

# ACA TMetrix

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## LD SERIES Electronic DC Loads



80A-80V-400W or 16A-500V-400W

Constant current, resistance, power, voltage and conductance

Transient generator, variable slew rate, soft start

Current monitor output, analog remote control

USB, RS-232, GPIB and LAN interfaces

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# LD SERIES Key Features

## COMPACT ELECTRONIC DC LOADS

The LD series features electronic loads which are suitable for testing and characterising a wide variety of dc power sources. They can be used to investigate the behavior of many different types of power source such as PFCs, batteries and solar cells, as well as electronic power supply units. The wide voltage/current range, multiple operating modes and built-in transient generator give them versatility to offer test solutions from the design laboratory through to the component test area.



## FEATURES SUMMARY

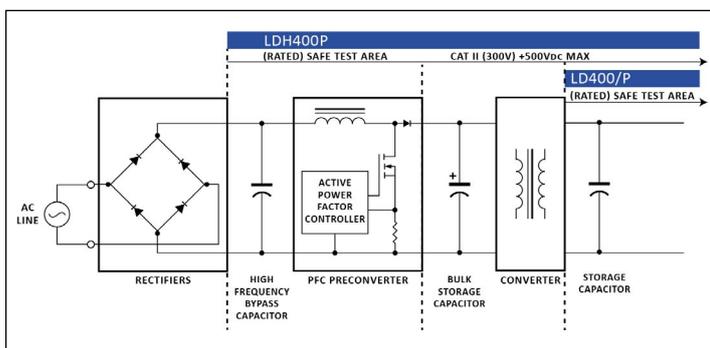
- ▶ Variable drop-out voltage for battery testing
- ▶ 400 watts continuous dissipation at 28°C (de-rating to 360W at 40°C)
- ▶ Constant current, resistance, conductance, voltage (LD400 models only) and power modes
- ▶ High resolution and accuracy for level setting
- ▶ Current monitor output for waveform viewing
- ▶ Front and rear input terminals
- ▶ Built-in transient generator with variable slew
- ▶ High resolution backlit graphic LCD with soft key control
- ▶ Analog remote control of levels and TTL control of on/off and transient switching
- ▶ Full bus control via USB, RS232, GPIB and LXI compliant LAN interfaces \*

\* P models only

## MODEL COMPARISON

	LD400 & LD400P	LDH400P
Max Power range	400W (600W short term)	400W
Max Current	80A rear panel 30A front panel	16A
Operating range	0- 80V	10- 500V
Isolation voltage	±300Vdc	CAT II (300V)
Operating modes	CC,CP,CR,CG,CV	CC,CP,CR,CG

## PFC TEST EXAMPLE

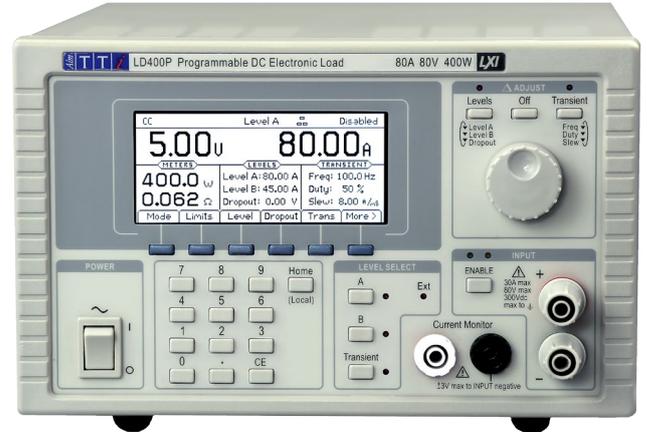


## LD400 & LD400P

Low minimum operating voltage of <1V at 40A

Wide voltage and current range 0-80V & 0-80A

600 watts short term dissipation (up to 60 seconds)



## LOW MINIMUM OPERATING VOLTAGE

The LD400 can operate at voltages below 500mV for currents up to 10 amps. At higher currents the fixed minimum resistance (typically better than 25mΩ) gradually raises the minimum operating voltage, but it remains below 1 volt up to 40 amps and below 2 volts up to 80 amps. This low operating voltage allows it to be used for many low voltage applications for which other electronic loads are unsuitable.

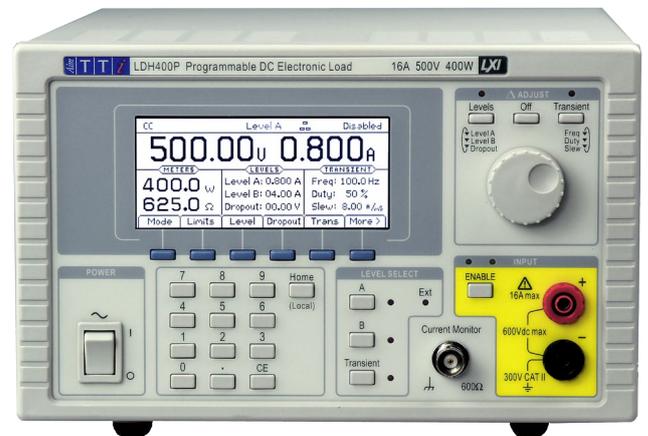
## 600 WATTS INTERMITTENT POWER

The LD400 can operate at power levels up to 600 watts for periods of up to 1 minute. Short term loading can be sufficient for many testing applications and significantly extends the usefulness of the LD400.

