TELEDYNE TEST TOOLS
Everywhereyoulook™

Power Supplies Datasheet

Single Output Multi-Range Power Supplies

Broad Product Range

Current: Up to 72 Amps
Voltage: Up to 800 Volts
Power: Up to 720 Watts



Tools for Improved Debugging

• Multi-range operation extends the Voltage and Current limit up to 3 times compared to conventional supply.	✓ Single unit covers wide Voltage and Current Ranges.
• 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 and USB 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
T3PS30721P	0 – 30 V	0 – 72 A	720 W
T3PS80271P	0 – 80 V	0 – 27 A	720 W
T3PS160141P	0 – 160 V	0 – 14.4 A	720 W
T3PS250041P	0 – 250 V	0 – 4.5 A	360 W
T3PS800011P	0 – 800 V	0 – 1.44 A	360 W

MULTI-OUTPUT PROGRAMMABLE DC POWER SUPPLY

The new T3PS series are single-output multi-range programmable switching DC Power Supplies covering a power range up to 720 W. This series of products offers five models with rated voltages of 30 V, 80 V, 160 V, 250 V and 800 V and 360 W and 720 W maximum output powers. The multi-range feature allows for a flexible and efficient configuration of voltage and current within the rated power range. A maximum of two units in series and a maximum of three units in parallel can be connected for applications requiring Voltage/Current higher than the rated output. The combination of multi-range power output feature and series/parallel operation capability of T3PS series significantly reduces the cost by accommodating the projects with wide range of power requirements.

The C.V/C.C priority selection of the T3PS series is a very useful feature for DUT protection. The conventional power supply normally operates under C.V mode when the power output is turned on. This could bring a high inrush current to the capacitive load or current-intensive load at the power-On stage. Taking the I-V curve verification of LED as an example, it becomes a very challenging task to perform this measurement using a conventional power supply. With LED connected to a power supply under C.V mode as the initial setting, when the power output is turned on and the voltage rises to the LED forward voltage, the current will suddenly peak up and exceed the preset value of current limit. Upon detecting this high current, the power supply starts the transition from C.V mode to C.C mode. Though the current becomes stable after the C.C mode being activated, the current spike occurred at the C.V and C.C crossover point may possibly damage the DUT. At the power output-on stage, the T3PS supply is capable of operating under C.C priority to limit the current spike occurred at the threshold voltage and protects DUT from the inrush current damage.

The adjustable slew rate of the PSW-Series allows users to set a specific rise/fall time for signal transitions of either output voltage or output current. The adjustable slew rate feature is useful in manufacturing tests of lighting where a device or large capacitor during power output-on are associated with the occurrence of high surge current, which can greatly reduce the life time of the DUT. To prevent inrush current from damaging currentintensive devices, a smooth and slow voltage transition during power On-Off can significantly reduce the spike current and protect the device from high current damage.

The T3PS series offers OVP and OCP. Both OVP and OCP levels can be selected, with default level set at 110 % of the rated voltage/current of the power supply. When any of the protection levels is tripped, the power output will be disabled to protect the DUT. The T3PS provides USB Host/Device and LAN interfaces as standard. An analog control/monitoring connector is also available on the rear panel for external control of power On/Off and external monitoring of power output Voltage and Current.

PANEL INTRODUCTION

720 W Models: T3PS30721P, T3PS80271P, T3PS160141P





1. Voltage Knob
2. Current Knob
3. Output Key
4. Function Keys
5. USB A Port
6. Display
7. CoverPanel
8. Power Switch
9. Analog Control Connector
10. USB B Port
11. Output Terminal (+)
12. SenseTerminal (+/-)
13. Output Terminal (-)
14. Fan
15. AC Input
16. LAN Port

360 W Models: T3PS250041P, T3PS800011P







Output Terminals
(30, 80, 160 volt models)

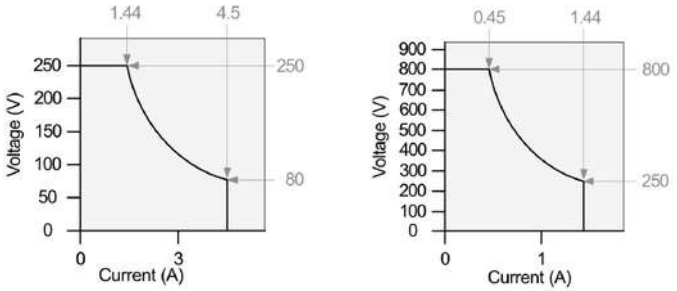


Output Terminals
(250, 800 volt models)

