



# 2024

## PRODUCT CATALOG

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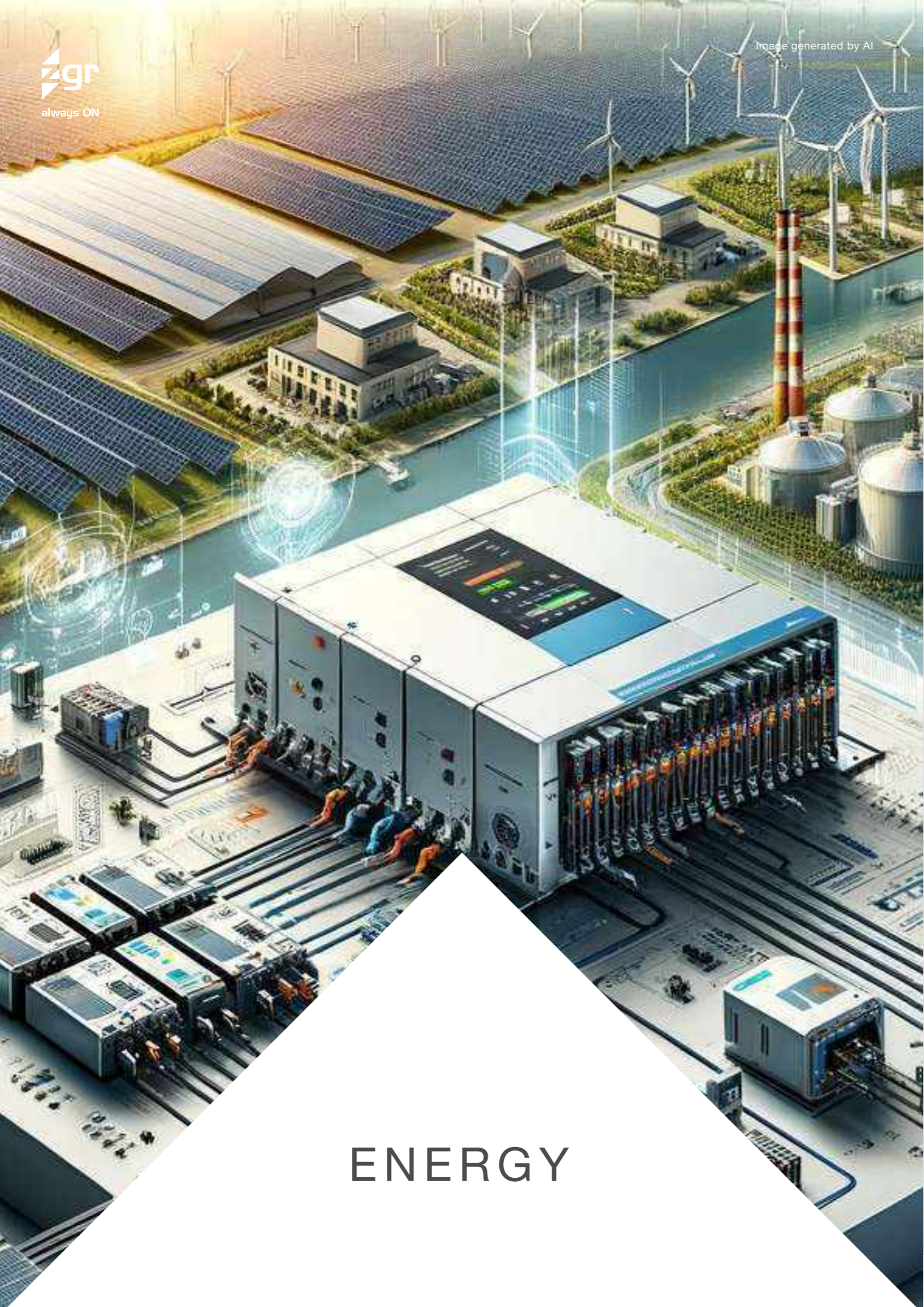
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# ENERGY

We present a **complete range of three-phase solar inverters**, adaptable to any installation (industrial, utility, etc.). They can operate at maximum energy efficiency in extreme conditions of temperature and altitude. They are designed with modular, redundant, and scalable topology.

In the line of central inverters, we highlight our **Modular Central Inverter ZGR SOLAR CTRh 3300 1500V**, a solution designed to obtain maximum profitability for large “utility scale” PV projects, minimize maintenance costs, and reduce the space required for installation.

One of the highlights of this equipment is that the power stacks are bi-directional: They can be used as battery chargers or inverters for photovoltaic panels.

The new bi-directional 1500V battery charger ZGR PCS 3300 can be used for different power distributions for battery charging or for energy injection into the grid. In addition, it is compatible with almost all battery technologies and allows for common spare parts with the modular central inverter, optimizing the required stock of spare parts in plants where solar photovoltaic generation is shared with energy storage. Solution designed to increase the stability of photovoltaic plants connected to the distribution grid, making the investment profitable by achieving maximum energy productivity.

Our **string inverters** are the most efficient solutions on the market for self-consumption and energy communities, as well as for the development of photovoltaic plants, we have experience in all fields: Industrial, Residential, Agrivoltaics, Floating PV, Solar Parkings.... With our own technology and know-how, as manufacturers we offer a 10-year warranty on our solutions. In addition, we complement it with **24/7 technical service, technical training, and customized developments**. All our solutions are customizable and flexible because our differential element is modularity. Our inverters are prepared for

Zero Injection and compliance with national and international regulations based on the grid codes of different countries.

Tell us your needs and we will explore until we find the best solution for your project.

# ZGR SOLAR STRci 30 / 40 / 50

## THREE-PHASE STRING INVERTERS

The **ZGR SOLAR STRci 30 / 40 / 50** offer high energy performance in a compact and lightweight design.

The ZGR SOLAR STRci string inverters are easy-to-use devices that have been designed to meet the energy needs. Given its power, they are ideal for commercial and small industrial self-consumption, where the aim is to reduce the consumption of the electrical grid.

In an effort to improve the performance of solar plants, these inverters offer high energy performance of over 98%. The ZGR SOLAR STRci inverters are equipped with an LCD display, to provide the user with easy access to inverter information and its parameters.

This new range of inverters achieves the maximum utilization of the energy delivered by the photovoltaic panels by handling multiple MPPT of the inverter string and offers a wide DC input voltage range between 200 and 1000 Vdc; and a rating of protection IP 66.



### Applications



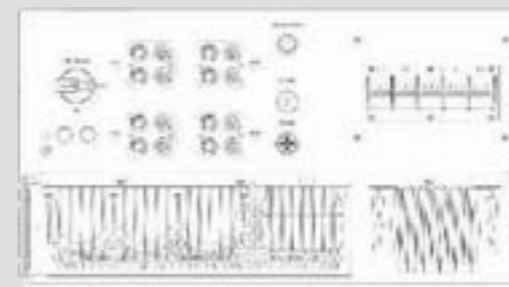
### Characteristics

- Multiple Maximum Power Point Tracking (MPPT)
- High energy efficiency greater than 98%.
- Very low harmonic distortion, THD <3%.
- Direct grid connection
- Parallel connection without limitation
- Anti-islanding protection with automatic disconnection
- Protection against:
  - Reverse polarization
  - Short circuits
  - Overvoltages
  - Insulation faults
- Compact and lightweight design, easy installation

TECHNICAL SPECIFICATIONS			
Model	ZGR STRci30	ZGR STRci40	ZGR STRci50
<b>INPUT [DC]</b>			
Max. PV voltage	1100 V		
Nominal input voltage	650 V		
DC starting voltage	180 V		
MPPT range	200 ~ 1000 V		
No. of MPPT trackers	4		
Strings per MPPT	2		
Max . Current per MPPT	32 A		
Max. Short-circuit current per MPPT	48 A		
<b>OUTPUT [AC]</b>			
Nominal AC output power	30 kW	40 kW	50 kW
Max. Output current	43 A	58 A	72 A
Nominal AC voltage	400 V (3L + N + PE)		
AC frequency range	50/60 Hz (± 5 Hz)		
Power factor range	0.8 leading - 0.8 lagging		
THDi	< 3%		
<b>EFFICIENCY</b>			
Max. efficiency	98.5%		
European efficiency	98.2%		
<b>PROTECTIONS</b>			
Protections	DC switch, Anti-islanding Protection, Reverse Polarity DC Connection, String fault detection, Overvoltage DC/AC type II, Ground fault monitoring, Overcurrent Protection, AC short circuit.		
<b>ENVIRONMENTAL AND MECHANICAL CHARACTERISTICS</b>			
Topology	Transformerless		
Cooling Method	Forced air cooling (Fan)		
Operating Temperature Range	-25°C - 60°C		
Protection Class	IP66		
Operating Altitude	4000 m		
Relative Humidity	0 - 100% non-condensing		
Dimensions (Height x Width x Length)	515 x 585 x 287 mm		
Weight (approximate)	45.6 kg	48 kg	51 kg
<b>COMMUNICATION</b>			
Display	LCD		
Communications	RS485 / Wifi / 4G		
<b>COMPLIANCE</b>			
Certification & Standards	IEC 62109-1; IEC 62109-2; IEC 61000-6-1; IEC 61000-6-3; IEC61000-6-2; IEC61000-6-4; IEC 61683; IEC 60068; IEC 60529; IEC 62116; IEC 61727; EN 50549-1; NC RfG; NRS 097; VDE-AR-N-4105; VDE0126; CEIO-21; C10/C11; NTS tipo A y B.		

*These specifications may change without notice*

### Connections



# ZGR SOLAR STR 100 / 120

## THREE-PHASE STRING INVERTERS

The **ZGR SOLAR STR100 / 120** offer high energy performance in a compact design, ideal for medium to large solar power plants.

The ZGR SOLAR STR 100 / 120 string inverters are easy-to-use devices that have been designed to meet the needs of all grid-connected solar power plants without need for the use of transformers.

In an effort to improve the performance of solar power plants, these inverters offer high energy performance of over 98%. The ZGR SOLAR STR 100 / 120 inverters are equipped with LED indicators, to facilitate the user to manage the inverter.

This range of string inverters offers a voltage range DC input, at full load, between 550 to 850 Vdc; and a rating of protection IP 66.



### Applications



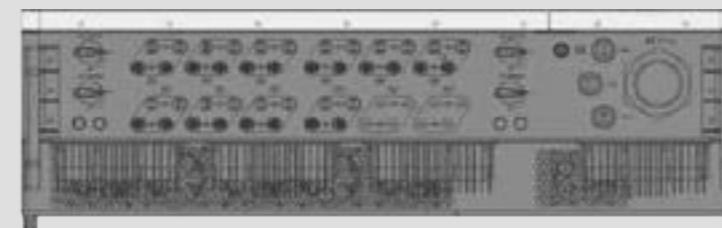
### Characteristics

- Multiple Maximum Power Point Trackers (MPPT)
- High energy efficiency greater than 98%.
- Very low harmonic distortion, THD <3%.
- Direct connection to grid or to step-up transformer
- Parallel connection without limitation
- Equipment monitoring via LED and Bluetooth connection via mobile device
- Anti-islanding protection with automatic disconnection
- Protection against:
  - Reverse polarization
  - Short circuits
  - Overvoltage
  - Insulation faults
- Compact design for easy installation

TECHNICAL SPECIFICATIONS		
Model	ZGR SOLAR STR100	ZGR SOLAR STR120
<b>INPUT [DC]</b>		
Max. PV voltage	1100 V	
MPPT range	550 - 850 Vdc	
Nominal input voltage	620 V	
DC starting voltage	200 V	
MPPT number	10	
Strings per MPPT	2	
Max. Current per MPPT	26 A	
Max. Short-circuit current per MPPT	35 A	
Max. DC Current	260 A	
<b>OUTPUT [AC]</b>		
Nominal AC output power	100 kW @30 °C	120 kW @30 °C
	100 kW @40 °C	110 kW @40 °C
	100 kW @50 °C	100 kW @50 °C
Max. AC apparent power	100 kVA	120 kVA
Max. AC output power	100 kW	120 kW
Nominal AC Voltage	400 Vac, 320 - 480 V	
AC Connection	3 W + N + PE	
AC frequency range	50 / 60 Hz (± 5 Hz) (adjustable)	
Nominal Output current	144,5 A	173,9 A
Max. Output current	147 A	176,4 A
Power factor range	0,8 captative - 0,8 inductive	
THDi	< 3%	
<b>EFFICIENCY</b>		
Efficiency (max) (%)	99 %	
Euroeta (%)	98,6 %	
<b>PROTECTIONS</b>		
Protections	DC switch, Anti-islanding Protection, Protection; Reverse Polarity DC Connection, String fault detection, Overvoltage DC/AC, Insulation Failure, Overcurrent Protection, AC short circuit.	
<b>ENVIRONMENTAL AND MECHANICAL CHARACTERISTICS</b>		
Topology	Transformerless	
Input terminal	Amphenol	
Cooling Method	Forced air cooling (Fan)	
Operating Temperature Range	-25°C - 60°C (>40°C derating)	
IP class	IP66	
Protection Degree	Clase I	
Noise emissions	≤ 65 dB	
Max. Operating altitude	< 4000m without derating	
Pollution Degree	PD3	
Relative Humidity	0 - 100% (non-condensing)	
Dimensions (Height x Width x Length)	1055 x 700 x 336 mm	
Weight	96 Kg	
<b>COMMUNICATIONS</b>		
Communications	RS485	
<b>REGULATIONS</b>		
Certificacions and standards	EN 62109-1: 2011 & EN 62109-2:2013; EN 61000-6-2 & EN 61000-6-4; VDE 0126-1-1; RD 244/2019 & UNE 217001:2020 ; EN206007 & UNE 217002:2020	

*These specifications may change without notice*

### Connections



# ZGR SOLAR STR 200 /250

## THREE-PHASE STRING INVERTERS

ZGR SOLAR STR 200 / 250 solar inverters offer high energy efficiency with a compact design, being ideal for solar plants small-medium size.

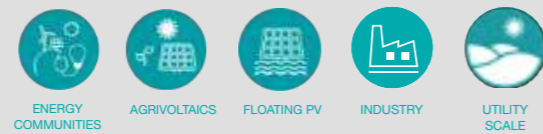
ZGR SOLAR STR 200 / 250 string inverters are easy-to-use devices that have been designed to meet the needs that arise in all grid-connected solar generation plants.

These inverters offer high energy performance, greater than 98%. Inverters ZGR SOLAR STR 200 / 250 have LED indicators, to facilitate management of the investor.

This range of string inverters offers a voltage range DC input, at full load, between 880 to 1300 Vdc; and a protection rating IP 66.



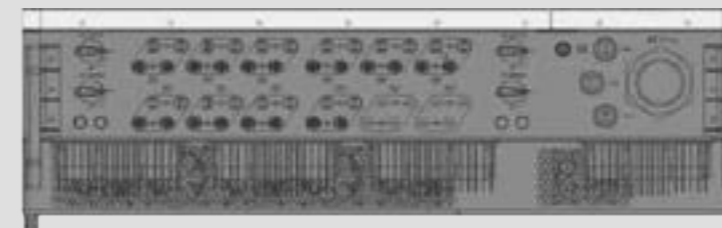
### Applications



### Characteristics

- Multiple Maximum Power Point Trackers (MPPT)
- High energy efficiency greater than 98%
- Very low harmonic distortion, THD <3%
- Direct connection to the Grid or to step-up transformer
- Parallel connection without limitation
- Anti-island protection with automatic disconnection
- Protection against:
  - Reverse polarization
  - Short circuits
  - Overvoltages
  - Insulation faults
- Compact design for easy installation

TECHNICAL SPECIFICATIONS		
Model	ZGR SOLAR STR200	ZGR SOLAR STR250
<b>INPUT [DC]</b>		
Max. PV voltage	1500 V	
MPPT range	880 - 1300 Vdc	
Nominal input voltage	1080 V	
DC starting voltage	650 V	
MPPT number	12	
Strings per MPPT	2	
Max. Current per MPPT	30 A	
Max. Short-circuit current per MPPT	40 A	
Max. DC Current	360 A	
<b>OUTPUT [AC]</b>		
Nominal AC output power	200 kW @40°C	250 kW @40°C
Max. AC apparent power	175 kW @50°C	225 kW @50°C
Max. AC output power	200 kVA	250 kVA
Nominal AC Voltage	800 Vac, 640 - 960 V	
AC Connection	3 W + N + PE	
AC frequency range	50/60 Hz (± 5 Hz) (adjustable)	
Nominal Output current	126,3 A	162,4 A
Max. Output current	144,3 A	180,4 A
Power factor range	0.8 leading - 0.8 lagging	
THDi	< 3%	
<b>EFFICIENCY</b>		
Efficiency (max) ( )	99 %	
Euroeta ( )	98,6 %	
<b>PROTECTIONS</b>		
Protections	DC switch, Anti-islanding Protección, Protection; Reverse Polarity DC Connection, String fault detection, Overvoltage DC/AC, Insulation Failure, Overcurrent Protection, AC short circuit.	
<b>ENVIRONMENTAL AND MECHANICAL CHARACTERISTICS</b>		
Topology	Transformerless	
Input terminal	Amphenol	
Cooling Method	Forced air cooling (Fan)	
Operating Temperature Range	-25°C - 60°C (>40°C derating)	
IP class	IP66	
Protection Degree	Clase I	
Noise emissions	≤ 65 dB	
Max. Operating altitude	< 4000m without derating	
Pollution Degree	PD3	
Relative Humidity	0 - 100% (non-condensing)	
Dimensions (Height x Width x Length)	1055 x 700 x 336 mm	
Weight	96 Kg	
<b>COMMUNICATIONS</b>		
Communications	RS485	
<b>REGULATIONS</b>		
Certifications and standards	EN 62109-1: 2011 & EN 62109-2:2013; EN 61000-6-2 & EN 61000-6-4; VDE 0126-1-1; RD 244/2019 & UNE 217001:2020; EN 206007 &; UNE 217002:2020; Reglamento UE2016/631: NTS 631 v2	
<b>Connections</b>		



# ZGR SOLAR CTRh 3300

## CENTRAL INVERTER

The **ZGR SOLAR CTRh 3300** guarantees high performance in PV plants medium and large size.

The ZGR SOLAR CTRh 3300 modular inverters have been specifically designed to take advantage of the performance and power density in medium and large PV plants.

It has a great power density per unit volume, making possible a significant reduction of space in the surface area required for the implementation of PV Inverters in utility-scale plants.

Another very important feature is its reactive power regulation and its capabilities regarding communications between inverters and centralized systems of control and supervision.

ZGR SOLAR CTRh 3300 inverters adapt to different regulations to comply with the requirements for response to voltage drops without disconnection.

They are perfect for PV Utility projects Medium - Large scale and are specifically designed for operate under severe weather conditions.



### Applications



### Characteristics

- Maximum Power Point Tracker (MPPT)
- High energy efficiency > 99.8%
- Very low harmonic distortion, THD < 3%
- Selectable power factor.
- Anti-island protection with automatic disconnection.
- Quick response to change in set point.
- Wide range of working temperatures, from -20 °C to +60 °C
- Scalable and modular through power stacks.
- AC Protections:
  - Short circuits and overloads
  - Over voltages and voltages drops
  - Over frequency and frequency drops
- IP55 Protection Rating
- Operation at altitude up to 4000 m.
- Low-cost maintenance
- Remote monitoring.
- Support for tension sags.
- Protection against:
  - Polarity - reverse
  - Short circuits
  - Overvoltages

TECHNICAL SPECIFICATIONS	
Model	ZGR SOLAR CTRh 3300
<b>INPUT [DC]</b>	
MPPT range	950 - 1350 V
MPPT number	1-2 (configurable on demand)
Minimum input voltage, V <sub>dc</sub> min	950 V
Maximum input voltage, V <sub>oc</sub> max	1500 V
Maximum input current, I <sub>dc</sub>	3158 A
Short circuit current, I <sub>sc</sub>	4737 A
Number of inputs	Up to 24 protected by one pole
DC fuses size	Fuse NH2 160 A, 200 A, 250A (Screwable)
<b>OUTPUT [AC]</b>	
Rated power [cos phi = 1 (50°C)]	3000 kW
Maximum output current, I <sub>ac</sub>	2510 A
Rated voltage	690 V ± 10%
THDi	<3% at rated power
Grid frequency	50 Hz / 60 Hz (± 5 Hz)
Short circuit current, I <sub>sc</sub>	50 kA
<b>EFFICIENCY</b>	
Max / European / Californian	98,9 % / 98,7 % / 98,6%
<b>PROTECTIONS</b>	
DC connection point	Fuse + DC breaker
AC connection point	AC breaker
DC surge protection	Surge arrester, type II
AC surge protection	Surge arrester, type II
Ground fault monitoring	GFDI / (Optional isolation monitoring)
Degree of protection (according to IEC 60529)	IP55
<b>ENVIRONMENTAL AND MECHANICAL CHARACTERISTICS</b>	
Dimensions (Height x Width x Length)	2529 x 2014 x 2850 mm
Weight	5250 kg
Self-consumption (stand-by)	< 250 W
Internal auxiliary power supply	Integrated transformer
Operating temperature range	-20°C - +60°C (Max power up to 50°C)
Noise emissions	<60 dB @10m
Max. relative humidity (without condensation)	0 % a 95 %
Max. operating altitude (without derating / with derating)	2000 m / 4000 m
Air consumption	8000 m <sup>3</sup> / h
<b>EQUIPMENT</b>	
DC connection	Connecting bar for cable terminal at each inlet
AC connection	Three busbars, one per phase
Color of the enclosure	RAL 7035
<b>COMMUNICATIONS</b>	
Communications	Ethernet, Modbus TCP
<b>REGULATIONS</b>	
Certifications and Standards	EN 5501 + AMD1 + AMD2; UNE-EN IEC 62109-1; UNE-EN IEC 62109-2; EN 61000-6-2 & EN 61000-6-4; NTS 631 P.O.12.2

*These specifications may change without notice*

# ZGR SOLAR PS POWER STATION

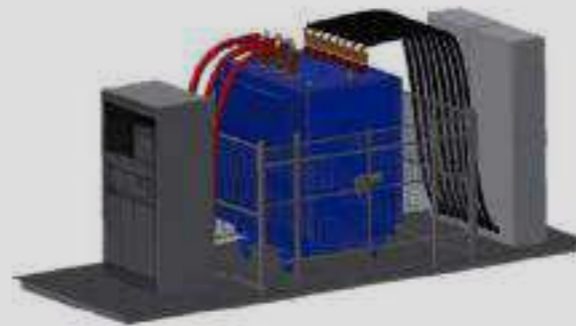
**ZGR SOLAR PS** is the key solution ideal for large plants photovoltaic.

ZGR SOLAR PS is a plug and play solution in Container, Skid or Concrete Booth options; fully equipped for the connection of investors to a Medium Voltage Transformation Center and Switchgear, in addition to auxiliary services and communications for use in facilities photovoltaic and/or energy storage.

It is a turnkey solution that allows increase the overall efficiency of a conversion system and reduce installation costs.

All the equipment that composes it is adapted according to the required technical specifications and combine to achieve maximum performance, efficiency, and uninterrupted operation during its entire useful life.

