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Product Catalog 2023

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ZGR Corporation 2023

The **2023 catalogue** marks a very special milestone in our company. During recent months, we have worked intensely on launching new very innovative solutions that we are sure will make a difference to our customers.

We are a benchmark in the **latest generation power electronics** devices and we provide support throughout the entire energy chain: Generation, Transmission and Distribution and End Users.

2023 is a year of launches: The **new bidirectional power station inverter**, designed to obtain the maximum profitability for utility scale PV projects; **the new high power MIT** and **DVR**; the new **smart charger** line for **electric mobility**, among others.

Also presented are functional and innovative improvements in some products, in which our leadership has been indisputable over recent years: **Rectifiers-chargers for a DC power supply in critical systems**; voltage stabilizers that guarantee power supply to industrial processes; a **complete range of industrial UPSs**, and new control and digitalisation solutions, among others.

Another very important new feature is that we are **strengthening our services line**, with the added possibility of managing technical needs, repairs, start-ups and maintenance through our website, a much more functional and focused way to facilitate communication and service to our customers.

The combination of the **more than 30 years of ZGR's experience in electrical and electronic engineering** together with a young growing team is a guarantee of success in the market application of any of its solutions.

We are convinced that **technology** and **innovation** is the future of energy. Once again, the context shows that we are right: **Energy efficiency** is critical and it is our raison d'être.

We are presenting a catalogue of the highest quality, robust and efficient products, designed to generate the maximum productivity and profitability of our customers' energy.

Thank you for the confidence you have placed in our company and our solutions. We hope to continue being your best ally. Your energy is our challenge.


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Index

Energy

Transmission and distribution

Industry

UPS

Mobility

ZMS - ZGR Maintenance and Services

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ENERGY

ENERGIA@ZIGOR.COM

We are presenting a **complete range of solar inverters**, which cover the entire spectrum of powers and are adaptable to any installation: Industryl, residential and large-scale. They are capable of functioning at maximum energy performance under extreme temperature and altitude conditions. They are designed with a modular, redundant and scalable topology.

As a great innovation, **this year we are launching our ZGR 3300 kVA - 1500 V Power Station and Modular Inverter**, a solution designed for obtaining the maximum profitability for utility-scale PV projects.

One of the most important characteristics of this device is that the power modules are two-way: They can be configured as chargers for batteries or inverters for photovoltaic panels.

The new ZGR 3300 kVA - 1500 V Modular Power Station Inverter can be regulated for different power distributions for battery charging or for energy injection to the grid. Moreover, it is compatible with all the battery technologies and it accepts common inverter and charger spare parts, which minimises maintenance costs, reduces the necessary space for the installation, minimises the initial investment and improves profitability as it achieves maximum energy productivity.

With the most efficient solutions on the market for self-consumption and energy communities, as well as for the development of large photovoltaic plants, we have experience in all areas: Industryl, Residential, Agrovoltaic, Floating Solar, Solar car parks, among others.

In this catalogue you will also find the **latest advances in battery storage and modular hybrid systems**. Designed to optimise generation, increase the stability of photovoltaic plants and make the investment profitable. Thus, our PCS Grid and PCS 3200 battery converters (three-phase inverter with the latest 2-way technology) are clear examples of this.

With our own technology and know-how, as manufacturers we offer 10 year warranties on our solutions. Furthermore, we complement this with a **24/7 technical service; technical training and tailored developments**. All our solutions are customisable and flexible, as our differentiating factor is modularity. Our inverters are ready for Discharge 0.

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

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ZGR STR 2 / 3 / 4 / 5 inverters offer high energy efficiency with compact and lightweight design, being ideal for residential integrations

ZGR SOLAR STR 2 / 3 / 4 / 5

STRING SINGLE-PHASE INVERTERS

ZGR SOLAR STR string inverters are easy-to-use devices that have been designed to meet the needs of residential grid connection.

In an effort to improve the functionalities of domestic photovoltaic installations, these inverters offer efficiency greater than 97% as well as local and remote monitoring functionalities.

This new range of string inverters offers a power range between 2 and 5 kW, with a noise level below 35dB, not affecting the comfort of the household.

Applications

DOMESTIC USE

PHOTOVOLTAIC

ENERGY SAVINGS

SELF-CONSUMPTION

Characteristics

- Maximum Power Point Tracking (MPPT)
- Efficiency greater than 97%
- Reduced harmonic distortion <3%
- Suitable for integration into self-consumption facilities
- Local monitoring via LCD
- Easy installation (Plug & Play)
- Compact and lightweight design
- Reduced noise level
- Cooling by natural ventilation

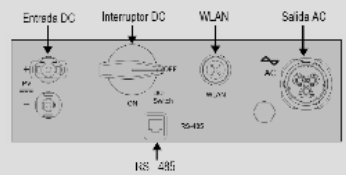
TECHNICAL SPECIFICATIONS				
Model	ZGR SOLAR STR 2	ZGR SOLAR STR 3	ZGR SOLAR STR 4	ZGR SOLAR STR 5
INPUT [DC]				
Max. PV voltage	500 V			
MPP voltage range	100 - 490 V			
MPP voltage range for nominal power	190 – 400 Vdc	240 - 400 Vdc	165 – 400 Vdc	240 - 400 Vdc
Nominal PV input voltage	380 V			
Min. PV input voltage	100 V			
No. of MPPT trackers	1		2	
Max. Number of input connector per MPPT	1			
Max. Current per MPPT	11 A	13 A	13 A	
Max. Short-circuit current per MPPT	15 A	17 A	17 A	
Max. Current DC	11 A	13 A	26 A	
OUTPUT [AC]				
Nominal AC output power	2 kW @ 30°C; 1.8 kW @ 40°C; 1.6 kW @ 50°C	3 kW @ 30°C; 2.7 kW @ 40°C; 2.4 kW @ 50°C	4 kW @ 30°C; 3.6 kW @ 40°C; 3.2 kW @ 50°C	3 kW @ 30°C; 4.5 kW @ 40°C; 4 kW @ 50°C
Max. AC apparent power	2 kVA	3 kVA	4 kVA	5 kVA
Max. AC Active Power (cos=1)	2 kW	3 kW	4 kW	5 kW
Nominal AC voltage	230 V ± 20%			
AC connection	1W + N + PE			
AC grid frequency range	50 / 60 Hz (± 5 Hz)			
Nominal output current	9 A	13 A	17.5 A	22 A
Max. output current	9 A	13 A	17.5 A	22 A
Adjustable power factor range	0.9 lagging/leading			
THDi	< 3%			
EFFICIENCY				
Max. Efficiency	97.6 %		97.5 %	
European Efficiency	97 %		97 %	
PROTECTIONS				
Protections	DC switch; Anti-islanding Protection; DC Reverse-polarity Protection; PV-array String Fault Monitoring; Overvoltage protection; Ground fault monitoring; AC Overcurrent Protection; AC short circuit protection			
GENERAL CHARACTERISTICS				
Topology	Transformerless			
Cooling Method	Natural cooling			
Operating Temperature Range	-25°C ~ +60°C			
Protection class	IP 65			
Ingress protection rating	Class I			
Noise emission	< 25 dB		<35 dB	
Operating Altitude	< 2000m			
Relative Humidity	0 a 95 % non-condesing			
Dimensions (W x H x D)	264 x 326 x 127 mm		329 x 466 x 149 mm	
Weight	8.1 kg	8.6 kg	14.9 kg	15.5 kg
COMMUNICATION				
Comunications	RS 485			
COMPLIANCE				
Certification & Standards	EN 62109-1: 2011 & EN 62109-2:2013 ; IEC 61000-3-2 ; EN 61000-6-2 & EN 61000-6-3 ; VDE 0126-1-1 ; RD 244/2019 & UNE 217001:2020; EN206007 & UNE 217002:2020; Rule UE 2016/631:NTS 631 v2		EN 62109-1: 2011 & EN 62109-2:2013; EN 61000-3-12:2012 ; EN 61000-6-2 & EN 61000-6-3; VDE 0126-1-1 ; RD 244/2019 & UNE 217001:2020; EN206007 & UNE 217002:2020; Rule UE 2016/631: NTS 631 v2	

These specifications may change without notice

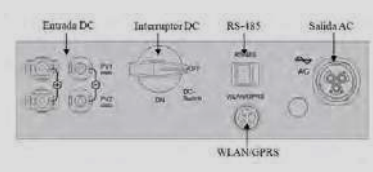
Connections

ZGR SOLAR STR 4/5

ZGR SOLAR STR 2/3



ZGR SOLAR STR 4/5



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ZGR STR 20 / 30 / 40 / 50 solar inverters offer high energy efficiency with a compact and lightweight design

ZGR SOLAR STR 20 / 30 / 40 / 50
THREE-PHASE STRING INVERTERS

String inverters ZGR SOLAR STR are easy-to-use devices that have been designed to meet the needs of all solar power plants connected to the grid.

In an effort to improve the performance of solar plants, these inverters offer high energy efficiency, greater than 98%.

ZGR SOLAR STR inverters have a LCD display, to make it easier for the user to access the information of the inverter and its parameters.

This new range of string inverters offers a DC input voltage range between 480 to 800 Vdc and an IP 65 protection degree.

Applications

INDUSTRY

PHOTOVOLTAIC

SELF-CONSUMPTION

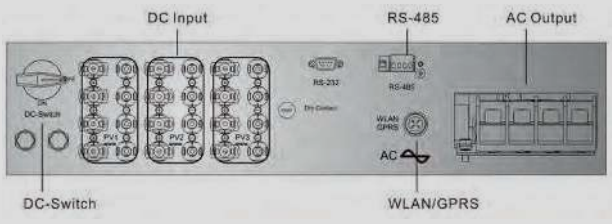
Characteristics

- Maximum Power Point Tracking (MPPT)
- High efficiency, greater than 98%
- Reduced harmonic distortion, THD < 3%
- Direct grid connection
- Parallel connection without limitation
- Anti-island protection with automatic disconnection
- Local monitoring via LCD
- Protection against
  - Reverse - polarity
  - Short-circuits
  - Overvoltages
  - Isolation faults
- Compact and lightweight design, easy installation

TECHNICAL SPECIFICATIONS				
Model	ZGR SOLAR STR 20	ZGR SOLAR STR 30	ZGR SOLAR STR 40	ZGR SOLAR STR 50
INPUT [DC]				
Max. PV voltage	1000 V			
MPP voltage range	250 - 950 V			
MPP voltage range for nominal power	480 - 800 V			
Nominal PV input voltage	620 V			
Min. PV input voltage	250 V			
No. of MPPT trackers	2	3		
Max. Number of input connector per MPPT	2	4		
Max. Current per MPPT	21 A	36 A		
Max. Short-circuit current per MPPT	28 A	48 A		
Max. Current DC	42 A	108 A		
OUTPUT [AC]				
Nominal AC output power	22 kW @30°C; 20 kW @40°C; 18 kW @50°C	33 kW @30°C; 30 kW @40°C; 30 kW @50°C	44 kW @30°C; 40 kW @40°C; 40 kW @50°C	55 kW @30°C; 50 kW @40°C; 45 kW @50°C
Max. AC apparent power	22 kVA	33 kVA	44 kVA	55 kVA
Max. AC Active Power (cosø=1)	22 kW	33 kW	44 kW	55 kW
Nominal AC voltage	400 V ± 20%			
AC connection	3W + N + PE			
AC grid frequency range	50 / 60 Hz (± 5 Hz)			
Nominal output current	29 A	43 A	58 A	72 A
Max. output current	32 A	48 A	64 A	80 A
Adjustable power factor range	0.8 lagging/leading			
THDi	< 3%			
EFFICIENCY				
Max. efficiency	98 %	98.6 %		
European efficiency	97.5 %	98 %		
PROTECTIONS				
Protections	DC switch; Anti-islanding Protection; DC Reverse-polarity Protection; PV-array String Fault Monitoring; Overvoltage protection; Ground fault monitoring; AC Overcurrent Protection; AC short circuit protection			
GENERAL CHARACTERISTICS				
Topology	Transformerless			
Cooling Method	Natural cooling	Smart forced air cooling		
Operating Temperature Range	-25ºC ~ +60ºC			
Protection class	IP 65			
Ingress protection rating	Class I			
Noise emission	< 40 dB	< 60 dB		
Operating Altitude	< 3000 m			
Relative Humidity	0 a 95 % non-condesing			
Dimensions (W x H x D)	715 x 553 x 228 mm	958 x 636 x 260 mm		
Weight	39 kg	68 kg		
COMMUNICATION				
Comunications	RS485			
COMPLIANCE				
Certification & Standards	EN 62109-1: 2011 & EN 62109-2:2013 ; EN 61000-3-12:2012 ; EN 61000-6-2 & EN 61000-6-4 ; VDE 0126-1-1 ; RD 244/2019 & UNE 217001:2020 ; EN206007 & UNE 217002:2020 ; UE 2016/631:NTS 631 v2			

These specifications may change without notice

Connections



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The ZGR SOLAR STR 100 / 120 / 200 / 250 solar inverters offer high energy efficiency with a compact design, being ideal for medium to large sized solar plants

ZGR SOLAR STR 100 /120 /200 /250

THREE-PHASE STRING INVERTER

ZGR SOLAR STR 100 / 120 / 200 / 250 string inverters are user-friendly devices designed to meet the needs of all grid-connected solar power plants.

