Product Name	GAOTek Precision Digital Capacitance Meter
Product SKU	GAOTek-LCR-218
Product URL	https://gaotek.com/product/gaotek-precision-digital-capacitance-meter/

Contact us: sales@gaotek.com

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GAOTek Precision Digital Capacitance Meter

1. Power Supply

1. Supply voltage range：198 ～ 242 Vac (Customize 110V available)
2. Supply frequency range：47 ～ 63 Hz。
3. Power range：>=30 VA。
4. The input phase line L, zero line N and ground line E of the power supply shall be the same as the power plug of the instrument.
5. This instrument has been carefully designed to reduce the noise caused by the input of AC power supply. However, it should be used in a low noise environment as much as possible. If it cannot be avoided, please install the power filter.

Warning: In order to prevent leakage from damaging the instrument or person, the user must ensure that the ground wire of the power supply is reliably connected to the earth.

2. Operating Environment

1. Please do not use in dusty, vibrating, direct sunlight, corrosive gas and other bad environment.
2. If the instrument is not in use for a long time, please store it in the original packing box or similar box in the ventilation room where the temperature is 5℃ ~ 40℃ and the relative humidity is no more than 85%RH. The air shall not contain harmful impurities of the corrosion measuring instrument and direct sunlight shall be avoided.
3. Please ensure that the instrument is in good ventilation and do not block the cooling vent of the instrument.
4. The instrument, especially the test wire connected to the measured part, should be kept away from strong electromagnetic field to avoid interference to the measurement.

3. Guarantee Of Accuracy

1. In order to ensure the accurate measurement of the instrument, the start-up preheating time shall not be less than 15 minutes.
2. Do not switch the instrument on and off frequently to avoid internal data chaos.
3. It is recommended to use our standard test fixture.

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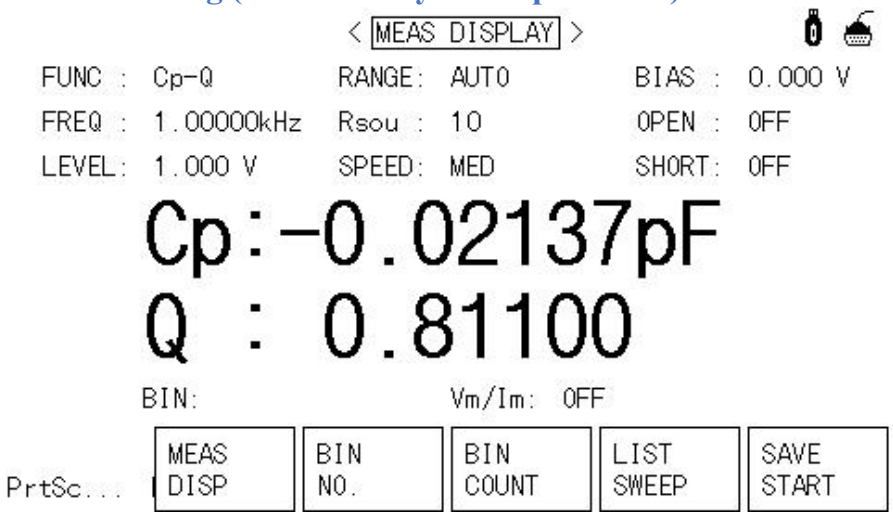
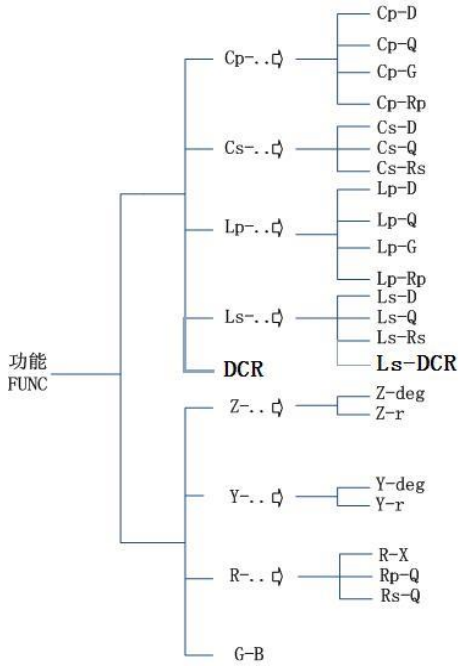
4. General Setting

4.1. Test Parameter Setting (UC2657 only test capacitance)



Press "MEAS" to enter the < component measurement display >, Then select <FUNC> where the following parameters can be set:

Function: see the following figure:



The UC2657B/UC2657 don't have DCR function.

Frequency, level： Can use soft key "add" "subtract", also can use number key to enter directly.

Internal resistance： AC parameters test, optional 30Ω, 50 Ω, 100 Ω three internal resistance.

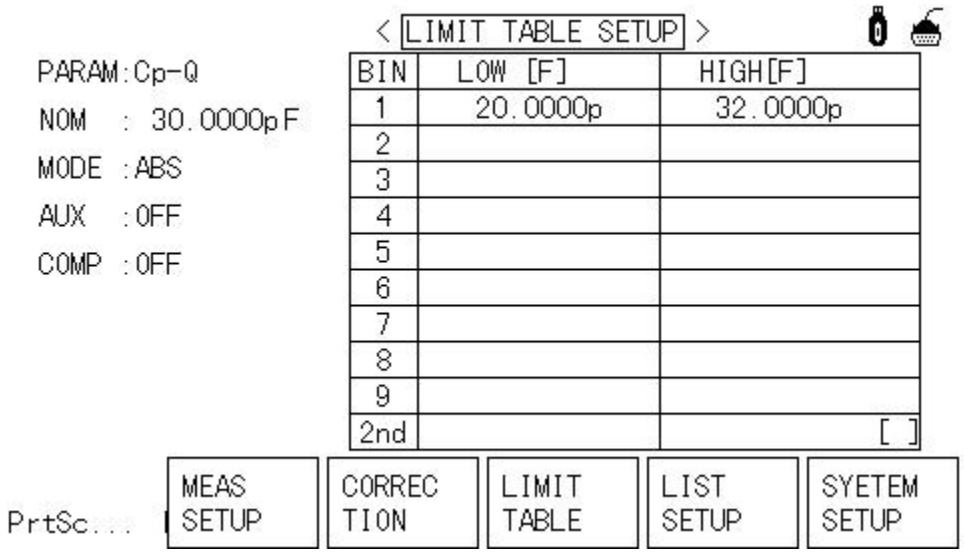
Meas range: automatic or hold.

BIAS: select 0V, 1.5V, 2V by soft key, and control the output by "BIAS" key. Speed: fast, medium and slow

Open circuit, short circuit: open or close, can also perform the corresponding full frequency zero clear or DCR zero clear.

4.2. Sorting Setting&Testing

4.2.1. Sorting Setting



Press "SETUP" to enter the < measurement Setup> page, and then

select < limit Table > page.

MODE: %TOL, ABS, SEQ MODE, TWO ABS (commonly used % or ABS

MODE)

Nominal: the nominal value must be entered when the mode is %.

Compare: open or close.

Lower limit, upper limit: input by numeric key.

Attachment: generally not open.

When the minor parameter is set, the minor parameter is open. If the main parameter is qualified, and the minor parameter is not qualified, the minor parameter will be sorted into the minor file.

Method description: H is the upper limit of input, L is the lower limit of input, and A is the nominal value.

■ **Δ% TOL**：Percentage comparison model

The Lower limit of comparison(n) = A * (1+L/100).

The upper limit of comparison (n) = A * (1+H/100)

■ **ABS TOL**：Absolute deviation comparison model.

The Lower limit of comparison(n) =L

The upper limit of comparison(n) =H

■ **SEQ MODE**：Continuous limit comparison model.

The Lower limit of comparison（1） = L(1)

The upper limit of comparison（1） = H(1)

The Lower limit of comparison（2） = H(1)

The upper limit of comparison（2） = H(2) ……

The Lower limit of comparison（n） = H(n-1)

The upper limit of comparison（n） = H(n)

■ **TWO ABS**： Absolute value comparison model with primary and secondary parameters.

