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Find the *Ametek / Elgar / California Instruments 251TL-115V-OP1* at our website: *Click HERE*

California Instruments TL Series

Low Noise Linear AC Power Source

- Low Noise, Low Distortion
- 350 VA or 250 VA Output Power
- 16 Hz to 8000 Hz Frequency Range
- Precision Measurements
- Remote Control



250 - 350 VA

135 - 270 V

0 - 2.8 A

~	115	200	230

RS232

Compact AC Power
Using state of the art linear technology, the TL Series programmable AC power sources are ideally suited for applications where a low distortion, low noise sinewave is required

Selectable input voltage ranges allow this power source to be used anywhere in the world to provide a convenient source of variable voltage and frequency power for testing and evaluating AC powered equipment. All common line voltage and frequency combinations are covered.

In addition, the frequency range extends to 8000 Hz, making these products suitable for both conventional and special purpose applications

Accurate measurement functions are available as an option to eliminate the need for external test equipment in many test setups. Voltage, current, peak current, power, and power factor can be read directly on the large LCD display or over the bus.

Easy To Use Controls
Front panel digital rotary encoders are used to set voltage and frequency and current limit. These controls have an analog feel, with the precision and reliability of digital circuits. Settings and measurements are read directly on the large, high contrast LCD displays.

Dual output voltage ranges of 135 Vrms L-N and 270 Vrms L-N, provide maximum current at the required voltage.

The output frequency can be varied from 16 Hz up to 8000 Hz to cover commercial, avionics and defense power applications.

Product Development
The precise voltage regulation, low distortion and noise levels and wide frequency range of the TL Series, combined with its easy to use front panel, make it a great precision Lab AC source. Built in measurements may be added (option - OP1) to extend the units usefulness for design applications of AC powered products.

Special Applications
Applications requiring high frequency output such as gyro's, sensors and variable frequency controllers can be tested and operated by a TL Series unit at up to 8000 Hz. Contact factory for higher frequency requirements.

Output Power
The 351TL AC power source is rated for 350 VA with an output voltage between 90 % and 100 % of range and a load power factor of 0.7 to reflect typical operating conditions. Maximum RMS current is 2.8 A in the 135 V range. The 251TL is rated for 250 VA with an output voltage between 78 % and 100 % of range and a load power factor of 0.7. It's maximum current is 2.4 A in the 135 V range.

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Programmable Power
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San Diego, CA 92121-2267
USA

AMETEK®
PROGRAMMABLE POWER

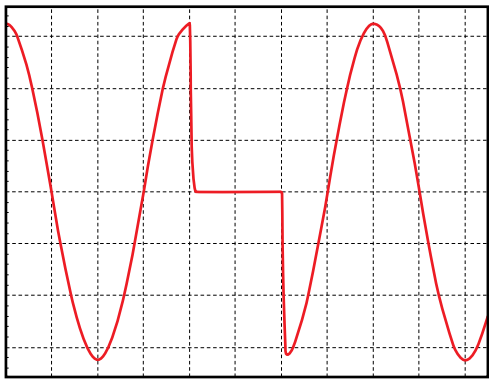
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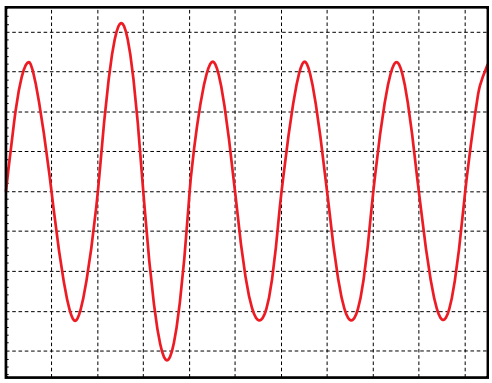
Extensive Transient Control[1]
With the addition of the remote control interface option, TL Series units are capable of producing transients with a high degree of user programmability. Setting up transient programs is facilitated by a Windows™ Graphical User Interface program that allows amplitude, frequency and event duration to be programmed from a PC. Time resolution is 10 ms (0.010 sec) with a minimum time interval ranging from 10 ms to 40 ms, depending on the transient type. Maximum transient time intervals are 9999 seconds. Transient programming allows the effects of common line disturbances such as voltage surges, sags, drop-outs and frequency fluctuations on the unit under test to be evaluated.

