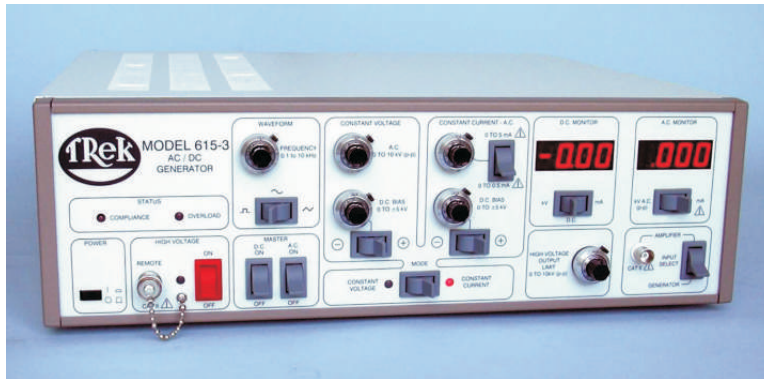


Model 615 Series

High-Voltage AC/DC Generators



The Trek Model 615A-1 and the Model 615-3 are precision high voltage AC/DC generators that can be used in both R&D and production operations with a 10 kV peak-to-peak capability. They are specifically designed to simultaneously provide the AC and DC operating potentials required to operate/control an “Electrostatic Charger Roller”. Electrostatic Charger Rollers are used in electro static photocopier and digital printing systems. The new Model 615-10 has the same features with a 20 kV peak-to-peak capability. Please refer to the separate 615-10 data sheet for more information.

Constant Voltage Mode

The Trek Model 615A-1 and the Model 615-3 can be used as general purpose, precision, high voltage AC/DC generators that produce output voltages in the range of 0 to 10 kV peak-to-peak. Front panel controls set the voltage levels and provide adjustments for output waveforms and frequencies. A DC bias voltage can be added to the output signal in either polarity up to a maximum peak value of 5 kV.

Constant Current Mode

The Trek Model 615A-1 and the Model 615-3 differ in the type of current which is controlled. The Model 615A-1 maintains the resistive AC current (peak-to-peak) of the load according to front panel set values while supplying additional current to the reactive portion of the load. The Model 615-3 maintains the voltage waveform and controls the total AC average current (peak-to-peak current divided by 3.14) to the load according to front panel settings. Controlled AC current is not affected by DC current. This feature allows for the addition of a DC bias voltage to the output signal. In addition, the Model 615-3 has an adjustable DC limit potentiometer to limit the DC current output.

Amplifier Mode

As high-voltage amplifiers, any applied input signal to the Model 615 series is amplified by a fixed gain of 1000 V/V. DC bias voltage settings can be added to the output signal. The units have extra features including an upper voltage limit setting, a constant current mode range selection switch, an I(s) terminal common post for shield connection of high voltage wiring, and overload and compliance indicators.

Voltage and current values are read by front panel displays or through rear panel buffered outputs providing low-voltage representations of the load current and the high-voltage output.

- Monitors and controls photoreceptor charging current with very high accuracy
- Output voltage range:
 - 0 to 10 kV peak-to-peak
- Output current ranges:
 - 0 to 10 mA p-p or
 - 0 to 5 mA average
- DC bias range:
 - 0 to ± 5 kV DC
- Three modes of operation:
 - Constant voltage mode
 - Constant current mode
 - External amplifier mode
- Select sine, square, or triangle wave output shape
- Four-quadrant high-voltage output stage design extends frequency response
- High rejection of load current noise components



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Model 615 Series Abridged Specifications

Output Limits (any mode)

AC Voltage (DC Bias is zero)

0 to 10 kV peak-to-peak.

AC Voltage + DC Bias

0 to ±5 kV peak.

DC Bias (AC voltage is zero)

0 to ±5 kV DC.

AC Current (DC Current is zero)

0 to 10 mA, p-p (615A-1).

0 to 5 mA, average (615-3)*.

$$* \text{ AC current average} = \frac{(2) I_{\text{peak}}}{3.14}$$

AC Current + DC Current

0 to ±8 mA peak.

DC Current (AC current is zero)

0 to 8 mA DC.

