

Product Catalogue



Product Overview



In this QR code you will find detailed information about our products, the different models, the characteristics of our software and the applications we support.



CINERGIA delivers **advanced power conversion** solutions built on a **robust hardware platform** designed for continuous 24/7/365 operation with minimal maintenance. Each unit undergoes rigorous in-house testing and is produced under **ISO 9001:2015 certified** processes, ensuring exceptional reliability and quality.

Featuring a bidirectional back-to-back topology, CINERGIA converters achieve regenerative operation, clean sinusoidal currents, and adaptable configurations—offering **efficient, versatile, and dependable solutions** for demanding power applications.

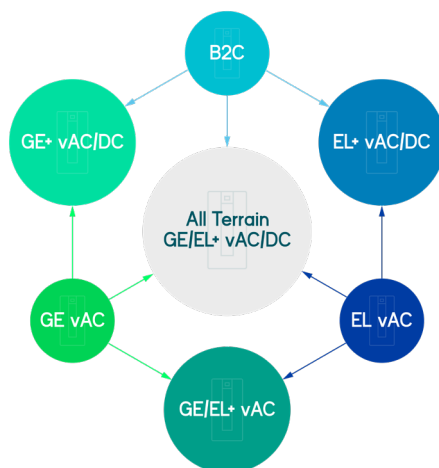
FUNCTIONS

Our product catalogue stands out for the **flexibility** and **versatility** of our units. Three main functions form the basis of our catalogue:

- **Grid Emulator (GE vAC)**
(regenerative 4Q AC voltage source)
- **AC Electronic Load (EL vAC)**
(regenerative 4Q AC current source)
- **DC Sink/Source (B2C)**
(regenerative 2Q/4Q DC bidirectional sink/source)

Each CINERGIA product includes **one, two** or **three** of the main functions, offering a high degree of versatility.

COMBINATIONS



TECHNOLOGIES

IGBT



IGBTs are ideal for low and high-power applications with moderate switching speeds, offering a **balance between efficiency and high current** handling.

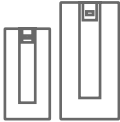
SiC



SiC MOSFETs provide **faster switching, higher efficiency, and more compact designs**, making them perfect for high-performance applications.

FORMATS

Cabinet

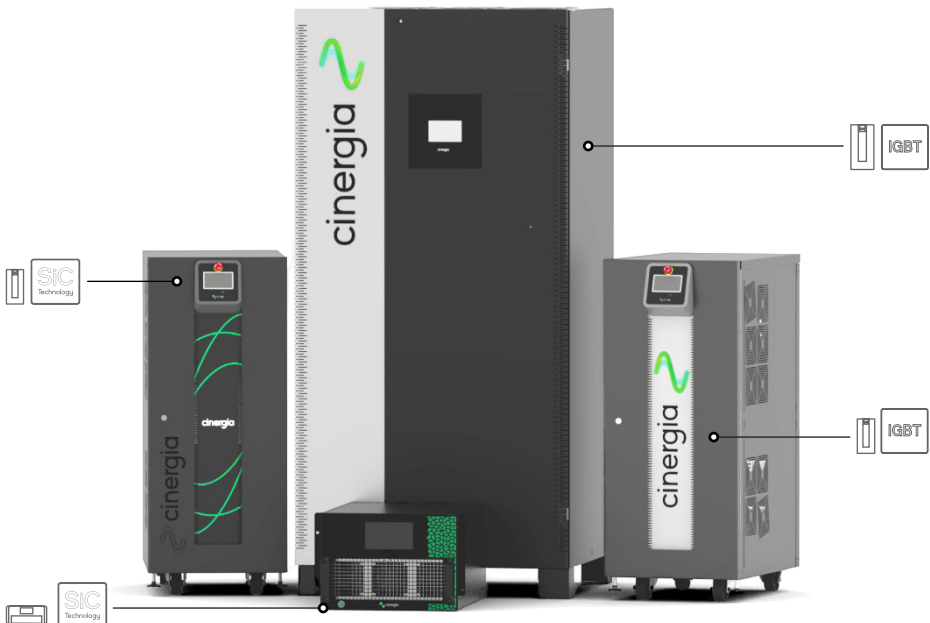


Larger, standalone enclosures that provide a **fully integrated system** with all components housed in one unit.

Rack



Compact, modular design that fits into standard 19-inch server racks. Ideal for **space-saving setups, flexibility, and easy scalability** in labs or industrial environments.



