

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

# SPECIFICATIONS

## Models and Specifications

		T3EL15060P		T3EL50015P	
		Low	High	Low	High
	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)	
	Resolution	1 V - 15 V	1 V - 150 V	2.5 V - 50 V	2.5 V - 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)	
	Resolution	1 V - 15 V	1 V - 150 V	2.5 V - 50 V	2.5 V - 500 V
<b>Functions</b>					
Sequence	Normal	Maximum Steps: 1000, Step Time: 1 ms - 999h 59min 59sec (3599940 sec)			
	Fast	Maximum Steps: 1000, Step Time: 25 $\mu$ s - 600 ms (600 sec)			
Battery Test Automation	Maximum Test Time: 999h 59min 59sec (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, Analogue Control				
Power	100 VAC - 120 VAC / 200 VAC - 240 VAC, 47 Hz - 63 Hz				
Dimensions and Weight	Width: 213.8mm, Height: 124mm, Depth: 400.5mm, Weight: 7.5kg				
Warranty	3 Year Return To Teledyne LeCroy				

# PRODUCT OVERVIEW

The T3EL15060P and T3EL50015P Series of 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 60mA, such as electronic components, batteries, portable chargers and power products.

The T3ELXXXXXP 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 C.C. mode the electronic load will sink a constant current according to the set current value; for C.V. mode the electronic load will attempt to sink sufficient current to control the source voltage to the programmed value; for C.R. Mode the electronic load will sink a current linearly proportional to the input voltage according to the set resistance value; for C.P. 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: 1ms to 999h 59min 59s in Normal Mode). Fast sequence allows time resolution of 25 $\mu$ s 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 T3ELXXXXXP 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 T3ELXXXXXP Series soft start function not only allows output the 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 DUTs (ex. Power Supply), provide users with high resolution measurement values to verify DUT's activation point. Provide users with measurement results so as to help them determine whether DUT's actual over protection activation point meets regulations.

The T3ELXXXXXP provides users with an analog control terminal to control the T3ELXXXXXP using an external voltage, external resistance and switch.

## Ordering Information

T3EL15060P	150 V / 60 A / 300 W Programmable Single Channel D.C. Electronic Load
T3EL50015P	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).

# 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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