ZGR SOLAR PS



## Applications



PV ON-GRID



MEDIUM VOLTAGE PV



ENERGY SAVINGS

## Characteristics

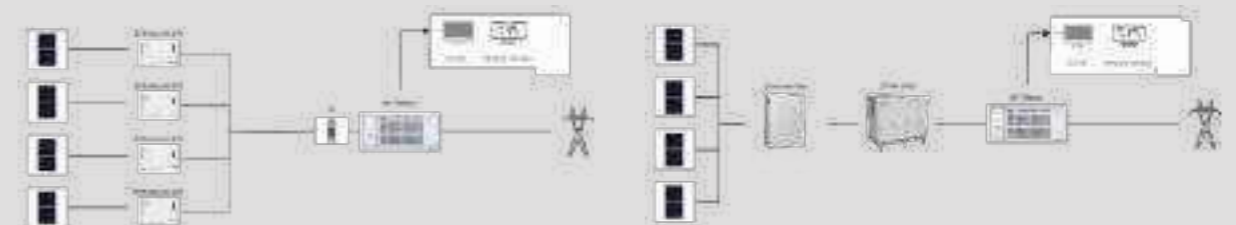
- Adaptable to the plant output voltage range
- For applications where maritime transport is required Standard 20/40-foot container
- Easy installation (Plug & Play)
- Medium voltage transformer for PV generation applications
- Multiple protections
- Custom made for each project

TECHNICAL SPECIFICATIONS		
Model	ZGR SOLAR PS3300	ZGR SOLAR PS 6600
<b>INPUT [DC]</b>		
Voltage Range	400 - 800 V	
Maximum current	2761 A	5522 A
<b>OUTPUT [AC]</b>		
Power rating	3,3 MVA	6,6 MVA
Rated Voltage	10 - 36kV	
Grid Frequency	50 / 60 Hz (± 4,5 Hz adjustable)	
THDi	< 3%	
<b>EFFICIENCY</b>		
Máx. / European	99 % / 98,7%	
<b>PROTECTIONS</b>		
AC fault monitoring	Yes	
Ground fault monitoring	Yes	
LVRT	Yes	
Anti-islanding	Yes	
Reverse Polarization	Yes	
AC Overvoltage	Yes	
DC Overvoltage	Yes	
<b>ENVIRONMENTAL AND MECHANICAL CHARACTERISTICS</b>		
Cooling Method	Forced ventilation ( fan)	
Operating Temperature Range	-10°C a +40°C	
Max. relative humidity (without condensation)	0 to 95%	
Max. operating altitude (without derating / with derating)	2000m / 4000 m	
Noise emissions	< 65dB	< 65dB
Dimensions (Height x Width x Length)	2896 x 2438 x 6058mm (20 feet)	2896 x 2438 x 12192mm (40 feet)
<b>COMMUNICATIONS</b>		
Communications	RS485, Ethernet (optional)	

*\*It will depend on the LV system (String Type Investors)*

*These specifications may change without notice*

## Connections





# ZGR PPC ZGR ZERO INJECTION

**ZGR PPC** is the tool to regulate and manage the energy of large photovoltaics and hybrid installations.

ZGR PPC works independently of the monitoring and control of facilities.

ZGR PPC manages the operation of the photovoltaics inverters, to comply with standards established respect to the interconnection point.

To do this, ZGR PPC collects the installation parameters to regulate the voltage at the connection point, the active power limitation, variation power ramps or the regulation of the reactive power.

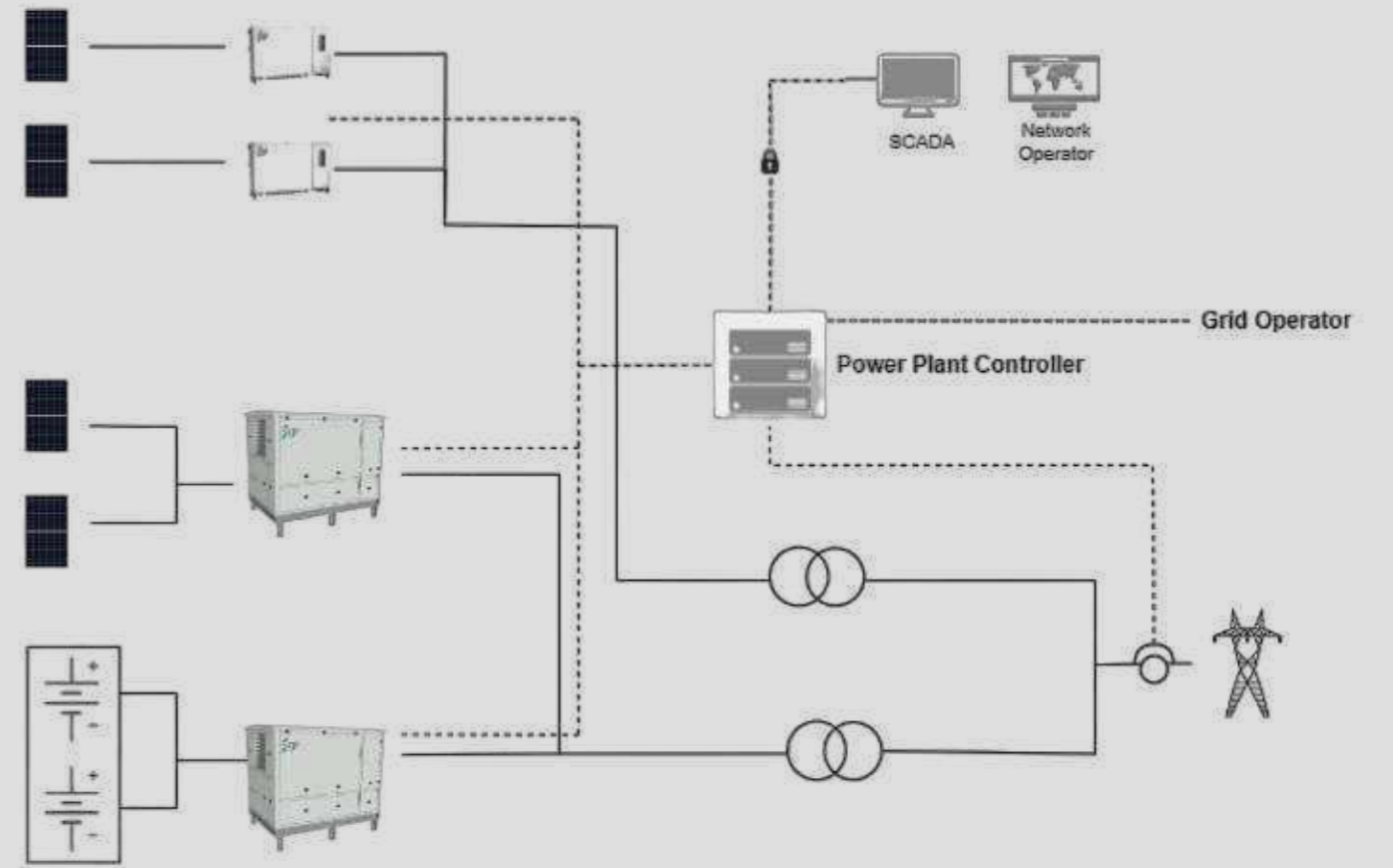
The PPC is custom designed for each PV / Storage Energy plant, taking into account the special requirements of the project.

**ZGR ZERO INJECTION**, the solar kit ZGR self-consumption, offers the monitoring and zero injection of photovoltaic installations.

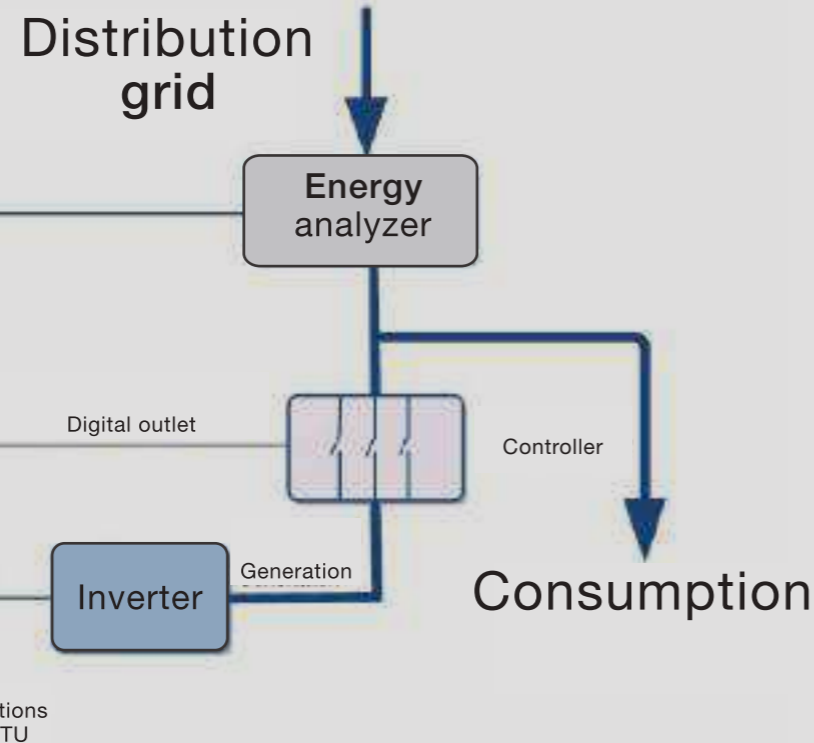
ZGR Zero Discharge is the solution for compliance with the RD 244/2019, which regulates the installations of Self-consumption in Spain.

The system measures the current and voltage of the connection point to the grid and through an energy analyzer and a controller limits the production of the photovoltaic plant, avoiding the discharge of energy to the grid.

Additionally, it has communication to SCADA and/or control platforms to monitor correct operations of the solar PV plants, both of those that require zero injection control, as well as plants with injection to the grid.



## Monitoring



# ZGR PCS GRID

## ADVANCED ENERGY STORAGE

### ZGR PCS GRID has advanced grid stabilization and regulation functions

ZGR PCS GRID is a three-phase inverter with the latest bidirectional technology. The objective of the equipment is to convert the energy of the grid into energy in batteries and return it when there is energy demand.

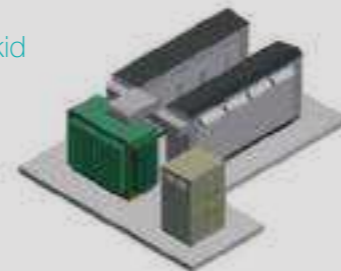
This system facilitates the integration of renewable energies and allows reducing investments in the grid to improve its stability or demand growth.

Thanks to its different operating modes, ZGR PCS GRID offers grid operators and other grid agents an integral tool for a more flexible energy distribution by regulating power, voltage and frequency, guaranteeing the availability of the electrical grid; it also has Black-Start function, increasing the manageability of the energy within the installation. In addition, ZGR PCS GRID inverters can be integrated into a container-type solution providing the necessary flexibility and robustness to power generation systems. This type of integral solutions guarantees the operation and monitoring of the installation at all times, with a considerable reduction of the operation and installation costs.

Container solutions are a perfect solution for large-scale storage projects and are specially designed to meet the most demanding specifications and to operate under adverse environmental conditions.



Skid



Container



### Characteristics

- Automatic operation modes:
  - Frequency control
  - Black-Start (island mode)
  - Active energy reserve
  - Voltage control
  - Active / Reactive power control
- Low harmonic distortion, HF filter integrated
- Quick response to set point changes
- Wide range of working temperatures, from 0°C to +50°C
- Scalable, parallel equipments of 300 kVA
- AC protections
  - Short-circuits and overcharges
  - Overvoltages and low voltages
- DC protections
  - Overvoltage
- AC and DC isolator integrated
- Galvanic isolation\*
- Local monitoring via LCD screen
- Remote monitoring via Web Server
- Supports various communications standards: SNMP, TPC/IP
- Other communication standard on demand: IEC 104, etc.

Communication gateway integrated. It enables the communication via Web Server (http). The Web Server provides full access to all information of ZGR PCS GRID: voltage and current measures, alarms, configuration, etc.



### TECHNICAL SPECIFICATIONS

Model	ZGR PCS GRID 150	ZGR PCS GRID 300
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### ELECTRICAL CHARACTERISTICS

AC nominal voltage	150 kVA	300 kVA
AC nominal voltage	3 x 400 V	
Nominal frequency	50 / 60 Hz	
Power factor	1 adjustable ± 0.8 (without exceeding the apparent power of the inverter)	
Phase nominal current	217 A	435 A
AC current distortion	< 3 % THD at nominal power <sup>(1)</sup>	
Battery voltage	600 – 850 Vdc <sup>(2)</sup>	
DC maximum current	257 A	515 A
Peak efficiency	97 %	
Battery charging current limitation	Configurable	

### COMMUNICATIONS

Monitoring	Web interface, LCD control panel, LED signalling
Communications	SNMP, Ethernet

### MECHANICAL AND ENVIRONMENTAL CHARACTERISTICS

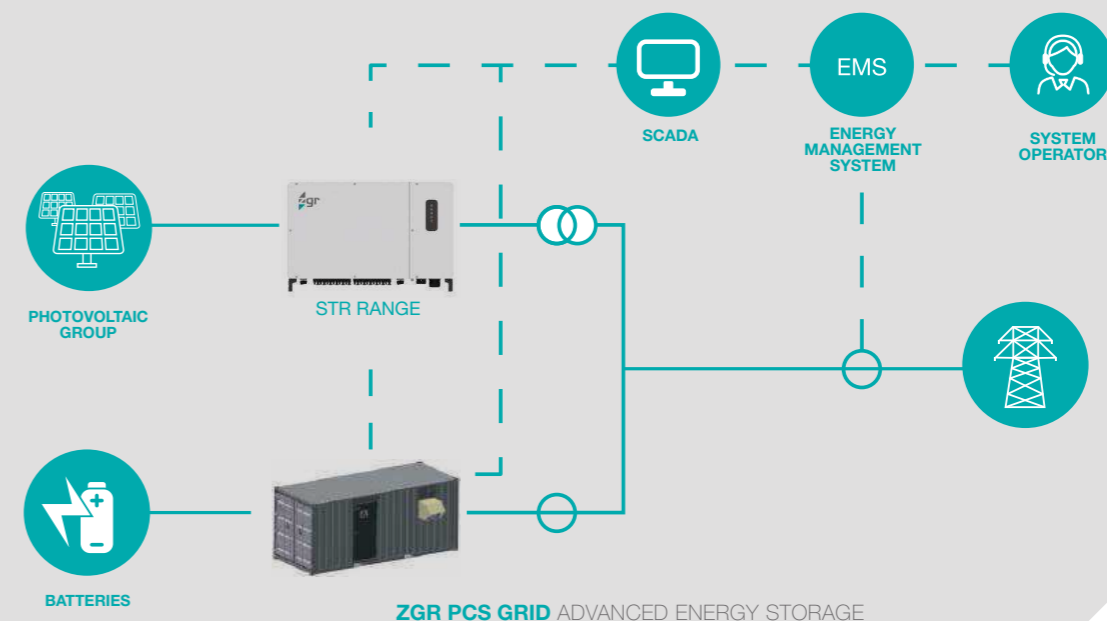
Protections	AC surge, AC low voltage, over and under frequency, DC surge
Cooling	Forced ventilation
Range ambient temperature	-10 °C ~ +50 °C
Degree of protection	IP20
Operating altitude	< 1000 m without power loss
Relative humidity	0 a 95 % without condensation
Dimensions (HxWxD)	800 x 2150 x 600 mm
Approx. Weight	360 kg   450 kg

### STANDARDS

Marks	CE <sup>(3)</sup>
General directives	IEC 62909-1, IEC 62477-1+AMD1, CISPR-11, CISPR-11, UNE 217002, UNE 206007-1 IN

<sup>(1)</sup> For THDV < 1% and nominal power  
<sup>(2)</sup> The voltage of the battery must not exceed this value in any case  
<sup>(3)</sup> With isolation transformer and external filter  
 To customize the equipment consult ZIGOR  
 These specifications may change without notice

### Use case



# ZGR PCS 3300

## BIDIRECTIONAL BATTERY CHARGER - 1500V

The **ZGR PCS 3300** optimally manages storages systems by providing the necessary grid services.

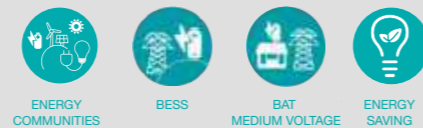
ZGR PCS is a three-phase charger with the latest control technology over the bidirectional flow of energy. The main application in the management of charging and discharging batteries using energy available on the grid.

The ZGR system facilitates the integration of renewable energy sources and allows reducing investments in the grid, improving stability, and enabling an increase in energy generation and demand. Thanks to the different modes of operation implemented (Control of Power, Voltage, Frequency, and inertia emulation), ZGR PCS offers grid operators a fundamental tool to maintain the operating conditions of the grid within appropriate quality standards.

In addition, it has a Black Start function, increasing the manageability of the energy available in the batteries.



### Applications



### Characteristics

- DC voltage range (950 - 1500Vdc)
- Harmonic distortion, THD < 3%
- Automatic operation modes:
  - Frequency control
  - Voltage control
  - Black Start (Active Power Reserve Mode)
  - Active/Reactive Power Control
- Quick response to change setpoints of control.
- Wide working temperature range between -20°C and +50°C.
- Modular.
- AC Protections:
  - Short circuit and overload
  - Over and Under voltage
- IP55 protection grade
- Installation up to 4000 m.a.s.l.
- Reduced maintenance in operation
- AC and DC disconnectors
- Remote monitoring
- DC Protections:
  - Reverse polarity
  - Short circuit
  - Surge
  - Insulation failure detection

TECHNICAL SPECIFICATIONS	
Model	ZGR STORAGE PCS 3300
INPUT [DC]	
Minimum input voltage, Vdc min	950 V
Maximum input voltage, Voc max	1500 V
Maximum input current, Idc	3158 A
Corriente de cortocircuito max. Isc	250 kA
Number of inputs	4
DC fuses size	Fuse NH3 315A, 350 A, 355A, 400A (Screwable)
OUTPUT [AC]	
Rated power [cos phi = 1 (50°C)]	3000 kW
Maximum output current, Iac	2510 A
Rated voltage	690 V ± 10%
THDi	<3% at rated power
Grid frequency	50 Hz / 60 Hz (± 5 Hz)
Maximum output current, Iac	50kA
EFFICIENCY	
Max / European / Californian	98,9 % / 98,7 % / 98,6%
PROTECTIONS	
DC connection point	DC Breaker
AC connection point	AC Breaker
DC surge protection	Surge arrester, type II
AC surge protection	Surge arrester, type II
Ground fault monitoring	Isolation monitoring IMD
Degree of protection (according to IEC 60529)	Outdoor - IP55
ENVIRONMENTAL AND MECHANICAL CHARACTERISTICS	
Dimensions (Height x Width x Length)	2529 x 2014 x 2850 mm
Weight	5250 Kg
Self-consumption (stand-by)	< 370 W
Internal auxiliary power supply	Integrated transformer
Operating temperature range	-20°C - +60°C (Max power up to 50°C)
Noise emissions	<65 dB @2m
Max. relative humidity (without condensation)	0 % a 95 %
Max. operating altitude (without derating / with derating)	2000 m / 4000 m
Air consumption	8000 m3 / h
EQUIPMENT	
DC connection	Connecting bar for cable terminal at each inlet
AC connection	Three bus bars, one per phase
COMMUNICATIONS	
Communications	Ethernet, Modbus TCP
REGULATIONS	
Certifications and Standards	UNE-EN IEC 62109-1; UNE-EN IEC 62109-2; EN 61000-6-2 & EN 61000-6-4; NTS 631

# TRANSMISSION AND DISTRIBUTION

In this catalogue we present solutions for safe DC and AC power supply, aimed at modernising transmission and distribution systems. Our equipment features key: **flexibility, robustness and maximum productivity**.

Faced with the challenge of accelerating **energy storage** and the advance of distributed electricity grids, ZGR's bet in 2023 is the **ZGR PCS 3300** solution, a three-phase inverter with the latest control technology on the bidirectional flow of energy, which enables intelligent management of the charging and discharging of batteries, using the energy available on the grid. The hybrid and modular system facilitates the integration of renewable energy sources and reduces grid investments by improving stability and enabling increased energy generation and demand. Thanks to its different operating modes (power, voltage and frequency control), it becomes an essential tool for grid operators.

In addition to this commitment of being a benchmark in electrical energy storage with devices designed, developed and manufactured by ZGR with the maximum guarantees and approvals, we highlight our technology and innovation in rectifier-chargers.

**ZGR's battery rectifier-chargers** are compact, high-performance based on the most advanced high-frequency switching technology. They are specifically designed to ensure uninterrupted operations during Grid Faults Ride Through events.

Our **TPS range**, available in various power ratings, comprises compact Smart Grid switched rectifier-chargers. These solutions are designed to optimize smart electricity distribution networks, ensuring the reliable supply of automated medium-voltage centers and lines. They are tailored for applications such as switching and distribution centers (CRM), transformer substations (CT), reclosers (REC), and on-grid circuit breakers (OCR).

For conventional networks, we also have the **MIT range**, consisting of battery rectifier-chargers with conventional thyristor technology, controlled by microprocessor and in single-phase and three-phase versions. To our proven knowledge and benchmark in thyristor technology we have added the functionalities of microelectronics, which results in very complete, robust and highly productive solutions, due to their modular design and conception allow for adaptation and customization to suit each project's requirements.

In **railway networks**, we propose solutions that help to eliminate harmonic pollution, in line with the most advanced state of the art in power electronics.

In addition, we have our own **technical service** and a **team of experts** working closely with the specialised areas of our customers. This collaboration allows us to develop tailor-made solutions, positioning us a strategic partner aligned with business objectives and return on investment.

# ZGR TPS 120

## COMPACT SWITCHING CHARGER – RECTIFIER

Thanks to the switching technology, **ZGR TPS 120** are high performance compact equipments

The range of ZGR TPS 120 chargers based on high frequency switching technology benefits from the advantages inherent in such technology achieving a compact and easy-to-use equipment that can be installed in confined spaces.

ZGR TPS 120 units integrate all the functions of a high-performance charger in the same module, such as load management, battery disconnecter, remote alarms, protections, etc.

The ZGR TPS 120 are offered as independent modules or integrated into complete systems, which are adapted to the needs of the customer and available in voltages of 48 Vdc, 24 Vdc or 12 Vdc.

Standard



Cabinet



### Applications



### Characteristics

- Cost-effective and reliable
- Connection strip built into the unit itself
- Natural convection
- Easy installation and maintenance of batteries
- Switching technology
- Wide range of voltage from 12 to 48 V
- Control and signalling
  - Battery minimum voltage
  - Voltmeter and ammeter \*
- Charger fault
- Dry contacts for remote signalling
- Battery management
  - Ni-Cd or Lead-acid batteries
  - Battery and load protection fuses
  - Current limitation
  - Low Voltage Disconnection (LVD)

\* Optional

### TECHNICAL SPECIFICATIONS

Model ZGR TPS 120

### INPUT ELECTRICAL CHARACTERISTICS

Nominal voltage 220 V ± 10 %  
*Customized configurations under demand*  
 Nominal frequency 50 Hz ± 5 %

### OUTPUT ELECTRICAL CHARACTERISTICS

	TPS 120	Flotation voltage (Pb)	Flotation voltage (Ni-Cd)	Elements (Pb) / (Ni-Cd)
Presence of mains and charged battery	12 V / 10A	13.65 V ± 1 %	-	6 / -
	24 V / 5A	27.3 V ± 1 %	27 V ± 1 %	12/18
	48 V / 2,5A	54.6 V ± 1 %	55.5 V ± 1 %	24/37
Mains absence	Pb 48V 2.5A	Battery capacity in Ah (20 h at 1.75 V/cell)	Autonomy at nominal current (8-10 A)	Maximum recharging current of the battery
		7	2h.	0.7A
	Pb 24V 5A	12	3h. 45 m.	1.2A
		18	6h.	1.7A
	Pb 12V 10A	12	1 h. 30m.	1.2A
		18	2h.40m.	1.7A
	Ni-Cd 48 V 2.5A	26	4h.15m.	2.7A
		18	1 h.	1.7A
	Ni-Cd 24 V 5A	26	1 h. 45m.	2.5A
		33	3h.	3.7A
	Ni-Cd 12 V 5A	4	1 h. 30 m.	0.13A
		7	2 h. 30 m.	0.23A
Ni-Cd 6 V 5A	14	5h.	0.46A	
	4	45 m.	0.13A	
Ni-Cd 3 V 5A	7	1 h. 15m.	0.23A	
	14	2 h. 30m.	0.46A	

### MECHANICAL AND ENVIRONMENTAL CHARACTERISTICS

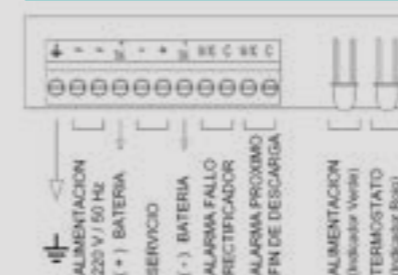
Operation temperature range 0°C ~ +50°C  
 Storage temperature -40°C ~ +80°C  
 Cooling Natural convection  
 Operating altitude ≤ 1000 m  
 Relative humidity 5 ~ 95 % (without condensation)  
 Dimensions (HxWxD) 100 x 122 x 285 mm  
 Approx. Weight 2.2 kg

### STANDARDS

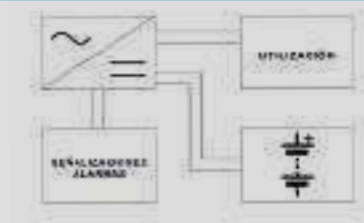
Low voltage european directive 73/23/CEE-93/68/CEE  
 EMC european directive 89/336/CEE-93/68/CEE

*These specifications may change without notice*

### Connections



### Internal architecture



# ZGR TPS 120/200 NG

## COMPACT SWITCHING CHARGER – RECTIFIER SMART GRID

ZGR TPS 120/200 NG have compact design in high frequency technology

ZGR TPS 120/200 NG equipments are 48 V battery rectifiers-chargers, capable of managing lead or lithium batteries of up to 18 Ah of capacity for industrial applications, remote controls, remote control for transformer centres and applications a power supply secure tele-controlled in needed.

