TELEDYNE TEST TOOLS
Everywhereyoulook™

T3LCR1002, T3LCR1100, T3LCR1300 Precision LCR Meters Datasheet

Measure With Confidence

10Hz - 300KHz

Tools for Improved Debugging

• 3.5” Large TFT LCD Display.	Clear visibility of your power settings.
• Consecutive and adjustable frequency within provided frequency range.	Flexibility in choosing measuring frequency for various components.
• Basic Accuracy of 0.05%.	Measurements will be faster as well as accurate.
• Provides PASS/FAIL Judgement function.	Helps in faster validation process.
• Standard Interface: RS-232C, Handler, USB and USB Storage.	Support for the maximum control flexibility.
• 3 years warranty as standard.	Reliable product gives peace of mind.

Key Specifications

Model	Test Frequency	Resolution	Measuring Speed
T3LCR1002	10Hz - 2KHz	4 digits	FAST: 25ms MED: 100ms SLOW: 33ms
T3LCR1100	10Hz - 100KHz	4 digits	
T3LCR1300	10Hz - 300KHz	4 digits	

PRODUCT OVERVIEW

Teledyne Test Tools introduces the brand new series of high precision LCR meters. The T3LCR series offers three models with maximum test frequency ranging from 2kHz to 300kHz and basic accuracy of 0.05%. The compact size design, 2U height and 1/2 rack, is one of the practical features of the series which is the optimum space saver suitable for either bench top or system rack. The compacted T3LCR series with abundant features is absolutely the excellent tool for R&D, production test, IQC, etc. on implementing each test stages for passive components.

The T3LCR series provides a rich set of functionalities while maintaining a compact size. The entire series adopts 3.5-inch color LCD and features opulent display parameters. In addition to simultaneously displaying setting criteria and measurement results, the series increases two additional monitoring parameters. The four parameters (primary+secondary and two monitoring) are simultaneously shown on the screen that tremendously enhances the measurement efficiency. The enlarge display mode not only emphasizes the measurement results, but also provides PASS/FAIL judgment to facilitate a rapid and convenient test result.

Convenience is one of the unique features. The T3LCR series comes equipped with full frequency range zero and spot zero selections. Users can freely change frequency within the provided frequency range to conduct measurements without having to power off the instrument or changing test fixture. This feature is particularly useful for repeated zeroing operation and saves a tremendous amount of time for the user. Additionally, frequency range of the series is consecutive that allows users to input precise frequency value to conduct the most genuine test on components.

The T3LCR series also features diverse ancillary measurements to meet the measurement requirements of different materials. For instance, the series provides the automatic level control (ALC) function to satisfy the test voltage requirement of MLCC. For inductive component measurements, the series provides the adjustable test current function and the D.C. resistance measurement function. With respect to the D.C. bias voltage test for capacitive components requirements, the series allows users to conduct verification measurement on materials by its internal ±2.5V adjustable voltage. Furthermore, 10 steps of listed test functionalities allow users to set testing parameters (either by frequency, or voltage, or current) for each step based on users' requirements in order to observe the trend of DUT characteristics.

The T3LCR series has 10 memory sets defined by panel setting criteria to facilitate users in selecting test criteria and saving time in repeated settings. 10,000 measurement result storage capability can easily record measurement results instantaneously. The USB host allows easy access to recorded results without connecting the series to the PC. The USB host also allows USB to retrieve and save screen so as to assist users in compiling setting guidelines.

For the external control, theT3LCR series provides handler interface and collocates with its measurement sorting function (9BIN, AUX: 1BIN) to facilitate the connection with sorting machine so as to sort out the materials. For remote control and measurement result retrieval requirements, the T3LCR series provides RS-232C and USB interfaces to assist setting control or measurement result retrieval via the PC commands. Additionally, the free PC software gives users an instant tool to store measurement results that saves time in developing programs.

The brand new compact T3LCR series meters can effectively improve the limitation of space. Diverse measurement functionalities and display methods are making the series the best choice in meeting the requirements of R&D, component assessment for engineering departments, category sorting requirements for component production, and IQC for verification on component specifications.

