TELEDYNE TEST TOOLS
Everywhereyoulook™

Power Supplies Datasheet

Programmable High-Precision DC Power Supplies

Measure with Confidence

Current: Up to 5 Amps
Voltage: Up to 100 Volts
Power: Up to 108 Watts



Tools for Improved Debugging

• 0.03 % Voltage setting and measurement accuracy.	✓ Apply the desired voltage to the load accurately.
• Low Ripple Noise ≤ 1.2 mVrms and transient recovery time ≤ 100 µs.	✓ Improved power supply specifications meets your low noise power needs.
• Adjustable Slew Rates for the level transition of both Current and Voltage.	✓ Adjustable slew rates allows flexible output setting in various testing conditions.
• Ch1 and Ch2 support Constant Voltage and Constant Current Operation.	✓ Flexible voltage and current output configurations for a broader application coverage.
• Fully programmable via LAN, USB, RS-232 and RS-485 interface.	✓ Full remote control extends the usability from the bench to automated systems.
• 3 years warranty as standard.	✓ Reliable product gives peace of mind.

Models and Characteristics

Models	Voltage	Current	Power	Voltage Setting Accuracy	Current Setting Accuracy
T3PS20051P	20 V	5 A	100 W	0.03 %*	0.05 %*
T3PS36031P	36 V	3 A	108 W		
T3PS100011P	100 V	1 A	100 W		

* Refer the specifications section below for detailed specifications.

PROGRAMMABLE HIGH-PRECISION DC POWER SUPPLIES

The T3PS series of programmable high-precision DC power supplies offers three models; T3PS20051P (20 V / 5 A / 100 W), T3PS36031P (36 V / 3 A / 108 W), and T3PS100011P (100 V / 1 A / 100 W). This series has the low output noise (< 1.2 mVrms) and fast transient response characteristics (< 100 µs) of conventional linear power supplies. It also provides constant voltage and constant current priority output modes, and the series can also set the voltage and current rising/falling slew rates separately, and the delay time for the output to be turned on and off.

The T3PS series has four current levels and two voltage levels to provide users with high-precision measurements. The Data Logger function can be used for long-term measurement and recording of IoT devices, portable devices, wearable devices, and sensor components. The recorded data can be stored via USB interface.

In order to extend the use time of portable devices and wearable devices, manufacturers are not only committed to improving the operating efficiency of the circuit, but also reducing standby power consumption as much as possible. In order to satisfy users' low-power measurement applications, Teledyne Test Tools has introduced the T3PS Series with current measurement resolutions (0.1 µA, 1 µA, 10 µA, 0.1 mA) and voltage measurement resolutions (0.1 mV, 1 mV) to provide power for portable devices and wearable devices.

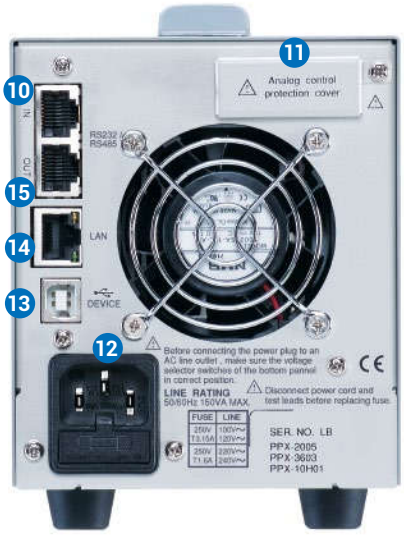
The T3PS series is capable of measuring the subtle current changes of the DUT even when the device enters the sleep or standby mode.

The T3PS series provides the Test Sequence function to allow users to arbitrarily define output waveforms. Different waveform parameters such as rise/fall time can be directly set and edited either via computer remotely, on the front panel or the CSV file. In addition, the OCP Delay function of the T3PS series allows users to flexibly adjust the over-current protection parameters based on DUT requirements.

The T3PS Series also supports temperature measurement using a K Type Thermocouple, the temperature range can be measured from −200 °C ~ +1372 °C. Standard communication interfaces include USB, LAN, RS-232 and RS-485.

