Component Parameter Test Instruments

A. TH2840 Series Precision LCR Meter

Features

- The test speed is as high as 1000 times/s (>10kHz), without relay action time
- Test level up to 20Vrms
- The bias voltage is built-in ±40V/±100mA/2A
- Up to 288 test pins (only TH2840NX)
- Industry-friendly user experience: Linux bottom layer, built-in help file
- 10.1 inch 1280×800 capacitive touch screen
- Graphical pin association setting page, so that wiring is no longer a problem
- Lk setting does not need to input the leakage inductance pin, which is more intuitive
- Enhanced balance scanning function, from 5 points to 10 points
- Range switching adopts electronic switch, fast speed, long life, no noise
- Optional LCR function
- Approximately 100M setting file storage space in the machine, and massive U disk setting file storage capacity
- Provide host computer to support early model file format conversion to ensure compatibility

Standard	RS232	☑	USB HOST	☑	USB DEVICE	☑
	HANDLER	☑	LAN	☑	EXTERNAL DCl	☑

Dimension：430mm(W)x177mm(H)x265mm(D)

Weight： 11kg

Applications

- **Passive component**:
Impedance parameter estimation and performance analysis of capacitor, inductor, magnetic core, resistor, piezoelectric devices, transformers, chip components and network components
- **Semiconductor component**
Parasitic parameter test and analysis of LED driver integrated circuit
C-VDC features of varactors
Parasitic parameter analysis of transistors or integrated circuit
- **Other components**
Impedance assessment of printed circuit boards, relays, switches, cables, batteries

- **Dielectric material**
Dielectric constant and loss angle evaluation of plastics, ceramics and other materials
- **Magnetic materials**
Magnetic permeability and loss angle assessment of ferrite, amorphous body and other magnetic materials
- **Semiconductor materials**
Dielectric constant, electrical conductivity and C-V characteristics of semiconductor materials
- **Liquid crystal cell**
Dielectric constant, elastic constant and C-V characteristics of liquid crystal cell

Specifications

Model		TH2840A	TH2840B
Display	Display	10.1" Touch Screen	
	Ratio	16:9	
	Resolution	1280×RGB×800	
Parameter	Test Mode	Four Parameter Selectable	
	AC	Cp/Cs、Lp/Ls、Rp/Rs、|Z|、|Y|、R、X、G、B、θ、D、Q、V_{AC}、I_{AC}	
	DC	R_{DC}、V_{DC}、I_{DC}	
	Range	20Hz-500kHz	20Hz-2MHz
	Accuracy	0.01%	
Frequency	Resolution	0.1mHz (20.0000Hz-99.9999Hz)	
		1mHz (100.000Hz-999.999Hz)	
		10mHz (1.00000kHz-9.99999kHz)	
		100mHz (10.0000kHz-99.9999kHz)	
		1Hz (100.000kHz-999.999kHz)	
		10Hz (1.00000MHz-2.00000MHz)	
AC test signal mode	Rated value (ALC OFF)	Set the voltage as the Hcur voltage when the test terminal is open	
		Set the current to be the current flowing from Hcur when the test terminal is	
	Constant value (ALC ON)	Keep the voltage on the DUT the same as the set value	
		Keep the current on the DUT the same as the set value	

