Trek Model 615-10

±10 kV (±20 kV p-p) High-Voltage AC/DC Generator

The Trek Model 615-10 is a precision high voltage AC/DC generator and amplifier system used in a broad range of R&D and production applications. In the constant voltage mode, the 615-10 generates constant amplitude waveforms with or without DC bias. In the constant current mode, it generates constant amplitude AC current waveforms, with or without DC bias and in amplifier mode, an analog voltage input connector is provided to apply external AC or DC signals.

The Model 615-10 provides many extra features, along with Trek's exclusive instrument control and an interface to be used in remote operation.

Key Specifications

- AC Voltage Range (DC bias is zero): 0 to ±20 kV DC peak-to-peak
- DC Bias (AC voltage is zero): 0 to ±10 kV DC
- AC Voltage + DC Bias: 0 to ±20 (combined AC and DC instantaneous voltage value)
- AC Current (DC current is zero): 0 to ±10 mA average where AC current average = (2) I peak / 3.14
- DC Current (AC current is zero): 0 to ±10 mA DC
- AC + DC Current: 0 to ±35 kHz peak
- Frequency (Internal Generator): 100 Hz to 10 kHz

Typical Applications Include

- Electrophotographic processes
- Electrophotographic corotron/scoratron device shielding
- Photoconductor industry

Features and Benefits

- Three modes of operation with or without DC offset bias
- Monitor and control photoreceptor charging current with very high accuracy
- Four-quadrant output extends frequency response
- Operator-selectable sine, square or triangle wave output shape
- NIST-traceable Certificate of Calibration provided with each unit
- CE compliant
- Trek also provides Model 615A-1 and Model 615-3 which have a 10 kV peak-to-peak capability

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615-10 Specifications

Output Limits (any mode)

AC Voltage (DC bias is zero)	0 to 20 kV peak-to-peak
DC Bias (AC voltage is zero)	0 to ±10 kV DC
AC Voltage + DC Bias	0 to ±20 kV (combined AC and DC instantaneous voltage value)
AC Current (DC current is zero)	0 to ±10 mA average where AC current average = (2) I peak / 3.14
DC Current (AC voltage is zero)	0 to ±10 mA DC
AC Current + DC Current	0 to ±35 mA peak
Frequency (internal generator)	100 Hz to10 kHz

Performance

Input Voltage Range	±10 V DC or peak AC
Gain for Noninverting Voltage	Factory set for 1000 V/V
DC Voltage Gain Accuracy	0.5% of full scale
Slew Rate	Greater than 500 V/µs
Large Signal Bandwidth (2% distortion)	DC to greater than 7.5 kHz (typical)
Small Signal Bandwidth (-3 dB)	DC to greater than 20 kHz

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 average AC current waveform (switch selectable)
Accuracy	Better than 0.5% of full scale ±1 digit
DC Display	A 3½ 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 if the high voltage output
Current Monitor	A buffered output provides a low-voltage replica of the load current
Scale Factor	0.25 V/mA

Features

Constant Voltage / Current Current	2 10-turn potentiometers for precise settings
Amplifier Input	Front-panel BNC processes external signal
DC Bias	Adjustable from 0 to ±10 kV DC

Features (cont.)

Internal AC Generator	An internal AC function generator is used to produce the AC output voltage (Constant AC voltage mode) or AC output current (Constant AC Current mode).
Waveform Options	Square, sine or triangle
Frequency	100 Hz to 10 kHz
High Voltage AC Output Limit	Adjustable from 0 to 20 kV p-p for Constant Current mode and Constant Voltage mode
Accuracy	5% of full scale
High Voltage On-Off	Local On-Off switch; Remote TTL compatible
Load Compensation	2 potentiometers to adjust AC response
Master DC Switch	Turns On and Off the DC generator
Master AC Switch	Turns On and Off the AC generator
Voltage or Current Model Select	Local front panel switch; Remote TTL compatible switch applied to mode select input
Compliance Indicator	LED indicates over voltage or over current
Overload Indicator	LED indicates when current limit is exceeded

Mechanical

Dimensions	279 mm H x 432 mm W 432 mm D (9.3" H x 17" W x 17" D)
Weight	19.3 kg (42.5 lb)
HV Connector	Alden High Voltage Connector
BNC Connectors	Amplifier Input, Voltage Monitor, Current Monitor, Remote High Voltage ON/OFF, Out of Regulation Status, Fault/Trip Status

Operating Conditions

Temperature	15°C to 35°C (15°F to 35°F)
Relative Humidity	To 85%, noncondensing
Altitude	To 10000 meters (32808.4 ft.)

Electrical

Line Voltage	90 to 127 V AC or 180 to 250 V AC, either at 48 to 63 Hz
AC Line Receptacle	Standard 3-prong AC line connector
Power Consumption	600 VA, maximum

Supplied Accessories

Operators' Manual	PN: 23356
HV Output Cable	PN: 43405
Line Cord, Spare Fuses	PN: N5002; selected per geographic destination

Optional Accessories

HV Output Cable	PN: 43421, 43422, 43423
19-in Rack Mount Kit	Model 608RA (with EIA hole spacing)
19-in Rack Mount Kit	Model 608RAJ (with JIS hole spacing)