

Low Noise Linear AC Power Source

135 - 270 V

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



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 sine wave 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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AMETEK[®]
PROGRAMMABLE POWER

Extensive Transient Control¹

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:

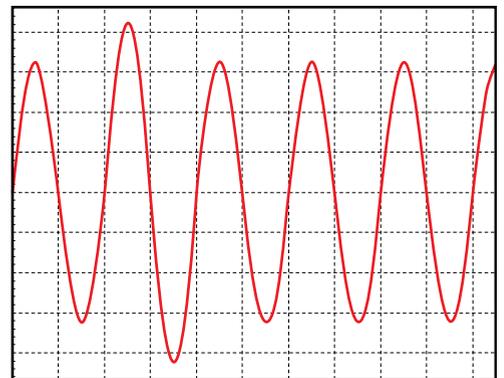
- Set voltage to any level
- Change frequency
- Generate voltage dropouts, sags or surges at 90 °, 180 °, 270 ° or 0 °
- Measure TRMS current, peak current, crest factor, TRMS voltage, true power, apparent power and power factor
- Recall eight complete instrument setups from non-volatile memory
- Adjust current limit value
- Lock the front panel to prevent operator interference
- Switch between high and low voltage range

Application Software

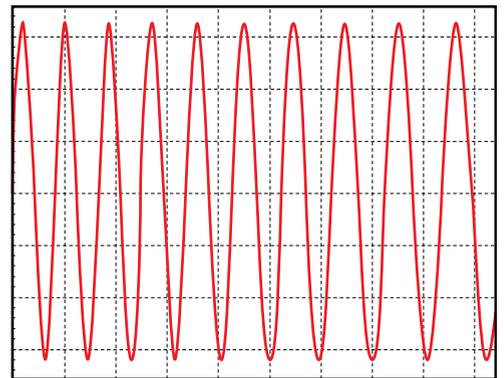
Windows™ application software is included with the -OP1 option package. This easy to use graphical interface program provides complete control over all instrument functions using the RS232C or IEEE-488 interface. With enhanced capabilities such as output sequencing, data logging and transient generation,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



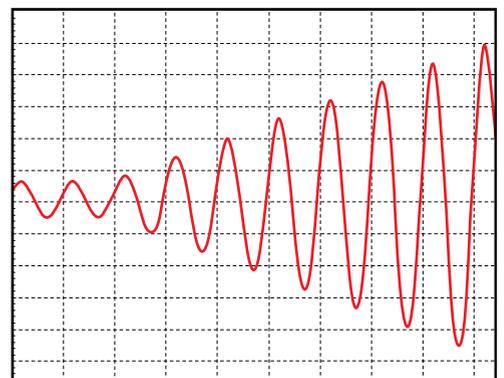
Drop transient causes output voltage to drop to zero for a user specified period



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.

TL Series : Product Specifications

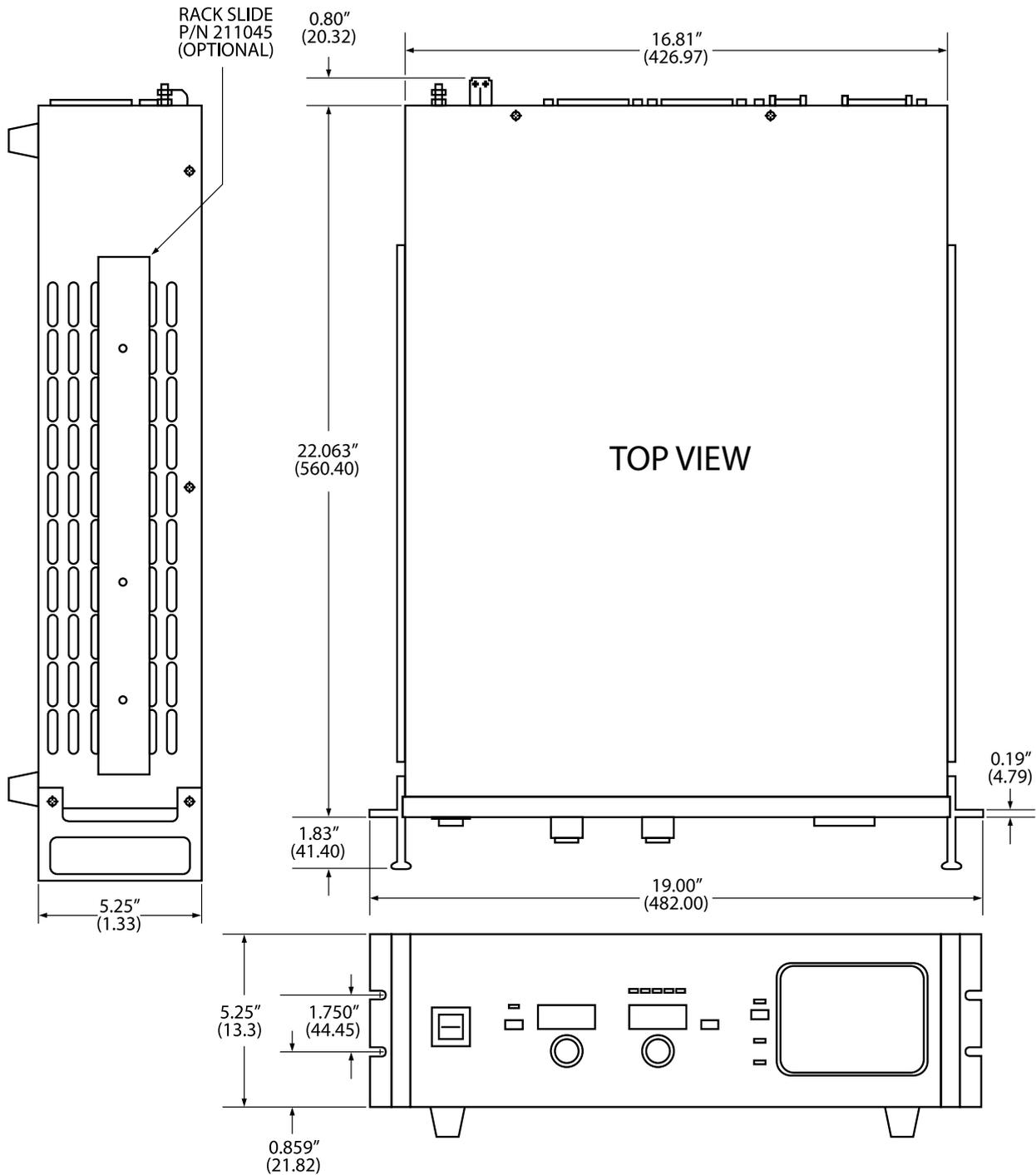
250 - 350 VA

| 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 | |

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: <ul style="list-style-type: none"> • 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) | |

TL Series



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