



I N D U S T R Y

At **ZIGOR** we offer **backup solutions against electrical disturbances and energy quality improvement** for the most demanding industrial environments. The deep knowledge of the issues of the critical processes of our clients, allows us to design **taylor-made solutions** with a reduced impact on the final installations, so that they can focus on what they do best.

Nowadays industry requires more **robust and flexible solutions**, with scalable powers and autonomies to work in very diverse environments. Hence, in **ZIGOR** we offer the market the largest power range and back-up support in **application specialized equipment**, from small consumption to large scale facilities.

Since more than 10 years, we continue developing solutions applied to industrial processes whose stoppage causes millions losses. As in the case of **Oil & Gas sector, Manufacturing industry or Data Centers** that require high reliability of continuous processes avoiding machine failures or data losses.

Moreover, working on the five continents gives us the visibility to develop **global solutions**, meeting the specific needs of each sector.

Thanks to our commitment to **innovation** we can offer the highest technology in protection solutions against disturbances of the electricity grid and, support the critical processes in which even the lives of people are at stake.

Likewise, **ZIGOR** has a **wide range of solar inverters for industrial self-consumption applications**. Our equipments help optimizing the electricity bill by taking advantage of solar radiation both at the time it occurs and at night time using efficient battery storage systems of various technologies. These equipments are under the **Energy** range where you can check for more details.

ZGR AVC DVR

DYNAMIC VOLTAGE RESTORER



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

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



APPLICATIONS



TELECOM



INDUSTRY



DATA CENTERS



RAILWAY SECTOR



ROBOTS



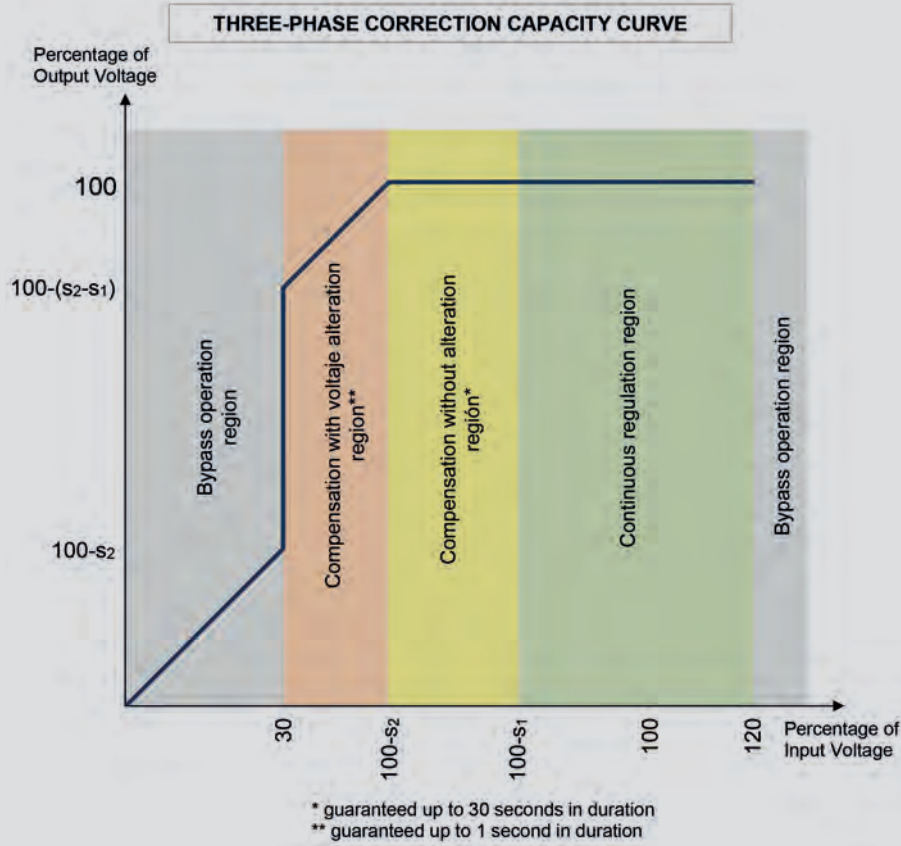
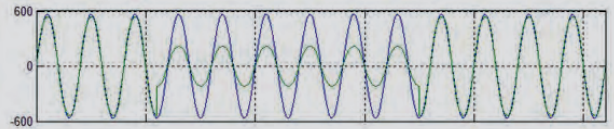
LOGISTICS CENTERS