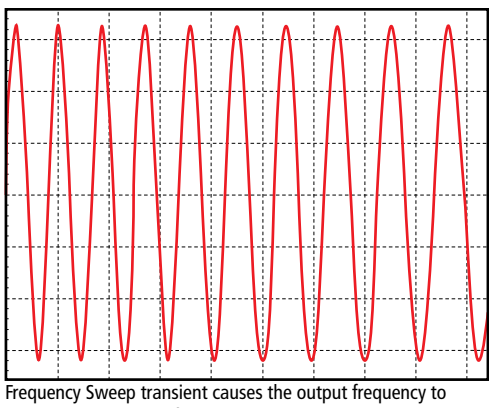
Precision Measurements
For bench or automated test equipment (ATE) applications, the TL Series can be ordered with the -OP1 option, offering both IEEE-488 and RS232C remote control interfaces as well as extended measurements. These measurements are available from the front panel and over the bus. The TL Series uses closed-case calibration for both output and measurement calibration, lowering cost of ownership.

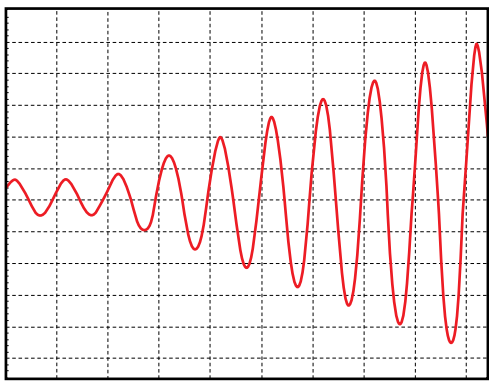
SCPI Protocol Programming Commands
All functions of the TL Series are programmable over the available IEEE-488 or RS232C interface. For example, the following tasks can be performed over the bus:
- Set voltage to any level
- Change frequency
- Generate voltage dropouts, sags or surges at 90 °, 180 °, 270 ° or 0 °
- Measure TRMS current, peak current, crest factor, TRMS voltage, true power, apparent power and power factor
- Recall eight complete instrument setups from non-volatile memory
- Adjust current limit value
- Lock the front panel to prevent operator interference
- Switch between high and low voltage range

Application Software
Windows™ application software is included with the -OP1 option package. This easy to use graphical interface program provides complete control over all instrument functions using the RS232C or IEEE-488 interface. With enhanced capabilities such as output sequencing, data logging and transient generation, many applications can be addressed without the need to write software.


Drop transient causes output voltage to drop to zero for a user specified period


Voltage Surge transient causes output voltage to surge.


Frequency Sweep transient causes the output frequency to change at a user specified rate.


Voltage Sweep transient causes output voltage to change at a programmed rate.