The Lower limit of comparison(n) （primary） =L（primary）

The upper limit of comparison(n) （primary）=H（primary）

The Lower limit of comparison(n) （secondary） =L（secondary）

The upper limit of comparison(n) （secondary） =H（secondary）

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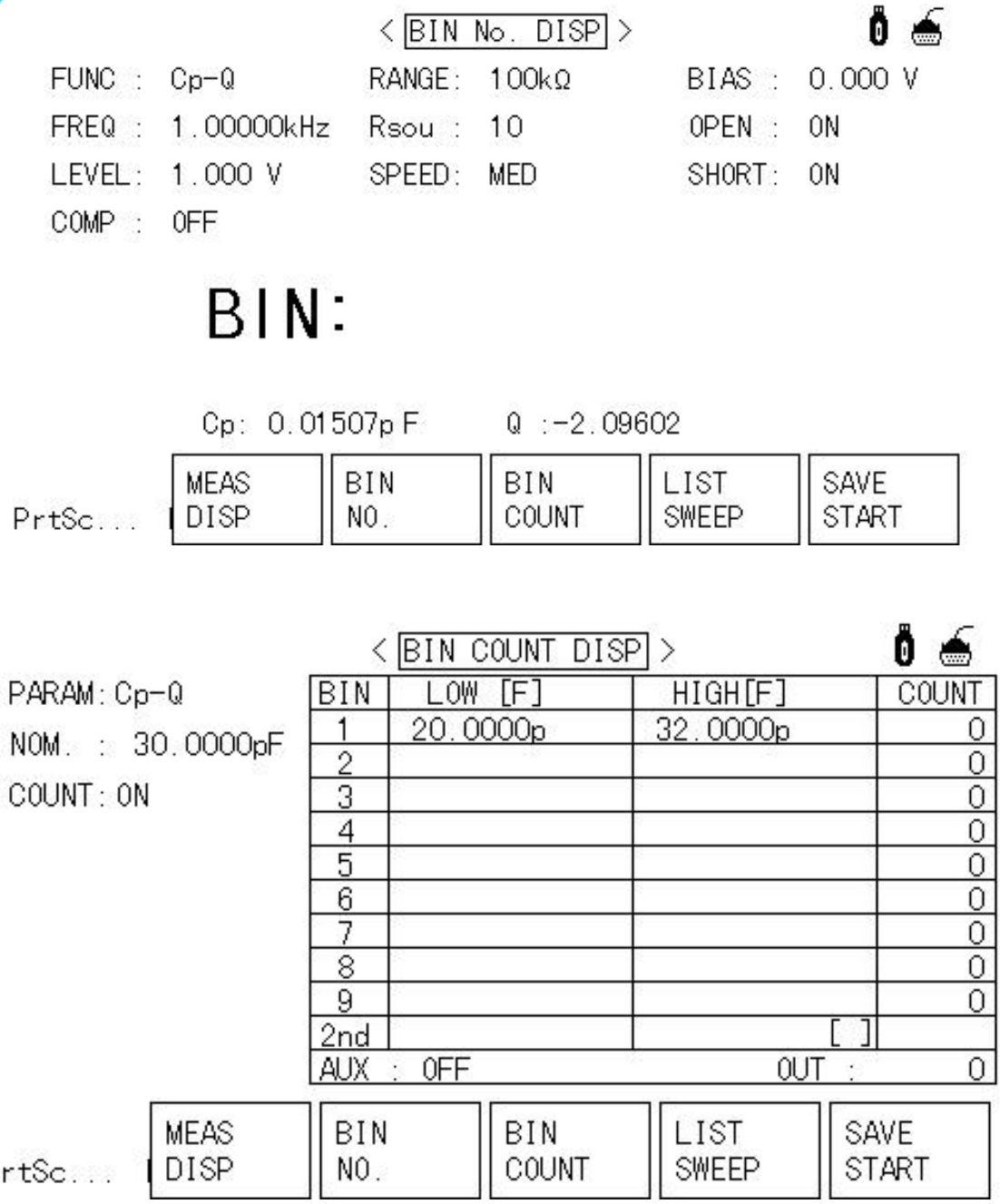
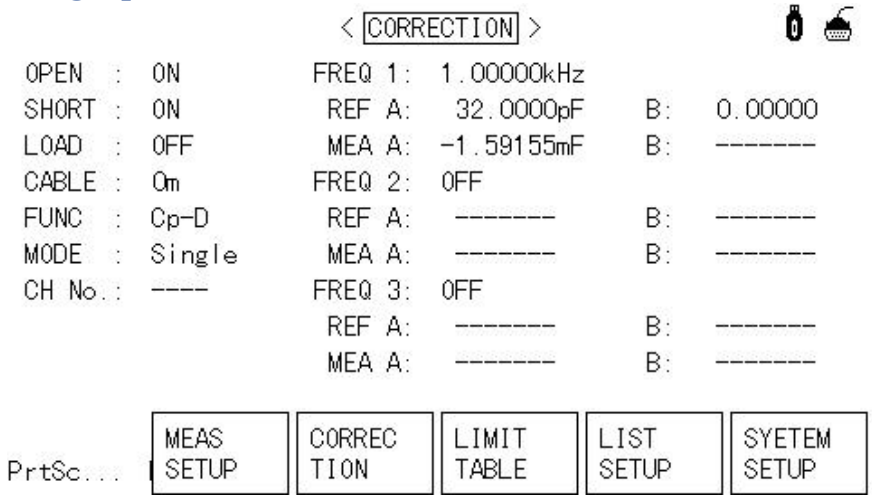
4.2.2. Sorting Test



Press "MEAS" to enter the < measurement display > page. You can also select < BIN NO. > or < BIN count > page.

4.3. Zero Clearing Operation



Press "SETUP" to enter the < measurement Setup > page, and then select <Correction > page.

A) Full frequency zeroing or DCR zeroing - Move the cursor to "open circuit" or "short circuit" and select "full open circuit" or "full short circuit"; If DCR, select "DCR open" or "DCR short". After waiting for the automatic zeroing of the instrument, and open the “open circuit” or “short circuit”.

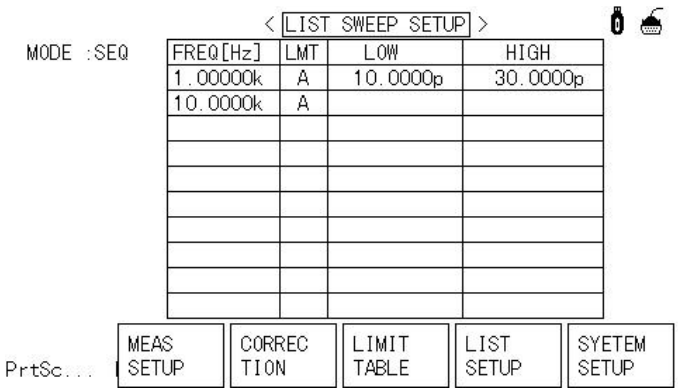
B) Single frequency reset- Move the cursor to "frequency 1" (similar to frequency 2 and 3), open and enter the frequency value, then select "open circuit clear zero" or "short circuit clear zero".

Note: the load is generally "off". For use, please refer to the detailed instructions.

4.4. Scan Test Setting & Testing

4.4.1. Scan Setting

The UC2657B/UC2657 don’t have scan test function



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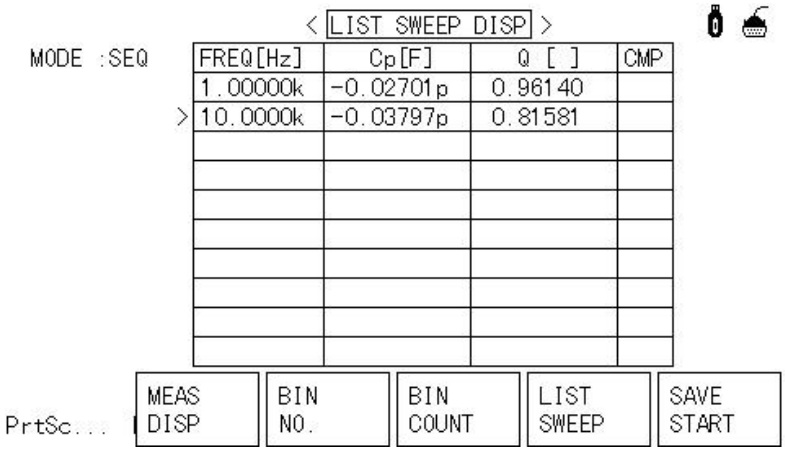
Press "SETUP" to enter the < measurement setting > page, and then select < list setup > page.

You can choose to scan by "frequency" or "level", up to 10 scan points.

"LMT" can be set to A(primary parameter) or B(secondary parameter).

"Lower limit" and "upper limit" are used to set the comparison range.

