



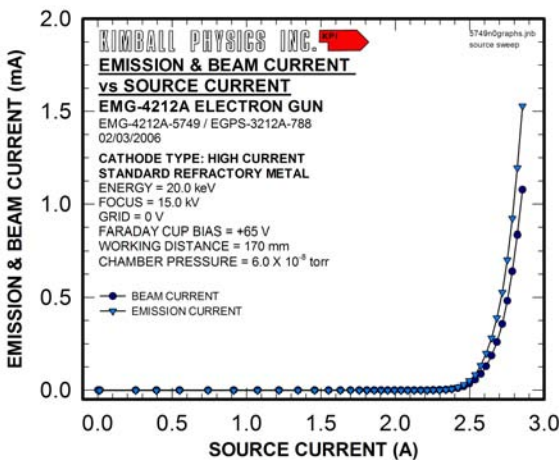
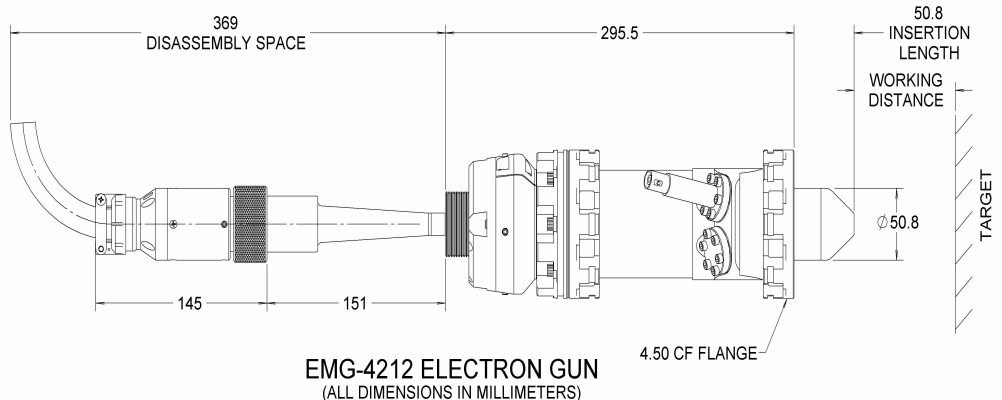
EMG-4212 ELECTRON GUN SPECIFICATIONS	
BEAM ENERGY	1 keV to 30 keV (Independently adjustable)
BEAM CURRENT	Standard: 10 nA to 100 $\mu$ A (Independently adjustable) Small Spot option: 1 nA to 10 $\mu$ A High Current option: 1 $\mu$ A to 1 mA
ENERGY SPREAD	Approx. cathode thermal spread, calculated Ta - 0.5eV      Y <sub>2</sub> O <sub>3</sub> - 0.4eV BaO - 0.3eV      LaB <sub>6</sub> - 0.4eV
BEAM DIVERGENCE	Collimated beam or Flood beam
SPOT SIZE	Standard: 500 $\mu$ m to 25 mm Small Spot option: 100 $\mu$ m to 10 mm High Current option: 1.5 mm to 25 mm
WORKING DISTANCE	Typical: 150 mm. Range: 100 mm to 1000 mm
BEAM DEFLECTION	4 Pole Electrostatic: $\pm 2^\circ$ at 30 keV; scales larger at lower energies
PULSE CAPABILITY (using appropriate pulse generator, not included)	Optional Dual Grid Power Supply: pulse width 2 $\mu$ s to DC, rise/ fall 500 ns, rep rates to 5 kHz (TTL required) Note: with High Current option, Grid may not cut off beam at higher energies
BEAM BLANKING	Optional Blanker with TTL input: Pulse width 1 $\mu$ s to DC, rep rate to 5 kHz. *Not available with high current option.
BEAM UNIFORMITY	Gaussian
FIRING UNIT	Customer-replaceable Firing Unit Cartridge includes precision-aligned cathode and Wehnelt (G-1) assembly
CATHODE TYPES	Standard: Tantalum disc Optional: Lanthanum hexaboride (LaB <sub>6</sub> ), Barium oxide (BaO), or Yttrium oxide (Y <sub>2</sub> O <sub>3</sub> ) With the exception of barium oxide, cathodes not harmed by repeated exposure to atmospheric gases while cold
INTERNAL GUN ALIGNMENT	Adjustable Feedthrough for mechanical alignment of firing unit while gun is operating
MOUNTING	Flange Multiplexer with a 4 1/2 inch CFF, including both tapped and clear mounting holes
INSERTION LENGTH	Standard: 51 mm
GUN DIMENSIONS	Gun length in vacuum: 51 mm sealing surface to end, 51 mm dia. Outside vacuum: 258 mm sealing surface to end of cable (313 mm with blanker)
FEEDTHROUGHS	Multi-pin brazed ceramic, threaded stainless steel shell
CABLES / CONNECTORS	Multi-conductor 30 kV high voltage fully ground-shielded cable, 20 kV focus cable, and low voltage deflection cable, with mating aluminum connectors, to connect gun and power supply. Standard lengths: 3 m, Optional: 5 m
MAXIMUM BAKEOUT	350°C with cables removed

EGPS-4212 ELECTRON GUN POWER SUPPLY SPECIFICATIONS	
OUTPUT	All necessary voltages to drive the EMG-4212 Electron Gun (in combination with H.V. Power Supply)
ENERGY SUPPLY STABILITY	<0.01% per hour with 0.05% rms ripple at full output
BEAM STABILITY	$\pm 0.1\%$ per hour with Emission Current Control or $\pm 10\%$ per hour after warm up without ECC
CONTROLS	FlexPanel controls: Energy, Source, Grid, Focus, X and Y Deflection, Emission Current Control, Optional Blanker Voltage
METERING	FlexPanel digital meters: Energy, Source Voltage, Source Current, Emission Current, Grid, Focus, X and Y Deflection, Blanker Voltage, Optional Beam Dump Current
COMPUTER/REMOTE CONTROL & METER	Power supplies: 0 to +10 V (-10 V to +10 V, deflection) Metering: 0 to +2 V (-2 V to +2 V, deflection) Standard 50-pin connector for analog input/output and RS-232 serial port (RS-422 or RS-485 available, if specified at time of order) Optional: SCSI metering and programming connectors
SOFTWARE	Standard configuration designed for RS-232 connections. Optional: National Instruments LabVIEW™ file, designed to run with computer DAQ boards NI PCI-6733 and PCIe-6341. SCSI interface
INPUT	115 VAC or 230 VAC, 50 to 60 Hz single phase, 250 VA
ENVIRONMENT	Temperature: 0 to 40°C, Relative humidity: 0 to 75% RH non condensing, Classified as a pollution degree 2, installation category (overvoltage category) II environment unit
DIMENSIONS (width x height x depth)	Approx: 17 in. x 7 in. x 22 in. excluding handles (425 mm x 172 mm x 560 mm); 19 in. rack mountable. HC supply extra

OPTIONAL HARDWARE RASTER SPECIFICATIONS	
RASTER GENERATOR	Continuous control of X & Y Raster Amplitude, variable offset (Centering) and Frequency, with 0-10 kHz (X) and 0-100 Hz (Y) standard. All parameters controllable via RS-232, RS-422, RS-485, analog input, or computer control with LabVIEW™ software option.



A typical lab set-up of a complete Kimball Physics system with power supplies, electron gun, and optional computer control system



Typical performance; data for guidance only.

