

# T3PS30063P/T3PS60033P Datasheet

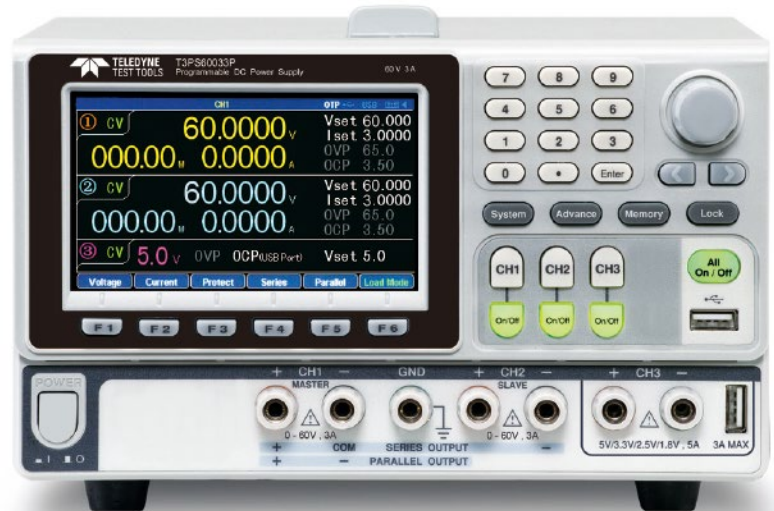
## Triple Output Power Supplies

### Broad Product Range

**Current: Up to 12 Amps**

**Voltage: Up to 120 Volts**

**Power: Up to 385 Watts**



### Tools for Improved Debugging

- Supports Series and Parallel operations on Ch1 and Ch2 without the need for external wiring. ✓ Single unit covers wide Voltage and Current Ranges.
- Fully programmable via USB, RS-232, LAN and Ext I/O. ✓ Full remote control extends the usability from the bench to automated systems.
- Low Ripple Noise  $\leq 1$  mVrms and transient recovery time  $\leq 100$   $\mu$ s. ✓ Improved power supply specifications meets your low noise power needs.
- Ch1 and Ch2 support Constant Voltage and Constant Current Operation. ✓ Flexible voltage and current output configurations for a broader application coverage.
- Ch1 and Ch2 support Electronic Load functionality as CV, CC or CR. ✓ Use for charge/discharge testing (e.g. batteries) without the need for an Electronic Load.
- 3 years warranty as standard. ✓ Reliable product gives peace of mind.

### Models and Characteristics

T3PS30063P	Ch1 / Ch2	0–30 V / 0–6 A	Ch1 / Ch2 support for C.V. and C.C. Modes
	Ch3	1.8 V / 2.5 V / 3.3 V / 5 V / 0–5 A	
T3PS60033P	Ch1 / Ch2	0–60 V / 0–3 A	Ch1 / Ch2 support for C.V. and C.C. Modes
	Ch3	1.8 V / 2.5 V / 3.3 V / 5 V / 0–5 A	

# MULTI-OUTPUT PROGRAMMABLE DC POWER SUPPLY



Front Panel



Rear Panel

## T3PS Series

- 4.3" TFT LCD Display
- Supports Setting Value, Measurement Value and Output Waveform Display
- Load Function (CC, CV, CR Mode)
- Setting Resolution: 1 mV / 0.1 mA; Read Back Resolution: 0.1 mV / 0.1 mA
- Low Ripple Noise:  $\leq 1 \text{ mVrms} / \leq 2 \text{ mArms}$
- Transient Response Time:  $\leq 100 \text{ ms}$
- Utilizing Hardware to Realize Over Voltage Protection/ Over Current Protection/ Over Temperature Protection
- Delay Function/ Output Monitoring Function/ Output Recorder Function
- Intelligent Temperature Control Fan Effectively Reduces Noise
- Sequential Output Function and Built-in 8 Template Waveforms
- The Output Recorder Function Records The Output Voltage & Current Parameters with A Minimum Recording Interval of 1 Second
- Provides 10 Sets of Memory for Each Sequence/Delay/Recorder/ Panel Setting Condition
- Supports USB (Type A) Output Terminal
- Standard: RS- 232, USB, Ext I/O; LAN

