



MAGAZINE

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Getting to Know **GENESYS™AC**

An in-depth look at TDK-Lambda's programmable AC power source and what makes it unique. **Page 2-5**



An in-depth look at TDK-Lambda's New GENESYS™ AC

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Electronics manufacturers conduct extensive testing on new products to ensure performance under a wide range of conditions. Many of these tests check how devices handle real-world power quality issues, such as noisy lines, fluctuations in voltage, frequency drifts, and harmonics on the lines. Beyond adhering to industry standards such as IEC, MIL, RTCA/DO, and Airbus regulations, many companies also implement proprietary testing protocols to meet their specific requirements. By identifying weaknesses through rigorous testing, manufacturers can refine their designs to ensure reliability under real-world conditions.

The GENESYS™ AC Source is a flexible tool for performing this type of testing. Many of the tests that are required by standards come pre-programmed (in an optional upgrade). Those who want to create their own test conditions can program the GAC to generate lines that are AC, DC, or even AC with a DC offset with a wide variety of shapes and characteristics. This enables the move beyond standardized lab conditions so engineers can truly understand how their devices perform in the field.

For example, the built-in sequencer can be used to create a “playlist” of line variations. The user can set a custom voltage, wave type, start/end phase, and more in order to produce the exact test sequence desired.

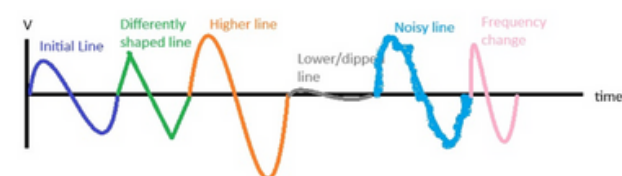


Figure 1. Example output of a line variation sequence

This playlist can be even further customized by using external triggers on the remote programming connector to start each line in the list. Another exciting option is to add harmonics to the line. The GENESYS™ AC Source harmonics tool can be used to create a line with various shaped or frequency harmonics superimposed on the base line. For example, the lower frequency line with higher-frequency harmonics as seen in Figure 2 can easily be created.

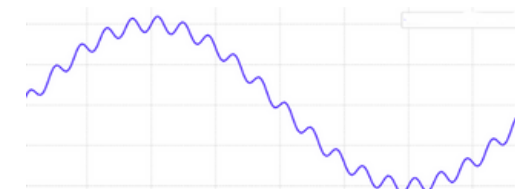
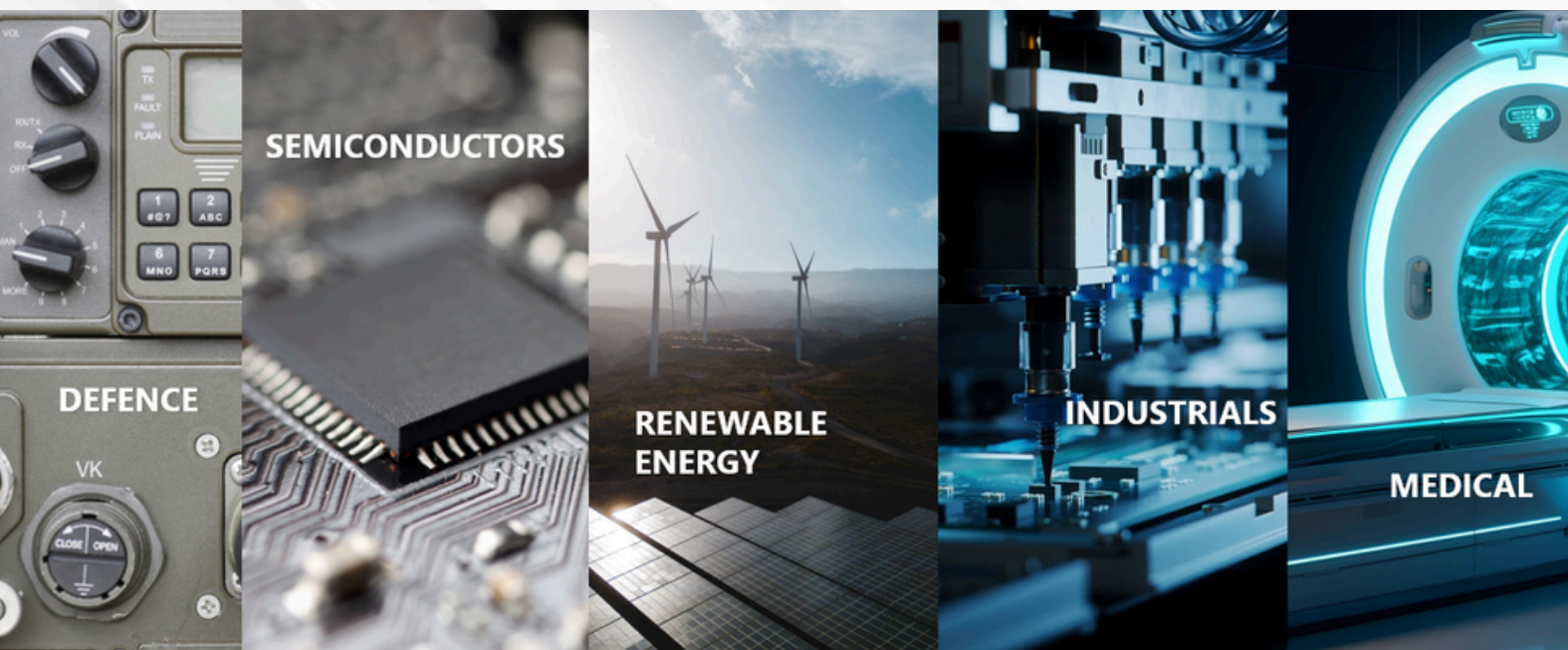


