.</td>
</tr>
<tr>
<td>31 auto measurements, tap select and cancel the wanted type directly.</td>
<td>4G built-in storage, you can name the waveform by typing the soft keyboard.</td>
</tr>
<tr>
<td>15,000mAh Li-ion battery, up to 8 working hours. (Optional).</td>
<td>60mm and 1.77kg ultra-thin body, easy to take.</td>
</tr>
<tr>
<td>Deeper memory depth, observe general signal and details easily.</td>
<td>Get rid of buttons and knobs, more durable.</td>
</tr>
</tbody>
</table>

Tablet Oscilloscope tBook Series

<table>
<thead>
<tr>
<th>Model</th>
<th>TO102</th>
<th>TO104</th>
<th>TO102A</th>
<th>TO104A</th>
<th>TO152</th>
<th>TO154</th>
<th>TO152A</th>
<th>TO154A</th>
<th>TO202</th>
<th>TO204</th>
<th>TO202A</th>
<th>TO204A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bandwidth</td>
<td>100MHz</td>
<td>100MHz</td>
<td>150MHz</td>
<td>150MHz</td>
<td>200MHz</td>
<td>200MHz</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Risetime</td>
<td>≤3.5ns</td>
<td>≤3.5ns</td>
<td>≤2.3ns</td>
<td>≤2.3ns</td>
<td>≤1.75ns</td>
<td>≤1.75ns</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Real-time Sampling rate</td>
<td>1GS/s</td>
<td>2GS/s</td>
<td>1GS/s</td>
<td>2GS/s</td>
<td>1GS/s</td>
<td>2GS/s</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Memory depth</td>
<td>18M</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Channels</td>
<td>2/4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Waveform capture rate</td>
<td>50,000 wfms/s</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Display screen</td>
<td>10.1” TFT LCD Multi point touchable capacitive screen, Resolution: 1024 * 600 pixels</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operation</td>
<td>Mouse, Multi-touch: tap, swipe, pinch</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dimensions &amp; weight</td>
<td>275mm * 210mm * 60mm, 1770g</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Optional functions

- Software optional:
  - 250,000wfms/s waveform capture rate for TO*** model
  - 500,000wfms/s waveform capture rate for TO***A model
  - 90M memory depth
  - 50Ω Input impedance
  - XY mode

- Hardware optional:
  - 15,000mAh Built-in battery
Contents

tBook appearance .................................................................................................................. 4
  Rear panel & Side panel ........................................................................................................ 4
  Front panel .......................................................................................................................... 5
  Oscilloscope interface ......................................................................................................... 6

tBook operation .................................................................................................................... 7
  Multi-Touch screen ............................................................................................................. 7
  Channel Setting .................................................................................................................. 8
  Slide waveform horizontally and Vertically ......................................................................... 9
  Timebase adjustment (Four ways) ....................................................................................... 9
  Vertical scale adjustment ................................................................................................. 11
  Math channel & Reference channel .................................................................................... 12
  Open Reference channel ..................................................................................................... 12
  Cursor operation ................................................................................................................ 13
  Screen lock & unlock ......................................................................................................... 13
  USB Connect, USB Virtual LAN and USB Storage Device Instruction ................................ 14

Main menu ................................................................................................................................ 15
  Automatic measurement menu .......................................................................................... 16
  Storage menu ...................................................................................................................... 17
  Display menu ...................................................................................................................... 18
  Trigger menu ....................................................................................................................... 18
  ZOOM function .................................................................................................................. 19
  User set ............................................................................................................................... 19

Probe compensation .............................................................................................................. 20

System upgrade .................................................................................................................... 20
# tBook appearance

## Rear panel & Side panel

![Image of tBook appearance](image)

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2/4 Input channels</td>
</tr>
<tr>
<td>2</td>
<td>Oscilloscope info: Model, Input Channels, Bandwidth, Sampling Rate, SN</td>
</tr>
<tr>
<td>3</td>
<td>Open device stand</td>
</tr>
<tr>
<td>4</td>
<td>Power</td>
</tr>
<tr>
<td>5</td>
<td>USB Device for connecting PC</td>
</tr>
<tr>
<td>6</td>
<td>USB Host for connecting U flash disk and mouse</td>
</tr>
<tr>
<td>7</td>
<td>GND</td>
</tr>
<tr>
<td>8</td>
<td>Charging interface</td>
</tr>
</tbody>
</table>
## Front panel

![Front panel image]

<table>
<thead>
<tr>
<th>Control icon</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Run/Stop</td>
<td>Active to run/stop acquisition</td>
</tr>
<tr>
<td>Single SEQ</td>
<td>Active to single trigger mode</td>
</tr>
</tbody>
</table>
| Auto         | Active to waveform auto mode  
  **Note:** Auto setting requires that the frequency of the signal under test should be no lower than 20Hz if the signal under test is Sine. Otherwise, the waveform auto setting function may be invalid and the quick parameter measurement function displayed in the menu will also be unavailable. |
| 50%          | To 50% icon:  
  - Active the vertical position of the current channel waveform to zero point  
  - Active the horizontal position of the current channel waveform to screen center  
  - Active the trigger level to the center of trigger channel waveform  
  - Active cursor back to the screen center |
| Menu         | Menu button: turn on/off the latest function menu |
| Home         | Home page |
| Back         | Back or turn off menu |
# Oscilloscope interface

