

# RHEED

## Reflection High-Energy Electron Diffraction

30K eV RHEED E-GUN RDA-002G  
CONTROL POWER SUPPLY RDA-004P

Manufactured by  **R-DEC Co., Ltd.** Japan

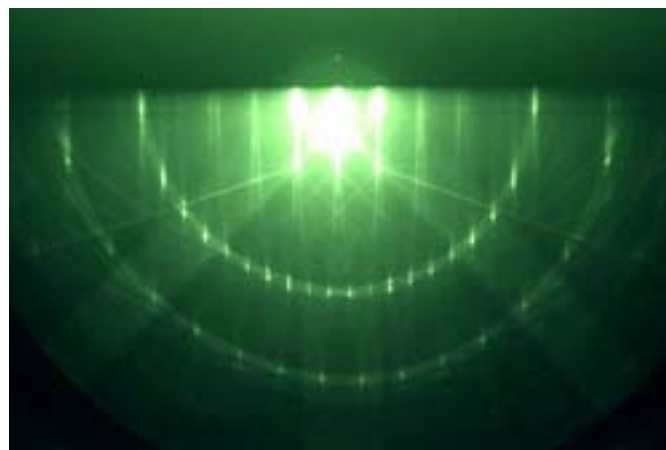
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Reflection High-Energy Electron Diffraction (RHEED) has become widely known as an essential method for real-time observation of crystal growth. RHEED can be used to analyze film surfaces in either a static mode for existing materials or dynamically as film growth evolves. This makes RHEED an exceptionally valuable tool for investigating structures in Molecular Beam Epitaxy (MBE).

In general, RHEED is a method for investigating the structure of crystal surfaces. A high-energy electron beam (10-30KeV) is directed at the sample surface at a low incident angle ( $1-2^\circ$ ). The electrons are diffracted by the crystal structure of the sample being investigated and then projected on a fluorescent screen mounted opposite the electron gun. The characteristic pattern of the impinging electrons is a series of streaks. The distance between the streaks is an indication of the surface lattice cell size.



### FEATURES OF THE RDA-002G/RDA-004P E-GUN & POWER SUPPLY SYSTEM

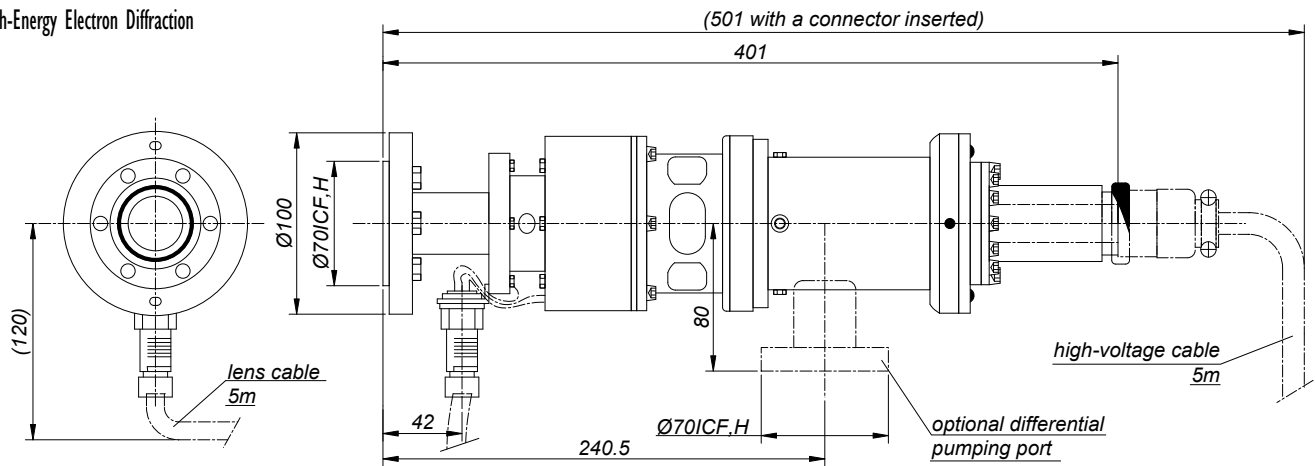
The RDA-002G E-gun and RDA-004P Power Supply have been designed and developed with careful consideration for operational efficiency.

