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Rev.A1.1

FIRMWARE REVISIONS
This manual applies directly to instruments that have the firmware **RevA1.0**

[AT518/AT518L Handheld Resistance Meter]
User's Guide

Safety Summary

 Warning  Dangerous:

Disclaimer	Applent Instruments assumes no liability for the customer's failure to comply with these requirements.
Ground Instrument	To prevent electric shock, please ground the instrument.
DO NOT Operate In An Explosive Atmosphere	Do not operate the instrument in the presence of inflammable gasses or fumes. Operation of any electrical instrument in such an environment constitutes a definite safety hazard
DO NOT Open Instrument Case	Other than replacing the old battery, non-professional maintenance staff do not open the instrument case, in an attempt to repair the instruments
DO NOT Substitute Parts Or Modify Instrument	Try to substitute parts or modify instrument will cause protection failure.
	Warning: Do not connect probes with DC voltage or live circuits Warning: Before Test capacitor, make sure that the capacitor has been discharged.

Safety Sign:

Equipment protection by double insulation or reinforced insulation

Waste Electrical and Electronic Equipment (WEEE) Directive 2002/96/EC

Do not discard in household garbage

CERTIFICATION, LIMITED WARRANTY, & LIMITATION OF LIABILITY

Applent Instruments, Inc. (shortened form **Applent**)certifies that this product met its published specifications at the time of shipment from the factory. Applent further certifies that its calibration measurements are traceable to the People's Republic of China National Institute of Standards and Technology, to the extent allowed by the Institution's calibration facility or by the calibration facilities of other International Standards Organization members.

This Applent instrument product is warranted against defects in material and workmanship for a period corresponding to the individual warranty periods of its component products. **The warranty period is 1 year and begins on the date of shipment.** During the warranty period, Applent will, at its option, either repair or replace products that prove to be defective. This warranty extends only to the original buyer or end-user customer of a Applent authorized reseller, and does not apply to fuses, disposable batteries or to any product which, in Applent's opinion, has been misused, altered, neglected or damaged by accident or abnormal conditions of operation or handling.

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Applent Instruments, Inc.
Changzhou,
Jiangsu,
China,
Oct 2009 Rev.A

Contents

1. Unpacking and Preparation

This chapter describes:

- Incoming Inspection
- Power Supply
- Working Environment
- Cleaning
- Replace Battery
- Adjust Support

1.1 Incoming Inspection

1. Referring to <Packing List> in the packing box, check that all packaged items supplied with the meter have been provided as listed
2. Check the appearance of whether there is damage or scratches ;

If there was damage or lack of accessories, please contact Applent Instruments Sales Department or local agency

1.2 Power Supply

AC power adapter: ATL909
Rechargeable Li battery: ATL805
Input： 90V-260VAC, 49Hz~62Hz, <10VA

Warning: Do Not use any other power adapter or battery

1.3 Working Environment

Environmental Requirements:
Temperature: 0℃～55℃,
Humidity: At 23℃ less than70%RH
Altitude: 0 ~ 2000m

1.4 Cleaning

Do not clean the inside of the instrument

Warning: Do not use the cleaning solvent (alcohol or gasoline, etc.) on the instrument.

Please use a clean cloth dipped in some water to do the case and panel cleaning.

1.5 Replace Battery

The instrument built-in rechargeable lithium battery, the battery has been installed in the battery compartment of the instrument at the factory. You should replace the battery according to the following procedure.

Figure 1-1 Replace Battery

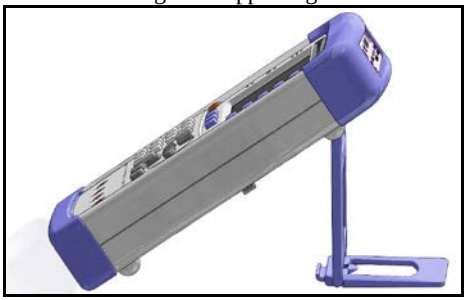
1. Use a screwdriver to loosen the screws of the battery cover, remove the battery cover.
2. Remove the plug on the old battery, plug in new battery plug
3. Put a new battery into the battery compartment, replace the battery cover and tighten the screws.