In an effort to improve the performance of solar plants, these inverters offer a high energy efficiency, greater than 98%. The ZGR SOLAR STR 100 / 120 / 200 / 250 inverters have LED indicator, to facilitate the user's inverter management.

This new range of string inverters offers an input DC voltage range, at full load, between 880 and 1300 Vdc and an IP 66 protection degree.

Applications

PV ON-GRID | PV MEDIUM VOLTAGE | ENERGY SAVINGS

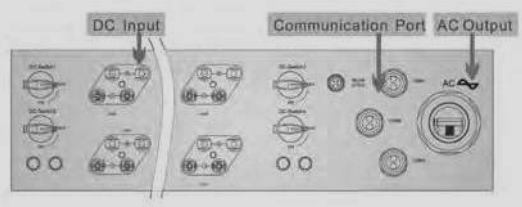
Characteristics

- Maximum Power Point Tracking (MPPT)
- High efficiency, greater than 98%
- Reduced harmonic distortion, THD < 3%
- Direct connection to step-up transformer
- Parallel connection without limitation
- Anti-island protection with automatic disconnection
- Local monitoring via LED indicators
- Protection against
  - Reverse - polarity
  - Short-circuits
  - Overvoltages
  - Isolation faults
- Compact design and easy installation

TECHNICAL SPECIFICATIONS				
Model	ZGR SOLAR STR 100	ZGR SOLAR STR 120	ZGR SOLAR STR 200	ZGR SOLAR STR 250
INPUT [DC]				
Max. PV voltage	1100 V		1500 V	
MPP voltage range	200 – 1000 V		600 - 1500 Vdc	
MPP voltage range for nominal power	550 - 850 V		880 - 1300 Vdc	
Nominal PV input voltage	620 V		1080 V	
Min. PV input voltage	200 V		650 V	
No. of MPPT trackers	10		12	
Max. Number of input connector per MPPT	2		2	
Max. Current per MPPT	26 A		30 A	
Max. Short-circuit current per MPPT	35 A		40 A	
Max. Current DC	260 A		360 A	
OUTPUT [AC]				
Nominal AC output power	100 kW @ 30°C; 100 kW @ 40°C; 100 kW @ 50°C	120 kW @ 30°C; 110 kW @ 40°C; 100 kW @ 50°C	200 kW @ 40°C; 175 kW @ 50°C	250 kW @ 40°C; 225 kW @ 50°C
Max. AC apparent power	100 kVA	120 kVA	200 kVA	250 kVA
Max. AC Active Power (cos ø=1)	100 kW	120 kW	200 kW	250 kW
Nominal AC voltage	400 V ± 20%		800 V ± 20%	
AC connection	3W + N + PE			
AC grid frequency range	50 / 60 Hz (± 5 Hz)			
Nominal output current	144 A	173.9 A	126.3 A	162,4 A
Max. output current	147 A	176.4 A	144.3 A	180.4 A
Adjustable power factor range	0.8 lagging/leading			
THDi	< 3%	< 3%	< 3%	< 3%
EFFICIENCY				
Max. Efficiency	99 %	99 %	99 %	99 %
European Efficiency	98.6 %	98.6 %	98.5 %	98.6 %
PROTECTIONS				
Protections	DC switch; Anti-islanding Protection; DC Reverse-polarity Protection; PV-array String Fault Monitoring; Overvoltage protection; Ground fault monitoring; AC Overcurrent Protection; AC short circuit protection; LVRT / HVRT			
GENERAL CHARACTERISTICS				
Topology	Transformerless			
Input terminal	Amphenol			
Cooling Method	Smart forced air cooling			
Operating Temperature Range	-25°C ~ +60°C			
Protection class	IP66			
Ingress protection rating	Class I			
Noise emission	≤ 65 dB			
Operating Altitude	< 4000 m			
Degree of pollution	PD3			
Relative Humidity	0-100% non-condensing			
Dimensions (W x H x D)	1055 x 700 x 336 mm			
Weight	96 kg		110 kg	
COMMUNICATION				
Communication	RS485			
COMPLIANCE				
Certification & 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 ; UE 2016/631:NTS 631 v2			

These specifications may change without notice

Connections



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The ZGR SOLAR CTRh 3300 1500 V range guarantees high performance in medium and large-sized PV plants

ZGR SOLAR CTRh 3300 1500 V
THREE-PHASE POWER PLANT INVERTER

The ZGR CTRh 3300 1500 V Inverters have been specifically designed to optimise the performance and reduce the power density in medium and large PV plants.

Unmatched power density per unit of volume, making a significant reduction of the space required for the implementation of PV inverters in utility-scale plants.

Another very important characteristic is its automatic reactive power regulation and its communication capacity between inverters and the centralised control and monitoring systems.

The ZGR CTRh 3300 1500 V inverters comply with various regulations in order to meet response requirements to voltage drops without disconnection.

They are perfect for utility PV projects (medium to large-scale) and are specifically designed to meet the most demanding specifications and operate under severe weather conditions.

Applications

Characteristics

- Input Voltage Range (950-1500 Vdc)
- Maximum Power Point Tracking (MPPT)
- High-energy efficiency MPPT > 99%
- Very low harmonic distortion, THD < 3%
- Selectable power factor
- Anti-islanding protection with automatic disconnection
- Rapid response to a change in the set point.
- High working temperature range, from -40ºC to +50ºC
- Scalable, modular and redundant by means of power modules
- AC protection devices:
  - Short-circuits and overloads
  - Over voltages and voltage drops
  - Over frequency and frequency drops
- IP65 protection rating for its most critical components
- Operation at altitude up to 4000 m
- Low-cost maintenance
- Integrated DC/AC isolation chargers
- Remote monitoring
- Support for voltage dips
- Protection against:
  - Reverse polarisation
  - Short-circuit
  - Overvoltages
  - Insulation faults with output to relay.

TECHNICAL SPECIFICATIONS	
Model	ZGR SOLAR CTRh 3300 1500V
INPUT (DC)	
MPPT voltage range (25ºC / 35ºC / 50ºC)	950 V a 1500 V
MAX MPPT voltage (50ºC)	1350 V
Min input voltage, min Vdc / Start-up voltage Start-up Vdc	950 V/1100 V
Max input voltage, max Vdc	1500 V
Max input current Max Idc	3515 A
Max short-circuit current	6400 A
Number of DC inputs	Up to 24 protected by two poles (32 protected by one pole) for photovoltaic inputs
Max number of DC cables per input	2 x 800 kcmil, 2 x 400 mm^2
DC fuse size available (per input)	200 A, 250 A, 315 A, 350 A, 400 A, 450 A, 500 A
OUTPUT (AC)	
Nominal AC power with cos phi = 1 (50ºC / 60ºC)	3300 kVA / 3100 kVA
Nominal AC power with cos phi = 0.8 (50ºC / 60ºC)	2640 kW / 2400 kW
Rated AC current Iac, max = max output current max Iac	2677 A
Max distortion coefficient	< 3% a nominal power
AC rated voltage / AC voltage range	50 Hz / 45 Hz - 55 Hz 60 Hz / 55 Hz - 65 Hz
AC network frequency	> 2
Min short-circuit ratio at the AC terminals	1 / 0.8 inductive to 0.8 capacitive
Power factor to assigned power / adjustable lag factor	1 / 0.0 inductive to 0.0 capacitive
WORKING TIME	
Max / European / Californian	98.9 % / 98.7 % / 98.6%
PROTECTION DEVICES	
Connection point on the DC side	DC circuit breaker
Connection point on the AC side	AC circuit breaker
Protection against DC overvoltage	Type II surge discharger
Protection against AC overvoltage	Type II surge discharger
Earth fault / earth fault monitoring by remote control	GFDI
Protection type: electronic / air duct / connection area (in accordance with IEC 60529)	IP65 / IP34 / IP34
GENERAL DETAILS	
Dimensions (height / width / length)	2400 / 2200 / 2800
Weight	5250 kg
Self-consumption (max. / partial load / average)	< 8100 W / < 1800 W / < 2000 W
Self-consumption (on stand-by)	< 370 W
Internal auxiliary power supply	8.5 kVA integrated transformer
Service temperature range	-25ºC ~ +60ºC
Noise emissions	67.8 dB
Temperature range (on stand-by)	-40ºC ~ +60ºC
Temperature range (storage)	-40ºC ~ +70ºC
Max relative humidity (with/without condensation)	95 % a 100 % (2 months/year) / 0 % a 95 %
Max operating altitude (with/without derating)	2000 m / 4000 m
Air consumption	8000 m^3/h
EQUIPMENT	
DC connection	Cable terminal at each input (without fuse)
AC connection	With busbar system (three busbars, one for each phase conductor)
Communication	Ethernet, Modbus master, Modbus slave
ZGR String Monitoring communication	Modbus TCP / Ethernet (fibre optics, MM, Cat-5)
Enclosure colour	-
Power supply transformer for external equipment	2.5 kVA integrated transformer
Compliance with regulations	EN 61000-6-1, EN 61000-6-2, EN 61000-6-4, EN 61000-3-11, EN 61000-3-12, EN 62109-1, EN 62109-2, IEC62103, EN 50178, FCC Part 15, AS3100 and UL IEC 62116, UE 2016/631, Arrêté du 9 juin 2020, CEI 0-16, V1:2020-12, Terna A68, G99, VDE-AR-N 4110, P.O.12.2 (NTS), P.O. 12.3, South African Grid Code, Chilean Grid Code, Ecuadorian Grid Code, Peruvian Grid Code, Thailand PEA requirements, IEC61727, UNE 206007-1, ABNT NBR 16149, ABNT NBR 16150, IEEE 1547, IEEE1547.1, GGC&CGC China, DEWA (Dubai) Grid Code, Jordan Grid Code, RETIE Colombia

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The ZGR SOLAR PS is the ideal turnkey solution for large photovoltaic plants

ZGR SOLAR PS POWER STATION 3300/6600

The ZGR SOLAR PS is an cargo container plug and play solution, that is fully equipped with inverters connected to a transformer station and medium-voltage switchgear, in addition to auxiliary and communication services for its use in photovoltaic installations.

It is a turnkey solution that enables the overall efficiency of a conversion system to be increased and installation costs reduced.

