

The Exxon logo, consisting of the word "EXXON" in white, bold, sans-serif capital letters inside a blue rounded rectangle.

Driving Progress with Proven Performance

Single-Phase/Three Phase

RECTIFIER CHARGERS

THE BENCHMARK OF RELIABILITY, PERFORMANCE, AND EXCELLENCE IN SERVICE

RECTIFIER CHARGERS

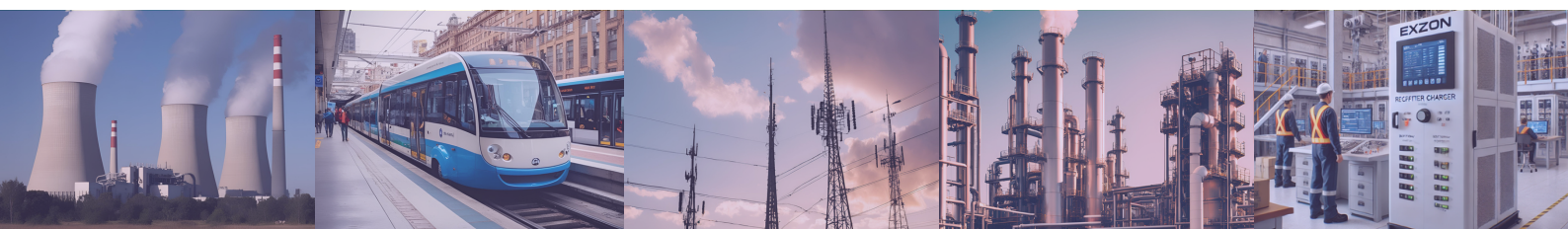
Key Technologies & Features

EXZON delivers reliable industrial solid state conversion system and battery chargers with **thyristor-controlled rectifier (TCR)** technology. Designed for critical sectors like power plants, oil & gas, transportation, and telecom. EXZON ensures stable power, long battery life and energy efficiency. Compliant with global standards like IEC 60146, UL, and NEMA-PE5.

Our charger is available in configurations that support both **Analog control-based technology** and **Digital Signal Processing (DSP) control**, offering flexibility to meet a wide range of application needs.

- The **Analog control version** is standard, hardwired circuitry, ideal for users who prefer simplicity, proven reliability, durability over decades of use, ease of maintenance with basic tools and no need for software updates or cyber security.

- In contrast, the **DSP-controlled model** introduces advanced digital intelligence, enables user-friendly settings via the touchscreen on the front of the panel, real-time diagnostics and enhanced communication capabilities. This dual approach allows users to select the optimal control method based on their operational requirements, from basic Analog system to sophisticated DSP systems.



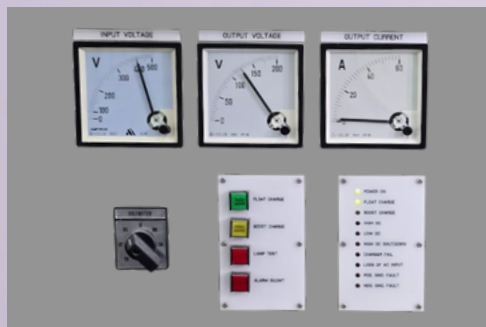
EXZON THE STANDARD IN RELIABILITY, FUNCTIONALITY AND SERVICEABILITY

Product Features

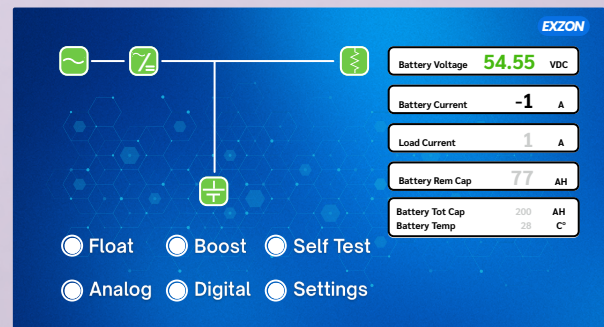
EXZON Rectifier Chargers are built with advanced thyristor-controlled technology and robust transformer-based construction to ensure precision, stability, and durability in harsh environments. Featuring full galvanic isolation, they prevent electrical shocks and reduce electrical noise, while industrial-grade enclosures (up to IP42/NEMA 2) provide protection against dust, moisture, and extreme temperatures up to 55°C.

