MaxiEV ALT100L

BATTERY LEAKAGE TESTER

USER MANUAL

CONTENT

1. Overview

MaxiEV ALT100L Battery Leakage Tester is a newly developed high-accuracy nondestructive testing equipment. It mainly uses compressed air as the medium to apply specific pressure to the inner cavity or surface of the battery to be tested and then uses sensitive sensors to detect the variations of pressure to determine the leakage of the battery pack. It can improve customer testing efficiency and product quality with pollution-free, quick, and accurate testing characteristics in the new energy industry.

1.1 Features

● **High Sensitivity:** High-sensitivity pressure sensing significantly improves test accuracy and stability.

● **Large Screen Display:** A 7-inch big-size LCD touch screen visually displays the test progress and data.

● **Barcode Scanner:** it supports barcode scanner access, directly scans code, and displays the battery pack's ID to be tested.

● **Visualized Process:** display the progress time of each stage during the test.

● **Pressure Dual Display:** the pressure dial and the test curve will display on the same screen in real time.

● **Parameters Management:** the system auto-remembers the last test parameters, which is convenient for the next test modification and improves efficiency.

● **Intelligent Alarm:** the tester will prompt audible and visual alarms to ensure safety when the test is abnormal or failed.

● **Remote Management:** the device supports online system upgrades, and the optional cloud platform can realize remote data transmission and management.
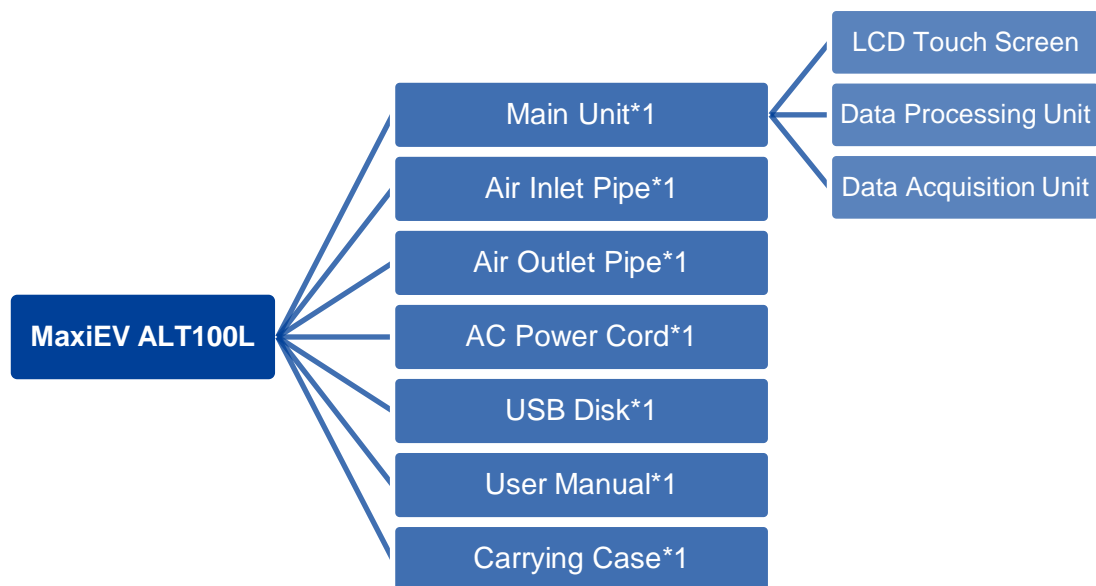
1.2 Applications

This equipment is mainly used for the leakage test of battery packs.

1.3 Device Component

It is configured with the main unit, air inlet pipe, air outlet pipe, AC power cord, USB disk, user manual, and carrying case.

The main unit is organized by color LCD touch screen, data processing unit, and data acquisition unit.

2. Safety Precautions

2.1 Operator Requirements

⚠️ **Alarm**

1) Operators are required to receive training related to the use of the equipment before operating.

2) Before operating, operators should read the user manual and the related regulations.

3) Please do not disassemble without the manufacturer's permission.