1.6 Adjust Support

The support has two positions:
60 degrees and 45 degrees.
45 degrees, makes the instrument more stable.

Figure 1-2 60 Degrees Supporting

Figure 1-3 45 Degrees Supporting



2. Overview

This chapter describes:

- Introduction
- Main Specifications and Features
- Main Functions

2.1 Introduction

Thank you for choosing AT518 handheld precision resistance meter.

AT518 handheld DC milliohm meter adopts high-performance 32-bit ARM processor. It is a meter with high accuracy and wide measurement range. A long time accurate and convenient measurements of passive components can be achieved in all occasions with wide Measurement Range from 10μΩ to 20MΩ and maximum reading 20000. It can guarantee 0.05% accuracy even under the condition that the testing speed is under 15/s. its unique current testing mode can adapt different testing requirements. AT518 is also equipped with Mini-USB interface to apply to remote control, data acquisition and analysis.

2.2 Main Specifications and Features

- Basic Accuracy: 0.05%
- Max Display: 20000 digit
- Ten rangers with Auto, Manual and Nominal test modes: 10μΩ ~ 20MΩ
- Four-terminal test method
- High current and low current test modes

2.3 Main Functions

2.3.1 Correction

Short-circuit correction for all ranges.

2.3.2 Comparator (Sorting Function)

Set up sorting function to do GD/NG sorting.

- **Comparator Methods:**

Absolute value of tolerance ±TOL sorting
Percentage tolerance %TOL sorting
Sequence comparison sorting

- **Beep Feature:**

Beep: OFF/GD/NG

2.3.3 System Setup

1. Keypad Lock Function
2. Switch Both in Chinese and English
3. Time and Date Settings
4. Administrator Accountant Settings
5. Background Brightness Settings
6. Auto Power Off settings

2.3.4 Remote Control

Max baud rate: 115200bps, SCPI available, ASCII transmit.

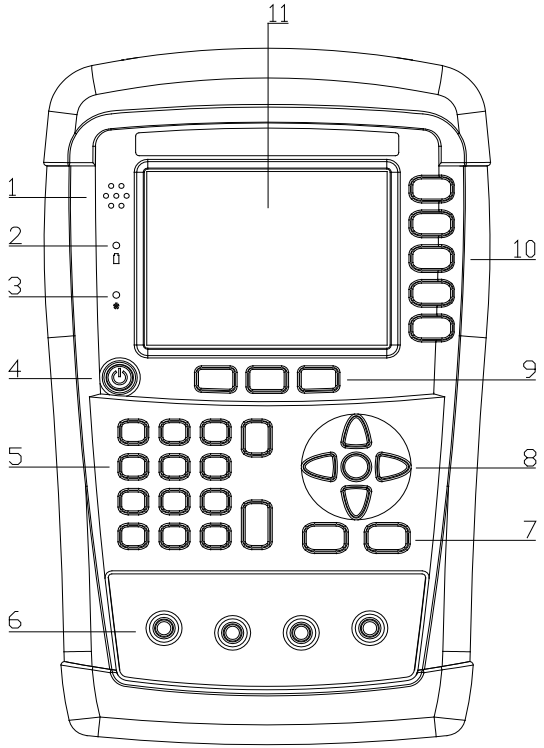
3. Startup

This chapter describes:

- Front Panel Summery
- Interfaces
- Power Supply
- Turn on/off
- Test Slots

3.1 Front Panel Summery

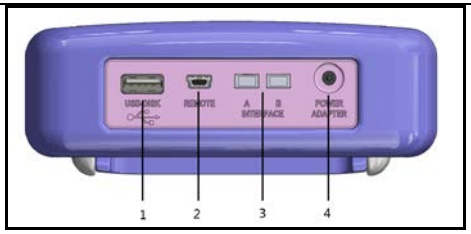
Table 3-1 Front panel summery



1	Beep
2	Battery Charging Indicator
3	Trigger Indicator
4	Power on/off
5	Numeric Keys
6	Test Slots
7	Main Page Key
8	Direction Keys
9	Soft keys 1
10	Soft keys 2
11	TFT-LCD Screen

3.2 Interfaces

Figure 3-1 Interfaces



1. USB Host Port
2. Mini-USB Slave Port
3. Reserved Interfaces
4. Power Adaptor

3.3 Power Supply

Power adaptor: ATL909
The instrument can be powered by Li battery. When the battery is low, only power adaptor can charge the battery.

