IBB-250WM

Battery Charger System

Overview

The IBB-250 WM is an industrial power system designed to deliver significantly more power than conventional battery chargers in wall- or rack-mounted applications. Compliant with industry standards (including NEMA PE-5), the IBB-250WM's reliability, modularity and advanced controller capabilities provide an infrastructure not just for today, but for years to come.

IBB-250WM

BATTERY CHARGER SYSTEM

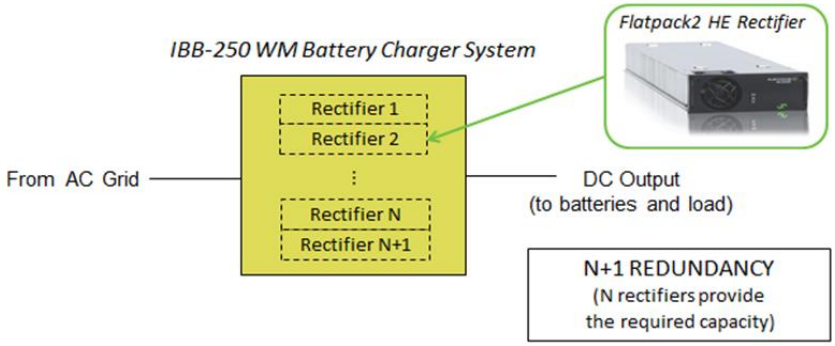
Doc 2131153 Issue 2

PRODUCT DESCRIPTION

Highest Reliability

Reliability is a cornerstone of industrial applications, and it is a critical requirement for the DC power systems that support them. The IBB-250 WM offers:

- Modular architecture enabling affordable (N+1) redundancy
- MTBF of each rectifier module >350,000 hours
- An individual module failure has no impact on load in N+1 System
- Replacing a failed unit is no longer a fire drill
  - Spare modules are practical to stock
  - Hot plug-in design allows MTTR<5 minutes
  - No disruption to a working system



KEY FEATURES

- 6 FORM 'C' CONTACT RELAYS RATED AT 75 VDC
- 3 FORM 'C' CONTACT RELAYS RATED AT 125 VDC STANDARD ON 125V CHARGERS; OPTIONAL FOR OTHERS
- 25 KAIC BREAKER (STANDARD) AND 65 KAIC (OPTIONAL)*
- COMMUNICATIONS: MODBUS, TCP/IP
- REVERSE BATTERY POLARITY PROTECTION
- SURGE PROTECTION DEVICE
- BATTERY ELIMINATOR FEATURE

* See specs on page 2.

IBB-250WM BATTERY CHARGER

SYSTEM CONFIGURATIONS

Product Family	DC Output		Single Phase (50HZ or 60HZ)			Three Phase (50HZ or 60HZ)		
	Voltage (Nominal)	Capacity (Amps)	Voltage	Current (Max)	Base P/N	Voltage	Current (Max)	Base P/N
IBB-250 WM	125V	80A	100 – 250 VAC	77A	310118	200 – 250 VAC	67A	320361
	125V	120A	100 – 250 VAC	115A	301302*	200 – 250 VAC	67A	301305
	48V	200A	100 – 250 VAC	72A	325058	200 – 250 VAC	41A	325060
IBB-250 WME	125V†	200A†	100 – 250 VAC	192A	301306*	200 – 250 VAC	133A	301307*

* Base part numbers 301302, 301306, and 301307 come standard with 65 KAIC breakers
† At a temperature of 50°C, the IBB-250WME is limited to 131 VDC, 200A or 149VDC, 128A. At a temperature of 45°C, the system is limited to 140 VDC, 200A. At temperatures below 45°C the system is capable of the full rated capacity.

