

ASCENT AMS DC POWER SUPPLIES

STABLE POWER DELIVERY THROUGH EXTREME ARC
CONDITIONS FOR HIGHLY REPEATABLE FILMS



Input Power

400, 440 or 480 VAC ($\pm 10\%$), 50/60 Hz

Output Power

30, 40 or 60 kW

Output Voltage

Up to 1000 V

Ignition Voltage

800 to 1200 V

Ascent AMS DC Power Supplies

As manufacturing techniques advance, new materials and cathode designs pose greater challenges to process stability and film repeatability. Ascent[®] AMS power supplies deliver stable, repeatable power, regardless of process material or cathode design.

Benefits

- High film quality and throughput
- Reduced film, substrate, and equipment damage
- Stable throughput and power delivery under extreme arcing conditions
- Easy integration and control

Features

- Arc Management System™ (AMS) technology — customer pre-sets for metal and ceramic targets
- Set Point Compensation™ technology
- Arc Sync technology — primary/secondary up to 12 units
- Ethernet, EtherCAT®, DeviceNet®, Profibus, RS-232/485, Ethernet/IP, and analog communications

Industry-Leading Arc Management

Many insulative target materials used in magnetron PVD processes produce up to thousands of arcs per second — a level that requires more than the rudimentary detection and handling that conventional arc management provides. With three key innovations — Arc Management System™ technology, Set Point Compensation™ technology, and Arc Sync technology — Ascent AMS power supplies enable the use of new target materials, with reduced film and equipment damage, stable throughput, and the ability to synchronize the arc responses of connected units.

Arc Management System™ Technology

AE’s proprietary AMS technology preserves film quality and repeatability, even under extreme arcing conditions. These enhanced arc handling capabilities enable success with newer materials, such as AZO and IGZO.

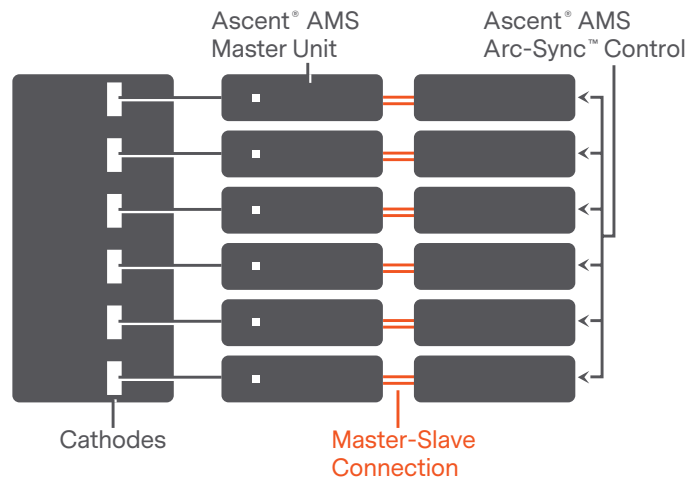
- Automatic arc handling eliminates need to adjust arc management parameters
- Primary arc response quickly removes power from arcs
- Secondary arc response cools surface and quenches secondary arcs
- Controlled power recovery minimizes over-shoot and secondary arcs
- Low stored energy — less than 0.4 mJ per kW—reduces arc impact on the process



Figure 1. Fast detection, shutdown, and recovery from arc events

Arc Sync Technology

For use with multiple-cathode systems, Arc-Sync technology coordinates the arc responses of up to 12 connected Ascent AMS units (up to 720 kW).