**With the maximum output power of 385 W, the new T3PS Series multi-channel programmable DC power supply, offers two models:**

**T3PS30063P (Ch1 & Ch2: 0–30 V/0-6 A, CH3: 1.8 V, 2.5 V, 3.3 V, 5.0 V/5 A) and**

**T3PS60033P (Ch1 & Ch2: 0–60 V/0-3 A, CH3: 1.8 V, 2.5 V, 3.3 V, 5.0 V/5 A)**

This series not only provides high programming resolution (1 mV/0.1 mA) and read back resolution (0.1 mV/0.1 mA), but also features optimal low-ripple noise characteristics  $\leq 1 \text{ mVrms}/\leq 2 \text{ mArms}$  and output transient recovery capability  $\leq 100 \mu\text{s}$ . Independent output on-off switch is provided for each channel.

For series and parallel applications of CH1 and CH2, the tracking function of the T3PS Series utilizes the internal circuit to automatically switch the output to serial or parallel output without additional external wiring, providing users with convenience not only in operating procedures but also a more stable output. The tracking function design of other brands requires additional external wiring connections for the output in series or parallel. However, excessively long, thin

or inconsistent external wiring may cause inaccurate voltage or current output.

The T3PS Series offers a variety of display modes, including single or multi-channel setting values, measurement values, and waveform displays. The Monitor function of the T3PS Series allows users to set monitoring conditions according to requirements, sound alarms or stop output during the measurement process, and stop measurement and protect the customer's DUT. The T3PS Series provides output recorder function, which records the voltage/current of the output process to the internal memory, and the result can be stored as a (\*.REC) or (\*.CSV) file, which can then be transferred to the USB flash drive and be exported to the PC for PC software or Excel to conduct future analysis.

# MULTI-OUTPUT PROGRAMMABLE DC POWER SUPPLY

The CH1/CH2 of the T3PS Series are designed with the load function. A single power supply can set one channel as the power output, and one channel for the load function to consume the power of the DUT to meet the basic charging and discharging test requirements for battery. Channel 1 and channel 2 not only provide rated power output, but also feature built-in rated constant voltage load (CV), rated constant current load (CC) and maximum 1 k $\Omega$  constant resistance load (CR) function.

The T3PS Series provides the sequential output function on Channel 1 and Channel 2. This function not only allows users to edit the power output waveform, but also allows users to set the sequential constant voltage (CV) or constant current (CC) load waveform, i.e. a serial power output or a simulation test of a dynamic load. In order to simplify the setting of waveform editing, the T3PS Series has 8 built-in template waveforms in the sequence output function for users to directly apply for output, including Sine, Pulse, Ramp, Stair Up, Stair Dn, Stair UpDn, Exp Rise, Exp Fall waveforms.

The internal protection functions include OVP/OCP/OPP/OTP, in which the protection mechanism for OVP/OCP/OTP is implemented by hardware circuit that has the advantage of faster response time compared with competitors who adopt software to achieve protections.

The OVP/OCP functions allow users to set the protection action point according to the conditions of the DUT. The OPP is only activated during the operation of the load function. The Delay Function sets the length of time during channel 1 or channel 2 power output on or during power output off.

In addition, the Trigger In/Trigger Out functions synchronize external devices. Ch3 on the T3PS offers a 3 A USB (Type A) output terminal for USB charging test. The intelligent temperature controlled fan can adjust the speed according to the temperature of the power transistor so as to reduce unnecessary noise. The output value setting and the Sequence/Delay/Recorder functions provide 10 sets of internal memory for use, and can be loaded/stored using a USB flash drive. In addition to the standard RS-232 and USB remote interfaces, the T3PS Series also has LAN interface to facilitate different requirements. The commands of the T3PS Series conform to SCPI requirements.

