ZGR MIT

HIGH RELIABILITY RECTIFIER-CHARGER FOR SMART GRIDS

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

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

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

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

Applications

TELECOM	INDUSTRY	DATA CENTERS	RAILWAY SECTOR	INSTALATIONS	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

TECHNICAL SPECIFICATIONS

Model	ZGR MIT 1	ZGR MIT 3
INPUT ELECTRICAL CHARACTERISTICS		
Rated voltage (Vac)	120 / 127 / 220 / 230 / 240 / 277 V ± 10/15/20%	208 / 220 / 380 / 400 / 415 / 480 V ± 10/15/20%
Power factor	0.7 ~ 0.95 (on request)	
Frequency	50/60 Hz ± 5 %	
OUTPUT ELECTRICAL CHARACTERISTICS		
Rated voltage (Vcc)	24/48/110/125/220/370 V	
Ripple voltage with batteries	± 1,5 %	
Ripple voltage without batteries	< 2 %	
Ripple current in the battery	≤ 5 %	
Voltage stability	± 1 / 2 % (with/without battery)	
Dynamic regulation	< 2 % (10–90 % load)	
Charger Current Limitation	100 % (up to 120 % optional)	
Limitation of battery charge current	Configurable	
Transfer time	< 300 ms	
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.
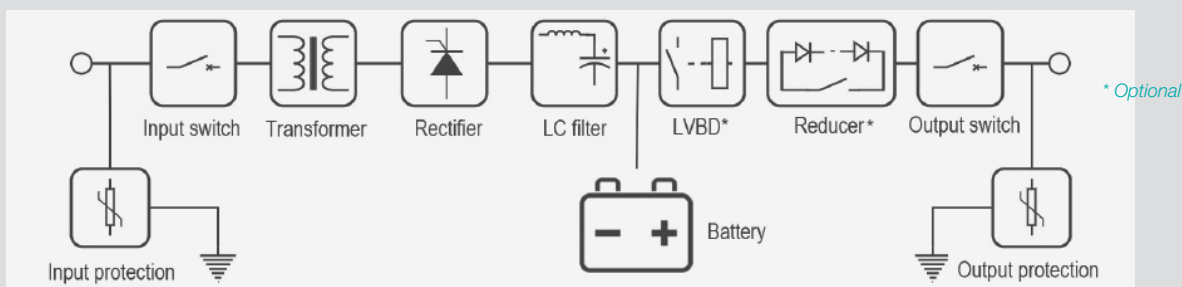
REMOTE CONTROL:

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.
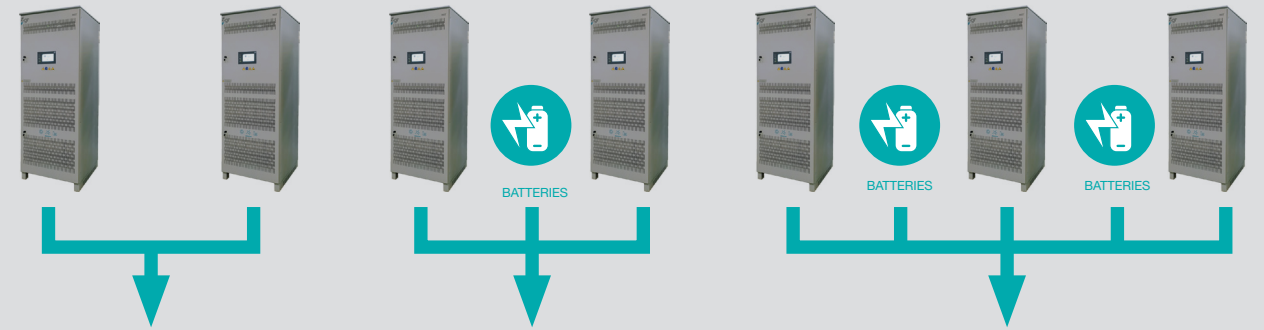
Other configurations and other powers under consultation.

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.

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.

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.

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).

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