

# HELIOS

## Mini System 3500

### 3500W 48VDC Compact Flexible Power System

|                       |                                  |
|-----------------------|----------------------------------|
| <b>Total Power</b>    | <b>3500 Watts</b>                |
| <b>Input Voltages</b> | <b>96 - 264VAC</b>               |
| <b># of Outputs</b>   | <b>1 - 15</b>                    |
| <b>Size</b>           | <b>21.5" W x 5.25" H x 14" D</b> |



### SPECIAL FEATURES

- 3500W Constant Power Output System
- Available in 110VAC or 220VAC systems
- 110 VAC systems contain from one to eight, 250W Output Rectifiers providing up to 1750W with N+1 Redundancy
- 220 VAC systems contain from one to eight, 500W Output Rectifiers providing up to 3500W with N+1 Redundancy
- Adjustable DC Output Voltage: (48 to 55.5V)
- Adjustable Temperature Compensation (Disabled to 144mV/DEG C)
- Adjustable Low Voltage Disconnect (Disabled to 47 V DC)
- Adjustable Battery Charge Control (2A to 20A)
- Distribution: 10 Fuse Positions (0 to 15A each)
  - Up to five breakers
- Power Factor Correction
- Current Sharing
- Soft Switching Technology
- Full Output Power at Full Temperature Range
- Full Complement of LED and Output Alarms Available
- Connections for up to Two Battery Strings
- EMI Filter Included
- Compact Dimensions (21.5"W x 5.25"H x 14"D) (550 x 133 x 300mm)
- Optional fan shelf for increased temperature range, and installation in areas with low volume or no air flow

### ENVIRONMENTAL

- EMC/EMI: FCC Class B, CISPR Class B for digital devices, Bellcore GR-1089-CORE
- ESD: Bellcore TR-NWT-001089
- Temperature: -40° to +50°C with natural convection cooling, -40°C to +65°C with forced air cooling
- Humidity: 0 to 95% RH (non-condensing)
- Acoustic Noise: <65dB for full system including eight rectifiers, fan unit
- Cooling: natural convection / forced air
- Shock and Vibration: Bellcore TR-NWT-000063
- Fire Resistance: UL94VO
- Voltage Surge Protection: meets IEEE C62.41-1991

### ELECTRICAL SPECIFICATIONS

#### Input

|                                 |                                                                                                  |
|---------------------------------|--------------------------------------------------------------------------------------------------|
| AC Input Voltage Range .....    | 110/120VAC (96 - 132 VAC)(250 watt rectifiers)<br>208/240VAC (176 - 264VAC)(500 watt rectifiers) |
| Frequency .....                 | 50 - 60 Hz (45 - 65 Hz)                                                                          |
| Efficiency .....                | >86% (50 - 100% output load)                                                                     |
| Power Factor .....              | 0.99 (50 - 100% output load)                                                                     |
| Total Harmonic Distortion ..... | <5%                                                                                              |

#### Output

|                             |                                                                                                   |
|-----------------------------|---------------------------------------------------------------------------------------------------|
| DC Output Voltage Range ... | -48VDC (user selectable 48 - 55.5VDC)                                                             |
| Maximum Output Power .....  | 1750 watt/system @110VAC (250 watt rectifiers)<br>3500 watt/system @ 220VAC (500 watt rectifiers) |
| Voltage Regulation .....    | +/- 0.5% load/line and +/- 1.0% load/line/temperature                                             |
| Dynamic Response .....      | from +/-5% for 10% to 90% or 90% to 10% load step changes                                         |
| Protection and/or           |                                                                                                   |
| Disconnect .....            | fuses/breakers                                                                                    |
| Parallel Operation .....    | +/- 10% of rated current between rectifiers                                                       |
| Power/Current Limit .....   | 102.5% +/- 2.5% of rated power at output voltages >42VDC                                          |
| Capacitor Precharge .....   | Automatic upon insertion                                                                          |
| Hold-up Time .....          | Output voltage remains above -42V for 30 msec                                                     |
| Voice Frequency Noise ..... | less than 55 dB mC                                                                                |
| High Frequency Noise .....  | less than 250 mV rms                                                                              |