2.2 Operating Environment

⚠️ **Alarm**

1) Operating temperature: -5~50°C.

2) Relative humidity: 10~90% @25°C, rainy day outdoor use is prohibited.

3) Non-corrosive, explosive, and destructive insulation gases and conductive dust of the test environment are required.

2.3 Connection Precaution

⚠️ **Alarm**

1) Ensure the unit's AC power switch is off before completing all connecting.

2) Please strictly follow the instructions to connect the cables properly.

⚠️ **Danger**

Warning signs need to be placed in the test work area to avoid the risk of tripping over the cable.

Alarm

When the equipment is running, it is necessary to ensure that the air inlet and outlet are free of obstructions.

2.4 Operating Precautions

The operation of the device is by touching the screen input. Please follow the screen prompts.

Alarm

The working power of this device is AC90~265V. Please make sure the operating power is reliably grounded.

Alarm

Do not let the tester run unattended.

2.5 Common Misoperation

1) Operating tools are not insulated.

2) Operating the device without following the user manual.

2.6 Emergency Treatments on Abnormal Conditions

Disconnect the power supply.

2.7 Other Safety Warnings

Strictly observe safe operating practices and correct operation methods.

3. Main Technical Parameters

Model	MaxiEV ALT100L
Applicable	Suitable for the leakage test of EV battery packs
Test Power	20W max
Test Method	pressure
Test Pressure Range	0-30Kpa
Sensor Resolution	1Pa
Test Accuracy	±5Pa
Display	7-inch LCD touchscreen
Communication Port	RS485, USB
Data Storage	Internal memory/download via USB disk
Power Supply	AC90~265V
Air Supply	0.1~1.0 Mpa dry compressed air
Air Inlet Port	φ6mm air pipe
Test Port	φ6mm air pipe
Work Temperature	-5~50°C
Storage Temperature	-20~70°C
Work Humidity	10%~90% @25°C, without condensation
Dimension(mm)	280*300*200(W*L*H)
Weight	3.5kg
Optional	air converter

4. Installation

This device is mobile portable equipment and does not involve installation.

5. Device Connection

5.1 Panel Description

Front View

Back View

No.	Name	Description
1	USB Port	for test data export and system local update
2	RS485 Port	for data copy and transmit
3	AC Power Supply	AC90~265V input and power switch
1	Air Inlet Port	air supply inlet
5	LP Air Outlet Port	low-pressure output
6	HP Air Outlet Port	not currently supported

5.2 Device Connection

Please connect as per the instruction, and check all connections are fastened after joining.

5.2.1 Air Supply Connection

Connect the air source and tester's **1** Air Inlet Port with a φ6mm air pipe.

5.2.2 Battery Pack Connection

Connect the battery pack and tester's **5** LP Air Outlet Port with a φ6mm air pipe. Please ensure the airtightness of the connection.

5.2.3 AC Input Connection

Connect the power supply and the tester. The working power input is a single-phase three-wire AC220V.

━ Air Outlet Pipe φ6mm
━ Air Inlet Pipe φ6mm
━ AC Power Cord

Connecting Diagram

6. Operating Instruction

6.1 Starting Up

After the device connection, turn on the AC Power Switch to start the tester. The screen will display the ***Boot Animation*** with the Welcome and AUTEL brand logo, and then the system will automatically jump to the ***Main Menu Page***, including **Low Pressure Mode**, **Data Management**, and **Settings** functions.