Product Models



SiC Technology

SiC-RS

GE&EL vAC/DC SiC - RS
GE vAC/DC SiC - RS
EL vAC/DC SiC - RS



Format

22.5 to 30 kW

Output Power*

All functionalities
in a 19" rack

Functionalities

All-in-one SiC rack platform,
Grid Emulator, Load and
bidirectional DC tester solution

Description

SiC-RSe

GE&EL+ vAC/DC SiC - RSe



22.5 to 30 kW

All functionalities
in a 19" rack

Unique mixed-mode SiC
platform, with simultaneous Grid
and Load emulation capabilities

IGBT

IGBT Technology

ePlus

GE&EL+ vAC/DC
GE&EL+ vAC



Format

7.5 to 160 kW

Output Power*

All functionalities
in a cabinet

Functionalities

Complete all-terrain converter
combining Grid Emulator, Load
and bidirectional DC testing

Description

EL+ vAC/DC
EL+ vAC



7.5 to 160 kW

Two functionalities
in a cabinet

Versatile regenerative load,
harmonics control, scalable
modular power solution testing

SiC

Cabinet P&P

GE&EL+ vAC/DC SiC
GE+ vAC/DC SiC
EL+ vAC/DC SiC



50 kW

All functionalities
in a cabinet

Advanced SiC converter, high
efficiency, wide bandwidth,
AC/DC regenerative testing

SiC-RS P&P Cabinet



22.5 to 90 kW

Customizable solution
based on SiC-RS family

Modular plug-and-play
cabinet, integrated testing
solution and mobile platform

*Rated output power
for standalone units

GE+ vAC/DC
GE+ vAC



7.5 to 160 kW

Two functionalities
in a cabinet

Flexible regenerative voltage
source, Grid Emulator and AC
or AC/DC testing

B2C+



7.5 to 160 kW

Single function
optimized

DC converter supporting battery
testing, emulation and scalable
high-voltage applications

EL+ vHFDC
EL+ vHF



15 to 50 kW

Single function
optimized

Regenerative high-frequency
AC load for avionics testing,
with scalable modular power

NEW ARRIVAL

P&P Cabinet

The Plug & Play Solution



The **P&P Cabinet** is Cinergia's latest addition to the Rack Series product family.

Featuring Cinergia's hallmark build quality, the cabinet includes a front interface panel that **simplifies measurements, enhances safety** and **streamlines communication**, making it ideal for a wide range of testing and validation environments.

↓ What's new



Front Panel Interface

Easy access to electrical measurements, various system communications, and additional safety features.

Ready-to-Use Cabinet

Customizable configurations, units and transformers integrated, wired and tailored to your needs: plug-and-play simplicity.

Durable, Mobile & Flexible

Industrial-grade cabinet with reinforced structure and integrated casters. Durable and easy to relocate across test environments.

Configurable Layouts

Engineered for **seamless integration**, a robust and portable test bench, ideal for both academic and industrial environments.

Available cabinets in **24U, 36U, and 42U** sizes that offer **fully configurable layouts** to match your system architecture and workflow.



24U



36U



42U

NEW ARRIVAL

GE&EL AC/DC SiC-RSe **Enhanced**

Grid Emulator + Electronic Load



4 Quadrant Regenerative AC Grid Emulator + 4
Quadrant Regenerative AC Electronic Load +
Regenerative DC Bidirectional Source and Sink

**Rated AC
Power**
30 kW
22.5 kW

**Rated DC
Power**
30 kW
22.5 kW

**Rated AC Current
(per channel)**
44 A
44 A

**Rated DC Current
(per channel)**
 ± 44 A
 ± 44 A

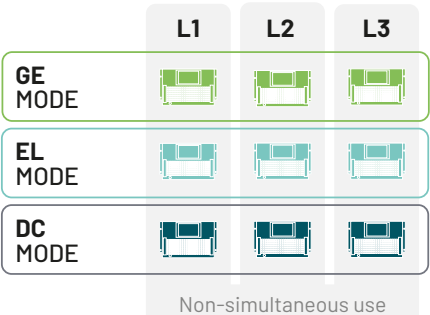
Mixed Mode

↓ **What's new**

The SiC-RSe introduces a groundbreaking feature, unique to power converters, enabling concurrent multi-test execution. This functionality **optimizes testing resources** and **provides unparalleled flexibility** in complex scenarios.