All its electronic devices are adapted according to the required technical specifications and are combined in order to reach maximum performance, efficiency and uninterrupted operation during its entire useful life.

ZGR SOLAR PS 3300

ZGR SOLAR PS 6600

Applications

PV ON-GRID

PV MEDIUM VOLTAGE

ENERGY SAVINGS

Characteristics

- High voltage input range
- Up to 60 DC Inputs
- Active and reactive power control
- LVRT / HVRT / FRT functions
- Standard 20/40 foot container
- Easy installation (Plug & Play)
- Medium-voltage transformer
- Multiple protection devices
- Modular interior design for easy maintenance

TECHNICAL SPECIFICATIONS		
Model	ZGR SOLAR PS3300	ZGR SOLAR PS 6600
Power	3300 kW/kVA	6600 kW/kVA
ELECTRICAL INPUT CHARACTERISTICS		
Voltage range	1500 Vdc	1500 Vdc
DC power tracking range (MPPT)	800 – 1300 Vdc	900 - 1300Vdc
NMTTP number	1 - 4	1 - 4
Maximum DC input current	3950 A	8450 A
ELECTRICAL OUTPUT CHARACTERISTICS		
Rated output power	3300 kW	6600 kW
Maximum output power	3950 kW	7200 kW
Rated LV output voltage	630 Vac	630 Vac
Rated MV output voltage	10 – 35 kV	10 -35 kV
Frequency range	50 / 60 Hz (± 4,5 Hz) (adjustable)	50 / 60 Hz (± 4,5 Hz) (adjustable)
Power factor	1 (± 0,9) (adjustable)	1 (± 0,8) (adjustable)
THDi	< 3 %	< 3 %
PROTECTION DEVICES		
Detection of AC leakage currents	Yes	
Detección de fuga a tierra	Yes	
LVRT	Yes	
Anti-islanding	Yes	
Reverse polarisation	Yes	
AC overvoltage	Yes	
DC overvoltage	Yes	
GENERAL CHARACTERISTICS		
Maximum efficiency	99 %	
European efficiency	98.7 %	
MPPT Efficiency	> 99 %	
Cooling method	Forced ventilation	
Communications	RS 485, Ethernet (optional)	
AMBIENT AND MECHANICAL CHARACTERISTICS		
Ambient temperature range	-40°C ~ +60°C (derating from 50°C)	
Ambient protection rating	IP 54	
Operating altitude	2000 m	
Relative humidity	0 a 95 % without condensation	
Noise level	< 65 dB	< 60 dB
Dimensions	6058 x 2438 x 2896 mm (20 foot)	12192 x 2438 x 2896 mm (40 foot)

These specifications may change without notice

Dimensions

ZGR SOLAR PS 3300

ZGR SOLAR PS 6600

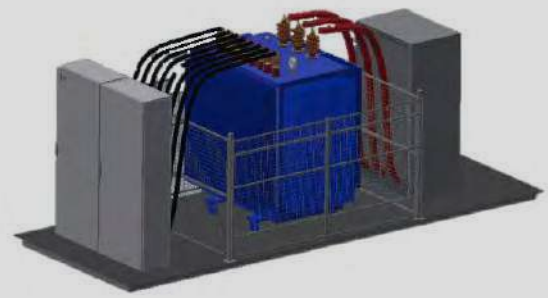
ZGR SOLAR STRING STATION is the ideal turnkey solution for large photovoltaic plants

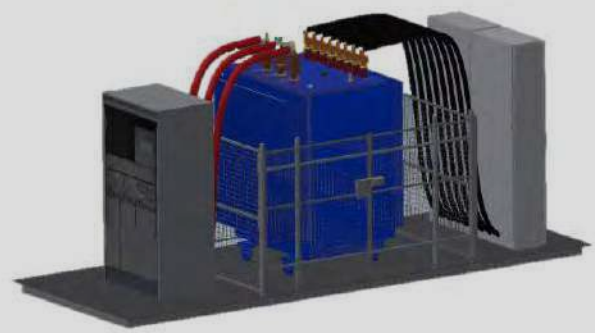
ZGR SOLAR STRING STATION 3 MVA - 5 MVA

The ZGR SOLAR String Station is a Plug&Play solution in Skid, fully equipped with inverters, optionally connected to a transformer station and medium voltage cells, as well as auxiliary services and communications for use in photovoltaic installations.

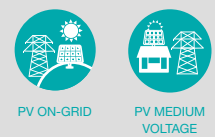
It is a turnkey solution that makes possible to increase the overall efficiency of a conversion system and reduce installation costs.

All the electronic equipment are adapted according to the technical needs required by the installation and are combined to achieve maximum performance, efficiency and uninterrupted operation throughout its service life.





Applications

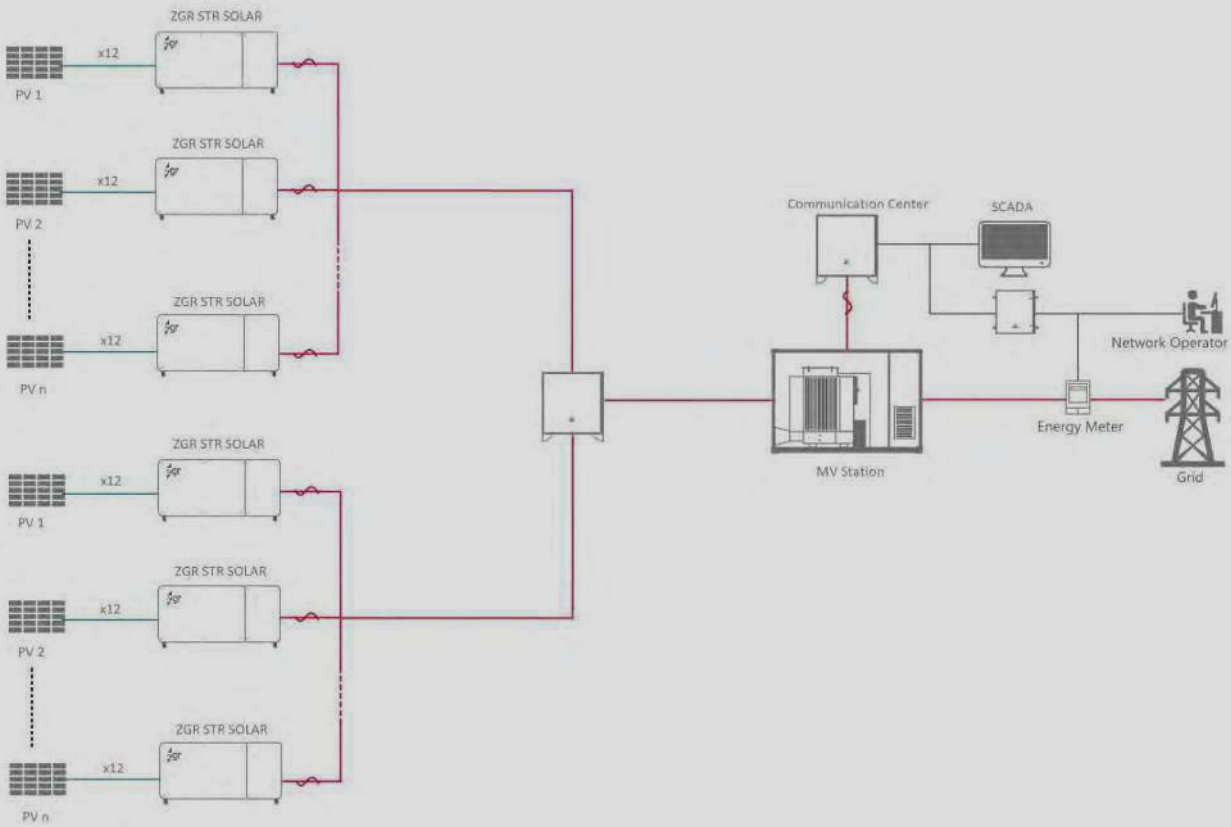


Characteristics

- Medium voltage range <36 KV
- Separate inputs for standars string inverter
- Cell/transformer interlocking
- Skid transportable in standard container
- Easy installation (Plug & Play)
- Medium Voltage transformer
- Multiple protection devices
- Modular interior design for easy maintenance

TECHNICAL SPECIFICATIONS		
Model	3 MVA	5 MVA
ELECTRICAL INPUT CHARACTERISTICS		
Electrical input	800 V	
Power tracking range	640 - 920 V	
String Inverted Model	ZGR SOLAR STR 250	
Number of inverters	12	20
ELECTRICAL OUTPUT CHARACTERISTICS		
Nominal AC output power	3000 kVA @ 40°C	5000 kVA @ 40°C
Rated MV output voltage	10-36 kV	
Frequency range	50 / 60 Hz (± 5Hz) adjustable	
Power factor	0.9 capacitive – 0.9 inductive	
PROTECTION DEVICES		
Number of LV protections	12	20
Type of LV protection	Automatic switch	
LV load break switch	Yes	
LV Surge Arrester	Yes	
LV enclosure type	Outdoor	
Number of LV protections	1	
Type of MV protection	Cell with circuit-breaker (1L1P)	
Type of MV enclosure	Outdoor	
AMBIENT AND MECHANICAL CHARACTERISTICS		
Ambient temperature range	-20°C ~ +40°C	
Operating altitude	2000 m (without power losses)	
Relative humidity	0 to 100% (without condensation)	

These specifications may change without notice



always ON

ZGR PCS GRID has advanced grid stabilization and regulation functions

ZGR PCS GRID
ADVANCED ENERGY STORAGE

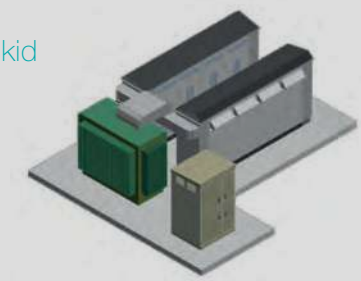
ZGR PCS GRID is a three-phase inverter with the latest bidirectional technology. The objective of the equipment is to convert the energy of the grid into energy in batteries and return it when there is energy demand.

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 0ºC to +50ºC
- 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.

* External

Connectivity and monitoring

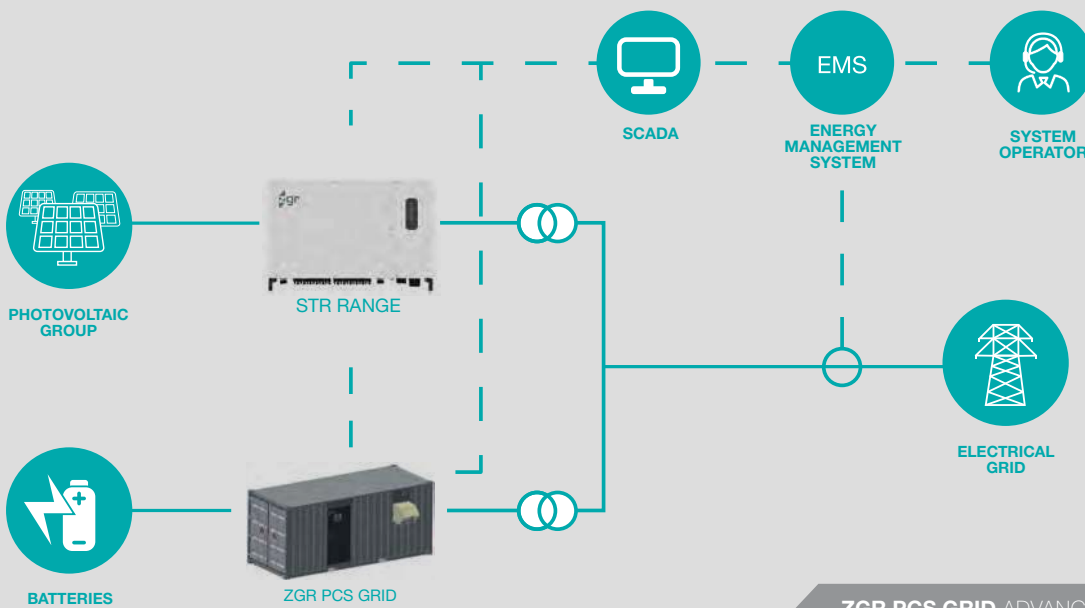
Communication gateway integrated. It enables the communication via Web Server (http). The Web Server provides full access to all information of ZGR PCS GRID: voltage and current measures, alarms, configuration, etc.