Boot Animation
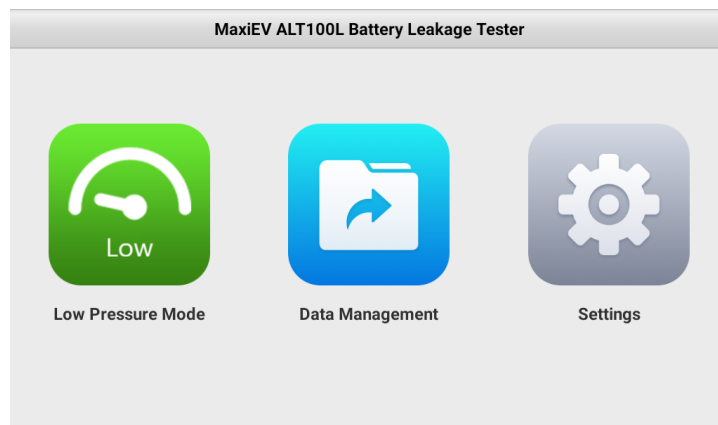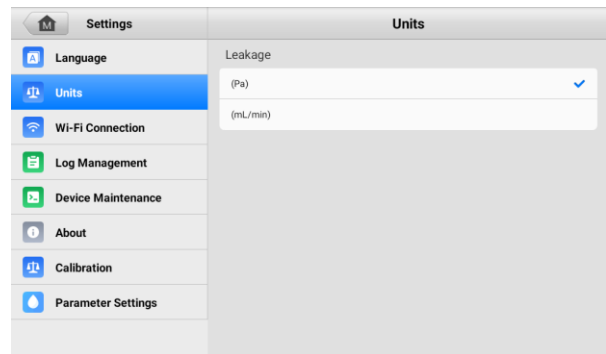

Main Menu Page

6.2 Settings

Press the **Settings** icon on the ***Main Menu Page*** to enter the ***Settings Page***. It has eight sub-pages: **Language, Units**, **Wi-Fi Connection**, **Log Management**, **Device Maintenance**, **About**, **Calibration**, and **Parameter Settings**.

6.2.1 Language

The system supports three language switching, including English, Simplified Chinese, and Traditional Chinese.
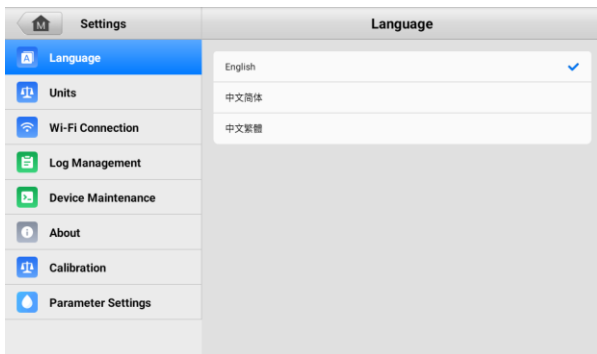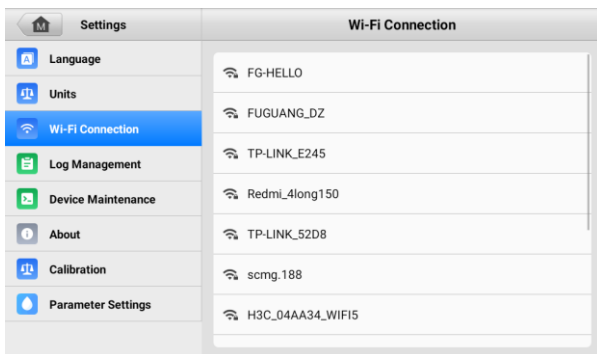

Settings > Language   *Settings > Unit*
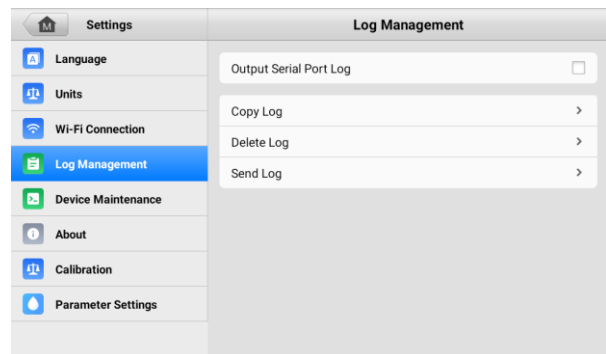
6.2.2 Units

Set the leakage unit according to the actual testing requirements.

6.2.3 Wi-Fi Connection

A wireless network connection is for online system upgrades of the standard unit and data transmission of optional cloud platform functions.


