

## Types of Power Supplies

ORTEC offers two types of power supplies for use with NIM instrumentation: power supplies that provide operating voltages for a detector (more properly called detector bias supplies) and power supplies that provide the necessary operating voltages for electronic instruments.

## HV Bias Supplies

Most detectors used with pulse processing instrumentation require a high-voltage bias supply for operation. Care must be taken in the selection of a detector bias supply to ensure that it has sufficient voltage and current ratings for the detector (or detectors) with which it is to be used. The Models 556 and 556H are normally used with photomultiplier tubes, electron multipliers, and similar devices, which require a large amount of current at an extremely stable voltage. The Models 428, 659, 660, and 710 are normally used with semiconductor detectors, which require very little current.

## NIM Power Supplies and Bins

ORTEC offers a choice of NIM-standard power supplies and bins to accommodate any instruments manufactured to these standards. All details conform to (and most exceed) the specifications of DOE/ER-0457T. NIM power supplies are available separately or can be combined with an ORTEC NIM bin to form a single operating unit. All modules built to the NIM-standard are designed to be housed in a NIM bin and receive their power through a standard rear-panel connector. NIM bins are available to accommodate 6 or 12 single-width NIM modules.

## NIM Standard

All ORTEC NIM instrumentation conforms to the May 1990 Revision of the NIM standard (formerly TID 20893 (Rev) and NIM/GPIB). Please refer to DOE/ER-0457T, U.S. NIM committee, May 1990; Standard NIM Instrumentation System, NTIS, U.S. Department of Commerce, Springfield, Virginia 22161.

| <b>Bias Supply Applications Guide</b>   |              |  |
|---|--------------|--|
| <b>Detector Type</b>  | <b>Model</b> | <b>Function</b>  |
| Electron Multipliers, Microchannel Plates, Photomultiplier Tubes, Microchannel Plate PMTs, Scintillation Detectors, Geiger-Mueller Tubes, Proportional Counters | 556/556H     | 0 to $\pm 3$ kV, 0 to 10 mA                            |
| Ionization Chambers   | 659          | 0 to $\pm 5$ kV and 0 to $\pm 500$ V, 100 $\mu$ A      |
|   | 660          | Dual 0 to $\pm 5$ kV and 0 to $\pm 500$ V, 100 $\mu$ A |
|   | 710          | Quad 0 to $\pm 1$ kV, 20 $\mu$ A                       |
|   | 556/556H     | 0 to $\pm 3$ kV, 0 to 10 mA                            |
| Semiconductor Charged-Particle Detectors  | 428          | Dual 0 to $\pm 1$ kV                                   |
|   | 710          | Quad 0 to $\pm 1$ kV, 20 $\mu$ A                       |
| Semiconductor Photon Detectors [Ge and Si(Li)]  | 659          | 0 to $\pm 5$ kV and 0 to $\pm 500$ V, 100 $\mu$ A      |
|   | 660          | Dual 0 to $\pm 5$ kV and 0 to $\pm 500$ V, 100 $\mu$ A |
| Photodiodes   | 710          | Quad 0 to $\pm 100$ V or 0 to $\pm 1$ kV, 20 $\mu$ A   |

# HV Bias/ NIM Power Supplies and Bins

| NIM Bins and Power Supplies Selection Guide |                             |                          |                   |                             |        |     |     |      |      |
|---|-----------------------------|--------------------------|-------------------|-----------------------------|--------|-----|-----|------|------|
| Model                                       | Function                    | Module Connectors        | Maximum Power (W) | Amperes Available @ Voltage |        |     |     |      |      |
|   |                             |                          |                   | +6                          | -6     | +12 | -12 | +24  | -24  |
| 495   | Add-on 6 V Power            | N/A                      | 36                |                             | 6 or 6 |     |     |      |      |
| 4001A                                       | Standard NIM Bin            | 12                       | N/A               |                             |        |     |     |      |      |
| 4001C                                       | High-Current NIM Bin        | 12                       | N/A               |                             |        |     |     |      |      |
| 4002A                                       | Bin Power without $\pm 6$ V | N/A                      | 96                |                             |        | 2   | 2   | 1    | 1    |
| 4002D                                       | Bin Power with $\pm 6$ V    | N/A                      | 160               | 10                          | 10     | 3   | 3   | 1.5  | 1.5  |
| 4002E                                       | Extra-High Bin Power        | N/A                      | 300               | 12                          | 12     | 4   | 4   | 2    | 2    |
| 4002P                                       | Portable Preamp Power       | 1 (plus 4 to 12 preamps) | 48                |                             |        |     |     |      |      |
| 4003  | Preamp Power Output         | (6 preamps)              | N/A               |                             |        |     |     |      |      |
| 4006  | Minibin and Power Supply    | 6 (plus 2 preamps)       | 120W              | 4                           | 4      | 1.5 | 1.5 | 0.75 | 0.75 |

Specifications subject to change  
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[www.ortec-online.com](http://www.ortec-online.com)

Tel. (865) 482-4411 • Fax (865) 483-0396 • [ortec.info@ametek.com](mailto:ortec.info@ametek.com)  
801 South Illinois Ave., Oak Ridge, TN 37831-0895 U.S.A.  
For International Office Locations, Visit Our Website

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