With a modular design, EXZON systems support custom configurations, multiple battery types, and seamless integration with PLC and external systems. RS485, CAN bus, and other communication interfaces optimize interoperability, while high MTBF & low MTTR guarantee long-term reliability with minimal maintenance.

Visual Status Interface



Analog Type



Digital Type (LCD Display)

SELECTION TYPE

SAMPLE

LFB

1

110

010

G

Charger 1 Phase 110VDC/10A

SERIES

INPUT
VOLTAGE

OUTPUT
VOLTAGE

OUTPUT
CURRENT

TYPE

CABINET
SIZE

1 : Single Phase

3 : Three Phase

024 : 24VDC
048 : 48VDC
130 : 110VDC/
125VDC
220 : 220VDC
230 : 230VDC
260 : 220VDC/
230VDC

005:5A
010:10A
015:15A
020:20A
030:30A
040:40A
050:50A
060:60A
070:70A
080:80A
090:90A
100:100A
110:110A
125:125A
140:140A
160:160A
180:180A
200:200A
225:225A
250:250A
275:275A
300:300A
350:350A
400:400A
450:450A
500:500A
550:550A
600:600A
700:700A
800:800A
900:900A
1000:1000A
1100:1100A
1200:1200A

G : Analog

D : Digital

A
A
B
B
C
C
D
D
D
D
E
E
F
F
F
G
G
G
G
H
H
J
J
K
K
K
K
L
L
L
L

Cabinet Size (H.W.D)mm

A 1200•600•400
B 1200•600•500
C 1500•600•600
D 1800•600•600
E 1800•800•600
F 1800•800•800
G 2000•900•900
H 2000•1600•900
J 2000•1800•900
K 2200•1800•1000
L 2200•2200•1200

Note

- Additional sizes are available upon request and may be subject to technical modifications.

EXZON

EXZON TECHNICAL SPECIFICATION

SINGLE PHASE/THREE PHASE

INPUT	Rated Voltage		220/230V ±10% Single phase (Others on request)
			380/400/415V ±10% Three phase (Others on request)
	Rated Frequency		50/60Hz ±5% (±10% Optional)
OUTPUT	Power Factor @ float voltage and I2N		Approx. 0.7 lag (Optional 0.8 lag)
	Nominal Voltage (Vnom)		12/24/48/110/125/220/230VDC
	Nominal Current (I2N)		Up to 1200AMP
	Voltage Regulation	Static	±1%
		Dynamic	Max ±10% Vrms/±2% Vrms within 100ms.
	Current Regulation		±2%
	DC Ripple Voltage		±1% rms with battery connected (Capacity of 3 x nominal current) ±5% rms without battery connected (±1%, ±2% : optional)
	Charging Characteristic		IU acc. DIN 41773
	Usable Battery		Lead, Ni-Cd, Lithium ions
	Overload	-DC output current	110% 1 hour (Other as optional)
		-Short-circuit protection	Units are short-circuit proof since the current limitation is effective up to short-circuit
	Setting Range	-DC output current limit	50-110%
		-Battery current limit	10-100% (Optional)
GENERAL	Operating Temperature	Operating	0 to + 40°C (Up to 55°C optional)
		Storage	0 to + 80°C
	Relative Humidity		Up to 95% (Non-condensing)
	Altitude without derating		Up to 1000m above sea level
	Housing		Steel sheet: floor-mounted: all key parts accessible from front: top and bottom can be unscrewed (easily accessible)
	Cable entry		From bottom (From top optional)
	Protection Class (IEC60529)		IP20 (IP21, IP31, IP40, IP41, IP43, IP54,... optional) NEMA 3, 5, 12... (Optional)
	Painting		Epoxy powder-painted: RAL7032/RAL7035 /light Grey (Other color optional)
	Cooling		Natural convection up to I2N 600A; thereon, forced ventilation
			Force air cooling with redundant monitored controlled fans
	Acoustic noise level		<70 dBA @ 1 meter
			<60 dBA, <65 dBA @ 1 meter (Optional)
STANDARD	Power		NEMA-PE5, IEC60146-1-1, IEC62040-5-3
	Safety		IEC/EN 62040-1
	Electromagnetic Compatibility (EMC)		IEC/EN 62040-2
	Quality		ISO9001/2015