TECHNICAL SPECIFICATIONS		
Model	ZGR PCS GRID 150	ZGR PCS GRID 300
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 (1)	
Battery voltage	600 – 850 Vdc (2)	
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, oven 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 (3)	
General directives	IEC 62909-1, IEC 62477-1+AMD1, CISPR-11, CISPR-11, UNE 217002, UNE 206007-1 IN	

(1) For THDV < 1% and nominal power
(2) The voltage of the battery must not exceed this value in any case
(3) With isolation transformer and external filter

To customize the equipment consult ZIGOR
These specifications may change without notice

Use case



ZGR PCS 3300
BIDIRECTIONAL INVERTER

ZGR PCS is a three-phase converter with the most modern vector control technology and latest generation semiconductors, whose main applications are related to the management of integral energy storage: Micro-grid management, “Grid Support”, “Black-Start” PV-STG hybrid systems, frequency regulation, island operation, anti-islanding function, etc.

The ZGR system facilitates the integration of renewable energy sources and reduces grid investments by improving stability and enabling increased energy generation and demand.

Thanks to the different operating modes implemented in the ZGR PCS (Power, Voltage, Frequency Control), it offers grid operators a fundamental tool to maintain grid operating conditions within the appropriate quality standards.

Characteristics

- DC voltage range (950-1500Vdc)
- Harmonic distortion, THD < 3%
- Automatic operation modes:
  - Frequency control
  - Voltage control
  - Black-Start (Island Mode)
  - Active power reserve
  - Active/Reactive Power Control
- Fast response before control setpoint changes
- Wide working temperature range -30ºC and +50ºC (+60ºC with de-rating)
- Modular, 825 kW Power Block
- AC protection devices:
  - Short-circuits and overloads
  - Over voltages and voltage drops .
- IP55 protection rating for its most critical components
- Modular and redundant power system (*)
- Operation at altitude up to 4000 m
- Low-cost maintenance
- AC and DC circuit breakers
- Remote monitoring
- DC protection:
  - Reverse polarisation
  - Short-circuit
  - Overv-voltages
  - Insulation fault detection

TECHNICAL SPECIFICATIONS	
Model	ZGR PCS 3300 1500V
INPUT (DC)	
Voltage range	950 V to 1500 V
Rated voltage (50ºC)	1350 V
RDC voltage ripple	< 3%
Max input voltage. I max (1 output DC)	3,580 A
Protections	Circuit breakers
Max short-circuit current	200 kA
Number of DC inputs	1, 2 or 4 standard DC
Available DC Fuse Ratings (per input)	Depending on battery type and DC input configuration
OUTPUT (AC)	
Nominal AC power with cos phi = 1 (50ºC)	3350 kVA
Nominal AC power with cos phi = 0.8 (50ºC)	2680 kW
Rated AC current Iac, max=	2800 A
Max distortion coefficient	< 3% at rated power
AC rated voltage	690 V
AC network frequency / range	50 Hz / 45 Hz - 55 Hz 60 Hz / 55 Hz - 65 Hz
Min short-circuit ratio at the AC terminals	> 2
Power factor to assigned power / adjustable lag factor	1 / 0.8 inductive to 0.0 capacitive
WORKING TIME	
Maximum	98.9 %
PROTECTION DEVICES	
Connection point on the DC side	DC circuit breaker
Connection point on the AC side	AC circuit breaker
Protection against DC overvoltage	Type II surge discharger
Protection against AC overvoltage	Type II surge discharger
Earth fault / earth fault monitoring by remote control	Earth fault monitoring by remote control GFDI
Protection type: electronic (in accordance with IEC 60529)	IP55
GENERAL DETAILS	
Dimensions (height / width / length)	2400 / 2200 / 2800
Weight	5250 kg
Self-consumption (max. / partial load / average)	< 8100 W / < 1800 W / < 2000 W
Self-consumption (on stand-by)	< 370 W
Internal auxiliary power supply	8.5 kVA integrated transformer
Service temperature range	-30ºC ~ +60ºC
Noise emissions	67,8 dB
Temperature range (on stand-by)	-30ºC ~ +60ºC
Temperature range (storage)	-40ºC ~ +70ºC
Max relative humidity (with/without condensation)	0 % to 95 %
Max operating altitude (with/without derating)	2000 m / 4000 m
Air consumption	8000 m^3/h
EQUIPMENT	
DC connection	With busbar system (two busbars, one for each phase conductor)
AC connection	With busbar system (two busbars, one for each phase conductor)
Communication	Ethernet, Modbus TCP
Comunicación de ZGR String Monitoring	Modbus TCP / ethernet (optical fiber MM, Cat-5)
Enclosure colour	RAL 7035 / Others on demand
Power supply transformer for external equip.	On demand - 2.5 kVA transformer integrated
Compliance with regulations	IEC 62920, IEC 61000-6-1, IEC 61000-6-2, IEC 61000-6-4, IEC 61000-3-11, IEC 61000-3-12 IEC 62109-1, IEC 62109-2, EN 50178, FCC Part 15, AS3100, IEC 62116, EU 631/2016 (EN 51549, CEI 0-16, NTS, VDE-AR) UL 1741, IEEE 1547

TRANSMISSION AND DISTRIBUTION

The continuous growth in the need for the supply of optimised quality electrical energy for highly sensitive loads, which are supplied by an increasingly complex mix of generation sources, constitutes a challenge in which **digitalisation and automation** of electricity grids is key.

In a continuous innovation process, we present secure DC and AC power supply solutions in this catalogue for the modernisation of grids.

You will find a range of charger-rectifiers noted for their **robustness and reliability**, which are designed to guarantee operations, even in cases of fault or failures of the system.

One of the notable innovations in this catalogue for conventional grids is the **new ZGR MIT NG range**, made up of battery rectifier-chargers with conventional thyristor technology and controlled by microprocessor, in single-phase and three-phase product versions.

In this range, ZGR has combined the **proven reliability** of thyristor technology and the functionality of microelectronics. As a result, these devices are at the top level as regards performance and characteristics. There are also customisable.

For smart grids, **the innovation** comes from the **TPS 120/200 NG** which has a compact design in high-frequency technology. We are talking about Smart Grid compact switched charger-rectifiers Ultimately, solutions designed for efficiently integrating the behaviours of connected users. Incorporated digital and predictive technologies in order to reach maximum supply security and quality levels.

We have solutions for railway grids that help to **eliminate harmonic contamination** in the railway electricity grid. They are designed in accordance with the latest state-of-the-art in power electronics technology.

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

ZGR TPS 120
COMPACT SWITCHING CHARGER – RECTIFIER

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 disconnector, 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 *Customized configurations under demand*	220 V ± 10 %
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	Battery	Battery capacity in Ah (20h at 1.75 V/cell)	Autonomy at nominal current (8-10A)	Maximum recharging current of the battery
	Pb 48V 2.5A	7	2h.	0.7A
		12	3h. 45 m.	1.2A
		18	6h.	1.7A
	Pb 24V 5A	12	1h. 30m.	1.2A
		18	2h.40m.	1.7A
		26	4h.15m.	2.7A
	Pb 12V 10A	18	1h.	1.7A
		26	1h. 45m.	2.5A
		33	3h.	3.7A
	Ni-Cd 48 V 2.5A	4	1h. 30 m.	0.13A
		7	2h. 30 m.	0.23A
		14	5h.	0.46A
	Ni-Cd 24 V 5A	4	45 m.	0.13A
		7	1h. 15m.	0.23A
		14	2h. 30m.	0.46A

MECHANICAL AND ENVIRONMENTAL CHARACTERISTICS

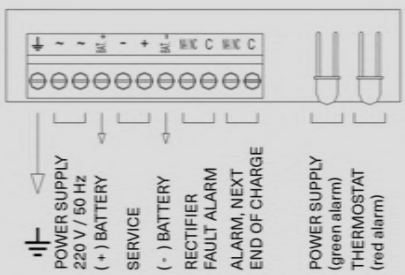
Operation temperature range	0°C ~ +50°C
Storage temperature	-40°C ~ +80°C
Cooling	Natural convection
Operating altitude	≤ 1000m
Relative humidity	5 ~ 95 % (without condensation)
Dimensions (HxWxD)	100 x 122 x 285mm
Approx. Weight	2.2kg

STANDARDS

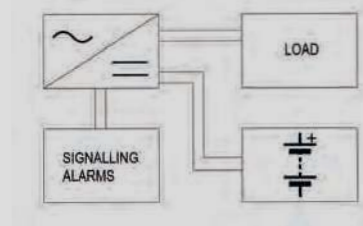
Low voltage european directive	73/23/CEE-93/68/CEE
EMC european directive	89/336/CEE-93/68/CEE

These specifications may change without notice

Connections



Internal architecture



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

ZGR TPS 120/200 NG

COMPACT SWITCHING CHARGER – RECTIFIER SMART GRID

ZGR TPS 120/200 NG equipments are 48 V battery rectifiers-chargers, capable of managing lead or litium 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 litium 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
  - LED signalling on the front

Connectivity and Monitoring

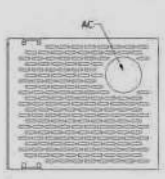
Communication gateway integrated: It enables the communication via Web Server (http). It includes advanced authentication (LDAP), parameterization, (XML) and time synchronization (NTP) features.

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

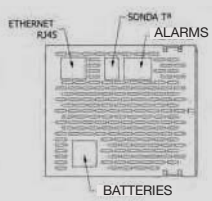
TECHNICAL SPECIFICATIONS		
Model	ZGR TPS 120 NG	ZGR TPS 200 NG
AC INPUT ELECTRICAL CHARACTERISTICS		
Power supply voltage	230 Vac -20% /+15% (1)	
Nominal frequency	50 – 60 Hz	
Power factor	> 0.6	
OUTPUT ELECTRICAL CHARACTERISTICS		
Output voltage / Battery in fast charge mode (lead version)	59 V ± 0.5 %	Configurable temperature compensation
Output voltage/ Battery in flotation mode (lead version)	54.24 V ± 0.5 %	
Output voltage (litium version)	55.6V	
Voltage range	39 – 60 V	
Ripple	< 50 mVpp	
Maximum total permanent current	3 A	5.2 A
Maximum current during 10 mins	4.6 A	10.3 A
Permanent total power	120 W	200 W
Total power during 10 mins	180 W	400 W
Efficiency	> 75 %	
Battery charge current limitation (2)	0.25 A	1.3 A
COMMUNICATIONS		
Monitoring	Web interface	
Communications	Ethernet, SNMP, MODBUS TCP	
PROTECTIONS		
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 50 Hz 1 min	
Dielectric rigidity Ground - Output	2 kVac 50 Hz 1 min	
MECHANICAL AND ENVIRONMENTAL CHARACTERISTICS		
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 130 mm (rear fixing 280 x 115)	
Approx. Weight	5 kg	
STANDARDS		
Marks	CE	
General directives	2006/95/CE (UNE-EN 61000-6-2 UNE-EN 61000-6-4) 2006/95/CE (EN 50178)	

Connections

Left side



Right side



(1) *Optional other input voltages*

(2) *Parameterizable according to the characteristics of the battery up to the maximum current of the equipment*

