Joy-IT JT-DSO-LCR500 Digital Oscilloscope Component Tester and Signal Generator User Manual

Joy-IT JT-DSO-LCR500 Digital Oscilloscope Component Tester and Signal Generator

Contents

GENERAL INFORMATION

Dear customer, thank you for choosing our product. In the following, we will show you what to pay attention to during commissioning and use.

If you encounter any unexpected problems during use, please feel free to contact us.

DEVICE-OVERVIEW

BUTTON	OPERATION	FUNCTION
	Short press Long press	Turn on / return Turn off
	Short press Long press	Confirm / Start measurement Open device settings
	Short press Long press	Move right Turn on /off overview in oscilloscope mode
	Short press Long press	Move left Pause/Restart measurement in oscilloscope mode
	Short press Long press	Down / Decrease value Continuous switching
	Short press Long press	Up / Increase value Continuous switching

RESET

To do this, pierce the marked opening on the device’s case with a thin object, and the device will restart.

SPECIFICATIONS

OSCILLOSCOPE SPECIFICATIONS

Sampling rate	10 MS/s
Analog bandwidth	0 – 500 kHz
Input resistance	1 MΩ
Coupling	AC / DC
Test voltage range	1:1: 80Vpp (-40 – 40 V) / 10:1: 800Vpp (-400 V – 400 V)
Vertical sensitivity	10 mV/Div – 10 V/Div
Horizontal time base	10 µs – 10s
Trigger modes	Automatic, normal, single
Trigger types	Falling edge, rising edge

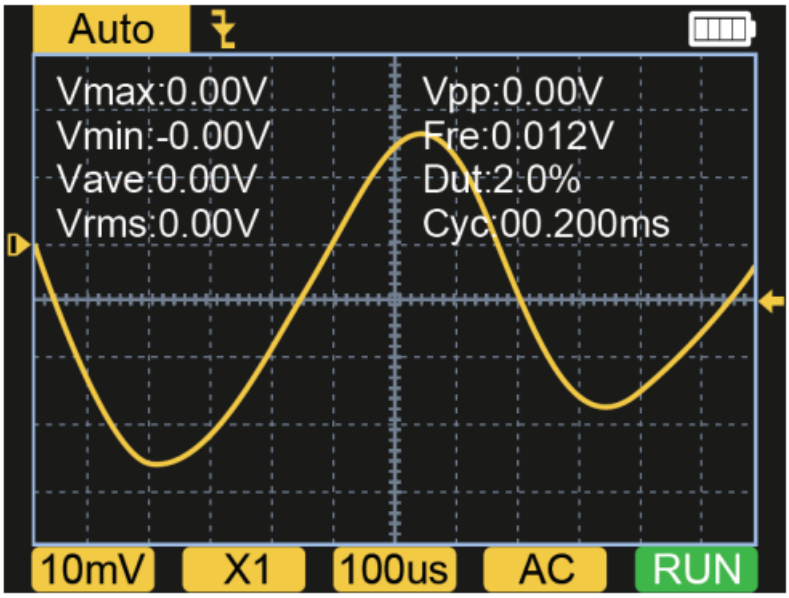
MEASURABLE COMPONENTS

Triodes hFE > 10, hFE < 600	Amplification (hFE), base-emitter-voltage (Ube), collector-emitter reverse cut-off current (ICEO, ICES), protection diode forward voltage drop (Uf)
Diodes Durchlass Spannungsabfall < 5 V	Forward voltage drop, junction capacitance reverse leakage current
Zener diodes 1-2-3 Testbereich: 0,01 – 4,5 V K-A-A Testbericht: 0,01 – 24 V	**1-2-3:** Forward voltage drop, reverse breakdown voltage **K-A-A:** Reverse breakdown voltage
Field effect transistors JFET IGBT MOSFET	**JFET:** Gate capacitance (Cg), drain current (Id at Vgs), protection diode forward voltage drop (Uf), **IGBT:** drain current (Id at Vgs), protection diode forward voltage drop (Uf) **MOSFET:** turn-on voltage (Vt), gate capacitance (Cg), drain-source resistance (Rds), protection diode forward voltage drop (Uf)
Silicon rectifier & thyristor triodes Einschaltspannung < 5 V Gate-Trigger Strom < 6 mA	Gate voltage
Capacitors 25 pF – 100 mF	Capacity, loss factor (Vloss)
Resistors 0,01 Ω – 50 MΩ	Resistance
Inductors 10 uH – 1000 uH	Inductance value, DC resistance
Batteries 0,01 – 4,5 V	Voltage value, positive & negative polarity
Input voltages 0 – 16 V	Voltage value