## Applications

- **School and Research Institute**
- **Energy Storage Device Industry**
- **Semiconductor Industry**
- **Consumer Electronics Industry**

# SPECIFICATIONS

Model	T3PS30063P			T3PS60033P		
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## Output Mode

Number of Channel	CH1	CH2	CH3	CH1	CH2	CH3
Voltage	0 V to 30 V	0 V to 30 V	1.8/2.5/3.3/5 V, $\pm 5\%$	0 V to 60 V	0 V to 60 V	1.8/2.5/3.3/5 V $\pm 5\%$
Current	0 A to 6 A	0 A to 6 A	5 A (max), 3 A (max, USB Port)	0 A to 3 A	0 A to 3 A	5 A (max), 3 A (max, USB Port)
Tracking Series Voltage	0 V to 60 V		–	0 V to 120 V		–
Tracking Parallel Current	0 A to 12 A		–	0 A to 6 A		–

## Constant Voltage Operation

Line Regulation	$\leq 0.01\% + 3\text{ mV}$	$\leq 3\text{ mV}$	$\leq 0.01\% + 3\text{ mV}$	$\leq 3\text{ mV}$
Load Regulation	$\leq 0.01\% + 5\text{ mV}$ (rated current $\leq 10\text{ A}$ )	$\leq 5\text{ mV}$	$\leq 0.01\% + 5\text{ mV}$ (rated current $\leq 10\text{ A}$ )	$\leq 5\text{ mV}$
Ripple & Noise (5 Hz to 1 MHz)	$\leq 1\text{ mVrms}$	$\leq 2\text{ mVrms}$	$\leq 1\text{ mVrms}$	$\leq 2\text{ mVrms}$
Recovery Time	$\leq 100\text{ }\mu\text{s}$	$\leq 100\text{ }\mu\text{s}$	$\leq 100\text{ }\mu\text{s}$	$\leq 100\text{ }\mu\text{s}$

## Constant Current Operation

Line Regulation	$\leq 0.01\% + 3\text{ mV}$	–	$\leq 0.01\% + 3\text{ mV}$	–
Load Regulation	$\leq 0.01\% + 3\text{ mV}$	–	$\leq 0.01\% + 3\text{ mV}$	–
Ripple & Noise	$\leq 2\text{ mV}$	–	$\leq 2\text{ mV}$	–

## Tracking Operation (CH1, CH2)

Tracking Error	$\leq 0.1\% + 10\text{ mV}$ of Master (T3PS30063P), $\leq 0.2\% + 20\text{ mV}$ of Master (T3PS60033P) (with load: add load regulation $\leq 200\text{ mV}$ )			
Parallel Regulation	Line: $\leq 0.01\% + 3\text{ mV}$ Load: $\leq 0.01\% + 5\text{ mV}$ (rated current $\leq 10\text{ A}$ ); $\leq 0.02\% + 5\text{ mV}$ (rated current $> 10\text{ A}$ )			
Series Regulation	Line: $\leq 0.01\% + 5\text{ mV}$ ; Load: $\leq 200\text{ mV}$			
Ripple & Noise (5 Hz to 1 MHz)	$\leq 2\text{ mVrms}$ (5 Hz to 1 MHz)			

