TELEDYNE TEST TOOLS
Everywhereyoulook™

T3PS16081P / 30051P Programmable Linear DC Power Supplies

Quick Start Guide

Contents

General Safety Summary

Read the following precautions carefully to avoid any personal injuries, or damage to the instrument or products connected to it. Use the instrument only as specified.

Use only the power cord supplied for the instrument.

Ground the instrument. The instrument is grounded through the ground conductor of the power cord. To avoid electric shock, always connect to grounded outlets. Make sure the instrument is grounded correctly before connecting its input or output terminals.

Observe all terminal ratings and signs on the instrument to avoid fire or electric shock. Before connecting to the instrument, read the manual to understand the input/output ratings.

Do not operate with suspected failures. If you suspect that the instrument is damaged, contact the Teledyne LeCroy Service Department immediately.

Do not operate in wet/damp conditions.

Do not operate in an explosive atmosphere.

Keep the surface of the instrument clean and dry.

Avoid touching exposed circuits or wires. Do not touch exposed contacts or components when the power is on.

Do not operate without covers. Do not operate the instrument with covers or panels removed.

Use only the fuse specified for the instrument.

Use proper overvoltage protection.

Observe ventilation requirements. Ensure good ventilation. Check the vent and fan regularly to prevent overheating.

Safety Terms and Symbols

The following terms may appear on the instrument:

DANGER: Direct injury or hazard may occur.

WARNING: Potential injury or hazard may occur.

CAUTION: Potential damage to instrument/property may occur.

The following symbols may appear on the instrument:

CAUTION Risk of injury or damage. Refer to manual.	**WARNING** Risk of electric shock or burn	Earth Ground Terminal	Protective Conductor Terminal	Frame or Chassis Terminal	Power (On/Off)	Alternating Current

Operating Environment

Temperature: 0 °C to 40 °C

Relative Humidity: ≤ 80% RH at ≤ 30 °C

Altitude: ≤ 2000 m at ≤ 30 °C

Use indoors only.

Pollution degree 2. Use in an operating environment where normally only dry, non-conductive pollution occurs. Temporary conductivity caused by condensation should be expected.

AC Power

Input Voltage & Frequency: 100/120/220/230 V ± 10%, 50/60 Hz

The fuse type: 100/120 V: T6.3A/250V
220/230 V : T3.15A/250V

Mains Supply Connector: CAT II per IEC/EN 61010-1:2010, instrument intended to be supplied from the building wiring at utilization points (socket outlets and similar).

T3PS16081P / 30051P Brief Introduction

The Teledyne Test Tools Programmable DC Power Supply has a 2.8 inch TFT-LCD screen, programmable output, and real time measurement graphing. The T3PS16081P has a maximum output values of 16 V / 8 A, while the T3PS30051P has a maximum output value of 30 V / 5 A. Both models have remote sense capability, output short circuit and overload protection.

T3PS16081P and T3PS30051P

Figure 1: Side view

Main features:

- Single high-precision programmable output:
  T3PS16081P：16 V / 8 A, total power is 128 W
  T3PS30051P：30 V / 5 A, total power is 150 W

- Compact, easy to use, powerful, ideal for bench power supply applications

- Stable, Reliable and Low Noise: ≤ 350 uVrms / 3 mVpp

- Fast Transient Response Time: < 50μs
- Maximum resolution of 1mV/ 1mA with 5-bit voltage and 4-bit current display.
- Timer function sequences pre-set output values
- High resolution 2.8 inch TFT LCD(240*320 pixels)
- Two output modes: two-wire output and remote sense compensation function (maximum compensation up to 1V)
- Four varieties of input-line voltage values include 100V, 110V, 220V and 230V to satisfy user requirements
- Intelligent temperature-controlled fan, effectively reduces noise
- Clear graphical interface, with waveform display
- 5 internal system parameters save / recall, support for data storage space expansion
- Uses EasyPower PC software, real-time control via USB, LAN, support SCPI command set and LabView driver package to meet the remote control and communication requirements

General Inspection

Please inspect your new instrument follow the steps below.