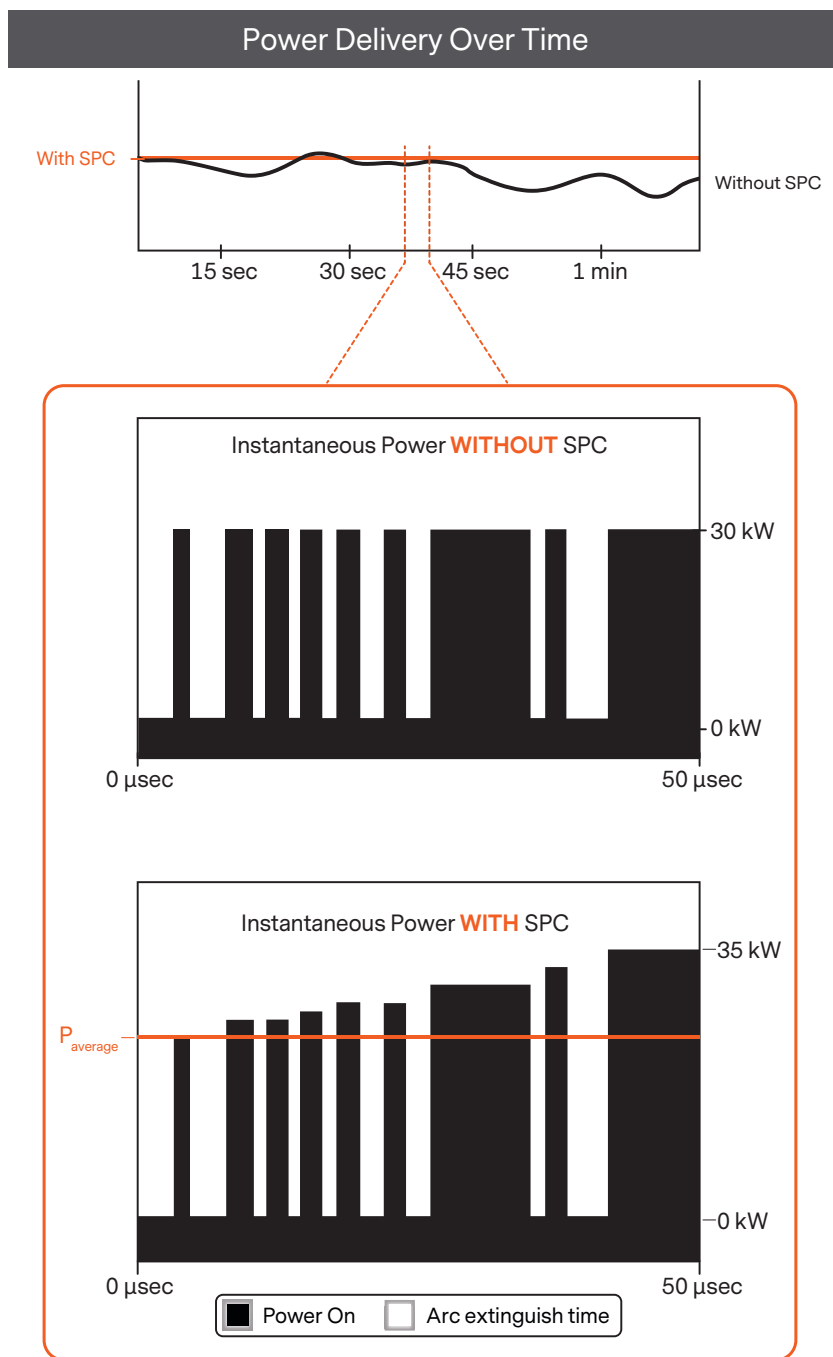


General Specifications

	Ascent AMS 30 kW	Ascent AMS 40 kW	Ascent AMS 60 kW
Input Power	400, 440, or 480 VAC (±10%), 50/60 Hz		
Output Voltage	Up to 1000 V		
Output Current	Up to 120 A		
Min Output Current	1 A at 400 W		2 A at 600 W
I/O Communication	Ethernet, EtherCAT®, DeviceNet®, Profibus, RS-232/485, EtherNet/IP, and analog communications		
Weight	~61.5 kg (136 lb)		
Mounting	48.26 cm (19"), rack mountable, 6U height		
Cooling Air Temperature	40°C (104°F) max		
Cooling Water Temperature	35°C (95°F) max		

Set Point Compensation™ Technology

Ascent AMS power supplies feature a patented algorithm that improves power-delivery repeatability and maintains sputter rate by automatically adjusting power output to compensate for arc shutdowns.





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ABOUT ADVANCED ENERGY

Advanced Energy (AE) has devoted more than three decades to perfecting power for its global customers. AE designs and manufactures highly engineered, precision power conversion, measurement and control solutions for mission-critical applications and processes.

AE's power solutions enable customer innovation in complex semiconductor and industrial thin film plasma manufacturing processes, demanding high and low voltage applications, and temperature-critical thermal processes.

With deep applications know-how and responsive service and support across the globe, AE builds collaborative partnerships to meet rapid technological developments, propel growth for its customers and power the future of technology.

PRECISION | POWER | PERFORMANCE

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