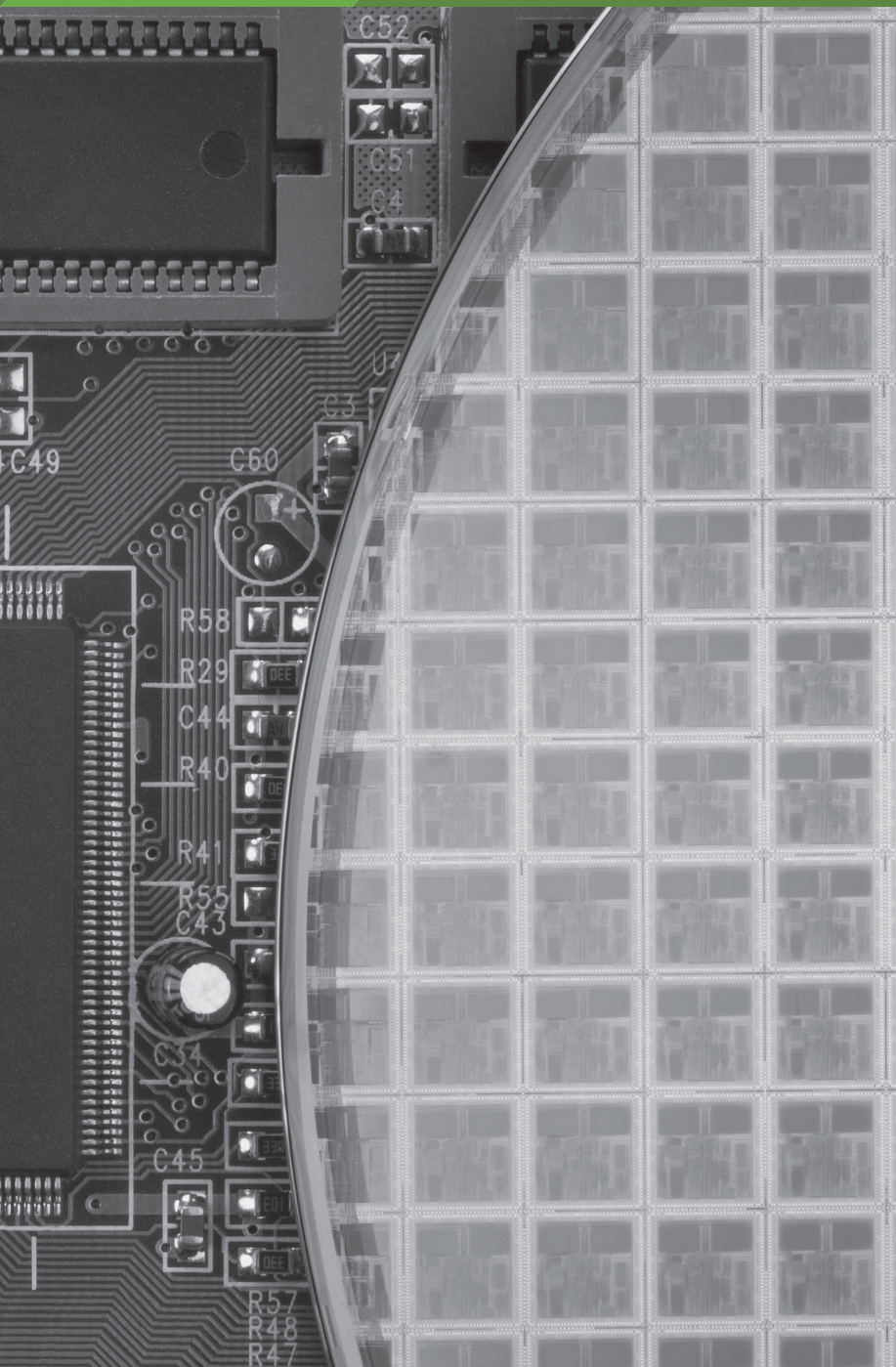


ASCENT SMS AP10

ADVANCED SINGLE-MAGNETRON SPUTTERING



Power

10 kW

Voltage

1000 VDC, 1200 VDC Boost

Average Current

25 A

Frequency

5 to 150 kHz

Overview

The Ascent SMS AP10 power supply brings a leap in configurable performance to AE's pulsed DC portfolio. Its four-block progressive arc management system with a full voltage reversal is the industry's most advanced solution, providing the lowest arc energy with available self-adjusting arc parameters that will dynamically move with the process. The AP waveform delivers boost voltage, reverse voltage control, and advanced pulse shaping that enables fine-tuning to tailor film morphology and desired film properties.

