



G5.IND Industrial Series Regenerative DC Source Sink

The G5.IND is designed as an economical choice for bidirectional regenerative DC applications and is optimized for inverter and charger test environments. This includes manufacturing, automotive, green energy, and electronics. It operates in CV, CC, CP, or CR control modes with simulation of internal resistance in CV mode or internal conductance in CC mode. The modular and finely graded G5.IND series has a wide current-voltage range with an auto-ranging factor of three. It provides a variety of power levels for single-channel operation and parallel operation with different power classes. The device series offers a wide range of optional communication interfaces for use in automated R+D test benches or for end-of-line test purposes. The integrated safety feature ISR ensures reliable power cut-off and enables simple integration into the higher-level emergency stop circuit without additional complex installations.

Device Types

Voltage V	Power kW	Current A	Height U	Order Code
0...500	18	-108...108	4	G5.IND.18.500.108
0...500	27	-162...162	7	G5.IND.27.500.162
0...500	36	-216...216	7	G5.IND.36.500.216
0...500	54	-324...324	10	G5.IND.54.500.324
0...1000	18	-54...54	4	G5.IND.18.1000.54
0...1000	36	-108...108	7	G5.IND.36.1000.108
0...1000	54	-162...162	10	G5.IND.54.1000.162
0...1500	27	-54...54	7	G5.IND.27.1500.54
0...1500	54	-108...108	10	G5.IND.54.1500.108

Modular and Easily Scalable Systems

The output of an individual power supply ranges from 0...18 kW to 0...1000 kW, up to 1500 VDC. The advantageous modularity of REGATRON power supply solutions allows the system to be easily adapted to ever-changing test requirements. The system can be expanded with additional power supply units or split into smaller units right down to single-use with multiple channels.

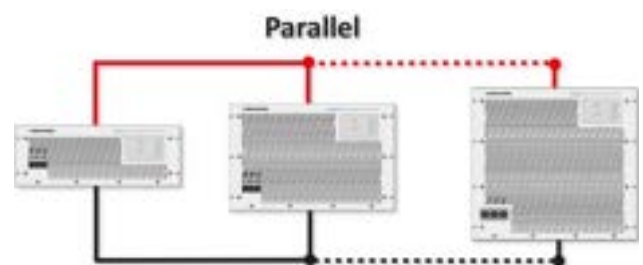


Figure 1: Modular concept for easy power increase by parallel operation, which allows even the operation of devices with different output power, e.g., 18, 36, and 54 kW modules, in one system

Whether for single devices or powerful multi-device systems, REGATRON also offers turnkey cabinet solutions or project-specific system integration according to customer specifications.

Therefore, purchasing a REGATRON power supply is a solid investment for the future.

Applications and Features

The functional scope of the G5.IND series is ideal for basic performance tests of power conversion systems (PCS), tests of inverters for energy storage systems (ESS), or for testing chargers in high-volume end-of-line testing.

The operating and maintenance software G5.Control allows complete control of the power supply unit or entire multi-device system and offers a range of service functions.

Features such as adjustable controller settings and the integrated powerful 8-channel digital scope assist the user to quickly and easily achieve optimal system behavior for a special application requirement. Different application-specific settings of parameters for single devices or master-slave systems can be saved on the devices and recalled by G5.Control, an API, or any optional communication interface.

Simplified and safe operation can be provided by programmable overvoltage protection and digital fuses with immediate and I2t triggering. Different protection levels for different DUTs can be programmed by G5.Control software or the user's automation test system via various interfaces.

Firmware updates can be carried out quickly and easily for individual units or master-slave systems with a single command. A built-in diagnostic is available when handling support cases concerning the application of the power supplies.



Figure 2: Comprehensive information on the main operating values with setting of the controller mode constant voltage (CV), current (CC), power (CP), or resistance (CR) and additional setting of real-time calculated internal resistance (Ri) or conductance (Gi)

General Dynamic Data

rise time	voltage 0...90%	2 ms
set-value step	current -90...90%	1.5 ms
response time	CV, recovery within	100...200 μs
load step	0.5% set value	

Accuracy

The G5.IND series has an accuracy of 0.05% FS for voltage and 0.1% FS for current.