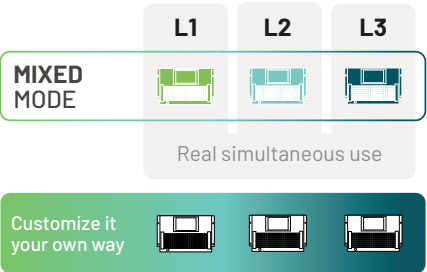
How a 3-in-1 Converter works

Current all-in-one converters offer versatile testing (Grid Simulator, Electronic Load and DC Converter) via software configuration across multiple channels, but they're **limited to performing only one function** at a time.



How Mixed Mode works

Mixed Mode **enables simultaneous and independent operations** of Grid Simulator, Electronic Load, and DC Converter functionalities across channels, creating a **complete, blended** testing platform.



GE&EL AC/DC SiC-RS Grid Emulator + Electronic Load

4 Quadrant Regenerative AC Grid Emulator +
4 Quadrant Regenerative AC Electronic Load +
Regenerative DC Bidirectional Source and Sink



EL AC/DC SiC-RS Electronic Load

4 Quadrant Regenerative AC Electronic Load +
Regenerative DC Bidirectional Source and Sink

AC Power

30 kW
22.5 kW

DC Power

30 kW
22.5 kW

AC Current (per channel)

44 A
44 A

DC Current (per channel)

± 44 A
 ± 44 A

GE AC/DC SiC-RS Grid Emulator

4 Quadrant Regenerative AC Grid Emulator +
Regenerative DC Bidirectional Source and Sink.

SIC TECHNOLOGY

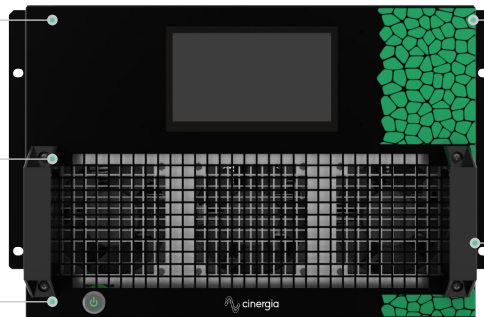
High performance and efficiency.

USER-FRIENDLY INTERFACE

Designed by engineers for engineers.

LARGER TOUCHSCREEN

7-inch display for easy local operation.



19" RACK FORMAT

With 30 kW in a 7U and 715 mm depth unit, it can be easily mounted into standard 19-inch rack cabinets.

EASY INTEGRATION

Analog & digital I/O and the open MODBUS/TCP protocol are provided for seamless integration into automated test lines.

All-Terrain GE&EL+ vAC/DC SiC

Grid Simulator + Electronic Load

The All-Terrain AC/DC Regenerative Converter with Silicon Carbide Technology—bringing the entire Cinergia catalogue into a single cabinet.



AC Power

50 kW

DC Power

50 kW

AC Current (3 channel / 1 channel)

73 A / 219 A

DC Current (3 channel / 1 channel)

±73 A / ±219 A

Key Features

Bidirectional and Regenerative

Clean grid current:

THDi < 3% and PF > 0.98

Parallelization of units to increase the power

The most flexible testing equipment in a single cabinet

HIGHER SWITCHING FREQUENCY

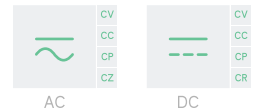
Thanks to the SiC MOSFETs in our equipment, the switching frequency is increased up to 60 kHz.

BANDWIDTH

A higher bandwidth of the converter translates into better capacity to control fast-changing and high-frequency signals.

RIPPLE

Improved current ripple (by a factor of 3) and voltage ripple (by a factor of 2.75).



EFFICIENCY

The peak efficiency of the whole system is boosted above 94% thanks to the SiC Technology.

CURRENT IN DC MODE

Higher current rating in DC, now equal to the AC current rating.

Grid Emulator + Electronic Load (GE&EL+)

The GE&EL product family is the combination of Grid Emulators, Electronic Loads and Bidirectional DC Converters in one product.

AC Power

7.5 kW - 160 kW

DC Power*

7.5 kW - 160 kW

Models

GE&EL AC/DC SiC-RSe **GE&EL+ vAC/DC**
GE&EL AC/DC SiC-RS **GE&EL+ vAC**
GE&EL+ vAC/DC SiC

AC Current (per phase)

11 A - 232 A

DC Current* (3 channel / 1 channel)

± 10 A / ± 30 A - ± 185 A / ± 555 A

*Only in models with DC functionality



Grid Emulator (GE+)

Grid Emulators are power electronic devices that emulate AC electrical grids in both normal and disturbed conditions.

