

Cesar® RF Power
Supplies: 2, 4, 13.56,
27.12, and 40.68
MHz; 300 W to 5 kW

Robust RF power
supplies for dependable
performance in
demanding plasma
applications

- Broad feature set
- Active front panel
- 200 and 400 VAC input options
- Multiple serial and analog user interfaces

Benefits

- Increased process uptime
- Enhanced operational ease and flexibility
- Customized performance without custom-unit lead times
- Long-term ease of use and cost savings
- World-class service and support

Features

- Compact, streamlined design
- Standard platform packaging
- High efficiency—less heat generated
- 200 and 400 VAC input options
- Two analog user port options
- RS-232, Ethernet, and Profibus communication
- Active front panel
- Convenient, comprehensive operating menu
- CEX (phase synch) operation mode
- SEMI™ compliance (meets or exceeds standards)

The robust and versatile Cesar® platform offers exceptionally consistent RF power-delivery performance, as well as a diverse selection of models, each with a unique set of features and capabilities (2, 4, 13.56, 27.12, and 40.68 MHz; 0.3 to 5 kW; with a variety of user interfaces and input options). This enables you to choose a unit suited specifically to your application—without lengthy custom-generator lead times.

High-quality components and a low part count maximize reliability and product lifetime, making the most of your investment—and your process productivity. A comprehensive, yet highly intuitive operating menu, accessible on the unit's active front panel and displayed on a large LCD, provides unparalleled ease—increasing operator efficiency and minimizing training costs.

The economical Cesar RF power supply platform includes a wide variety of models, each with a comprehensive and unique feature set, to suit most any demanding plasma-based application. You'll benefit from customized performance—without lengthy custom-generator lead times.

Comprehensive Cesar® Platform Features			
Multiple Options (Feature Set Varies According to Model)		Standard Features (All Models)	
Power Output (Models from 0.3 to 5 kW)	Analog I/O Type (25 and 15 Pin)	CEX (Phase Synchronization) Mode	Compact, Rack-Mountable Package
Output Frequency (2, 4, 13.56, 27.12, and 40.68 MHz models)	Serial I/O Type (RS-232, Ethernet, or Profibus)	Multiple Protection Features	Active Front Panel
Input Voltage (200 and 400 VAC)		Advanced Operating Menu	

Typical Applications

Cesar RF power supplies offer customized performance for most any plasma-based application, including:

- *HDP-CVD*
- *PECVD*
- *Etch—ICP/RIE*
- *PVD*
- *Plasma cleaning*

The versatile Cesar® platform includes an array of models, each with a comprehensive and unique feature set, to give you customized performance—without lengthy custom-generator lead times.

Increased Process Uptime

High Product Reliability

The Cesar RF power supply's robust, streamlined design is built from the highest-quality parts available and uses fewer components than competing products. This minimizes the chance of malfunction, wear, or breakage, even under the harsh conditions of plasma processing. Its highly efficient class E switchmode design also generates less heat, reducing temperature stress on critical components.

Dependable Performance

Designed to maintain a tight performance under even the most demanding conditions, the Cesar RF power supply handles high load mismatches, remaining fully functional at rated reflected power (pre-set between 20 and 40%, depending on model).

Enhanced Operational Ease and Flexibility

Accessible through the unit's active front panel, the Cesar power supply's unique operating menu provides a high degree of insight into and control over power supply operation. With unmatched monitoring and control capabilities, this menu increases ease and operational flexibility, enabling you to perform crucial functions at the source, as well as gather data to enable process optimization.

Key menu items include:

- *Power mode (forward power, DC bias, delivered power)*
- *VM match performance display and control (manual)*
- *Plasma recipes (programmable—variable rise/fall times, power ramping, etc.)*
- *Reflected power performance*
- *Device configuration*

The Cesar® RF power supply's extensive monitoring and control capabilities increase ease and operational flexibility, enabling you to perform crucial functions through your unit's front panel.

Customized Performance Without Custom-Unit Lead Times

To suit your unique system configuration, Cesar RF power supplies feature two analog and three digital interface options for a total of six possible configurations. Their modular design enables us to meet your specifications—without the usual custom-unit lead times.

Standard platform packaging makes it extremely easy and inexpensive to replace one Cesar® unit with another when your power requirements change. This also simplifies design and setup for large systems with multiple RF power supplies.

Long-Term Ease of Use and Cost Savings

You'll immediately benefit from your Cesar unit's straightforward installation and operation. However, these benefits extend far beyond your first purchase of a Cesar RF power supply.