4.4.2. Scan Testing

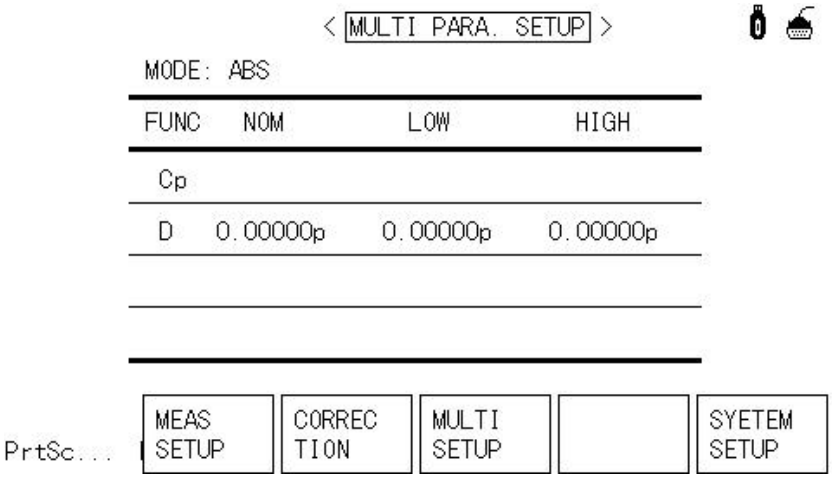


"CMP" stands for comparison result, "H" stands for high, "L" stands for low, 8"" stands for qualified; If there is no upper or lower limit, it is considered qualified.

Note: "mode" can be set to "continuous" or "single". Invalid if the trigger is

"internal". For example, when the triggering mode is "manual", if the "mode" is "single", only one scan point test can be performed for each triggered measurement. If "continuous," all scan points are performed at once.

4.5. Multi-Parameter Setup



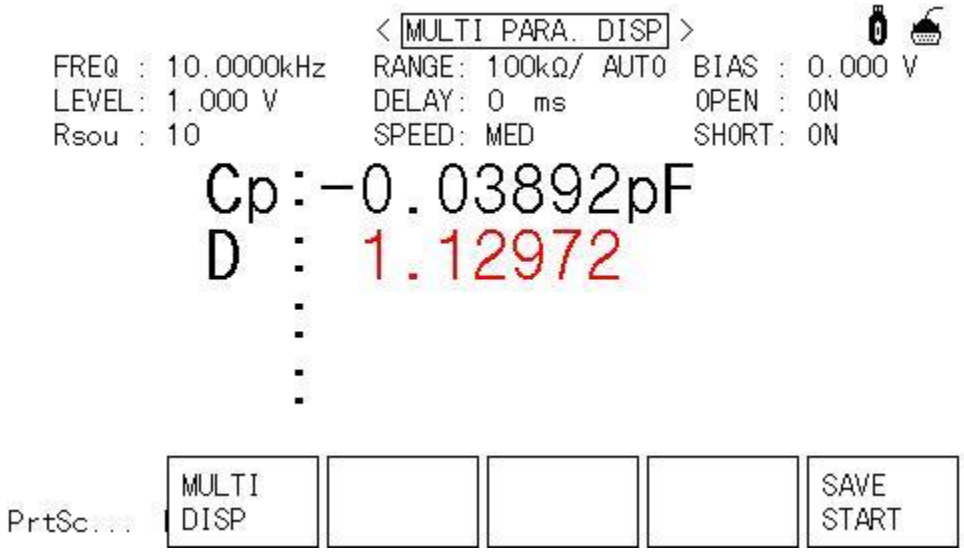
Press "SETUP" to enter the<measurement setup> page, and then select<multi-parameter setup>, enter the page

This page can be set: Method: %, ABS

Parameters: set different test parameters.

Nominal, lower limit, upper limit: comparison range of corresponding parameters.

4.5.3. Multi-parameter testing



Press "MEAS" to enter the < multi-parameter display > page.

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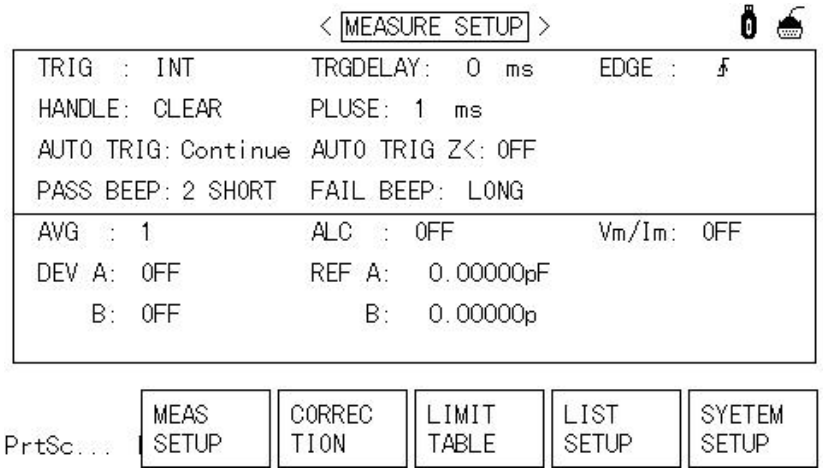
4.6. Measurement setup



Press "SETUP" to enter the < measurement Setup > page

Triggers: internal, manual, external, bus. Use the word "external" for automated systems.

Time delay: 0~60000ms.

Delay trigger: rising edge, falling edge.

Sorting port: clear, hold, pulse.

Pulse: 1~1000ms, valid only if the sorting port is in pulse mode.

Automatic trigger: continuous, single time.

Automatic trigger Z< : off or impedance value. When Z< set value, the instrument automatically triggers the measurement.

Qualification signal, failure signal: close, long, short, two short.

Average: 1~255.

Constant pressure: turn on or off the constant pressure function.Vm/Im: turn on or off voltage and current monitoring.

Deviation: OFF, Δ ABS, Δ %

Remark:

The constant voltage function adjusts the actual test level (the voltage at both ends of the test case or the current flowing through the test case) to the value of the test level you set. Use this function to ensure that the test voltage or current at both ends of the test piece remains constant.

When the automatic level control function is adopted, the range limit of test level can be set as follows:

Constant voltage setting range: 10 mVrms to 1Vrms

Constant current setting range: 100 Arms to 10 mArms

When the constant voltage function is in effect, if the level setting exceeds the above range, the constant voltage function will be automatically set to OFF. The current level value is set as a general non-constant value. The deviation test function can display the deviation value directly on the screen instead of the actual test value. The deviation value is equal to the current actual test value minus the preset reference value. This function can be used to easily observe the changes of the measured component parameters with temperature, frequency, bias and other conditions. The deviation test function can be used for primary or secondary parameters, or both. The instrument provides two deviation testing methods as follows:

ΔABS (absolute deviation)

The deviation currently displayed is the difference between the test value and the set reference value.

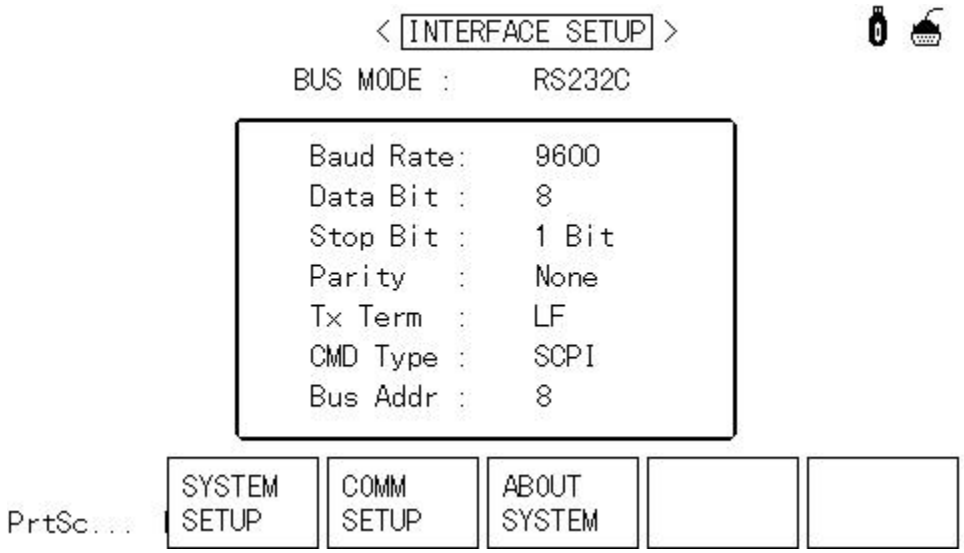
Δ ABS = X - Y (X: the measured value of the current measured; Y: preset reference value)

Δ % Mode(percent deviation) The deviation currently displayed is the percentage error obtained by dividing the difference between the test value of the tested item and the set reference value by the reference value.