Figure 3-2 Instrument and power adaptor

3.3.1 Charge the Battery

Use the power adaptor to charge the battery. The power key is orange when charging the battery even the instrument turned off. When the battery is full, the indicator is out.

Figure 3-3 Power key is orange when charging.

Attention ! The power key is still orange while charging even when the instrument shut down.

3.4 Turn On/Off

Press power key softly to start or turn off the instrument.

3.5 Test Slots

Insert the cable box into test slots

Figure 3-4 Test Slots

1. The test terminal can NOT be connected into a live circuit
2. The DUT must be discharged.

3.5.1 Clips and Cables:

Using clip or cable from other brands may cause mistakes
After a long time（1~2 Years）, the surface of the accessories may be damaged, which will lead some inaccuracy.

4. [MEAS] Key

This chapter describes:

- <MEAS DISPLAY> Page
- Short-Circuit Correction
- <COMPARATOR>Page

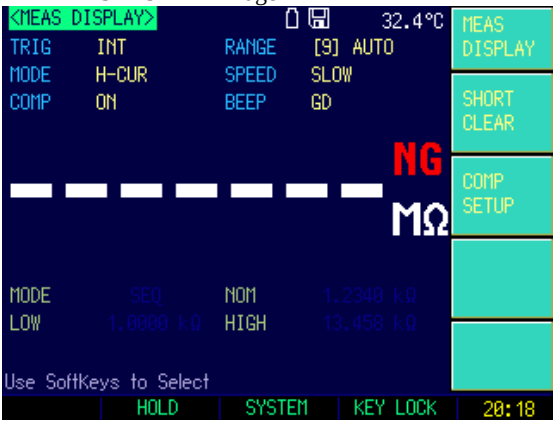
4.1 <MEAS DISPLAY>Page

Press [MEAS] to enter <**MEAS DISPLAY**>Page.

The [MEAS] page includes following setup:

- Trigger
- Range
- Mode– Current Mode
- Speed – Test Speed
- Comparator– Sorting Settings
- Beep – Beep Settings

Figure 4-1 <MEAS DISPLAY>Page



4.1.1 [TRIGGER]

Internal trigger, manual trigger and remote trigger.
(Remote control is not available in AT518L)

Table 4-1 Trigger

Trigger	
Internal	Internal Trigger
Manual	Press [Enter] once, the instrument runs a test cycle
Remote	Received a RS232 trigger command, the instrument runs a test cycle

■Procedure to set the trigger:

Step 1	Press [MEAS] to enter <MEAS DISPLAY>Page	
Step 2	Use cursor keys to select [TRIGGER]	
Step 3	Internal	Internal trigger
	Manual	Manual trigger
	Remote	Remote trigger

4.1.2 [RANGE]

Instrument has three range modes:
Auto range, Manual range and Nominal range

Table 4-2 Ranges

Range		Pros	Cons
Auto	Automatically select the best range according to impedance Range is automatically set.	Very convenient	Test speed is slower than manual ranging,
Manual	The instrument will always use the user-specified range	Highest speed	Set the range previously
Nominal	Automatically select the best range according to nominal value.	Best mode in sorting.	Only available in sorting mode

Table 4-3 Measurement range

Range		Measurement Range
9	20MΩ	2MΩ ~20MΩ
8	2MΩ	200kΩ ~2MΩ
7	200kΩ	20kΩ ~200kΩ
6	20kΩ	2kΩ ~20kΩ
5	2kΩ	200Ω ~ 2kΩ
4	200Ω	20Ω ~ 200Ω
3	20Ω	2Ω ~ 20Ω
2	2Ω	200mΩ ~ 2Ω
1	200mΩ	20mΩ ~ 200mΩ
0	20mΩ	0 ~ 20mΩ