PANEL INTRODUCTION





1. Panel Display
2. Display Switch Key
3. Knob
4. Output/key
5. Power Switch
6. Front Panel Output
7. Thermocouple Input Terminal
8. Voltage Compensation Terminal
9. USB Flash Port
10. Remote-IN
11. Analog Control Interface
12. AC Input Socket
13. USB Interface
14. LAN Interface
15. Remote-OUT

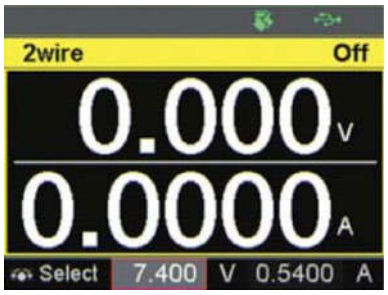
Features

- 2.4" TFT-LCD Panel.
- Preset memory function.
- Output ON/OFF delay function.
- CV, CC priority start function (prevents overshoot with output ON).
- Adjustable voltage and current slew rates.
- Bleeder circuit ON/OFF setting (to prevent over-discharging of batteries).
- OVP, OCP, AC Alarm and OTP protection.
- Supports test sequence.
- Web server monitoring and control (The function is activated when connecting to LAN Interface).
- Analog monitor output.
- Remote sensing to compensate for voltage drop in load leads.
- Support K type thermocouple temperature measurement.
- With 4 measuring currents and Manual / Auto shift function.
- Built-in USB, RS-232/485 and LAN interface.
- External analog control function.

A. DISPLAY MODE

The T3PS Series has four display modes, namely
1) voltage and current
2) voltage, current and wattage
3) voltage, current and Sequence Test
4) voltage, current and temperature measurement,

which are convenient for users to switch to different display modes according to test requirements.



Voltage and Current



Voltage, Current and Wattage



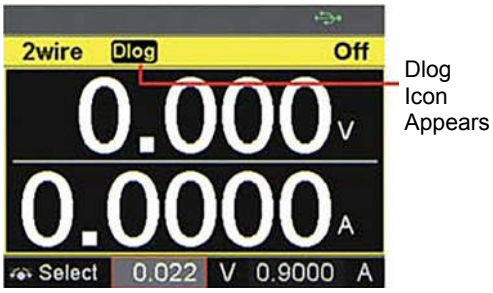
Voltage, Current and Sequence Test



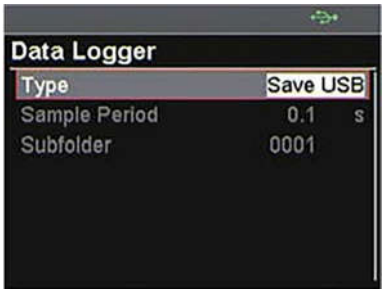
Voltage, Current and Temperature Measurement

B. DATA LOGGER

The T3PS series can record the measured voltage, current and temperature data to a USB flash drive or can be remotely controlled to read the data. Data sampling interval is 0.1 ~ 999.9 seconds.



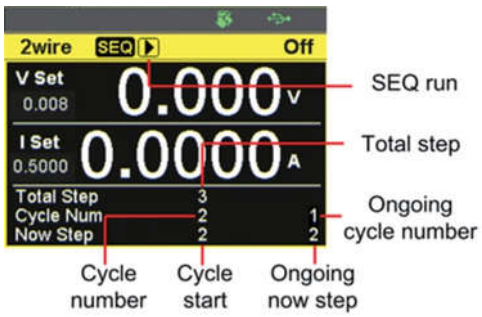
Data Logger Function



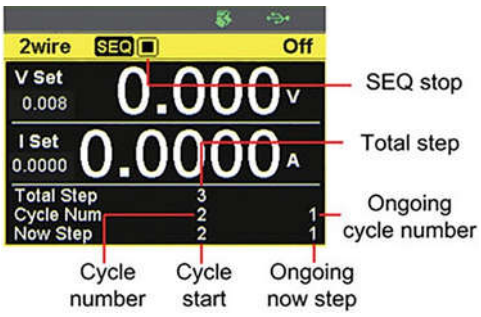
Save Data Log Into USB Disk

C. SEQUENCE TEST

The Sequence Test function allows the user to program the T3PS series to execute a sequential power output. The supply will automatically execute the power output sequence to the DUT.
The T3PS series can store 10 sets of edited Test Scripts in the internal memory and can also be connected to a USB flash drive to store Test Scripts.