Δ % = (X, Y)/Y X 100 [%]

(X: the measured value of the current part under test; Y: preset reference value)

4.7. Communication Setup



Then select <interface Settings> and enter the < user communication Settings > page.

The standard interface include RS232C, USBTMC and USBCDC, Optional GPIB.

4.8. System Setup

Press "SETUP", enter < measurement setup> page, then select " system setup", enter <system setup> page

System Function: LCR Mode, multi-parameter mode

Key sound: Open, Close

Language: Chinese, English.

Password: close, lock system, lock file, change password, save to usb flash drive.

Date and time: entered by numeric keys.

Parameter saving: auto-save or auto-load. The default is auto-save.

Note: for example, the default password of UC2836A is 2836 (determined by the instrument model).

Save to usb flash drive: this soft key is used to save the set password to usb flash drive, such as the password file named "2836A.STA" (depending on the device type). When the operation of the instrument needs to input the password, the USB drive with the password can be inserted into the USB interface of the instrument in advance, and the instrument will automatically detect whether the password file is valid, thus achieving the purpose of removing the password.

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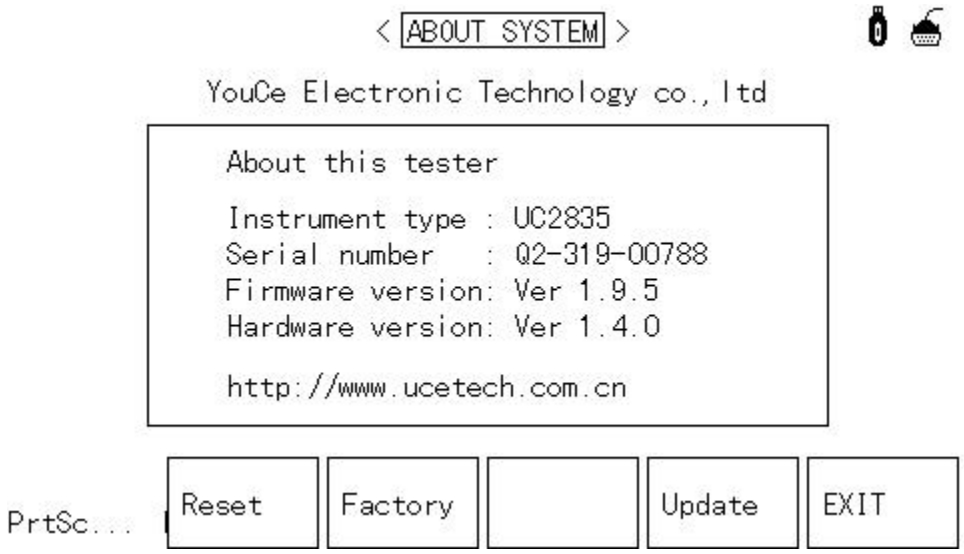
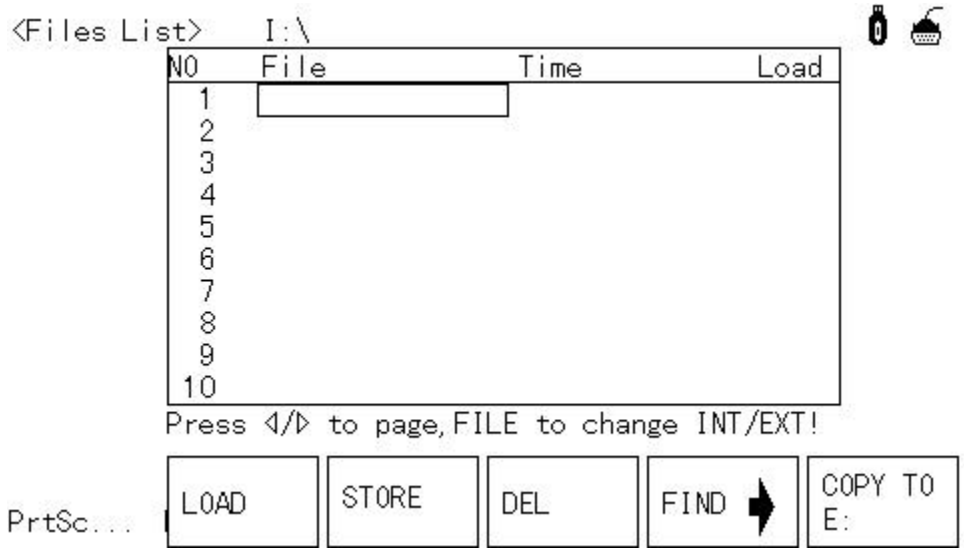
4.9. System Information & Upgrade



Press "SETUP" to enter the < measurement Settings > page, and then select "system Settings". After entering the < system Settings > page, select "system information" to enter the < system information > page

4.10. File Management



Press "File" to enter the internal File < File list > page, and then press "File" to switch internal/external files.

4.10.1. File operation steps

A. **Review Exist File**

1) Press and press buttons, and you can scroll through them one by one.

2) Use the left and right keys, page by page.

3) ENTER the corresponding serial number of the file with the numeric key, and then press [ENTER] to directly look at the required file.

B. **Following the steps below to save the control setting parameter to the file**

1) Move the cursor to the place where the file number needs to be saved and press the soft key [save];

2) Continue to select the soft key area [yes] for the next operation, and select the soft key area [no] to cancel the save operation;

3) If [yes] is selected in step 2), enter the file name with the number key according to the screen prompt and confirm. If a file already exists at the serial number, you can override the file or cancel the operation as prompted on the screen.

C. **Load the control setting parameter from the file as following steps**

1) Press the FILE key to switch to the FILE management page.

2) Move the cursor in the file list to the file position to be loaded. Or enter the file number directly.

3) Press the soft key to load, and the screen will display the following soft keys.

4) Press the soft key to load the currently selected file and return the current display page.

D. **Copy the file to E(USB flash driver) as following steps**

1) Connect the usb flash drive

2) Move the cursor to the file to be copied and press the soft key "copy to E:".

3) The screen prompts "do you really want to copy to E:?" Press the soft key "yes" to proceed to the next step.

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4) If there is a file with the same name in the flash drive, it will prompt "the file already exists, do I need to overwrite it?" , then press the soft key "yes" to continue copying until finished.

5. Basic Performance

5.1. Testing Speed

Fast: maximum 75 cycles/SEC (13ms/ SEC) at frequency >=1kHz

Medium speed: approximately 11 cycles/SEC (90ms/ SEC)

Slow speed: approximately 3 times per second (325ms/ time)

When the frequency is less than 1kHz, the measured speed will decrease; otherwise, the measured speed will increase.

5.2. Testing Signal

The test signal is sine wave, frequency accuracy: 0.02% Test signal level

	Mode	Range	Accuracy	Step
Voltage	Constant Voltage	5mVRMS—2VRMS 5mVRMS—1VRMS	±（10%×Set value+2mV） ±（6%×Set value+2mV）	1mV
Current	Constant Current	5OμARMS —20mARMS 100μARMS —10mARMS	±（10%×Set value+10μARMS） ±（6%×Set value+10μARMS）	1mV

5.3. Output Impedance

30Ω、50Ω、100Ω±5%

5.4. DC Resistance Test Voltage

1.5VDC (when the test end is open)

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Accuracy: ±5%

Resistance: 100 Ω plus or minus 5%

5.5. Internal DC Voltage Bias

0V, 1.5vdc, 2VDC are optional.

Setting accuracy: ±5% (1.5v, 2V)

5.6. Measurement Display Max Range

Parameter	Meas Display Range
L	0.01nH ～ 99.9999kH
C	0.00001pF ～ 9.99999F
R,X,Z	0.01mΩ ～ 99.9999MΩ
Y,B,G	0.01nS ～ 99.9999S
D	0.00001 ～ 99999.9
Q	0.01 ～ 99999.9
θ	Deg -179.999°～179.999° Rad -3.14159 ～ 3.14159

5.7 Measurement Accuracy

Measurement accuracy includes measurement stability, temperature coefficient, linearity, measurement repeatability and calibration interpolation error.