■Procedure of setting the range:

Step 1	Press [MEAS] to enter measurement page	
Step 2	Use the cursor key to select [Range]	
Step 3	Auto	Auto range
	Manual	Current range is hold
	Nominal	Select the range according to nominal value
	INCR+	Increase range
	DECL-	Decline range

4.1.3 Current [MODE]

Instrument includes two Current Modes:
High Current and Low Current modes
(Low Current mode is not available in AT518L).

Table 4-4 Range and Current mode

Range	High Current Mode	Low Current Mode
0	100mA	100mA
1	100mA	100mA
2	100mA	10mA
3	10mA	1mA
4	1mA	100uA
5	1mA	100uA
6	100uA	10uA
7	10uA	10uA
8		
9		

■Procedure to set current mode:

Step 1	Press [MEAS] to enter measurement page	
Step 2	Use the cursor key to select [MODE]	
Step 3	H-CUR MODE	High Current Mode
	L-CUR MODE	Low Current Mode

4.1.4 [SPEED]

SLOW, MED and FAST can be selected for AT518
SLOW mode will result in more stable and accurate measurement result.
(Only Slow speed mode for AT518L).

■Procedure to set test speed:

Step 1	Press [MEAS] to enter measurement page;	
Step 2	Use the cursor key to select [SPEED];	
Step 3	SLOW	3 times/sec
	MED	15 times/sec
	FAST	30 times/sec

4.1.5 Comparator [COMP]

Set the comparator parameter in <**COMP SETUP**> page, this page is about how to turn on/off comparator.

■Procedure to turn COMP on/off:

Step 1	Press [SETUP] to enter setup page;	
Step 2	Use the cursor key to select [COMP];	
Step 3	OFF	Comparator off
	ON	Comparator on

4.1.6 [BEEP] feature

■Procedure to set the beep:

Step 1	Press [MEAS] to enter measurement page;	
Step 2	Use the cursor key to select [BEEP]	
Step 3	OFF	Turn Beep Off
	GD	Beep while Pass
	NG	Beep while Fail

4.1.7 Mission Bar on <MEAS DISPLAY>

- HOLD – Hold the data, test stops.
- SYSTEM– Go to <SYSTEM CONFIG>Page
- KEY LOCK – Lock the keypad.
- Time

4.1.8 Icons on <MEAS DISPLAY>

Table 4-5 Icons

Icon	Description
	Powered by Li battery
	Powered by external power supply
	USB-Disk is available.
H	Hold current data.
T	Temperature compensation ON （Not available in AT518L）
20.0℃	Room Temperature (Not available in AT518L）

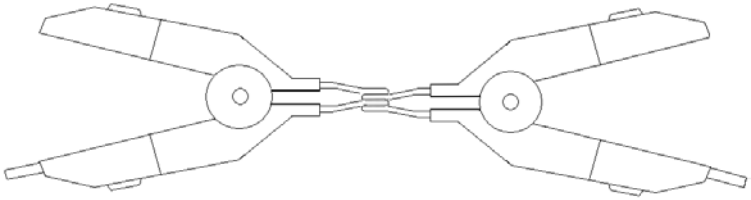
4.2 Short-circuit Clear Zero [SHORT CLEAR]

Press [MEAS], and press [SHORT CLEAR] to do short clear zero.

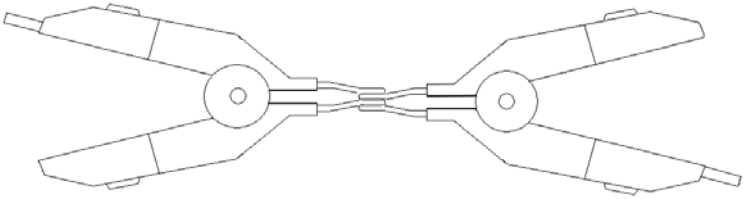
It is necessary to do short clear zero.
When replace the test fixture or test cables, please do short clear.