The total powers that these equipments can supply are 120 W and 200 W respectively. They can also supply (without battery) 10 seconds lasting peaks of 180 W and 400 W, depending on the model. The galvanic isolation between input and remaining circuits is 1 0kV. Unlike other equipments, ZGR TPS 120/200 NG range includes a system to test the state of health of the battery. This battery test can be done automatically or manually from outside.

ZGR TPS 120/200 NG has an Ethernet connection through which locally or remotely, it can be monitorized, make changes over the settings, even update the equipments firmware. It also supports SNMP to incorporate in the supervision systems.



### Applications



### Characteristics

- Compact design
- High efficiency
- High frequency switching
- Easy installation and maintenance
- Battery management
  - Automatic and periodic battery test
  - Autonomous Energy Management
  - Communication with battery BMS (only lithium version)
- Control and signalling
  - Integrated communications with web services or SNMP for configuration and reading of equipment measurements
  - Web interface for displaying variables and status, setting parameters and alarms, viewing event log, sending orders and updating firmware remotely
  - Dry contact alarms

### Connectivity and Monitoring

Communication gateway integrated: It enables the communication via Web Server (http). It includes advanced authentication (LDAP), parameterization, (XML) and time synchronization (NTP) features.

The Web Server allows the user to access the following data: status, measurements, configuration, alarms, control, network, equipment, etc.



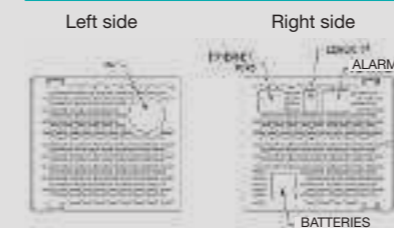
TECHNICAL SPECIFICATIONS		
Model	ZGR TPS 120 NG	ZGR TPS 200 NG
<b>AC INPUT ELECTRICAL CHARACTERISTICS</b>		
Power supply voltage	230 Vac -20% /+15% <sup>(1)</sup>	
Nominal frequency	50 – 60 Hz	
Power factor	> 0.6	
<b>OUTPUT ELECTRICAL CHARACTERISTICS</b>		
Output voltage / Battery in fast charge mode (lead version)	59V ± 0.5 %	Configurable temperature compensation
Output voltage/ Battery in flotation mode (lead version)	54.24V ± 0.5 %	
Output voltage (lithium version)	55.6V	
Voltage range	39 – 60 V	
Ripple	< 50mVpp	
Maximum total permanent current	3A	5.2A
Maximum current during 10 mins	4.6A	10.3A
Permanent total power	120W	200 W
Total power during 10 mins	180W	400 W
Efficiency	> 75 %	
Battery charge current limitation <sup>(2)</sup>	0.25 A	1.3A
<b>COMMUNICATIONS</b>		
Monitoring	Web interface	
Communications	Ethernet, SNMP, MODBUS TCP	
<b>PROTECTIONS</b>		
Battery	Temperature compensation (configurable), electronic limitation of the charging current, protection against deep discharge of the battery by means of a relay in series	
AC input	Overcurrent protection by input fuse	
DC output	Varistor surge protection, electronic limitation of the charger current	
Dielectric rigidity Input - Other circuits	10 kVac 50Hz 1 min	
Dielectric rigidity Ground - Output	2 kVac 50Hz 1 min	
<b>MECHANICAL AND ENVIRONMENTAL CHARACTERISTICS</b>		
Cooling	Natural convection	
Range ambient temperature	-10°C – +60°C	
Degree of environmental protection	IP20	
Operating altitude	< 1000 m without power loss	
Relative humidity	5 to 90 % without condensation	
Dimensions (W x D x H)	250 x 115 x 130mm (rear fixing 280 x 115)	
Approx. Weight	5kg	
<b>STANDARDS</b>		
Marks	CE	
General directives	2006/95/CE (UNE-EN 61000-6-2 UNE-EN 61000-6-4) 2006/95/CE (EN 50178)	

<sup>(1)</sup> Optional other input voltages

<sup>(2)</sup> Parameterizable according to the characteristics of the battery up to the maximum current of the equipment

These specifications may change without notice

### Connections



# ZGR SWIT NG

## SWITCHING CHARGER - RECTIFIER

ZGR SWIT NG modules and equipments provide maximum efficiency with a highly compact design

The range of ZGR SWIT NG chargers, based on high frequency switching technology, benefits from the advantages inherent in such technology achieving a compact and easy-to-use equipment that can be installed in 19" cabinets.

ZGR SWIT NG units integrate all the functions of a high-performance charger in the same module, such as charge management, battery current limitation, remote alarms, end of discharge, protections, among other functions.

ZGR SWIT NG are offered as independent modules or integrated into complete systems. ZIGOR has developed the ZGR SWIT NG range, a rectifier / charger system that ensures the supply of consumers at all times, both in the presence of the mains and in the absence of it, until the end of the system's battery autonomy.

ZGR SWIT NG System



ZGR SWIT NG Module



### Applications



### Characteristics

- High efficiency
  - Wide range of customized solutions from 500 to 1000 W in 24/48/110/125V
  - Integrated battery disconnecter
  - Reduced voltage harmonic distortion
  - Low input current distortion
  - Battery temperature compensation\*
  - Easy installation, front wiring
  - Ni-Cd or sealed Pb battery management
  - Installation in integrated wall cabinet, module 19" and battery
  - Control and signalling
    - Rectifier defect
    - Battery ground leakage\*
    - Maximum output voltage
  - Next end of autonomy
  - Presence of mains
  - Voltmeter and ammeter\*
  - Dry contacts for remote signalling
  - Protections
    - Magnetothermal battery protection
    - Overvoltage protection
    - Input fuse protection\*
    - Module over-temperature
    - Short-circuit
    - Current limitation
    - Low Voltage Disconnection (LVD)
- \* Optional

### TECHNICAL SPECIFICATIONS

Model	ZGR SWIT NG		
Output voltage	24Vcc	48Vcc	110/125 Vcc

### INPUT ELECTRICAL CHARACTERISTICS

Nominal voltage	230 V ± 15 %		
Nominal frequency	50 Hz ± 10 %		
Power factor	0.99 for charge > 60 %		

### OUTPUT ELECTRICAL CHARACTERISTICS

Nominal voltage	24Vdc	48Vdc	110 / 125Vdc
Nominal frequency	20 or 40 A	10 or 20 A	4 or 8 A
Output voltage ripple	< 100 mVrms	< 100 mVrms	< 100 mVrms
	< 200 mVpp	< 200 mVpp	< 300 mVpp
Charge current limitation	20A ± 5 %	10A ± 3 %	4A ± 5 %
Short-circuit current	< 20A	< 10A	< 5.5A
Efficiency	> 87 %		

### BATTERIES

Num. of elements Pb	12	24	54 or 60
Num. of elements Ni - Cd	18 ÷ 20	36 ÷ 40	86 or 98
Output voltage	18 - 30Vdc	36 - 60Vdc	83 - 144Vdc

### MECHANICAL AND ENVIRONMENTAL CHARACTERISTICS

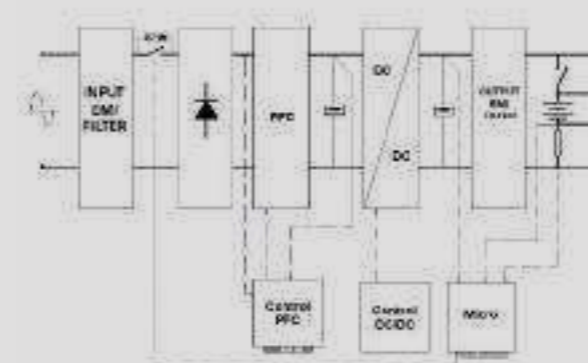
Protections	Battery circuit breaker protection, surge protection, input fuse protection, module overtemperature, short-circuit, current limitation, end of discharge limitation
Operation temperature range	0°C to 50°C
Storage temperature	-40°C - +80°C
Operating altitude	≤ 1000m without power loss
Relative humidity	< 95 % without condensation
Dimensions (HxWxD)	132 x 483 x 278mm

### STANDARDS

Low voltage european directive	CE, UNE - EN 50178 (1998)
EMC european directive	UNE - EN 61000-6-2 (2001), UNE - EN 61000-6-4 (2001)

*Special configurations on demand  
These specifications may change without notice*

### Internal architecture



### Complete system with batteries



# ZGR TELSIS APS

## MODULAR SWITCHED RECTIFIER-CHARGER

The range of **ZGR TELSIS APS** rectifier/chargers combine great flexibility with high-performance

The ZGR TELSIS APS rectifier/chargers have been designed to respond to new market needs for battery chargers, by improving the performance and flexibility of the systems both for telecom and industrial applications. As it is a modular device, initial oversizing is not necessary which means an initial investment saving. This reduced size and high energy density mean that it can be installed in the same room as the loads and, consequently, shorter distances and smaller wire cross-sections are required, thus obtaining improvements in distribution. The high frequency switching technology allows it to be connected in parallel with automatic load distribution. Furthermore, they allow the configuration of n+1, n+2 redundant systems. In addition, these rectifiers operate autonomously without the need for any auxiliary element and are controlled and managed at all times by the Central Management Unit. Thanks to the remote communication possibilities, the ZGR TELSIS APS systems can be controlled and monitored in real-time from a single control centre. This characteristic means that possible problems can be diagnosed sufficiently in advance in order to plan maintenance interventions, both preventive and corrective, which results in a cost reduction (labour, travelling, etc.)



### Applications



### Characteristics

- Compact design
- High-efficiency
- Easy maintenance Hot plugging modules
- Device control and monitoring by Web Server
- Progressive power increase potential
- Configuration of n+1, n+2 redundant systems
- Applications
  - Telecommunications
  - Operation of on/off switches in high and medium-voltage distribution circuits
  - Converter power supplies
  - Emergency lighting systems, large surface areas, etc.
  - Signalling, control and command centres.
  - Solar energy applications
  - DC security applications
  - Electricity substations and power plants

### Connectivity and Monitoring

ZGR TELSIS APS provides centralized monitoring, control and management of chargers – rectifiers. Supervision is based on a series of elements that incorporate microprocessors and are linked by an internal communications network.

The fundamental elements are:

#### Central Management Unit

It presents the status of the equipment, allows local action and configuration and acts as an external communication link.

#### Communication gateway (optional)

It allows remote communication via SNMP and WEB (http).

The central supervision unit and the gateway (optional) are integrated.

#### Rectifier module

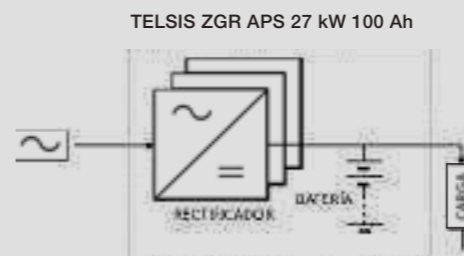
It includes the intelligence necessary for monitoring its status, alarms, cooling control, output voltage, current limitations, etc.



### TECHNICAL DETAILS

System	TELSIS APS 48 V	TELSIS APS 125 V
Module	ZR3048 (48 V / 3000 W)	ZR30110 (125 V / 3000 W)
<b>ELECTRICAL INPUT CHARACTERISTICS</b>		
Voltage range	85 -185 -300 Vac	90 - 175 - 300 Vac
Frequency range		45 - 65Hz
Power factor	> 0.99 from 20% - 100 % output power	
Efficiency	> 92 % (> 50 % output power)	
Maximum input current	19 A / module	
<b>ELECTRICAL OUTPUT CHARACTERISTICS</b>		
Rated Voltage	48 Vdc	125 Vdc
Voltage range	43 - 60V	80 - 155 V
Power range	3000 - 36000 W	3000 - 27000 W
Maximum current	720 A (@ 48 V)	225 A (@ 125 V)
<b>MECHANICAL AND ENVIRONMENTAL CHARACTERISTICS</b>		
Protections	Automatic over-temperature shutdown, reverse polarity output, adjustable overvoltage limit and battery test	
Operating temperature range	-10°C ~ +50°C (70°C with automatic power reduction)	
Storage temperature	-20°C ~ +70°C	
Operating altitude	< 2500m	
Relative humidity	5 to 95 % without condensation	
<b>STANDARDS</b>		
Marking	CE	
General directives	2004/108/CEE, EMC (61000-6-4, 61000-6-2), IEC 60146-1-1, EN 50178	

### Block diagram





# ZGR MIT NG

## HIGH RELIABILITY CHARGER-RECTIFIER

ZGR MIT NG range, thanks to the robustness of its design, ensures a high-reliability continuous current supply

ZGR MIT NG range consists of battery chargers - rectifiers of conventional thyristor technology, controlled by microprocessor, in single-phase and three-phase product versions.

ZGR has combined the proven reliability of thyristor technology with the microelectronics functionalities, offering the ZGR MIT NG range at a maximum level in terms of performance and features.

The ZGR MIT NG range ensures the user a quality continuous supply. ZGR's wide experience in power electronics systems has allowed the design of a range of easily customizable equipment.



### Applications



### Characteristics

- Galvanic isolation
- Complete thyristor bridge
- Automatic disconnection due to minimum battery voltage (LDV)\*
- Voltage dropping device\*
- Temperature and electrolyte level sensors\*
- Hall effect current sensors\*
- Customized output voltage filtering according to user specification\*
- Thermomagnetic input protection
- Overvoltage protection by varistors at input and output
- Distribution adaptable to user requirements
- Control and signalling
  - Battery voltage and load measurements
  - Charger, battery and load current measurements
- Comprehensive monitoring and signalling of charger status
- Local alarms with LCD and remote with relays
- Communications and remote management gateway with the possibility of implementing different protocols: MODBUS, SNMP, etc. \*
- Battery management
  - Charge Ni-Cd (open) y Pb (open and sealed)
  - Battery and charger current limitation
  - Charging modes:
    - Ni-Cd and Pb open: flotation, fast charge, exceptional charge
    - Pb sealed: flotation, fast charge, automatic fast charge and manual charge

\* Optional

### Connectivity and monitoring

Communication gateway integrated. It enables the communication via Web Server (http).

The Web Server provides full access to all information of ZRG MIT NG: status, measurements, configuration, alarms, control, network, equipment, etc.



### TECHNICAL SPECIFICATIONS

Model	ZGR MIT NG 1	ZGR MIT NG 3
<b>INPUT ELECTRICAL CHARACTERISTICS</b>		
Nominal voltage <sup>(1)</sup>	230V + 10 - 15 %* (Single-phase)	400V + 10 - 15 %* (Three-phase)
Frequency	50/60 Hz ± 5 %	
Power factor	0.7 - 0.9 (on request)	
<b>OUTPUT INPUT ELECTRICAL CHARACTERISTICS</b>		
Nominal voltage	12/24/48/110/125/220V	
Ripple voltage with batteries	< 1 %	
Ripple voltage without batteries	< 2 %	
Ripple current in batteries <sup>(1)</sup>	≤ 5 %	
Voltage stability <sup>(1)</sup>	± 1/2 % (with/without battery)	
Dynamic regulation	< 2 % (10-90 % of charge)	
Charger current limitation <sup>(1)</sup>	100 % (up to 120 % optional)	
Battery charge current limitation	Configurable	
Transfer time	< 300 ms	
<b>COMMUNICATIONS</b>		
Monitoring	Webserver TCP/IP, control panel	
Communications	ModBus RS485	
<b>OTHERS</b>		
Active parallel	Optional (up to 2 units)	
Dry contacts	4 (8 optional)	
Protections	Overvoltage, over-temperature, current limitation, short-circuit, input/output high/low voltage	
Cooling <sup>(1)</sup>	Natural convection	
Working temperature	0°C ~ +45°C (+50°C on demand)	
Protection degree	IP 21 (on request up to IP54)	
Noise level	< 63 dBA	
Operating altitude	< 1000m without power loss (up to 4500 m on demand)	
Relative humidity	0-95 % without condensation (up to 100% on demand)	
<b>STANDARDS</b>		
Marks	CE	
General directives	EN 50178 (1998), EN 61000-6-4 (2001), EN 61000-6-2(2001), EN 61000-3-2, EN 61000-3-3, IEC 60146-1-1	

*Special configurations on demand  
These specifications may change without notice*

ZGR MIT NG STANDARD RANGE		Current (A)									
Output voltage	Model	5	7.5	10	15	25	35	50	75	100	125
12V	MIT NG 1	■	■	■	■	■	■	■	■	■	■
	MIT NG 3	■	■	■	■	■	■	■	■	■	■
24V	MIT NG 1	■	■	■	■	■	■	■	■	■	■
	MIT NG 3	■	■	■	■	■	■	■	■	■	■
48V	MIT NG 1	■	■	■	■	■	■	■	■	■	■
	MIT NG 3	■	■	■	■	■	■	■	■	■	■
110-125V	MIT NG 1	■	■	■	■	■	■	■	■	■	■
	MIT NG 3	■	■	■	■	■	■	■	■	■	■
220V	MIT NG 1	■	■	■	■	■	■	■	■	■	■
	MIT NG 3	■	■	■	■	■	■	■	■	■	■

CONNECTIVITY

CUSTOMIZABLE

# ZGR MIT

## HIGH RELIABILITY RECTIFIER-CHARGER FOR SMART GRIDS

The **ZGR MIT** range, thanks to its robust design and high performance, ensures high reliability DC power to critical consumers on Smart Grids

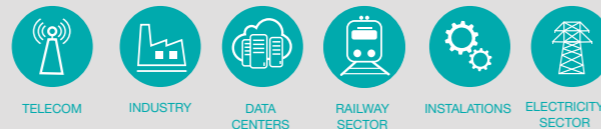
Given the current requirements of new smart grid developments, the ZGR MIT range represents a major evolution in customisation and innovation over the conventional ZGR MIT range.

The new single-phase and three-phase ZGR MIT systems allow the user to have high quality DC power at the same time as the highest performance required by Smart Grids.

The wide knowledge of ZGR in this type of solution has allowed to adapt to the fast trend of the market, providing the customer with a differential value in monitoring and configuration of the characteristics of the power solution at both hardware and software level.



### Applications



### Characteristics

The ZGR MIT has the characteristics of the ZGR MIT NG and also:

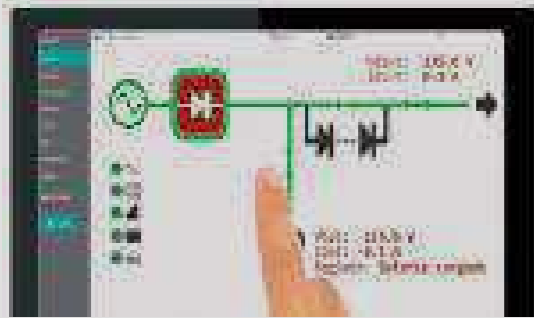
- 7" Multifunction Touch Screen
- Possibility of paralleling equipment
- Active load-sharing
- Battery test
- Calibration and parameterisation of the equipment via Ethernet/Display
- Management of redundant equipment and dual power systems with single control panel
- Automatic switching via internal management
- Measurement of battery temperature
- Configurable digital inputs
- Signaling alarm cards with LEDs in each relay.
- Remote sensing of battery parameters (temperature sensor, LVD, electrolyte level, voltage, current....)
- Multiple topologies
- Soft start
- Signalling and control
  - Local and remote management
  - Web interface for displaying variables and status, setting parameters and alarms, displaying events historic, sending orders and updating firmware remotely.
- Battery management
  - Charge Ni-Cd, Pb and Li batteries
  - Limitation of charger and battery current
  - Loading regimes:
    - Ni-Cd: floating, automatic fast loading, loading manual, exceptional load
    - PB: floating, manual loading, periodic loading
    - Lithium: depending on battery

### TECHNICAL SPECIFICATIONS

Model	ZGR MIT 1	ZGR MIT 3
<b>INPUT ELECTRICAL CHARACTERISTICS</b>		
Rated voltage (Vac)	120 / 127 / 220 / 230 / 240 / 277 V ± 10 / 15 / 20%	208 / 220 / 380 / 400 / 415 / 480 V ± 10 / 15 / 20%
Power factor	0.7 - 0.95 (on request)	
Frequency	50 / 60 Hz ± 5%	
<b>OUTPUT ELECTRICAL CHARACTERISTICS</b>		
Rated voltage (Vcc)	24 / 48 / 110 / 125 / 220 / 370 V	
Ripple voltage with batteries	± 1,5 %	
Ripple voltage without batteries	< 2 %	
Ripple current in the battery	≤ 5 %	
Voltage stability	± 1 / 2 % (with/without battery)	
Dynamic regulation	< 2 % (10-90 % load)	
Charger Current Limitation	100 % (up to 120 % optional)	
Limitation of battery charge current	Configurable	
Transfer time	< 300 ms	
<b>MONITORING</b>		
Control panel	7" Touch Screen and LED indicators	
Communications	Webserver TCP/IP, Modbus TCP, DNP3, MMS, SNMP, web services	
<b>PROTECTIONS</b>		
Overtemperature	Yes	
Overvoltage	Yes	
Current limitation	Yes	
Shortness	Yes	
High/low input/output voltage	Yes	
<b>OTHER</b>		
Parallel	Optional (up to 2 units)	
Dry contacts	4 (optional up to 12 on 4 cards)	
Battery test	Yes, discharge test	
Alarms	Yes, configurable, possibility to add external events	
Type of protection	IP 20 (on request up to IP54)	
Cooling	Natural or forced convection according to power	
Noise level	< 60 db depending on model	
Working temperature	Indoor not conditioned (4-40°C)	
Altitude	1,000 m without power reduction (up to 4,500 m on demand)	
Relative humidity	0 - 95 % (without condensation)	
Vibration	3M1 Class (1 m/s)	
Storage	+15°C ~ +25°C / 30-90 % HR	
<b>STANDARDS</b>		
Marking	CE	
General directives	EN 50178 (1998), EN 61000-6-4 (2001), EN 61000-6-2(2001), EN 61000-3-2, EN 61000-3-3, IEC 60146-1-1	
Specific directives	EN 60529, EN 50102, EN60255-5	

*Special configurations and other powers on demand  
These specifications can change without notice*

## Connectivity and monitoring



The new ZGR MIT incorporates a touchscreen on the front of the equipment improving user interaction.