1. Inspect the shipping container

Keep the shipping container or cushioning material until the contents of the shipment have been completely checked and the instrument has passed both electrical and mechanical tests.

2. Inspect the instrument

If there is damage, defects, or failures in electrical and mechanical tests of the product, please contact your nearest **Teledyne LeCroy** sales representative.

3. Check the accessories

Please check the accessories according to the packing list. If the accessories are incomplete or damaged, please contact your **Teledyne LeCroy** sales representative.

The Front Panel

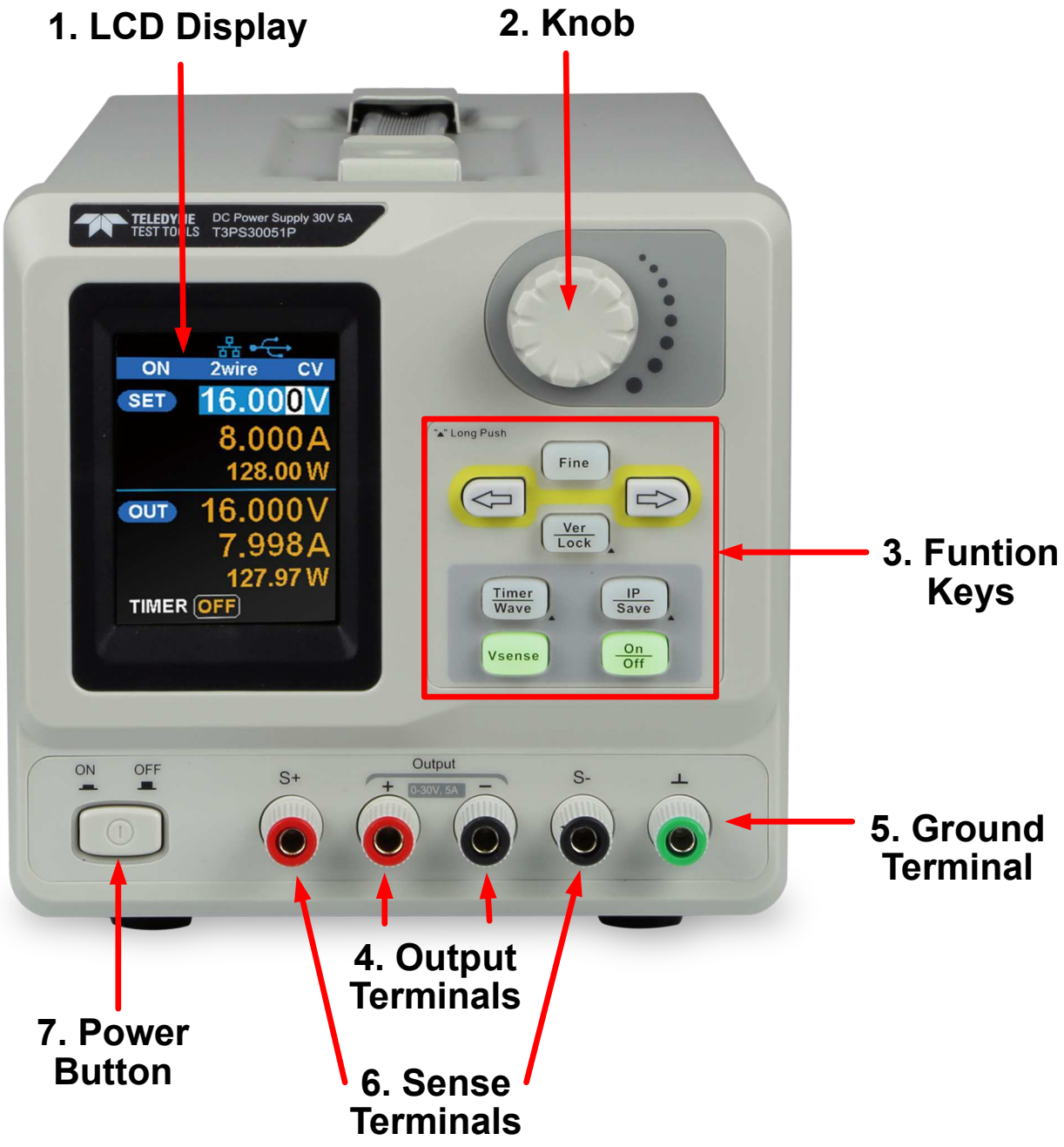


Figure 2: The front panel of the T3PS16081P and T3PS30051P

1. LCD

2.8 inch TFT display. It is used to display system parameter settings, system output state, menu options, prompt messages, etc.

2. Knob

When setting parameters, rotate the knob to increase or decrease the value of the digit at the cursor.

3. Function keys and Power button

When setting parameters, press the Fine button to move the cursor to select the position of digit to be modified.


The right and left direction buttons move the cursor to select the parameter to be modified.

Press the button briefly to enter the system message interface. Press the button for 1 second or longer to activate the lock function.

Press the button briefly to enter the timer interface. Press the left button to move the cursor from left to right，press the right button to move the cursor in the opposite direction. In the timer interface or main interface, press the On/Off button briefly to turn on/off the timer. Press the button for 1 second or longer to enter the waveform display mode.

Press the button briefly to configure the network connection information. Then press the left button to move the cursor from right to left, press the right button to move the cursor from left to right. Choose the DHCP window, press the On/Off button for a short period to turn On/Off the DHCP function.

Press the button for a longer period to enter the storage function system. Press the Fine button for a short period to choose the subproject, then press the Fine button for a longer period to determine the choice.

Press the button to enable/disable the remote sense function.

Press the button to enable/disable the channel output.

4. Output Terminals

Physical output connections to the external circuit.

5. Ground Terminal

This terminal is connected to the instrument chassis and ground wire, and is therefore in a grounded state.

6. Sense Terminals

Used to sense the voltage at the load. This allows the source to compensate for the voltage drop caused by the leads between the power supply and the load. Using the sense terminals increases the accuracy of the voltage delivered to the load.

7. Power key

Turn the instrument on or off.