The Ascent SMS AP10 power supply is also the first power supply to embed the IIoT solution – PowerInsight by Advanced Energy. PowerInsight transforms data from critical power delivery systems into actionable intelligence and expertly refine your process, leveraging machine learning, modern data science, and advanced analytics.

Product Highlights

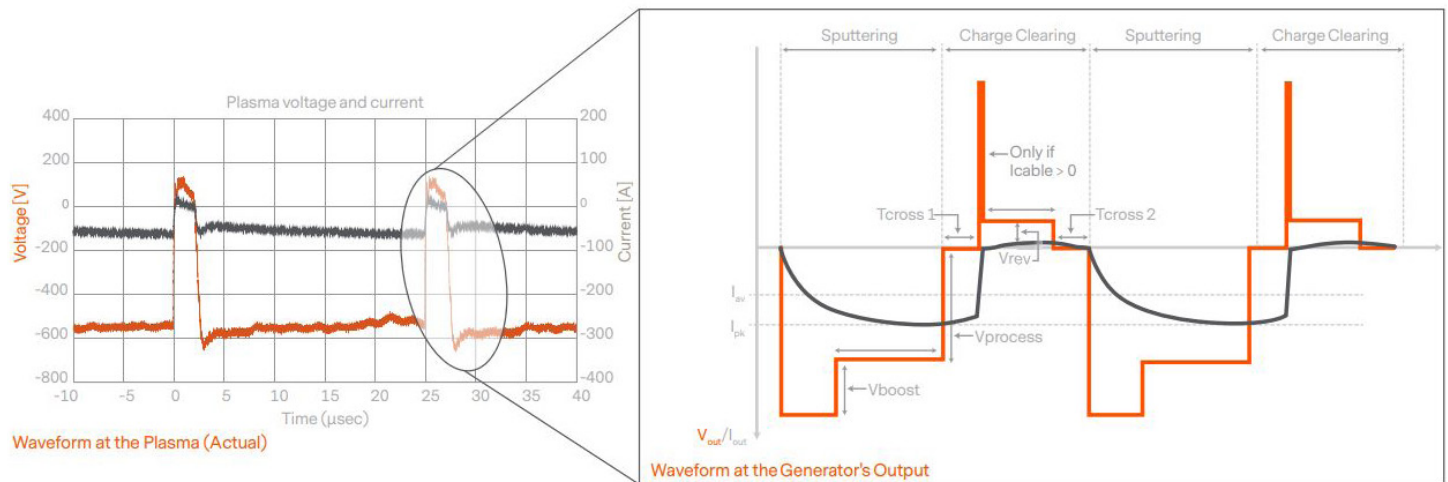
- **Ascent Arc Management** – Progressive arc handling blocks to maintain plasma through arc events while increasing process control and lowering arc energy
- **SOA and frequency range** – Operates up to 1200 V and 25 A with frequencies from 5 to 150 kHz
- **Ascent Communications** – Offers the latest digital communication options while bringing forward legacy communications to provide ease of integration with the latest tools and backwards compatibility with legacy tools
- **Ascent Sync** – Capable of pulse and arc synchronization with Ascent pulsed DC and AE's RF products
- **Ascent AP Waveform controls** – Ascent AP offers the most configurable waveform for better control of processes with adjustable reverse voltage, boost voltage, and adjustable dead times
- **PowerInsight** – Embedded option for process characterization and optimization

Applications

- Semiconductor and Advanced packaging manufacturing – Reactive Metal Deposition (PVD)
- Flat panel display and Optoelectronics – LCD, (O)LED, TFT, MEMS (PVD and PECVD)
- Photovoltaics and thin film battery – PERC, Topcon, HJT applications (PVD and PECVD)
- Mobile decorative, Optics & Photonics – Metal and dielectric high precision optical layers (PVD)
- Industrial coatings – Pulsed DC and RF/DC sputtering applications

Single-Magnetron Sputtering of Reactive and Conductive Materials

Use as a single-magnetron sputtering supply or as a bias supply.