### LOCAL CONTROL

**Screen:** Touch screen of 7".

**Menu:** Intuitive menu for equipment management and configuration.

**Alarms:** 5 LEDs bicolor to notify configurable events.

**Events:** Monitoring of equipment events and external events thanks to digital inputs.

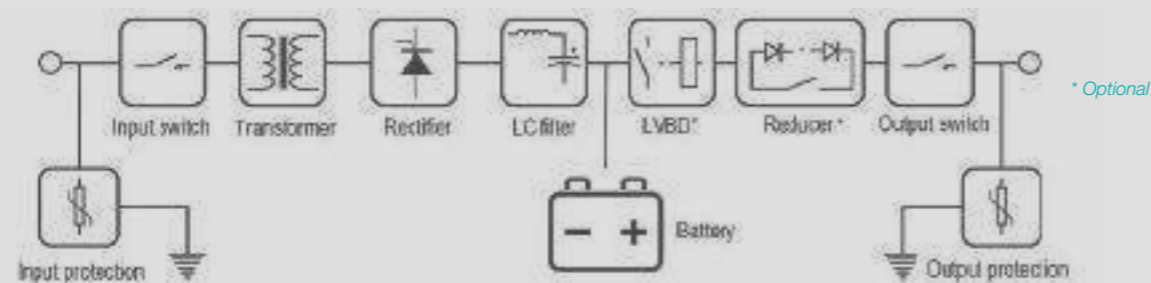
### REMOTE CONTROL:

**WEB Server:** Easy access to parameterisation and monitoring of all variables.

**Communications Protocol:** Multiple communications protocols for integration of equipment into the client network (DNP3, MODBUS RTU, MODBUS TCP/IP, MMS,...).

**Software:** Possibility of remote firmware update.

## Principle of operation



The power supply of the equipment is performed by direct connection to the AC current grid (50 Hz/60 Hz), either 230 V single phase (MIT1) or three-phase 400 V (MIT3). Also other nominal values on demand.

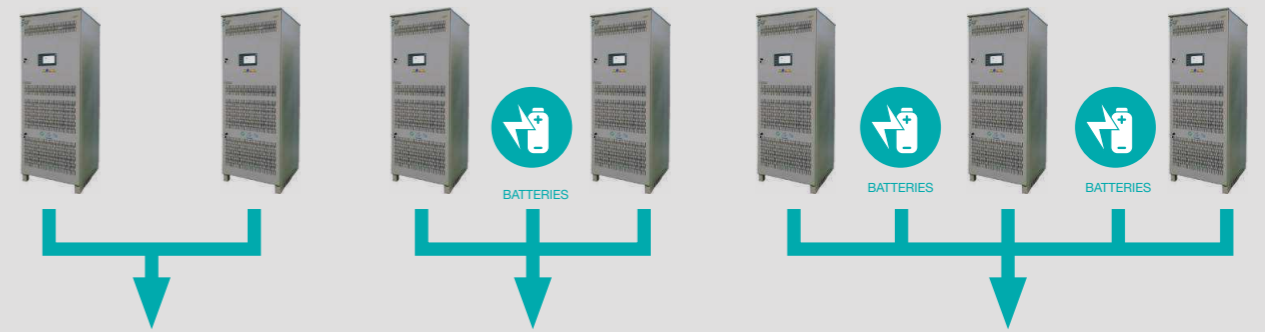
The MIT Charger is capable of charging both sealed or open lead and nickel-cadmium batteries at nominal voltages of 24, 48, 110, 125 and 220 V (others on demand). Also Lithium batteries according to the manufacturer's charging regime.

Optionally, the equipment could incorporate a voltage reducer (Reducer) to reduce voltage when voltage levels are harmful to loads.

The charger also has a power limitation on the output of the charger and on the battery charge so that these currents never exceed the pre-set limits and, thus, protect the correct operation of the equipment.

## Flexible architecture

There are multiple configuration possibilities for the MIT ZGR.



Other configurations and other powers under consultation.

### INTEGRAL MANAGEMENT:

The DSP (Digital Signal Processor) controls all of the system's analog and digital variables, thus making it the most efficient thyristor charger on the market.

**Soft start:** Control of the start-up current to avoid high consumption peaks.

**Load-sharing:** the charger efficiently controls the current supplied by dividing it among the total number of equipment.

**Events:** Monitoring of all variables, total customisation of events.



### FLEXIBILITY:

Capable of operating in countless topologies in the most efficient and accurate way.

**Topologies:** From the simplest configuration, charger + battery to parallel up to 7 systems with multiple remote batteries.

**Envelope:** Infinity of sizes and configurations of equipment, chests, cabinets, multiple cabinets, etc.

**Protection:** IP20, see other options.



### PROTECTIONS:

**Overvoltage:** Varistors card for both AC and DC protection.

**Over temperature:** Protection against overheating of the thyristor bridge as well as batteries and equipment.

**Current:** Limitation of battery charging current and use, protecting both equipment and battery.

**Short circuit:** Full bridge of short-circuitable thyristors, no additional protection required.

**Voltage:** High or low input or output voltage.



### BATTERIES:

Custom charger for each battery improving performance and service life.

**Types:** Compatible with energy accumulation technologies: NiCd, Pb, Li...

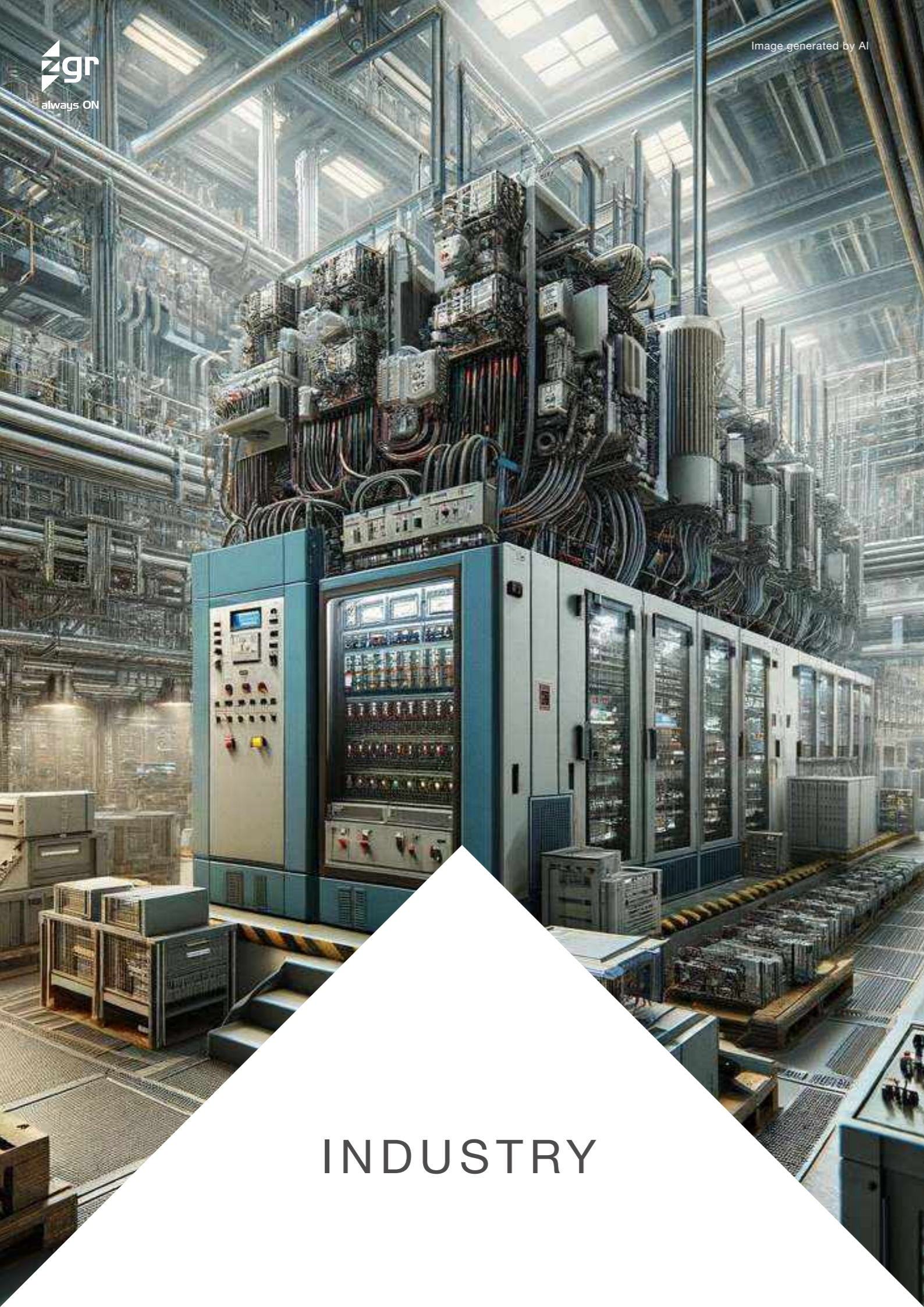
**Charging:** adjusted for each case, by UI load type, constant current/voltage constant.

**Management:** Battery test (discharge test) to analyse the state of the battery and avoid critical errors due to defect battery in emergency operation.

**Remote battery card:** Remote battery management, temperature measurement, current and end of remote discharge.

**Installation:** Inside the enclosure, or in independent rack (anti-seismic option).





# INDUSTRY

As specialists in **critical and demanding industrial environments**, we offer a wide range of power backup solutions.

We improve power quality in data centres, logistics centres, manufacturing, oil & gas, healthcare and automotive industries, among others. Our products are robust, flexible and of the highest productivity, crucial to guarantee the continuity in critical processes and avoid millions of dollars in losses and guarantee the security.

The **ZGR AVC DVR** and **ZGR AVC DVR High Power dynamic voltage stabiliser**, are unique in their ability to eliminate three-phase, two-phase and single-phase dips independently on each phase, are some of the solutions you can find on the following pages.

We also present offline uninterruptible power supply systems (**ZGR DVC SEPEC**), harmonic harmonisation (**ZGR FAA/AHF**) and a wide range of **industrial SAIs**, detailed in a special section of the catalogue.

Together, these are solutions that improve the productivity of industries by improving the quality of the power supply. **Modular and flexible**, our equipment can be adapted and customised for each project.

We have the **widest range of power and back-up ranges**, from small industrial consumption to large-scale installations.

A team of specialists will identify, in a **technical audit**, your needs and demands and, depending on them, will advise you on the most appropriate solutions for your case.

With our own **technical service**, we will be at your side not only in the installation and commissioning of the equipment, but also in the subsequent maintenance, ensuring the **maximum useful life** of the installed equipment and the highest operational profitability of your investment.

# ZGR AVC DVR

## DYNAMIC VOLTAGE RESTORER

**ZGR AVC DVR** is an innovative system of compensation of voltage sags for the continuity of industrial processes

ZGR AVC DVR is an innovating system designed to mitigate and eliminate the effect of electrical disturbances on critical industrial processes through the elimination of sags and a continuous regulation for minor disturbances. ZGR AVC DVR guarantees the quality of the grid meeting the demands of industrial production processes while keeping stable and constant the output voltage regardless of energy grid voltage variations. It consists of a transformer, a bidirectional rectifier unit, plus an inverter. The aim of the ZGR AVC DVR is to compensate disturbances, unbalanced voltages, and to regulate them in case of possible fluctuations and overvoltages. Moreover, ZGR AVC DVR monitors, controls and records events that occur in the system, allowing subsequent viewing through the touch control panel.

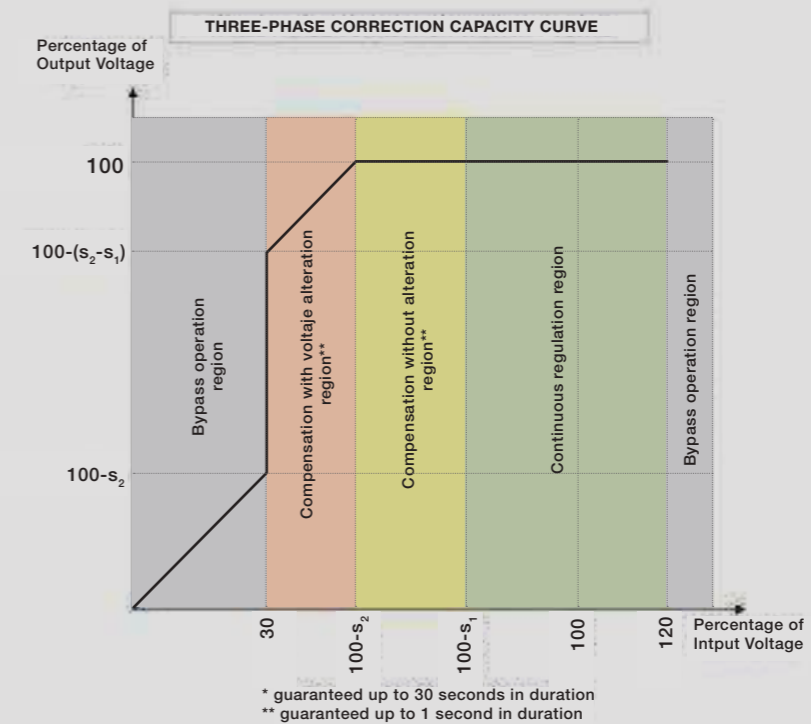
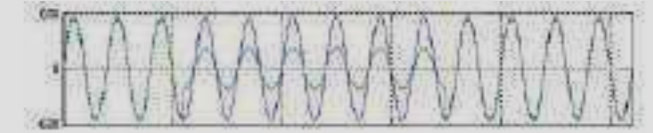


### Applications



### Operation

ZGR AVC DVR eliminates both three-phase and single-phase sags, considering that it compensates each phase independently. When a sudden drop in the input voltage (in green) occurs, ZGR AVC DVR acts quickly compensating it to ensure that the output voltage (in blue) remains stable.



### Characteristics

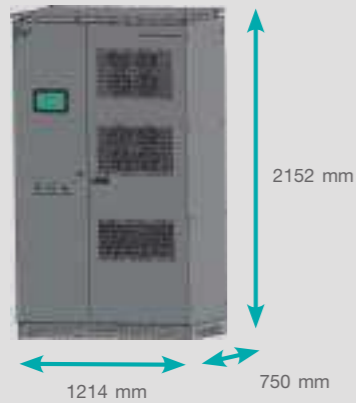
- Mitigates three-phase voltage sags up to 70% of depth or single-phase interruptions
- Continuous regulation to offer high stabilization ( $\pm 1\%$ )
- High efficiency supply system  $> 98\%$
- Not battery required or other energy storage components
- Compensation of voltage sags even for long times (up to 30 sec)
- Swell and overvoltage compensation
- Independent compensation per phase
- Compensation of balanced and unbalanced voltage drops
- Automatic bypass
- Withstand 150% overload for 1 second in normal mode
- Less than 3 milliseconds response-time
- Energy flow in both directions
- Quick response speed
- Touch control panel
- Customizable for other powers, sags and/or voltage
- Modular design which facilitates O&M
- Easy for connecting in parallel up to 3 equipments
- Mitigates voltage sags according the standards: SEMI F47, IEC 61000-4-11 and IEC 61000-4-34 (depends on the model)

Maximum Sag Correction ( $S_2$ )	Continuous regulation range ( $S_1$ )	AVC DVR System Power	System Configuration	Power per Unit	Manual Bypass	
					380/400/415 Vac Systems	200/208/220 Vac Systems
-40 %	$\pm 20\%$	300 kVA	M	300 kVA	630 A	1250 A
		600 kVA	M+S	300 kVA	1250 A	3200 A
		900 kVA	M+2S	300 kVA	2000 A	3200 A
-50 %	+20 % -25 %	220 kVA	M	220 kVA	630 A	1250 A
		440 kVA	M+S	220 kVA	1250 A	2000 A
		660 kVA	M+2S	220 kVA	2000 A	3200 A
-60 %	+20 % -30 %	150 kVA	M	150 kVA	630 A	630 A
		300 kVA	M+S	150 kVA	1250 A	1250 A
		450 kVA	M+2S	150 kVA	1250 A	2000 A

## Dimensions and weights

### AVC DVR 380 / 400 / 415 Vac

Weight: 1250 kg



### AVC DVR 200 / 208 / 220 / 480 Vac

Weight: 1600 kg



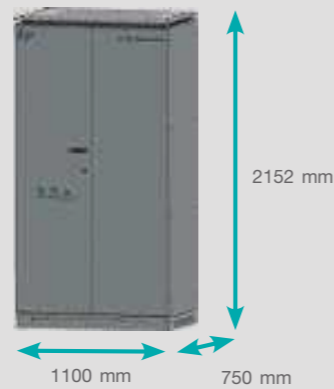
### Bypass Manual 630 A

Weight: 200 kg



### Bypass Manual 1250 / 2000 A

Weight: 375 kg (1250 A) / 575 kg (2000 A)



### Bypass Manual 3200 A

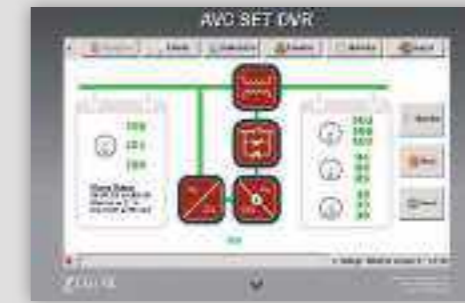
Weight: 775 kg



\* Systems that are not 380/400/415 Vac check dimensions.

## Monitoring

The control panel allows the user to access the following data: status, measurements, configuration, alarms, control, network, equipment, etc.



### TECHNICAL SPECIFICATIONS

Model	40 % sag models	50 % sag models	60 % sag models
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### INPUT ELECTRICAL CHARACTERISTICS

Nominal voltage	200/208/220 or 380/400/415 or 480 Vac		
Voltage range (Vac)	± 20 %	+ 20 % - 25 %	+ 20 % - 30 %
Phase	3 phases + ground (neutral optional)		
Frequency	50/60 Hz ± 10 %		
Frequency variation (df/dt)	4 Hz		

### OUTPUT ELECTRICAL CHARACTERISTICS

Voltage	200/208/220 or 380/400/415 or 480 Vac		
Power range	150 - 900 kVA/kW	220 - 660 kVA/kW	150 - 450 kVA/kW
Regulation	± 1 %		
Phase	3 phases + ground (neutral optional)		
Frequency	50 / 60 Hz		
Response time	< 3 ms		
Transfer time to Bypass	< 0.5 ms		
Overcharge capacity in normal mode	110 % - 30s, 150 % - 1s		
Overcharge capacity in bypass mode	200 % - 60s, 500 % - 10s, 3000% - 0.2s		

### GENERAL CHARACTERISTICS

Maximum efficiency	> 98%
Dielectric rigidity	2.5 kV - 1 minute
Control panel	Touch panel
Protections	Short circuits, current limitation, overload, RFI filter, necessary disconnections
Parallellable	Up to 3 equipments (Master + 2 slaves)
Maintenance switch	Yes (in slave equipments). Optional (in master equipments)
Protection degree	IP 20
Protective class	Class I
Pollution degree rating	2
Overvoltage category	III
Vibration	Class 3M1
IK impact degree	IK07
Cooling	Forced ventilation
Working temperature	0°C ~ +40°C
Storage temperature	0°C ~ +85°C
Noise level	< 65 dB
Altitude	< 1000 m
Relative humidity	0 ~ 95 %, without condensation

### STANDARDS

Marks	CE
General directives	IEC 62477-1, IEC 61000-6-2, IEC 61000-6-4, IEC 60721-3-3

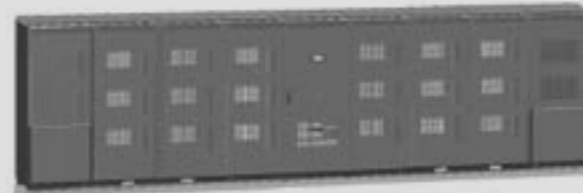
AVC DVR of Medium Voltage available up to 3,6 MVA  
 For different voltages, powers, or configurations for other kind of sags, consult ZIGOR  
 For any other technical need or modification of existing ones, consult ZIGOR  
 These specifications may change without notice

# ZGR AVCE DVR HIGH POWER

## DYNAMIC VOLTAGE RESTORER

**ZGR AVCE DVR HIGH POWER** for LV and MV is an innovative voltage sag compensation system for the continuity of industrial processes.

ZGR AVCE DVR HIGH POWER is an innovating system designed to mitigate and eliminate the effect of electrical disturbances on critical industrial processes through the elimination of sags and a continuous regulation for minor disturbances. ZGR AVCE DVR HIGH POWER guarantees the quality of the grid meeting the demands of industrial production processes while keeping stable and constant the output voltage regardless of energy grid voltage variations. It consists of a transformer, a bidirectional rectifier unit, plus an inverter. The aim of the ZGR AVCE DVR HIGH POWER is to compensate disturbances, unbalanced voltages, and to regulate them in case of possible fluctuations and overvoltages. Moreover, ZGR AVCE DVR HIGH POWER monitors, controls and records events that occur in the system, allowing subsequent viewing through the touch control panel.



### Applications

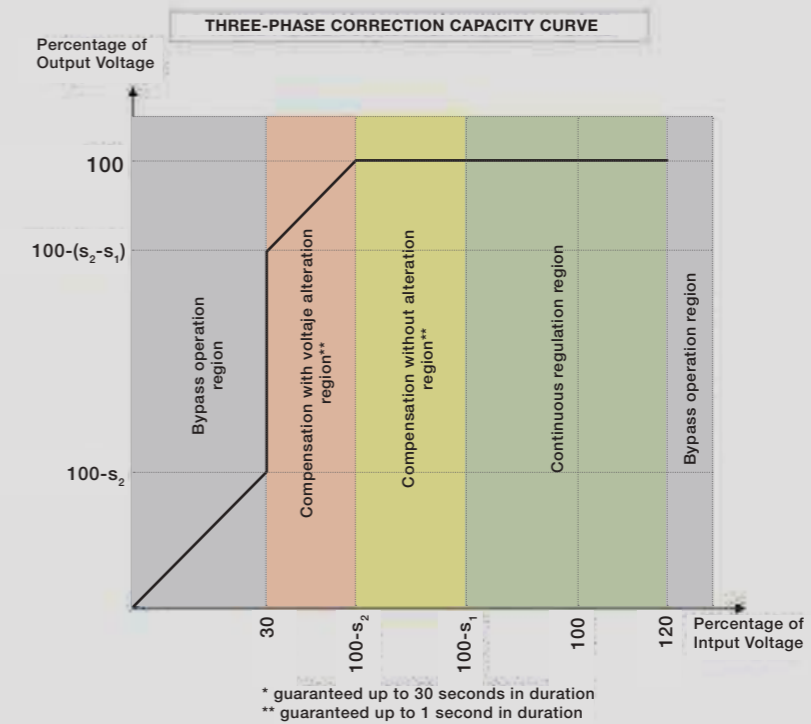
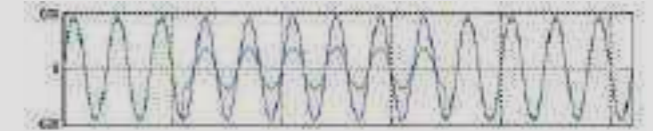


### Characteristics

- Mitigates three-phase voltage sags up to 70% of depth or single-phase interruptions
- Continuous regulation to offer high stabilization ( $\pm 1\%$ )
- High efficiency supply system  $> 98\%$
- Not battery required or other energy storage components
- Compensation of voltage sags even for long times (up to 30 sec)
- Swell and overvoltage compensation
- Independent compensation per phase
- Compensation of balanced and unbalanced voltage drops
- Automatic bypass
- Withstand 150% overload for 1 second in normal mode
- Less than 3 milliseconds response-time
- Energy flow in both directions
- Quick response speed
- Touch control panel
- Customizable for other powers powers, sags and/or voltage
- Modular design which facilitates O&M
- Possibility of a container solution
- Mitigates voltage sags according the standards: SEMI F47, IEC 61000-4-11 and IEC 61000-4-34 (depends on the model)

### Operation

ZGR AVCE DVR eliminates both three-phase and singlephase sags, considering that it compensates each phase independently. When a sudden drop in the input voltage (in green) occurs, ZGR AVCE DVR acts quickly compensating it to ensure that the output voltage (in blue) remains stable.

