

T3PS40381P/T3PS60251P/ T3PS062001P Data Sheet

Programmable Switching DC Power Supply

Power With Confidence

Voltage: Up to 60 Volts

Current: Up to 200 Amps

Power: Up to 1520 Watts



Tools for Improved Debugging

- Dual measurement display. ✔ Clear visibility of your power settings.
- Switched mode high efficiency Power Supply Design. ✔ Small footprint whilst maintaining high power density.
- Constant Voltage and Constant Current Operation. ✔ Wider application coverage for a more complete solution.
- Remote sensing to compensate for voltage drop in load leads. ✔ Ensure that the full voltage gets to your DUT. Sense compensates for wiring losses.
- Supports various interfaces like USB, LAN, RS-232, RS-485. ✔ Support for the maximum control flexibility.
- 1U Height and 19" Rack Mount Size. ✔ Provides more flexible system integration.

Key Specifications

| Model | Voltage Rating | Current Rating | Power |
|-------------|----------------|----------------|--------|
| T3PS062001P | 6 V | 200 A | 1200 W |
| T3PS40381P | 40 V | 38 A | 1520 W |
| T3PS60251P | 60 V | 25 A | 1500 W |

PRODUCT OVERVIEW

Teledyne Test Tools new T3PS series is a single power output DC programmable power supply, which outputs 1200 W to 1520 W. This rack mount power supply is suitable for electronic component manufacturers to verify withstanding current tests of 100A and above. Such tests include micro-resistor, relay, shunt resistors etc. The standard 1U form factor of the power supply not only satisfy the extensive voltage demands but also provides system integrators the flexibility of system integration.

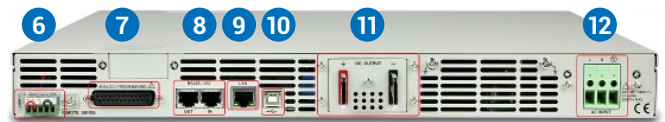
The T3PS series allows settings for CC priority or CV priority. Under CC or CV mode, users can adjust slew rate for output voltage or current based upon test requirements. There are two kinds of slew rate settings: high speed priority and slew rate priority. High speed priority sets slew rate at the maximum speed to reach CC or CV mode. Slew rate priority allows users to set slew rate for CC or CV mode in order to control rise or fall slew rate. Slew rate priority mode is ideal for motor tests because it can protect DUT from being damaged by inrush current occurring at turn-on.

Compared to other 1U power supplies available in the market, T3PS series supports a more complete array of interfaces, including USB, LAN, RS-232, RS-485, analog control interface, isolated analog interface (voltage control), and isolated analog interface (current control).

The T3PS series is ideal for the primary input of DC/DC converter and servo motor production application. T3PS series is often integrated into component test systems such as aging test equipment for capacitors, aging test equipment for diode, semiconductor production equipment, such as engine ECU and 48 V hybrid system testing, etc.

The T3PS series provides users with flexible settings of High/Low Level or Trigger input/Trigger output with pulse width of 1 ms – 60 ms. Trigger input controls T3PS series to output or upload preset voltage, current and memory parameters. While outputting or uploading preset voltage, current and memory parameters, T3PS series can produce corresponding Trigger output signals.

Panel Introduction



- 1 AC Power Switch (AC Power On/Off)
- 2 USB A Port
- 3 Voltage Knob
- 4 Display Area

- 5 Current Knob
- 6 Remote Sense
- 7 Analog Control Interface
- 8 RS 485/RS 232

- 9 LAN Port
- 10 USBTMC Port
- 11 DC Output Terminal
- 12 AC Input

Applications

- The primary input of DC/DC converter
- Servomotor Manufacturing Equipment
- Aging test equipment for Capacitor
- Aging test equipment for Diodes
- Power supply for communications Equipment
- Automotive 12/48 V Systems
- Military and Aviation