The Rear Panel

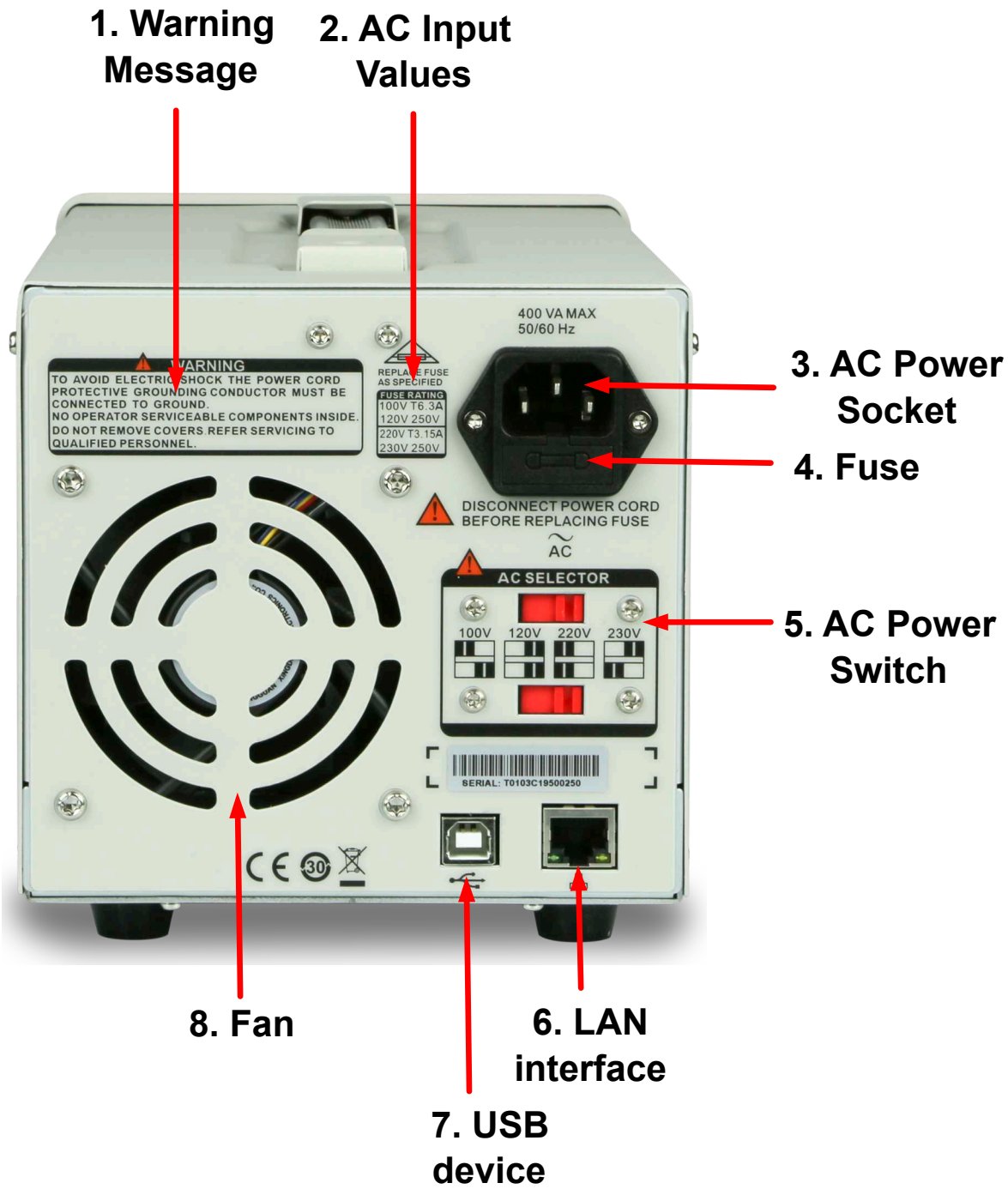


Figure 3: The rear panel

1. Warning message

Safety message regarding operation and service.

2. AC input voltage description

The voltage frequency and the specified fuse have to match the AC input.

3. AC power socket

The socket for AC input power.

4. Fuse

The specified fuse relates to the input voltage (Please refer to the **"AC input voltage description"**)

5. AC line power selection switch

AC Input Voltages: 100/120/220/230 V

6. LAN interface

Connect to the local network using the RJ45 interface.

7. USB device

Used when connecting the instrument to an external computer to allow remote control.

8. Fan

Connect power

The power supply supports a variety of AC line power input values. For each line voltage, the rear panel voltage selector settings are different, as shown in table 1 below.

Table 1: AC input line power specifications

AC power input	Voltage selector configure
100 VAC ± 10% , 50 - 60 Hz	
120 VAC ± 10% , 50 - 60 Hz	
220 VAC ± 10% , 50 - 60 Hz	
230 VAC ± 10% , 50 - 60 Hz	

Please connect the power carefully and follow the steps below:

1. **Check the input power**
   Make certain that the AC line power to be connect to the instrument meets the requirements in Table 1.

2. **Check the voltage selector at the rear panel**
   Make certain that the voltage selector setting at the rear panel of the instrument matches the actual input voltage.

3. **Check the fuse**
   When the instrument leaves factory, the specified fuse is installed.

Please check whether the fuse matches the actual input voltage according to the "Input Power Requirements" at the rear panel of the instrument.

4. Connect the power

Connect the instrument to the AC power supply using the power cord provided in the accessories. Then press the  button to turn on the power.