Figure 2. Low frequency line with high frequency harmonics

If multiple GENESYS™ AC Sources are connected together into a multi-phase system, the phase angle between the phases can be shifted live. Figure 3 shows an example of this behavior. The green is the phase 1 output voltage. The purple is the voltage output of phase 2, originally 180° out of phase with phase 1. In the middle, it is changed to 120° out of phase from phase 1.



This feature enables testing of delta-configured products on phases with a varying phase angle between them.



Figure 3. Live phase shift

Of course, all of these customizable lines are controllable using the GENESYS™ AC Source by itself or via various forms of external control.

The remote programming connector adds many of these external monitoring and control capabilities, which enables greater customization of the power line. It even has an input that can receive an analog signal, and the supply will effectively amplify that signal to a higher voltage and power. This is an excellent way to enable playback of custom lines

In addition to the remote programming connector, the GENESYS™ AC Source can be connected to via USB, LAN, or DB89 (for RS232 and RS485 communication). These allow for advanced control via the TDK Virtual Control Panel or any standard programming method that sends SCPI commands such as Python, MATLAB, or LabView.

Producing a wide range of line types at high power is a significant technical challenge, but a single GENESYS™ AC Source meets this demand with a compact 1U design capable of delivering a 3kVA output.



It supports frequencies from 16 Hz to 5 kHz, covering an exceptionally broad spectrum, and offers a voltage range of up to 350 VAC or 500 VDC, with the ability to combine AC and DC up to 500 V peak.

Its capability of handling crest factors of 4 (3kW unit) or 6 (2kW unit) is particularly distinctive, making it well-suited for specialized applications. It is also expandable to achieve higher output power or a multi-phase output

With all of these exciting new capabilities, the GENESYS™ AC Source opens the door to more rigorous, insightful testing that can lead to better, more resilient products. As power systems continue to evolve, robust testing methodologies and tools will remain a critical component of the design and validation process.

The GENESYS™ AC Source is a flexible tool for performing this type of testing. It is a programmable power source that comes with many of the tests that are required by standards pre-programmed (in an optional upgrade). Those who want to create their own test conditions can program the GENESYS™ AC Source to generate lines that are AC, DC, or even AC with a DC offset with a wide variety of shapes and characteristics. This enables the move beyond standardized lab conditions so engineers can truly understand how their devices perform in the field.