AC Power

7.5 kW - 160 kW

DC Power*

7.5 kW - 160 kW

Models

GE AC/DC SiC-RS
GE+ vAC/DC
GE+ vAC

AC Current (per phase)

11 A - 232 A

DC Current* (3 channel / 1 channel)

± 10 A / ± 30 A - ± 185 A / ± 555 A

*Only in models with DC functionality



Electronic Load (EL+)

The EL+ family is a power electronic device designed to emulate AC and DC Electronic Loads.

AC Power

7.5 kW - 160 kW

DC Power*

7.5 kW - 160 kW

Models

EL AC/DC SiC-RS
EL+ vAC/DC
EL+ vAC

AC Current (per phase)

11 A - 232 A

DC Current* (3 channel / 1 channel)

± 10 A / ± 30 A - ± 185 A / ± 555 A

*Only in models with DC functionality



Bidirectional DC Converter (B2C+)

CINERGIA's DC Programmable Power Supplies are designed to generate a controlled DC source or load.

AC Power
-

DC Power
7.5 kW - 160 kW

Software Options
Battery Pack Tester
Battery Emulation
PV Panel Emulation

DC Voltage (normal range/HV option)
30-750 V / 800 V

DC Current (independent / parallel)
±10 A / ±30 A - ±185 A / ±555 A



High Frequency (Aerospace)

Regenerative Electronic Load products capable of operating in a frequency range of 360 to 900Hz. Designed to simulate different loads found in an aircraft.

AC Power
7.5 kW - 160 kW

DC Power*
7.5 kW - 160 kW

Models
EL+ vHF/DC
EL+ vHF

AC Current (per phase)
11 A - 232 A

DC Current* (3 channel / 1 channel)
±10 A / ±30 A - ±185 A / ±555 A

*Only in models with DC functionality



Power HiL (PHiL)

Optimized performance and price for PHiL applications. This version includes Power Amplifier functions to connect with Real-Time Control Systems.

AC Power
7.5 kW - 160 kW

DC Power
3.75 kW - 80 kW

Models
GE&EL+ vAC/DC
GE&EL+ vAC
GE+ vAC/DC
EL+ vAC/DC
B2C+

AC Current (per phase)
11 A - 232 A

DC Current (3 channel / 1 channel)
±10 A / ±30 A - ±185 A / ±555 A



High Power Up to 1.3 MW



Isolated Transformers

In all DC configurations, it is necessary to use isolation transformers at the input of the device to guarantee the safety of the system.

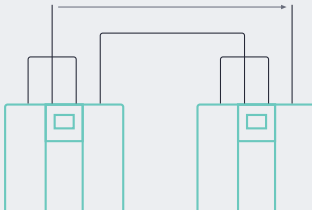
Three different Master/Slave connection possibilities

Serial

Only in DC

$$80 \text{ to } 1500 \text{ V} (2 \times V_{\text{rated}})$$

$$0 \text{ to } \pm 1 \times I_{\text{rated}} - 0 \text{ to } \pm 2 \times P_{\text{rated}}$$



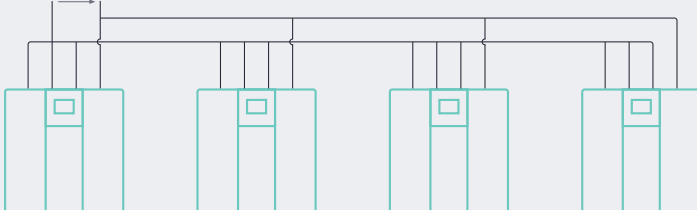
Parallel

Up to 8 units

AC or DC

$$40 \text{ to } 750 \text{ V} (1 \times V_{\text{rated}})$$

$$0 \text{ to } \pm N \times I_{\text{rated}} - 0 \text{ to } \pm N \times P_{\text{rated}} \quad (N \text{ up to } 8)$$