Features

- CC or CV Priority Mode
- Adjustable Voltage/Current Rise and Fall Time
- Three sets of Preset Functions
- Bleeder Control Function
- Internal Resistance Function
- Panel Lock Function
- Protection: OVP, OCP, OHP, UVL, AC Fail, FAN Fail
- Standard: USB, LAN, RS-232, RS-485, Analog Control

SPECIFICATIONS

| Model | T3PS062001P | T3PS40381P | T3PS60251P |
|-------|-------------|------------|------------|
|-------|-------------|------------|------------|

Output Ratings

| | | | |
|-----------------------------------|--------|--------|--------|
| RatedOutput Voltage ¹⁾ | 6 V | 40 V | 60 V |
| RatedOutput Current ²⁾ | 200 A | 38 A | 25 A |
| Rated Output Power | 1200 W | 1520 W | 1500 W |

Ripple and Noise⁵⁾

| | | | |
|---|--------|-------|-------|
| CVp-p (10 ~ 20 MHz) p-p ⁶⁾ | 60 mV | 60 mV | 60 mV |
| CVrms (5 Hz ~ 1 MHz) r.m.s ⁷⁾ | 8 mV | 8 mV | 8 mV |
| CCrms (5 Hz ~ 1 MHz) r.m.s ¹²⁾ | 400 mV | 95 mV | 75 mV |

Load Regulation

| | | | |
|------------------------|--------|---------|-------|
| Voltage ⁴⁾ | 2.6 mV | 6 mV | 8 mV |
| Current ¹¹⁾ | 45 mA | 12.6 mA | 10 mA |

Line Regulation

| | | | |
|-----------------------|--------|--------|--------|
| Voltage ³⁾ | 2.6 mV | 6 mV | 8 mV |
| Current ³⁾ | 22 mA | 5.8 mA | 4.5 mA |

Analog Programming and Monitoring

| | |
|--|--|
| External Voltage Control Output Voltage | Accuracy and linearity: $\pm 0.5\%$ of rated output voltage |
| External Voltage Control Output Current | Accuracy and linearity: $\pm 1\%$ of rated output current |
| External Resistor Control Output Voltage | Accuracy and linearity: $\pm 1\%$ of rated output voltage |
| External Resistor Control Output Current | Accuracy and linearity: $\pm 1.5\%$ of rated output current |
| Output VoltageMonitor | Accuracy: $\pm 1\%$ |
| Output CurrentMonitor | Accuracy: $\pm 1\%$ |
| Shutdown Control | Turns the output off with a LOW (0 V to 0.5 V) or short-circuit |
| Output On/Off Control | Possible logic selections: Turn the output on using a LOW (0 V to 0.5 V) or short-circuit Turn the output off using a HIGH (4.5 V to 5 V) or open-circuit Turn the output on using a HIGH (4.5 V to 5 V) or open-circuit Turn the output off using a LOW (0 V to 0.5 V) or short-circuit |
| Alarm Clear Control | Clear alarms with a LOW (0 V to 0.5 V) or short-circuit |
| CV/CC/ALM/PWRON/OUT ON Indicator | Photocoupler open collector output; Maximum voltage 30 V, maximum sink current 8 mA |
| Trigger Out | Maximum low level output = 0.8 V Minimum high level output = 2 V Maximum source current = 8 mA |
| Trigger In | Maximum low level input voltage = 0.8 V Minimum high level input voltage = 2 V Maximum sink current = 8 mA |

Front Panel

| | |
|---|--|
| Display, 4 digits, Voltage Accuracy 0.1%+ Current Accuracy 0.2%+ | 12 mV |
| Indications | GREENLED's: CV, CC,V, A, VSR,ISR, DLY, RMT, LAN, M1, M2, M3, RUN, Output ON; REDLED's: ALM, ERR |
| Buttons | Lock/Local (Unlock), PROT (ALM_CLR), Function (M1), Test (M2), Set (M3), Shift, Output |
| Knobs | Voltage, Current |
| USBPort | Type A USB connector |