How to connect the test clips before executing short clear.

Figure 4-2 Connect the test clip



WRONG! DO NOT connect it like this!



■Procedure to set short circuit clear:

Step 1	Press [MEAS] key to enter <**MEAS DISPLAY**> page.
Step 2	Select [SHORT CLEAR] field and then short-circuit the test terminals.
Step 3	Select [OK] to start short clear. After clearing zero is over, the zero data will be saved.

4.3 <COMP SETUP>Page

Press [MEAS] to enter <**MESA DISPLAY**> page, select [COMP SETUP] to enter<**COMP SETUP**>page.

- COMP – On/Off
- BEEP –OFF/GD.NG
- MODE – Sorting methods
- NOM – Input Nominal Value
- LOW – Input low limited value
- HIGH – Input high limited value.

Figure 4-3 <COMP SETUP> page

4.3.1 Comparator [MODE]

■Procedure to set comparator mode:

Step 1	Press [MEAS] to enter<**MEAS DISPLAY**> page	
Step 2	Select [COMP SETUP]to enter <**COMP SETUP**> page.	
Step 3	Use cursor key to select[MODE]	
Step 4	ABSΔ	Result– nominal
	PERΔ%	(Result – nominal) / nominal × 100%
	DIRECT SEQ	Compare result with low and high limited values.

4.3.2 Comparator [NOM]

Nominal value must be positive.

■Procedure to input nominal value:

Step 1	Press [MEAS] to enter <**MEAS DISPLAY**> page
Step 2	Select [COMP SETUP] to enter <**COMP SETUP**> page.
Step 3	Use cursor key to select[NOM]
Step 4	Input the nominal value.

4.3.3 Comparator [LOW] and [HIGH]

The high limited value must be greater than low nominal value.

- ABSΔ — Input the absolute value of parameter.
- PERΔ% — Input the relative value of parameter in %.
- Direct SEQ — Input the direct value of parameter.

■Procedure to input high/low limited values:

Step 1	Press [MEAS] to enter <**MEAS DISPLAY**> page
Step 2	Use soft key to select [COMP SETUP] and enter <**COMP SETUP**> page.
Step 3	Use cursor keys to select[1][LOW]
Step 4	PER Δ% Input the percentage value.

	ABSΔ and Direct SEQ Input the value directly.
Step 5	Use cursor keys to select[1][HIGH]
Step 6	Input the value

5. [SETUP] Key

This chapter describes:

- <STEUP DISPLAY> page
- Temperature Calibrate
- Temperature Reset

5.1 <SETUP DISPLAY> page

Press [**Setup**] to enter <**SETUP DISPLAY**>page.
In <**SETUP DISPLAY**> page, the Instrument does not display test result and sorting result, testing is not in progress.

- BAUD – Select baud rate
- REL – Temperature Compensation
- TC-PAR – Input temperature coefficient
- TC-TEP – Input the reference temperature.

Figure 5-1 <SETUP DISPLAY>page

5.1.1 [BAUD] rate

Connect instrument to computer via Mini-USB port, the instrument will communicate with PC, meanwhile the keypad will be locked.
Use SCPI language in Mini-USB programming.

Mini-USB:

- Digits: 8
- Stop: 1
- Parity: none

■Procedure to set baud rate:

Step 1	Press [Setup] to enter<**SETUP DISPLAY**> page

Step 2	Use cursor to select [BAUD] field	
Step 3	1200	For communication converter with opt coupler isolation
	9600	
	38400	
	57600	
	115200	Best for communication with PC

5.1.2 [REL]

This function is not available in AT518L.

■Procedure to set temperature compensation coefficient

Step 1	Press[Setup]to enter<SETUP DSPLAY> page	
Step 2	Use cursor key to select[REL]	
Step 3	OFF	Turn off temperature compensation.
	ON	Turn on temperature compensation.

5.1.3 [TC-PAR]

The measurement inputted is percentage. For example, temperature coefficient of pure cooper is 0.00393 in 20℃, and you just need to input 0.393.
This function is not available in AT518L.