Settings > Wi-Fi Connection   *Settings > Log Management*

6.2.4 Log Management

The running log is used for analysis by manufacturers when analyzing exceptions. There is no need for the user to operate. Contact the manufacturer for guidance when the device is abnormal.

6.2.5 Device Maintenance

It is for local updates, module update, and date & time calibration. If necessary, please contact the manufacturer to get the updated file and operate following the manufacturer's guidance.
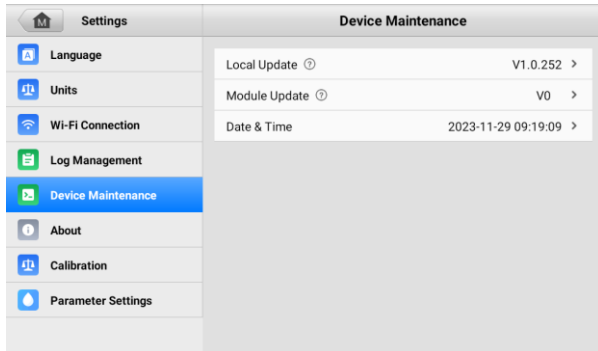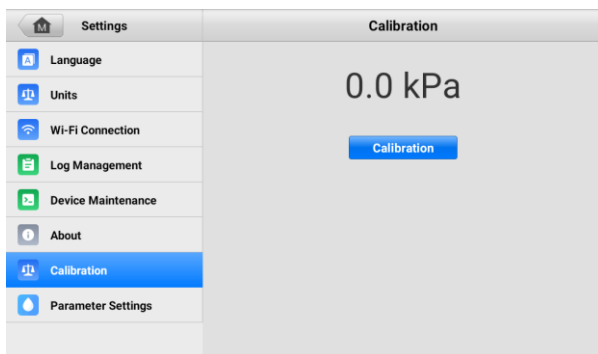

Settings > Device Maintenance
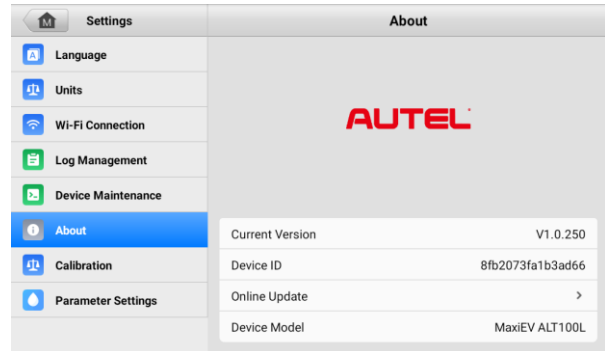
Settings > About

6.2.6 About

It will show the device info about the current software version, device ID, and device model, and users can operate the online upgrade on the page.

6.2.7 Calibration

It is used for calibration. Please operate according to actual test requirements.

Settings > Calibration
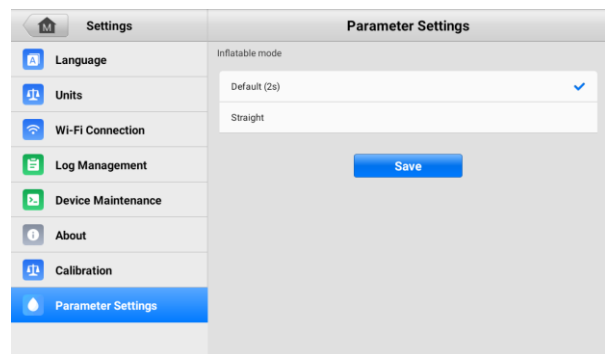
Settings > Parameter Settings

6.2.8 Parameter Settings

There are two inflation modes, including Default (2s) and Straight. Please select the proper inflation mode according to the actual testing situation, and press **Save** to save the setting.