CHARACTERISTICS

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

ZGR AVC DVR DYNAMIC VOLTAGE RESTORER

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%	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 380 / 400 / 415 Vac

Weight: 1250 kg



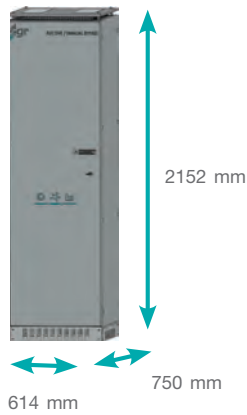
AVC DVR 200 / 208 / 220 Vac

Weight: 1600 kg



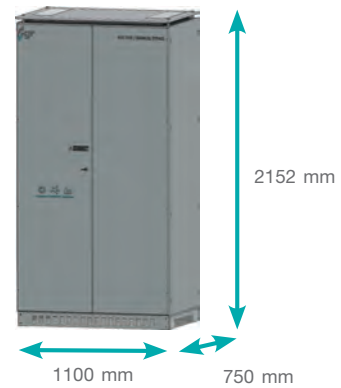
Bypass Manual 630 A

Weight: 200 kg



Bypass Manual 1250 / 2000 A

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



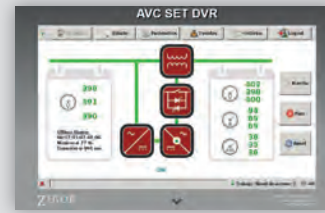
Bypass Manual 3200 A

Weight: 775 kg



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 / 60Hz		
Response time	< 3 ms		
Transfer time to Bypass	< 0,5 ms		
Overcharge capacity in normal mode	110 % - 30s, 150 % - 1 s		
Overcharge capacity 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	0 ~ 40 °C		
Storage temperature	0 ~ 85 °C		
Noise level	< 65 dB		
Altitude	< 1000 m		
Relative humidity	0 ~ 95%, without condensation		
STANDARDS			
Marks	CE		
General directives	IEC 62477-1, IEC 61000-6-2, IEC 61000-6-4, IEC 60721-3-3		

*For different voltages, powers, or configurations for other kind of sags, consult ZIGOR.

* For any other technical need or modification of existing ones, consult ZIGOR.

* These specifications may change without notice.

ZGR DVC SEPEC

OFFLINE UNINTERRUPTIBLE POWER SUPPLY



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

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

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

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



APPLICATIONS



TELECOM



INDUSTRY



DATA CENTERS



RAILWAY SECTOR



ROBOTS



LOGISTICS CENTERS

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

ZGR DVC SEPEC OFFLINE UNINTERRUPTIBLE POWER SUPPLY

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 / 400Vac ± 15 %			
Frequency	50 / 60Hz ± 10 %			
Current harmonic distortion	Does not introduce			
OUTPUT ELECTRICAL CHARACTERISTICS				
Apparent power	200kVA	400 kVA	600 kVA	800 kVA
Power factor	1 (normal mode), 0.8 (emergency mode)			
Phases	3 phases + ground (neutral optional)			
Nominal voltage	380 / 400Vca ± 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	0A (permanent regime)			
Service life diagnosis	Emergency cycle counter			
Air conditioned battery cabinets	Optional			
COMMUNICATIONS				
Monitoring	Web, touch control panel, LED signalling post			
Communications	Web Server, Modbus TCP/IP, SNMP, ModBus RTU (optional)			
PROTECTIONS				
Voltage impulses	Optional. Not degradable, performance threshold UNx1,1, Energy >900 jules			
Short-circuit protection	Yes			
Current limitation	Yes			
Overcharge	Yes			
Static and manual Bypass	Yes (without zero-crossing)			
Battery charger protection	Yes			
OTHERS				
Total efficiency	99,5 %			
Overcharge	120 % in permanent regime, 150 % during 10 seconds			
Range ambient temperature	IP21			
Cooling	Forced ventilation			
Operating temperature	0 ~ 40 °C			
Storage temperature	0 ~ 85 °C (excluding battery)			
Noise level	< 65 dB			
Operating altitude	< 1000 m			
Relative humidity	0 ~ 95 % (excluding battery)			
Approx. Weight	650 kg	950 kg	1345 kg	1575 kg
STANDARDS				
Marks	CE			
General directives	73/23/CEE-93/68/CEE, 2004/108/CEE			

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

* Other voltages / autonomies on demand.