MU4 Series

Quiet, Modular and Reliable

Spotlight: MU4 Series

Quiet, Modular Power for Medical & Industrial Applications

The MU4 series from TDK-Lambda is a 1U modular power supply system that delivers up to 800W and is designed specifically for the medical and industrial sectors. With full MOPPs isolation and certification to IEC/EN/UL 60601-1, it supports integration into BF-rated medical devices while also meeting the durability and flexibility needs of industrial automation and testing environments.

Its intelligent fan control algorithm adjusts airflow based on temperature monitoring across internal components, keeping acoustic noise low even under heavy loads. This makes the MU4 ideal for applications where a quiet environment is essential, such as patient monitoring systems or lab instruments.

The modular architecture allows for up to four configurable outputs with voltages ranging from 3.3V to 104V, offering engineers the flexibility to design custom configurations using a single platform.

With high efficiency (up to 90%), a wide operating temperature range (-20°C to $+60^{\circ}\text{C}$), and support for digital communications via PMBus, the MU4 balances performance with practicality.

Whether in a surgical system or a factory test station, the MU4 series offers a dependable, compact solution - backed by TDK-Lambda's global support and a 7 year warranty.

Defense & Aerospace

Power Solutions



Industry Focus: Defense & Aerospace Power Solutions

Mission-Critical Power for Extreme Environments

TDK-Lambda's defense and aerospace power solutions are engineered to perform reliably in the harshest test scenarios—from avionics and satellite subsystems to radar arrays and military vehicles. Our HQA series encapsulated DC-DC converters deliver up to 120W in rugged quarter-brick footprint, while FQA and FQB filter modules suppress EMI to meet MIL-STD-461, MIL-STD-1275 and MIL-STD-704 standards.

Key Features:

- **Rugged Packaging:** Converters withstand shock, vibration and thermal extremes (-55°C to $+125^{\circ}\text{C}$)
- **High Efficiency:** Up to 92% conversion efficiency reduces system cooling demands
- **Comprehensive Filtering:** Integrated EMI filters protect against conducted and radiated emissions
- **Flexible Mounting:** Quarter-brick and half-brick form factors support space-constrained designs

Applications: From secure communications and radar test benches to guided-weapon systems and satellite payloads, our power modules deliver stable, low-noise outputs even under rapid load changes and line disturbances. The HQA series, combined with FQA/B filters, provides a complete turnkey solution for aerospace and defense integrators seeking compliance, performance and reliability—backed by global support.



New-Tech Exhibition 2025

During the two-day New-tech Exhibition held in May 2025 at the Tel Aviv EXPO, TDK-Lambda Israel showcased a comprehensive range of power solutions tailored to modern testing and industrial needs.

Our booth featured immersive live demonstrations of the GENESYS™ AC series, where visitors explored advanced capabilities like user-defined sequence programming and SCPI scripting via our intuitive GUI.

Attendees interacted directly with our team, adjusting parameters on the fly and witnessing immediate performance results on the screen.

In addition to the live demos, we hosted informal “power-chat” tables staffed by our team, covering topics such as electromagnetic compatibility challenges, compliance with international standards (IEC, MIL-STD, DO-160), and custom power configurations.

These sessions fostered candid discussions with both long-standing customers and new prospects, allowing us to gather valuable feedback and identify emerging application requirements.

The booth’s design highlighted our commitment to innovation and reliability, with visual panels illustrating key product features, application case studies from automotive, defense, and renewable-energy applications, and a dedicated lounge area for in-depth consultations.

Over two days, New-Tech Exhibition attracted thousands of professional visitors, including engineers, system integrators, and decision-makers. We were delighted to meet many existing customers and new prospects.

Reflecting on the event, our team was energized by meaningful engagements, constructive technical inquiries, and the opportunity to strengthen relationships with existing clients while welcoming a wave of new interest.

Building on this momentum, we look forward to translating these insights into enhanced support, tailored product developments, and collaborative projects in the coming months.

TDK Electronics

Clean.
Filtered.
Reliable.



EMC Filters by TDK Electronics

Power Line Filtering for Reliable, Interference-Free Systems

Electromagnetic interference (EMI) can disrupt performance, impact data integrity, and cause certification delays. TDK's Electronics EMC filters are designed to minimize noise and ensure power stability in demanding industrial environments.