These specifications may change without notice

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

ZGR SWIT NG

SWITCHING CHARGER - RECTIFIER

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

TELECOM · INDUSTRY · RAILWAY SECTOR · ELECTRICITY SECTOR

Characteristics

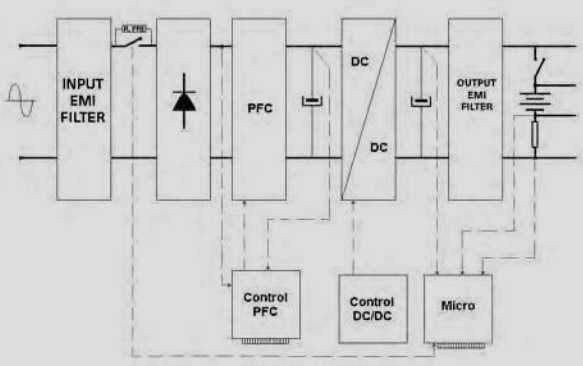
- High efficiency
- Wide range of customized solutions from 500 to 1000 W in 24/48/110/125V
- Integrated battery disconnector
- Reduced voltage harmonic distortion
- Low input current distortion
- Battery temperature compensation*
- Easy installation, front wiring
- Ni-Cd or sealed Pb battery management
- 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	24 Vcc	48 Vcc	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	24 Vdc	48 Vdc	110 / 125 Vdc
Nominal frequency	20 or 40 A	10 or 20 A	4 or 8 A
Output voltage ripple	< 100 mVrms < 200 mVpp	< 100 mVrms < 200 mVpp	< 100 mVrms < 300 mVpp
Charge current limitation	20 A ± 5 %	10 A ± 3 %	4 A ± 5 %
Short-circuit current	< 20 A	< 10 A	< 5.5 A
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 - 30 Vdc	36 - 60 Vdc	83 - 144 Vdc
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	≤ 1000 m without power loss		
Relative humidity	< 95 % without condensation		
Dimensions (HxWxD)	132 x 483 x 278 mm		
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

always ON

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

ZGR TELSIS APS

MODULAR SWITCHED RECTIFIER-CHARGER

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

ZRG TELSIS APS provides centralized monitoring, control and management pf 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.

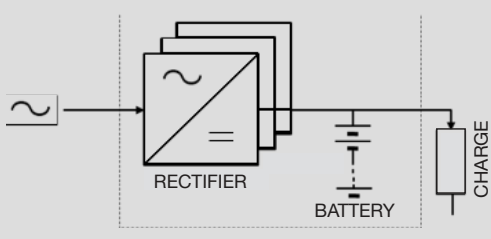
Rectifier module

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)
ELECTRICAL INPUT CHARACTERISTICS		
Voltage range	85 -185 -300 Vac	90 - 175 - 300 Vac
Frequency range	45 - 65 Hz	
Power factor	> 0.99 form 20 % - 100 % output power	
Efficiency	> 92 % (> 50 % output power)	
Maximum input current	19 A / module	
ELECTRICAL OUTPUT CHARACTERISTICS		
Rated Voltage	48 Vdc	125 Vdc
Voltage range	43 - 60 V	80 - 155 V
Power range	3000 - 36000 W	3000 - 27000 W
Maximum current	720 A (@ 48 V)	225 A (@ 125 V)
MECHANICAL AND ENVIRONMENTAL CHARACTERISTICS		
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	< 2500 m	
Relative humidity	5 to 95 % without condensation	
STANDARDS		
Marking	CE	
General directives	2004/108/CEE, EMC (61000-6-4, 61000-6-2), IEC 60146-1-1, EN 50178	

Block diagram

TELSIS ZGR APS 27 kW 100 Ah



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

ZGR MIT NG

HIGH RELIABILITY CHARGER-RECTIFIER

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

TELECOM

INDUSTRY

DATA CENTERS

RAILWAY SECTOR

FACILITIES

ELECTRICITY SECTOR

Characteristics

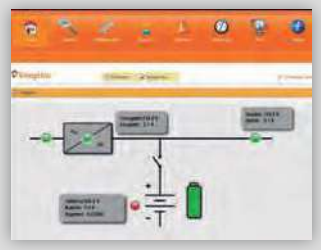
- Galvanic isolation
- Complete thyristor bridge
- Automatic disconnection due to minimum battery voltage (LDV)*
- Voltage dropping device*
- Temperature and electrolyte level sensors*
- Hall effect current sensors*
- Customized output voltage filtering according to user specification*
- Thermomagnetic 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
INPUT ELECTRICAL CHARACTERISTICS		
Nominal voltage (1)	230 V + 10 - 15 %* (Single-phase)	400 V + 10 - 15 %* (Three-phase)
Frequency	50 / 60 Hz ± 5 %	
Power factor	0.7 ~ 0.9 (on request)	
OUTPUT INPUT ELECTRICAL CHARACTERISTICS		
Nominal voltage	12 / 24 / 48 / 110 / 125 / 220 V	
Ripple voltage with batteries	< 1 %	
Ripple voltage without batteries	< 2 %	
Ripple current in batteries (1)	≤ 5 %	
Voltage stability (1)	± 1/2 % (with/without battery)	
Dynamic regulation	< 2 % (10 – 90 % of charge)	
Charger current limitation (1)	100 % (up to 120 % optional)	
Battery charge current limitation	Configurable	
Transfer time	< 300 ms	
COMMUNICATIONS		
Monitoring	Websever TCP/IP, control panel	
Communications	ModBus RS485	
OTHERS		
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 (1)	Natural convection	
Working temperature	0ºC ~ +45ºC (+50ºC 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)	
STANDARDS		
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	

(1) Special configurations and other powers on request
These specifications may change without notice

ZGR MIT NG STANDARD RANGE

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

CONNECTIVITY

CUSTOMIZABLE

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

ZGR MIT

HIGH RELIABILITY RECTIFIER-CHARGER FOR 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

TELECOM · INDUSTRY · DATA CENTERS · RAILWAY SECTOR · FACILITIES · ELECTRICITY SECTOR

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

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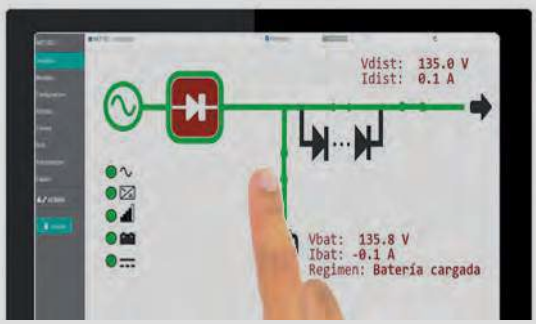
TECHNICAL SPECIFICATIONS		
Model	ZGR MIT 1	ZGR MIT 3
INPUT ELECTRICAL CHARACTERISTICS		
Rated voltage (Vac)	120 /127/220 /230 /240 / 277V ±10/15/20%	208 /220/380/400/415/480V ± 10/15/20%
Power factor	0.7 ~ 0.95 (on request)	
Frequency	50/60 Hz ± 5 %	
OUTPUT ELECTRICAL CHARACTERISTICS		
Rated voltage (Vcc)	24/48/110/125/220/370V	
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	
MONITORING		
Control panel	7" Touch Screen and LED indicators	
Communications	Websever TCP/IP, Modbus TCP, DNP3, MMS, SNMP, web services	
PROTECTIONS		
Overvoltage	Yes	
Overtemperature	Yes	
Current limitation	Yes	
Shortness	Yes	
High/low input/output voltage	Yes	
OTHER		
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 (4-40ºC)	
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	+15ºC ~ +25ºC / 30-90 % HR	
STANDARDS		
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.

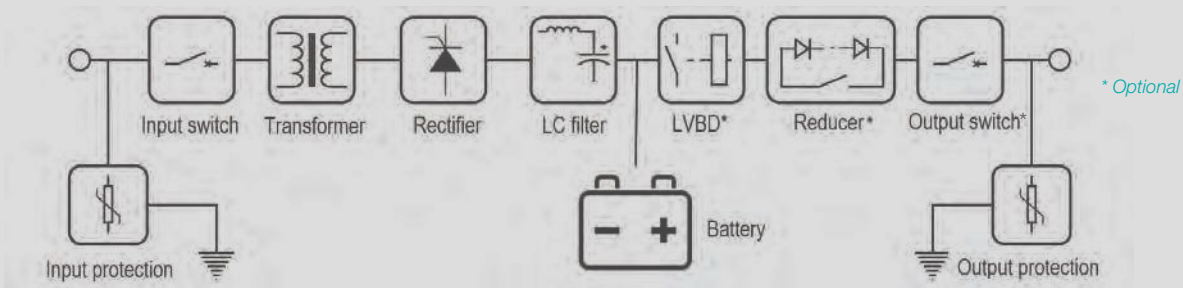
REMOTE CONTROL:

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



** Optional*

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.

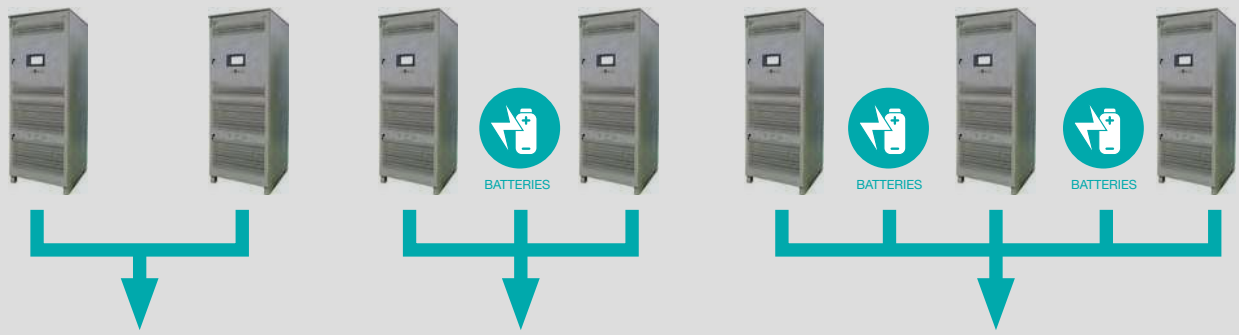
The MIT Charger is capable of charging both sealed or open lead and nickel-cadmium batteries at nominal voltages of 24, 48, 110, 125 and 220 V (others on demand). Also Lithium batteries according to the manufacturer's charging regime.

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

INDUSTRIA@ZIGOR.COM

As specialists in critical and demanding Industryl environments, we offer the widest range of powers and backup ranges against electrical disturbances, for significantly improving energy quality for highly sensitive devices. Our solutions are **the most robust, reliable and highest performing** on the market.

Data centres, the manufacturing industry, Oil & Gas sector, health sector and automotive sector all have high energy needs and require **absolute reliability** of their continuous processes, as the breakdown of their equipment means very large losses and can even pose a risk to human safety.

Among the innovations of the 2023 catalogue in solutions for protection against voltage dips, we highlight the **High Power ZGR DVR** dynamic voltage stabiliser. This is an innovative system for low and medium-voltage that provides continuity to Industryl processes.

This device eliminates both three-phase, two-phase and single-phase dips, as it independently compensates each phase. Its characteristics and functionalities make it **unique in its range**, and it offers the most robust and reliable solution on the market.

In addition to the various voltage stabiliser models, you can also find off-line uninterruptible power supply systems (ZGR DVC SEPEC), as well as devices for harmonic harmonisation (ZGR FAA/AHF).

We also offer an **entire range of Industryl UPSs** with different powers and functionalities. Given their importance, we devote an entire catalogue section to UPSs.

Moreover, we have a wide range of solar inverters for Industryl self-consumption applications. Our aim is to assist in optimising the electricity bill of industry through the use of daytime solar radiation and at night by means of battery storage. You will find all these devices in the Energy range.