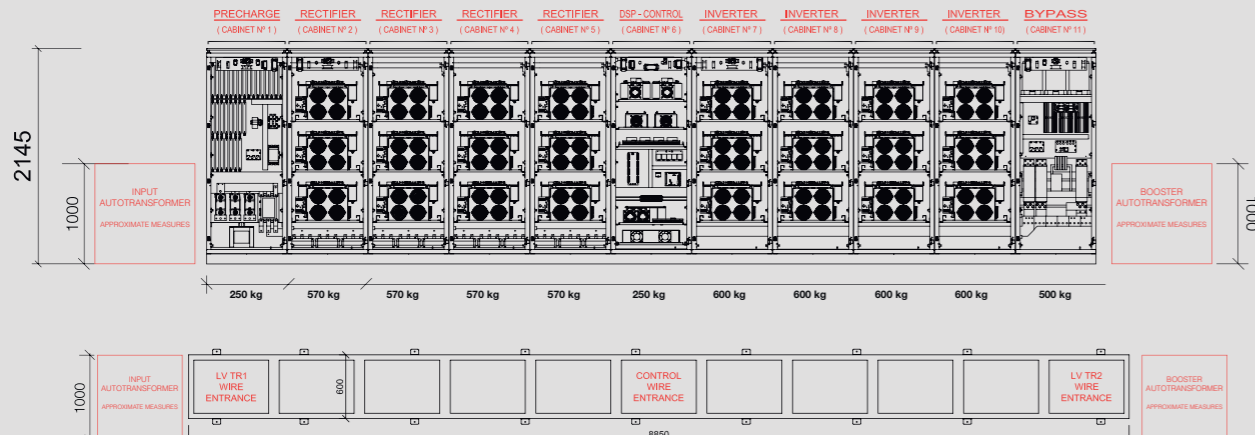


Maximum Sag Correction (S <sub>2</sub> )	Continuous regulation range (S <sub>1</sub> )	AVC DVR System Power	System Configuration	Line Voltage	Manual Bypass / Switchgear	
					LV Systems	MV Systems
-60%	$\pm 10\%$	1-6 MVA	Scalable. Adjustable to the power required	Adjustable BT - MT	3.200 A 4.000 A	Switchgear MV

* Model	Maximum Sag Correction (S <sub>2</sub> )
AVC DVR 1.6 MVA	-60%
AVC DVR 2.4 MVA	-50%
AVC DVR 3.6 MVA	-40%
AVC DVR 5 MVA	-30%
AVC DVR 6 MVA	-25%

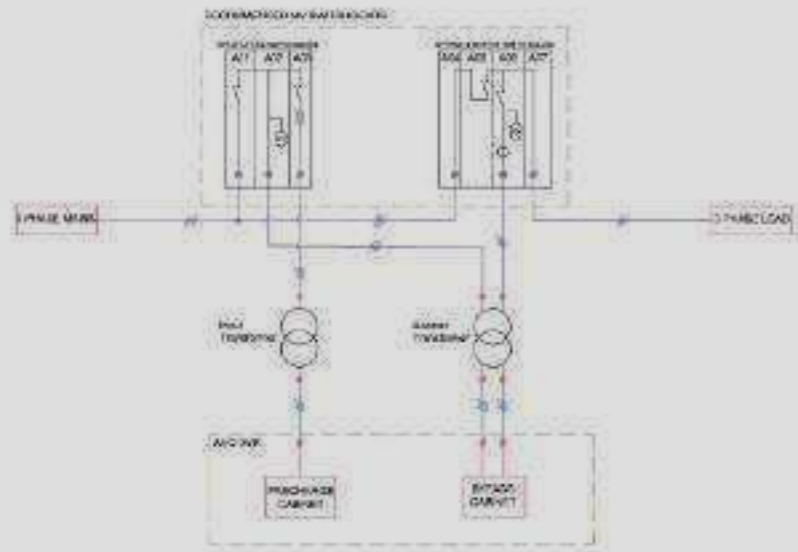
## Dimensions and weights

### AVC DVR High Power 3,6 MVA 40%



### MT AVC DVR High Power

### Bypass Manual 3200 A for LV Weigth: 775 kg



## Monitoring

The control panel allows the user to access the following data: status, measurements, configuration, alarms, control, network, equipment, etc.



### TECHNICAL SPECIFICATIONS

Model	ZGR AVC DVR 1-6 MVA LV-MV 0-60% Sag
<b>INPUT ELECTRICAL CHARACTERISTICS</b>	
Phases	3 phases + GND
Voltage range	200 - 34.500 Vac + 10% - 60%
Frequency	50/60 Hz ± 10%
<b>OUTPUT ELECTRICAL CHARACTERISTICS</b>	
Nominal Power	Up to 6 MVA
Nominal Factor	1
Phases	3 phases + GND
Voltage	200 - 34.500 Vac ± 1%
Frequency	50 / 60 Hz ± 10%
<b>DYNAMIC REGULATIONS</b>	
Continuous regulation range	± 10%
Maximum gap without voltage alteration (s2)	60%
Maximum gap without a given way to bypass (s3)	70%
Gap to give way to bypass	>70%
<b>GENERAL SPECIFICATIONS</b>	
Modules number (rectifier + inverter)	Maximum 12 + 12
Efficiency	> 98%
Overload	110% - 30 seconds, 150% - 1 second in normal mode
Response time	<3 msec
Transfer time to bypass	< 0.5 msec
Maintenance switch	MV switchgear or Manual Bypass for LV (as power)
Dielectric strength	2.5 kV - 1 minute
Protection degree	IP 20
Pollution degree rating	2
Cooling	Forced ventilation
Noise level	<75 dB @ 2m
Working temperature	0 - 40 °C
Storage temperature	0 - 85 °C
Altitude	1000 m (without power losses)
Relative humidity	0 - 95%, without condensation
Maximum sag to bypass	> 70%
<b>COMMUNICATIONS</b>	
Monitoring	Web and touch screen
Communications	Web server, Modbus, SNMP
<b>INPUT TRAF0</b>	
Type	Dry
Power	As power
<b>BOOSTER TRANSFORMER</b>	
Type	Dry
Power	As power

(1) Recommended configuration. It is the simplest configuration so that a bypass can be performed manual for maintenance or repairs and to obtain the necessary measures for the operation of the AVC DVR. Other configurations can be considered based on customer needs.



# ZGR DVC SEPEC

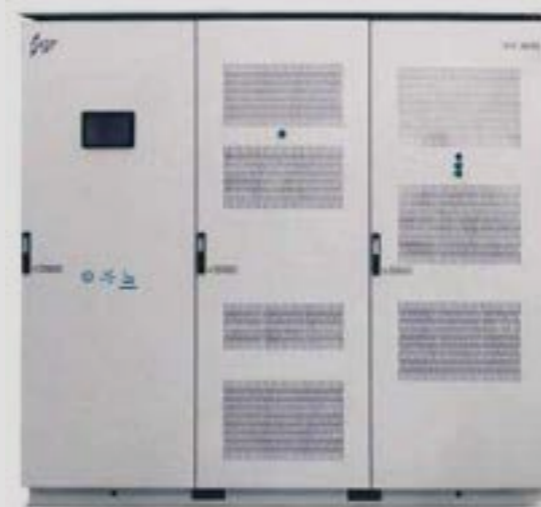
## OFFLINE UNINTERRUPTIBLE POWER SUPPLY

**ZGR DVC SEPEC** is guarantee of continuity of supply for critical industrial processes

ZGR DVC SEPEC industrial UPS range is equipped with high performance technology to reduce the effect of electrical disturbances that may affect industrial processes.

Its design allows eliminating variations in voltage and frequency as well as voltage sags and short interruptions for most critical industrial processes. ZGR DVC SEPEC guarantees the continuity of the power supply in all those processes in which the maximum reliability of the supply is a fundamental requirement.

Its internal architecture enables it to work together with emergency generation units ensuring the complete elimination of interruptions in the supply mains and avoiding voltage outages.



### Applications



### Characteristics

- High-efficiency emergency supply system > 99,5 %
- From 200 KVA to 800 KVA (scalable units)\*
- Compatible with already installed protection systems
- Maximum robustness
- Integrable with existing supply guarantee systems: emergency generator units, gen sets, etc.
- Web interface for monitoring and control
- Touch control panel
- LED signalling for quick visualization of the status of the inverters and batteries
- Higher reliability, MTBF and life cycle
- Voltage impulse elimination system\*
- DSP digital control system
- Autonomy longer than 5 minutes (depending on consumption)
- Advanced management system, battery verification and diagnostics
- High efficiency batteries with low charging time and 100 % recyclable
- Possibility of integrating a network analyser\*
- Low energy consumption
- Does not introduce harmonics into the installation (upstream)
- Timed relay for emergency mode
- Capable of operating with regenerative loads (braker)\*
- Battery cabinet air-conditioned\*
- Security and reliability with minimum necessary investment and reduction of operating costs
- Improved insulation with zigzag transformer for neutral

\* Optional

### TECHNICAL SPECIFICATIONS

Model	ZGR DVC SEPEC 200	ZGR DVC SEPEC 400	ZGR DVC SEPEC 600	ZGR DVC SEPEC 800
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### INPUT ELECTRICAL CHARACTERISTICS

Phases	3 phases + ground (neutral optional)
Nominal voltage	380 / 400 Vac ± 15 %
Frequency	50 / 60 Hz ± 10 %
Current harmonic distortion	Does not introduce

### OUTPUT ELECTRICAL CHARACTERISTICS

Apparent power	200 kVA	400 kVA	600 kVA	800 kVA
Power factor	1 (normal mode), 0.8 (emergency mode)			
Phases	3 phases + ground (neutral optional)			
Nominal voltage	380 / 400 Vca ± 15 %			
Frequency	50 / 60 Hz ± 10 %			
Voltage harmonic distortion	< 1.5 % (in emergency)			
Waveform	Sine wave			
Inverter active redundancy	Inverters in parallel			
Power KVA / KW <sup>(1)</sup>	200 / 200	400 / 400	600 / 600	800 / 800

### BATTERY

Battery type	Sealed lead VRLA
Batteries current ripple	0 A (permanent regime)
Service life diagnosis	Emergency cycle counter
Air conditioned battery cabinets	Optional

### COMMUNICATIONS

Monitoring	Web, touch control panel, LED signalling post
Communications	Web Server, Modbus TCP/IP, SNMP, ModBus RTU (optional)

### PROTECTIONS

Voltage impulses	Optional. Not degradable, performance threshold UNx1,1, Energy > 900 jules
Short-circuit protection	Yes
Current limitation	Yes
Overcharge	Yes
Static and manual Bypass	Yes (without zero-crossing)
Battery charger protection	Yes

### OTHERS

Total efficiency	99.5 %
Overcharge	120 % in permanent regime, 150 % during 10 seconds
Range ambient temperature	IP21
Cooling	Forced ventilation
Operating temperature	0°C ~ +40°C
Storage temperature	0°C ~ +85°C (excluding battery)
Noise level	< 65 dB
Operating altitude	< 1000 m
Relative humidity	0 ~ 95 % (excluding battery)
Approx. Weight	650 kg      950 kg      1345 kg      1575 kg

### STANDARDS

Marks	CE
General directives	73/23/CEE-93/68/CEE, 2004/108/CEE

(1) Equipment only FP = 1, equipment with standard batteries FP = 0,8. For other FP of equipment-battery set consult

Other voltages / autonomies on demand  
Dimensions and weight without braker. Consult dimensions and weight of cabinets with/without air conditioned  
These specifications may change without notice

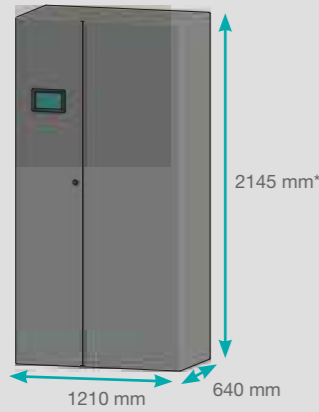
## Connectivity and monitoring

Communication gateway integrated. It enables the communication via Web Server (http).

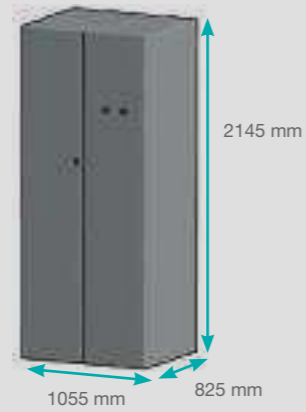
The Web Server allows the user to access the following data: status, measurements, configuration, alarms, control, network, equipment, etc. These same data are accessible directly from the touch control panel on the front of the device.



### ZGR DVC SEPEC 200

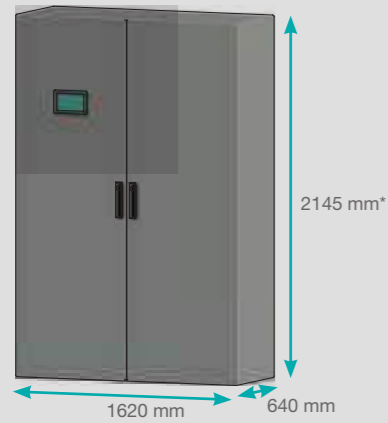


### Battery configuration

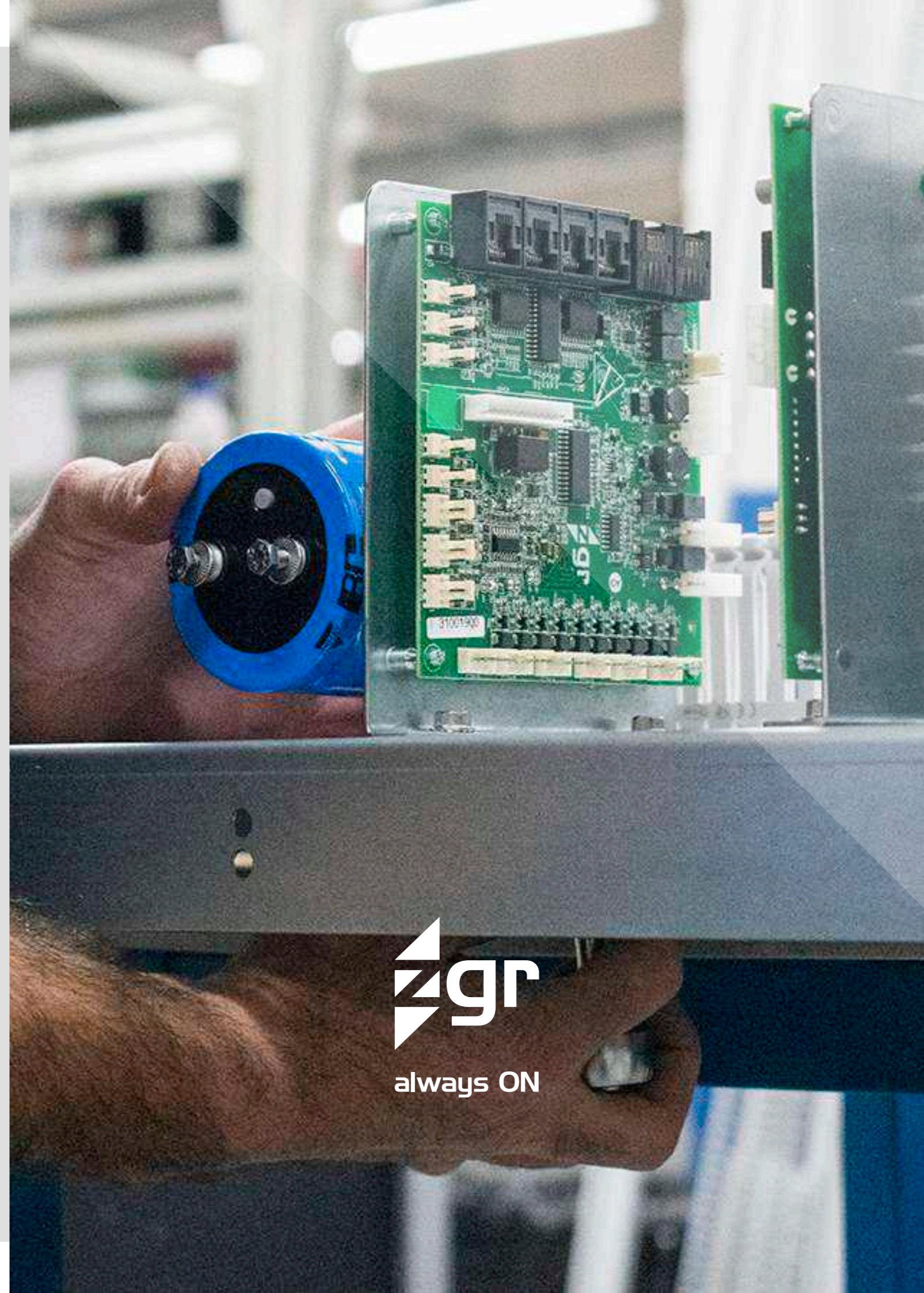
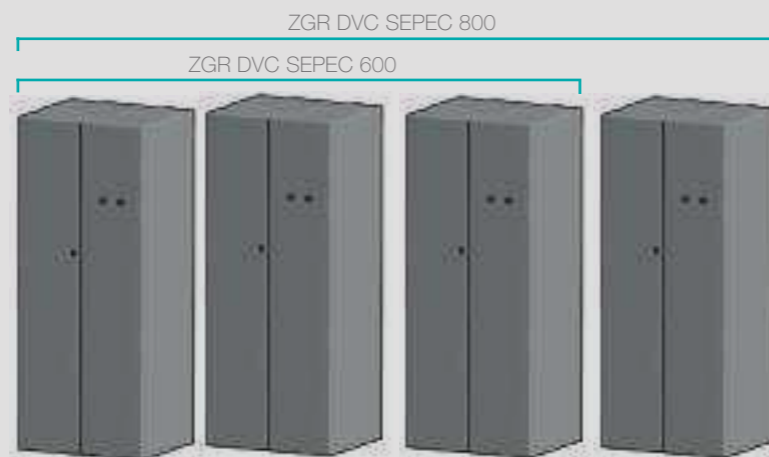
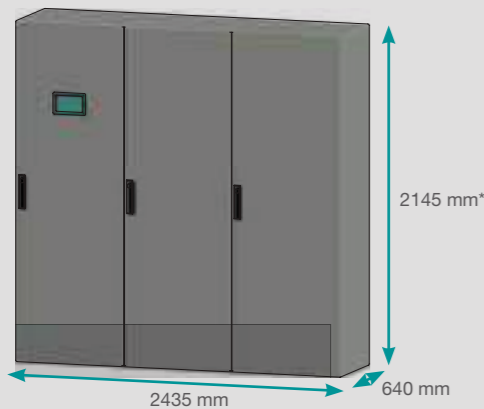


Equipment with signalling post: 2.445 mm.  
 Equipment with braker option: 2.555 mm.  
 Dimensions for battery standard cabinets.  
 They can be modified according to options included

### ZGR DVC SEPEC 400



### ZGR DVC SEPEC 600-800



# ZGR FAA / AHF

## ACTIVE HARMONIC FILTER

**ZGR FAA / AHF** is a system that helps to eliminate harmonic distortion in the power grid

The ZGR FAA / AHF helps to eliminate harmonic contamination in the grid, reducing power quality problems and enhancing a more efficient and safe use of energy.

The presence of harmonics increases the RMS current in electricity grids. The transmission of currents harmonics through system impedance creates harmonics which produce voltage distortions and in this way deteriorate the quality of the grid voltage. This leads to increased operation and energy costs, production/process stops, overheating and malfunctioning of electrical equipment.

The ZGR FAA / AHF is designed according to the latest state of the art in power electronics technology. The technology is installed in parallel with non-linear electrical loads. The active filter analyses the phase current together with the associated harmonics, generating a compensation current, which neutralizes the harmonic currents creating a practically sinusoidal waveform.



### Applications



### Characteristics

- High security and reliability
- Harmonic compensation up to the order of 50<sup>o</sup> (individually selectable)
- Flicker Compensation
- Ultra-fast reactive power compensation (inductive and capacitive)
- Phase and neutral cable balance
- Compact design
- Scalable modular system (25 A - 600 A)
- Resonance detection
- Digital control with intelligent FFT algorithm
- Ethernet and Ethercat connection system
- High performance and reliability
- Insensitive to grid conditions
- Protections:
  - Overload protection
  - Internal short circuit protection
  - Over temperature protection
  - Over and under voltage protection
  - Inverter bridge
  - Resonance protection
  - Fan failure alarm

### Connectivity and monitorization

Communication via Modbus RTU 485 and Modbus TCP-IP. It allows the user to access all the data shown on the screen: status, measurements, configuration, alarms, control, network, equipment, etc.

7" LCD screen for displaying and debugging rack mounted modules. User-friendly operation interface, with 800\*400 colour graphic display. Allows the user to check the operating status of the Filter and the status of the grid in real time.



### TECHNICAL SPECIFICATIONS

Model	ZGR FAA / AHF		
Nominal voltage	380V (228 to 456V)	480V (384 to 552V)	690V (480 to 790V)
Frequency	43-62 Hz		
Compensation current (module)	25A, 35A, 50A, 60A, 100A, 150A	75A, 90A	75A, 90A
Compensation capacity in neutral terminal	3 times the compensation current (in case of 4 wire system)		
Compensation range of harmonic currents	2nd - 50th harmonic order, or specified order of harmonics 0 - 110%		
Harmonic reduction rate	> 95%		
Power factor (PF)	Adjustable from -1 to 1		
Switching frequency/control	20 kHz / 20 kHz		
Reaction time	< 50 μs		
Global response time	< 5 ms		
Harmonic compensation	Yes		
Reactive power compensation	Yes		
Unbalance compensation	Yes		

### MONITORING

Screen	TFT 7" colour
Communication ports	RS485, network port (RJ45)
Communication protocols	Modbus RTU, TCP/IP (Ethernet)

### PROTECTIONS

Failure alarm	Yes, 500 alarm logs max.
Protections	Overvoltage, under voltage, short-circuit, inverter bridge, over compensation

### MECHANICAL AND ENVIRONMENTAL CHARACTERISTICS

Working temperature range	-10°C ~ +40°C (without derating)	
Protection degree	IP20	
Working altitude	1500 m (without power loss)	
Noise level	< 56 dB (depending on the model)	< 65 dB (depending on the model)
Relative humidity	5 to 95 % (without condensation)	
Cooling	Forced	

### STANDARDS

Certifications	CE, IEEE 61000	CE, ETL (UL508), IEEE 61000
Standards	IEEE 519, ER G5/4	

*These specifications may change without notice*



# UPS

We have a complete range of electrical protection and management solutions. **Single-phase and three-phase UPSs** for applications that range from small offices and the domestic environment to large Industry1 plants.

The ZGR UPSs provide a reliable solution for both a safe shutdown and to protect data integrity. Moreover, all our professional devices have communication accessories for dry contact cards, **SNMP and MODBUS** cards for remote management.

To help you look for the most suitable solution, we have divided our UPS catalogue into three main categories:

- **Small Office-Home Office (SOHO):** Where you can find the best solution for protecting your PC, workstations or audiovisual environments. **ZGR Quick, ZGR Optime, ZGR Steady.**
- **Networks and servers:** Double conversion online devices for working in a professional environment with servers, voice and data (VOIP), and other critical applications. **ZGR Tower PRO, ZGR Efficient RT.**
- **Industry and Data Centres:** Three-phase devices for guaranteeing the continuity and control of critical applications, Industry processes, infrastructures and data centres. **ZGR Scalable, ZGR Influence.**

# ZGR QUICK 600 – 800 VA

## UPS LINE-INTERACTIVE

ZGR QUICK is the perfect solution for protecting against grid distortions at household and office

ZGR QUICK is the solution for the protecting household and office equipment with a compact and versatile design.

