

# Integritas\* Industrial Battery Charger



## Overview

The Integritas is ABB'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 - 3Φ High-Line	- 175Vac 85Vac 320Vac	- 220Vac 110Vac 380 - 480Vac	- 305Vac 140Vac 530Vac
Frequency	45Hz	60Hz	66Hz
Power Factor	98%	99.5%	
Total Harmonic Distortion	5%		

OUTPUT	IP100ACR024ATEZ - 1Φ	IP050ACR048ATEZ - 1Φ	IP020ACR125ATEZ - 1Φ	IP100H3R048ATEZ - 3Φ	IP040H3R125ATEZ - 3Φ
Nominal Voltage	24Vdc	48Vdc	125Vdc	48Vdc	125Vdc
Output Current	100A	50A	20A	100A (125A Peak)	40A (50A Peak)
Vo Setpoint (Factory)	27.25Vdc	54.5Vdc	125Vdc	54.5Vdc	125Vdc
Vo Range	21 – 29Vdc	42 – 58Vdc	90 – 160Vdc	42 - 58Vdc	90 - 160Vdc
Regulation (With Controller)	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%
Efficiency	> 95% (Peak 95.6%)	> 96% (Peak 96.4%)	> 94.5% (Peak 95.1%)	>96% (Peak 96.5%)	>96% (Peak 96.5%)
Output Voltage Ripple	<30mV	<30mV	<30mV	<30mV	<30mV
Thermal Output (Max)	620 BTU/hr	510 BTU/hr	544 BTU/hr	853BTU/hr	853BTU/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	16.1/7.3	16.1/7.3
System Weight (lb / Kg)	60 / 27.2 – 84 / 38.1	60 / 27.2 – 133 / 60	60 / 27.2 – 133 / 60	64/29 - 145/65.4	64/29 - 145/65.4

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/IEC 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
- 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

### Standard System Features

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

- User defined events and derived channels

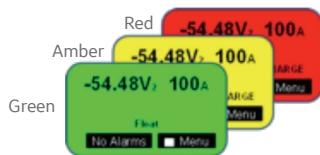
### Standard Battery Management Features

- 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

## Integrated Monitoring Inputs/Outputs

- System plant voltage (accuracy  $\pm 0.5\%$ , resolution 0.1V)
  - User assignable
- One system shunt (accuracy  $\pm 0.5\%$  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
- 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)

GENERAL	
Operating Voltage	±24 Vdc, ±48 Vdc, 125Vdc (Range: ±18 to ±160 Vdc)
Input Power	Less than 7W
Operating Temperature Range	-40°C to +75°C (-40°F to 167°F)
Operating Relative Humidity	0 - 95% (non-condensing)
Storage Temperature Range	-40°C to +85°C (-40°F to 185°F)
Physical Specifications	Sizes vary by packaging option
Display	8-line by 40-character with alarm context sensitive backlit LCD



SAFETY AND STANDARDS COMPLIANCE	
Safety	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 A, EN55035; FCC, Class A; GR1089-CORE, Issue 6 [Level 3]
ESD	EN 61000-4-2 level 4
Radiated Emissions	European Directive 2014/30/EU; EN55032, (CISPR22) Class B, EN55035 (CISPR24)

## 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

**3BR125**

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

#### I/O Location:

TR – Top  
BR – Bottom

#### Nominal DC Out:

024 – 24V  
048 – 48V  
125 – 125V

#### AC IN

**SHWY**

**In Type:**  
S – Single  
D – Dual

#### AC Input Feed:

AC – 120/240<sup>1</sup>  
L3 – 176-305V 3PH DELTA  
H3 – 320-530V 3PH DELTA  
LW – 176-305V 3PH WYE  
HW – 320-530V 3PH WYE

#### AC Surge:

Y – Yes

#### DC OUT

**S10Y**

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

#### Output Breaker Rating:

10 – 10 kAIC<sup>2</sup>

#### DC Surge:

Y – Yes

#### CONTROLS

**P000**

**Controller:**  
P – Pulsar XL

**Security:**  
0 – Standard

#### Comm. Protocol:

0 – SNMP/MODBUS  
D – DNP3  
I – IEC61850

**Battery Management:**  
0 – Standard

<sup>1</sup> Rectifier output is reduced to 1200W when powering the charger with 120VAC.

<sup>2</sup> All breakers used are rated at a minimum of 10kAIC. Please refer to Output Breaker Rating table in the Application Guide for actual interrupt ratings at each operational voltage.