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<table>
<tr><td rowspan="4">Test Level</td><td>AC Voltage</td><td>5mVrms-20Vrms</td><td>F≤1MHz 5mVrms-20Vrms
F＞1MHz 5mVrms-15Vrms</td></tr>
<tr><td>Accuracy</td><td colspan="2">± (10%×Set Value+2mV) (AC less than 2Vrms)
± (10%×Set Value+5mV) （AC＞2Vrms）</td></tr>
<tr><td>Resolution</td><td colspan="2">1mVrms   (5mVrms-0.2Vrms)
1mVrms   (0.2Vrms-0.5Vrms)
1mVrms   (0.5Vrms-1Vrms)
10mVrms (1Vrms-2Vrms)
10mVrms (2Vrms-5Vrms)
10mVrms (5Vrms-10Vrms)
10mVrms (10Vrms-20Vrms)</td></tr>
<tr><td>AC Current</td><td colspan="2">50μArms-100mArms</td></tr>
<tr><td></td><td>Resolution(100Ω Internal Resistance)</td><td colspan="2">10μArms (50μArms-2mArms)
10μArms (2mArms-5mArms)
10μArms (5mArms-10mArms)
100μArms (10mArms-20mArms)
100μArms (20mArms-50mArms)
100μArms (50mArms-100mArms)</td></tr>
<tr><td rowspan="4">R_{DC} Test</td><td>Voltage</td><td colspan="2">100mV-20V</td></tr>
<tr><td>Resolution</td><td colspan="2">1mV   (0V-1V)
10mV   (1V-20V)</td></tr>
<tr><td>Current</td><td colspan="2">0mA-100mA</td></tr>
<tr><td>Resolution</td><td colspan="2">10μA   (0mA-10mA)
100μA (10mA-100mA)</td></tr>
<tr><td rowspan="5">DC Bias</td><td>Voltage</td><td colspan="2">0V-±40V</td></tr>
<tr><td>Accuracy</td><td colspan="2">AC≤2V   1%× Set Value+5mV
AC>2V   2%×Set Value+8mV</td></tr>
<tr><td>Resolution</td><td colspan="2">1mV   (0V-1V)
10mV   (±1V- ±40V)</td></tr>
<tr><td>Current</td><td colspan="2">0mA-±100mA</td></tr>
<tr><td>Resolution</td><td colspan="2">10μA   (0mA-10mA)
100μA (10mA-100mA)</td></tr>
<tr><td rowspan="3">Built-in current source</td><td>Current</td><td colspan="2">0mA-2A</td></tr>
<tr><td>Accuracy</td><td colspan="2">I>5mA ± (2%×Set Value+2mA)</td></tr>
<tr><td>Resolution</td><td colspan="2">1mA</td></tr>
<tr><td colspan="2">Test terminal configuration</td><td colspan="2">Four Terminal Pair</td></tr>
<tr><td colspan="2">Test cable length</td><td colspan="2">0m</td></tr>
<tr><td colspan="2">Output impedance</td><td colspan="2">30Ω，±4%@1kHz
100Ω，±2%@1kHz</td></tr>
<tr><td colspan="2">computation</td><td colspan="2">The absolute deviation from the nominal value Δ, the percentage deviation from the nominal value Δ%</td></tr>
<tr><td colspan="2">Equivalent way</td><td colspan="2">Series, Parallel</td></tr>
<tr><td colspan="2">Calibration function</td><td colspan="2">OPEN、SHORT、LOAD</td></tr>
<tr><td colspan="2">Measurement average</td><td colspan="2">1-255</td></tr>
<tr><td colspan="2">Range selection</td><td colspan="2">AUTO、HOLD</td></tr>
<tr><td rowspan="2">Range configuration</td><td>LCR</td><td colspan="2">100mΩ、1Ω、10Ω、20Ω、50Ω、100Ω、200Ω、500Ω、1kΩ、2kΩ、5kΩ、10kΩ、20kΩ、50kΩ、100kΩ</td></tr>
<tr><td>R_{DC}</td><td colspan="2">1Ω、10Ω、20Ω、50Ω、100Ω、200Ω、500Ω、1kΩ、2kΩ、5kΩ、10kΩ、20kΩ、50kΩ、100kΩ</td></tr>
<tr><td colspan="2">Measuring time （ms）</td><td colspan="2">Fast+: 1ms
Fast: 3.3ms
Middle: 90ms
Slow: 220ms</td></tr>
<tr><td colspan="2">Highest accuracy</td><td colspan="2">0.05%（refer to the instruction manual for details）</td></tr>
<tr><td colspan="2">Measurement display range</td><td colspan="2"></td></tr>
<tr><td colspan="2">Cs、Cp</td><td colspan="2">0.00001pF-9.99999F</td></tr>
<tr><td colspan="2">Ls、Lp</td><td colspan="2">0.00001μH-99.9999kH</td></tr>
<tr><td colspan="2">D</td><td colspan="2">0.00001-9.99999</td></tr>
<tr><td colspan="2">Q</td><td colspan="2">0.00001-99999.9</td></tr>
<tr><td colspan="2">R、Rs、Rp、X、Z、R_{DC}</td><td colspan="2">0.001mΩ-99.9999MΩ</td></tr>
</table>