WARNING

Before connecting the input power supply voltage, please set the voltage selector for the appropriate voltage.

WARNING

To avoid electric shock, please ensure that the instrument is correctly grounded.

User interface

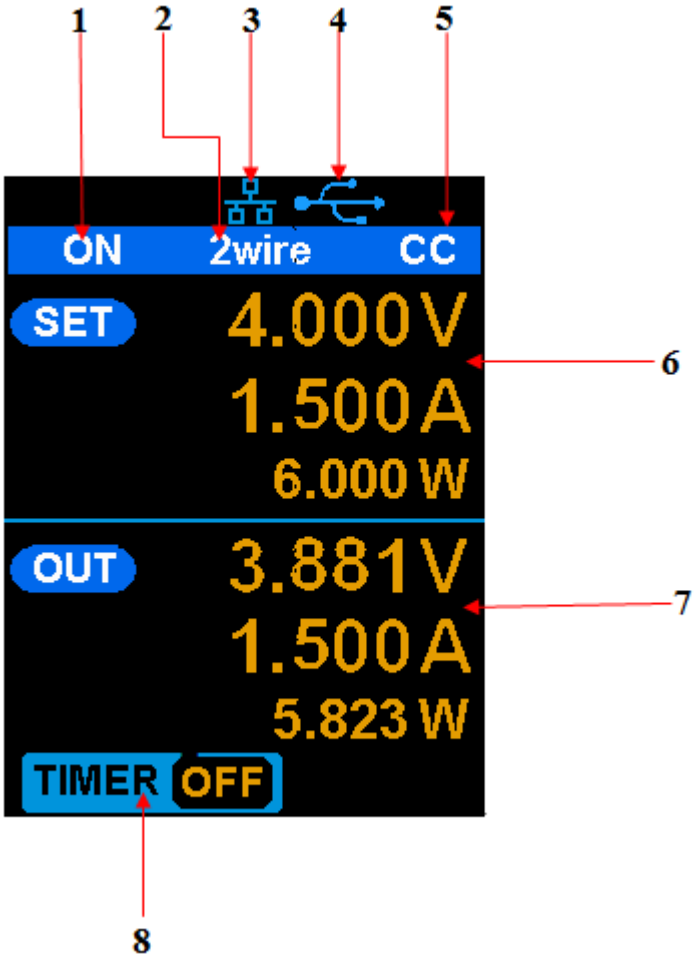


Figure 4: The user interface

1. **Channel output state**
2. **Remote sense mode**
3. **LAN connection icon**
4. **USB connection icon**
5. **Output mode**
6. **Output programmed values**
7. **Measured output values**
8. **Timer state**

Output Inspection

1. Check the output voltage

- Turn on the power and make sure the channel current setting is not zero when the instrument has no-load.
- Press on/off button, the supply should be working in constant voltage (CV) mode. You can check the voltage range of the T3PS16081P by adjusting the voltage setpoint from the minimum (0 V) to the maximum value (16 V), and the voltage range of the T3PS30051P by adjusting the voltage setpoint from the minimum (0 V) to the maximum value (30 V).

2. Check the output current

- Turn on the power and make sure the voltage setting is not zero.
- Connect the output terminals (short) with an insulated wire that can handle 10 A or more (18 AWG single core, for example).
- Activate the output by pressing the on/off button. The low impedance (shorted) output will cause the instrument to enter current control (CC) mode. You can check the current range of the T3PS16081P by adjusting the current setpoint from the minimum (0 A) to the maximum value (8 A), and the current range of the T3PS30051P by adjusting the current set point from the minimum (0 A) to the maximum value (5 A).

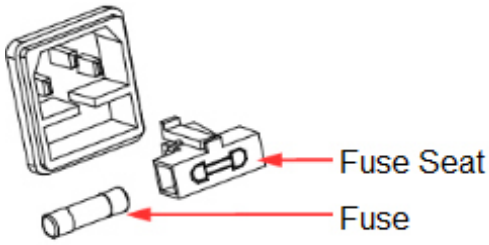
Fuse Replacement

The specifications of the fuse are relative to the actual input line voltage, shown in the table below. You can also refer to the rear panel “Input power requirement”.