Transient Response Time¹⁰⁾

| | | | |
|-------------------------|--------|------|------|
| Transient Response Time | 1.5 mv | 1 ms | 1 ms |
|-------------------------|--------|------|------|

Output Response Time

| | | | | |
|-------------------------|------------|--------|---------|---------|
| RiseTime ⁸⁾ | Rated load | 80 ms | 80 ms | 80 ms |
| | No Load | 80 ms | 80 ms | 80 ms |
| Fall Time ⁹⁾ | Rated load | 10 ms | 80 ms | 80 ms |
| | No Load | 500 ms | 1100 ms | 1100 ms |

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|-------|-------------|------------|------------|
|-------|-------------|------------|------------|

Temperature Coefficient

| | | | |
|-------------------|--------------------------------------|--|--|
| Voltage & Current | 100 ppm/°C after a 30 minute warm-up | | |
|-------------------|--------------------------------------|--|--|

Remote Sense Compensation Voltage (Single Wire)

| | | | |
|---------|-----|-----|-----|
| Voltage | 1 V | 2 V | 3 V |
|---------|-----|-----|-----|

Programming and Measurements (RS-232/485, USB, LAN)

| | | | |
|--|--------|--------|--------|
| Output Voltage Programming Accuracy 0.05 %+ | 3 mV | 20 mV | 30 mV |
| Output Current Programming Accuracy 0.2 %+ | 200 mA | 38 mA | 25 mA |
| Output Voltage Programming Resolution | 0.2 mV | 1.3 mV | 2 mV |
| Output Current Programming Resolution | 6 mA | 1.2 mA | 0.8 mA |
| Output Voltage Measurement Accuracy 0.1 %+ | 6 mV | 40 mV | 60 mV |
| Output Current Measurement Accuracy 0.2 %+ | 400 mA | 76 mA | 50 mA |
| Output Voltage Measurement Resolution | 0.2 mV | 1.3 mV | 2 mV |
| Output Current Measurement Resolution | 6 mA | 1.2 mA | 0.8 mA |

Protection Function

| | | | |
|---|-------------------------------------|--------------|--------------|
| Over Voltage Protection (OVP) Setting Range | 0.6 ~ 6.6 V | 4 ~ 44 V | 5 ~ 66 V |
| Setting Accuracy | 60 mV | 400 mV | 600 mV |
| Over Current Protection (OCP) Setting Range | 5 ~ 220 A | 3.8 ~ 41.8 A | 2.5 ~ 27.5 A |
| Setting Accuracy | 4000 mA | 760 mA | 500 mA |
| Under Voltage Limit (UVL) Setting Range | 0 ~ 6.3 V | 0 ~ 42 V | 0 ~ 63 V |
| Over Temperature Protection (OHP) operation | Turn the output off. | | |
| Incorrect Sensing Connection Protection (SENSE) operation | Turn the output off. | | |
| Low AC Input Protection (AC-FAIL) operation | Turn the output off. | | |
| Shutdown (SD) operation | Turn the output off. | | |
| Power Limit (POWER LIMIT) operation | Over power limit | | |
| Value (Fixed) | Approx. 105 % of rated output power | | |

Interface Capabilities

| | |
|---------------|---|
| USB | Type A: Host, Type B: Slave, Speed: 1.1/2.0, USB Class: CDC (Communications Device Class) |
| LAN | MAC Address, DNS IP Address, User Password, Gateway IP Address, Instrument IP Address, Subnet Mask |
| RS-232/RS-485 | Complies with the EIA232D/EIA485 Specifications |

Environmental Conditions

| | |
|-----------------------|----------------------------------|
| Operating Temperature | 0 °C ~ 50 °C ¹⁴⁾ |
| Storage Temperature | -25 °C ~ 70 °C |
| Operating Humidity | 20 % ~ 85 % RH; No condensation |
| Storage Humidity | 90 % RH or less; No condensation |
| Altitude | Maximum 2000 m |