* Dimensions and weight without braker. Consult dimensions and weight of cabinets with/without air conditioned.

* These specifications may change without notice.

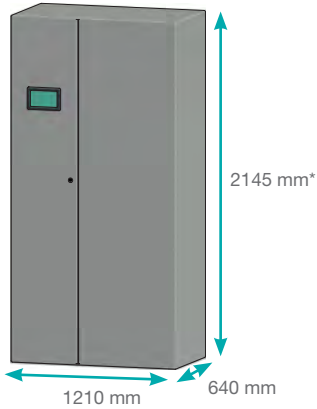
CONNECTIVITY AND MONITORING

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

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



ZGR DVC SEPEC 200

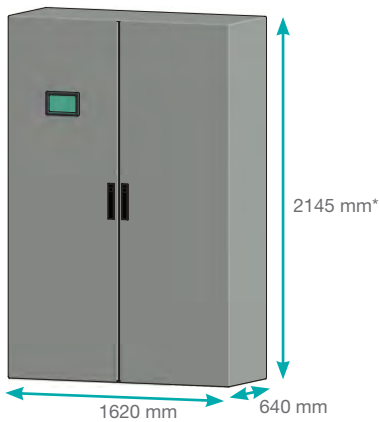


BATTERIES CONFIGURATION

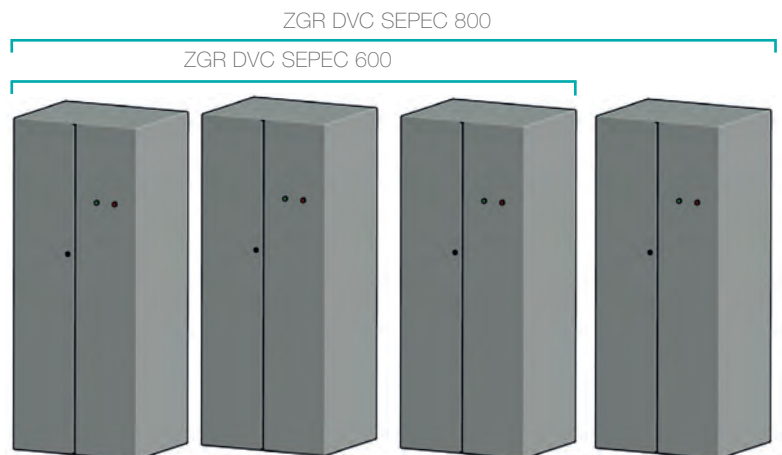


* Equipment with signalling post: 2445 mm.
* Equipment with braker option: 2555 mm.
* Dimensions for battery standard cabinets.
They can be modified according to options included.

ZGR DVC SEPEC 400



ZGR DVC SEPEC 600-800



ZGR DVC SEPEC OFFLINE UNINTERRUPTIBLE POWER SUPPLY



always ON

ZGR FAA / AHF

ACTIVE HARMONIC FILTER

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

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

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

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



APPLICATIONS



INDUSTRY



PHOTOVOLTAIC



DATA CENTERS



FACILITIES



ELECTRICITY SECTOR



LOGISTICS CENTERS



SECURITY

CHARACTERISTICS

- » High security and reliability
- » Harmonic compensation up to the order of 50^o (individually selectable)
- » Flicker Compensation
- » Ultra-fast reactive power compensation (inductive and capacitive)
- » Phase and neutral cable balance
- » Compact design
- » Scalable modular system (25A - 600A)
- » 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	-10 °C ~ +40 °C (without derating)	
Protection degree	IP20	
Working altitude	1500 m (without power loss)	
Noise level	< 56 dB (depending on the model)	< 65 dB (depending on the model)
Relative humidity	5 to 95% (without condensation)	
Cooling	Forced	

STANDARDS

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

* These specifications may change without notice.