Standard, Interchangeable Package Design

As processes develop, the Cesar platform offers a wide selection of RF power-delivery solutions to suit most any application. Plus, standard platform packaging makes it extremely easy and inexpensive to replace one Cesar unit with another when your power requirements change. This also simplifies design and setup for large systems with multiple RF power supplies.

Reduced Training Costs

Competing RF power platforms may not offer the features and performance you need when your power requirements change. However, the Cesar product line features a remarkable variety of models, which means that you're likely to find a suitable new product within the Cesar platform. This eliminates the need for additional training.

Rugged, Economical Design

These rugged power supplies provide dependable RF power over a long lifetime, giving you an excellent return on investment. Their modular design reduces manufacturing costs, enabling us to offer highly competitive pricing.

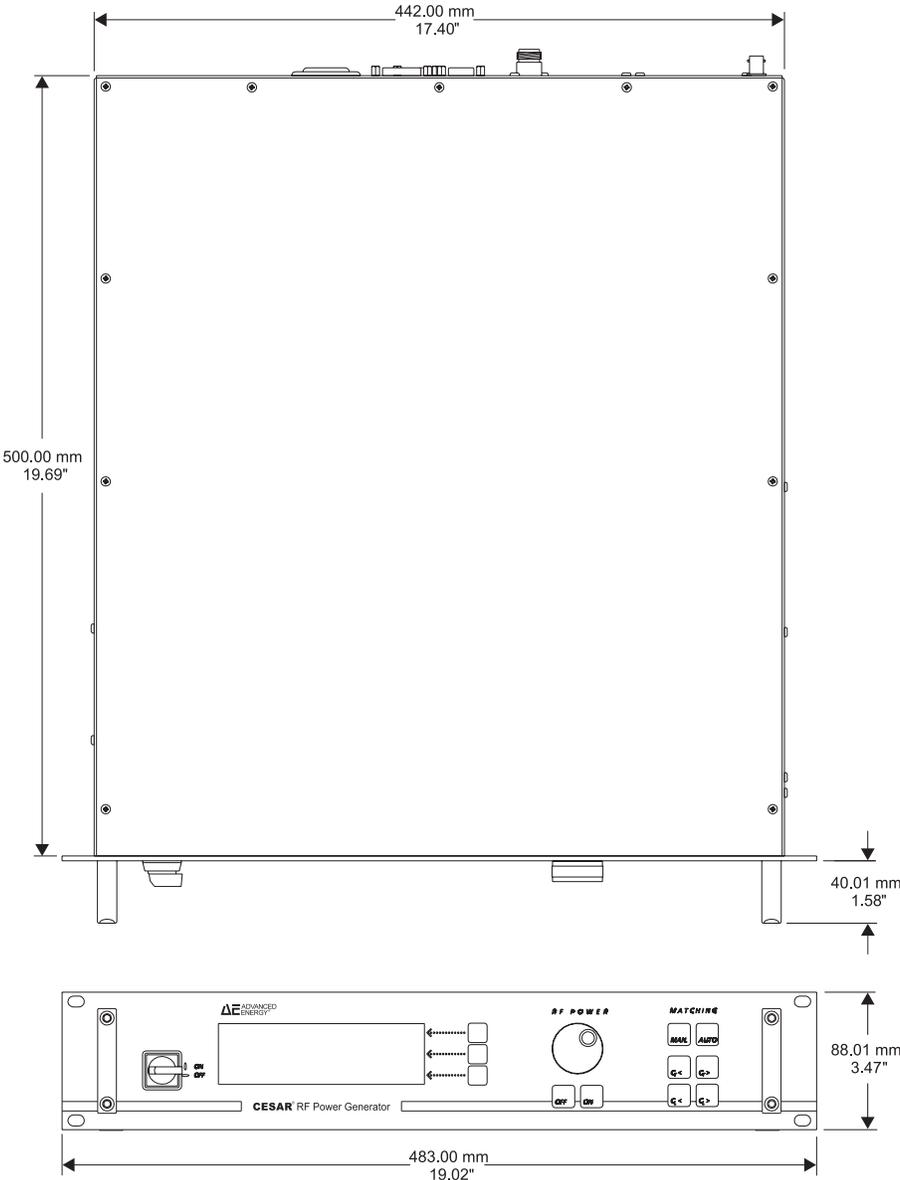
World-Class Service and Support

No matter what your need or location, our international network of support sites, exceptional application experience and expertise, and 24-hour-a-day, seven-day-a-week availability ensure superior service and fast turnaround.