Input voltage	Fuse specification
100/120 VAC	T6.3A
220/230 VAC	T3.15A

To replace the fuse, please follow the steps below:

1. Turn off the instrument and remove the power cord.
2. Insert a small straight screwdriver into the slot at the power socket and gently pry out the fuse seat.



3. Adjust the power voltage selector manually to select the correct voltage scale.
4. Take out the fuse and replace it with the specified fuse (to check the relationship between the input voltage and the fuse specification, refer to the “Input power requirement” on the rear panel).
5. Re-insert the fuse holder into the power socket (please pay attention to the alignment).

WARNING

To avoid personal injuries, unplug the power supply before replacing the fuse. To avoid electric shock or fire, select the proper power supply specification and the correctly rated fuse.

Troubleshooting

Here are some common failures and their solutions. If the problem persists after following the listed steps, please contact **Teledyne LeCroy**.

1. The instrument will not start up.

- Check whether the power is correctly connected.
- Check whether the power switch at the front panel is on.
- Remove the power cord and check whether the voltage selector is on the correct scale, whether the specification of the fuse is correct and whether the fuse is intact. If the fuse needs to be changed, please refer to "**To Replace the Fuse**".
- If the problem remains, please contact **Teledyne LeCroy**.

2. The constant voltage output is abnormal.

- Check whether the maximum output power of the scale currently selected fulfills the load requirement. If yes, go to the next step.
- Check the cable connecting the load and power supply for short-circuits.
- Check whether the load is normal.
- Check whether the current setting value of this scale is proper. If it is too low, increase it.
- If the problem remains, please contact **Teledyne LeCroy**.

3. The constant current output is abnormal.

- Check whether the maximum output power of the scale currently selected fulfills the load requirement. If yes, go to the next step.
- Check whether the cable connecting the load and power supply is in good condition.
- Check whether the load is normal.
- Check whether the voltage setting value of this scale is proper. If it is too low, increase it.
- If the problem remains, please contact **Teledyne LeCroy**.

This page is intentionally blank

TELEDYNE TEST TOOLS
Everywhereyoulook™

ABOUT TELEDYNE TEST TOOLS

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 expands on the Teledyne LeCroy product portfolio by adding a comprehensive range of test equipment solutions for its customers. The new range of product solutions deliver engineers with a broad range of quality test solutions that enables speed to market product validation and design. More and more designers, engineers and lecturers are relying on Teledyne Test Tools to meet their testing, education and electronics validation needs with confidence and within budget.

Location and Facilities

Headquartered in Chestnut Ridge, New York, Teledyne Test Tools and Teledyne LeCroy have 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.

Teledyne LeCroy (US Headquarters)

700 Chestnut Ridge Road
Chestnut Ridge, NY. USA
10977-6499
Phone: 800-553-2769 or 845-425-2000
Fax Sales: 845-578-5985
Email Sales: contact.corp@teledynelecroy.com
Email Support: support@teledynelecroy.com
(Oscilloscopes, Waveform Generators, Signal Integrity)
Web Site: http://teledynelecroy.com/
Phone Support: 1-800-553-2769

Teledyne LeCroy (European Headquarters)

Teledyne LeCroy GmbH
Im Breitspiel 11c
D-69126 Heidelberg, Germany
Phone: + 49 6221 82700
Fax: +49 6221 834655
Fax Sales: +49 6221 834655
Fax Service: +41 22 719 22 99
Email Sales: contact.gmbh@teledynelecroy.com
Email Service: service.gmbh@teledynelecroy.com
Email Support: applications.de@teledynelecroy.com
Web Site: http://teledynelecroy.com/germany
Phone Service: +49 6221 8270 85
Phone Support: +49 6221 8270 28