- A remote control box contains both an accelerating voltage and emission current meter making it easy to confirm the diffraction image observed on the screen while safely and efficiently controlling all operational parameters of the screen.
- Designed for easy maintenance, including filament replacement and beam alignment, there are no minor adjustments required from run-to-run.
- Capable of varying the high voltage, filament, and XYZ lens of RHEED.
- Surface treatment inside the electron gun enables outgas control from the electron gun.

● ● ● ● ● ● ● ● **Improved Performance** ● ● ● ● ● ● ● ●

## RHEED

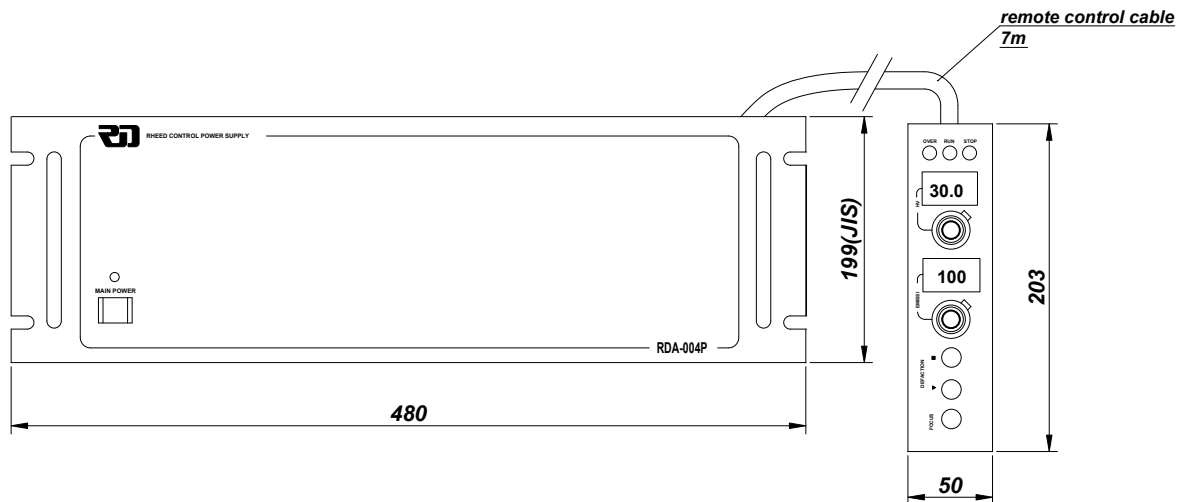
Reflection High-Energy Electron Diffraction



### 30keV ELECTRON GUN

Model Number	RDA-002G
Beam Spot Size	<90 $\mu\text{m}$ dia.
Filament	0.1mm dia. Tungsten Wire (hairpin-shaped)
Wehnelt	Self Bias
Focus Lens	Air Core Solenoid Coil Lens
Deflection Lens	Troidal Coil Lens

Axial Alignment Mechanism	Alignment for Filament and Wehnelt
Insulation Voltage	DC 30 KV
Working Pressure	<10 <sup>-6</sup> torr~10 <sup>-11</sup> torr/ 10 <sup>-4</sup> Pa~10 <sup>-9</sup> Pa
Max. Bakeout Temperature	200°C
Mounting Flange	ICF70 (2.75" O.D.)
Dimensions	100mm dia. x 401mm long (501mm long with a connector inserted)



### 30KeV E-GUN POWER SUPPLY

Model Number	RDA-004P
Acceleration Voltage	0 to -30 keV Constant Voltage Supply (Ripple <0.03% )
Beam Current	0 to 160 $\mu\text{A}$ (Limit 120 $\mu\text{A}$ )
Filament Voltage	0 to +5V Constant Voltage Supply (Ripple <0.05% )
Filament Current	+3A max.

Deflection Lens Supply	1A Constant Current Source ( $\pm 3\text{V}$ ) (Ripple <0.05%)
Focus Lens Supply	0 to 1.5A Constant Current Source (0 to +20V) (Ripple <0.05% )
Input Power	200V, 220V, 230V, 240V
Dimensions	480mm x 199mm x 500mm (cable +100mm)
Safety Feature	High Voltage Interlock
Others	RoHS-ready



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