■Procedure to input temperature coefficient:

Step 1	Press [Setup] to enter <**SETUP DISPLAY**> page
Step 2	Use cursor key to select[TC-PAR]
Step 3	Input the coefficient then select[%]or press[Enter]

5.1.4 [TC-TEP]

Input the reference temperature value(usually 20℃).
This function is not available in AT518L.

■Procedure to input reference temperature value:

Step 1	Press [Setup] to enter <**SETUP DISPLAY**> page
Step 2	Use cursor key to select [TC-TEP]
Step 3	Input the coefficient then select [℃] or press [Enter]

5.2 Room Temperature Calibration

As the temperature probe was installed inside the instrument, it will cause deviation in measuring, especially in highest brightness. You need to calibrate the room temperature. We suggest adjust brightness to 50% or less and warming time must be more than 15 minutes.
(This function is not available in AT518L).

■Procedure to calibrate temperature:

Step 1	Press［Setup］to enter <**SETUP DISPLAY**>page

Step 2	Select［TEMP CALIBRATE］
Step 3	Select［OK］
Step 4	Input the temperature value and press［Enter］ to finish.

5.2.1 Reset Room Temperature Calibration Factor

To reset the temperature calibration Factor that set at [TEMP CALIBRATE].
This function is not available inAT518L.

■Procedure to reset temperature：

Step 1	Press［Setup］ to enter <**SETUP DISPLAY**>page
Step 2	Press［TEMP RESET］
Step 3	Press［OK］ to finish temperature reset.

6. <SYSTEM CONFIG> page

This chapter describes:

- SYSTEM CONFIG
- SYSTEM INFORMATION
- SYSTEM SERVICE

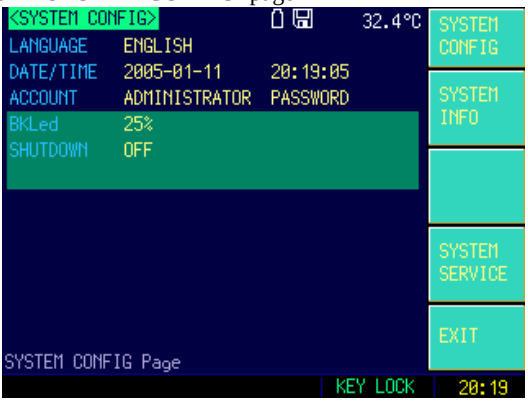
6.1 <SYSTEM CONFIG>page

Press [MEAS] or [SETUP] and then select [SYSTEM] to enter <**SYSTEM CONFIG**> page.

- LANGUAGE
- DATE/TIME
- ACCOUNT
- Backlight-LED [BkLed]
- SHUTDOWN

All settings in <**SYSTEM CONFIG**> will be saved automatically.

Figure 6-1 <SYSTEM CONFIG>page



6.1.1 [LANGUAGE]

■Procedure to change language:

Step 1	Press [MEAS] or [Setup] to enter main page	
Step 2	Press bottom soft key [SYSTEM] to enter <**SYSTEM CONFIG**>	
Step 3	Use cursor keys to select[Language]	
Step 4	CHINESE	
	ENGLISH	

6.1.2 [ACCOUNT], [PASSWORD]

- ADMIN – Except［SYSTEM SERVICE］, all settings are available and can be saved.
- USER – Except［SYSTEM SERVICE］, all settings are available but can not be

saved.

■Procedure to set account:

Step 1	Press [MEAS] or [SETUP] to enter main page	
Step 2	Press bottom soft key [SYSTEM] to enter <**SYSTEM CONFIG**>	
Step 3	Use cursor key to select[ACCOUNT]	
Step 4	ADMIN	Except <SYSTEM SERVICE>, all settings are available and can be saved
	USER	Except<SYSTEM SERVICE>, all settings are available but can not be saved.