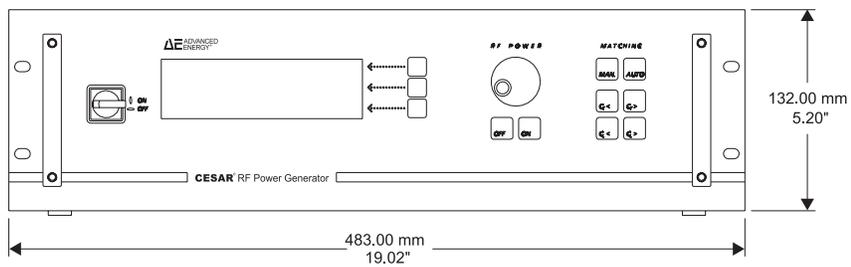
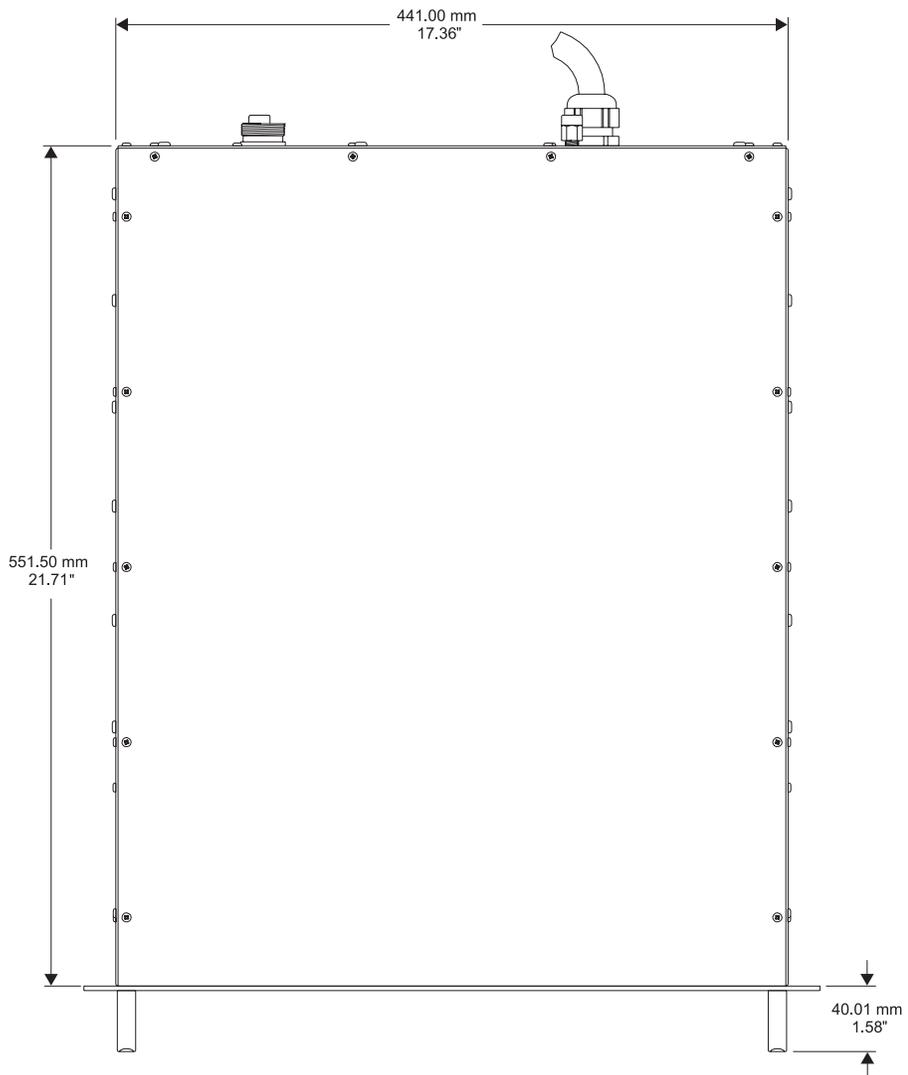
Specifications