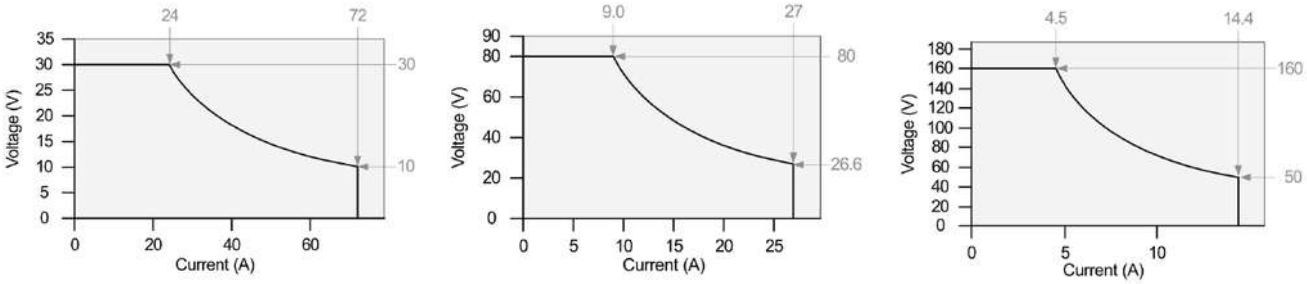
Features

- Voltage Rating: 30 V / 80 V / 160 V / 250 V / 800 V, Output Power Rating: 360 W – 720 W
- Multi-range Voltage & Current Combinations in One Power Supply
- C.V/C.C Priority; Particularly Suitable for the Battery and LED Industry Adjustable Slew Rate
- Series Operation (2 units in Series), Parallel Operation (3 units in Parallel)
- High Efficiency and High Power Density
- 1/6, 1/3 Rack Mount Size Design (EIA/JIS Standard) for 360 W, 720 W
- Standard Interface: LAN, USB, Analog Control Interface

A. MULTI-RANGE OPERATION



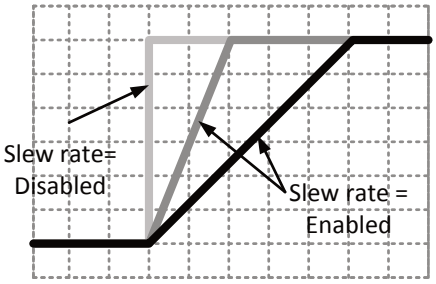
Operating areas of 360 W Models: T3PS250041P, T3PS800011P



Operating areas of 720 W Models: T3PS30721P, T3PS80271P, T3PS160141P

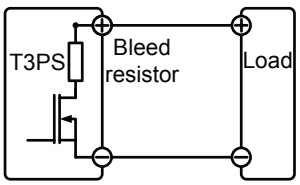
When the power supply is configured so that the total output (current x voltage output) is less than the rated power output, the power supply functions as a typical constant current, constant voltage power supply. If however, the power supply is configured such that the total output (current x voltage output) exceeds the rated power output, the effective output is actually limited to the power limit or the operating area of the unit. In this case the output current and voltage then depend purely on the load value. The graphs above display the operating areas of each power supply.

B. ADJUSTABLE SLEW RATE



TheT3PS has selectable slew rates for CC and CV mode. This gives the T3PS power supply the ability to limit the current/voltage draw of the power supply. Slew rate settings are divided into High Speed Priority and Slew Rate Priority. High Speed Priority mode disables slew rate settings for CC or CV mode. Slew Rate Priority mode allows for user adjustable slew rates for CC or CV mode. The rising and falling slew rate can be set independently.

C. BLEEDER CONTROL



The T3PS DC power supplies employ a bleed resistor in parallel with the output terminals. Bleed resistors are designed to dissipate the power from the power supply filter capacitors when power is turned off and the load is disconnected. Without a bleed resistor, power may remain charged on the filter capacitors for some time and be potentially hazardous.

In addition, bleed resistors also allow for smoother voltage regulation of the power supply as the bleed resistor acts as a minimum voltage load.

The bleed resistance can be turned on or off using the configuration settings.