The measurement accuracy of the instrument must be checked under the following conditions:

a. Boot preheating time: ≥ 15min

b. Test cable length: 0m, 1m

c. After preheating, open circuit and short circuit shall be carried out correctly to clear "0"

d. DC offset is at "OFF" position

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e. The instrument range works in "AUTO" to select the correct measurement range.

5.7.1 |Z|, |Y|, L, C, R, X, G, B Accuracy

|Z|,|Y|, L，C，R，X，G，B Accuracy “Ae” is expressed by following：

Ae = ±[A+（Ka+Kb+Kc）×100+ Kd +Kf]×Ke [%]

A: basic measurement accuracy (see figure A)

Ka: impedance scaling factor (see table A)

Kb: impedance scaling factor (see table A)

Kc: calibrate the interpolation factor (see table B)

Kd: cable length factor (see table D)

Ke: temperature factor (see table E)

Kf: scan fixture correction factor (not added: Kf = 0, added: Kf = 0.2)

L, C, X, B accuracy conditions: Dx (D measurement value) ≤0.1

R, G accuracy conditions: Qx (measurement of Q) ≤0.1

When Dx≥0.1, the accuracy factor Ae for L, C, X and B should be multiplied

When Qx≥0.1, the G accuracy factor Ae should be multiplied by The accuracy of G can only be used when measuring combinations of G-B

5.7.2. D Accuracy

D accuracy De is given by the following formula:

$$D_e = \pm \frac{A_e}{100}$$

The above formula is only used when Dx≤0.1. When Dx>0.1., De

should be multiplied by （1+Dx）

5.7.3. Q Accuracy

The accuracy of Q is given by the following formula:

$$Q_e = \pm \frac{Q_x \times D_e}{1 \mp Q_x \times D_e}$$

Here, Qx is the value of Q under test. De is the accuracy of D. The above equation USES the condition Qx×De<1.

5.7.4. θ Accuracy

Θ Accuracy is given by the following formula:

$$\mathbf{\Theta e} = \frac{180}{\pi} \times \frac{Ae}{100} \quad [\text{deg}]$$

5.7.5. G Accuracy

When Dx (D value under test) is less than or equal to 0.1

G accuracy is given by the following formula:

Ge = Bx×De [S]

$$Bx = 2\pi fCx = \frac{1}{2\pi f Lx}$$

Here, Bx is the value of B under test [S]. Cx is the value of C under test [F]. Lx is the value of L measured [H]. De is the accuracy of D. F is the test frequency.

The G accuracy is only used in the cp-g and lp-g measurement combinations.

5.7.6. Rp Accuracy

When Dx (D value under test) is less than or equal to 0.1

Rp accuracy is given by the following formula:

$$Rp = \square \frac{Rpx \square De}{Dx \quad De} \quad [\Omega]$$

Here, Rpx is the value of Rp under test [S]. Dx is the value of D under test [F]. De is the accuracy of D

5.7.7. Rs Accuracy

When Dx (D value under test) is less than or equal to 0.1

Rs accuracy is given by the following formula:

$$Rse = Xx \times De\ [\Omega]$$

$$Xx = 2\pi fLx = \frac{1}{2\pi fCx}$$

Here, Xx is the value of X measured [S]. Cx is the value of C under test [F].

Lx is the value of L measured [H]. De is the accuracy of D. F is the test frequency.

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5.7.8. Accuracy Factor

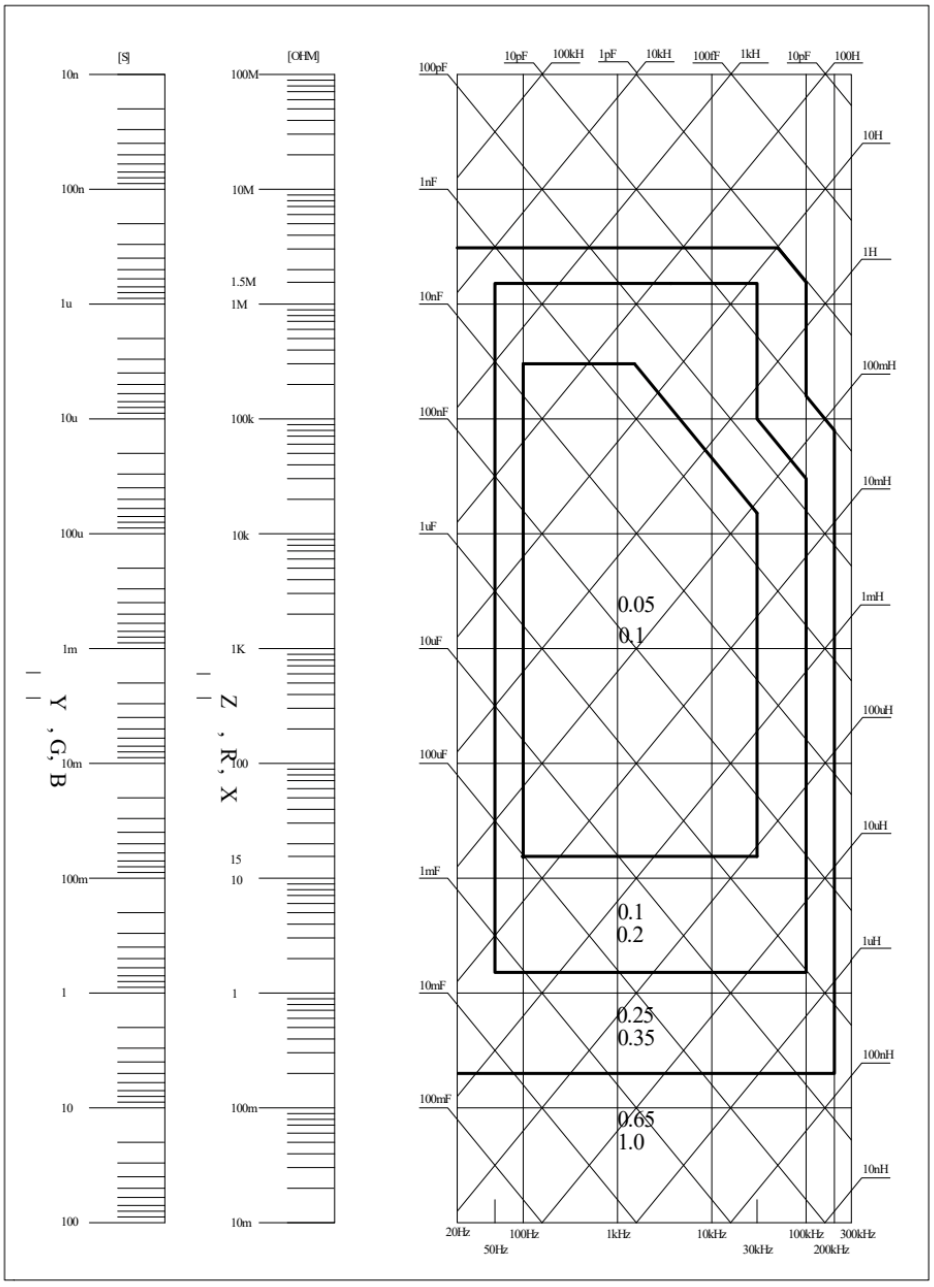

Figure 5-1 basic measurement accuracy A

In figure 5-1, select the smaller value on the boundary line

In figure 5-1, the selection method of basic accuracy value A is as follows:

0.05 -- when 0.4Vrms≤Vs≤1.2Vrms, the measurement speed is A value of medium speed and slow speed. 0.1 -- when 0.4Vrms≤Vs≤1.2Vrms, the measurement speed is fast value A.

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When Vs< 0.4vrms or Vs> 1.2vrms, the calculation method of A value is as follows: A is selected according to the current measurement speed, Ar is selected according to the current test signal voltage (see figure 5-2), and A is multiplied by Ar to obtain the current basic measurement accuracy A. Vs is the test signal voltage.