A patented boost circuit on the leading edge of the sputtering waveform accelerates delivery of power to the process compared to a sine wave generator. The reverse portion of the waveform maximizes control, allowing more definitive charge clearing during reverse cycle.

Specifications

Ascent SMS AP 10 Power Supply	
Power	10 kW
Voltage	1000 VDC, 1200 VDC Boost
Peak Current	33.33 A
Average Current	25 A
Frequency	5 to 150 kHz
Reverse Time (Max)	15 μ s
Duty Cycle	> 60% ON time
Reverse Voltage	300 V
Pulse Configuration	Unipolar
PowerInsight Sample Rate	Up to 10 Hz (standard)
PowerInsight Storage	32 GB (SD storage expansion support)
FastDaq Event Capture Sample Rate	Up to 40 MHz
Data Storage	Up to 3 months of high-resolution data or up to 12 months of down-sampled data

PowerInsight Offerings

Built-in Module

Direct LAN Ad-hoc Connectivity or Fab Network LAN Connectivity via LAN/Ethernet Port

Real Time Dashboard

Monitor power delivery variables and indicates faults/warnings using the onboard web application.

Flight Recorder

View historical performance (evolution), review events and process steps (pan, scan, zoom), and store up to three months of data (longer with down sampling)

Support Tool

Enable remote troubleshooting by uploading to the PowerInsight Cloud and downloading data to be explored manually (human readable)