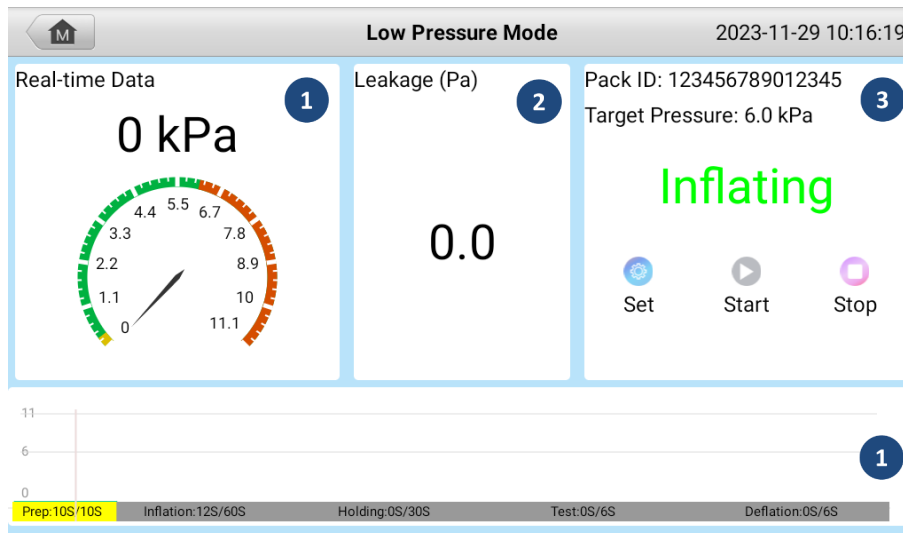Default (2s): The inflation valve closes every 2 seconds, and the system detects the inner pressure after every 2 seconds.

Straight: The inflation is completed at one time, and the inflation valve will not be closed during the inflating process.

6.3 Low Pressure Mode Leakage Test

Low Pressure Test Page

Press **Low Pressure Mode** on the *__Main Menu Page__* to enter the *__Low Pressure Test Page__*. There are four parts on the page:

❶ Real-time Data: display the real-time pressure value of the tested battery pack.

❷ Leakage: display the real-time leakage value of the tested battery pack.

❸ Test Info:

- show the battery pack ID and target pressure;
- show the test status and the test result;
- **Set** function icon for setting test parameters;
- **Start** and **Stop** function icons for test control.

1 Test Process: display the whole test progress as a curve.

6.3.1 Parameters Setting

Press the **Set** icon to set the test parameters. Users need to confirm the test parameters before testing. Remember to press **Save** to take effect.

For the first test, users need to complete the setting of all parameters. The system will automatically save the last test parameter, and you can enter the *Parameters Setting Page* to confirm or modify it when you start the test next time.

Low Pressure Mode Parameters		Save
Pack ID	Leakage (Pa)	
123456789012345	3.0	
Pack Volume (L)	Inflation Time (s)	
5.0	60	
Target Pressure (kPa)	Holding Time (s)	
6.0	30	
Max Pressure (kPa)	Test Time (s)	
6.1	6	
Min Pressure (kPa)	Deflation Time (s)	
0.3	6	

Parameters Setting Page

| Parameter	Description
Pack ID:	Name the battery pack, and you can input the actual ID.
Pack Volume (L):	The battery pack volume; fill in the actual pack volume.
Target Pressure (kPa):	Set the target pressure for inflation.
Max Pressure (kPa):	The upper limit of the test range. It will be displayed on the real-time pressure dial.
Min Pressure (kPa):	The lower limit of the test range. It will be displayed on the real-time pressure dial.
Leakage (Pa):	Airtightness determines condition. actual leakage value ≤ Leakge → Qualified actual leakage value > Leakage → Unqualified
Inflation Time (s):	The inflation time can be set according to the battery pack size.

Holding Time (s):	A holding time that the tester will stop inflating and wait for inner pressure change.
Test Time (s):	The test time that the tester detects pressure changes after the Holding Time. The test page will display the test result after detection.
Deflation Time (s):	The time to deflate air after the test is complete.

