



# DIAGNOSTIC COMPONENTS

## National Electrostatics Corp.

## Multi-Unit Faraday Cup Controller



### Design

This multi-unit controller has been in use for over two decades on NEC Pelletron® accelerators and has been updated throughout the years. It provides suppressor voltage, input for beam current reading, and actuation control.

This controller is compatible with NEC Faraday cup models FC18 and FC50.

### Local Faraday Cup Controller

The controller has three functions:

- Actuation Control
- Beam Current Reading
- Suppression Voltage

#### Actuation Control:

All Faraday cups are set to be in by default. To extract, the user pushes the button related to the relevant cup, located on the front panel. A 24 V signal is sent to the cup, which actuates the solenoid, removing the cup from the beam path. Indicator lights on the front panel indicate each cup's position (in/out)

#### Beam Current Reading:

A picoammeter is needed for current readout. It provides a 0-2 V signal to the controller, for use with the analog meter on the front panel.

#### Suppression Voltage

The controller provides electron suppression to the cup in use. For low energy beams, the 150 V suppression version is optimal. For high energy beams, the 400 V suppression version would be best.

**Input:** Local: 120/240 VAC, .5/.25A, 50 - 60Hz

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**Output:** 24 VDC, 2.3A for extraction (All cups close on power failure)  
-400 VDC, 1mA for electron suppression (150 VDC optional)

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**Controls/Indicators:** On/Off power;  
4 station switch for Faraday cup selection; Manual/auto mode switch

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**Meter:** Local

- 0-2 VDC for beam current read, requires a picoammeter
- 15 pin D- quantity 2- for interlocks
- MHV- quantity 4- suppression outputs
- BNC- quantity 4- Faraday cup current input
- BNC- quantity 3- for electrometer input/output and current integrator

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**Dimensions:** Local: 19" rack mount, 3.5" height, 17.25" depth

## Contact NEC

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