■Procedure to set password:

Step 1	Press[MEAS] or [Setup] to enter main page	
Step 2	Press bottom soft key [SYSTEM] to enter<**SYSTEM CONFIG**>	
Step 3	Use cursor key to select [PASSWORD]	
	CHANGE PASSWORD	No more than 9 digits and only digits and letters can be input. Contact us if you forget your password.
	DELETE PASSWORD	

6.1.3 [DATE], [TIME]

The instrument uses a 24-hour time.

■Procedure to set data:

Step 1	Press [MEAS] or [SETUP] to enter main page	
Step 2	Press bottom soft key [SYSTEM] to enter<**SYSTEM CONFIG**>	
Step 3	Use cursor keys to select [DATE]	
Step 4	YEAR INCR+	
	YEAR DECR-	
	MONTH INCR+	
	DAY+	
	DAY-	

■Procedure to set time:

Step 1	Press [MEAS] or [SETUP] to enter main page	
Step 2	Press bottom soft key [SYSTEM] to enter<**SYSTEM CONFIG**>	
Step 3	Use cursor keys to select [TIME]	
Step 4	HOUR INCR+	
	HOUR DECR-	
	MINUTE DECR+	
	MINUTE DECR-	
	SECOND INCR+	
	SECOND DECR-	

6.1.4 Backlight-LED [BKLed]

Dim the background light can save battery powr.

■Procedure to set background brightness:

Step 1	Press [MEAS] or [SETUP] to enter main page	
Step 2	Press bottom soft key [SYSTEM] to enter<**SYSTEM CONFIG**>	
Step 3	Use cursor keys to select [BKLed]	
Step 4	Bright 10%	Low power
	Bright 25%	Default Set
	Bright 50%	
	Bright 75%	
	Bright 100%	High power

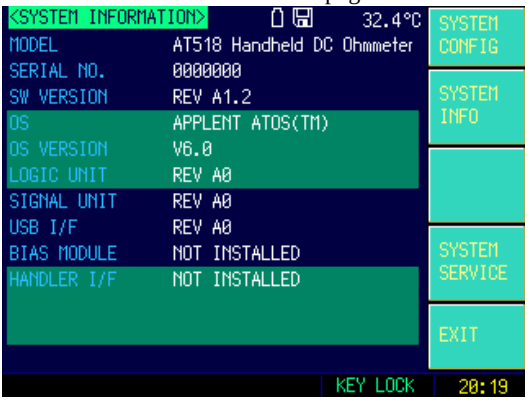
6.1.5 [SHUTDOWN]

■Procedure to set auto power off:

Step 1	Press [MEAS] or [SETUP] to enter main page	
Step 2	Press bottom soft key [SYSTEM] to enter<**SYSTEM CONFIG**>	
Step 3	Use cursor keys to select [SHUTDOWN]	
	5MIN	Default Set
	15MIN	
	30MIN	
	60MIN	
	OFF	

6.2 <SYSTEM INFORMATION>

Figure 6-2 <SYSTEM INFORMATION>page



■Procedure to view system information:

Step 1	Press [MEAS] or [SETUP] to enter main page
Step 2	Press bottom soft key [SYSTEM] to enter<**SYSTEM CONFIG**>
Step 3	Press soft key [SYSTEM INFORMATION] to enter <**SYSTEM INFORMATION**> page

6.3 <SYSTEM SERVICE>

Warning:
Not available for users
Any unprofessional person is not allowed to have access to this page.

7. Specification

This chapter describes:

- Basic Specifications
- Dimensions

7.1 General Specifications

Accuracy is defined as meeting all of the following conditions.

- Temperature: 23℃±5℃
- Humidity: ≤65% R.H.
- Correction: Short-circuit Clear Zero
- Warming Time: >60min
- Adjustment Time: 12months

Working Environment:

- Nominal: Temperature 15℃~35℃ Humidity<80%RH
- Working: Temperature 10℃~40℃ Humidity10~90%RH
- Storage: Temperature 0℃~50℃ Humidity10~90%RH

7.1.1 High-current Mode

Speed:

