

# T3 EL DC Electronic Loads Data Sheet

## Broad Specification Range

**Current: Up to 60 Amps**

**Voltage: Up to 500 Volts**

**Power: Up to 300 Watts**



### Tools for Improved Debugging

- 2 Models to choose from. Each model has a Low and High mode.
- 7 Operating modes: CC, CV, CR, CP, CC + CV, CR + CV, CP + CV.
- Static, Dynamic and Sequence mode support.
- Built in Application Functions: Soft Start, Battery Test Automation, OCP and OPP Test Automation.
- Provides a load of up to 300 Watts.
- Programmable and analog external control.
- ✓ Dual modes add more flexibility for better application coverage.
- ✓ Ideal for electronic components, battery, portable charger / adaptor and power products.
- ✓ Generate a single static load right through to complex dynamic sequences for thorough product testing.
- ✓ Quickly set up common tests.
- ✓ Ideal for low to medium power applications.
- ✓ Support for the maximum control flexibility.

### Models and Characteristics

T3EL15060P	High Range	1 V – 150 V	0 – 60 A	300 Watts	Programmable
	Low Range	1 V – 150 V	0 – 6 A	300 Watts	Programmable
T3EL50015P	High Range	2.5 V – 500 V	0 – 15 A	300 Watts	Programmable
	Low Range	2.5 V – 500 V	0 – 1.5 A	300 Watts	Programmable

# PRODUCT OVERVIEW

The T3EL15060P and T3EL50015P Series are single channel, 300 Watt Electronic Loads ideal for R&D, product validation and Q&A in a bench or automated environment for low to medium power applications starting from 60 mA, such as electronic components, batteries, portable chargers and power products.

The T3EL Series has seven operating modes. Among them, the four basic operating modes are constant current, constant voltage, constant resistance, and constant power. Three other combined operating modes are constant current + constant voltage, constant resistance + constant voltage, constant power + constant voltage. Users can select operating modes based upon products' test requirements. For CC mode the electronic load will sink a constant current according to the set current value; for CV mode the electronic load will attempt to sink sufficient current to control the source voltage to the programmed value; for CR mode the electronic load will sink a current linearly proportional to the input voltage according to the set resistance value; for CP mode the electronic load will initiate load power sinking operation (load voltage x load current) in accordance with the programmed power setting.

To meet the requirements of different test conditions, the Static function is to sink a constant current; the Dynamic function is to periodically switch between two sink conditions, and the Sequence function is to provide tests for more than two sink conditions. The sequence function can be divided into Normal Sequence and Fast Sequence. Normal Sequence is the most flexible means of generating complex sequences, that can allow users to establish a set of changing current sink conditions based upon different sinking requirements (CC, CR, CV or CP mode) and time (adjustable range: 1 ms to 999 h 59 min 59 s in Normal Mode). Fast sequence allows time resolution of 25 us to be set for the smallest step. Setting parameters for multiple steps can simulate

consecutive current changes of various real load conditions. For instance, while using an electronic load to test a power-driven tool's power supply.

The Soft Start function allows users to determine the rise time of the current sink by measuring the required time to reach the electronic load's set current, resistance or power value. Setting a proper rise time for Soft Start will counter output voltage fluctuations caused by a DUT's (power supply) transient output current. Generally DC loads do not have the soft start function that is built in to the T3EL Series.

When conducting high speed current sink operation, the inductance effect on the cables connecting the electronic load and DUT will lead to transient voltage drop on the electronic load's input terminals that will result in Voltage Non-monotonic increase. The T3EL Series soft start function not only allows the output voltage to follow a Monotonic increase, but also prevents inrush current and surge voltages that could damage the DUT. For instance, tests using a power supply, LED and a DC load (activate the soft start function) can prevent inrush current and surge voltages from causing damage to the LEDs.

The built-in BATT Test Automation provides battery discharge applications with more flexible discharge stop settings as well as rise and fall Slew Rates for discharge current settings.

The OCP, OPP test Automation for DUT's (ex. Power Supply), provide users with high resolution measurement values to verify DUT's activation point and provide users with measurement results to help them determine whether DUT's actual over protection activation point meets regulations.

