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Version

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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</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>TO102A</th>
<th>TO152</th>
<th>TO152A</th>
<th>TO202</th>
<th>TO202A</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>TO104</td>
<td>TO104A</td>
<td>TO154</td>
<td>TO154A</td>
<td>TO204</td>
<td>TO204A</td>
</tr>
<tr>
<td>Bandwidth</td>
<td>100MHz</td>
<td>100MHz</td>
<td>150MHz</td>
<td>150MHz</td>
<td>200MHz</td>
<td>200MHz</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>
</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>
</tr>
<tr>
<td>Memory depth</td>
<td>18M</td>
<td>18M</td>
<td>18M</td>
<td>18M</td>
<td>18M</td>
<td>18M</td>
</tr>
<tr>
<td>Channels</td>
<td>2/4</td>
<td>2/4</td>
<td>2/4</td>
<td>2/4</td>
<td>2/4</td>
<td>2/4</td>
</tr>
<tr>
<td>Waveform capture rate</td>
<td>50,000 wfms/s</td>
<td>50,000 wfms/s</td>
<td>50,000 wfms/s</td>
<td>50,000 wfms/s</td>
<td>50,000 wfms/s</td>
<td>50,000 wfms/s</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>
</tr>
<tr>
<td>Operation</td>
<td>Mouse, Multi-touch: tap, swipe, pinch</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>
</tr>
<tr>
<td>Optional functions</td>
<td>Software optional:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• 250,000wfms/s waveform capture rate for TO*** model</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• 500,000wfms/s waveform capture rate for TO***A model</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• 90M memory depth</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• 50Ω Input impedance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• XY mode</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hardware optional:</td>
<td>• 15,000mAh Built-in battery</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
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# tBook appearance

## Rear panel & Side panel

<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](image)

<table>
<thead>
<tr>
<th>Control icon</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Run Stop" /></td>
<td>Active to run/stop acquisition</td>
</tr>
<tr>
<td><img src="image" alt="Single SEQ" /></td>
<td>Active to single trigger mode</td>
</tr>
</tbody>
</table>
| ![Auto](image) | 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. |
| ![To 50%](image) | **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 button](image) | Menu button: turn on/off the latest function menu |
| ![Home page](image) | Home page |
| ![Back or turn off menu](image) | Back or turn off menu |
## Oscilloscope interface

<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. The grey icon indicates the channel is off, tap to turn on it.

2. The colorful icon indicates the channel is on, tap to active it as the current channel or tap twice to turn off it.

3. When the channel number (CH1) is lighted, it indicates it is the current channel, tap to turn off it.

4. It indicates it is the current channel.

5. It indicates the channel is working; tap to active it as the current channel.
Slide waveform horizontally and Vertically

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

![Waveform manipulation](image1)

Timebase adjustment (Four ways)

![Timebase adjustment](image2)
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.

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

Main menu

Note: Tap Measure, Storage, Display, Trigger, Zoom, UserSet to enter the corresponding sub-menu.

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

![Automatic measurement menu diagram]

- Selected measurement type
- Tap to cancel selected measurement type
- Tap to cancel all selected measurement types
- Measurement value

Storage menu

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

![Storage menu diagram]

- Set reference waveform
- Adjust memory depth
- Save reference waveform
- Screen shot
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.

Control the amplified area: pinch/stretch or tap ‘s’/‘ns’;
Slide to position the detailed signal

Upper area to view the overall signal
Down area to view detailed signal

ZOOM: three finger swipe down or from main menu to turn on ZOOM mode;

User set

Factory reset  Auto mode setting
Save or read out user configuration  Self calibration  Probe compensation switch
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

General Safety Summary

- To use the instrument safely, please follow safety precautions carefully and obey the well-known safety procedures.
- Only trained personnel can operate maintenance procedure.
- Only professional personnel can repair, maintain and calibrate.
- If circuit or wire exposed, please use protect equipment to avoid current impact.
- If the instrument connected to some system, assembler is responsible for the safety.
- Only the power cord designed for the instrument and authorized for use within the local country could be used.
- To avoid electric shock, it is essential to connect the earth terminal of the power cord to ground.
- Please don’t connect the probe to high voltage.
- Make sure that no overvoltage can reach the product, or else the operator might be exposed to the danger of electrical shock.
- To avoid fire or shock hazard, observe all ratings and markers on the instrument and check your manual for more information about ratings before connecting the instrument.
- In order to avoid short circuiting to the interior of the device or electric shock, please do not operate the instrument in a humid environment.
- Operate the instrument in an electrostatic discharge protective area to avoid damage induced by static discharges. Always ground both the internal and external conductors of the cable to release static before connecting it to the instrument.
Safety Terms and Symbols

Safety notes in this manual. Below safety notes and symbols will be seen throughout this manual.

- **Warning** denotes a hazard. It calls attention to all conditions and actions may result in injury or loss of life.
- **Caution** denotes a hazard. It calls attention to all conditions and actions may result in damage or destruction of the instrument.