CONTROLLER AND COMMUNICATIONS

Controller Model	Smartpack 2 with the Industrial Basic
SCADA Gateway	None, DNP3, or IEC61850
Visual Alarming	Major, Minor, Power On, LCD Display
Remote or Local Monitoring and Control	Ethernet via web browser or PowerSuite RS232/RS485
Industrial Protocols	SNMP V1/V2c and V3, ModBus, ModBus TCP (Industrial Basic Controller required)
Inputs/Outputs	6 each, programmable, contacts rated for 1 Amp at 75 Volts 3 contacts rated at 0.2A at 125 VDC
Data Logging	Up to 10,000 events
Battery Management	Auto monitoring/testing life/capacity indications (requires battery connection system listed in options)
Ground Fault Detection	Interface via controller

INPUT / OUTPUT FEATURES

AC and DC Breakers	UL Listed, Front Accessible, 25 KAIC breakers*
AC Surge Protector	UL Recognized, 8/20 µs, 40 kA
Voltage Regulation	±0.5% from 10% to 100% load
THD	<5% at Nominal Input and Full Load
Power Factor	Greater than 0.99 @ 50% load or more
Ripple and Noise	48V: 30mVRMS (with battery) 100 mVRMS (without battery) 125V: 50mVRMS (with battery) 100 mVRMS (without battery) (Battery eliminator standard)
Reverse Polarity Protection	Built-in Diode

ENVIRONMENTAL

Operating Temperature	-40 to +50°C (-40 to 122°F), de-rates from 50 to 65°C†
Storage Temperature	-40 to +75°C (-40 to 167°F)
Cooling	Fan cooled rectifiers (front to back)
Operating Humidity	5 to 95% RH non-condensing
Storage Humidity	0 to 99% RH non-condensing

APPLICABLE STANDARDS

	MODULES	IBB-250WM/WME
Electrical safety	IEC60950-1/UL60950-1/ CSA C22.2,	UL1012, CSA C22.2 listed
EMC	EN 61000-6-1,2,3,4	N/A
Mains Harmonics	EN 61000-3-2, 3-4	N/A
Environment	2002/95/EC (RoHS), 2002/96/EC (WEEE)	N/A
NEMA Standard	N/A	PE-5-1997
Surge	N/A	IEEE 1613/ANSI/IEEE C37.90.1

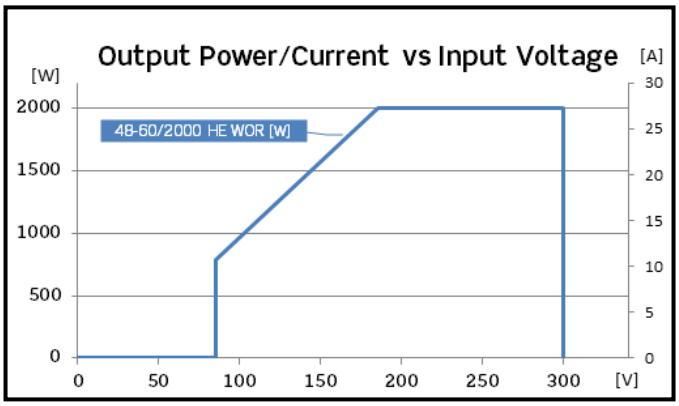
FLATPACK2 MODULES

Part No.	Description	Operating Output Range	Battery Support (Max # of Cells)		Typical Efficiency
			Lead Acid	Nickel Cadmium	
241115.705	48-60V/2000W HE	39.9 – 72.0V	30	38 Cells	96.1%
241119.805	110-125V /20A HE	99.7 – 149V	60	93 Cells	94.5%