AVR technology allows stabilizing a wide range input under/over voltages, preventing the excessive use of UPS function, thus reducing the battery discharge/charge cycles and increasing its life.

In absence of grid power, the load is supplied by the inverter that provides a simulated sine wave for sufficient time for secure shutdown of the most critical computer systems through control and monitoring software.

A push-button, a LED synoptic and user-replaceable battery make it an ideal device for everyone to protect against surges and small power failures.



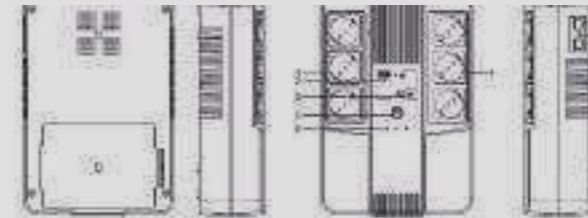
### Applications



### Characteristics

- USB port up to 2 A included for charging mobile devices, tablets, etc.
- 6 Schuko and 1 RJ45 sockets
- Compact and ergonomic
- 3 Sockets protected against power failures (UPS function)
- 3 Sockets protected against surges to power devices with high current peaks (laser printers...)
- Cold Start and Auto Restart function
- Output stabilization with AVR system
- User-replaceable batteries
- USB interface for UPS monitoring
- Desktop or on the floor placement
- 3 year warranty

### Connections



1. UPS output
2. USB charger
3. USB monitoring
4. Power on
5. Informative LED
6. UPS output
7. LAN/modem protection

### TECHNICAL SPECIFICATIONS

Model	ZGR QUICK 600	ZGR QUICK 800
Power	600VA / 360W	800VA / 480W

### INPUT ELECTRICAL CHARACTERISTICS

Voltage range	170 - 280 Vac (allows use with generators) single phase
Frequency	50 / 60 Hz ± 10 %

### OUTPUT ELECTRICAL CHARACTERISTICS

Nominal voltage	220 / 230 / 240 Vac ± 10 % single phase
Frequency (battery mode)	50 / 60 Hz ± 1 %
Waveform (battery mode)	Simulated sine
Transfer time	Typical 2 - 6 ms / 10 ms max

### BATTERY

Type / Capacity	1 x 12V / 7Ah	1 x 12V / 9Ah
Hot Swap	Yes (user replaceable)	
Charge time	6 - 8 h / 90 %	
Protection	Overload and deep discharge	
Autonomy <sup>(1)</sup>	5 mins (depends on consumption and battery status)	

### MONITORING

Informative	LED
Alarms	Acoustics depending on alarm
Software	Windows / Linux / MAC

### CONNECTIONS

Input	1 x IEC
Output	6 x Schuko
Protection	Modem / LAN RJ45
Communication	USB (software monitoring)
Extras	1 x USB Charger 2 A

### FUNCTIONS

On/OFF with battery (Cold Start)	Yes (allows UPS to run without mains power)
Auto Restart	Yes (restarts UPS functions after a failure or deep battery discharge)

### ENVIRONMENTAL AND MECHANICAL CHARACTERISTICS

Cooling	Natural convection	
Operation temperature	0°C ~ +40°C	
Noise level (at 1m)	< 45 dB	
Relative humidity	0 - 95 % without condensation	
Dimensions (WxHxL)	202 x 93 x 293 mm	202 x 93 x 293 mm
Weight approx.	3.6 kg	4.9 kg

### STANDARDS

Marking	CE
Directives	Low voltage directive: 2014/35/EU, EMC directive: 2014/30/EU
Standards	Safety: EN 62040-1, EMC: EN 62040-2, Accordance: EN 62040-3

(1) Commercial autonomy. The autonomy can vary widely depending on the applied consumption. Contact us for customized autonomies...  
These specifications may change without notice



Green Power design that minimizes self consumption during normal operation  
Battery charging system even with the UPS turned OFF

IEC 62040 - 3



# ZGR OPTIME 600-800 VA

## UPS LINE-INTERACTIVE

The range **ZGR OPTIME** provides protection against overvoltage and transients surge of the power grid thanks to the latest digital technology

The ZGR OPTIME series is the compact version managed by microprocessor and with LCD screen that provides real-time information of grid voltage and battery status.

ZGR OPTIME keeps your devices powered with a simulated sine wave long enough to eliminate small power failures.

The use of standard Schuko sockets avoids the need for additional adapter wires.

In addition, the connected equipment will be protected against mains surges, while the data lines (Internet / Telephone / Fax) are provided with protection against transients.



### Applications



### Characteristics

- Automatic restart (once the battery is discharged and mains return)
- Output stabilization with AVR technology and EMI/EMC filters for interference suppression
- Cold Start and Auto Restart function
- With LCD display for easy reading mains voltage and battery status
- Fast charge function
- Self-diagnosis of the operating state of battery and UPS
- High battery reliability with microprocessor battery status monitoring
- Schuko sockets to avoid adapter wires
- USB monitoring and control software
- Plug and Play System

### Display



- 1 - Input voltage
- 2 - Output voltage
- 3 - Online mode
- 4 - Battery mode
- 5 - Battery level
- 6 - Battery low alarm
- 7 - Load level
- 8 - Overcharge alarm
- 9 - General alarm

### TECHNICAL SPECIFICATIONS

Model	ZGR OPTIME 800
Power	800VA / 480W

### INPUT ELECTRICAL CHARACTERISTICS

Voltage range	162 - 290 Vac (allows use with generators) single phase
Frequency	50 / 60Hz ± 10 %

### OUTPUT ELECTRICAL CHARACTERISTICS

Nominal voltage	220 / 230 / 240 Vac ± 10 % single phase
Frequency (battery mode)	50 / 60 Hz ± 1 %
Waveform (battery mode)	Simulated sine
Transfer time	Typical 2 - 6 ms / 10 ms max

### BATTERY

Type / Capacity	1x 12V / 7Ah	1x 12V / 9Ah
Charge time	6 - 8 h / 90 %	
Protection	Overload and deep discharge	
Autonomy <sup>(1)</sup>	5 mins (depends on battery consumption and state)	

### MONITORING

Informative	LED + LCD display
Alarms	Acoustics depending on alarm
Software	Windows / Linux / MAC

### CONNECTIONS

Input	1x IEC
Output	2x Schuko
Protection	Modem / LAN RJ45
Communication	USB and RS232 (software monitoring)

### FUNCTIONS

On/OFF with battery (Cold Start)	Yes (allows UPS to run without mains power)
Auto Restart	Yes (restarts UPS functions after a failure or deep battery discharge)

### ENVIRONMENTAL AND MECHANICAL CHARACTERISTICS

Cooling	Natural convection	
Operation temperature	0°C ~ +40°C	
Noise level (at 1 m)	< 45 dB	
Relative humidity	0 - 95 % without condensation	
Dimensions (WxHxL)	101 x 142 x 298 mm	101 x 142 x 298 mm
Weight approx.	4.3 kg	4.7 kg

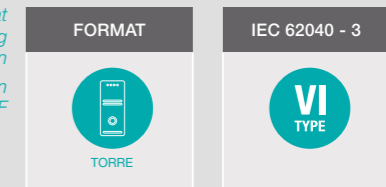
### STANDARDS

Marking	CE
Directives	Low voltage directive: 2014/35/EU, EMC directive: 2014/30/EU
Standards	Safety: EN 62040-1, EMC: EN 62040-2, Accordance: EN 62040-3

*(1) Commercial autonomy. The autonomy can vary widely depending on the applied consumption. Contact us for customized autonomies. These specifications may change without notice*



Green Power design that minimizes self consumption during normal operation  
Battery charging system even with the UPS turned OFF



# ZGR STEADY 1000-1500-2000 VA

## UPS LINE-INTERACTIVE

**ZGR STEADY** is the range that improves power reliability of your critical devices with a pure sinus wave

ZGR STEADY series offers an UPS solution with high efficiency level and confidence for all critical devices that need continuity and reliability in the power supply. They have very compact tower format to save space in server rooms, small offices and household use.

Likewise, the technology provided is Line-interactive through AVR technology and managed by microprocessor. It allows eliminating electrical grid fluctuations and keeps output voltage stable with pure sinewave, which is the best quality to power all types of loads, even the most sensitive to small power outages.

Thanks to AVR a lower use of the batteries is obtained, increasing their useful life and their availability to 100 % in case of intervention.

Its pure sine waveform output reduces the cost of complex filters and the electromagnetic interference (EMI).

For an intuitive use, it has a LCD display with all the information (input / output voltage, % of charge, % of battery, ...) and also, it has connectivity via USB interface with HID protocol, for use with monitoring software.



### Applications



### Characteristics

- Available powers 1000 / 1500 / 2000 VA
- Pure sinewave allows you to connect equipment that is not exclusively intended for the IT sector, so the range of uses is extended
- Automatic restart after electrical grid failure
- Output stabilization with AVR system and EMI filters for the suppression of interference from the grid
- Cold Start function in mains absence
- LCD display
- IEC sockets and adapter wire included
- Communications: RS232 and USB
- Monitoring and control software off (shutdown)
- Self-diagnosis for battery and UPS operating state
- Compatible with APFC equipment power without non power factor correction

### Display



- 1 - Input voltage
- 2 - Output voltage
- 3 - Online mode
- 4 - Battery mode
- 5 - Battery level
- 6 - Battery low alarm
- 7 - Load level
- 8 - Overcharge alarm
- 9 - General alarm

### TECHNICAL SPECIFICATIONS

Model	ZGR STEADY 1000	ZGR STEADY 1500	ZGR STEADY 2000
Power	1000VA / 700W	1500VA / 1050W	2000VA / 1400W

### INPUT ELECTRICAL CHARACTERISTICS

Voltage range	170 - 280 Vac (allows use with generators) single phase
Frequency	50 / 60 Hz ± 10 %

### OUTPUT ELECTRICAL CHARACTERISTICS

Nominal voltage	220 / 230 / 240 Vac single phase
Frequency (battery mode)	50 / 60 Hz ± 1 %
Waveform (battery mode)	Pure sinewave
Transfer time	Typical 2 - 6 ms / 10 ms max

### BATTERY

Type / Capacity	2x 12V / 7 Ah	2x 12V / 9Ah	2x 12V / 9 Ah
Charge time	6 - 8 h / 90 %		
Protection	Overload and deep discharge		
Autonomy <sup>(1)</sup>	10 mins (depends on consumption and battery status)		

### MONITORING

Informative	LCD display
Alarms	Acoustics depending on alarm
Software	Windows / Linux / MAC

### CONNECTIONS

Input	1 x IEC		
Output	4 x IEC	6 x IEC	6 x IEC
Protection	Modem / LAN RJ45		
Communication	USB and RS232 (software monitoring)		

### FUNCTIONS

On/OFF with battery (Cold Start)	Yes (allows UPS to run without mains power)
Auto Restart	Yes (restarts UPS functions after a failure or deep battery discharge)

### ENVIRONMENTAL AND MECHANICAL CHARACTERISTICS

Cooling	Natural convection	Fan	
Operation temperature	0°C ~ +40°C		
Noise level (at 1 m)	< 45 dB	< 55 dB	
Relative humidity	0 - 95 % without condensation		
Dimensions (WxHxL)	148 x 160 x 350 mm	158 x 198 x 380 mm	158 x 198 x 380 mm
Weight approx.	8.6 kg	11.5 kg	12.3 kg

### STANDARDS

Marking	CE
Directives	Low voltage directive: 2014/35/EU, EMC directive: 2014/30/EU
Standards	Safety: EN 62040-1, EMC: EN 62040-2, Accordance: EN 62040-3

*(1) Commercial autonomy. The autonomy can vary widely depending on the applied consumption. Contact us for customized autonomies. These specifications may change without notice*



*Green Power design that minimizes self consumption during normal operation  
Battery charging system even with the UPS turned OFF*



# ZGR TOWER PRO 1 - 3 KVA

## ONLINE SINGLE-PHASE UPS

**ZGR TOWER PRO** double conversion Online technology for maximum reliability and protection

ZGR TOWER PRO uses double conversion Online technology that completely isolates mains voltage and frequency variations and interferences that may appear in the power grid, providing high-quality voltage and frequency to your devices.

They are tower format, include automatic self-test and three optimized battery charge levels, in addition to ECO Mode.

Ideal for business continuity applications that require long battery operation.

It is possible to extend the autonomy several hours using the LBT (Long Back up Time) model with a reinforced battery charger.

**PF 0.9**



### Applications



### Characteristics

- Power factor of 0.9
- Pure sinewave output
- Intelligent Port for SNMP communications
- Long autonomy models
- 1, 2 and 3 kVA
- 3-level intelligent charger
- LCD display
- ECO function with performance > 96 %
- Cold Start and Auto Restart Function
- Management and monitoring via software
- Self-battery and UPS diagnosis of operating state
- Double conversion online (Rectifier / Inverter)
  - It completely isolates customer loads from mains voltage, frequency and noise variations from the power grid.
- Programmable output off function
  - Guarantees autonomy for priority loads.
- Frequency conversion function

### TECHNICAL SPECIFICATIONS

Model	ZGR TOWER PRO		
Power	1000 VA / 900 W	2000 VA / 1800 W	3000 VA / 2700 W
Power factor	0.9		

### INPUT ELECTRICAL CHARACTERISTICS

Voltage range	160 - 300 Vac (allows use with generators) single phase
Frequency	45 - 65 Hz (auto detecting)
Power factor	> 0.98

### OUTPUT ELECTRICAL CHARACTERISTICS

Nominal voltage	208 / 220 / 230 / 240 Vac single phase
Frequency (battery mode)	50 / 60 Hz ± 0.02 Hz
Waveform (battery mode)	Pure sinewave
THD harmonic distortion (100% load)	< 3 % linear / < 5 % non linear
Transfer time	0ms battery / < 4 ms bypass
Permissible peak current	3:1

### EFFICIENCY

Inverter mode	Up to 92 %
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### BATTERY

Type / Capacity	24 V / 9 Ah (36 V -LBT)	48 V / 9 Ah (72 V -LBT)	72 V / 9 Ah (96 V -LBT)
Charge time	5 h / 90 %		
Protection	Overload and deep discharge		
Autonomy <sup>(1)</sup>	10 min up to various hours (expandable with additional battery modules)		

### MONITORING

Informative	LED + LCD display
Alarms	Acoustics depending on alarm
Software	Windows / Linux / MAC

### CONNECTIONS

Input	1x IEC / 1x Anderson (for long autonomy batteries)		
Output equipment internal battery	4x IEC (2 programmable)	8x IEC (4 programmable)	8x IEC (4 programmable)
Output LBT equipment	4x IEC (2 programmable)	4x IEC (2 programmable)	4x IEC (2 programmable)
Protection	Modem / LAN RJ45 (optional)		
Communication	USB and RS232 (software monitoring)		
Intelligent port	Yes (SNMP optional / dry contacts)		

### FUNCTIONS

On/OFF with battery (Cold Start)	Yes (allows UPS to run without mains power)
Auto Restart	Yes (restarts UPS functions after a failure or deep battery discharge)
Parallelable	No
Frequency converter 50 - 60 Hz	Yes
Programmable outputs	Yes

### ENVIRONMENTAL AND MECHANICAL CHARACTERISTICS

Cooling	Forced fan cooling (PWM speed control)		
Operation temperature	0°C - +40°C		
Noise level (at 1 m)	< 50 dB		
Relative humidity	0 - 95 % without condensation		
Dimensions (WxHxL)	144 x 215 x 300 mm	191 x 335 x 470 mm	191 x 338 x 470 mm
Weight approx.	9.2 kg	19.5 kg	26.5 kg
Dimensions models long range (W x D x H)	144 x 215 x 300 mm	191 x 335 x 470 mm	191 x 338 x 470 mm
Weight approx. models long range	4.3 kg	7.8 kg	8.4 kg

### STANDARDS

Marking	CE
Directives	Low voltage directive: 2014/35/EU, EMC directive: 2014/30/EU
Standards	Safety: EN 62040-1, EMC: EN 62040-2, Accordance: EN 62040-3

<sup>(1)</sup> Commercial autonomy. The autonomy can vary widely depending on the applied consumption. Contact us for customized autonomies. These specifications may change without notice



LBT models with customizable autonomy





# ZGR TOWER PRO 6 - 10 KVA

## ONLINE SINGLE-PHASE UPS

**ZGR TOWER PRO** double conversion Online technology wants to protect your installation with maximum efficiency (PF1,0)

In this range of equipments there are 6 and 10 kVA available models with parallel technology of up to 4 units. This feature allows a gradual upgrade of user installation without the need to invest in a new UPS.

It also integrates the Frequency Converter function that enables to adapt the operating frequency in different countries 50 / 60 Hz.

Ideal for business continuity applications that require long battery operation.

It is possible to extend the autonomy several hours using the LBT versions with reinforced battery charger.



**PF 1.0**

### Applications



### Characteristics

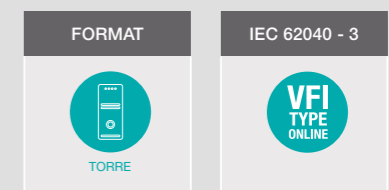
- Power factor of 1.0
- Parallelable up to 4 units
- Can be configured as common battery
- Pure sinewave output
- SNMP communications card and dry contacts\*
- 3-level smart charger
- LCD display
- ECO function with performance > 96 %
- Cold Start and Auto Restart function
- Self battery and UPS diagnosis of operating state
- Double conversion online (Rectifier/Inverter) - It completely isolates customer loads from mains voltage, frequency and noise variations.
- Long range models available
- Management and monitoring - Via software
- USB / RS232 connection
- EPO function (Emergency Power OFF) - Rear panel terminal or front panel button
- Frequency converter function

TECHNICAL SPECIFICATIONS		
Model	ZGR TOWER PRO 6	ZGR TOWER PRO 10
Power	6 kVA / 6 kW	10 kVA / 10 kW
Power factor	1.0	
INPUT ELECTRICAL CHARACTERISTICS		
Voltage range	165 - 276Vac (allows use with generators) single phase	
Frequency	45 - 65Hz (auto detecting)	
Power factor	0.99	
THDi (100% load)	< 3% linear	
OUTPUT ELECTRICAL CHARACTERISTICS		
Nominal voltage	220 / 230 / 240 Vac single phase	
Frequency (battery mode)	50 / 60 Hz ± 0.02 Hz	
Waveform (battery mode)	Pure sinewave	
Harmonica distortion THD (100% load)	< 2% linear / < 4% non linear	
Transfer time	0 ms battery / 0 ms bypass	
Permissible peak current	3:1	
Overcharge	105..110 % 10 min. / 110..130 % 1 min. / ≥130% 0.2 sec.	
EFFICIENCY		
Inverter mode	Up to 93 %	
BATTERY		
Type / Capacity	12 V Pb / Depends on autonomy	
Charge time	6 - 8h / 90 %	
Protection	Overload / deep discharge / short-circuit / temperature	
Autonomy (1)	10 mins up to several hours (extendable with additional battery modules)	
MONITORING		
Informative	LED + LCD display	
Alarms	Acoustics depending on alarm	
Software	Windows / Linux / MAC	
CONNECTIONS		
Input	Terminal panel	
Output	Terminal panel	
Communication	USB and RS232 (software monitoring)	
Intelligent port	Yes (SNMP optional / dry contacts)	
FUNCTIONS		
On/OFF with battery (Cold Start)	Yes (allows UPS to run without mains power)	
Auto Restart	Yes (restarts UPS functions after a failure or deep battery discharge)	
EPO Function (Emergency Power OFF)	Contacts in rear panel	
Parallelable	Yes (up to 4 units)	
Frequency converter 50-60Hz	Yes	
Programmable outputs	No	
ENVIRONMENTAL AND MECHANICAL CHARACTERISTICS		
Protection switches	Yes	
Cooling	Forced with fans (PWM speed control)	
Operation temperature	0°C ~ +40°C	
Noise level (at 1 m)	< 55 dB	
Relative humidity	0 - 95 % without condensation	
Dimensions (WxHxL)	191 x 720 x 483 mm	191 x 720 x 483 mm
Weight approx.	69 kg	77 kg
Dimensions for models long range (W x D x H)	191 x 335 x 410 mm	191 x 335 x 410 mm
Weight approx. for models long range	12 kg	12 kg
STANDARDS		
Marking	CE	
Directives	Low voltage directive: 2014/35/EU, EMC directive: 2014/30/EU	
Standards	Safety: EN 62040-1, EMC: EN 62040-2, Accordance: EN 62040-3	

(1) Commercial autonomy. The autonomy can vary widely depending on the applied consumption. Contact us for customized autonomies. These specifications may change without notice



LBT models with customizable autonomy



# ZGR EFFICIENT RT 1 - 3 KVA

## ONLINE SINGLE-PHASE UPS

### EFFICIENT RT in compact and convertible format Rack/Tower

EFFICIENT RT are high density dual conversion Online UPS, adapted to power a wide range of devices such as servers, storage systems, VoIP telephone devices, network and medical systems, as well as industrial scope.

It is ideal to supply and protect Blade Server systems thanks to its high power factor. The height of only 2U makes the EFFICIENT RT range perfectly integrated into 19" rack cabinets.

ZGR has always been concerned about energy savings and has introduced in all UPS series the ECO function that minimizes consumption during normal operation and improves efficiency.



PF 0.9

### Applications



### Characteristics

- Power factor of 0.9
- Rack/tower format
- SNMP communications cards and dry contacts
- Long autonomy models
- 1, 2 and 3 kVA models
- Pure sinewave output
- 3-level smart charger
- LCD screen
- Cold Start and Auto Restart function
- Self battery and UPS status diagnosis
- Frequency conversion function - 50 Hz <-> 60 Hz
- Management and monitoring
  - Via software
  - USB/RS232 connection
- ECO function
  - Minimizes the UPS self consumption.
- Outputs Off function
  - Power shedding function guarantees autonomy to priority
- Double conversion online (Rectifier/Inverter)
  - It completely insulates the consumption of voltage, frequency and noise variations from the power grid

### TECHNICAL SPECIFICATIONS

Model	ZGR EFFICIENT RT 1	ZGR EFFICIENT RT 2	ZGR EFFICIENT RT 3
Power	1000 VA / 900W	2000 VA / 1800W	3000 VA / 2700W
Power factor	0.9		

### INPUT ELECTRICAL CHARACTERISTICS

Voltage range	162 - 290 Vac (allows use with generators) single phase
Frequency	45 - 65 Hz (auto detecting)
Power factor in input	> 0.99

### OUTPUT ELECTRICAL CHARACTERISTICS

Nominal voltage	208 / 220 / 230 / 240 Vac single phase
Frequency (battery mode)	50 / 60 Hz ± 0.02 Hz
Waveform (battery mode)	Pure sinewave
THD harmonic distortion (100% load)	< 3 % linear / < 5 % non linear
Transfer time	0 ms battery / < 4 ms bypass
Permissible peak current	3:1

### EFFICIENCY

Inverter mode	Up to 92 %
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### BATTERY

Type / Capacity for standard models	24 V / 9 Ah (36 V - LBT)	48 V / 9 Ah (72 V - LBT)	72 V / 9 Ah (96 V - LBT)
Hot Swap	Yes <sup>(1)</sup>		
Charge time	5 h / 90 % (from a full discharge)		
Protection	Overload and deep discharge		
Autonomy <sup>(1)</sup>	10 mins up to several hours (extendable with additional battery modules)		

### MONITORING

Informative	LED + LCD display
Alarms	Acoustics depending on alarm
Software	Windows / Linux / MAC

### CONNECTIONS

Input	1x IEC / 1x Anderson (long models LBT autonomy)
Output	Up to 4+4 IEC (4 IEC with programmable output)
Protection	Modem / LAN RJ45
Communication	USB and RS232 (software monitoring)
Intelligent port	Yes (SNMP optional / dry contacts)

### FUNCTIONS

On/OFF with battery (Cold Start)	Yes (allows UPS to run without mains power)
Auto Restart	Yes (restarts UPS functions after a failure or deep battery discharge)
Paralleable	No
Frequency converter 50-60Hz	Yes
Programmable outputs	Yes

### ENVIRONMENTAL AND MECHANICAL CHARACTERISTICS

Rack mounting guides	Optional		
Cooling	Forced with fans (PWM speed control)		
Operation temperature	0°C ~ +40°C		
Noise level (at 1 m)	< 50 dB		
Relative humidity	0 - 95 % without condensation		
Dimensions for long-range models (WxHxD)	440 x 88 x 330 mm	440 x 88 x 460 mm	440 x 88 x 605 mm
Weight approx. for standard models	12 kg	19 kg	29 kg
Dimensions for long-range models (WxHxD)	440 x 88 x 460 mm	440 x 88 x 605 mm	440 x 88 x 605 mm
Weight approx. for models long range	8.5 kg	8.3 kg	8.6 kg

### STANDARDS

Marking	CE
Directives	Low voltage directive: 2014/35/EU, EMC directive: 2014/30/EU
Standards	Safety: EN 62040-1, EMC: EN 62040-2, Accordance: EN 62040-3

<sup>(1)</sup> Commercial autonomy. The autonomy can vary widely depending on the applied consumption. Contact us for customized autonomies.. These specifications may change without notice

<sup>(2)</sup> Battery easily replaceable by the user  
Vertical mounting available



# ZGR EFFICIENT RT 6 - 10 KVA

## ONLINE SINGLE-PHASE UPS

PF 1.0

**ZGR EFFICIENT RT** maximum efficiency supply for critical systems with Rack/Tower Convertible

The ZGR EFFICIENT RT range goes one step further, looking to meet the needs of customers with greater demand for protected power in their 6 and 10 kVA versions, providing the best power solution for vital applications and critical devices that require maximum reliability and efficiency thanks to its 1,0 Power Factor and up to 93% efficiency.