Control Modes

- CV constant voltage
- CC constant current
- CP constant power
- CR constant resistance
- Ri internal resistance simulation in CV
- Gi internal conductance simulation in CC

Interfaces

Ethernet and USB

To connect with:

- G5.Control, the operating and maintenance software
- API .NET programming, e.g., by LabView, Python, Matlab
- WebAPI (REST) interface via the optional REST controller

Front Panel Status Indication

The front panel status indication LEDs visualize the present status of the single device or the entire multi-device system.

Grid Connection

The wide-band AC input accepts all common AC grid systems and has an active power factor correction.

- AC Grid 380...480 VAC ±10% at 50/60 Hz
- PF 0.99
- Efficiency 94...95%, depending on model

Options

Communication Interfaces

CAN Interface

The CAN multi-protocol (CANmp) interface has a 1 kHz data rate, a 16-bit resolution, and is adaptable to any proprietary CAN bus. In addition, it supports dbc file handling.

EtherCAT Interface

The EtherCAT slave interface (ECAT) supports configuration by ESI file and communicates in a 1 kHz cycle. It transmits the entire process data in the same cycle, i.e. commands, actual states, and actual values. Acyclic communication via mailbox for device configuration is also possible.

SCPI Interface

SCPI, Standard Commands for Programmable Instruments, are ASCII strings, which are sent to the device over TCP/IP using the LAN socket. They can perform set operations or query operations.

WebAPI (REST)

The integrated WebAPI (REST) controller allows convenient operation of the power supply via the WebAPI (REST) interface.

User Safety

- Integrated safety relay (ISR) for increased emergency stop reliability, supporting performance level PL c / PL e according to EN ISO 13849
- Discharging of the AC filter (XCD), is mandatory when using the device with a plug connection. XCD ensures a discharge time of the AC filter <1 s as required by EN 62477-1
- Various terminal protection covers

The different protective covers are designed for integration into 19" rack systems or use as a tabletop device. The tabletop version requires touch-proof protection following standard EN 62477-1.

Voltage V	Power kW	DC-cover touch-proof	AC-cover touch-proof	Tabletop use allowed	Order Code
500...1000	≤18	●	○	✓	G5.PAC.AC.1
500...1500	≥27	●	○	✓	G5.PAC.AC.2

- included
- optional, mandatory for tabletop use

Environmental Conditions

- Front-panel-mounted air filter (AirFilter), recommended for use in dusty environments and with IP20 cabinets
- Higher degree of protection up to IP54 available on cabinet level

Rack-Integrated System Solutions

- Mobile rack solutions on castors up to 162 kW
- IP54 protection for air-cooled systems to withstand the harsh conditions of industrial environments
- Third-party product integration and numerous safety options
- Insulation monitoring integrated into safety circuit; activation and settings on display
- Easy reconfiguration between parallel or single operation



Figure 3: REGATRON's rack-integrated turn-key system solutions for various power levels e.g. 72 kW (left) and 162 kW (right). Various options allow for comfortable handling.

Important Features of the G5.IND Series

Technology

- Technologically advanced, fast-switching, compact 19-inch power supplies
- High control dynamics in the 1...2 ms range – even at higher power levels up to 1000 kW
- State-of-the-art dynamics and accuracy
- Wide current-voltage range with an auto-ranging factor 3
- CV, CC, CP, CR, and Ri/Gi-Sim control modes
- Regenerative and highly efficient, resulting in a significant reduction of energy consumption and heat dissipation

System Control and Options

- Operating software for extended analysis, parameterization options, and calibration
- Powerful application programming interfaces (APIs)

System Capability

- Modular and easily scalable systems
- Single or parallel operation with a digital high-speed bus
- Simple multi-unit configuration supported by the operating software
- Easy rack mounting
- Optional safety features such as 2-channel safety interface and insulation monitoring
- Turn-key cabinet solutions or project-specific system integration according to customer specification

This product is developed, produced, and tested according to ISO 9001 by REGATRON.

For detailed technical information, contact REGATRON or your local sales partner.

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REGATRON DC & AC Power Supplies: Modular · Precisely Engineered · Technologically Advanced