Featured models include:

- B84144A0036R140 (36 A)
- B84144A0090R140 (90 A)
- B84144B0250S120 (250 A)

These three-phase filters support voltages up to 520/300 V AC and operate across a wide temperature range (−40 °C to +100 °C). Their compact footprint allows easy integration into panels, while robust terminals and safety approvals (UL, CSA, ENEC) ensure long-term reliability.

Ideal for motor drives, power supplies, and test setups, the filters deliver strong attenuation and help meet international EMC standards like EN 60939 and CISPR. Clean power and compliance come built-in—saving time, protecting equipment, and supporting smooth certification processes.

RSAN Filters

Quiet Power
Made in Japan



Japanese-Made Filters for Trusted Performance

High-Reliability EMC Filtering—Made in Japan

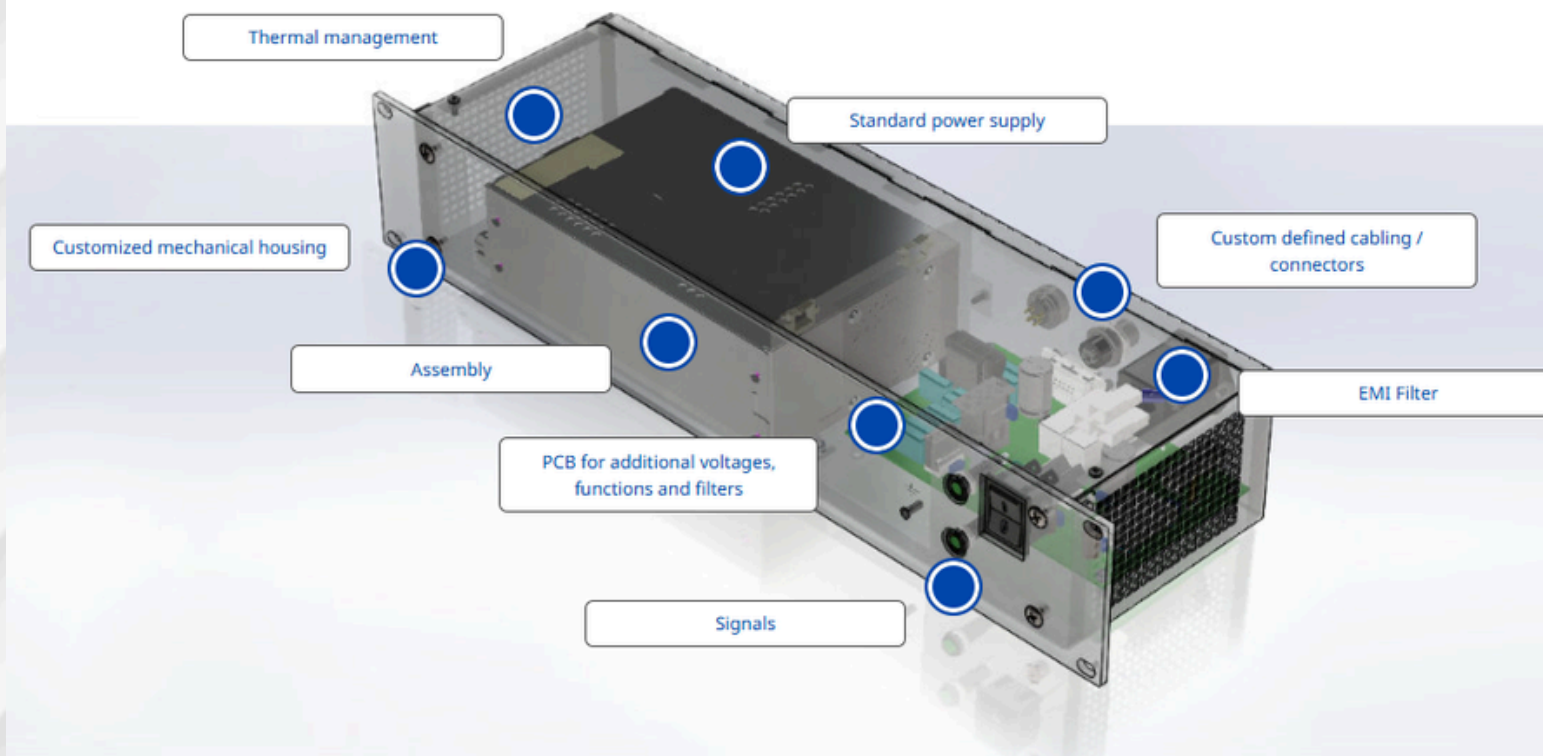
TDK-Lambda's RSAN series of EMC filters represents the highest level of engineering precision, manufactured entirely in Japan to meet the strict quality standards of our global customers. Models like RSAN-030D and RSAN-2060 are optimized for industrial equipment, medical systems, and test environments where reliability is critical.