It also supports parallel of up to 4 units for greater versatility and a growth according to the evolution of consumption of its installation.

Perfect for protecting industrial applications, servers, banks, IT equipment and networks.



### Applications



### Characteristics

- Power factor of 1,0
- Parallelable up to 4 units
- Common battery configurable
- Communications card and dry contacts
- Pure sinewave output
- Efficiency up to 93%
- 3-level smart charger
- LCD display
- Cold Start and Auto Restart function
- Frequency converter function
- Management and monitoring
  - Via software
  - USB/RS232 connection
- EPO function (Emergency Power OFF)
  - By contact on the rear panel or button on the front
- ECO function
  - Minimizes UPS's own consumption for non-critical applications.
- Auto diagnosis of battery and UPS operating state
- Double conversion online

### TECHNICAL SPECIFICATIONS

Model	ZGR EFFICIENT RT 6	ZGR EFFICIENT RT 10
Power	6 kVA / 6 kW	10 kVA / 10 kW
Power factor	1.0	
Format	Rack	

### INPUT ELECTRICAL CHARACTERISTICS

Voltage range	120 - 276 Vac (allows use with generators) single phase
Frequency	45-65 Hz (auto detecting)
Power factor in input	0.99
THDi (100 % load)	< 3 % linear, < 5 % non linear

### OUTPUT ELECTRICAL CHARACTERISTICS

Nominal voltage	208 / 220 / 230 / 240 Vac single phase
Frequency (battery mode)	50 / 60 Hz ± 0.01 Hz
Waveform (battery mode)	Pure sinewave
THD harmonic distortion (100 % load)	< 3 % linear / < 5 % non linear
Transfer time	0 ms battery / 0 ms bypass
Permissible peak current	3:1
Overcharge	105..110% - 10 min / 110..130% - 1 min / ≥ 130% 1 sec

### EFFICIENCY

Inverter mode	Up to 93%
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### BATTERY

Battery voltage	192 / 216 / 240 V (selectable)
Hot Swap	Yes (battery pack)
Charge time	6 - 8 h / 90% (from a full discharge)
Protection	Overload / Deep discharge / shor circuit / temperature
Autonomy <sup>(1)</sup>	10 min up to various hours (expandable with additional battery modules)

### MONITORING

Informative	LED + LCD display
Alarms	Acoustics depending on alarm
Software	Windows / Linux / MAC

### CONNECTIONS

Input	Terminal panel
Output	Terminal panel
Communication	USB, RS232
Intelligent port	Yes (SNMP card / dry contacts)

### FUNCTIONS

On/OFF with battery (Cold Start)	Yes (allows UPS to run without mains power)
Auto Restart	Yes (restarts UPS functions after a failure or deep battery discharge)
EPO Function (Emergency Power OFF)	Contacts in rear panel
Parallelable	Yes (up to 4 units)
Frequency converter 50-60Hz	Yes

### ENVIRONMENTAL AND MECHANICAL CHARACTERISTICS

Protection switches	Yes	
Cooling	Forced with fans (PWM speed control)	
Operation temperature	0°C ~ +40°C	
Noise level (at 1 m)	< 55 dB	
Relative humidity	0 - 95% without condensation	
Dimensions (WxHxL)	440 x 88 x 675 mm	440 x 88 x 675 mm
Weight approx.	14 kg	18 kg

### STANDARDS

Marking	CE
Directives	Low voltage directive: 2014/35/EU, EMC directive: 2014/30/EU
Standards	Safety: EN 62040-1, EMC: EN 62040-2, Accordance: EN 62040-3

*(1) Commercial autonomy. The autonomy can vary widely depending on the applied consumption. Contact us for customized autonomies.. These specifications may change without notice*

Vertical or horizontal mounting available



# ZGR VERSATILE 10 - 20 KVA

## ONLINE THREE-PHASE UPS

PF 1.0

**ZGR VERSATILE 3:1 1:1** it's our three-phase – single-phase flexible bet

The ZGR VERSATILE series consists of a transformer-free UPS, in tower format and available in 10 – 15 – 20 kVA models with three-phase / single-phase input and single-phase output.

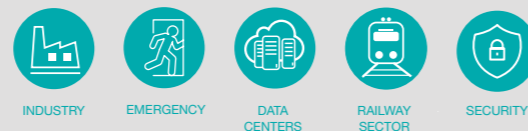
ZGR VERSATILE incorporates the most advanced technologies in DSP (digital signal processor), three-tier inverter circuit and maximum protection to critical loads, always optimizing energy savings.

This series anticipates the evolution of its single-phase installation to larger powers and the future need to switch to a three-phase network. Extends the service life of your single-phase installation by reducing costs.

It is an ideal equipment to protect industrial processes, data centers, transportation, emergencies and safety.



### Applications



### Characteristics

- Power factor of 1.0
- Convertible 3:1 / 1:1
- Parallelable up to 4 units
- Online double conversion with DSP control
- Low current distortion
- LBT models with customizable autonomy
- "Green Concept" design for energy saving
- Compatible with generators sets
- Configurable battery voltage
- Allows common battery configuration in parallel equipments
- Estimated battery life time on display
- Bay for Smart Cards: SNMP, dry contacts
- Communication software included
- Startup Cold Start
  - It allows the UPS to be put into operation even without power supply.
- ECO function
  - Minimizes UPS's own consumption and improves efficiency by up to 98 %
- Realtime information on color LCD display equipments

TECHNICAL SPECIFICATIONS			
Model	ZGR VERSATILE 10	ZGR VERSATILE 15	ZGR VERSATILE 20
Power	10 kVA / 10 kW	15 kVA / 15 kW	20 kVA / 20 kW
Power factor	1.0		
Format	Tower		
INPUT ELECTRICAL CHARACTERISTICS			
Voltage range	120 - 276 Vac single phase / 205 - 478 Three-phase Vac		
Frequency	40 - 70 Hz (auto detecting)		
Power factor in input	0.99		
THDi (100 % load)	< 5 % non linear		
OUTPUT ELECTRICAL CHARACTERISTICS			
Nominal voltage	220 / 230 / 240Vac single phase		
Frequency (battery mode)	50 / 60 Hz ± 0.2 Hz		
Waveform (battery mode)	Pure sinewave		
THD harmonic distortion (100 % load)	< 2 % linear / < 5 % non linear		
Transfer time	0 ms battery / 0 ms bypass		
Permissible peak current	3:1		
Overcharge (Online)	<110% - 60 min. / <125% - 10 min. / <150% - 1 min. / ≥ 150% 0.2 sec		
Overcharge (Battery)	105..110% - 10 min. / 110..130% - 1 min. / ≥ 150% 0,2 sec		
EFFICIENCY			
Inverter mode	Up to 93.5 %		
BATTERY			
Maximum charger current	14 A	16 A	18 A
Battery bus voltage	192 / 216 / 240 Vdc (selectable) <sup>(1)</sup>		
Autonomy <sup>(1)</sup>	Customizable according to battery capacity		
MONITORING			
Informative	Intuitive display TFT 2.4" color		
Alarms	Acoustics depending on alarm (optional potential-free contacts)		
Software	Windows		
CONNECTIONS			
Terminal panel	Input / Output / Battery		
Protection switch	Input / Output / Maintenance bypass		
Separate bypass input (Dual input)	No		
Communication	USB / RS232		
Intelligent port	Yes (SNMP optional / dry contacts)		
FUNCTIONS			
On/OFF with battery (Cold Start)	Yes (allows UPS to run without mains power)		
Auto Restart	Yes (restarts UPS functions after a failure or deep battery discharge)		
ECO mode	Yes		
EPO Function (Emergency Power OFF)	Contacts in rear panel		
Parallelable	Yes (up to 4 units)		
Bypass operation limits	Configurable		
Frequency converter 50 - 60 Hz	Yes		
ENVIRONMENTAL AND MECHANICAL CHARACTERISTICS			
Operation temperature	0°C ~ +40°C		
Cooling	Forced with fans (PWM speed control)		
Noise level (at 1m)	< 60 dB		
Relative humidity	0 - 95 % without condensation		
Dimensions (WxHxL)	250 x 660 x 600 mm		
Weight approx.	33.5 kg	45 kg	48 kg
STANDARDS			
Marking	CE		
Directives	Low voltage directive: 2014/35/EU, EMC directive: 2014/30/EU		
Standards	Safety: EN 62040-1, EMC: EN 62040-2, Accordance: EN 62040-3		

<sup>(1)</sup> Commercial autonomy. The autonomy can vary widely depending on the applied consumption. Contact us for customized autonomies..  
These specifications may change without notice

<sup>(2)</sup> Battery quantity may affect output PF



# ZGR VERSATILE RT 10 KVA

## ONLINE THREE-PHASE UPS

**ZGR VERSATILE R 3:1 1:1** is our flexible three-phase / single-phase bet. Convertible Rack/Tower

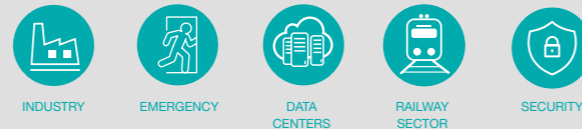
ZGR VERSATILE R is our bet on 10 kVA power and Rack format (3U) that best suits your space limitations and also allows its integration into 19" cabinet.

The ZGR VERSATILE R series seeks to optimize your investment in a UPS and, among other possible functionalities, allows connection to both single-phase and future expansion to three-phase grid.

It is designed for paralleling up to 4 units to enable a gradual upgrade according to your protected power needs thanks to Double Conversion technology and a high efficiency up to 93,5%.



### Applications



### Characteristics

- Power factor of 1.0
- Convertible 3:1 / 1:1
- Parallelable up to 4 units
- Online double conversion with DSP control
- Intuitive display TFT 2,4" color
- Low current distortion
- Customizable autonomy
- Compatible with generators sets
- Periodic battery test configurable
- Possibility of sharing same batteries in parallel equipment
- Estimated battery life time on display
- Connection terminals on rear panel
- Cold Start
  - It allows UPS operation even without mains power
- ECO function
  - Minimizes UPS self-consumption and improves efficiency
- Communications
  - Smart cards bay: SNMP, dry contacts
  - Communication software included

### TECHNICAL SPECIFICATIONS

Model	ZGR VERSATILE R
Power	10kVA / 10kW
Power factor in input	1.0
Format	Rack

### INPUT ELECTRICAL CHARACTERISTICS

Voltage range	120 - 276 Vac single phase / 208 - 478 Three-phase Vac
Frequency	40 - 70 Hz (auto detecting)
Power factor in input	0.99
THDi (100 % load)	< 5 % non linear

### OUTPUT ELECTRICAL CHARACTERISTICS

Nominal voltage	220 / 230 / 240Vac single phase
Frequency (battery mode)	50 / 60Hz ± 0.2Hz
Waveform (battery mode)	Pure sinewave
THD harmonic distortion (100 % load)	< 2 % linear / < 5 % non linear
Transfer time	0 ms battery / 0 ms bypass
Permissible peak current	3:1
Overcharge (Online)	<110% - 60 min. / <125% - 10 min. / <150% - 1 min. / ≥ 150% 0.2 sec.
Overcharge (Battery)	105..110% - 10 min. / 110..130% - 1 min. / ≥ 130% 0.2 sec.

### EFFICIENCY

Inverter mode	Up to 93.5 %
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### BATTERY

Maximum charger current	14 A
Battery bus voltage	192 / 216 / 240 Vdc (selectable) <sup>(1)</sup>
Autonomy <sup>(1)</sup>	Customizable according to battery capacity

### MONITORING

Informative	Intuitive display TFT 2,4" color
Alarms	Acoustics depending on alarm (optional potential-free contacts)
Software	Windows

### CONNECTIONS

Terminal panel	Input / Output / Battery
Protection switch	Optional (module PDU distribution)
Separate bypass input (Dual input)	No
Communication	RS232
Intelligent port	Yes (optional SNMP / dry contact)

### FUNCTIONS

On/OFF with battery (Cold Start)	Yes (allows UPS to run without mains power)
Auto Restart	Yes (restarts UPS functions after a failure or deep battery discharge)
ECO mode	Yes
EPO Function (Emergency Power OFF)	Contacts in rear panel
Parallelable	Yes (up to 4 units)
Performance limit bypass	Configurable
Frequency converter 50 - 60 Hz	Yes

### ENVIRONMENTAL AND MECHANICAL CHARACTERISTICS

Cooling	Forced with fans (PWM speed control)
Operation temperature	0°C ~ +40 °C
Noise level (at 1 m)	< 55 dB
Relative humidity	0 - 95 % without condensation
Dimensions (WxHxL)	440 x 131 x 580 mm
Weight approx.	30 kg

### STANDARDS

Marking	CE
Directives	Low voltage directive: 2014/35/EU, EMC directive: 2014/30/EU
Standards	Safety: EN 62040-1, EMC: EN 62040-2, Accordance: EN 62040-3

<sup>(1)</sup> Commercial autonomy. The autonomy can vary widely depending on the applied consumption. Contact us for customized autonomies. These specifications may change without notice

<sup>(2)</sup> Battery quantity may affect output PF



IEC 62040 -3



# ZGR INFLUENCE 10 – 40 KVA

## ONLINE THREE-PHASE UPS

**ZGR INFLUENCE 3:3** advanced and compact three-phase technology with efficiency of up to 94,5%

ZGR INFLUENCE consists of a small size UPS, in tower format and available in 10, 15, 20, 30 and 40 kVA models with three-phase input and output.

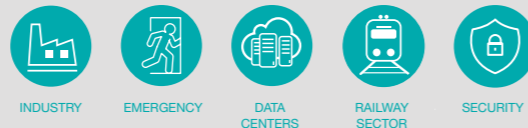
The ZGR INFLUENCE series incorporates the most advanced DSP technologies (digital signal processor), 3-level intelligent charger and a 7" colour touch screen display, where the UPS status in an intuitive way and direct without the need for external software.

It is paralleable up to 4 units common battery setup and thus occupying a small footprint, being one of the solutions with the smallest dimensions on the market.

*Special configurations consult.*



### Applications



### Characteristics

- Power factor of 0.9
- Efficiency up to 94.5 %
- Paralleable up to 4 units
- Possibility of sharing same batteries in parallel equipment
- Graphic display 7" TFT colour touch screen
- Compatible with generator sets
- Online double conversion with DSP control
- Low current distortion
- Possibility of long autonomies
- Configurable periodic battery test
- Configurable battery voltage
- Cold Start and Auto Restart function
- 2 independent bays for smart cards and dry contacts alarms
- Integrated input / output / bypass MCB protections

TECHNICAL SPECIFICATIONS					
Model	ZGR INFLUENCE 10	ZGR INFLUENCE 15	ZGR INFLUENCE 20	ZGR INFLUENCE 30	ZGR INFLUENCE 40
Power	10 kVA / 9 kW	15 kVA / 13,5 kW	20 kVA / 18 kW	30 kVA / 27 kW	40 kVA / 36 kW
Power factor	0.9				
Format	Tower				
INPUT ELECTRICAL CHARACTERISTICS					
Voltage range	208 - 478 Vac (allows use with generators) 3 phases + N + PE				323 - 478 Vac
Frequency	45 - 65 Hz (auto detecting)				
Power factor in input	0.99				
THDi (100 % load)	< 3 % non linear				
OUTPUT ELECTRICAL CHARACTERISTICS					
Nominal voltage	380 / 400 / 415 Vac (3 phases + N + PE) ± 1 %				
Frequency (battery mode)	50 / 60 Hz ± 0,1 Hz				
Waveform (battery mode)	Pure sinewave				
THD harmonic distortion (100 % load)	< 2 % linear / < 4 % non linear				
Transfer time	0 ms battery / 0 ms bypass				
Permissible peak current	3:1				
Overcharge (Online)	60 min < 110 %, 10 min < 125 %, bypass >150 %				
Overcharge (Battery)	10 min < 110 %, 1 min < 125 %, off > 150 %				
EFFICIENCY					
Inverter mode	Up to 93.5 %			Up to 94.5 %	
BATTERY					
Maximum charger current	10 A	10 A	10 A	20 A	20 A
DC bus voltage	192 / 216 / 240 Vdc				384 - 480 Vdc
Autonomy <sup>(1)</sup>	Customizable from 5 minutes to several hours (depends on the battery capacity)				
MONITORING					
Informative	LED + 7" colour touch screen				
Alarms	Acoustics depending on alarm (optional potential-free contacts)				
Software	Windows				
CONNECTIONS					
Terminal panel	Input / Output / Bypass / Battery				
Protection switch	Input / Output / Bypass				
Bypass Maintenance switch (MCB)	20 A	32 A	40 A	63 A	80 A
Bypass input (Dual input)	No (optional)				
Communication	USB / RS232 / RS485 (no simultaneously)				
Intelligent port	2 bays (optional SNMP / dry contact)				
FUNCTIONS					
On/OFF with battery (Cold Start)	Yes (allows UPS to run without mains power)				
Auto Restart	Yes (restarts UPS functions after a failure or deep battery discharge)				
ECO mode	Yes				
EPO Function (Emergency Power OFF)	Rear panel terminals				
Paralleable	Yes (up to 4 units)				
Performance limit bypass	Configurable				
Frequency converter 50 - 60Hz	Yes				
ENVIRONMENTAL AND MECHANICAL CHARACTERISTICS					
Cooling	Forced with fans (PWM speed control)				
Operation temperature	0°C - +40°C				
Noise level (at 1 m)	< 55 dB				< 58 dB
Relative humidity	0 - 95 % without condensation				
Dimensions (WxHxL)	250 x 878 x 880 mm				
Weight approx.	57 kg	63 kg	65 kg	71 kg	73 kg
STANDARDS					
Marking	CE				
Directives	Low voltage directive: 2014/35/EU, EMC directive: 2014/30/EU				
Standards	Safety: EN 62040-1, EMC: EN 62040-2, Accordance: EN 62040-3				



<sup>(1)</sup> Commercial autonomy. The autonomy can vary widely depending on the applied consumption. Contact us for customized autonomies. These specifications may change without notice



# ZGR INFLUENCE HP 50 - 200 kVA

## ONLINE THREE-PHASE UPS

ZGR INFLUENCE HP 3:3 advanced and efficient three-phase technology up to 95,5%

ZGR INFLUENCE HP expands options with a range from 50 kVA to 200 kVA and improves its technology with a 3-stage inverter, which results in a lower power loss in conversion and achieves an efficiency of up to 95,5%.

Great efficiency for this series of small UPS.

In this power range, ZGR INFLUENCE HP offers an FP 1,0 for your consumption which makes it suitable for all types of installations that demand high energy quality and seek the best energy efficiency.

It is an ideal equipment to protect Industry processes, hospitals, data centers, transportation, emergencies and security.

They are available in Dual input version that allows a three-phase auxiliary bypass grid.



HP 50 - 60

HP 80 - 200



### Applications

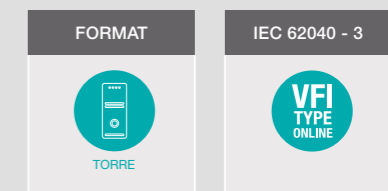


### Characteristics

- 3:3 and optional double input
- Efficiency of 95.5 %
- Parallelable up to 4 units
- Possibility of sharing same batteries in parallel equipment
- Compatible with NiCd / Li (on request)
- Online double conversion with DSP control
- Low current distortion
- Possibility of long autonomies
- Compatible with generators sets
- Configurable battery voltage
- Cold Star and Auto Restart function
- Integrated input/output/bypass MCB protections
- Double conversion online (Rectifier/Inverter)
  - Completely insulates the consumption of voltage, frequency and noise variations from the power grid
- ECO function
  - Minimizes UPS's self-consumption and improves performance
- Communications
  - 2 independent bays for smart cards and dry contacts alarms
  - Communication software included
- Grid Backup Function
  - Allows 2 groups in parallel with 2 independent three-phase grids

TECHNICAL SPECIFICATIONS							
Model	INFLUENCE HP 50	INFLUENCE HP 60	INFLUENCE HP 80	INFLUENCE HP 100	INFLUENCE HP 120	INFLUENCE HP 150	INFLUENCE HP 200
Power	50 kVA / 50 kW	60 kVA / 60 kW	80 kVA / 80 kW	100 kVA / 100 kW	120 kVA / 120 kW	150 kVA / 150 kW	200 kVA / 200 kW
Power factor	1.0						
Format	Tower / Cabinet						
INPUT ELECTRICAL CHARACTERISTICS							
Voltage range	305 - 485 Vac (allows use with generators) 3 phases + N + PE						
Frequency	40 - 70 Hz (auto detecting)						
Power factor	0.99						
THDi (100 % load)	< 3 % non linear						
OUTPUT ELECTRICAL CHARACTERISTICS							
Nominal voltage	380 / 400 / 415 Vac (3 phases + N + PE) ± 1 %						
Frequency (battery mode)	50 / 60 Hz ± 0.1 Hz						
Waveform (battery mode)	Pure sinewave						
THD harmonic distortion (100 % load)	< 1 % linear / < 3 % non linear						
Transfer time	0 ms battery / 0 ms bypass						
Permissible peak current	3:1						
Overcharge (Online)	<110% - 60 min. / <125% - 10 min. / 150% 1 min. * Ask						
EFFICIENCY							
Inverter mode	Up to 96 %						
BATTERY							
Maximum charger current	20 A		40 A		60 A		
DC bus voltage	384 - 600 Vdc						
Temperature sensor	External sensor (optional)						
Autonomy <sup>(1)</sup>	Customizable from 5 minutes to several hours (depends on the battery capacity)						
MONITORING							
Informative	7" colour TFT touch screen						
Alarms	Acoustics depending on alarm (optional potential-free contacts)						
Software	Windows						
CONNECTIONS							
Terminal panel	Input / Output / Bypass / Battery						
Protection switch	Input / Output / Bypass						
Bypass Maintenance switch (MCB)	100 A	125 A	200 A	200 A	250 A	320 A	320 A
Bypass input (Dual input)	Yes (principal + bypass)						
Communication	USB / RS232 / RS485 (no simultaneously)						
Intelligent port	2 bays (optional SNMP / optional dry contact)						
FUNCTIONS							
On/OFF with battery (Cold Start)	Yes (allows UPS to run without mains power)						
Auto Restart	Yes (restarts UPS functions after a failure or deep battery discharge)						
ECO mode	Yes						
Emergency Power Off function (EPO)	Rear panel terminals						
Parallelable	Yes (up to 4 units)						
Master/Slave function (LBS)	It enables grouping parallels Master / Slave and control the network switch (STS)						
Bypass operation limits	Configurable						
Frequency converter 50 - 60Hz	Yes						
ENVIRONMENTAL AND MECHANICAL CHARACTERISTICS							
Cooling	Forced with fans (PWM speed control)						
Operation temperature	0°C ~ +40°C						
Noise level (at 1 m)	< 58 dB	< 60 dB	< 61 dB	< 63 dB	< 63 dB	< 66 dB	< 68 dB
Relative humidity	0 - 95 % without condensation						
Dimensions (WxHxL)	250 x 875 x 880 mm		442 x 1200 x 850 mm			442 x 1200 x 850 mm	
Weight approx.	80 kg	83 kg	144 kg	147 kg	155 kg	190 kg	230 kg
STANDARDS							
Marking	CE						
Directives	Low voltage directive: 2014/35/EU, EMC directive: 2014/30/EU						
Standards	Safety: EN 62040-1, EMC: EN 62040-2, Accordance: EN 62040-3						

<sup>(1)</sup> Commercial autonomy. The autonomy can vary widely depending on the applied consumption. Contact us for customized autonomies. These specifications may change without notice



# ZGR SCALABLE 60 – 300 KVA

## ONLINE MODULAR UPS

**ZGR SCALABLE 3:3** range allows to easily increase power and autonomy to meet the changing needs of the end user

ZGR SCALABLE is the most advanced modular UPS, specially designed for data centers and critical loads offering maximum availability.