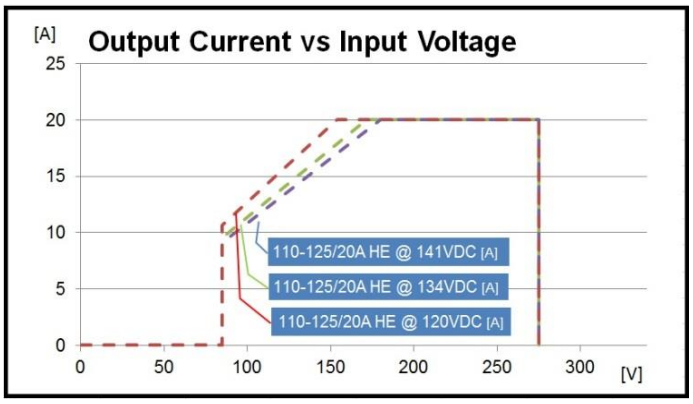
IBB-250WM BATTERY CHARGER

ADDITIONAL TECHNICAL FEATURES

RECTIFIER INPUT VS. CAPACITY OUTPUT CHARTS



48V Rectifiers, 2000W

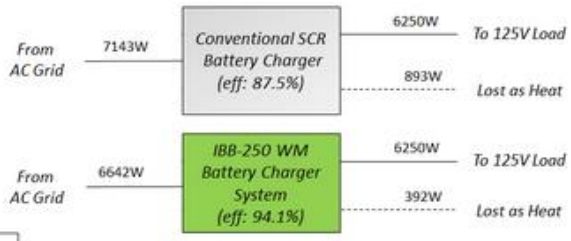


125V/20A Rectifier

Cost-Saving Efficiency

The IBB-250 WM's efficiency performance far exceeds the industry standard, reducing power usage and lowering operational costs.

- Utilizes Flatpack2 HE rectifiers typically operating at efficiencies > 94% (see rectifier specs)
- Flatpack2 HE rectifiers reduce wasted power by more than 50% versus the typical SCR battery chargers used today (see example below)



125V, 50A System Example

56% reduction in wasted energy

Advanced Monitoring/Control

IBB-250 WM systems include the state-of-the-art Smartpack2 controller, which capably:

- Provides comprehensive system monitoring, reporting, and diagnostics in an intuitive, easy to use format
- Stores up to 10,000 events or data entries in its logs
- Performs extensive battery management
  - Thermal compensation charging
  - Automated battery monitoring and testing
  - Capacity and lifetime indicators
- Enables local or remote monitoring and control via Ethernet (web browser)
- Supports SNMP protocol with TRAP, SET and GET on Ethernet, including e-mail of TRAP alarms
- Provides SCADA interfaces including MODBUS over TCP, DNP3, and IEC61850.
- Supports floating systems with ground fault detection

Smartpack2 Controller

COMPARISON: IBB-250 WM VERSUS TYPICAL SCR BATTERY CHARGER

125V System	IBB-250 WM	IBB-250 WME	Typical SCR Battery Chargers	
Capacity	120A	200A	30A	75A
Height	22.6 in	35.0 in	26.8 in	38.0 in
Width	16.8 in	16.8 in	17.9 in	20.9 in
Depth	18.0 in	18.0 in	16.0 in	16.8 in
Weight[1]	125 lbs	137 lbs	n/a	n/a
Weight[2]	151 lbs	180 lbs	200 lbs	420 lbs
Wall Mount	Yes	Yes	Yes	Sometimes
Rack Mount	Yes	Yes	Yes	No

1 Weight shown without rectifiers
2 Weight shown with maximum # of rectifiers; each rectifier weighs 4.3 pounds.

IBB-250WM BATTERY CHARGER

ADDITIONAL TECHNICAL FEATURES

ORDERABLE PART NUMBER

310118 . 00 . 000
1 2 3

1) Six-digit base part number
(see "System Configurations" on page 2)
2) SCADA Protocol
00 – None
01 – IEC61850
02 – DNP3
3) Controller Profile
Default is 000. For custom profile numbers, contact sales.

OPTIONS

- Temperature compensation probe(s)
(contact sales for additional options)
10 ft. cable with ¼" lug (303620)
33 ft. cable with ¼" lug (303621)
98 ft. cable with ¼" lug (303622)
- IBB-250WM Battery Connection System
Required for controller battery management
(Part No. 319672)
- Drip Shield (Part No. 309348)
- SCADA Gateway Field Install Kit
DNP3 (Part No. 321642)
IEC61850 (Part No. 313151)
- Optional breaker size of 65 KAIC† available (call sales)
- Additional Form C Relays
FlexiMonitor (Part No. 242100.603)
4 Relay Kit (Part No. 242100.605)
8 Relay Kit (Part No. 242100.604)

IBB-250WM

IBB-250WME