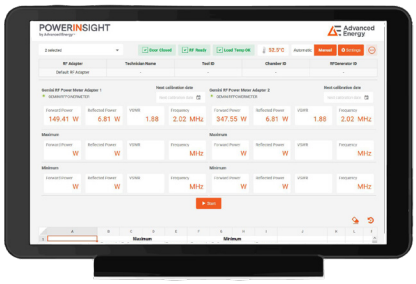
Advanced Energy

OMNI RF DIAGNOSTIC CART

CALIBRATE WITH ACCURACY, OPTIMIZE WITH CONFIDENCE.

Optimize RF power delivery for critical semiconductor processes.



Omni RF Diagnostic Cart

Advanced Energy's Omni™ RF diagnostic cart integrates the Gemini 5540A RF power meter with PowerInsight, an IoT enabled data ecosystem. This solution ensures precise power delivery to the tool by verifying the delivered power from RF generators.

Features

- One RF power meter (combination of sensor and meter design) can be configured with up to six different frequencies
- Power accuracy of ±0.5% + 0.5 W across power range
- Frequency range band of 0.2 to 200 MHz, 5 kW
- Automatic or manual modes of measurement
- Metadata tagging and data storage capability for long term monitoring
- Local and remote monitoring access via touchscreen, HDMI, USB-C, or LAN
- Dashboards and alerts for visualization and predictive analytics
- Data export to CSV file
- Mobile cart with four locking swivel casters

Benefits

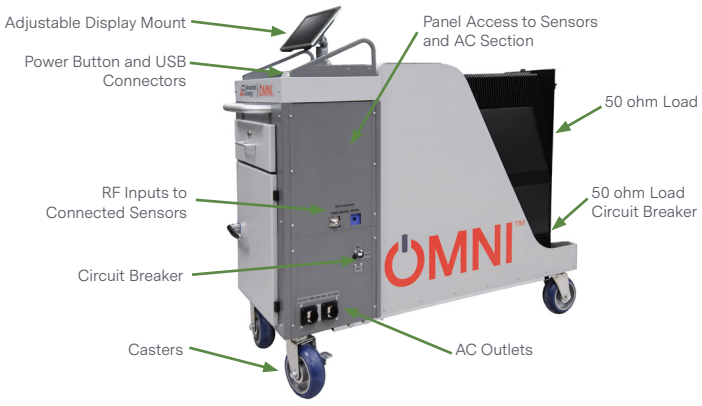
- Optimize RF power delivery for critical semiconductor processes
- Configuration of up to 6 frequencies within a single sensor lowers investment cost (covers 400 kHz, 2 MHz, 13.56 MHz, 27 MHz, 40 MHz, 60 MHz, and more)
- Yearly calibration of the sensor – ease of maintenance and lower operating costs
- Agnostic – measures RF power from non-AE power products
- Accessibility to sensor for ease of calibration and servicing
- Unique data collection features to track trends and reduce equipment downtime and operational costs
- Mobile design for easy navigation within fabs
- Customizations provided upon request

Physical Specifications	
Display	
Size	10.1"
Touchscreen	Projective-capacitive touch
Power Sensor	
Model	TEGAM Gemini 5540A-7/16F-HNF
RF input connector	HN-female
RF adapter kit (optional)	RF coaxial adapters (male to female) for sensor input
RF output connector	7/16-female
Cart	
Chassis material	Aluminum and Stainless Steel
Overall Dimensions (LxWxH)	48" (51" to handle) x 18.2" x 35.6" (41.1" display raised) 1.2 m (1.3 m to handle) x 0.5 m x 0.9 m (1 m display raised)
Display mounted angle	Adjustable display mount, can tilt and rotate
Weight	283 lbs (128 Kg)
Handle(s) Type	Ergonomic handle to push cart around
RF Inputs	X2 panel ports for direct access to sensor connection
RF Outputs	X2 panel ports to route RF cables out to external loads (future option)
AC Input Power	Retractable 25' (7.6 m) power cord at base of cart; Type-B plug Options for international plugs: Type-F (Korean power grid), Type - I (China), Type- G (UK), Type G & M (Malaysia, Singapore), Type E (France, Switzerland)
AC Circuit Protection	Circuit breaker and fuses for single or two phase AC input power
AC Output Power	Configurable AC output connections for North America, Japan, Korea, Europe, China
Data Ports	USB-A (female) RJ-45 WAN (female) X5 RJ-45 LAN (female)
Display Ports	USB-C (female) HDMI (female)
Display Power Button	Power button for onboard computer
Sensor Mounting	Latches or quick disconnect
Accessory Drawer	Drawer for RF adaptors, including lock
Casters	4 locking swivel 5" casters (clean-room specific)
50 ohm Load	Power: 10000 W Frequency: DC to 60 MHz Impedance: 50 ohm nominal VSWR: < 1.15:1 @ operating temperatures Cooling: Oil and air cooling (with fans)