## Meter

Voltage Programming Resolution	1 mV	–	2 mV	–
Current Programming Resolution	0.2 mA	–	0.1 mA	–
Voltage Readback Resolution	0.1 mV	–	0.1 mV	–
Current Readback Resolution	0.1 mA	–	0.1 mA	–
Voltage Setting Accuracy	$\leq \pm(0.03\% \text{ of reading} + 10\text{ mV})$	–	$\leq \pm(0.03\% \text{ of reading} + 10\text{ mV})$	–
Current Setting Accuracy	$\leq \pm(0.3\% \text{ of reading} + 10\text{ mA})$	–	$\leq \pm(0.3\% \text{ of reading} + 10\text{ mA})$	–
Voltage Readback Accuracy	$\leq \pm(0.03\% \text{ of reading} + 10\text{ mV})$	–	$\leq \pm(0.03\% \text{ of reading} + 10\text{ mV})$	–
Current Readback Accuracy	$\leq \pm(0.3\% \text{ of reading} + 10\text{ mA})$	–	$\leq \pm(0.3\% \text{ of reading} + 10\text{ mA})$	–

Model	T3PS30063P	T3PS60033P
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## DC Load Characteristic

Channel	CH1/CH2	—	CH1/CH2	—
Display Power	0 W to 50 W	—	0 W to 50 W	—
Display Voltage	1 V to 32 V	—	1 V to 62 V	—
Display Current	0 A to 6.2 A	—	0 A to 3.2 A	—
CV Mode Setting Range	1.5 V to 32 V	—	1.5 V to 62 V	—
Resolution	10 mV	—	10 mV	—
Set Accuracy	$\leq 0.1\% + 30\text{ mV}$	—	$\leq 0.1\% + 30\text{ mV}$	—
Read Accuracy	$\leq 0.1\% + 30\text{ mV}$	—	$\leq 0.1\% + 30\text{ mV}$	—
CC Mode Setting Range	0 A to 6.2 A	—	0 A to 3.2 A	—
Resolution	1 mA	—	1 mA	—
Set Accuracy	$\leq 0.3\% + 10\text{ mA}$	—	$\leq 0.3\% + 10\text{ mA}$	—
Read Accuracy	$\leq 0.3\% + 10\text{ mA}$	—	$\leq 0.3\% + 10\text{ mA}$	—
CR Mode Setting Range	1 $\Omega$ to 1 k $\Omega$	—	1 $\Omega$ to 1 k $\Omega$	—
Resolution	1 $\Omega$	—	1 $\Omega$	—
Set Accuracy	$\leq 3\% + 1\text{ } \Omega$ (Voltage $\leq 0.1\text{ V}$ , Current $\leq 0.1\text{ A}$ )	—	$\leq 3\% + 1\text{ } \Omega$ (Voltage $\leq 0.1\text{ V}$ , Current $\leq 0.1\text{ A}$ )	—
Read Accuracy	$\leq 3\% + 1\text{ } \Omega$ (Voltage $\leq 0.1\text{ V}$ , Current $\leq 0.1\text{ A}$ )	—	$\leq 3\% + 1\text{ } \Omega$ (Voltage $\leq 0.1\text{ V}$ , Current $\leq 0.1\text{ A}$ )	—

## Insulation

Chassis and Terminal	20 M $\Omega$ or above (DC 500 V)
Chassis and AC Power Cord	30 M $\Omega$ or above (DC 500 V)

## Environment Condition

Operating Temperature	0 °C to 40 °C
Storage Temperature	–10 °C to 70 °C
Operating Humidity	$\leq 80\%$ RH
Storage Humidity	$\leq 70\%$ RH
Interface	Standard: RS-232, USB, LAN, Ext I/O
Power Source	AC 100 V/120 V/220 V/230 V $\pm 10\%$ , 50/60 Hz
Power Consumption	900 VA, 680 W
Dimension & Weight	213 (W) x 145 (H) x 362 (D) mm; Approx. 10 kg

## Ordering Information

Model	<b>T3PS30063P</b>	385 W Three-Output Programmable DC Power Supply
	<b>T3PS60033P</b>	385 W Three-Output Programmable DC Power Supply
Accessories	Quick Start Guide x 1, Power cord x 3, Short Bar x 1, Terminal 13P x 1, Test Lead x 3	

Warranty: 3 Years return to Teledyne LeCroy.

# 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 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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