Integritas* Industrial Battery Charger

Overview

The Integritas is GE's highest reliability industrial battery charger designed for cabinet, wall-mounted or rack-mounted applications. It boasts true redundancy, a state of the art controller with monitoring capabilities, and supports NERC compliance. The Integritas series battery chargers can be configured for 24, 48 or 125Vdc output with capacities ranging from 20A to 300A. This provides scalability as well as significant higher power compared to traditional SCR based chargers. The system features an integrated, simple to operate, advanced monitoring and control system using field proven technology that offers market leading reliability and availability. Advanced maintenance and monitoring solutions provides minimal mean times between repairs.

Application Industries

- Power Utilities
- Process Control
- Transportation
- Oil and Gas

Applications

- Battery Charging/Standby Power
- Pump Control/Supply
- Emergency Lighting
- Switchgear Control Power

Features

- N+1 and N+N redundancy
- Front panel access to most control and monitoring parameters including alarms
- Wide input voltage range
- Hot pluggable charger & control modules
- Rack mount or wall mount
- Secured remote access and monitoring
- Controller independent system operation
- Optional dual AC input
- Optional secondary output breaker for battery test or external loads
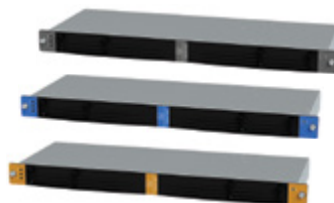
Specifications

INPUT	MIN	TYP	MAX
Voltage Range - 1Φ High-Line - 1Φ Low-Line	- 175Vac 85Vac	- 220Vac 110Vac	- 305Vac 140Vac
Frequency	45Hz	60Hz	66Hz
Power Factor	98%	99.5%	
Total Harmonic Distortion	5%		

OUTPUT	IP100ACR024ATEZ - 1Φ	IP050ACR048ATEZ - 1Φ	IP020ACR125ATEZ - 1Φ
Nominal Voltage	24Vdc	48Vdc	125Vdc
Output Current	100A	50A	20A
Vo Setpoint (Factory)	27.25Vdc	54.5Vdc	125Vdc
Vo Range	21 – 29Vdc	42 – 58Vdc	90 – 160Vdc
Regulation (With Controller)	±0.5%	±0.5%	±0.5%
Efficiency	> 95% (Peak 95.6%)	> 96% (Peak 96.4%)	> 94.5% (Peak 95.1%)
Output Voltage Ripple	100mVrms	100mVrms	150mVrms
Thermal Output (Max)	620 BTU/hr	510 BTU/hr	544 BTU/hr

MECHANICAL			
Module L x W x H (in. /mm)	9/229 x 1.7/43 x 24/610		
System L x W x H (in. /mm)	14 / 356 x 17.5 / 445 x 28.25 / 718 or 14 / 356 x 23 / 584 x 28.25 / 718		
Module Weight (lb / Kg)	12.1 / 5.5	12.1 / 5.5	12.1 / 5.5
System Weight (lb / Kg)	60 / 27.2 – 84 / 38.1	60 / 27.2 – 133 / 60	60 / 27.2 – 133 / 60

ENVIRONMENTAL	
Operating Temperature	-40°C to +75°C (-40°F to 167°F) (de-rates above 50°C)
Storage Temperature	-40°C to +85°C (-40°F to 185°F)
Relative Humidity	95% max, non-condensing
Altitude	4000M (for altitudes above 2000M, peak operating temperature de-rates 0.656° C /100M; 4000M peak temperature rating is 62° C)

SAFETY AND STANDARDS COMPLIANCE	
NEMA	NEMA PE5 for modules, NEMA 2 Enclosure
Safety	UL 1012, ANSI/UL60950-1-2014 and CAN/CSA C22.2 No. 60950-1-07, Second Edition + A2:2014 (MOD), dated October 14, 2014
RoHS	Compliant to RoHS EU Directive 2002/95/EC RoHS 6/6
EMC	European Directive 2014/30/EU; EN55032, Class B, EN55035; FCC, Class B
ESD	EN61000-4-2, Level 4

PROTECTION	
Voltage	Input under voltage, Input over voltage, Output overvoltage, Output under-voltage
Current	Fuse in both the input lines, output over current protection, Output short circuit protection
Thermal	Over temperature protection and auto restart upon removal of over temperature condition
Surge	Input surge protection, Output surge protection
Reverse Polarity	Battery reverse polarity
Ground Fault	Ground fault detection and alarm (Only reporting)
Breakers	Industrial grade UL recognized bulk input and bulk output breaker

Pulsar XL Controller

The Pulsar Plus family of controllers provides system monitoring and control features for Infinity industrial battery charger systems. These controllers monitor and control system components including rectifiers, converters, and distribution modules via a multi-drop RS485 digital communications bus. System status, parameters, settings, and alarm thresholds can be viewed and configured from the controller's front panel display. Assignment and configuration of alarm inputs and output relays can be performed from a laptop computer connected to a local RS-232 or Ethernet port, or by remote access through a network connection to the World Wide Web (internet) or your enterprise network (intranet).