SPECIFICATIONS

	T3PS30721P	T3PS80271P	T3PS160141P	T3PS250041P	T3PS800011P
Output Rating					
Voltage	0 – 30 V	0 – 80 V	0 –160 V	0 – 250 V	0 – 800 V
Current	0 – 72 A	0 – 27 A	0 –14.4 A	0 – 4.5 A	0 – 1.44 A
Power	720 W	720 W	720 W	360 W	360 W
Regulation(CV)					
Load	20 mV	45 mV	85 mV	130 mV	405 mV
Line	18 mV	43 mV	83 mV	128 mV	403 mV
Regulation(CC)					
Load	77 mA	32 mA	19.4 mA	9.5 mA	6.44 mA
Line	77 mA	32 mA	19.4 mA	9.5 mA	6.44 mA
Ripple & Noise (Noise Bandwidth 20 MHz; Ripple Bandwidth = 1 MHz)					
CVp-p	80 mV	80 mV	80 mV	80 mV	150 mV
CV rms	11 mV	11 mV	15 mV	15 mV	30 mV
CC rms	144 mA	54 mA	30 mA	10 mA	5 mA
Programming Accuracy					
Voltage	0.1 % + 10 mV	0.1 % + 10 mV	0.1 % + 100 mV	0.1 % + 200 mV	0.1 % + 400 mV
Current	0.1 % + 60 mA	0.1 % + 30 mA	0.1 % + 15 mA	0.1 % + 5 mA	0.1 % + 2 mA
Measurement Accuracy					
Voltage	0.1 % + 10 mV	0.1 % + 10 mV	0.1 % + 100 mV	0.1 % + 200 mV	0.1 % + 400 mV
Current	0.1 % + 60 mA	0.1 % + 30 mA	0.1 % + 15 mA	0.1 % + 5 mA	0.1 % + 2 mA
Response Time					
Rise Time	50 ms	50 ms	100 ms	100 ms	150 ms
Fall Time (Full Load)	50 ms	50 ms	100 ms	150 ms	300 ms
Fall Time (No Load)	500 ms	500 ms	1000 ms	1200 ms	2000 ms
Load Transient Recover Time (Load change from 50–100 %)	1 ms	1 ms	2 ms	2 ms	2 ms
Programming Resolution (PC Remote Control Mode)					
Voltage	1 mV	2 mV	3 mV	5 mV	14 mV
Current	2 mA	2 mA	2 mA	1 mA	1 mA
Measurement Resolution (PC Remote Control Mode)					
Voltage	1 mV	2 mV	3 mV	5 mV	14 mV
Current	2 mA	2 mA	2 mA	1 mA	1 mA
Series and Parallel Capability					
Parallel Operation	Up to 3 units including the master unit			3	3
Series Operation	Up to 2 units including the master unit			N/A	N/A
Protection Function					
OVP	3 – 33 V	8 – 88 V	16 – 176 V	20 – 275 V	20 – 880 V
OCP	5 – 79.2 A	2.7 – 29.7 A	1.44 – 15.84 A	0.45 – 4.95 A	0.144 – 1.584 A
OHP	Activated by elecated internal temperatures				

SPECIFICATIONS

	T3PS30721P	T3PS80271P	T3PS160141P	T3PS250041P	T3PS800011P
Front Panel Display Accuracy, 4 digits					
Voltage	0.1 % ± 20 mV	0.1 % ± 20 mV	0.1 % ± 100 mV	0.1 % ± 200 mV	0.1 % ± 400 mV
Current	0.1 % ± 70 mA	0.1 % ± 40 mA	0.1 % ± 30 mA	0.1 % ± 5 mA	0.1 % ± 2 mA
Environment Condition					
Operation Temp	0 °C – 50 °C				
Storage Temp	-25 °C – 70 °C				
Operating Humidity	20 % – 85 % RH; No condensation				
Storage Humidity	90 % RH or Less; No condensation				
Read Back Temp Coefficient					
Voltage	100 ppm / °C of rated output voltage: after 30 minutes of warm-up				
Current	200 ppm / °C of rated output voltage: after 30 minutes of warm-up				
Other					
Analog Control	Yes				
Interface	USB/LAN				
Fan	With thermal sensing control single				
Power Source	85 VAC ~ 265 VAC, 47 ~ 63 Hz, single phase				
Dimensions & Weight	142 (W) x 124 (H) x 350 (D) mm; Approx 5.3 kg	142 (W) x 124 (H) x 350 (D) mm; Approx 5.3 kg	142 (W) x 124 (H) x 350 (D) mm; Approx 5.3 kg	71 (W) x 124 (H) x 350 (D) mm; Approx 3 kg	71 (W) x 124 (H) x 350 (D) mm; Approx 3 kg

Ordering Information

Model	**T3PS30721P**	(0–30 V / 0–72 A / 720 W)	Multi-Range DC Power Supply
	T3PS80271P	(0–80 V / 0–27 A / 720 W)	Multi-Range DC Power Supply
	T3PS160141P	(0–160 V / 0–14.4 A / 720 W)	Multi-Range DC Power Supply
	T3PS250041P	(0–250 V / 0–4.5 A / 360 W)	Multi-Range DC Power Supply
	T3PS800011P	(0–800 V / 0–1.44 A / 360 W)	Multi-Range DC Power Supply
Accessories	Power cord, Output terminal cover, Test leads: 1x red, 1x black, USB Cable		
	T3PS30721P, T3PS80271P, T3PS160141P	Basic Accessory Kit: M4 terminal screws and washers x2, M8 terminal bolts, nuts and washers x2, Air filter x1, Analog control protection dummy x1, Analog control lock level x1	
	T3PS250041P, T3PS800011P	Basic Accessory Kit: Air filter x1, Analog control protection dummy x1, Analog control lock level x1	

Warranty: 3 Years return to Teledyne LeCroy.

ABOUT TELEDYNE TEST TOOLS

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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