The MPW grows as the demand for the activity increases, without the need to expand the physical volume of the UPS, optimizing both the initial investment as well as the total costs of ownership.

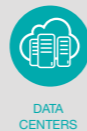
ZGR SCALABLE expanding its feeding capacity is really easy thanks to modules of different powers\*.

ZGR SCALABLE fully satisfies the changing demand of the grid environment and enables the end user to easily increase the power within its 3 available cabinet sizes.



ZGR Scalable 60K

### Applications



### Characteristics

- 10 kVA / 15 kVA / 20 kVA / 25 kVA / 30 kVA modules\*
- Centralized control
- Parallel n+x
- 3-level IGBT Technology
- 3-levels smart charging
- Touch Screen
- Power factor up to 1.0
- Efficiency up to 95.5%
- 2U module height
- High MTBF and MTTR
- Emergency Power Off (EPO)
- Configurable battery voltage (360-600 Vdc)
- Grid Backup function (BackFeed)
- Low harmonic distortion THDI

\* Optional

### TECHNICAL SPECIFICATIONS

Model	ZGR SCALABLE 60k	ZGR SCALABLE 150k	ZGR SCALABLE 300k
Power	10 - 60kVA / 10 - 60kW	10 -150kVA / 10 - 150kW	10 -300kVA / 10 - 300kW
Cabinet	Up to 60k	Up to 150k	Up to 300k
Modules	10k / 15k / 20k / 25k / 30k		
Power factor	1.0		
Format	Cabinet		

### INPUT ELECTRICAL CHARACTERISTICS

Voltage range	305 - 485 Vac (allows use with generators) 3 phases + N + PE
Frequency	40 - 70 Hz (auto detecting)
Power factor	0.99
THDi (100 % load)	< 3% non linear

### OUTPUT ELECTRICAL CHARACTERISTICS

Nominal voltage	380 / 400 / 415 Vac (3 phases + N + PE) ± 1 %
Frequency (battery mode)	50 / 60 Hz ± 0.1 %
Waveform (battery mode)	Pure sinewave
THD harmonic distortion (100 % load)	< 2% linear / < 4% non linear
Transfer time	0 ms battery / 0 ms bypass
Permissible peak current	3:1
Overcharge (Online)	10 min < 110%, 1 min < 130%, bypass > 150%

### EFFICIENCY

Inverter mode	Up to 95.5%
---------------	-------------

### BATTERY

DC bus voltage	360 - 600 Vdc *
Charger maximum current	18 A (per module)
Autonomy <sup>(1)</sup>	Depending on battery capacity

### MONITORING

Informative	LED + LCD color 7" touch screen
Alarms	Acoustics depending on alarm (optional potential-free contacts)
Software	Windows

### CONNECTIONS

Terminal panel	Input / Output / Bypass / Battery		
Protection switch	Input / Output / Bypass / Battery		
Bypass Maintenance switch (MCB)	125 A	200 - 250 A	500 - 600 A
Bypass input	Yes		
Intelligent port	Yes (optional SNMP / RS485 / CAN / dry contact)		

### FUNCTIONS

On/OFF with battery (Cold Start)	Yes (allows UPS to run without mains power)
EPO Function (Emergency Power OFF)	Push button / front panel contacts
Paralleable	Yes (up to 4 units with parallel control N + x)
Frequency converter 50-60Hz	Yes
Battery temperature sensor	Yes (Optional)

### ENVIRONMENTAL AND MECHANICAL CHARACTERISTICS

Cooling	Forced with fans (PWM speed control)		
Operation temperature	0°C ~ +40°C		
Relative humidity	0 - 95 % without condensation		
Noise level (at 1 m)	< 58 dB	< 61 dB	< 68 dB
Dimensions Cabinet (WxHxD)	600 x 1200 x 850 mm	600 x 1200 x 850 mm	600 x 2000 x 850 mm
Weight approx. Cabinets	142 kg	153 kg	295 kg
Dimensions Modules (WxHxD)	440 x 86 x 620 mm		
Weight approx. Modules	21 kg		

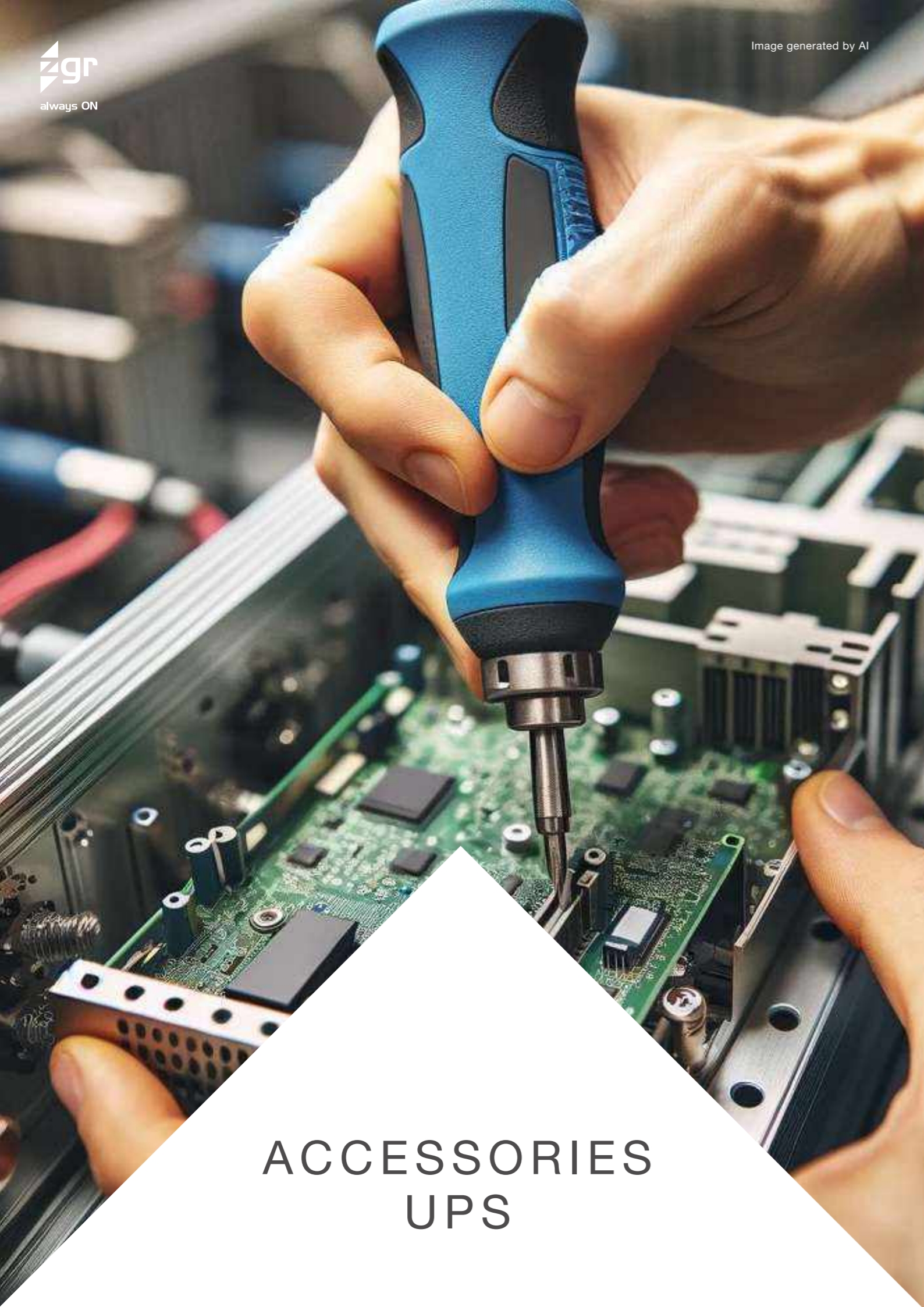
### STANDARDS

Marking	CE
Directives	Low voltage directive: 2014/35/EU, EMC directive: 2014/30/EU
Standards	Safety: EN 62040-1, EMC: EN 62040-2, Accordance: EN 62040-3

*(1) Commercial autonomy. The autonomy can vary widely depending on the applied consumption. Contact us for customized autonomies. These specifications may change without notice*







# ACCESSORIES UPS

## ZGR ACCESSORIES - COMMUNICATIONS



ZGR 310391 - MINI  
SNMP card, Modbus TCP  
Compatibility:  
**TOWER PRO / EFFICIENT RT**  
**VERSATILE / INFLUENCE**



ZGR 310392 - MINI PRO  
SNMP card, Modbus TCP  
Compatibility:  
**TOWER PRO / EFFICIENT RT**  
**VERSATILE / INFLUENCE**



ZGR 316116 - ESTÁNDAR  
SNMP card, Modbus TCP  
Compatibility:  
**VERSATILE / VERSATILE RT / SCALABLE**



ZGR 310395 1-10 kVA - MINI  
Relay card 1 Input / 6 Output  
MINI Compatibility:  
**TOWER PRO / EFFICIENT RT**



ZGR 310396 - ESTANDAR  
Relay card 1 Input / 6 Output - STD  
Compatibility:  
**VERSATILE / INFLUENCE / SCALABLE**



ZGR 310397  
Rack assembly guide  
Compatibility:  
**EFFICIENT RT / VERSATILE RT**



ZGR External Maintenance (wall mount)  
Bypass  
Up to 10 kVA single-phase      Up to 60 kVA three-phase  
Compatibility:  
**TOWER PRO / EFFICIENT RT INFLUENCE**



# MOBILITY

Our experience in power electronics, electrical energy and storage allows **maximum flexibility and adaptation to the needs of each customer**. We can electrify any charging point in petrol stations, Industry fleets, public transport, and all types of car park.

We are very pleased to be able to incorporate in our catalogue this new range of easily managed, well-designed and robust charging solutions.

Our differential factor is in providing an integrated solution, that not only encompasses the supply of chargers, but also the technological infrastructure for its installation in any operational environment. Furthermore, with minimum maintenance.

In the following pages, you will find **fast charging stand-alone charger models** (up to 50 kW) and **ultra-fast charging models** (up to 400 kW). They are conceived from a modular design.

We provide not only the design, development and manufacture of the smart chargers, but we also cover their **start-up and subsequent technical service**.

Another of our innovations is the **centralised charger** for the maximum exploitation of the power available. You will find the central converter (up to 500 kW), the conventional charging post and the pantograph charging post.

This solution allows the repowering of the electrical infrastructure of the service stations in order to convert them into charging stations. We provide customised solutions that maximise resources and minimise the investment.

We seek to take **maximum advantage of natural resources**, by promoting renewable generation and energy self-sufficiency of the charging facility. For this reason, our electrical repowering solutions integrate solar inverters and hybrid storage in batteries.

# ZGR EVC-DC

## STAND-ALONE CHARGERS BETWEEN 30 KW AND 400 KW

Fast and ultra-fast charging suitable for any modern electric vehicle

ZGR EVC-DC is the range of compact chargers that combine a differential aesthetic and robustness with the latest technology and efficiency. They can charge electric vehicles at the highest speeds, and adapt as required throughout the charging process.

With lighting that indicates the charger status and a control interface for intuitive management and a satisfactory experience for the user throughout the charging process.

Minimal and straightforward maintenance, the design having prioritised accessibility as well as the durability of all its components.

ZGR EVC-DC is the best solution for the installation of charging points in en route service stations, Industryl vehicle fleets, shopping centres, car parks, etc.



### Characteristics

- Automatic fast charge
- Operates over a wide range of temperature and humidity
- Weatherproof and anti-vandal
- Fast response to the required charging settings
- Connectors:
  - Modulable: extendable power + redundancy
  - Status information by light signal
  - Remote monitoring through Web Server
  - OCPP communication standard
  - Optional screen
  - AC and DC protection devices



TECHNICAL SPECIFICATIONS		
Model	ZGR EVC-DC-F	ZGR EVC-DC-UF
<b>ELECTRICAL OUTPUT CHARACTERISTICS DC</b>		
DC Voltage range	150 ~ 1000 Vdc	
Maximum power	From 30 to 60 kW	From 90 to 390 kW
Connectors	Single	Double
	CCS1 / CCS2 / CHAdeMO (5 m cable length)	
Maximum current	165 A	1072 A
<b>ELECTRICAL INPUT CHARACTERISTICS AC</b>		
Rated AC voltage	400 (3P + N + PE) ± 10%	
Rated AC power	53 kVA	344 kVA
Power factor	> 0.99	
Frequency range	47 ~ 62 Hz	
Efficiency	> 95 %	
<b>GENERAL CHARACTERISTICS</b>		
User interface	LED / 24" display (optional)	
Communication protocol	OCPP 2.0	
Connections	MODBUS TCP / Ethernet / 4G / 5G / WLAN	
Cooling	Forced ventilation	
Operating temperature	-30°C ~ +50°C	
Protection rating	IP55 (IK10)	
Corrosion class	C5M	
Maximum altitude	2000 msl	
Humidity	4 ~ 95 %	
Dimensions (height / width / depth)	2000 x 800 x 500 mm	2000 x 800 x 900 mm
Approx weight	363 kg	1088 kg
<b>COMPLIANCE WITH REGULATIONS</b>		
Standards and directives	EC marking IEC 61851-1, IEC 61851-22, IEC 61851-23 IEC 62196-1, IEC 62196-2, IEC 62196-3 2014/35/EU, 2014/30/EU	



ZGR EVC-DC-F



ZGR EVC-DC-UF

# ZGR EVC-DCU

## CENTRALISED CHARGING UNIT 1MW

### Single-stage electronic conversion for multiple EV charging points

ZGR EVC-DCU centralises the electrical conversion which is then distributed to the posts. It reduces the need for physical space at the charging points and improves efficiency in energy management. Furthermore, the system allows batteries to be connected directly to the central converter for greater economic efficiency of the installation and adaptation to the available grid power. Its modular architecture with multiple self-regulating DC outputs, allows the total power available at any time to be easily adapted to that necessary at the different charging points.

The ZGR EVC-DC-T posts, compatible with powers of between 30 kW and 300 kW, allow the delivered charging power to be adapted to the total power available at the time thus maximising the use of the installation.

The complete management system allows convenient and simple remote monitoring of the entire installation, to control both the power conversion and the distribution to the different charging points and their status.



• Operating diagram:



### Characteridtics

- Modular conversion: flexibility + redundancy + maximum utilisation factor
- Remote monitoring through Web Server
- Optimum distribution of the available energy
- Operates over a wide range of temperature and humidity
- Status information by light signal
- Remote monitoring and proprietary management system through Web Server
- OCPP communication standard
- Optional screen on charging posts
- Weatherproof and anti-vandal
- Fast response to the required charging settings

TECHNICAL SPECIFICATIONS		
Model	ZGR EVC-DCU	ZGR EVC-DC-T
<b>ELECTRICAL OUTPUT CHARACTERISTICS DC</b>		
DC Voltage range	150 ~ 1000 Vdc	
Maximum power	1 MW	From 30 to 300 kW
Connector	-	CCS1 / CCS2 / CHAdeMO (5 m cable length)
Maximum current	2500 A	825 A
<b>ELECTRICAL INPUT CHARACTERISTICS AC</b>		
Rated AC voltage	400 (3P + N + PE) ± 10%	-
Rated AC power	1500 kVA	-
Power factor	> 0.99	-
Frequency range	47 ~ 62 Hz	-
Efficiency	> 95 %	-
<b>GENERAL CHARACTERISTICS</b>		
User interface	-	LED / 24" display (optional)
Communication protocol	OCPP 2.0	
Connections	MODBUS TCP / Ethernet / 4G / 5G / WLAN	
Cooling	Forced ventilation	Forced ventilation
Operating temperature	-30°C ~ +50°C	
Corrosion class and protection rating	IP55 (IK10)	
Corrosion class	C3	C5M
Maximum altitude	2000 msl	
Humidity	4 ~ 95 %	
Dimensions (height / width / depth)	2300 x 2700 x 2000 mm	2000 x 500 x 500 mm
Approximate weight	3150 kg	182 kg
<b>COMPLIANCE WITH REGULATIONS</b>		
Standards and directives	EC marking IEC 61851-1, IEC 61851-22, IEC 61851-23 IEC 62196-1, IEC 62196-2, IEC 62196-3 2014/35/EU, 2014/30/EU	



ZGR PCS 3300



ZGR EVC-DC



## MAINTENANCE AND SERVICES

Our service is your guarantee. We are defined by very high technical skill, autonomy, flexibility of people, agility in response, customer focus and a service culture.

We cover the entire value chain of the project. From the ad hoc development of technological solutions and device maintenance to the integrated support service to our customers, which allows functionalities to be optimised.

This **360° service** covers:

- Customer service
- Grid quality studies
- Installation suitability studies
- Start-up service
- Maintenance service

• **Audits:** Our installation audit service, through a process of inspection, assessment and analysis, guarantees a solution in line with your specific needs. Our final objective is to reduce operating costs and impacts on the productivity of your company.

• **Repowering:** We support your company during the entire life-cycle of your equipment. Our repowering plan ensures continuous operation without incidents due to degradation of the components, and adds new developed technologies to already installed devices.

We provide different collaboration formulas and we are the complimentary support to all the business lines of our company.

As we are the manufacturers, we have a stock of critical materials and components and we can supply these quickly to you, without losses of availability of your installations.

Now you can also process your repairs due to breakdowns in an instant through our website.

## ZIGOR MAINTENANCE AND SERVICES - ZMS

The service we offer gives you the possibility of benefiting from technical support and advice from a team of accredited professionals.

To guarantee the success, we analyse the needs of the customer's facilities, develop the appropriate technological solution, and offer an efficient after-sales service.

### 1. Audits



This **analytical support**, together with the personalised study of new ideas, products and projects (R&D), will help you find the ideal protection for your critical energy systems, guaranteeing the continuity of your operations.

The final objective is to reduce operating costs and impact on the productivity of your company.

### 2. Study and analysis of electrical grid quality



**ZGR** offers a complete set of solutions to provide excellent energy quality for the supply of Industry processes. The problems of energy quality are of very diverse nature and an **adequate characterization** of these is essential to optimize the operational performance and economic profitability of the installation avoiding excessive and inefficient investments. The deep knowledge accumulated in this area by the technical service team together with the **ZGR** engineering team allows us to offer the best solution to our customers after a complete set of measurements and analysis.

In order to obtain the power quality data a **Network Analyser Equipment** is temporarily installed in the electrical lines of the installation where the disturbances appear. The equipment will continuously store the information regarding voltages and currents in the three phases of the line during the normal operation of the different Industry processes of the plant.

Thanks to the **analysis of the data**, the necessary information is obtained to offer the customer the most appropriate solution to alleviate the recorded network quality problems..

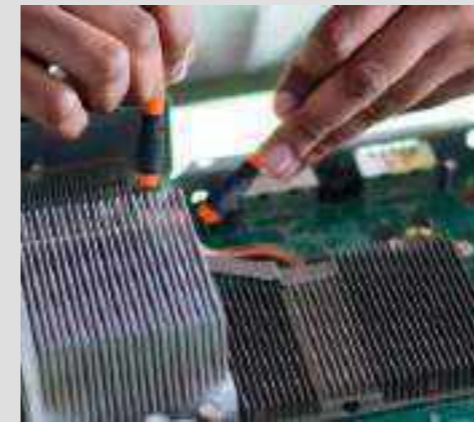
### 3. Installation and commissioning



In order to ensure that our system is correctly adapted to the customer's electrical installation, ZMS offers a **commissioning service** in all our lines of business: generation, industry, and transmission and distribution.

Our team of field engineers will have all the technical means required to carry out their functions, as well as **human capital committed** to quality and efficiency. In this way, we are able to offer, with reliability and competence, **advanced technical support and a competent after-sales service**.

## 4. Maintenance



### » 4.1. Preventive and predictive maintenance

**Preventive interventions** are essential to guarantee our customers greater safety and consolidate the conservation and good behaviour of the equipment. Correct and efficient maintenance will lead to a reduction in costs due to breakdowns and, in short, to a better quality of service.

We have different maintenance methods, adapted to the needs of the client. From a simple **systematic verification visit**, to total solutions that include **evaluation** of functionality and performance, **prediction** of possible future breakdowns, **replacement** of spare parts and periodic visits, taking into account at all times the **uninterrupted operation** of your systems.

We carry out maintenance analysis with specific indicators such as MTBF, MTTR, monitoring of spare parts consumption, failure rates, troubleshooting, etc., as well as operational analysis through event monitoring.

### » 4.2. Corrective maintenance

At the end of the guarantee period, the commitment of our technical service remains a key factor and we offer customers **facilities** to optimize repairs.

Based on a telephone or web notification of the fault, a specialized technician will analyze the scope of the fault in order to make an initial diagnosis. In the first instance, we will try to solve the fault by telephone or via email. If a remote solution is not found, a repair process will be initiated depending on the size of the equipment.

- **Internal service:** the faulty equipment will be sent to our central factory.
- **Technical assistance:** a date will be planned with the customer that is convenient for both parties.

### » 4.3. 24/365 Service

During working hours, ZMS has a telephone service to offer technical advice or to deal with any queries related to installations, software, breakdowns, etc

We also have a 24 hour / 365 days a year on-call service with a maximum of 4 hours, which may be shorter or longer depending on the customer's needs.



## 5. Controlled waste recycling



### » Our commitment to the environment:

- Preventing and eliminating pollution, guaranteeing adequate management of the waste produced in our activity.
- Recycle batteries of any composition (Pb, Ni Cd, Lithium Ion...).
- Comply with current environmental legislation and regulations, as well as with other requirements subscribed to voluntarily.
- Promote good environmental behaviour practices among our customers.

### » Principles:

- Use raw materials and energy in a rational way.
- Integrate a culture of respect for the environment in all our company's design, development, production and after-sales service activities.
- To manage all waste according to criteria of minimisation at source, reuse and recycling.



**ZGR always on**

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