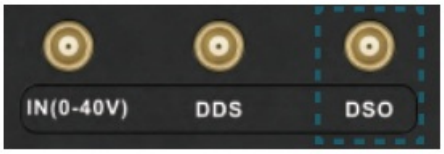
SIGNAL-GENERATOR SPECIFICATIONS

Sine wave	1 – 100 kHz, 0 – 3,3 V, 50%
Square wave	1 – 100 kHz, 3,3 V, 50%
Pulse wave	1 – 100 kHz, 3,3 V, 0 – 100%
Triangle wave	1 – 100 kHz, 0 – 3,3 V, 50%
Ramp wave	1 – 100 kHz, 0 – 3,3 V, 0 – 100%
DC	0 – 3,3 V

OSCILLOSCOPE



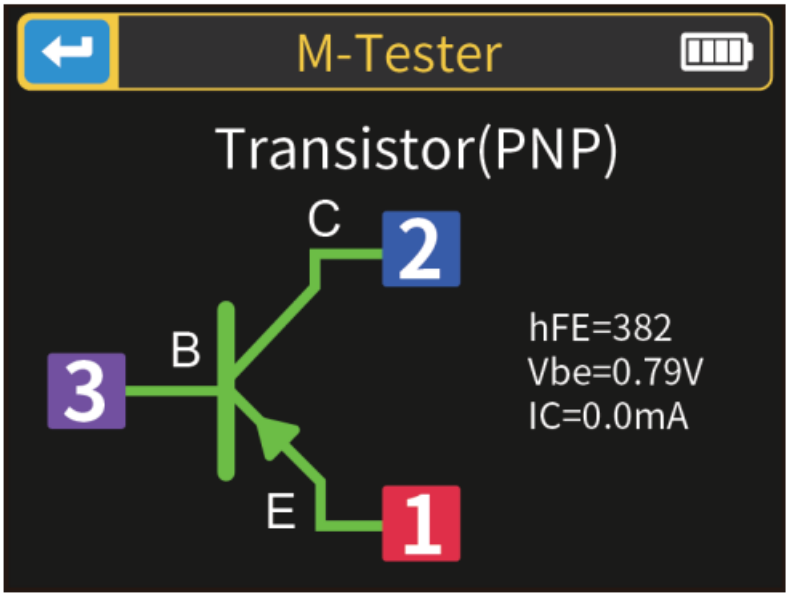
First, connect your preferred test probe to the DSO port on the top of your instrument.



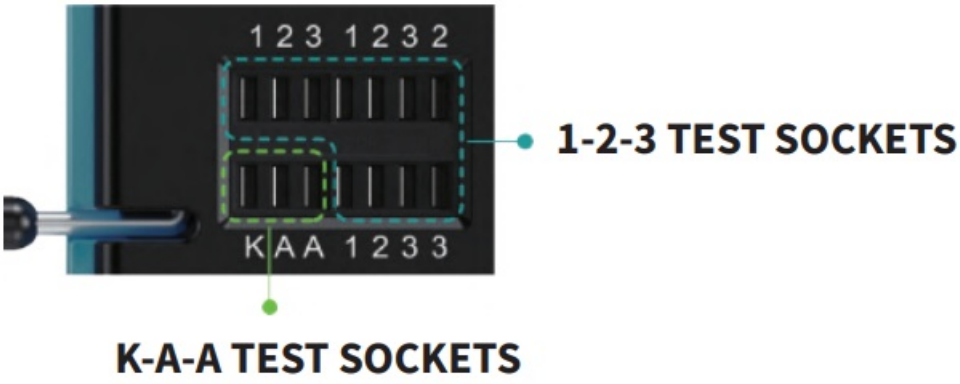
After you have started the oscilloscope you can use the left arrow key and the right arrow key to select the different setting options. Use the up and down keys to adjust the respective setting.

Press the OK key to have the setting options performed automatically. If you keep the RUN key pressed, you can pause or resume the current measurement.

COMPONENT TESTER



After you have started the component tester, you can connect your component to the test socket of your device.



The connectors with identical labeling are connected to each other. Secure your component after you have inserted it by flipping the locking lever at the left of the test sockets.

After you have saved your component, you can start the test by pressing the OK button.