Key Features

Remote Access and Features

- Integrated 10/100Base-T Ethernet Network
  - TCP/IP, SSH, SSL
  - SNMP V2c, SNMPV3, IPV6
  - SMTP for email
  - Telnet for command line interface
  - DHCP for plug-n-play
  - FTP for rapid backup and upgrades
  - HTTP & HTTPS for standard web pages and web browsers.
  - Shielded RJ-45 interface referenced to chassis ground
- Password protected security levels: User, Super-User, Administrator for all access
- Ground-referenced RS232 system port
- ANSI T1.317 command-line interface
- EasyView2, Windows-based GUI software for local terminal access

Standard System Features

- Monitor and control of more than 40 connected devices
- Standard and user defined alarms
  - Alarm test

- Assignable alarm severity: Critical, Major, Minor, Warning, and record-only
- 10 alarm relays (7 user assigned)
- Rectifier management features
  - Automatic rectifier restart
  - Active Rectifier Management
  - ARM (energy efficiency)
  - Remote rectifier (on/off)
  - Reserve Operation
  - Automatic rectifier sequence control
  - N + X redundancy check
- Multiple Low Voltage Load and Low Voltage Battery Disconnect thresholds
- Configuration, statistics, and history
  - All stored in non-volatile memory
  - Remote/local backup and restore of configuration data
- Industry standard defaults
  - Customer specific configurations Available Remote/ local software upgrade
- Basic, busy hour, and trend statistics
- Detailed event history
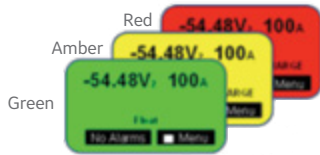- User defined events and derived channels

Standard Battery Management Features

- Float/boost mode control
  - Manual boost
  - Manual timed boost locally, T1.317, and remotely initiated
  - Auto boost terminated by time or current
- Battery discharge testing
  - Manual (local/remote)
  - Periodic
  - Plant Battery Test (PBT) input driven
  - Configurable threshold or 20% algorithm
  - Graphical discharge data
  - Rectifiers on-line during test
- Slope thermal compensation
  - High temperature
  - Low temperature
  - Step temperature
  - STC Enable/Disable, low temperature Enable/Disable
  - Configurable mV/°C slopes
- State of charge indication
- High temperature disconnect setting
- Reserve-time prediction
- Recharge current limit
- Emergency Power-Off input

Integrated Monitoring Inputs/Outputs

- System plant voltage (accuracy ±0.5%, resolution 0.1V)
- One system shunt (accuracy ± 0.5% full scale, resolution 1A)
  - Battery or load
  - Mounted in the return side of DC bus
- Up to 15 binary inputs
  - Six inputs close/open to battery
  - 9 input close/open to return
  - User assignable

- Up to 10 Form-C output alarms (125Vdc @ .5A)
  - 7 user assignable (See Application Guide for standard alarm profile)
- 1-Wire* bus devices
  - Up to 16 temperature probes (QS873)
  - Up to 6 mid-string monitors (ES771)

Red   -54.48V₂ 100ᴀ
Amber   -54.48V₂ 100ᴀ
Green   -54.48V₂ 100ᴀ

Model Description

The IWC configuration is broken into 4 groups: Charger Cabinet, AC Input, DC Output, and Control Features. Each group is composed of a smart alpha numeric code to define the features the charger has.

Note: For detailed descriptions refer to Application Guide

EXAMPLE ALPHA CODE: 3BR125-SHWY-S10Y-P000

CABINET TYPE	AC IN	DC OUT	CONTROLS
3BR125 ----	**SHWY** ----	**S10Y** ----	**P000**

Cabinet:
3 – Type I (19")
6 – Type II (23")

I/O Location:
T – Top
B – Bottom

Door Opens From:
L – Left
R – Right

Nominal DC Out:
024 – 24V
048 – 48V
125 – 125V

In Type:
S – Single
D – Dual

AC Input Feed:
AC – 120/240
L3 – 208 DELTA
LW – 200 - 300 WYE
HW – 480 WYE

AC Surge:
Y – Yes
N – No

Output Type:
S – Single Load
D – Dual Load
B – 1 Load; 1 Battery
L – 1 Load; 1 Battery Test

Breaker Rating:
10 – Min 10 kAIC
25 – Min 25 kAIC
50 – Min 50 kAIC

DC Surge:
Y – Yes
N – No

Controller:
P – Pulsar XL

Communications:
0 – Standard TCP

Security:
0 – Standard

Battery Management:
0 – Standard