6.3.2 Test Start

Confirm the test parameters and press **Save** to back to the ***Low Pressure Test Page***, then press **Start** to start the test. Users can check the real-time test data on the page. The test process will be carried out in the order of preparation (10s), Inflation, Holding, Test, and Deflation.
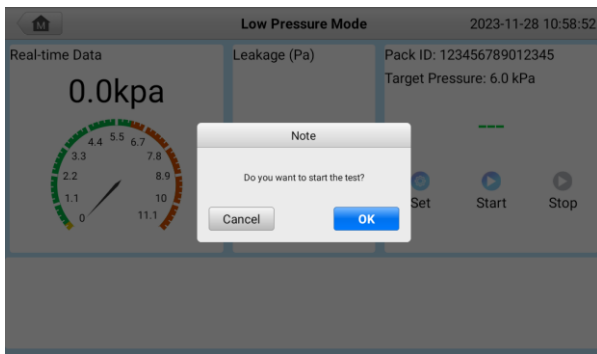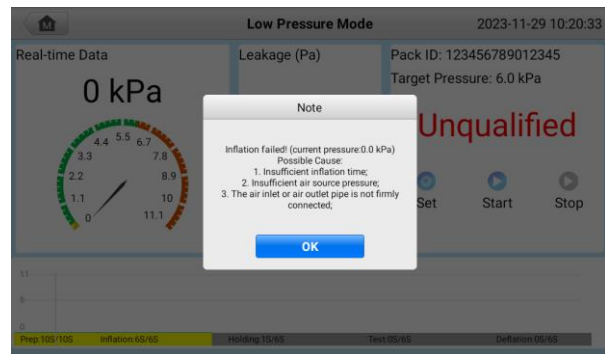
Test Start   ***Unqualified Test Result***

No matter in which test stage, as long as the actual test data does not meet the preset parameters, the system will determine the test result as Unqualified. Please operate following the system Note.

6.4 Data Management

Press the **Data Management** icon on the ***Main Menu Page***. The system supports automatic data saving during all testing processes and can view, delete, and export data on the ***Data Page*** after testing.

1) View

   Slide the page to browse all test data. Click on the test data you want to check, and the system will show the test process screenshot to show you
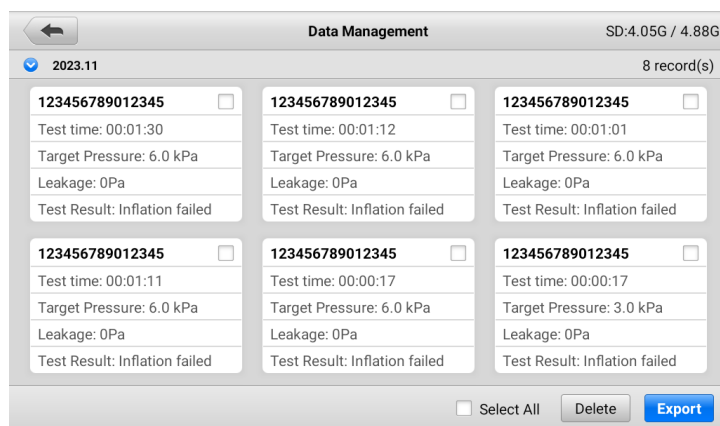
the details.

2) Delete

Check or select all test data and press **Delete** to confirm the deletion.

3) Export

Insert the USB disk into the device's USB port, check or select all saved data, and press **Export** to download the corresponding data to the USB disk.

Data Page

7. Repair & Maintenance

1) The warranty period of the main tester is one year from the date of receipt, and the warranty does not cover artificial damage.

2) The manufacturer provides free repair during the defects liability period and technical consulting services for a lifetime. If you have any technical problems or advice, please get in touch with the manufacturer.

3) When the equipment is stored for a long time, there may be dust and other dirt on the mesh cover of the heat outlet, which needs to be cleaned regularly.

8. Transportation & Storage

1) This tester is equipped with a particular carry case and transported in a carton, which is shock-resistant and reliable in transportation.

2) Storage conditions: placed in a dry equipment storage room, temperature: -20~70°C, humidity: <90%.

9. Environmental Statement

1) The tester uses a transport carton which is a recyclable material.

2) The main machine and other components are non-polluting sources.