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G、B、Y			0.00001μs-99.9999S
V$_{DC}$			±0V-±999.999V
I$_{DC}$			±0A-±999.999A
θ$_r$			-3.14159-3.14159
θ$_d$			-179.999°-179.999°
Δ%			±（0.000%-999.9%）
Multi-function parameter list scan	Dots Number		201 points, average times can be set for each point, and each point can be sorted separately
	Parameter		Test frequency, AC voltage, AC current, DC BIAS voltage, DC BIAS current (100mA), DC BIAS current (2A)
	Trigger mode		Sequence SEQ: After a trigger, measure at all sweep points, and /EOM/INDEX will output only once. Step STEP: Perform a sweep point measurement each time it is triggered, and each point outputs /EOM/INDEX, but the list sweep comparator result is only output at the last /EOM
	Other features		1.Scan parameters and test parameters have multiple copy functions 2.Delay can be set for each scan point
	Comparators		每Each sweep point can measure up to four test parameters, each parameter can set upper and lower limits, all test parameters are qualified, output PASS signal, otherwise output FAIL signal, no upper and lower limits are set, no judgment
Graphic scan	Scan points		51、101、201、401、801 Optional
	The results		The extreme value of each parameter and the sweep parameter value at the point where the cursor is located and the corresponding test parameter value
	Scan trajectory		1-4 test parameters can be selected arbitrarily, the scanning curve can be divided into one screen, two screens, or four screens
	Display range		Real-time automatic, locked
	Coordinate ruler		Logarithmic, linear
	Scan parameters		Frequency, AC voltage, AC current, DCV BIAS / DCI BIAS (100mA) / DCI BIAS (2A)
	Trigger mode	single	Manually trigger once, and complete a scan from the start point to the end point, and the next trigger signal starts a new scan
		continuous	Infinite loop scanning from start to end
	Results save		Graphics, files
Comparators	Bin		10Bin、PASS、FAIL
	Bin deviation setting		Deviation value, percentage deviation value, off
	Bin mode		Tolerance, continuous
	Bin count		0-99999
	Discrimination		Up to four parameter limit ranges can be set for each file. The corresponding file number is displayed within the setting range of the four test parameter results. If the maximum file number range is exceeded, FAIL is displayed. The test parameters without the upper and lower limits are automatically ignored.
	PASS/FAIL indication		Meet Bin1-10, the PASS light on the front panel is on, otherwise the FAIL light
Data cache			201 measurement results can be read in batches
Store call	Inside		About 100M non-volatile memory test setting file
	External USB		Test setting file, screenshot graph, record file
Keyboard lock			The front panel keys can be locked, other functions to be expanded
Interface	USB HOST		2 USB HOST ports, can connect mouse and keyboard at the same time, only one U disk can be used at the same time
	USB DEVICE		Universal serial bus socket, small type B (4 contact positions); compatible with USB TMC-USB488 and USB2.0, the female connector is used to connect an external controller.
	LAN		10/100M Ethernet adaptive
	HANDLER		Used for Bin signal output
	External DC BIAS control		Support TH1778A
	RS232C		Standard 9-pin, cross
	RS485		Can accept modification or external RS232 to RS485 module
Power-on warm-up time			60 Minutes
Input voltage			100-120VAC/198-242VAC Option，47-63Hz
Power consumption			More than 130VA
Size（WxHxD）mm^3			430x177x265
Weight（kg）			11kg