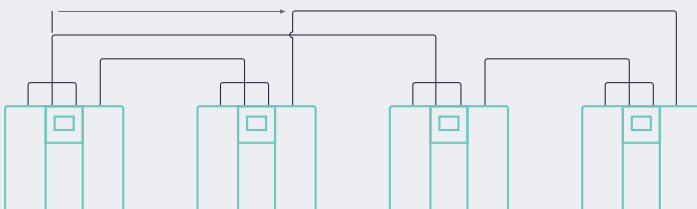
Serial/Parallel

Up to 8 units

Only in DC

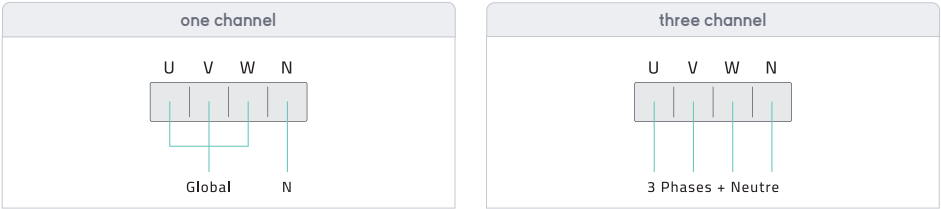
$$80 \text{ to } 1500 \text{ V} (2 \times V_{\text{rated}})$$

$$0 \text{ to } \pm N \times I_{\text{rated}} - 0 \text{ to } \pm N \times P_{\text{rated}} \quad (N \text{ up to } 8)$$

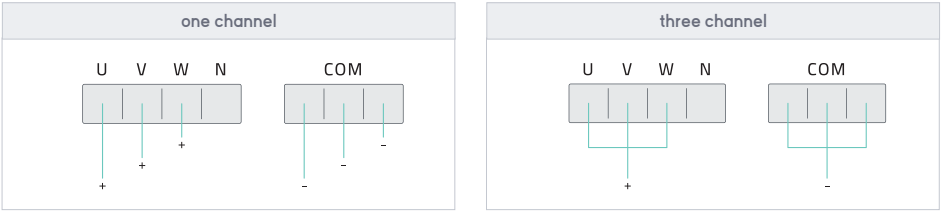


One or three channel connections

AC Mode



DC Mode



		Units with AC capabilities		Units with DC capabilities	
Unit		AC Power	AC Current	DC Power	DC Current
Applies to all models of GE&EL+, GE+, EL+ and B2C+		7.5 kW	11 A / 33 A	7.5 kW	±10A / ±30A
		10 kW	15 A / 45 A	10 kW	±15A / ±45A
		15 kW	22 A / 66 A	15 kW	±20A / ±60A
		20 kW	29 A / 87 A	20 kW	±25A / ±75A
		27 kW	40 A / 120 A	27 kW	±30A / ±90A
		40 kW	58 A / 174 A	40 kW	±40A / ±120A
		50 kW	73 A / 219 A	50 kW	±50A / ±150A
		54 kW	80 A / 240 A	54 kW	±57A / ±171A
		80 kW	116 A / -	80 kW	±105A / ±315A
		100 kW	145 A / -	100 kW	±130A / ±390A
		108 kW	157 A / -	108 kW	±130A / ±390A
		145 kW	211 A / -	145 kW	±155A / ±465A
		160 kW	232 A / -	160 kW	±185A / ±555A

Software Platform

CINEINA is the software user interface supplied with CINERGIA devices, fully developed by our R&D team to easily control the unit. Its **intuitive** and **user-friendly** design allows for the exploration of the device's **multiple functionalities remotely** and **simultaneously** from different devices.

Remote Control port

- ~ LAN Ethernet with Modbus/TCP protocol
- ~ LabVIEW Drivers
- ~ RS485/CAN (optional)

Digital I/O port

- ~ 4 digital inputs
- ~ 3 relay outputs
- ~ 1 emergency stop

Optional analogue port

- ~ 6 analogue inputs 0-10V
- ~ 6 analogue outputs 0-10V



Features and capabilities



AC Operation



Harmonics



Power and Impedance Control



Disturbance Generation



IEC Testing (Pre-compliance)



DC Operation



Multichannel



Battery Pack Tester



Battery Emulation



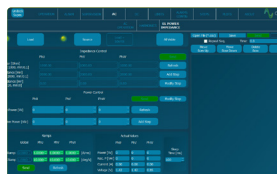
Steps Mode



Sequence



PV Panel Emulation



Applications

We offer a **comprehensive range** of AC and DC regenerative power converters for testing and R&D applications. CINERGIA's products are **continuously improved** through the insights gained from applying our technology across diverse fields and through close collaboration with our customers.