Standard Features

The rectifier comprises mainly:

- Input and output breakers
- Battery breaker in rectifier
- Isolated power transformer
- Thyristor rectifier stack
- Output LC ripple filter
- Blocking diode
- Analog DC Voltmeter & Ammeter (Class 1.5)
- Input/battery/output terminals
- Component markings
- Ground terminal
- AC Fail, DC Hi, DC Low, Charger Fail LED Alarm
- 4 volt-free contacts fault remote alarm

Optionals

- Audible alarm
- DC ground fault Alarm
- Overload, Fuse Blown, Battery Discharge, Common Alarm, etc.
- Automatic boost charge
- Automatic battery circuit test
- Automatic battery capacity test
- Battery monitoring and testing system.
- Advanced Multi-functional LCD panel.
- High rate interlock
- Reverse Polarity Protection
- Voltage Dropper
- Low Voltage (battery) cut-off
- Analog Output (4-20 mA)
- Communication protocol (Modbus RTU : RS232 or RS485)
- Communication protocol (Modbus TCP/IP)
- Communication protocol (IEC61850)



High MTBF and Low MTTR

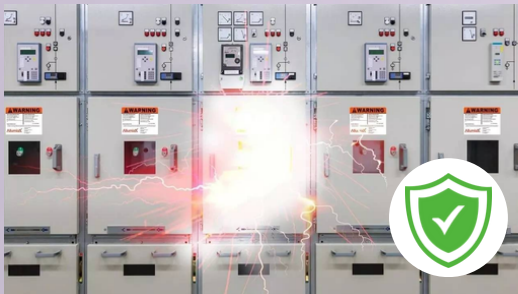
TCR solutions engineered by EXZON have been trusted by customers in various sectors with higher Mean Time Between Failure (MTBF) and lower Mean Time To Repair (MTTR). The outstanding reliability of LFB Series is based on.

- Robust and compact design.
- Use of high-quality rugged industrial components.
- Design life of 20–25 years.
- Printed circuit boards have conformal coating to protect against moisture, dust, chemicals, and extreme temperatures.
- Transformer base provides full galvanic isolation to prevent electric shock and suppress harmful electrical noise.
- Robust industrial enclosure up to IP54.

Comprehensive Protection

High Reliability Engineered for stable, long-lasting performance for safe of the switchgears and battery.

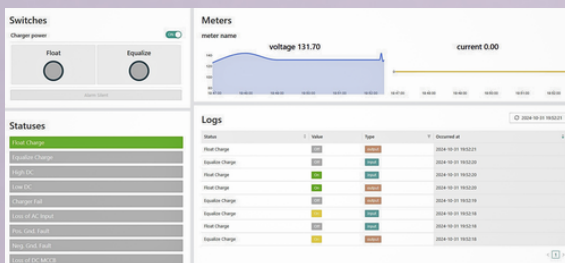
- Current Limiting: The output current limit is factory-set at 100% designed to regulate the output current of a charger. When the current exceeds the set limit, the system automatically reduces the output voltage or limits the current flow to avoid overcharging batteries and ensure safe operation.
- Overcurrent and short circuit protection: The units are short-circuit proof, as the current limitation remains effective even during a short-circuit event.
- Overvoltage and undervoltage protection.
- Ground fault protection.
- High DC voltage shutdown: The output is switched off when the sensing circuit detects overvoltage. If the overvoltage persists for more than 5 seconds, the output voltage will remain off until the fault is resolved.
- Thermal shutdown and fan failure detection.
- Reverse polarity protection: The system will immediately sound an alert if the battery is connected with reversed polarity.