The T3EL Series provides users with an analog control terminal to control the T3EL Series using an external voltage, external resistance and switch.

## Ordering Information

<b>T3EL15060P</b>	150 V / 60 A / 300 W Programmable Single Channel D.C. Electronic Load
<b>T3EL50015P</b>	500 V / 15 A / 300 W Programmable Single Channel D.C. Electronic Load

Supplied Accessories include Quick Start Guide, Power Cord and Remote Sense Cables (1 x Red, 1 x Black).

# SPECIFICATIONS

## Models and Specifications

Model		T3EL15060P		T3EL50015P	
Range		Low	High	Low	High
Power		300 W	300 W	300 W	300 W
Voltage		1 V – 150 V	1 V – 150 V	2.5 V – 500 V	2.5 V – 500 V
Current		0 – 6 A	0 – 60 A	0 – 1.5 A	0 – 15 A
Minimum Operating Voltage (DC)		1 V – 6 A	1 V – 60 A	2.5 V – 1.5 A	2.5 V – 15 A
<b>Static Mode</b>					
Constant Current Mode	Range	0 – 6 A	0 – 60 A	0 – 1.5 A	0 – 15 A
	Resolution	0.2 mA	2 mA	0.05 mA	0.5 mA
Constant Resistance Mode	Range	0.01666 $\Omega$ – 500 $\Omega$ (300 W / 15 V) 0.1666 $\Omega$ – 5k $\Omega$ (300 W / 150 V)		0.16666 $\Omega$ – 5k $\Omega$ (300 W / 50 V) 1.6666 $\Omega$ – 50k $\Omega$ (300 W / 500 V)	
Constant Voltage Mode	Range	1 V – 15 V	1 V – 150 V	2.5 V – 50 V	2.5 V – 500 V
	Resolution	0.5 mV	5 mV	1 mV	10 mV
Constant Power Mode	Range	0 W – 30 W (6 A)	0 W – 300 W (60 A)	0 W – 30 W (1.5 A)	0 W – 300 W (15 A)
	Resolution	1 mW	10 mW	1 mW	10 mW
<b>Dynamic Mode</b>					
Timers T1 & T2	Fast Mode	0.05 ms – 30 ms, Resolution 1 $\mu$ s		0.05 ms – 30 ms, Resolution 1 $\mu$ s	
	Normal Mode	30 ms – 30 s, Resolution 1 ms		30 ms – 30 s, Resolution 1 ms	
Constant Current Mode	Range	0 – 6 A	0 – 60 A	0 – 1.5 A	0 – 15 A
	Resolution	0.2 mA	2 mA	0.05 mA	0.5 mA
Constant Resistance Mode	Range	0.01666 $\Omega$ – 500 $\Omega$ (300 W / 15 V) 0.1666 $\Omega$ – 5k $\Omega$ (300 W / 150 V)		0.16666 $\Omega$ – 5k $\Omega$ (300 W / 50 V) 1.6666 $\Omega$ – 50k $\Omega$ (300 W / 500 V)	
<b>Functions</b>					
Sequence	Normal	Maximum Steps: 1000, Step Time: 1 ms – 999 h 59 min 59 sec (3599940 sec)			
	Fast	Maximum Steps: 1000, Step Time: 25 $\mu$ s – 600 ms (600 sec)			
Battery Test Automation		Maximum Test Time: 999 h 59 min 59 sec (3599940 sec), Maximum Test AH: 9999.99 Ah			
Test Function		OCP Autotest Function, OPP Autotest Function			
Soft Start		Yes		Yes	
<b>Other</b>					
In / Out Terminals		Analog External Control, Current Monitor Output, Trigger In / Out BNC			
Preset Data		10 Sets		10 Sets	
Protection		OCP, OPP, UVP, OVP, OTP, RVP			
Interface		USB, Analog Control			
Power		100 VAC – 120 VAC / 200 VAC – 240 VAC, 47 Hz – 63 Hz			
Dimensions and Weight		Width: 213.8 mm, Height: 124 mm, Depth: 400.5 mm, Weight: 7.5 kg			
Warranty		3 Year 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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T3 stands for Teledyne Test Tools.

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