Frequency (Internal Generator)

100 Hz to 10 kHz.

Features

Internal AC Generator

An internal AC function generator is used to produce the AC output voltage (Constant AC Voltage mode) or the AC load current (Constant AC Current mode).

Note: Not used in AMPLIFIER mode.

Waveform Options

Square, sine, or triangle.

Waveform Distortion

Less than 1.5%.

Frequency Range

100 Hz to 10 kHz.

Amplifier Input Mode

A front panel BNC connector which will process an external signal.

Constant Voltage/Constant Current

Two 10-turn dials for precise settings.

Constant Current Range Select

Selects current mode for

0 to 1 mA or 0 to 10 mA p-p (615A-1).

Selects current mode for 0 to

500 µA or 0 to 5 mA average (615-3)*.

DC Bias

Adjustable from 0 to ±5 kV DC.

High-Voltage AC Output Limit

Adjustable from 0 to 10 kV p-p for both Constant Current mode and Constant Voltage mode.

Note: Not used in AMPLIFIER mode.

Accuracy

5% of full scale.

High-Voltage On/Off

Local

Front panel switch.

Remote

A TTL compatible input.

Master DC Switch

Turns ON and OFF the DC generator.

Features (cont.)

Master AC Switch

Turns ON and OFF the AC generator.

Note: Not used in AMPLIFIER mode.

AC Voltage or Current Mode Selection Local Operation

A front panel switch.

Remote Operation

A TTL compatible signal applied to the Mode Select input of the Remote Interface connector.

Compliance Indicator

A LED will illuminate during an overvoltage condition when operating in the Constant Current mode or during an overcurrent condition when operating in the Constant Voltage mode.

Note: Not used in AMPLIFIER mode.

Overload Indicator

A red LED will illuminate when the output current limit is exceeded.

Voltage/Current Displays and Monitors

AC Display

A 3½ digit LED display indicates the peak-to-peak value of the AC voltage output or the resistive peak-to-peak AC load current, switch selectable on the 615A-1. The 615-3 displays the average current*.

Note: Not used in AMPLIFIER mode.

Accuracy

Better than 0.5% of full scale ± 1 digit.

DC Display

A 3 ½ digit LED display indicates either the level of the DC bias or the level of the DC load current (switch selectable).

Accuracy

Better than 0.2% of full scale ± 1 digit.

Voltage Monitor

A buffered output provides a low-voltage replica of the high-voltage output.

Scale Factor

1/1000th of the high-voltage output.

Current Monitor

A buffered output provides a low-voltage representation of the load current.

Scale Factor

1 V/mA.

Model 615A-10 is now available
with a 20 kV peak-to-peak
capability

Additional Specifications for the Amplifier Mode

Input Voltage Range

±5 V DC or peak AC.

Gain for Noninverting Voltage

The gain of the noninverting amplifier is factory set for 1000 V/V. A voltage gain of 500 V/V is available.

DC Voltage Gain Accuracy

0.5% of full scale

Slew Rate (10 to 90 %, typical)

Greater than 80 V/µs.

Large Signal Bandwidth (1% distortion)

DC to greater than 3 kHz.

Large Signal Bandwidth (-3dB)

DC to greater than 5 kHz.

Small Signal Bandwidth(-3 db)

DC to greater than 10 kHz.

General

Dimensions

134 mm H x 432 mm W x 432 mm D
(5.25" H x 17" W x 17" D).

Weight

15 kg (33 lb).

Power Requirements

Line Supply

Factory set for one of two ranges,
90 to 127 V AC or
180 to 250 V AC, at 48 to 63 Hz.

Power Consumption

100 VA.

The 615 series can be operated on a bench top or, with optional hardware, in a standard 19-inch rack.

Accessories

Accessories Supplied

- Operator's Manual
- High-Voltage Output Cable Assembly
- Line Cord (90 to 127 V AC operation)
- Untermated Line Cord (180 to 250 V AC operation).

Accessories Optionally Available

- High-Voltage Output Cable Assembly (5 meter)
- High-Voltage Output Cable Assembly (10 meter)
- High-Voltage Output Cable Assembly (20 meter)

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