Finally, the **new electric Mobility line** may also be of interest to Industryl complexes that have service stations and/or electric vehicle fleets. You will find these solutions in the mobility section.

always ON

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

ZGR AVC DVR
DYNAMIC VOLTAGE RESTORER

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

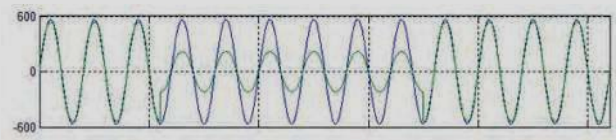
TELECOM · INDUSTRY · DATA CENTERS · RAILWAY SECTOR · ROBOTS · LOGISTICS CENTERS

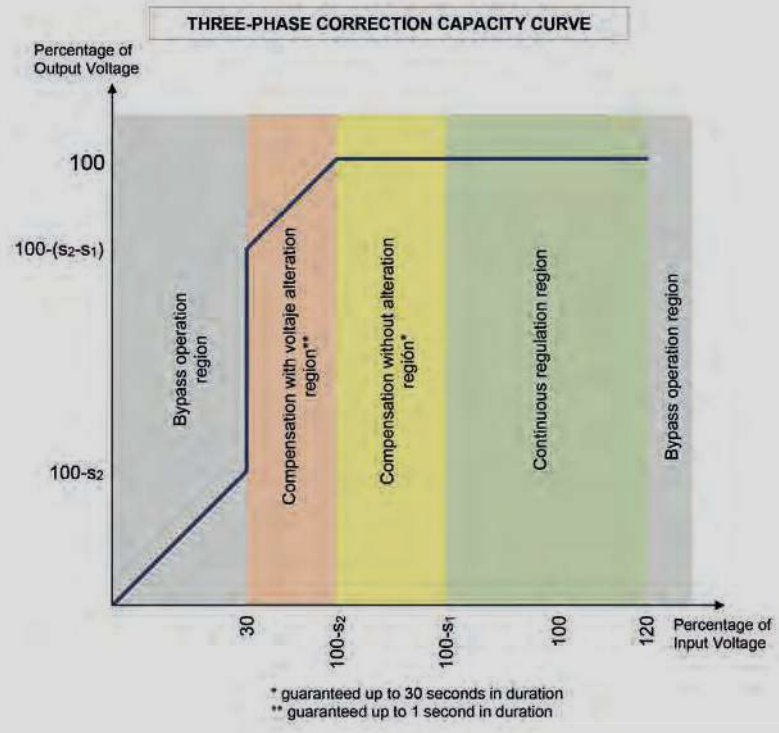
Characteristics

- Mitigates three-phase voltage sags up to 70% of depth or single-phase interruptions
- Continuous regulation to offer high stabilization (± 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
- 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)

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.



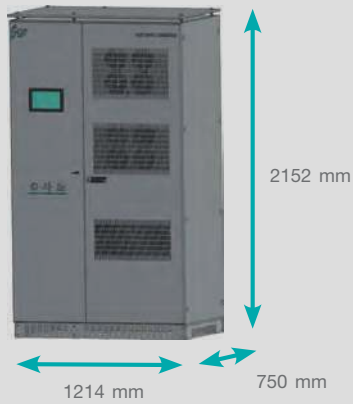


Maximum Sag Correction (S_2)	Continuous regulation range (S_1)	AVC DVR System Power	System Configuration	Power per Unit	Manual Bypass	
					380/400/415 Vac Systems	200/208/220 Vac Systems
-40 %	±20 %	300 kVA	M	300 kVA	630 A	1250 A
		600 kVA	M+S	300 kVA	1250 A	3200 A
		900 kVA	M+2S	300 kVA	2000 A	3200 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 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)

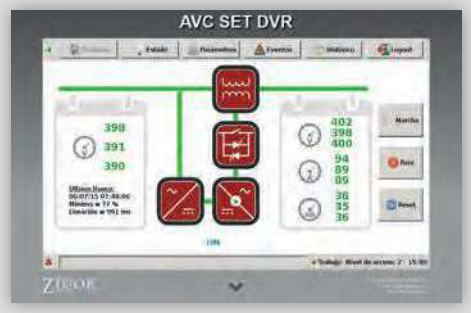
Bypass Manual 3200 A

Weight: 775 kg

** Sistemas que no sean 380/400/415 Vac consultar dimensiones.*

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
INPUT ELECTRICAL CHARACTERISTICS			
Nominal voltage	200/208/220 or 380/400/415 Vac		
Voltage range (Vac)	± 20 %	+ 20 % - 25 %	+ 20 % - 30 %
Phase	3 phases + ground (neutral opcional)		
Frequency	50/60 Hz ± 10 %		
Frequency variation (df/dt)	4 Hz		
OUTPUT ELECTRICAL CHARACTERISTICS			
Voltage	200/208/220 or 380/400/415 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 capacitity in normal mode	110 % - 30 s, 150 % - 1 s		
Overcharge capacitity in bypass mode	200 % - 60 s, 500 % - 10 s, 3000% - 0.2 s		
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		
Paralellable	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	0ºC ~ +40ºC		
Storage temperature	0ºC ~ +85ºC		
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		

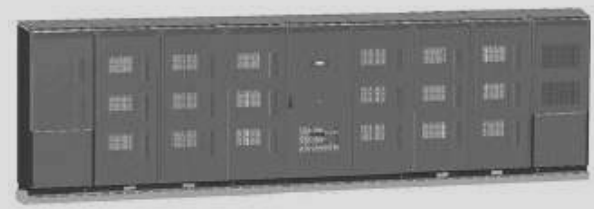
AVC DVR of Medium Voltage available up to 3,6 MVA
For different voltages, powers, or configurations for other kind of sags, consult ZIGOR
For any other technical need or modification of existing ones, consult ZIGOR
These specifications may change without notice

always ON

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

ZGR AVC DVR HIGH POWER
DYNAMIC VOLTAGE RESTORER

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

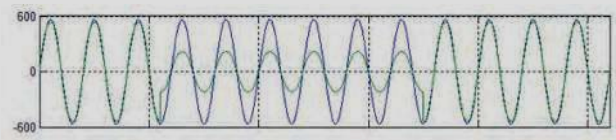
Characteristics

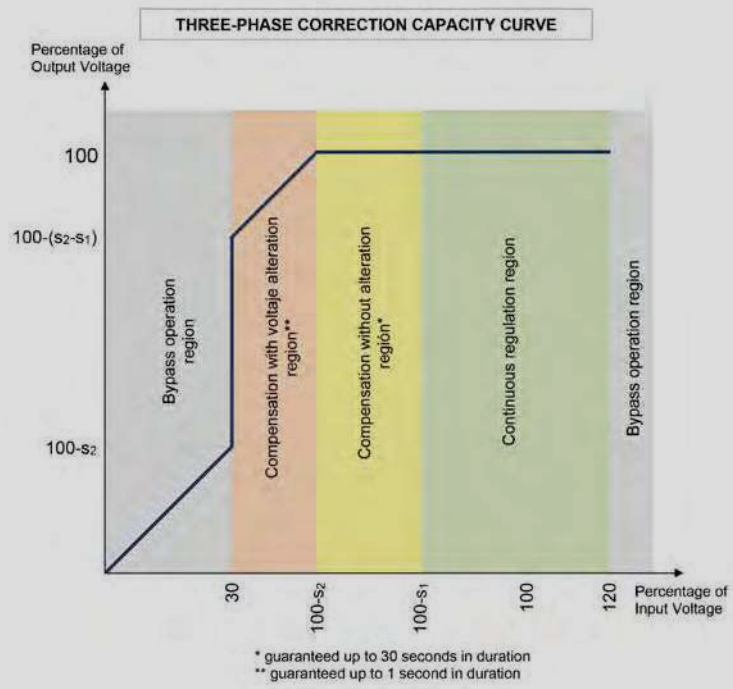
- Mitigates three-phase voltage sags up to 70% of depth or single-phase interruptions
- Continuous regulation to offer high stabilization (± 1 %)
- High efficiency supply system > 98 %
- Not battery required or other energy storage components
- Compensation of voltage sags even for long times (up to 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
- 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)

Operation

ZGR AVC 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 AVC DVR acts quickly compensating it to ensure that the output voltage (in blue) remains stable.

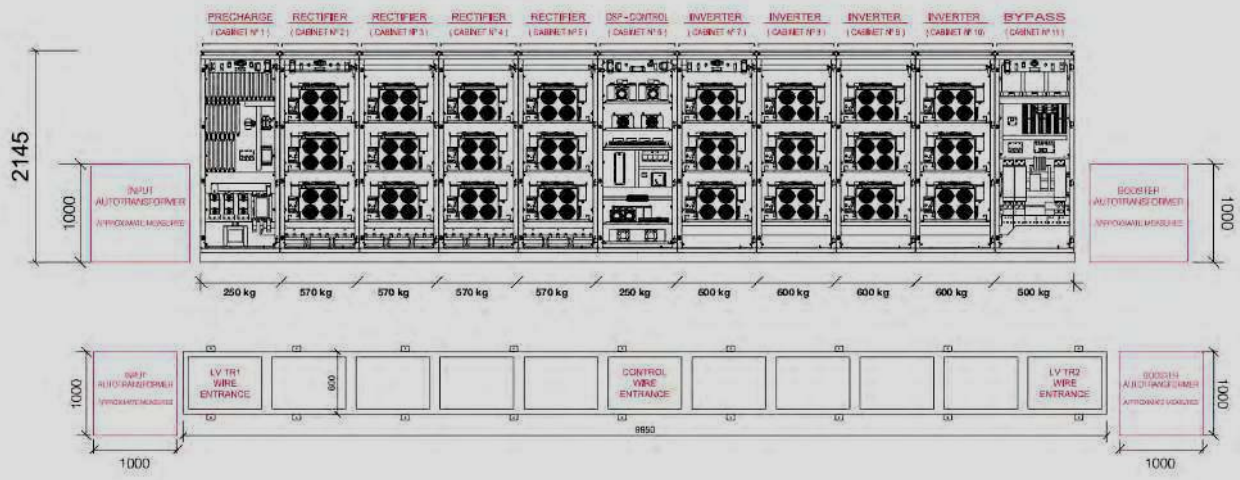




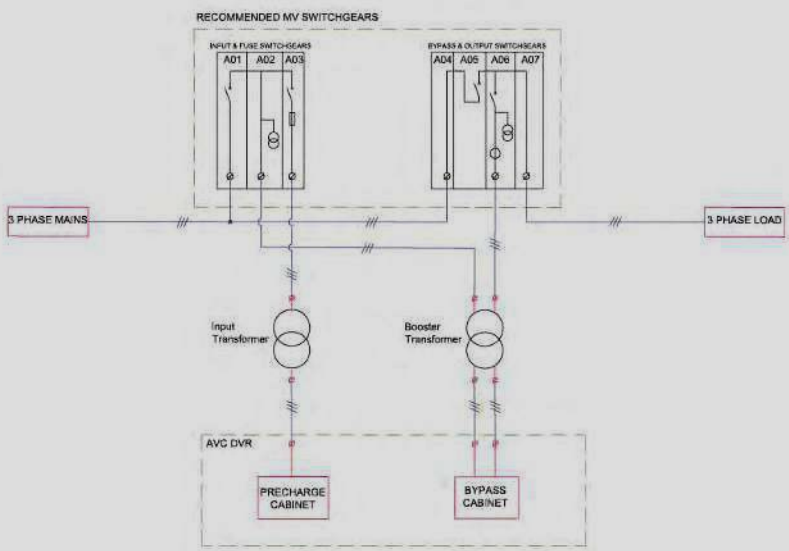
Maximum Sag Correction (S_2)	Continuous regulation range (S_1)	AVC DVR System Power	System Configuration	Power per Unit	Manual Bypass	
					380/400/415 Vac Systems	200/208/220 Vac Systems
-40 %	±20 %	150 kVA	M	150 kVA	630 A	630 A
		220 kVA	M	220 kVA	630 A	1250 A
		300 kVA	M	300 kVA	630 A	1250 A
		440 kVA	M+S	220 kVA	1250 A	2000 A
		500 kVA	M+S	250 kVA	1250 A	2000 A
		600 kVA	M+S	300 kVA	1250 A	3200 A
		750 kVA	M+2S	250 kVA	2000 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 High Power 3,6 MVA 40%