Electrical Specifications	
Power Sensor	
Frequency range	0.2 to 200 MHz (covers 400 kHz, 2 MHz, 13.56 MHz, 27 MHz, 40 MHz, 60 MHz, and more)
Forward power rating	3 W to 5 kW
Reflected power rating	3 W to 1 kW
Accuracy	± (0.5% of Rdg + 0.5 W) at the calibrated frequencies and power ranges (see Certificate of Calibration)
Insertion loss	< 0.05 dB with QC Type N connectors
VSWR, Max.	Better than 1.05:1 below 60 MHz
Cart	
AC Input	100/230 VAC, ±10%, 50/60 Hz
AC Input Circuit Protection	15 A breaker 15 A fuses
AC Output	100/230 VAC, ±10%, 50/60 Hz, 10 A max

Software Specifications	
Display software	
HMI Data fields	PowerInsight adapter converts data sent via power sensor protocol Power Resolution: 0.01 W Frequency Resolution: 0.01 MHz VSWR Range: 1.0 to 199.9 max User data entry: User can enter and save meta data including tool information and cart configurations
Data Storage	Long term recording of all data measurements to allow data extraction and reports
Automatic Measurement Mode	Automatic partition of the RF signal into Lookup Table with measure setpoints and correct offsets
HMI remote access	Easy to Use Touch Human Machine Interface (HMI) for cart control via local touch screen or remote tablets. Flexible usage via HDMI, USB-C or Ethernet connections.

Cart Exterior



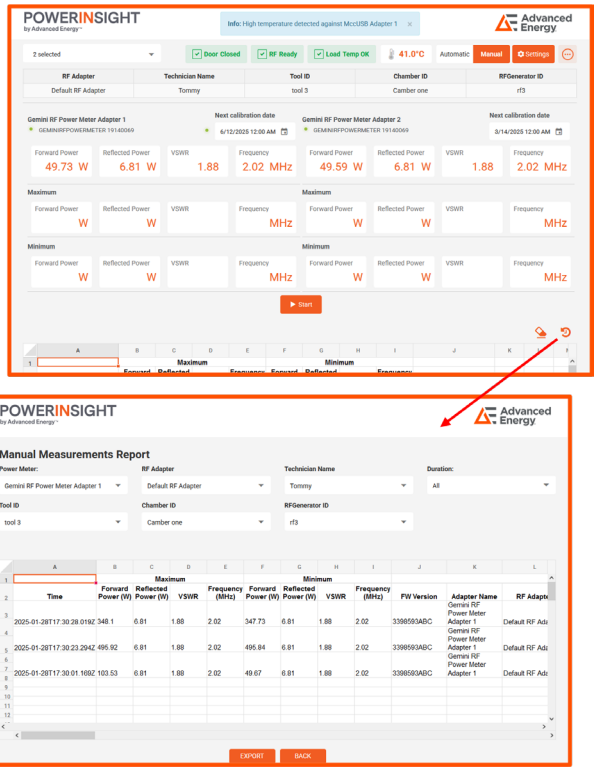
POWERINSIGHT

by Advanced Energy™

Make troubleshooting and decision making more efficient with long-term, comprehensive data logging, historical trend analysis, and overall tool health monitoring.

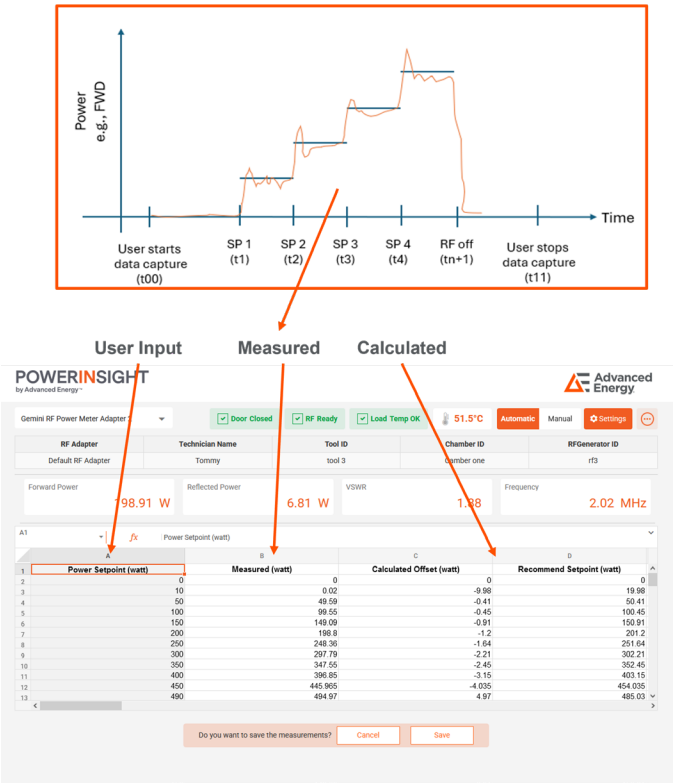
Manual Measurement Mode

This mode measures and records min and max values over manually selected durations.



Automatic Measurement Mode

This mode automatically partitions the RF signal into a setpoint offset Lookup Table.



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 | TRUST

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