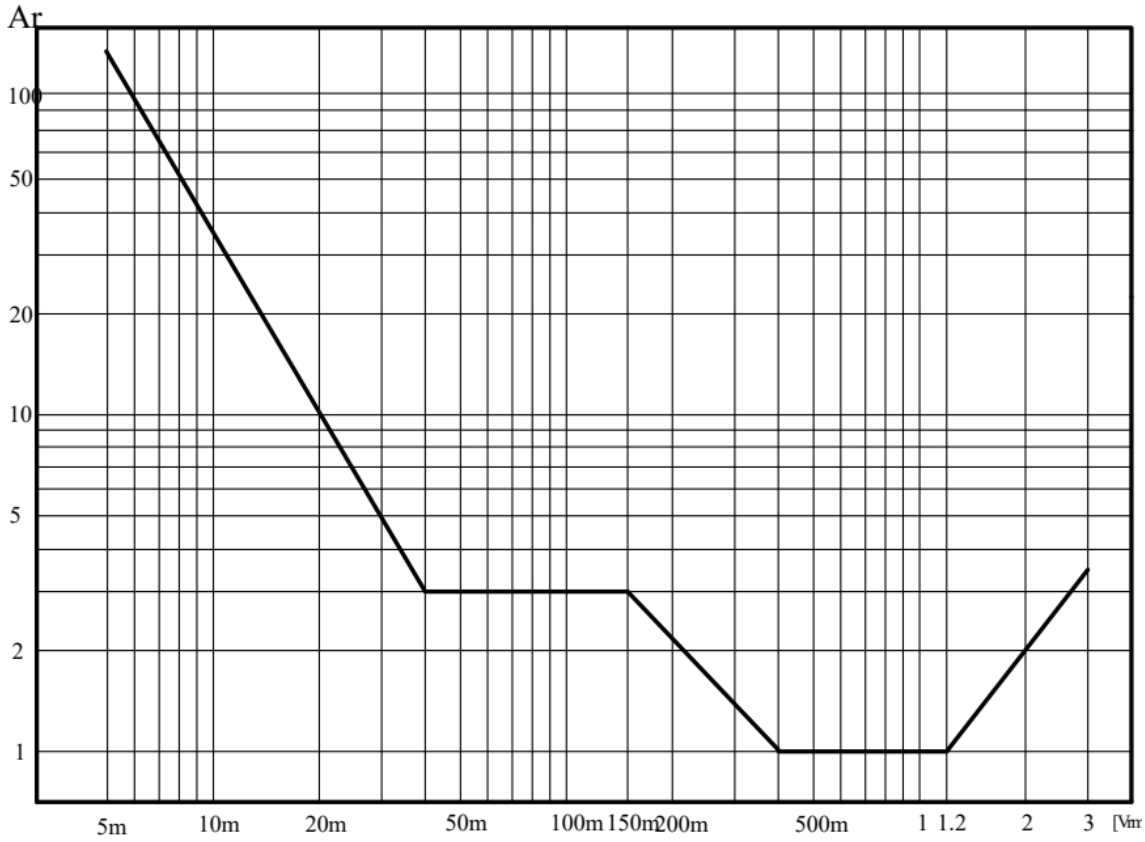

Figure 5-2 basic accuracy correction curve test signal voltage.

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Table A impedance proportional factors Ka and Kb

Speed	Accuracy	K_a	K_b
Mid Slow	f_m<100Hz	$(\frac{1\times10^{-3}}{\lvert Z_m\rvert})(1+\frac{200}{V_s})(1+\sqrt{\frac{100}{f_m}})$	$\lvert Z_m\rvert(1\times10^{-9})(1+\frac{70}{V_s})(1+\sqrt{\frac{100}{f_m}})$
	100Hz≤fm ≤100kHz	$(\frac{1\times10^{-3}}{\lvert Z_m\rvert})(1+\frac{200}{V_s})$	$\lvert Z_m\rvert(1\times10^{-9})(1+\frac{70}{V_s})$
	100kHz<f m ≤200kHz	$(\frac{1\times10^{-3}}{\lvert Z_m\rvert})(2+\frac{200}{V_s})$	$\lvert Z_m\rvert(3\times10^{-9})(1+\frac{70}{V_s})$
Fast	f_m<100Hz	$(\frac{2.5\times10^{-3}}{\lvert Z_m\rvert})(1+\frac{400}{V_s})(1+\sqrt{\frac{100}{f_m}})$	$\lvert Z_m\rvert(2\times10^{-9})(1+\frac{100}{V_s})(1+\sqrt{\frac{100}{f_m}})$
	100Hz≤fm ≤100kHz	$(\frac{2.5\times10^{-3}}{\lvert Z_m\rvert})(1+\frac{400}{V_s})$	$\lvert Z_m\rvert(2\times10^{-9})(1+\frac{100}{V_s})$
	100kHz<f m ≤200kHz	$(\frac{2.5\times10^{-3}}{\lvert Z_m\rvert})(2+\frac{400}{V_s})$	$\lvert Z_m\rvert(6\times10^{-9})(1+\frac{100}{V_s})$

fm： Test Frequency[Hz]

Test sample impedance[Ω]

Test signal voltage[mVrms]

When using impedance is less than 500 Ω Ka, Kb is invalid.

When impedance is greater than 500 Ω use Kb, Ka is invalid.

Table B calibrate the interpolation factor Kc

Test Frequency	Kc
Direct calibration frequency	0
Other Frequency	0.0003

Table C direct calibration frequency

			20	25	30	40	50	60	80	[Hz]
100	120	150	200	250	300	400	500	600	800	[Hz]
1	1.2	1.5	2	2.5	3	4	5	6	8	[kHz]
10	12	15	20	25	30	40	50	60	80	[kHz]
100	120	150	200							[kHz]

Table D cable length factor Kd

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Test Signal Level	Cable length		
	0m	1m	2m
≤1.5Vrms	0	2.5×10 -4（1+50×fm）	5×10 -4（1+50×fm）
>1.5Vrm	0	2.5×10 -3（1+16×fm）	5×10 -3（1+50×fm）

When scanning fixture is used, Kd takes the correction factor at 2m

Table E temperature factor Ke

Temp（℃）	5	8	18	28	38	
Ke	6	4	2	1	2	4

5.8. Safety requirements

5.8.1 Insulation resistance

Under the condition of the reference work, power terminal between the shell and the insulation resistance shall be not less than 50 m Ω.

In transportation under the condition of damp and hot, the terminal voltage and the shell of the insulation resistance between should not be less than 2 M Ω.

5.8.2. Insulation strength

Under reference working conditions, the power terminal and the housing shall be able to withstand ac voltage with a frequency of 50Hz and a rated voltage of 1.5kv, and the timing shall be 1 minute. There should be no breakdown or arc.

5.8.3. Leakage current

The leakage current shall not be greater than 3.5mA (ac RMS).

5.9. electromagnetic compatibility requirements

The transient sensitivity of measuring instrument power source is in accordance with the requirements of GB6833.4.

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The conductivity of the measuring instrument is in accordance with the requirements of GB6833.6. The radiation interference of measuring instrument is required by GB6833.10.

6. Handler Interface description (sorting)

The Handler interface is mainly used for the output of the sorting results of the instrument.

6.1. Technical description

Below shows the technical description of the HANDLER interface.

Output signal: low efficiency, open collector output, photoelectric isolation

Output discriminant signal:

File comparison features: qualified file number, out of tolerance, and rejected status

List scan comparison function: IN/OUT of each scan point and pass/fail of the whole comparison result

INDEX: end of AD conversion

EOC: end of one measurement and comparison

Alarm: instantaneous power loss detection notification

Input signal: photoelectric isolation

Keylock: front panel keyboard lock 2223

External Trigger: pulse width ≥1 inducs

6.2. Operation instructions

6.2.1. Is introduced

This chapter provides information including the necessary description of signal lines using the Handler interface and electrical characteristics.

6.2.2. definition of signal line C

The HANDLER interface USES three signals: compare the output, control the input, and control the output. The signal lines of the file comparison function and the list scan comparison function are defined as different comparison output signals and control input signals. The following is the signal definition of the HANDLER interface when the file comparison function or list scan comparison function is used.

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The comparison function signal is defined as follows:

Compare output signals:

/BIN1 - /BIN9, /AUX, /OUT, /PHI(higher primary parameter), /PLO (lower primary parameter), /SREJ (lower secondary parameter). As shown in figure 6-1.

Control output signal:

/INDEX (signal of analog measurement completion), /EOM (signal of measurement completion and valid data comparison), /ALARM (signal of instrument loss).

Control input signal:

/ ext.trig (external trigger) and /Keylock (keyboard lock).

The signal distribution and brief description of the above contacts are shown in table 6-2 and figure 6-1. The sequence diagram is shown in figure 6-2.