SPECIFICATIONS

| Model | T3PS062001P | T3PS40381P | T3PS60251P |
|-------|-------------|------------|------------|
|-------|-------------|------------|------------|

Input Characteristics

| | | | |
|--|---|-------|-------|
| Nominal Input Rating | 100 Vac to 240 Vac, 50 Hz to 60 Hz, single phase | | |
| Input Voltage Range | 85 Vac ~ 265 Vac | | |
| Input Frequency Range | 47 Hz ~ 63 Hz | | |
| Maximum Input Current 100 Vac / 200 Vac (A) | 21/11 | | |
| Inrush Current | Less than 50 A | | |
| Maximum Input Power | 2000 VA | | |
| Power Factor 100 Vac / 200 Vac | 0.99/0.98 | | |
| Hold-up Time | 20 ms or greater | | |
| Efficiency ¹³⁾ 100 Vac / 200 Vac (%) | 77/79 | 84/87 | 84/87 |
| Dimensions & Weight | 423 (W) × 43.6 (H) × 447.2 (D) mm, Approx. 8.7 kg | | |

¹⁾ Minimum voltage is guaranteed to maximum 0.2 % of the rated output voltage.

²⁾ Minimum current is guaranteed to maximum 0.4 % of the rated output current.

³⁾ At 85 ~ 132 Vac or 170 ~ 265 Vac, constant load.

⁴⁾ From No-load to Full-load, constant input voltage. Measured at the sensing point in Remote Sense.

⁵⁾ Measure with JEITA RC-9131B (1:1) probe.

⁶⁾ Measurement frequency bandwidth is 10 Hz ~ 20 MHz.

⁷⁾ Measurement frequency bandwidth is 5 Hz ~ 1 MHz.

⁸⁾ From 10 % ~ 90 % of rated output voltage, with rated resistive load.

⁹⁾ From 90 % ~ 10 % of rated output voltage, with rated resistive load.

¹⁰⁾ Time for output voltage to recover within 0.5 % of its rated output for a load change from 10 % ~ 90 % of its rated output current. Voltage set point from 10 % ~ 100 % of rated output.

¹¹⁾ For load voltage change, equal to the unit voltage rating, constant input voltage.

¹²⁾ For 6 V model the ripple is measured at 2 ~ 6 V output voltage and full output current.

For other models, the ripple is measured at 10 ~ 100 % output voltage and full output current.

¹³⁾ At rated output power.

¹⁴⁾ If the front panel filter kit is installed, the temperature is guaranteed to 40 °C.

ORDERING INFORMATION

Ordering information

| Model | |
|--|---|
| T3PS062001P | 1200 W Programmable Switching DC Power Supply |
| T3PS40381P | 1520 W Programmable Switching DC Power Supply |
| T3PS60251P | 1500 W Programmable Switching DC Power Supply |
| Standard Accessories | Quantity |
| Output terminal cover | 1 |
| Analog connector plug kit | 1 |
| Output terminal M8 bolt set (6 V ~ 60 V model) | 1 |
| Input terminal cover | 1 |
| 1U Handle (RoHS) | 2 |
| 1U Bracket (LEFT, RoHS) | 1 |
| 1U Bracket (RIGHT, RoHS) | 1 |

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.

Distributed by:

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
Phone Support: 1-800-553-2769
Email Sales: contact.corp@teledynelecroy.com
Email Support: support@teledynelecroy.com
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Teledyne LeCroy (European Headquarters)

Teledyne GmbH
Im Breitenspiel 11c
D-69126 Heidelberg, Germany

Phone: +49 6221 82700
Fax: +49 6221 834655
Phone Service: +49 6221 8270 85
Phone Support: +49 6221 8270 28
Email Sales: contact.gmbh@teledynelecroy.com
Email Service: service.gmbh@teledynelecroy.com
Email Support: tlc.t3.appsupport.eu@teledyne.com
Web Site: <http://teledynelecroy.com/>

teledynelecroy.com



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