## LDH400P

Wide voltage and current range 10 to 500V and 0 to 16A

Load inputs rated to CAT II (300V)

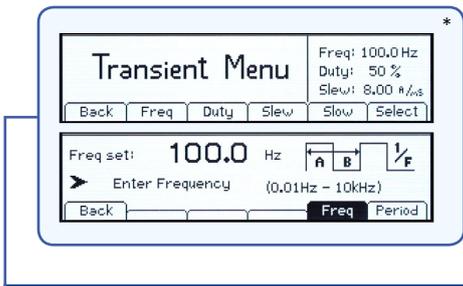


## CAT II (300V) RATING

The LDH400P load inputs are rated to CAT II (300V), this allows the direct testing of PFCs and mains connected power supplies to be simplified using the LDH400P by eliminating the need for an isolation transformer, saving bench space and cost.

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## TRANSIENT GENERATOR AND VARIABLE SLEW

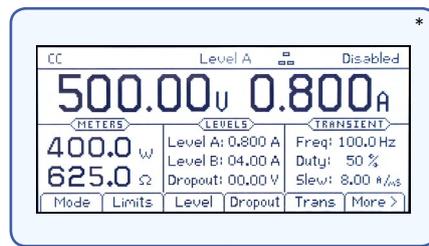
The LD series incorporates a full variable frequency, variable duty cycle transient generator.

Switching between the two preset levels can be done at any frequency between 0.01Hz and 10kHz. The transient generator can be used in all operating modes.

The rate of change between levels (slew rate) is controllable over a wide range.

Slew rate control applies to all changes of level including remote control and manual changes between level A and level B.

A slow-start function can be selected for situations where latching would otherwise occur at switch-on.



## HIGH RESOLUTION SETTING/MEASUREMENT

The two operating levels for each operating mode are settable to high precision.

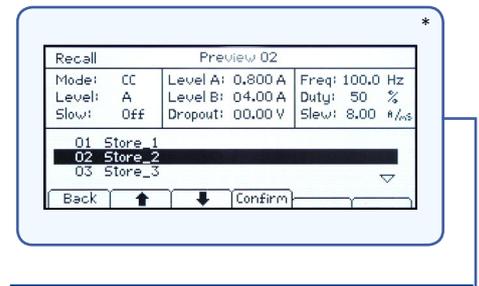
Levels are displayed using four digit meters which provide resolution down to 1mA, 1mV and 1mW.

The meters have an accuracy of 0.1% for voltage and 0.2% for current.

## CURRENT WAVEFORM MONITOR

It is often important to be able to observe the load current waveform on an oscilloscope. The LD series provides a calibrated monitor output for this purpose as well as a sync output from the transient generator.

The LDH400P monitor output is ground (chassis) referenced and isolated from the load input, thus allowing it to be connected to a ground oscilloscope.

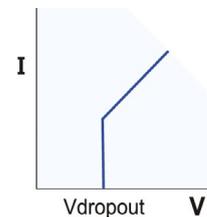


## SETTING MEMORIES

Thirty non-volatile memories are provided which store all of the parameters of the load. This makes the LD series highly suitable for repetitive test use.

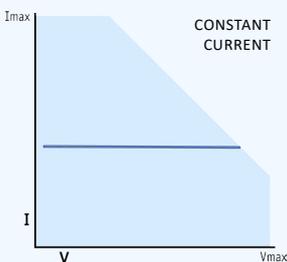
## ADJUSTABLE VOLTAGE DROPOUT

Some power sources, such as rechargeable batteries, can be damaged if their output voltage falls below a certain level. The LD series provides automatic protection by incorporating fully variable voltage dropout. If the voltage applied to the load falls below a preset level, the load current is rapidly reduced to zero.



Resistive discharge (conductance mode) with voltage dropout.  
Note that in CR mode the load performs the equation  $I = (V - V_d)/R$  where  $V_d$  is the dropout voltage.

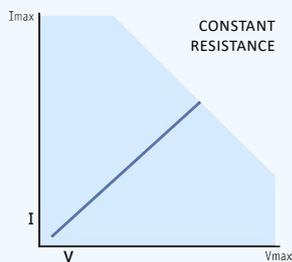
## MULTIPLE MODES OF OPERATION



### CONSTANT CURRENT MODE

Used for load testing of normal voltage-source power supplies and for constant current discharge testing of batteries.

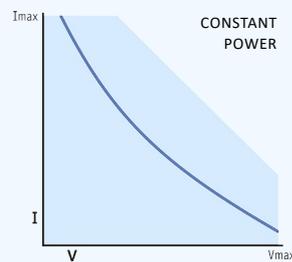
This mode provides rapid measurement of power source regulation (V/I characteristics).



### CONSTANT RESISTANCE MODE

Simulates a standard resistive load by providing a current drain proportional to voltage. Settings are displayed in Ohms or milli-Ohms.

Unlike fixed resistors or rheostats, the load provides a precisely controllable resistance with high power dissipation and high temperature stability over a wide value range.

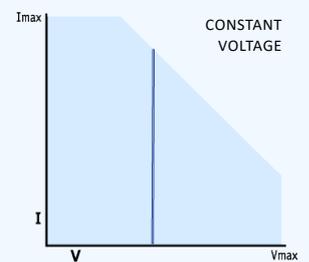


### CONSTANT POWER MODE

Simulates a load whose power consumption is independent of the applied voltage.

This is true of many types of equipment that incorporate switch-mode regulators.

This mode may be particularly suitable for testing power sources of portable devices such as Lithium-ion batteries.



### CONSTANT VOLTAGE MODE

(LD400 MODELS ONLY)

Used for load testing of constant current power supplies. The unit operates as a high power shunt regulator.

**CONSTANT CONDUCTANCE MODE**  
As well as showing settings in amps per volt, this mode provides better resolution when setting very low equivalent resistance values.