Electromobility



Smart Grids



Academic



Aerospace



Photovoltaic



End of Line



Power HiL

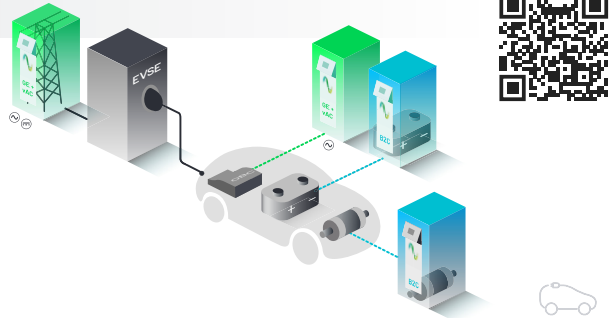


Energy Storage System

Electromobility

Combinations for this application

- GE&EL+ vAC/DC
- GE&EL+ vAC
- GE+ vAC/DC
- GE+ vAC*
- EL+ vAC/DC
- B2C+*



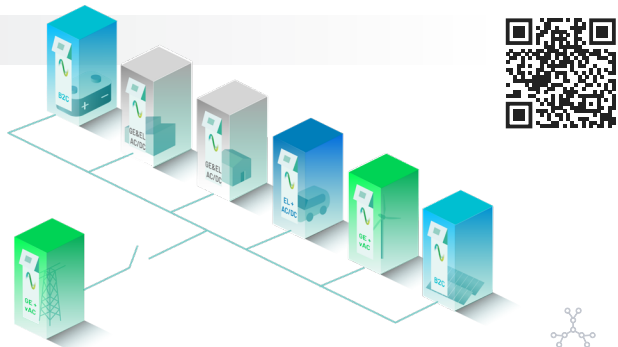
* Shown in picture

Smart Grids

Combinations for this application

- GE&EL+ vAC/DC*
- GE&EL+ vAC
- GE+ vAC/DC
- GE+ vAC*
- EL+ vAC/DC*
- B2C+*

Battery Emulation OPTIONAL

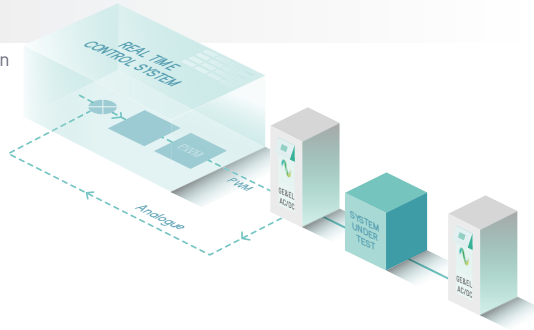


* Shown in picture

Academic & RCP

Combinations for this application

- GE&EL+ vAC/DC *
- GE&EL+ vAC
- GE+ vAC/DC
- GE+ vAC
- EL+ vAC/DC
- EL+ vHF/DC
- B2C+



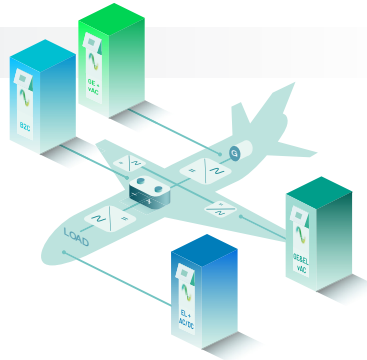
* Shown in picture



Aerospace

Combinations for this application

- GE&EL+ vAC/DC
- GE&EL+ vAC *
- GE+ vAC/DC
- GE+ vAC *
- EL+ vAC/DC *
- EL+ vHF/DC
- B2C+ *



* Shown in picture

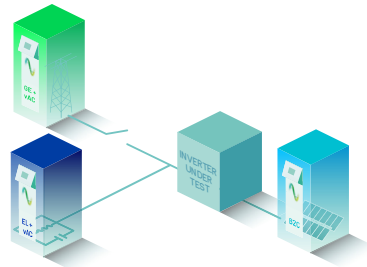


Photovoltaic

Combinations for this application

- GE&EL+ vAC/DC
- GE&EL+ vAC
- GE+ vAC/DC
- GE+ vAC *
- EL+ vAC/DC
- EL+ vAC *
- B2C+ *

PV Panel Emulation OPTIONAL



* Shown in picture



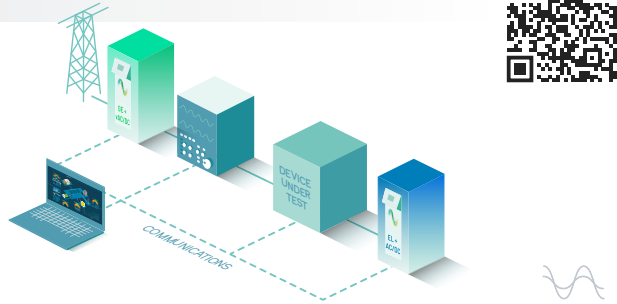