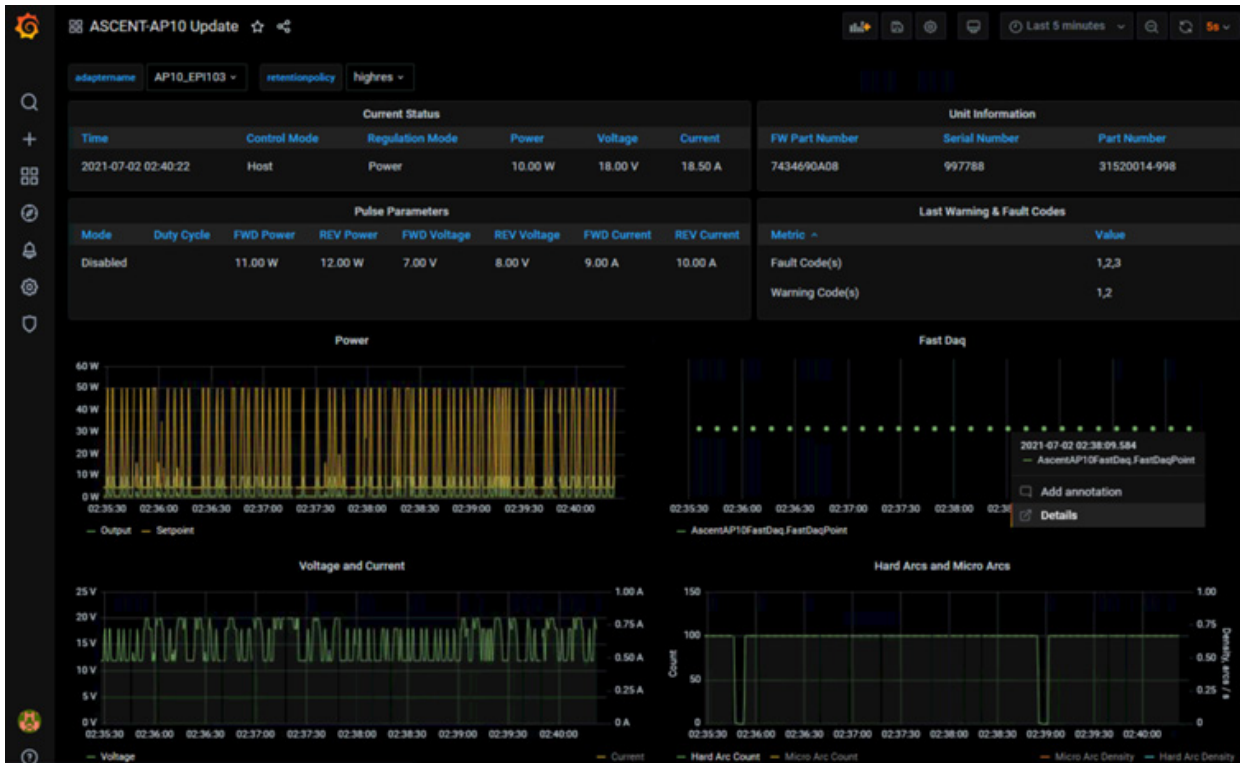
Collaboration Tool

Develop additional analytics and identify improvements to the process and product

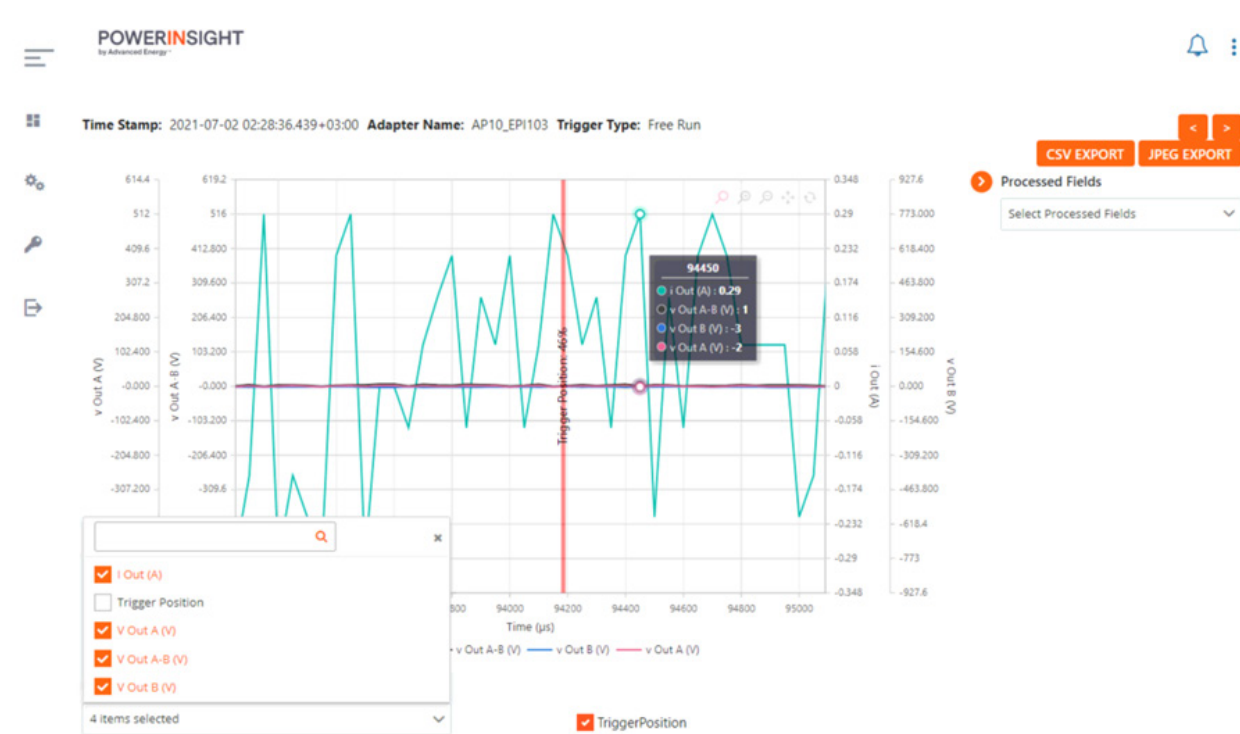
FastDAQ Visualizer and Recorder

Capture, store, and review triggered events using configurable navigation tools (fields, zoom, etc.)

PowerInsight Dashboard



FastDaq Event Capture





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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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