Terms Used on the Product. These terms may appear on the Product:

- **Danger** means while you are in violation of the provisions of this tag may immediately cause damage to you.
- **Warning** means while you are in violation of the provisions of this tag may not immediately cause damage to you.
- **Caution** means cause damage to the product or others.

Symbols Used on the Product. These symbols may appear on the product:

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>⚡</td>
<td>Hazardous</td>
</tr>
<tr>
<td>🔴</td>
<td>Safety</td>
</tr>
<tr>
<td>☑</td>
<td>Protective</td>
</tr>
<tr>
<td>⚡️</td>
<td>Chassis</td>
</tr>
<tr>
<td>🌟</td>
<td>Test</td>
</tr>
<tr>
<td>🔴</td>
<td>Voltage</td>
</tr>
<tr>
<td>🔴</td>
<td>Warning</td>
</tr>
<tr>
<td>☑️</td>
<td>Earth Terminal</td>
</tr>
<tr>
<td>🌟</td>
<td>Ground</td>
</tr>
<tr>
<td>🌟</td>
<td>Ground</td>
</tr>
</tbody>
</table>
Measurement Category

Tablet oscilloscope measurement category

- 300V CAT I (1MΩ input), 5V(50Ω input);

⚠️ WARNING

- This oscilloscope can only be used for measurements within its specified measurement categories.

Measurement Category Definitions

Measurement category I is for measurements performed on circuits not directly connected to MAINS. Examples are measurements on circuits not derived from MAINS, and specially protected (internal) MAINS derived circuits. In the latter case, transient stresses are variable; for that reason, the transient withstand capability of the equipment is made known to the user.

Measurement category II is for measurements performed on circuits directly connected to the low voltage installation. Examples are measurements on household appliances, portable tools and similar equipment.

Measurement category III is for measurements performed in the building installation. Examples are measurements on distribution boards, circuit-breakers, wiring, including cables, bus-bars, junction boxes, switches, socket-outlets in the fixed installation, and equipment for industrial use and some other equipment, for example. Stationary motors with permanent connection to the fixed installation.

Measurement category IV is for measurements performed at the source of the low-voltage installation. Examples are electricity meters and measurements on primary over current protection devices and ripple control units.
Pollution Degree: Degree 2

Pollution Degree Definitions

Pollution degree 1
- No pollution or only dry, non-conductive pollution occurs. The pollution has no influence. For example: a clean room or air-conditioned office environment.

Pollution degree 2
- Normally only dry, non-conductive pollution occurs. Occasionally a temporary conductivity caused by condensation may occur. For example: general indoor environment.

Pollution degree 3
- Conductive pollution occurs, or dry, non-conductive pollution occurs which becomes conductive due to condensation which is expected. For example: Sheltered outdoor environment.

Pollution degree 4
- Pollution that generates persistent conductivity through conductive dust, rain, or snow. For example: outdoor locations.
Operation instruction

Please confirm before use

- Operating temperature: -10℃~40℃
- Battery charging temperature: 0℃~40℃
- Relative humidity: < 95% RH
- Operating altitude: < 3000m
- Power input: specified power adapter
- Input voltage: AC 100~240V, 50~60HZ

Connecting probe

- Choose right probe, connect the probe to scope.

Power supply

- The instrument has to be power supplied by specified power adapter or battery. The power adapter input voltage must conform with installation (overvoltage) category II.
Tips for use Oscilloscope

Before use, please ensure the probe compensation setting is correct (See the Quick Guide)

Waveform of each Channel display in different color, please input probe compensation test signal before use, when the probe connects to oscilloscope, please ensure the ground terminal of probe is grounding.

When there is signal input, but there is no signal on screen or only see signal burr, please check the following setting.

- To check whether the probe is connect with signal cable
- Whether both ends of probe is connected well
- Whether input channel is open
- Whether the waveform display beyond the screen range

Please check the following points if you can’t get stable waveform display

- Trigger level and setting of trigger source
- Please choose SEQ mode for Occasional signal
- Please choose normal trigger mode when input complicated signal, such as the trigger simultaneously signal

When you input 2 or more signals, If you observe one stable signal waveform only and others are unstable, the reason is that the frequency of input signals are different. Choose trigger source to make the signal waveforms be displayed stable one after one.
General Care and Cleaning

General Care

- Keep oscilloscope in ventilated and dry environment
- Do not store or leave the instrument where it may be exposed to direct sunlight for long periods of time.

Cleaning

Clean the instrument regularly according to its operating conditions. To clean the exterior surface;

1. Disconnect the instrument from all power sources;
2. Clean the loose dust on the outside of the instrument with a lint-free cloth (with mild detergent or water). When cleaning the LCD, take care to avoid scarifying it.

⚠️ CAUTION

- To avoid damages to the instrument, do not expose it to caustic liquids.
- Far away abrasive material
- To avoid injury resulting from short circuit, make sure the instrument is completely dry before reconnecting it to a power source