MT AVC DVR High Power



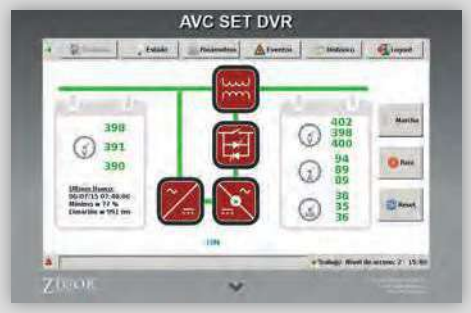
Bypass Manual 3200 A

Weigth: 775 kg
2152 mm
750 mm

** Sistemas que no sean 380/400/415 Vac consultar dimensiones.*

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
INPUT ELECTRICAL CHARACTERISTICS			
Nominal voltage	200/208/220 or 380/400/415 Vac		
Voltage range (Vac)	± 20 %	+ 20 % - 25 %	+ 20 % - 30 %
Phase	3 phases + ground (neutral opcional)		
Frequency	50/60 Hz ± 10 %		
Frequency variation (df/dt)	4 Hz		
OUTPUT ELECTRICAL CHARACTERISTICS			
Voltage	200/208/220 or 380/400/415 Vac		
Power range	150 - 900 kVA/kW	220 - 660 kVA/kW	150 - 450 kVA/kW
Regulation	± 1 %		
Phase	3 phases + ground (neutral opcional)		
Frequency	50 / 60 Hz		
Response time	< 3 ms		
Transfer time to Bypass	< 0.5 ms		
Overcharge capacitity in normal mode	110 % - 30 s, 150 % - 1s		
Overcharge capacitity in bypass mode	200 % - 60 s, 500 % - 10 s, 3000% - 0.2 s		
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		
Paralellable	Up to 3 equipments (Master + 2 slaves)		
Maintenance switch	Yes		
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	0ºC ~ +40 ºC		
Storage temperature	0ºC ~ +85 ºC		
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		

**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.*

always ON

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

ZGR DVC SEPEC
OFFLINE UNINTERRUPTIBLE POWER SUPPLY

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*

always ON

TECHNICAL SPECIFICATIONS				
Model	ZGR DVC SEPEC 200	ZGR DVC SEPEC 400	ZGR DVC SEPEC 600	ZGR DVC SEPEC 800
INPUT ELECTRICAL CHARACTERISTICS				
Phases	3 phases + ground (neutral opcional)			
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 redundance	Inverters in parallel			
Crest factor	3 : 1			
Power KVA / KW *(1)*	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	0ºC ~ +40ºC			
Storage temperature	0ºC ~ +85ºC (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

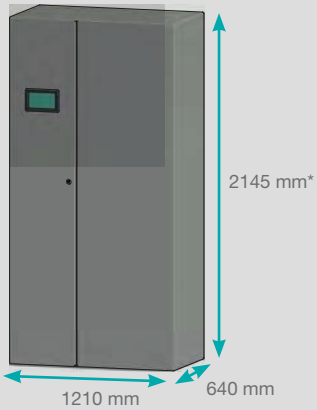
These specifications may change without notice

Connectivity and monitoring

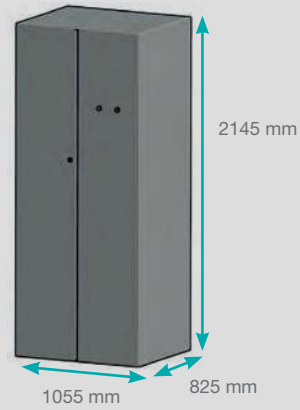
Communication gateway integrated. It enables the communication via Web Server (http).

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

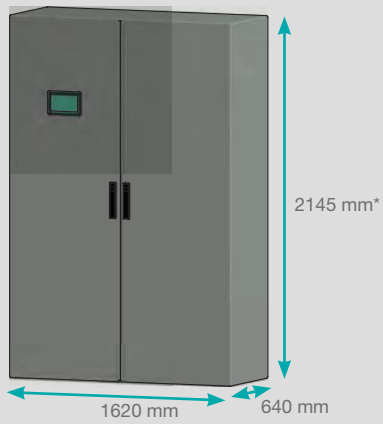


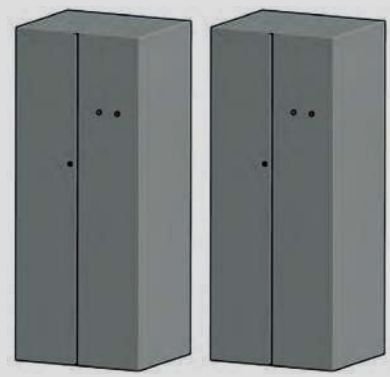
Equipment with signalling post: 2.445 mm.

Equipment with braker option: 2.555 mm.

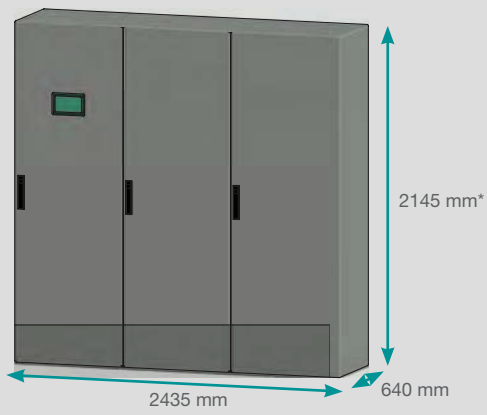
Dimensions for battery standard cabinets. They can be modified according to options included

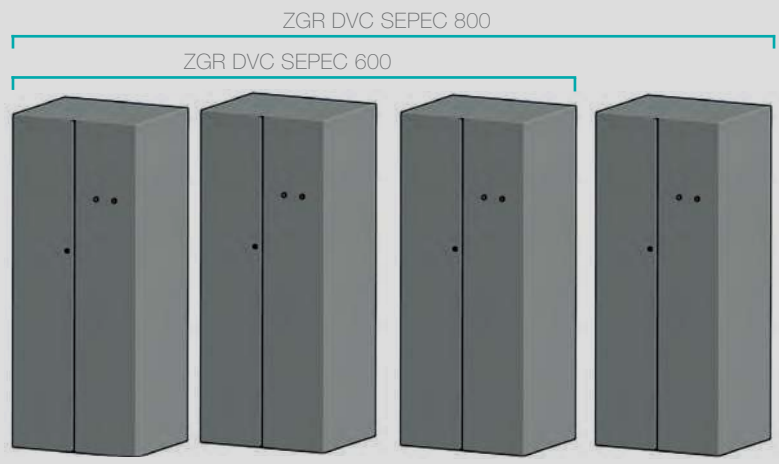
ZGR DVC SEPEC 400





ZGR DVC SEPEC 600-800






gr
always ON
FRAGILE
KEEP DRY

always ON

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

ZGR FAA / AHF
ACTIVE HARMONIC FILTER

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 50º (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	380 V (228 to 456 V)	480 V (384 to 552 V)	690 V (480 to 790 V)
Frequency	43–62 Hz		
Compensation current (module)	25 A, 35 A, 50 A, 60 A, 100 A, 150 A	75 A, 90 A	75 A, 90 A
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	-10ºC ~ +40ºC (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

INDUSTRIA@ZIGOR.COM

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 Industryl plants.

In case of a problem in the electricity supply, 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, Industryl processes, infrastructures and data centres. ZGR Scalable, ZGR Influence.

Moreover, we have our **own and local technical support service**. This is support that is available to you when you need it, whether for start-up, in the event of an incident, etc.

Continuous improvement and Innovation are the ZGR's two main principles that mean our products are always at the forefront as regards the efficiency and protection of Business Continuity on the five continents.

always ON

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

ZGR QUICK 600 – 800 VA
LINE-INTERACTIVE UPS

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.

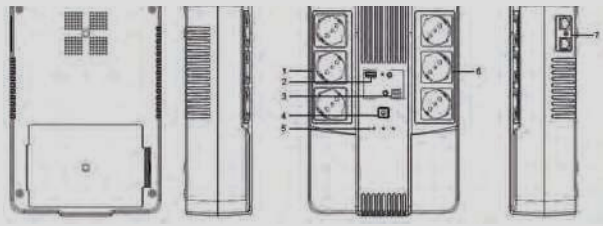
Applications

DOMESTIC USE · PLUG & PLAY · USB PLUG · SCHUKO PLUG

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	600 VA / 360 W	800 VA / 480 W
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 12 V / 7 Ah	1 x 12 V / 9 Ah
Hot Swap	Yes (user replaceable)	
Charge time	6 - 8 h / 90 %	
Protection	Overload and deep discharge	
Autonomy	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	

Green Power design that minimizes self consumption during normal operation
Battery charging system even with the UPS turned OFF
These specifications may change without notice

IEC 62040 - 3

VI TYPE

always ON

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

ZGR OPTIME 600-800 VA
LINE-INTERACTIVE UPS

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.

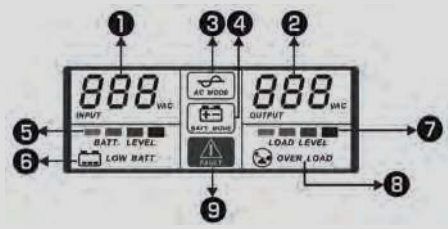
Applications

DOMESTIC USE | PLUG & PLAY | SCHUKO PLUG

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	800 VA / 480 W	
INPUT ELECTRICAL CHARACTERISTICS		
Voltage range	162 - 290 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	1x 12 V / 7Ah	1x 12 V / 9 Ah
Charge time	6 - 8 h / 90 %	
Protection	Overload and deep discharge	
Autonomy	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	

Green Power design that minimizes self consumption during normal operation

Battery charging system even with the UPS turned OFF

These specifications may change without notice

FORMAT	IEC 62040 - 3
TORRE	VI TYPE

always ON

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

ZGR STEADY 1000-1500-2000 VA
LINE-INTERACTIVE UPS

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.

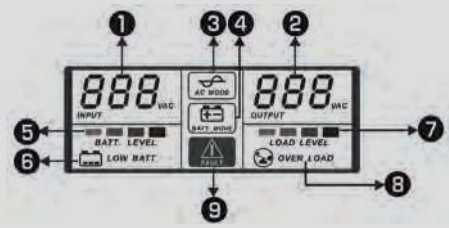
Applications

DOMESTIC USE | PLUG & PLAY | IEC PLUG

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	1000 VA / 700 W	1500 VA / 1050 W	2000 VA / 1400 W
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 12 V / 7 Ah	2x 12 V / 9 Ah	2x 12 V / 9 Ah
Charge time	6 - 8 h / 90 %		
Protection	Overload and deep discharge		
Autonomy	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		

Green Power design that minimizes self consumption during normal operation
Battery charging system even with the UPS turned OFF
These specifications may change without notice

FORMAT	IEC 62040 - 3
TOWER	VI TYPE

always ON

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

ZGR TOWER PRO 1 - 3 KVA
ONLINE SINGLE-PHASE UPS

PF 0.9

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.