SEQ Run in Cycle Mode



SEQ Stop in Cycle Mode

SPECIFICATIONS

Model		T3PS20051P	T3PS36031P	T3PS100011P
DC Output Mode				
Output Voltage		20.000 V	36.000 V	100.00 V
Output Current		5.0000 A	3.0000 A	1.0000 A
Output Power		100 W	108 W	100 W
Constant Voltage Operation				
Line Regulation		± (0.01 % of setting + 1 mV)	± (0.01 % of setting + 3 mV)	± (0.01 % of setting + 7 mV)
Load Regulation		± (0.01 % of setting + 3 mV)	± (0.01 % of setting + 4 mV)	± (0.01 % of setting + 7 mV)
Transient Response[1]		< 50 µs		< 100 µs
Ripple Noise(Vrms[2]/ Vpp[3])		0.5 mVrms / < 8 mVpp	0.8 mVrms / < 10 mVpp	1.2 mVrms / < 15 mVpp
Rise Time[4]	Rated load	≤ 50 ms	≤ 50 ms	≤ 100 ms
	No load	≤ 50 ms	≤ 50 ms	≤ 100 ms
Fall Time[5]	Rated load	≤ 20 ms	≤ 20 ms	≤ 50 ms
	No load	≤ 150 ms	≤ 150 ms	≤ 250 ms
Setting Range (105 %)		0 V to 21.0 V	0 V to 37.8 V	0 V to 105.0 V
Setting Resolution		1 mV	1 mV	2 mV
Setting Accuracy (23 °C ± 15 °C)		± (0.03 % of setting + 5 mV)	± (0.03 % of setting + 8 mV)	± (0.0 3% of setting + 20 mV)
Remote Sensing Compensation Voltage (single line)		1 V	1 V	3 V
Temperature Coefficient (Typ.)		100 ppm / °C		
Constant Current Operation				
Line Regulation		± (0.02 % of setting + 250 µA)	± (0.02 % of setting + 150 µA)	± (0.02 % of setting + 50 µA)
Load Regulation		± (0.02 % of setting + 250 µA)	± (0.02 % of setting + 150 µA)	± (0.02 % of setting + 50 µA)
Ripple Noise (Arms[2])		2 mA	1 mA	1 mA
Setting Range (105 %)		0 A to 5.25 A	0 A to 3.15 A	0 A to 1.050 A
Setting Resolution		0.1 mA		
Setting Accuracy (23 °C ± 5 °C)		± (0.05 % of setting + 3.0 mA)	± (0.05 % of setting + 1.5 mA)	± (0.05 % of setting + 1.0 mA)
Temperature Coefficient (Typ.)		200 ppm / °C		
Measurement Value Display				
Voltage Range	High	20.000 V	36.000 V	100.00 V
	Low	2.0000 V	3.6000 V	10.000 V
Current Range	High	5.0000 A	3.0000 A	1.0000 A
	Mid	500.00 mA	300.00 mA	100.00 mA
	Low	50.000 mA	30.000 mA	10.000 mA
	L-Low	5.0000 mA	3.0000 mA	1.0000 mA
Measurement Resolution	Voltage (H)	1 mV		10 mV
	Voltage (L)	0.1 mV		1 mV
	Current (H)	0.1 mA		
	Current (M)	0.01 mA		
	Current (L)	0.001 mA		
	Current (LL)	0.0001 mA		

[1] Time for output voltage to recover within ± (0.1 % + 10 mV) of its rated output for a load change from 50 % to 100 % of its rated output current
[2] Measurement frequency bandwidth is 5 Hz to 1 MHz
[3] Measurement frequency bandwidth is 10 Hz to 20 MHz
[4] From 10 % ~ 90 % of rated output voltage, with rated resistive load
[5] From 90 % ~ 10 % of rated output voltage, with rated resistive load