Industrial Test

Combinations for this application

- GE&EL+ vAC/DC
- GE&EL+ vAC
- GE+ vAC/DC *
- GE+ vAC
- EL+ vAC/DC *
- B2C+

PV Panel Emulation OPTIONAL

* Shown in picture

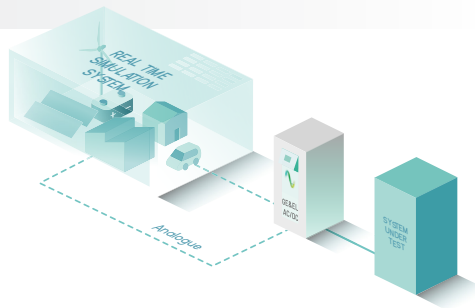


Power HiL

Combinations for this application

- GE&EL+ vAC/DC*
- GE&EL+ vAC
- GE+ vAC/DC
- EL+ vAC/DC
- B2C+

* Shown in picture



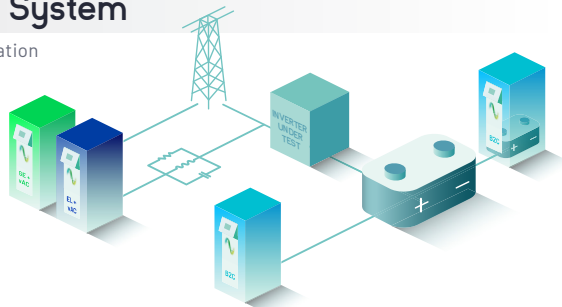
Energy Storage System

Combinations for this application

- GE&EL+ vAC/DC
- GE&EL+ vAC
- GE+ vAC/DC
- GE+ vAC *
- EL+ vAC *
- B2C+*

Battery Emulation OPTIONAL
Battery Pack Tester OPTIONAL

* Shown in picture

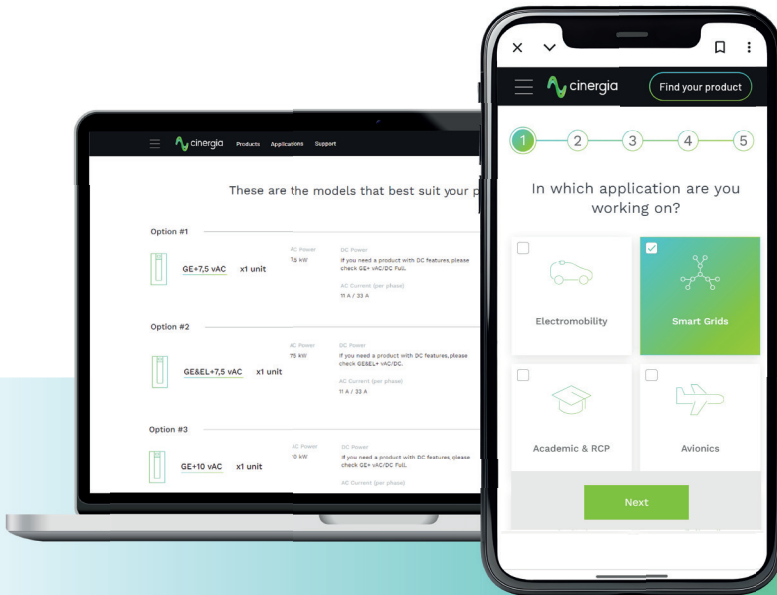


Notes & Key Insights

Use this space to jot down insights, applications, or questions regarding CINERGIA's regenerative power solutions.

Not sure which product you need? Let our Wizard help you!

Find the models that best suit your preferences in just **1 minute**.



Scan the code or
visit our website

Find your product

cinergiapower.com



For further information, contact us directly at sales@cinergiapower.com

A combination of knowledge,
experience and passion
for what we do.

Regenerative Power Electronics Solutions



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