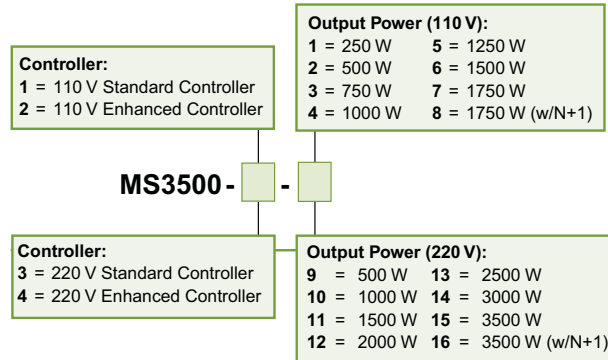
### SAFETY

UL 1950  
UL1801  
CSA C22.2 No. 950  
IEC-950



## ORDERING INFORMATION

### Mini System 3500<sup>1</sup>



### BREAKER SELECTION FOR MS3500

| Current <sup>1</sup> | Model Number |
|----------------------|--------------|
| 1 A                  | A0723076     |
| 5 A                  | A0723033     |
| 15 A                 | A0723037     |
| 20 A                 | A0723007     |
| 30 A                 | A0723040     |
| 50 A                 | A0723008     |

\* All breakers rated @ 80VDC

#### Notes:

1 System includes Shelf, Controller, Low Voltage Battery Disconnect, and one Fuse Pack.

## OPTIONS

Battery interface module                      Astec Part # A0681148  
Temperature Probe for Standard Controller (analog, 10 ft.)    Astec Part # P0881761  
Temperature Probe for Enhanced Controller (digital, 10 ft.)    Astec Part # P0881758  
Fan Shelf.                                              Astec Part # NT5C22GA

#### Cables

##### Alarm Cable

| Type              |              | 15 feet  | 30 feet  | 100 feet |
|-------------------|--------------|----------|----------|----------|
| 34 position (J18) | Astec Part # | P0883245 | P0883246 | P0883247 |
| 20 position (J19) | Astec Part # | P0883248 | P0883249 | P0883250 |
| 16 position (J20) | Astec Part # | P0883251 | P0883252 | P0883253 |

##### BIM Interconnection Cables

| Type                       |              | 5 feet   | 15 feet  |
|----------------------------|--------------|----------|----------|
| BIM to BIM                 | Astec Part # | P0876031 | P0882987 |
| BIM to Enhanced Controller | Astec Part # | P0876032 | P0882989 |

## NOTES

#### Standard Controller

The standard controller has control, monitoring and alarm features including temperature compensation and thermal control functions. Settings are selectable with dipswitches. Settings are programmed in the controller card and automatically configure any newly inserted rectifiers.

#### Enhanced Controller

The enhanced controller is microprocessor based and incorporates all of the features of the standard controller, as well as software based configuration and monitoring, and the addition of improved battery management. Software is included with the controller.