SPECIFICATIONS

Model		T3PS20051P	T3PS36031P	T3PS100011P
Measurement Value Display (Continued)				
Measurement Accuracy	Voltage (H/L)	± (0.03 % of rdg + 5 mV)	± (0.03 % of rdg + 8 mV)	± (0.03 % of rdg + 15 mV)
	Temperature Coefficient[6] (Typ.)	100 ppm/°C		
	Current (H/M)	± (0.05 % of rdg + 2.5 mA)	± (0.05 % of rdg + 1.2 mA)	± (0.05 % of rdg + 1.0 mA)
	Current (L/LL)	± (0.1 % of rdg + 40 µA)	± (0.1 % of rdg + 28 µA)	± (0.1 % of rdg + 24 µA)
	Temperature Coefficient[6] (Typ.)	200 ppm / °C		
Temperature Measured				
Temperature (K-Type Thermocouple)	Range	−200 °C ~ +1372 °C		
	Resolution	0.25 °C		
	Accuracy	± (0.5 % + 2 °C)		
Protection				
Over Voltage Protection (OVP)	Operation	Turns the output off, displays OVP and lights ALARM		
	Setting Range	1.0 V to 22.0 V	1.8 V to 39.6 V	5.0 V to 110.0 V
		(5 % to 110 % of the rated output voltage)		
	Setting Accuracy	± 1 % of rating)		
Over Current Protection (OCP)	Operation	Turns the output off, displays OCP and lights ALARM		
	Setting Range	0.25 A to 5.5 A	0.15 A to 3.3 A	0.05 A to 1.1 A
		(5 % to 110 % of the rated output current)		
	Setting Accuracy	± (1 % of rating)		
Over Temperature Protection (OTP)	Operation	Turns the output off, displays OTP and lights ALARM		
Other				
Interface Capabilities	LAN	MAC Address, DNS IP Address, User Password, Gateway IP Address, Instrument IP Address, Subnet Mask		
	USB	Type A: Host, Type B: Slave, Speed: 1.1/2.0, USB-CDC		
	RS-232/RS-485	Complies with the EIA-RS-232/RS-485 specifications (excluding the connector)		
Nominal Input Voltage[7]		100 Vac / 120 Vac / 220 Vac / 240 Vac, 50 Hz / 60 Hz, single phase		
Input Frequency Range		47 Hz to 63 Hz		
Max. Inrush Current		≤ 30 Amax	≤ 40 Amax	≤ 30 Amax
Max. Power Consumption		300 VA		
Operaing Temperature		0 °C to 40 °C		
Storage Temperature		−20 °C to 70 °C		
Operating Humidity		20 % to 80 % RH; No condensation		
Storage Humidity		20 % to 85 % RH; No condensation		
Dimensions (mm)		107 (W) × 124 (H) × 313 (D) (not including protrusions)		
Weight		Approx. 5.5 kg		

[6] Temperature coefficient: after a 30 minute warm-up
[7] Before connecting the power plug to an AC line outlet, make sure the voltage selector switches of the bottom panel in the correct position. It might be damaged the instrument by connecting to the wrong AC line voltage.

ORDERING INFORMATION

Model	**T3PS20051P**	20 V / 5 A / 100 W Programmable High-precision DC Power Supply
	T3PS36031P	36 V / 3 A / 108 W Programmable High-precision DC Power Supply
	T3PS100011P	100 V / 1 A / 100 W Programmable High-precision DC Power Supply
Standard Accessories	1 x Test leads for T3PS20051P/T3PS36031P (Binding Posts Terminal), 1 m, 10 A	
	1 x Short Bar (Binding Posts Terminal)	
	1 x Test leads for T3PS20051P/T3PS36031P (European Type Jack Terminal), 1 m, 10 A	
	1 x Test leads for T3PS100011P (European Type Jack Terminal), 1 m, 3 A	
	1 x Ground lead for European Type Jack Terminal	
	3 x Power Cord	

Warranty: 3 Years return to Teledyne LeCroy.

ABOUT TELEDYNE TEST TOOLS

TELEDYNE TEST TOOLS
Everywhereyoulook™

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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