

RF Power Delivery Platform For Industrial Plasma Applications

[Advanced Energy Industries'](#) ALTA platform is a comprehensive RF power delivery solution that combines advanced digitally-controlled power supplies with an accurate digital impedance matching network. Designed for thin-film industrial applications, the ALTA platform ensures versatile, accurate and repeatable control that enhances process stability and provides best-in-class yield, according to the vendor.

The ALTA platform includes a 13.56-MHz rack-mounted power supply with power levels from 1.5 kW to 6 kW (see Fig. 1) and a 13.56-MHz tapped digital matching network (see Fig. 2). The series is optimized for plasma-based industrial processes demanding accurate, reliable and repeatable precision power delivery, including solar panel, flat panel display, precision optics and automotive glass manufacturing.

"As thin-film manufacturing technologies evolve and rapid plasma transitions become the norm, there is a growing demand for power solutions that combine precise RF control with dynamic response to rapid plasma changes," said Dhaval Dhayatkar, senior director of marketing, Plasma Power at Advanced Energy. "The ALTA power supply offers several advanced features including frequency tuning, real-time power and impedance measurement, tight power regulation, arc management and phase synchronization."

The ALTA power supplies incorporate full digital control and dynamic response to rapid plasma changes to ensure robust and reliable delivery. The ALTA matching network provides tuning versatility with a tapped coil system that can be easily adjusted to accommodate a variety of impedance ranges. Repeatable response minimizes delivered power deviations both between matches and run-to-run under a variety of operating conditions.

By utilizing advanced digital architecture, the ALTA platform enables extremely precise process measurement and control, as well as seamless system integration with state-of-the-art communication interfaces such as EtherCAT and Profinet. For the power supply, two models are offered—the ALTA 3013 which offers power output options of 1.5 and 3 kW, and the ALTA 6013, which offers a power output of 6 kW. Some key specifications and features of these models are listed in Fig. 3.

For detailed product information and technical specifications, see the ALTA product [page](#) and the [datasheet](#).



Fig. 1 Available with power levels from 1.5 kW to 6 kW, the ALTA series comprises 13.56-MHz rack-mounted RF power supplies (shown here) and a 13.56-MHz digital tapped matching network (see Fig. 2). The power supplies and matching network provide precise, repeatable control and dynamic response in next-generation plasma processes.



Output Tapped Coil Maps

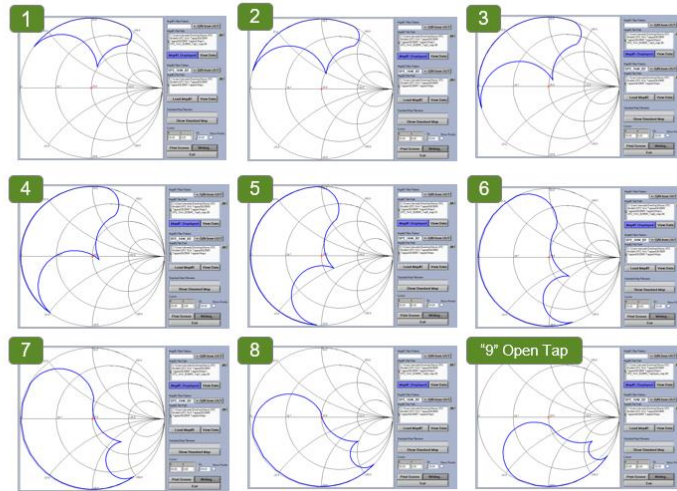


Fig. 2. The ALTA tapped matching networking is available in 3-kW and 5-KW models (up to 55 A) with nine available tap positions.

ALTA LP 1.5 -3kW



ALTA LP 6kW



Basic Specifications

Product	Power Options	Freq.	Input Voltage	Size	Cooling	Interface	Arc Detection	Freq. Tuning
ALTA	1.5 & 3kW	13.56MHz Tunable +/-5%	400VAC (360 -526V)	1/2-Rack	Water Air	<ul style="list-style-type: none"> EtherCAT Profibus Profinet RS232 	YES	YES
ALTA	6kW	13.56MHz Tunable +/-5%	400VAC (360 -526V)	19" Rack-Mount	Water Air	<ul style="list-style-type: none"> EtherCAT Profibus Profinet RS232 	YES	YES

Fig. 3. Summary of available power supply configurations.