![Oscilloscope Interface Diagram](image)

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Micsig trademark, run status, auto mode, memory depth, sampling rate</td>
</tr>
<tr>
<td>2</td>
<td>Trigger position</td>
</tr>
<tr>
<td>3</td>
<td>Trigger type, trigger source, trigger level value</td>
</tr>
<tr>
<td>4</td>
<td>Trigger level</td>
</tr>
<tr>
<td>5</td>
<td>Waveform display area</td>
</tr>
<tr>
<td>6</td>
<td>CH3, CH4 ; Tap it to turn on/off channel; Swipe left/right to turn on/off channel setting (only valid for tBook with 4CH)</td>
</tr>
<tr>
<td>7</td>
<td>Vertical scale ; Tap mV/V to set the vertical scale</td>
</tr>
<tr>
<td>8</td>
<td>CH1, CH2; Tap it to turn on/off channel; Swipe left/right to turn on/off channel setting</td>
</tr>
<tr>
<td>9</td>
<td>The Vertical scale of CH1, CH2, CH3 and CH4</td>
</tr>
<tr>
<td>10</td>
<td>The vertical scale and time base of math channel and reference channel</td>
</tr>
<tr>
<td>11</td>
<td>The timebase of input channel</td>
</tr>
<tr>
<td>12</td>
<td>Scale, cursor, trigger level</td>
</tr>
<tr>
<td>13</td>
<td>Display PC connection, U disk icon, battery level, lock and time</td>
</tr>
</tbody>
</table>
tBook operation

Multi-Touch screen

So easy to operate your tBook with bellowing finger gestures - tap, slide, swipe and pinch/stretch.

- **Tap**
- **Swipe**
- **Slide**
- **Pinch or stretch**
- **Double finger slide to fine tune**
- **Three finger swipe down to enter ZOOM mode**
- **Four finger swipe down to screen shot**
Channel Setting

Note:

1. ![Gray Icon]
   The grey icon indicates the channel is off, tap to turn on it.

2. ![Colorful Icon]
   The colorful icon indicates the channel is on, tap to activate it as the current channel or tap twice to turn off it.

3. ![Lighted Channel Number (CH1)]
   When the channel number (CH1) is lighted, it indicates it is the current channel, tap to turn off it.

4. ![Current Channel Icon]
   It indicates it is the current channel.

5. ![Working Channel Icon]
   It indicates the channel is working; tap to activate it as the current channel.

![Swipe in/out to set channel Info]
Slide waveform horizontally and Vertically

**Note:** Single finger slide the waveform fast, double finger slide to fine tune.

Timebase adjustment (Four ways)
Tablet Oscilloscope Innovator

Tap to active the ‘Scale’

Tap to amplify timebase

Enter timebase ruler

Tap to minify timebase
Vertical scale adjustment

- Adjust timebase quickly
- Tap to minify vertical scale
- Tap to amplify vertical scale
Math channel & Reference channel

Note: The grey icon indicates the channel is off, tap to turn on/off it.

Open Reference channel
Cursor operation

**Note:** Single finger slide the cursor line fast, double finger slide to fine tune.

Screen lock & unlock

Lock screen: drag the lock icon to the center of screen to lock
USB Connect, USB Virtual LAN and USB Storage Device Instruction

**USB Connect**

Connect PC to upgrade tBook firmware with tBooktool. (See Tablet Oscilloscope tBook Series Firmware Upgrade Guide.pdf)
USB Virtual LAN
Connect PC to use web page screenshot. (Need to install drive)

USB Storage Device
Connect PC to view photos and reference waveform data.

Main menu

Note: Tap to enter the corresponding
sub-menu.

Main menu: swipe down from top to turn on, swipe up to turn off

Automatic measurement menu
Storage menu

**Note:** You can view the waveform photos you saved under the photos icon in the home page.
Display menu

- Graticule brightness and mode adjustment
- Refresh mode selection
- Datum point selection
- Waveform display mode and brightness adjustment
- Persist time adjustment
- Timebase mode selection

Trigger menu

- Pulse Width trigger
- Edge trigger
- Logic trigger
ZOOM function

Note: ZOOM is not available when high refresh mode is active.

User set
Probe compensation

1. Connect the calibration connector to USB host, then connect the probe to calibration connector.

2. Main menu->User set->ProbeCon->Run

3. Adjust the probe compensation

Over-compensation | Correct compensation | Shortage compensation

System upgrade


UDisk Upgrade

Note: The firmware is ready to update, please make sure the battery has enough power or keep charging the instrument in the update process. Do not touch any button or the screen before popping up news ‘Update done’.

Upgrade: [Upgrade]

Put software package under U root directory; After connect the U flash disk to USB host, you will see the tips on screen. Tap the Upgrade icon to upgrade; Once done, the oscilloscope will reboot.