

Electron Gun

MODEL EG10-XY

Filament Focus
and Deflection

CF Flange 70 mm OD

Magnetic Shielding

Miniature Electron Gun 10 mm
diameter with dual lenses
and low outgassing

Sample



Applications

Model EG10-XY is a precision low energy electron source emitted from thermionic cathode and formed by double focusing lenses.

This model is designed for the wide energy range from 5 eV to 3000 eV with high coherence capability.

The applications include electron diffraction, excitation source for Auger electrons and photons, and other surface and atomic physics experiments.

Features:

- Miniature lens design
- Variable beam diameter
- Variable beam energy
- Low outgassing rate
- Flexible mounting configuration
- Customization capability

MODEL EG10-XY

Specifications

Beam Energy	Low Energy Mode (LEM): 5 eV to 750 eV High Energy Mode (HEM): 5 eV to 3000 eV
Beam Current	LEM: 2 μ A at 100 eV and 0.5 mm beam size HEM: up to 80 μ A at 3 keV
Beam Size	Adjusted by potential of Wehnelt cylinder from 1 mm to 0.25 mm and limited by exchangeable aperture down to 0.05 mm
Electron Source	Thermally emitting tungsten-rhenium filament, directly heated single crystal LaB ₆ filament optional
Energy Spread	0.45 eV for Tungsten filament, 0.25 eV for LaB ₆ filament
Beam Deflection	X-Y, two pairs of independent electrostatic deflection plates - optional
Overall Sizes	10 mm lens diameter and 80 mm length
Mounting	Unmounted or mounted on 2 $\frac{3}{4}$ " CF flange with Mu-metal shielding
Target Distances	40 mm to 60 mm from the end of the gun
Filament Light	< 0.01 lux protection against escaping the filament light (back and side of gun lenses)
Customizing	Electron gun design for different specification and mounting configuration can be customized for special requirements

Precision Power Supply: LPS300-D

Beam Voltage:	Negative, 0 - 300 V for LPS300-D
Filament Current:	0 - 3.5 A
Wehnelt Voltage:	0 - 60 V with respect to filament
Focus Voltage:	Negative, 0 - 3000 V
Monitoring:	All above voltages
Emission Current:	1 - 200 μ A range
Beam Current:	0.01 - 200 μ A range
Display:	Vacuum fluorescent display
Manual Control:	Manual control of all voltages via rotary dials and selection switches, manual programming available
On-Board Automation:	5 pre-programmed operating programs: outgassing, stand-by, filament forming, beam voltage scanning, constant beam current and diagnostic programs
PC control:	Full control of all functions of the controller or beam voltage via USB interference, PC software required
Protection:	Over-voltage, over-current and short circuit protection
Size:	19" Rack mount box with 3U (5.25", 133 mm) in height and 17.5" (440 mm) in depth, 12 kg in weight

Ordering Guide

EG10-XY	Miniature Electron Gun with dual lenses and XY deflection plates
LPS300-D	Digital power supply with voltage range 0 – 3.0 kV
F-LaB6	Single crystal LaB6 cathode (optional)
F-BaO	Barium Oxide cathode (optional)

Schematic