1. 3.5” Large TFT LCD Provides Setting Parameters and Measurement Result Observation Simultaneously
2. Corresponding Funcitonal Keys Provide More Intutive And Fast Operation
3. USB host for Data Storage and Display Screen Retrival
4. Four Wire Measurement Terminal
5. Universal Power Input AC 100-240V
6. USB Interface (Type B)
7. RS-232C Port
8. Handler Port

FEATURES

Features

- 3.5” Color LCD Display
- Consecutive test frequency
- Basic Accuracy of 0.05%
- Measuring speed upto 25ms (max)
- Full Frequency range or SPOT OPEN/SHORT
- 16 Major/Secondary Parameter Measurement Combinations and 2 additional Monitoring Parameters (maximum four different parameters can be shown simultanously)
- DCR Measurement and Internal D.C. Bias Voltage(±2.5V)
- PASS/FAIL Judgement
- Auto Level Control (ALC) Function
- BIN Function Provides 9BIN and 1AUX, Totally 10BIN
- 10 Steps listed tests to select different Frequecny, Voltage and Current Criteria
- Standard Interface: RS232C, USB, Handler and USB Storage
- Compact Size, Ideal for Automatic Equipment (2U, 1/2 Rack)

A. Consecutive Frequency and Convenient Zero Function

Consecutive and Adjustable Frequency

Freely Input Frequency Within Provided Frequency Range

Selectable Fixture Zeroing Methods

Full Frequency Range Zero or Spot Zero

B. Rich and Diverse Information Display

MEAS Display

Parameter Setting and Four Measurement Parameters

ENLARGE Display

Enlarge Measurement Results and Include PASS/FAIL Judgment

The T3LCR series, within the provided frequency range, features consecutive and adjustable frequency capability which allows users to conduct measurement and analysis on components with the most genuine frequency requirements. For OPEN/SHORT fixture compensation function, the T3LCR series is equipped with full frequency range zero and spot zero selections. After executing full frequency range users can freely change test frequency to execute component measurements without having to power off the instrument or changing the test fixture. This allows for a faster measurement time during repeated zeroing operations.

The measurement result display of the T3LCR series not only displays major and secondary measurement parameters but also includes two monitoring parameters. Therefore, four DUT related parameters can be simultaneously shown on the display screen to save time if repeated measurements are required. With respect to display screen, the T3LCR series features diverse display to meet user observation requirements. For instance, MEAS display shows setting parameters and measurement results at the same time; ENLARGE display focuses on measurement results and PASS/FAIL judgment is available, which assists engineers to swiftly obtain the validity of measurement results.

C. Diverse Ancillary Measurement Functions

Automatic Level Control
Ideal for Measuring Components With Voltage Requirements

Internal Bias (±2.5V Adjustable)
Ideal for Capacitive Components' Characteristic Tests

D.C. Resistance Measurement
Ideal for inductive components' D.C. Characteristics Verification

To satisfy the diverse measurement application requirements for different components and materials, the T3LCR series offers many auxiliary measurement functions.

Automatic Level Control (ALC) fucntion is mainly for components which requires a constant or rated test voltage such as multi-layer ceramic capacitor (MLCC).

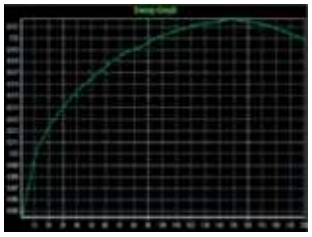
An internal D.C. bias voltage (±2.5V) allows simulating A.C and D.C simultanously to measure the capacitance variation.

For measurements involving inductors, the D.C. resistance measurement function allows the user to validate D.C. Resistance characteristics.

Additionally, the Auto LCZ function helps in selection of proper measurement parameters automatically. The Auto LCZ fuction, when activated will automatically determine the characteristics of the DUT and dispay the optimum measurement parameters.

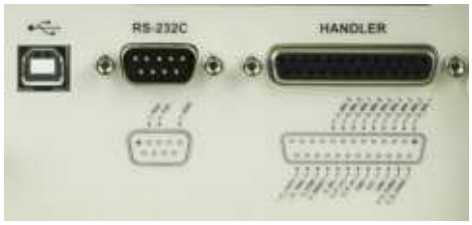
D. 10 Points Listed Tests and PC Software

Listed Tests
Variation Criteria Based Upon Frequency or Voltage/Current



On Software - Characteristic Curve
Provide More Delicate Characteristic Variation Trend

E. Standard Interface



Standard Interface

The T3LCR series provides the 10 points listed test function, which allows users to define a set of DUT measurement parameters (such as Cs-Rs) and to set 10 test criteria of category (either by frequency or by voltage or by current) but different values to conduct measurements. Through this function, users can rapidly and clearly obtain DUT 's characteristic variation trend to determine the adaptability of DUT 's practical applications. The measurement results can be recorded directly in the internal memory and be transferred to the PC through USB. The T3LCR series also provides free PC software (maximum 1,000 points listed tests) in order to satisfy users' analytical requirements on delicate variation.

For interface connectivity, the T3LCR series comes equipped with Handler interface, RS-232C and USB interface. Handler outputs 10 BIN (9BIN, AUX: 1BIN) sorting results that is best for external connection control, for instance, connecting to a sorting machine to conduct components 'sorting operation. RS-232C and USB is suitable for remote control and measurement results retrieval. The PC gives commands to control settings or to read measurement results so as to achieve the requirements of verifying automotive applications.