Applications

INDUSTRY · EMERGENCY · DOMESTIC USE · DATA CENTER

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

always ON

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	0 ms battery / < 4 ms bypass		
Permissible peak current	3:1		
EFFICIENCY			
Inverter mode	Up to 92 %		
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	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	144 x 215 x 399 mm	144 x 215 x 399 mm
Weight approx. models long range	4.3 kg	6.4 kg	6.7 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		

LBT models with customizable autonomy

These specifications may change without notice

FORMAT	IEC 62040 - 3
TORRE	VFI TYPE ONLINE

always ON

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

ZGR TOWER PRO 6 - 10 KVA

ONLINE SINGLE-PHASE UPS

PF 1.0

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.

Applications

INDUSTRY | EMERGENCY | DOMESTIC USE | DATA CENTERS | RAILWAY SECTOR

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

* *Optional*

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 - 276 Vac (allows use with generators) single phase	
Frequency	45 - 65 Hz (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	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	0ºC ~ +40ºC	
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 330 x 410 mm	191 x 330 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	

LBT models with customizable autonomy

These specifications may change without notice

FORMAT	IEC 62040 - 3
TORRE	VFI TYPE ONLINE

EFFICIENT RT in compact and convertible format Rack/Tower

ZGR EFFICIENT RT 1 - 3 KVA
ONLINE SINGLE-PHASE UPS

PF 0.9

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.

Applications

INDUSTRY · EMERGENCY · DOMESTIC USE · DATA CENTERS · RAILWAY SECTOR

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 sheeding function guarantees autonomy to priority
- Double conversion online (Rectifier/Inverter)
  - It completely insolates 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 / 900 W	2000 VA / 1800 W	3000 VA / 2700 W
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 %		
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 [1]		
Charge time	5 h / 90 % (from a full discharge)		
Protection	Overload and deep discharge		
Autonomy	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)		
Parallelable	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 86.5 x 325 mm	440 x 86,5 x 460 mm	440 x 86.5 x 600 mm
Weight approx. for standard models	11.3 kg	19.1 kg	24,4 kg
Dimensions for long-range models (WxHxD)	440 x 86.5 x 325 mm	440 x 86.5 x 435 mm	440 x 86.5 x 435 mm
Weight approx. for models long range	5.6 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		

[1] Battery easily replaceable by the user
Vertical mounting available
These specifications may change without notice

IEC 62040 - 3

VFI TYPE ONLINE

always ON

ZGR EFFICIENT R maximum efficiency supply for critical systems with. Rack/Tower Convertible

PF 1.0

ZGR EFFICIENT R 6 - 10 KVA
ONLINE SINGLE-PHASE UPS

The ZGR EFFICIENT R 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

INDUSTRY · EMERGENCY · DOMESTIC USE · DATA CENTERS · RAILWAY SECTOR

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

* *Optional*

TECHNICAL SPECIFICATIONS		
Model	ZGR EFFICIENT R 6	ZGR EFFICIENT R 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%	
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	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	

Vertical or horizontal mounting available
These specifications may change without notice

IEC 62040 - 3

VFI TYPE ONLINE

always ON

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

ZGR VERSATILE 10 - 20 KVA
ONLINE THREE-PHASE UPS

PF 1.0

The ZGR VERSATILE series consists of a transformer-free SAI, 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

INDUSTRY · EMERGENCY · DATA CENTERS · RAILWAY SECTOR · SECURITY

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 %
- Double conversion online

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 / 240 Vac 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) [1]		
Autonomy	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		

[1] The PF may vary depending on the number of battery elements

These specifications may change without notice

FORMAT	IEC 62040 -3
TOWER	VFI TYPE ONLINE

always ON

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

ZGR VERSATILE RT 10 KVA
ONLINE THREE-PHASE UPS

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

INDUSTRY · EMERGENCY · DATA CENTERS · RAILWAY SECTOR · SECURITY

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 / 240 Vac 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. / ≥ 130% 0.2 sec.
EFFICIENCY	
Inverter mode	Up to 93.5 %
BATTERY	
Maximum charger current	14 A
Battery bus voltage	192 / 216 / 240 Vdc (selectable) (1)
Autonomy	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

(1) The number of batteries may affect the output PF
These specifications may change without notice

IEC 62040 -3

VFI TYPE ONLINE

always ON

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

ZGR INFLUENCE 10 – 40 KVA
ONLINE THREE-PHASE UPS

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 parallelable 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

INDUSTRY · EMERGENCY · DATA CENTERS · RAILWAY SECTOR · SECURITY

Characteristics

- Power factor of 0.9
- Dual input*
- Efficiency up to 94.5 %
- Parallelable up to 4 units
- Possibility of sharing same batteries in parallel equipment
- Graphic display 7" TFT colour touch screen
- Compatible with generator sets
- Compatible with NiCd / Li (on request)
- Internal batteries*
- 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

* *Optional*

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	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			Input	
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				
Parallelable	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				

These specifications may change without notice

FORMAT	IEC 62040 - 3
TORRE	VFI TYPE ONLINE

always ON

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

ZGR INFLUENCE HP 50 - 200 kVA
ONLINE THREE-PHASE UPS

PF 1.0

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 Industryl 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

INDUSTRY · EMERGENCY · DATA CENTERS · RAILWAY SECTOR · SECURITY

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

always ON

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	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						

These specifications may change without notice

FORMAT	IEC 62040 - 3
 TORRE	VFI TYPE ONLINE

always ON

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

ZGR SCALABLE 60 – 300 KVA
ONLINE MODULAR UPS

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

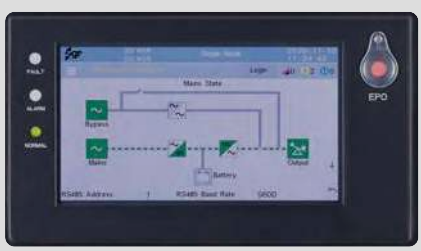
DATA CENTERS

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 - 60 kVA / 10 - 60 kW	10 -150 kVA / 10 - 150 kW	10 -300 kVA / 10 - 300 kW
Cabinet	Up to 60 k	Up to 150 k	Up to 300 k
Modules	10 k / 15 k / 20 k / 25 k / 30 k		
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	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		
Parallelable	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	0ºC ~ +40ºC		
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		



The PF may vary depending on the number of battery elements

These specifications may change without notice

IEC 62040 - 3

VFI TYPE ONLINE

ACCESSORIES UPS

INDUSTRIA@ZIGOR.COM

ZGR ACCESSORIES - COMMUNICATIONS

ZGR 310391
SNMP card, Modbus TCP - MINI
Compatibility:
TOWER PRO / EFFICIENT

ZGR 310392
SNMP card, Modbus TCP - MINI PRO
Compatibility:
TOWER PRO / EFFICIENT

ZGR 310393
SNMP card, Modbus TCP - STD
Compatibility:
VERSATILE / VERSATILE R
INFLUENCE / SCALABLE

ZGR 310394
SNMP card Modbus TCP/RTU - STD PRO
Compatibility:
VERSATILE / VERSATILE R
INFLUENCE / SCALABLE

ZGR 310395 1-3 kVA
ZGR 310441 6-10 kVA
Relay card 1 Input / 6 Output
MINI Compatibility:
TOWER PRO / EFFICIENT

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

ZGR 310397
Rack assembly guide
Compatibility:
EFFICIENT / VERSATILE R

MOBILITY

MOVILIDAD@ZIGOR.COM

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, Industryl 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.

always ON

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

ZGR EVC-DC

STAND-ALONE CHARGERS BETWEEN 30 KW AND 400 KW

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
ELECTRICAL OUTPUT CHARACTERISTICS DC		
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
ELECTRICAL INPUT CHARACTERISTICS AC		
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 %	
GENERAL CHARACTERISTICS		
User interface	LED / 24” display (optional)	
Communication protocol	OCPP 2.0	
Connections	MODBUS TCP / Ethernet / 4G / 5G / WLAN	
Cooling	Forced ventilation	
Operating temperature	-30ºC ~ +50ºC	
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
COMPLIANCE WITH REGULATIONS		
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

always ON

Single-stage electronic conversion for multiple EV charging points

ZGR EVC-DCU

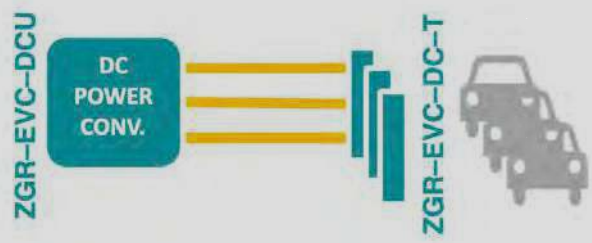
CENTRALISED CHARGING UNIT 1MW

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:



Characteristics

- 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
ELECTRICAL OUTPUT CHARACTERISTICS DC		
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
ELECTRICAL INPUT CHARACTERISTICS AC		
Rated AC voltage	400 (3P + N + PE) ± 10%	-
Rated AC power	1500 kVA	-
Power factor	> 0.99	-
Frequency range	47 ~ 62 Hz	-
Efficiency	> 95 %	-
GENERAL CHARACTERISTICS		
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	-30ºC ~ +50ºC	
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
COMPLIANCE WITH REGULATIONS		
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-DCU-T

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 Industryl 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 Industryl processes of the plant.

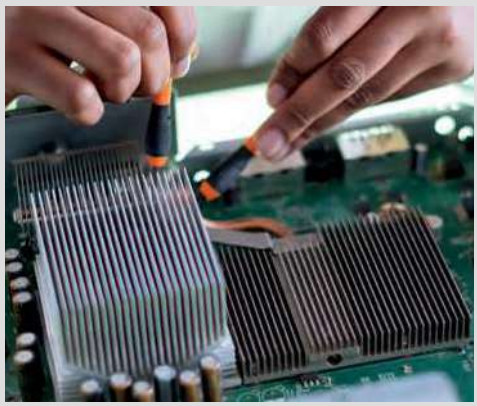
Thanks to the **analysis of the data**, the necessary information is obtained to offer the customer the most appropriate solution to alleviate the recorded network quality problems..

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

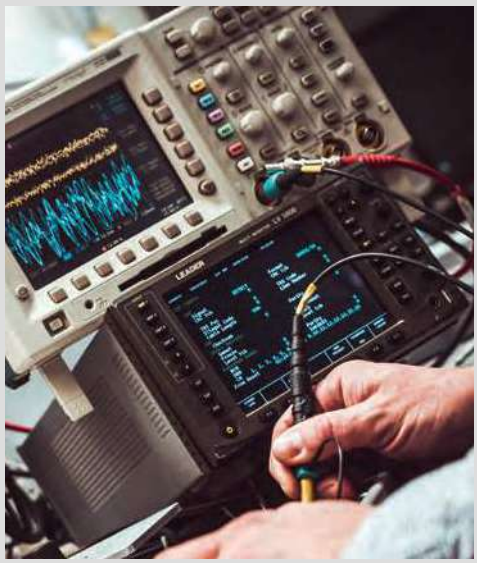


» 4.1. Preventive and predictive maintenance

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.

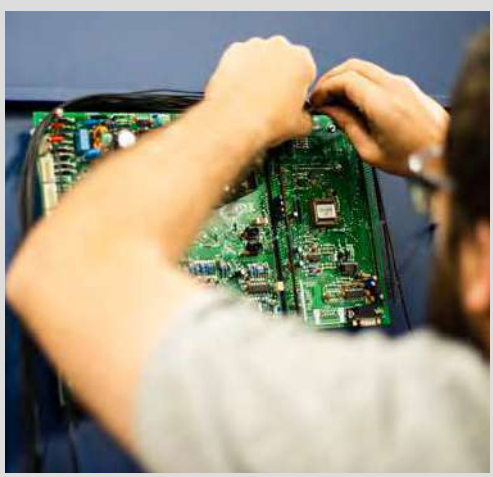
- **Internal service**: the faulty equipment will be sent to our central factory.
- **Technical assistance**: a date will be planned with the customer that is convenient for both parties.

» 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.

always ON

NOTES


always ON