



FULL GALVANIC ISOLATION
STANDARD INPUT ISOLATION
TRANSFORMER (CU or AL)



SUITABLE FOR ALL BATTERIES
VRLA, OPzV, OPzS, NiCad,
LiFe4PO, Lithium Ion etc.



CURRENT LIMITING
CURRENT LIMITING AT ANY
PERCENTAGE OF LOAD



CHALLENGING ENVIRONMENT
CUSTOMIZABLE FOR
CHALLENGING ENVIRONMENTS

ENCLOVE Energy: Industrial Battery Chargers & Rectifiers

ENCLOVE Energy's industrial battery chargers are engineered for uncompromising reliability in the most demanding environments.

Serving as a foundational power conversion solution, these rectifiers transform AC input into a stabilized DC output, ensuring a continuous energy supply for critical industrial infrastructure.

Key Features

- **Ruggedized Design:** Industrial-grade enclosures and components specifically selected for long-term service in harsh fields.
- **Precision Control:** Advanced power electronics provide a smooth, ripple-free DC output to protect and extend the life of connected battery banks.
- **Smart Integration:** Modern connectivity options enable remote monitoring and control, allowing for seamless integration into existing SCADA or automated facility management systems.
- **Enhanced Visibility:** Features a clear mimic diagram for real-time process visualization, alongside digital instrumentation for accurate input/output tracking.



MODEL	GBC1VVV-AAA	GBC3VVV-AAA
PHASE	Single Phase	Three Phase
TYPE	Full Bridge	6 Pulse (OPT: 12 Pulse)
INPUT		
Voltage	110VAC / 115VAC / 120VAC (American Voltage) 220VAC / 230VAC / 240VAC (European Voltage) (OPT: Others)	190VAC / 200VAC / 210VAC (American Voltage) 380VAC / 400VAC / 415VAC (European Voltage) (OPT: Others)
Voltage Range	±10% Standard (OPT: ±20%)	
Input Connections	3W (PH+N+PE) (OPT: Without Neutral)	5W (3PH+N+PE)
Frequency	50Hz, 60Hz or 400Hz (±15%)	
Power Factor	>0.7	>0.8 (OPT: 0.9)
THDi	<50%	<32% (Optional <12%, 8%)
OUTPUT		
Voltage and Regulation	24VDC / 48VDC / 60VDC / 110VDC / 125VDC / 220VDC / 250VDC / 400VDC / 600VDC < 0,5%	
Current Capacity	10A to 200A	10A to 2000A
Efficiency	>75%	>82%
Overload	Current Limiting @100% of Nominal Current (Settable from Front Panel)	
Ripple	<4%	<1%
BATTERY		
Battery Type	VRLA / OPzV / OPzS / NiCad	
Battery Charge Voltage	Depends on the Battery Type (Settable from Front Panel)	
Battery Charge Current	Depends on the Battery Capacity (Settable Current Limit from Front Panel)	
Boost Charge Timer	0 - 20 Hours (Settable from Front Panel)	
Voltage Adjustable Range	80% to 125% of Nominal Voltage	
ENVIRONMENTAL		
Storage Temperature	-25 to 70°C	
Operation Temperature	-10 to 50°C	
Relative Humidity	0 to 95% (Non-Condensing)	
Operating Altitude	1000m from MSL (1% derate each 100m after 1000m)	
Acoustic Noise	<65%	<75%
Isolation	1500VAC (OPT: 2000VAC or 3000VAC) In/Out to Chassis	
Isolation Resistance	200MΩ	
PROTECTION & FUNCTIONS & STANDARDS		
Communication	Standard: ModBus over RS232, 4 x Settable Volt-Free Contacts Optional: RS485, TCP/IP, IEC61850, 16 x Settable Volt-Free Contacts	
Battery Protection	Temperature Compansated Charge, Low Voltage Disconnect, Battery Curent Limit, MCB/MCCB, Boost Inhibit	
Input / Output Protection	MCB/MCCB, Line Failure, DC&Battery Low/High Shutdown, Current Limit, Earth Fault, Over Temperature Load on Battery, Charger Failure, Emergency Stop,	
Standards	IEC60146-2, IEC60204-1, IEC61204-2	
ADDITIONAL FEATURES		
Load Output	Diode Dropper or DC/DC Converter	
Measurement Units	Analog or Digital Gauges for V, A, Hz, kVA etc.	
Power Supply	Power Supply Redundancy from DC Source	
Additional (Optional) Protections	Fan Failure, SCR Fuse Failure, Breaker Off, External Block Parallel Fault, Temperature Probe Failure SPD, Cabinet Heater, Cabinet Lightning, Service Plug	
PHYSICAL PROPERTIES		
Cabinet Type	Standalone Type	
Cabinet Color	RAL7032, RAL7035 (OPT: Others)	
Ingress Protection	IP20 (OPT: IP21 to IP54)	
Cooling System	Fan Forced (OPT: Natural Cooling)	
Cable Entry	Bottom (OPT: Top, Side, Rear)	

* Our company has the right to change the model, visual and technical specification information of the products without prior notice.