Model	Frequency	RF Power	AC Mains	Dimensions	Cooling	Water Fitting				
026	2.000 MHz	600 W	230 V (187 to 253 V)	483 mm (W) x 500 mm (D) x 88 mm (H) 19" (W) x 19.7" (D) x 3.5" (H)	Air	N/A				
0210		1000 W								
0220, 200 V		2000 W	3 x 200 V (180 to 230 V)	483 mm (W) x 552 mm (D) x 132 mm (H) 19" (W) x 21.7" (D) x 5.2" (H)	Water	For water tubing 10 mm O.D., 8 mm I.D.				
0220, 400 V			3 x 400 V (360 to 440 V)							
0225, 200 V		2500 W	3 x 200 V (180 to 230 V)							
0225, 400 V			3 x 400 V (360 to 440 V)							
0230, 200 V		3000 W	3 x 200 V (180 to 230 V)							
0230, 400 V			3 x 400 V (360 to 440 V)							
0250, 200 V		5000 W	3 x 200 V (180 to 230 V)							
0250, 400 V			3 x 400 V (360 to 440 V)							
046		4.000 MHz	600 W				230 V (187 to 253 V)	483 mm (W) x 500 mm (D) x 88 mm (H) 19" (W) x 19.7" (D) x 3.5" (H)	Air	N/A
0410	1000 W									
0420, 200 V	2000 W		3 x 200 V (180 to 230 V)				483 mm (W) x 552 mm (D) x 132 mm (H) 19" (W) x 21.7" (D) x 5.2" (H)	Water	For water tubing 10 mm O.D., 8 mm I.D.	
0420, 400 V			3 x 400 V (360 to 440 V)							
0425, 200 V	2500 W		3 x 200 V (180 to 230 V)							
0425, 400 V			3 x 400 V (360 to 440 V)							
0430, 200 V	3000 W		3 x 200 V (180 to 230 V)							
0430, 400 V			3 x 400 V (360 to 440 V)							
0450, 200 V	5000 W		3 x 200 V (180 to 230 V)							
0450, 400 V			3 x 400 V (360 to 440 V)							
133	13.560 MHz		300 W	230 V (187 to 253 V)	483 mm (W) x 500 mm (D) x 88 mm (H) 19" (W) x 19.7" (D) x 3.5" (H)	Air				N/A
136			600 W							
1310			1000 W							
1312			1200 W							
1320, 200 V		2000 W	3 x 200 V (180 to 230 V)	483 mm (W) x 552 mm (D) x 132 mm (H) 19" (W) x 21.7" (D) x 5.2" (H)	Water	For water tubing 10 mm O.D., 8 mm I.D.				
1320, 400 V			3 x 400 V (360 to 440 V)							
1325, 200 V		2500 W	3 x 200 V (180 to 230 V)							
1325, 400 V			3 x 400 V (360 to 440 V)							
1330, 200 V		3000 W	3 x 200 V (180 to 230 V)							
1330, 400 V			3 x 400 V (360 to 440 V)							
1350, 200 V		5000 W	3 x 200 V (180 to 230 V)							
1350, 400 V			3 x 400 V (360 to 440 V)							
273		27.120 MHz	300 W				230 V (187 to 253 V)	483 mm (W) x 500 mm (D) x 88 mm (H) 19" (W) x 19.7" (D) x 3.5" (H)	Air	N/A
276			600 W							
2710			1000 W							
2720, 200 V	2000 W		3 x 200 V (180 to 230 V)				483 mm (W) x 552 mm (D) x 132 mm (H) 19" (W) x 21.7" (D) x 5.2" (H)	Water	For water tubing 10 mm O.D., 8 mm I.D.	
2720, 400 V			3 x 400 V (360 to 440 V)							
2740, 200 V	4000 W		3 x 200 V (180 to 230 V)							
2740, 400 V			3 x 400 V (360 to 440 V)							
403	40.680 MHz		300 W	230 V (187 to 253 V)	483 mm (W) x 500 mm (D) x 88 mm (H) 19" (W) x 19.7" (D) x 3.5" (H)	Air				N/A
405			500 W							
4010		1000 W								
4020, 200 V		2000 W	3 x 200 V (180 to 230 V)	483 mm (W) x 552 mm (D) x 132 mm (H) 19" (W) x 21.7" (D) x 5.2" (H)	Water	For water tubing 10 mm O.D., 8 mm I.D.				
4020, 400 V			3 x 400 V (360 to 440 V)							
4040, 200 V		4000 W	3 x 200 V (180 to 230 V)							
4040, 400 V			3 x 400 V (360 to 440 V)							

Dimensional Drawings



Cesar® RF power supply, 19", 2 U, air cooled



Cesar® RF power supply, 19", 3 U, water cooled

For more information on Cesar® RF power supplies, visit:
www.advanced-energy.com/en/Cesar_RF_Generators.html

To view AE's comprehensive power systems portfolio, visit:
www.advanced-energy.com/en/Power_Systems.html

To view AE's complete product portfolio, visit:
www.advanced-energy.com/en/Products.html

Specifications are subject to change without notice.



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