Table 6-2 compares the signal distribution table of functional contacts

Pin number	Signal name	Description
1	/BIN1	
2	/BIN2	
3	/BIN3	
4	/BIN4	Step results
5	/BIN5	All /BIN outputs are open-collector outputs.
6	/BIN6	
7	/BIN7	
8	/BIN8	
9	/BIN9	
10	/OUT	
11	/AUX	
12	/EXT.TRI	External Trigger
13	G	When the trigger mode is set to ext.trig (external trigger), the instrument is triggered by a rising edge pulse added to the pin.
14		External dc voltage 2: Signal coupled to the inside of the instrument (/EXT_TRIG,

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15	EXT.DCV 2	/KeyLock; Dc power supply pin for /ALARM, /INDEX, /EOM).
16 17 18	+5V	Internal power supply of the instrument +5V: It is generally not recommended for users to use the internal power supply of the instrument. If necessary, please ensure that the current used is less than 0.3a and keep the signal line away from the interference source
19	/PHI	High main parameter: The measurements were larger than the upper bound values from BIN1 to BIN9.
20	/PLO	The main parameter is low: The results were smaller than the lower bound values from BIN1 to BIN9.
21	/SREJ	Unqualified secondary parameters: The measurement results are not within the upper and lower limits of the auxiliary parameters.
22 23 24	NC NC NC	no connection
25	/KEY LOCK	When the line is active, all front panel function keys are locked and no longer active.
27 28	EXT.DCV 1	External dc voltage 1: Pull-up dc power supply for the signal (/ bin-/ BIN9, /AUX, /OUT, /PHI, /PLO, /SREJ) coupled with the photoelectricity inside the instrument.
29	/ALARM	When power loss occurs, /ALARM is valid.
30	/INDEX	The /INDEX signal is valid when the analog measurement is complete and the next DUT can be connected at the UNKNOWN test end. However, comparing the resulting signal is not valid until the /EOM is valid. (see picture 6-2)
31	/EOM	End Of Measurement: The signal is valid when the measurement and comparison results are valid. (see picture 6-2)
32,33	COM2	External power supply EXTV2 is used as a reference
34,35,36	COM1	External power EXTV1 is used as a reference

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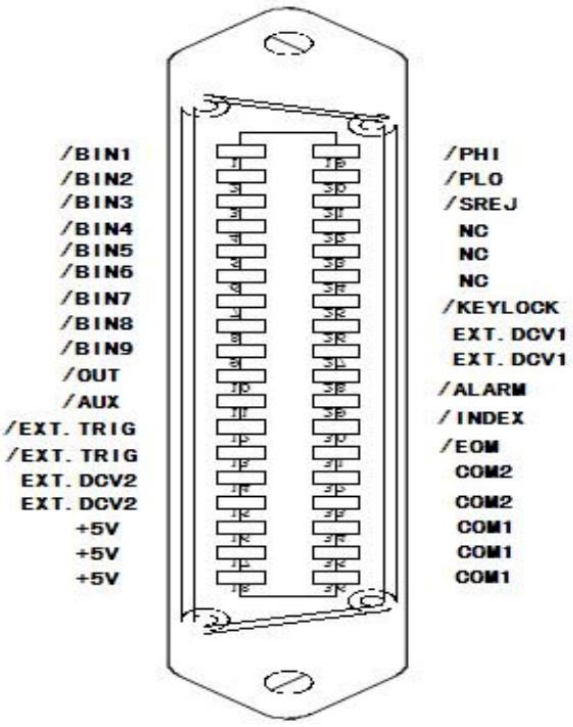

Figure 6-1 HANDLER connection interface pin definition

Note: in the figure, the corresponding signals of /BIN1 - /BIN9, /OUT, /AUX, /PHI, /PLO and /SREJ are different in the list scan comparison function and file comparison function.

Time	Min value	Max value
T1 trigger pulse width	1us	---
T2 measures the start	200us	Display time 3 +
delay time	0us	200us---
Triggered after T3		
/EOM output		
Waiting time		

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List scan compare function signal line

The list scan comparison function definition is different from the file comparison function definition. Its definition is as follows:

Compare output signals:

/BIN1 - /BIN9 and /OUT signals indicate IN/OUT (qualified or OUT of tolerance) discrimination for each scanning point. The /AUX signal indicates PASS/FAIL discrimination (one or more disqualification in the list during a scan). When a scan measurement is completed, these signals are output.

Control output signal

/INDEX (analog measurement completion signal) and /EOM (measurement end signal).

When /INDEX and /EOM are valid, the sequence is as follows:

SEQ sweep mode:

The /INDEX signal is declared valid when the analog measurement of the last scanning point is completed. The /EOM signal is declared valid when all comparison results are valid after the whole list scan measurement is completed.

STEP sweep mode:

The /INDEX signal is declared valid after the analog measurement of each scan point is completed. The /EOM signal is declared valid after each step is measured and compared

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Table 6-3 list scan comparison function contact allocation table

Pin number	Signal Name	description
1	/BIN1	Scan point 1 qualified signal judgment
2	/BIN2	Scan point 2 qualified signal judgment
3	/BIN3	Scan point 3 qualified signal judgment
4	/BIN4	Scan point 4 qualified signal judgment
5	/BIN5	Scan point 5 qualified signal judgment
6	/BIN6	Scan point 6 qualified signal judgment
7	/BIN7	Scan point 7 qualified signal judgment
8	/BIN8	Scan point 8 qualified signal judgment
9	/BIN9	Scan point 9 qualified signal judgment
10	/OUT	Scan point 10 qualified signal judgment
11	/AUX	A /AUX is declared valid when there is one or more disqualification in the list
30	/INDEX	Continuous scan mode (SEQ) : the /INDEX signal is declared valid when the simulation measurement of the last scanning point is completed, where the UNKNOWN test end can connect to the next DUT. However, comparing the resulting signal is not valid until the /EOM is valid. (see picture 6-4) STEP: the /INDEX signal is declared valid after the analog measurement is completed at each scanning point. However, the comparison results signal is not valid until /EOM is valid.
31	/EOM	End of measurement: Continuous scan mode (SEQ) : the /EOM signal is declared valid when the whole list scan measurement is completed and all comparison results are valid. STEP: the /EOM signal is declared valid after the measurement is completed at each scanning point and all comparison results are valid. The comparison results are not valid until the /EOM of

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		the last scanning point is valid
others		The definition and comparison functions are the same.

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Note:

Setting time includes data switching time correction;

Comparison and display time is about 4.5ms;

Multi-parameter comparison function signal line

Table 6-4 multi-parameter comparison function contact allocation table

Pin Number	Signal Name	Description
1 2 3 4 10	/BIN1 /BIN2 /BIN3 /BIN4 / OUT	Parameter 1 exceeds the limit Parameter 2 exceeds the limit Parameter 3 exceeds the limit Parameter 4 exceeds the limit Unqualified (as long as 1 parameter is unqualified, it is unqualified)
30	/INDEX	The /INDEX signal is declared valid when the AD completes, where the UNKNOWN tester can connect to the next DUT.
31	/EOM	End of measurement: the /EOM signal is declared valid after measurement. (see picture 6-2)