SPECIFICATIONS

TEST FREQUENCY			T3LCR1300 : 10Hz ~ 300kHz(±0.01%) (4 digits resolution) T3LCR1100 : 10Hz ~ 100kHz(±0.01%) (4 digits resolution) T3LCR1002 : 10Hz ~ 2kHz(±0.01%) (4 digits resolution)
OUTPUT IMPEDANCE			30Ω / 50Ω / 100Ω selectable
BASIC ACCURACY	Slow / Med		0.05%
	Fast		0.1%
TEST SPEED			FAST : 25ms / MED : 100ms / SLOW : 333ms
TEST SIGNAL LEVELS	AC	Voltage	10.00mV- 2.00V (±10%) CV : 10.00mV- 2.00V (±6%)
		Current	100.0 A- 20.00mA (±10%) CC : 100.0 A- 20.00mA(±6%) (@2VMax)
	DCR		±1V(2Vpp), Square wave, 3Hz up 0.033A(Max)
DC BIAS	Internal		±2.5V (0.5% + 0.005V)
DISPLAY RANGE	R, X, |Z|		0.00001Ω ~ 99.9999MΩ
	G, B, |Y|		0.01nS ~ 999.999S
	L		0.00001 H ~ 9999.99H
	C		0.00001pF ~ 9999.99mF
	D		0.00001 ~ 9.99999
	Q		0.00001 ~ 9.99999
	θ d		-179.999° ~ 179.999°
	θ r		-3.14159 ~ 3.14159
	DCR		0.00001Ω ~ 99.9999MΩ
	Δ%		-99999% ~ 99999%
TEST MODE	Combinations		Cs-Rs, Cs-D, Cp-Rp, Cp-D, Lp-Rp, Lp-Q, Ls-Rs, Ls-Q, Rs-Q, Rp-Q, R-X, DCR, Z- θr, Z- θd, Z-D, Z-Q, Auto LCZ
	Monitor Parameter (2 Selectable)		Z, D, Q, Vac, Iac, Δ, Δ%, θr, θd, R, X, G, B, Y
LISTED MODE			10 steps
BIN FUNCTION			Comparator (9BIN,AUX:1BIN)
MEMORY	INT – Panel Setting		10 file name
	INT – Measured Data		10000 Data(.csv)
	USB Storage		10 file name for setting, 9999 file name for data, 999 Log file for LCD screen
OTHER FUNCTION	Auto Level Control (ALC)		ON/OFF
	Average		1~256 times
	Trigger		INT / MAN / EXT / BUS
	Delay		0ms~60s
	Judgment		PASS / FAIL
	Screen Capture		Saving in to USB (Bmp form)
DISPLAY			3.5" LCD, RGB color (320x240)
INTERFACE			RS-232(SCPI), Handler, USB
POWER SOURCE			AC 100V ~ 240V, 50 ~ 60Hz, Max. 30W
DIMENSIONS & WEIGHT			265(W) x 107(H) x 312(D) mm ; Approx. 3kg

ORDERING INFORMATION

T3LCR1002	**LCR Meter 10Hz - 2KHz High Precision**
T3LCR1100	**LCR Meter 10Hz - 100KHz High Precision**
T3LCR1300	**LCR Meter 10Hz - 300KHz High Precision**

STANDARD ACCESSORIES		Qty.
	Test Lead	1
	Power Cord	1
	D-SUB	1

ABOUT TELEDYNE TEST TOOLS

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Company Profile

Teledyne LeCroy is a leading provider of oscilloscopes, protocol analyzers and related test and measurement solutions that enable companies across a wide range of industries to design and test electronic devices of all types. Since our founding in 1964, we have focused on creating products that improve productivity by helping engineers resolve design issues faster and more effectively. Oscilloscopes are tools used by designers and engineers to measure and analyze complex electronic signals in order to develop high-performance systems and to validate electronic designs in order to improve time to market.

The Teledyne Test Tools brand extends the Teledyne LeCroy product portfolio with a comprehensive range of test equipment solutions. This new range of products delivers a broad range of quality test solutions that enable engineers to rapidly validate product and design and reduce time-to-market. Designers, engineers and educators rely on Teledyne Test Tools solutions to meet their most challenging needs for testing, education and electronics validation.

Location and Facilities

Headquartered in Chestnut Ridge, New York, Teledyne Test Tools and Teledyne LeCroy has sales, service and development subsidiaries in the US and throughout Europe and Asia. Teledyne Test Tools and Teledyne LeCroy products are employed across a wide variety of industries, including semiconductor, computer, consumer electronics, education, military/aerospace, automotive/industrial, and telecommunications.

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T3 stands for Teledyne Test Tools.

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