These filters feature wideband attenuation characteristics and are especially effective in mitigating both differential-mode and common-mode noise. Rated for voltages up to 250 V AC and currents ranging from 3 A to 60 A, they are compact yet robust, designed for minimal temperature rise and long-term operation in harsh conditions.

With reinforced insulation, low leakage current, and safety approvals from UL and TÜV, the RSAN series helps ensure compliance with key EMC directives while protecting downstream systems from unwanted interference.

The Japanese origin of these products is more than a label—it signifies meticulous craftsmanship, stable supply chains, and decades of know-how in electromagnetic compatibility. For engineers who prioritize system stability, long-term durability, and peace of mind, RSAN filters are a dependable choice.

GUS350 Series for Reliable and Efficient Power!



Introducing the GUS350 Series

We are proud to introduce our new GUS350 series – compact, single output, general-purpose power supplies with outstanding efficiency of up to 95.5%.

With output ratings of up to 355 W and voltage options of 12, 24, 36, and 48 V, the GUS350 series is designed to deliver maximum flexibility for a wide range of applications.

Our highlights at a glance:

- Convection-cooled and compact design
- Size: only 101.6 x 41 x 127 mm
- Certified according to IEC/EN/UL/CSA62368-1 and compliant with IEC61010-1
- Excellent EMI compliance according to EN 55011-B and EN 55032-B

Discover a powerful, reliable, and cost-effective solution.

Perfectly suited for light industrial, automation, LED lighting, and more!

Power+ Solutions

Custom Solutions from TDK-Lambda

Sometimes, off-the-shelf power supplies can't keep pace with the unique demands of a system. That's where Power+Solutions steps in, turning our vast library of over 6,000 standard models into a fully customized power solution you can deploy straight away.

From enhancing EMI filtering and optimizing thermal management to integrating bespoke cable harnesses and tailored control signals like PMBus and I²C, we work hand in hand with your team.

Our flexible approach spans every stage of delivery selecting the ideal base supply, adapting mechanical housings for rugged environments, modifying PCBs to meet special voltage or safety requirements, and even performing custom assembly with your own labeling.

This single-supplier model streamlines logistics and speeds time-to-market, especially for small to medium production runs where efficiency and reliability are paramount.

Throughout development, we uphold rigorous quality standards: environmental stress testing (HALT/HASS), full certification under IEC, UL, and other global norms, and 100% parametric and functional testing on every unit. The result is a power solution that not only meets your exact specifications but also delivers peace of mind with TDK-Lambda's worldwide support network standing behind it.



Join Our Team!

Are you looking for an opportunity to work in a global company with the heart and warmth of a family?

At TDK-Lambda, we're always searching for talented individuals to join our growing team, whether you're an engineer, a production expert, or looking for other exciting roles, we have opportunities waiting for you.

Become part of a company where innovation meets collaboration, and every employee makes an impact.

For more information and to send your CV: HR@tdk-lambda.co.il

We'd love to hear from you!



Stay Updated with Our Newsletter

Our newsletter keeps you informed about the latest from TDK-Lambda, including:

- New product announcements
- Recent news and updates
- White papers and technical articles
- Upcoming events and trade fairs

Scan that QR to stay connected with the latest advancements and industry insights by signing up today!



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