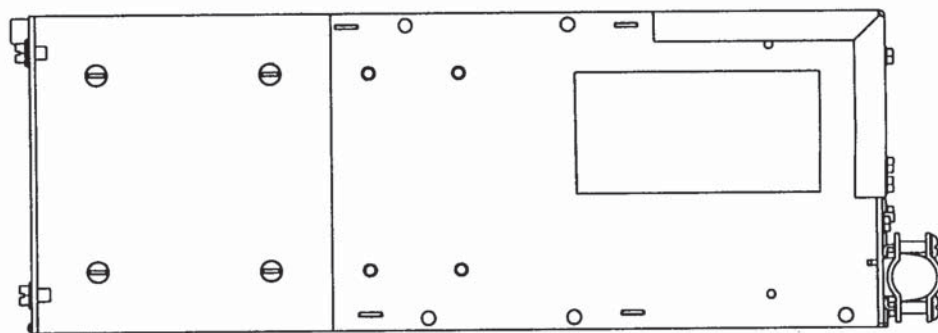
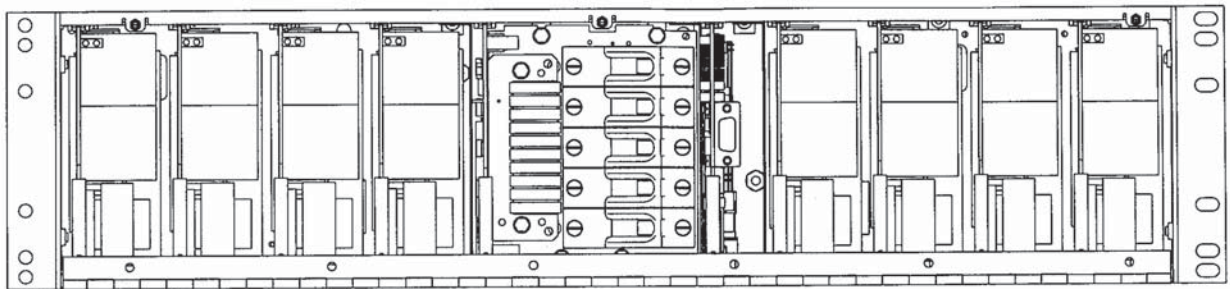
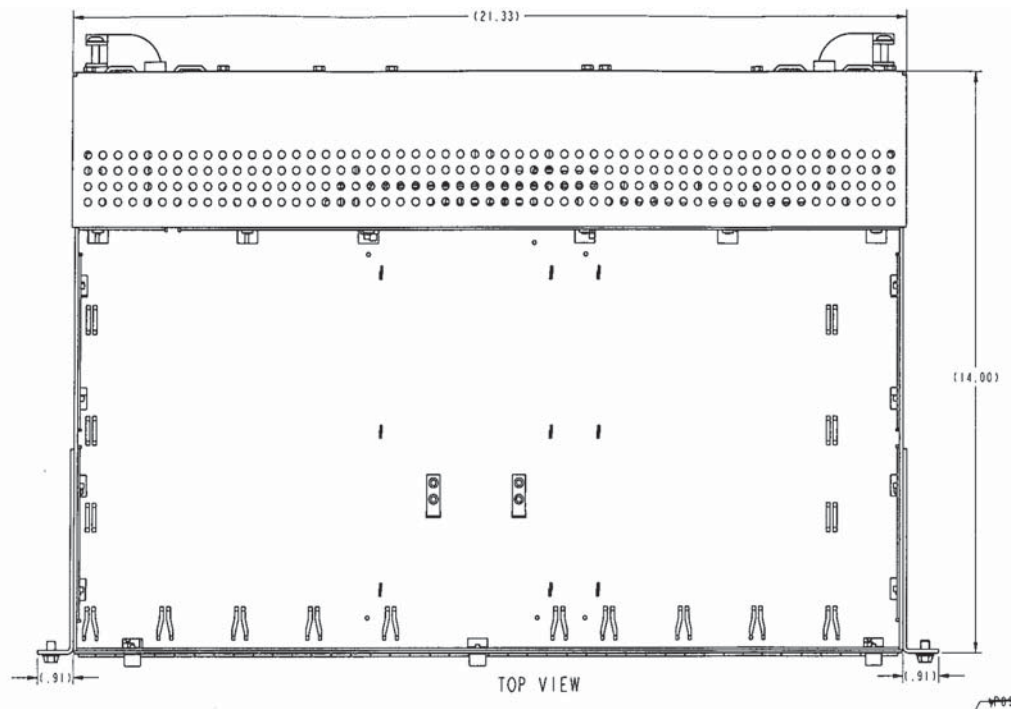
#### Battery Interface Module

The Enhanced controller is capable of more sophisticated monitoring of batteries by using the Battery Interface Module (BIM). The BIM maximizes battery life, and allows the Enhanced Controller to perform battery state/life calculations and prediction of battery life expectations.

The BIM is mounted on one battery of each battery string (maximum 12 battery strings) and is capable of providing the following information regarding the batteries, and protects the system from any battery malfunction via a circuit breaker: voltage, midpoint voltage, current, temperature (°C), ambient temperature (°C), battery interface module fail status, breaker status.



## DRAWINGS • MINI SYSTEM 3500



RIGHT SIDE VIEW