FAST:	~30 times/sec
MED:	~15 times/sec
SLOW:	~3 times/sec

AT518：

Range		Max Display	Solution	Fast	Med & Slow	Current	Open-circuit Voltage
0	20mΩ	20.00mΩ	10μΩ	≤0.5%±5dgt	≤0.5%±3dgt	100mA	<1V
1	200mΩ	200.00mΩ	10μΩ	0.1%±3dgt	0.05%±1dgt	100mA	<1V
2	2Ω	2.0000Ω	100μΩ	0.1%±3dgt	0.05%±1dgt	100mA	<1V
3	20Ω	20.000Ω	1mΩ	0.1%±3dgt	0.05%±1dgt	10mA	<1V
4	200Ω	200.00Ω	10mΩ	0.1%±3dgt	0.05%±1dgt	1mA	<1V
5	2kΩ	2.0000kΩ	100mΩ	0.1%±3dgt	0.05%±1dgt	1mA	<5V
6	20kΩ	20.000kΩ	1Ω	0.1%±3dgt	0.05%±1dgt	100μA	<5V
7	200kΩ	200.00kΩ	10Ω	0.1%±3dgt	0.05%±1dgt	10μA	<5V
8	2MΩ	2.0000MΩ	100Ω	0.1%±3dgt	0.05%±1dgt		<2.5V
9	20MΩ	20.000MΩ	1kΩ	0.5%±5dgt	0.5%±3dgt		<2.5V

AT518L:

Range		Max Display	Solution	Slow	Current	Open-circuit Voltage
0	20mΩ	20.00mΩ	10μΩ	≤0.5%±3dgt	100mA	<1V
1	200mΩ	200.00mΩ	10μΩ	0.1%±1dgt	100mA	<1V
2	2Ω	2.0000Ω	100μΩ	0.1%±1dgt	100mA	<1V
3	20Ω	20.000Ω	1mΩ	0.1%±1dgt	10mA	<1V
4	200Ω	200.00Ω	10mΩ	0.1%±1dgt	1mA	<1V
5	2kΩ	2.0000kΩ	100mΩ	0.1%±1dgt	1mA	<5V
6	20kΩ	20.000kΩ	1Ω	0.1%±1dgt	100μA	<5V
7	200kΩ	200.00kΩ	10Ω	0.1%±1dgt	10μA	<5V

7.1.2 Low-current Mode

Speed:

FAST : ~30 times/sec
MED: ~15 times/sec
SLOW: ~3 times/sec

AT518：

Range		Max Display	Solution	Fast, Med & Slow	Current	Open-circuit Voltage
0	20mΩ	20.00mΩ	10μΩ	≤0.5%±5dgt	100mA	<1V
1	200mΩ	200.00mΩ	10μΩ	0.1%±3dgt	100mA	<1V
2	2Ω	2.0000Ω	100μΩ	0.1%±3dgt	10mA	<1V
3	20Ω	20.000Ω	1mΩ	0.1%±3dgt	1mA	<1V
4	200Ω	200.00Ω	10mΩ	0.1%±3dgt	100μA	<1V
5	2kΩ	2.0000kΩ	100mΩ	0.1%±3dgt	100μA	<1V
6	20kΩ	20.000kΩ	1Ω	0.1%±3dgt	100μA	<5V
7	200kΩ	200.00kΩ	10Ω	0.1%±3dgt	10μA	<5V
8	2MΩ	2.0000MΩ	100Ω	0.1%±3dgt		<2.5V
9	20MΩ	20.000MΩ	1kΩ	0.5%±5dgt		<2.5V

7.2 Features

- 3.5inch 16M color TFT-LCD screen
- Internal, External and Manual trigger.
- Range Auto, Manual and Nominal mode
- ABS, PER and SEQ sorting methods
- Short-circuit clear zero for all ranges
- Temperature compensation
- Data hold function
- Customizable beep feature
- Keypad lock
- Switch both in Chinese and English
- Auto power off
- Four-terminal test method
- Built-in Mini-USB to RS232 port
- SCPI commands available.
- 8.4V Li, 2200mAh rechargeable battery
- Charging time < 5h
- Working time≥8h
- Dimension: 210.76mm*130.23mm*37.88mm
- Weight: 500g