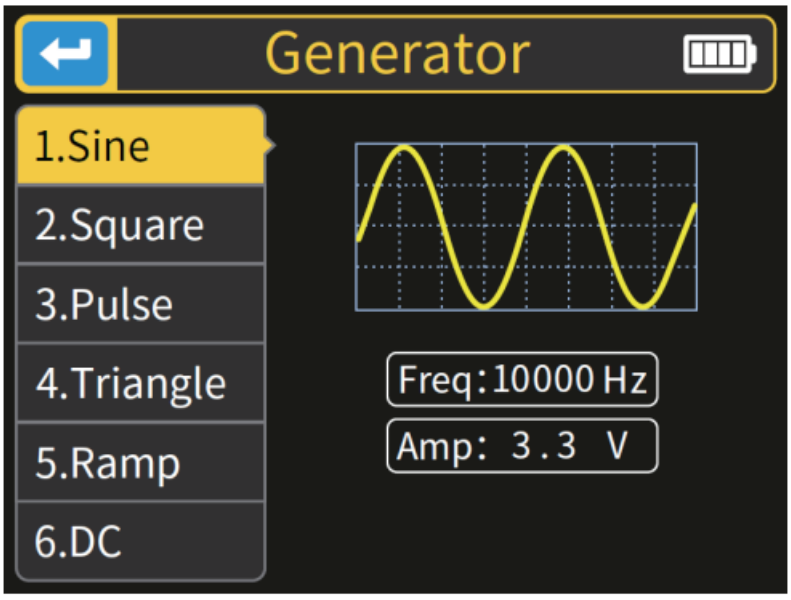
K-A-A TEST SOCKETS: The K-A-A test sockets are a special range for the measurement of forward voltages in reverse direction. A voltage of 30 V or more is applied. The K-terminal represents the positive pole, the A terminal the negative pole..

CAPACITOR MEASUREMENT: Always discharge your capacitor before taking a capacitance measurement. Otherwise, the device could be damaged.

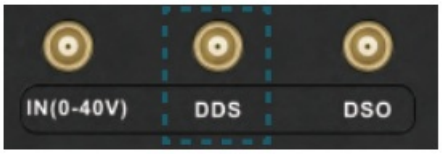
USE OF COMPONENTS WITHIN SPECIFICATIONS:
Please ensure that all components under test operate within their specified operating parameters. Using components outside their specifications can lead to inaccurate test results and, in the worst case, even damage the device or the component under test.

DEVIATIONS AND MISIDENTIFICATIONS:
Despite the advanced technology and high accuracy of our instrument, there may be variations in the test results with such a wide variety of components. It is also possible that some components may not be identified correctly or at all due to their specific characteristics or conditions.

SIGNAL-GENERATOR



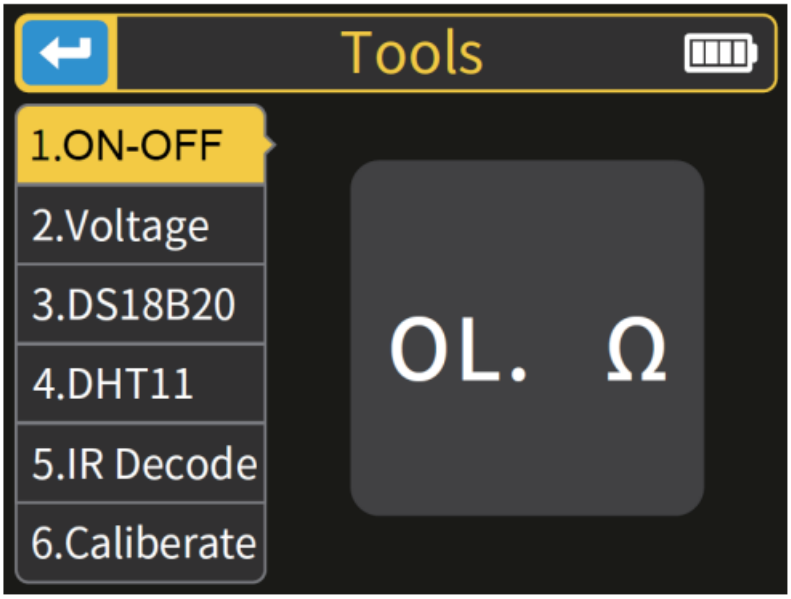
First, connect your preferred connection cable to the DDS port on the top of your device.



After you have started the signal generator, you can select the desired waveform. Using the right arrow key, you can configure the selected frequency.

Here, depending on the frequency, the options of frequency, amplitude and duty cycle are available.

ADDITIONAL TOOLS



After you open the Tools menu, you will have more tools to choose from:

On-Off: Continuity test – Connect two test probes to different terminals of the test bays (e.g. 1 & 3). As soon as a continuous circuit is detected, a signal sounds.

Voltage: Voltage measurement – Connect the test probe of your choice to the IN (0 – 40 V) port on the top of your instrument. The measured voltage will be displayed on the instrument.

DS18B20: Measuring DS18B20 temperature sensors – Connect your sensor to the test sockets 1, 2 and 3. The measurement starts automatically.