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Controller		
Model	251TL	351TL
Type	Programmable	Programmable
Controls	Digital Encoders	Digital Encoders
Readouts	dual 4 digit LCD's	dual 4 digit LCD's
Non Volatile Setups (with -OP1 option)	1 (8)	1 (8)
Output		
Model	251TL	351TL
AC Power maximum	250 VA	350 VA
Load Connection	Rear panel terminal block Floating neutral	Rear panel terminal block Floating neutral
Voltage		
High range / Low range	0 - 270V RMS / 0 - 135V RMS	0 - 270V RMS / 0 - 135V RMS
Accuracy 16-100Hz	± 0.1 % FS	± 0.1 % FS
Accuracy 100-5000Hz	± 0.2 % FS	± 0.2 % FS
Accuracy 5000-8000Hz	± 0.3 % FS	± 0.3 % FS
Resolution	0.1 V	0.1 V
Load Regulation <2000Hz	0.1 % FS	0.1 % FS
Load Regulation 2000-5000 Hz	0.15 % FS	0.15 % FS
Load Regulation >5000 Hz	0.25 % FS	0.25 % FS
Line Regulation 10% Line change	± 0.02 % FS	± 0.02 % FS
T.H.D. (into a resistive load) 16-999Hz	< 0.5 %	< 0.5 %
T.H.D. (into a resistive load) 1000-8000Hz	< 2.0 %	< 2.0 %
Output Noise full scale at full power	-73 dB Max.	-73 dB Max.
Frequency (See V-F Rating chart)		
Range	16-8000 Hz	16-8000 Hz
Accuracy	± 0.02 %	± 0.02 %
Resolution 16-79.99Hz	0.01 Hz	0.01 Hz
Resolution 80-799.9Hz	0.1 Hz	0.1 Hz
Resolution 800-8000Hz	1 Hz	1 Hz
Current		
RMS Current High / Low Vrange	1.2 / 2.4 A RMS	1.4 / 2.8 A RMS
Peak Current High / Low Vrange	3.0 / 6.0 A peak	3.0 / 6.0 A peak
Maximum Power Ratings	The 351TL is rated for 350 VA of power down to 90 % of voltage range. The 251TL is rated for 250 VA of power down to 78 % of voltage range.	

Protection	
Adj. Current limit Resolution	0.1 A RMS
Modes	Constant Voltage or Constant Current (Unit trips off in constant voltage)
Over Temperature and Over Voltage	
Input	
Connection	Rear panel terminal block
Line Voltage 2 wire + GND	100, 115, 200, 230 ± 10% V RMS (Set by internal jumpers)
Line Current	< 16 A RMS
Line Frequency	47 - 440 Hz
Holdup Time	10 ms

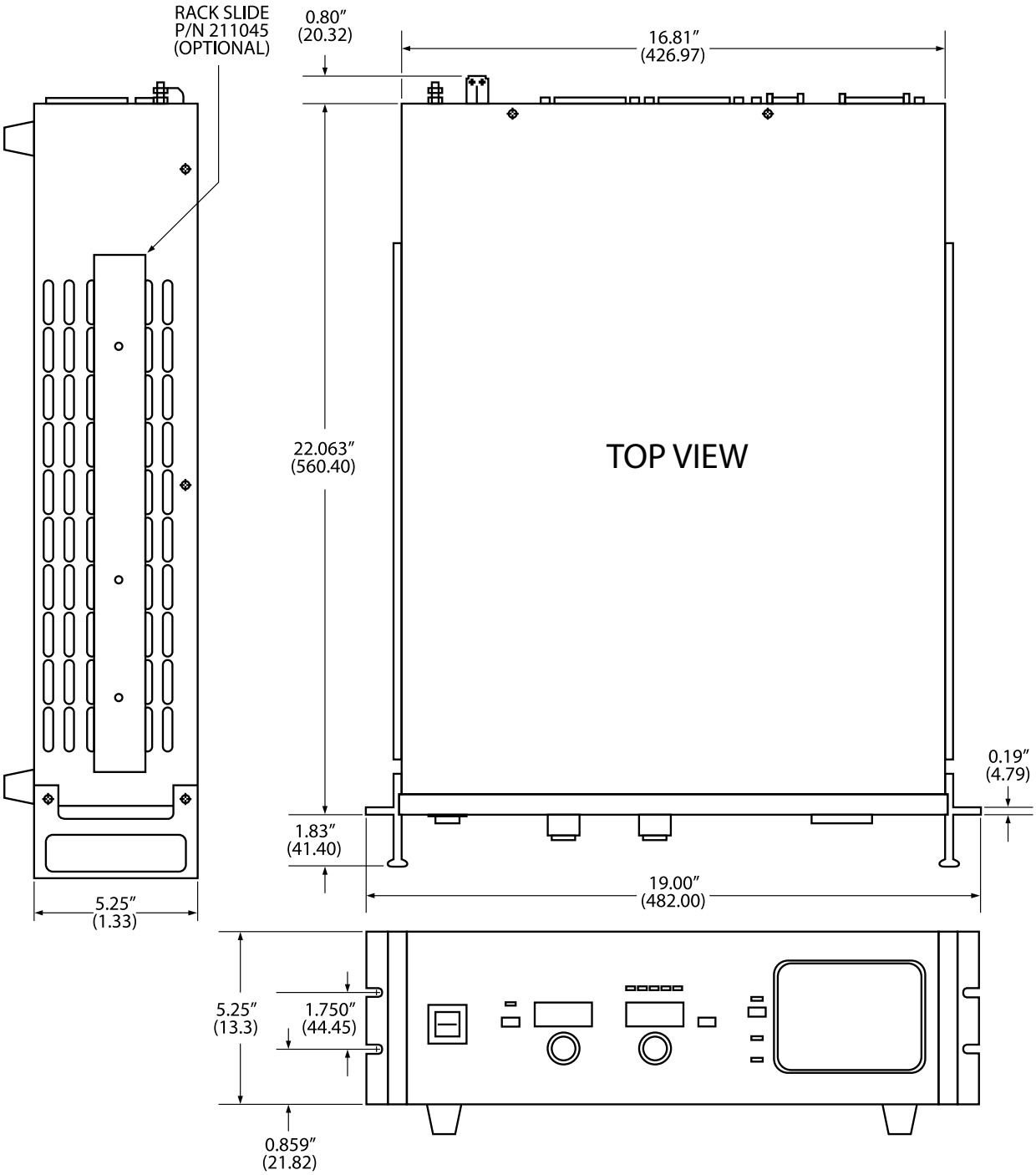
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TL Series : Product Specifications