Monitoring and remote control

Advanced communication software and gateway supports the monitoring and control of Intuitive communication is achieved through:

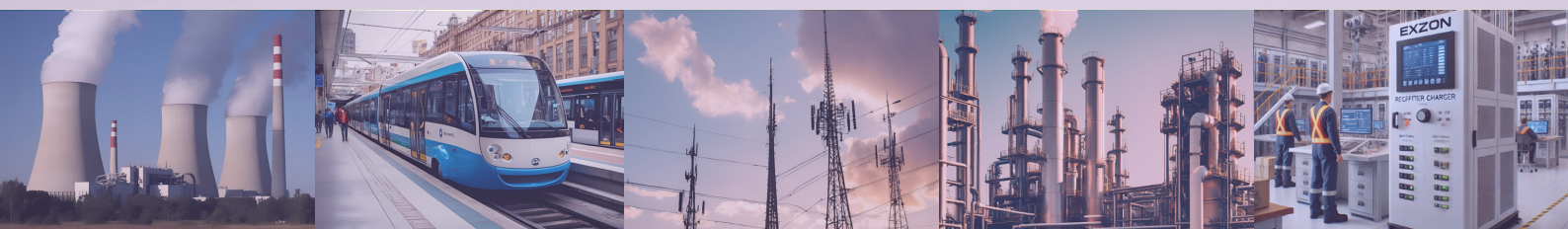
- RS232/RS485 serial interface with MODBUS protocol.
- Modbus TCP/IP interface.
- TCP/IP network interface with on-board web-server.
- Remote rectifier shutdown command, forced floating charge command, room fan control, alarm reset and high rate charge command.
- Programmable relays cards.
- Digital inputs for EPO, generator operation etc.
- Programmable analogue inputs (battery temperature etc.) with clear text messages.



Battery monitoring and management

Battery monitoring and management is a key factor for a reliable and durable power back-up. The Exzon LFB Series has class leading built-in features, such as:

- Monolithic modular design, flexible installation for various application and unlimited for expansion.
- R-Bus cable connects in a link loop for efficient communication. Data collection interval will be less than 10 seconds.
- 4 Wired Sensor to obtain individual battery measurement, which will more precise and avoids errors caused by wire resistance Battery availability check.
- Smart Battery Monitor (constantly updated battery capacity and battery back-up time).
- Compatible with various battery types / wide DC range.





4G ENGINEERING CO., LTD

Applications

Exxon's DC power systems and battery chargers ensure reliable, continuous power to critical industrial applications in harsh environments.

- ✓ Power Generation & Substation Distribution
- ✓ Oil & Gas Industries.
- ✓ Petrochemical Plants
- ✓ Mining & Heavy Industry
- ✓ Telecommunications
- ✓ Transportation & Railways
- ✓ Switchgear Protection & Process Control

Product support service

The after-sale support supplied by the manufacturer is one of the most critical factors to enhance the reliability and longevity of your DC power systems. Our expert team is dedicated to delivering prompt assistance, minimizing downtime, and optimizing performance for your critical operations.

- Customer training
- Start-up test or SAT
- Disassembly and Installation Services
- Preventive Maintenance Contracts
- Supply of original spare parts
- Supervisor for commissioning
- Emergency Support Services



For more information about **EXXON** and **4G ENGINEERING**, visit: www.4g.co.th or contact us at (+66) 2-949-9761-2

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