DHT11: Measurement of DHT11 temperature sensors – Connect pins 1, 2 and 4 of your DHT11 sensor to test sockets 1, 2 and 3 of your instrument. The measurement starts automatically.

NOTICE: Due to the complexity and variety of DS18B20 and DHT11 sensors, it is possible that not all sensors can be detected correctly. Our device is designed and tested to detect and measure original sensors. If a sensor cannot be detected, this could be due to a number of factors. In particular, we would like to point out that there are counterfeit sensors circulating on the market that differ from the originals in terms of their design and functionality. Such sensors may not be correctly detected or measured by our device.

IR Decoder: Point your infrared remote control at the IR marker and press a button on the remote control. The device automatically starts decoding the signal and, after successful decoding, displays the data and user codes, as well as the infrared waveform.

Calibration: Connect 3 test probes to the test sockets 1, 2 and 3. Connect the 3 tips to start the automatic calibration. During the calibration process, you will be prompted to disconnect the test probes again. Afterwards, the calibration is completed automatically.

SETTINGS

Press and hold the menu button to open the settings. Here you can make the following configurations:

Logo: Disables or enables the logo when the device is booted.

Language: Switches the language between English and German.

Volume: Continuous adjustment of the device volume. The setting does not affect the sound during the continuity test.

Brightness: Stepless adjustment of the screen brightness.

Auto-Menu: On: Opens the last selected menu when the device is switched on. Off: Starts the device in the main menu.

OTHER INFORMATION

OUR INFORMATION AND TAKE-BACK OBLIGATIONS UNDER THE GERMAN ELECTRICAL AND ELECTRONIC EQUIPMENT ACT (ELEKTROG)

SYMBOL ON ELECTRICAL AND ELECTRONIC EQUIPMENT:
This crossed-out trash can means that electrical and electronic equipment does not belong in the household trash. You must hand in the old equipment at a collection point. Before dropping off, you must separate used batteries and accumulators that are not enclosed in the old device from the old device.

RETURN OPTIONS:
As an end user, when you purchase a new device, you can return your old device (which essentially fulfills the same function as the new one purchased from us) for disposal free of charge. Small appliances with no external dimensions larger than 25 cm can be returned in household quantities, regardless of the purchase of a new appliance.

POSSIBILITY RETURN TO OUR COMPANY LOCATION DURING OPENING HOURS:
SIMAC Electronics GmbH, Pascalstr. 8, D-47506 Neukirchen-Vluyn

POSSIBILITY RETURN IN YOUR AREA:
We will send you a parcel stamp with which you can return the device to us free of charge. To do this, please contact us by e-mail at **service@joy-it.net** or by phone.

PACKAGING INFORMATION:
Please pack your old device securely for transport. If you do not have suitable packaging material or do not wish to use your own, please contact us and we will send you suitable packaging.

SAFETY INSTRUCTIONS

FOLLOW THE INSTRUCTIONS: Always use this device in accordance with the instructions in the operating manual. Improper use may result in damage to the device or the components under test and poses a danger to you and others.

OPERATION WITHIN SPECIFICATIONS: Only use the device in the operating conditions specified in the technical data. Use outside these parameters may shorten the service life of the device or impair its function.

AVOID MOISTURE: Do not expose the device to moisture or liquids. Liquids can cause short circuits and irreparably damage the device or the components under test.

SAFETY WHEN WORKING WITH CIRCUITS: Never touch electrical circuits or components while they are live. This can result in serious injury or even death. Make sure that the circuits to be tested are always de-energized before you start testing.

KNOWLEDGE: Only use this device if you have the required knowledge and skills to handle electronic components and devices safely. Insufficient knowledge and lack of experience can lead to dangerous situations.

UNINTENDED MODIFICATIONS: Any attempt to modify or repair the unit, except by qualified service technicians, may result in damage or malfunction and will void the warranty.

SUPPORT

We are also there for you after the purchase. If you have any questions or problems, we are also available by e-mail, phone and ticket support system, telephone and ticket support system.

E-Mail: service@joy-it.net
Ticket-System: http://support.joy-it.net
Phone: +49 (0)2845 98469 – 66 (9 – 17 ó clock)

For more information, visit our website: **www.joy-it.net**

Documents / Resources

	Joy-IT JT-DSO-LCR500 Digital Oscilloscope Component Tester and Signal Generator [pdf] User Manual JT-DSO-LCR500 Digital Oscilloscope Component Tester and Signal Generator, JT-DSO-LCR500, Digital Oscilloscope Component Tester and Signal Generator, Component Tester and Signal Generator, Signal Generator, Generator

References

- ITnet | Servizi di Colocation e Cloud
- Joy-IT Helpdesk
- For Makers and Professionals | Joy-IT