Measurements (* Requires Option -OP1)	
Current Range	4.000 A RMS
Peak Current* Accuracy	0.2 % FS + 0.3 % rdng
Peak Current* Resolution	0.001 / 0.01 A RMS
Peak Current* Range	12.00 A
Voltage* Accuracy	0.5 % FS + 0.5 % rdng
Voltage* Resolution	0.01 / 0.1 A
Voltage* Range	0 - 300.0 V RMS
Power* Accuracy	0.1 % FS + 0.05 % rdng
Power* Resolution	0.1 V RMS
Power* Range	400.0 W
Power Factor*	Accuracy 0.5 % FS Resolution 0.2 W
Power Factor*	Range 0.00 - 1.00 Resolution 0.01
Remote Control (* Requires Option -OP1)	
Requires Option -OP1) Interface*	RS232C and IEEE-488
IEEE Functions	SH1, AH1, T8, L3, RL2
RS232C settings	19200,8,n,1
Command Language	SCPI
Remote Inhibit* Output shut down	TTL in, active low BNC
Function Strobe* On V or F change	TTL out, active low BNC
Physical	
Dimensions HxWxD	5.25 x 19 x 22 inches 133 x 483 x 560 mm
Weight (net)	75 lbs / 34 kg
Vibration and Shock	Designed to meet NSTA-1A
Temperature Operating	0 to 40 ° C
Temperature Storage	- 40 to + 85 ° C
Models	
351TL	350 VA linear AC Source
251TL	250 VA linear AC Source
TL Model Options	
Option Code	Description
-EXT	External Oscillator Input. (Removes internal oscillator)
-L22	Locking knobs
-OP1	Option package 1: • Measurements • IEEE-488 / RS232C Interface and GUI software • Remote Inhibit input • Function Strobe output
-RMS	Rack Mount Slides
Supplied with	
User and Programming Manual on CD ROM	
Windows™ Graphical User Interface (with -OP1 option)	
RS232C Serial Cable (with -OP1 option)	

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TL Series



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Notes

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