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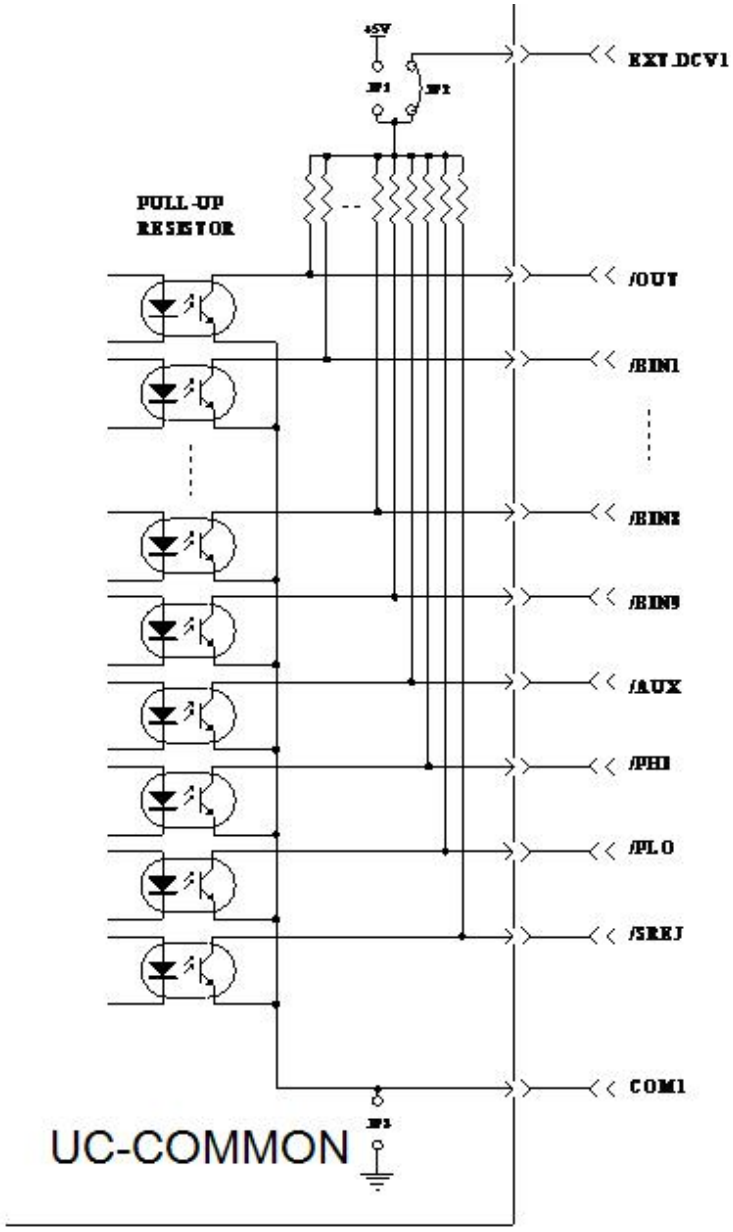
6.2.3. HANDLER interface board circuit

Compare the results of the signal output circuit



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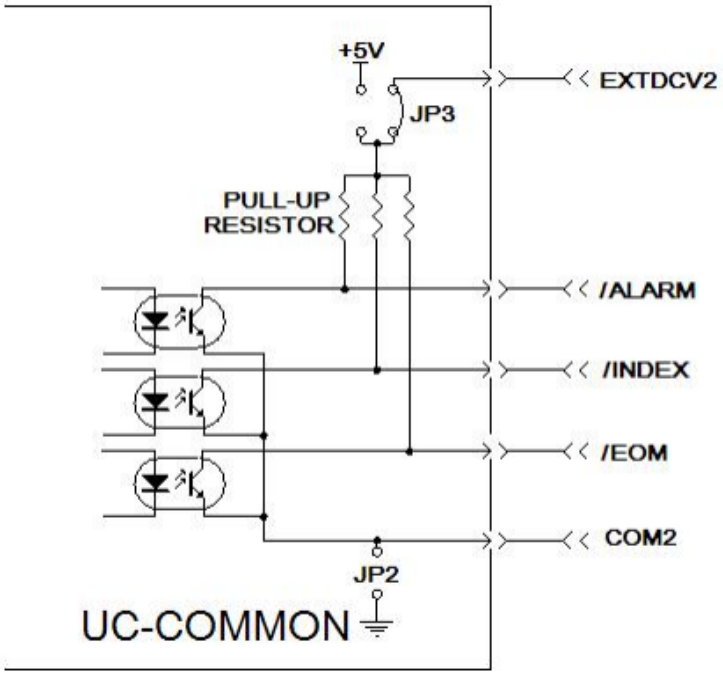
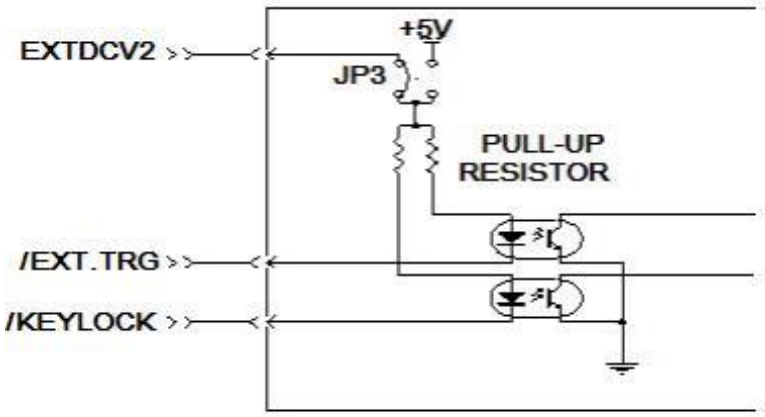


Control signal output circuit

Control signal input circuit



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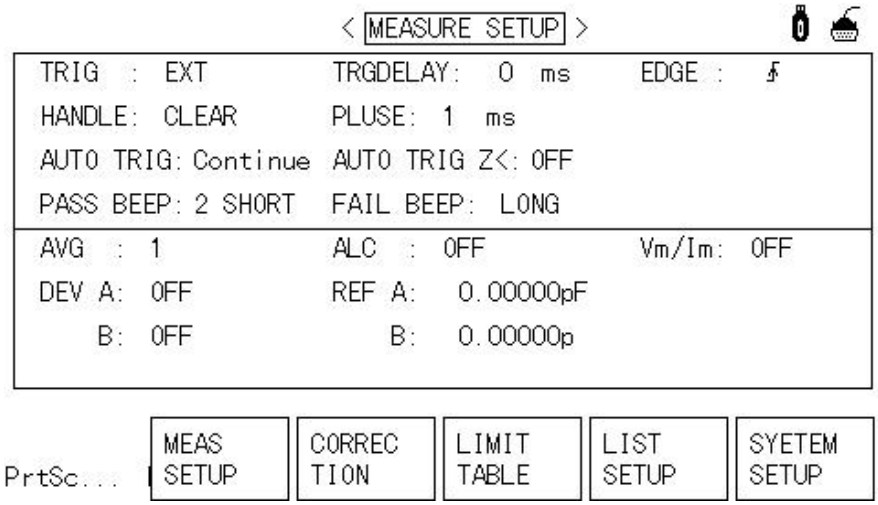
7 . Examples of automatic connection of file sorting

If only 1 gear sorting:

External signal line	Foot position	Definition
External power supply 24V positive pole	14,27	EXTV2、EXTV1
External negative source	33,34	COM2、COM1
trigger signal	12	/EXT.TRIG
Qualified signal	1	/BIN1
end signal	31	/EOM

Please refer to the following figures for equipment Settings:

1. < measurement setting > page:



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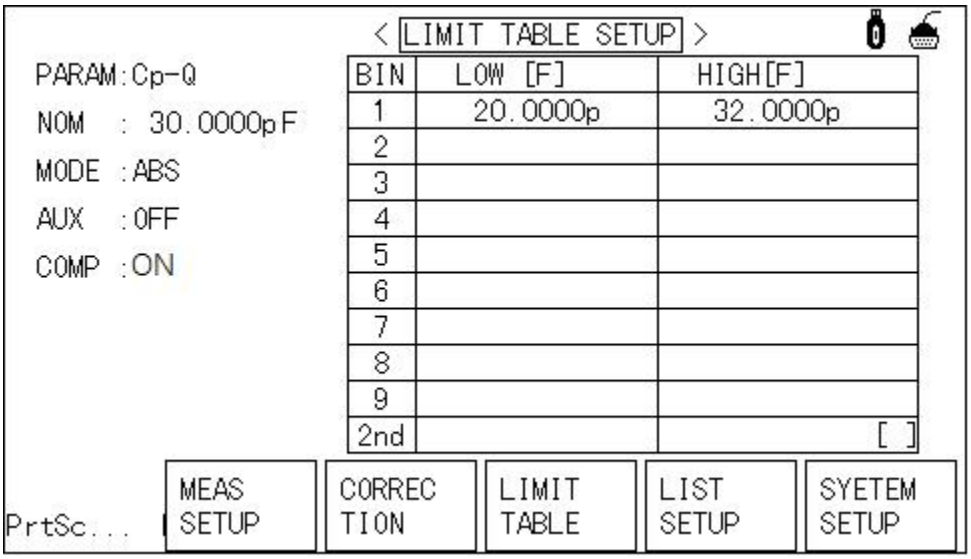
Trigger: external	Must be set
Automatic trigger: off	Must be set
Sorting port: clear	Clear, hold and pulse are optional according to user programming

2.< limit list > Settings page



MODE：ABS	Set according to user preference
Nominal value	If the user setting mode as Δ %, be sure to set the nominal value
AUX：OFF	If it is not closed, when the secondary parameter is unqualified, it will be classified as the subsidiary file, and the unqualified signal will not be output
COMP：ON	Must be open
Lower limit, upper limit	Must be set

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