

## MajorCharge Industrial Battery Chargers

**MajorCharge Industrial** Series Battery Chargers are available in virtually any configuration required from 100-600 VAC input, 60 or 50 Hz, single or 3 phase, to any DC output voltage from 12-600 VDC.

**MajorCharge Industrial** units are available for worldwide delivery in any industrial application from oil and gas, mining, shipboard, etc, to any charging requirement on the shop floor.

The **MajorCharge Industrial** series design is fully solid state using SCR phase control to provide regulated DC output and limited current via a smoothing filter.

**MajorCharge Industrial** units can operate with or without batteries.



### Product Features

- UL/ANSI 1012 Listed, CSA C22.2 107.2 Certified and applicable IEC standard compliant ; NEMA/PE5 compliant
- SCR (Thyristor) based rectifier c/w double wound isolation transformer
- Modular construction using the latest power and microelectronic devices
- Color coded PVC copper stranded wire for control and signals
- 30 year design, MTBF of 100 000 hours typical, MTTR less than 1 hour
- Alarm log, history and events
- ISO 9002-1994 Quality control compliant
- Electronic control, current limiting and voltage regulation

## Product Specifications

Input	
<b>Standard Voltage</b>	110, 120, 208, 220, 240, 380, 400, 480, 550, 575, and 600 VAC
<b>Phases</b>	1 and 3 phase
<b>Frequency</b>	50Hz or 60Hz
<b>Power Factor</b>	0.75 (1 phase), 0.85 (3 phase) at full load when tested on battery and resistive load
<b>Efficiency at Full Load</b>	Typical 87% (1 phase), 90% (3 phase)
Output	
<b>Standard Nominal Voltage</b>	12, 24, 36, 48, 72, 125, 250, 380, 480 and 600 VDC
<b>Power</b>	From 60W to 180kW Standard
<b>AC Ripple Voltage</b>	<b>Standard:</b> Single phase: 10% RMS on battery; 3-Phase: 3% RMS on battery; Unfiltered, commercial grade, NON NEMA/PE5 Compliant
	<b>F Option:</b> 12/24/48 Volt: 1% on resistive load (PE5 filtered off battery); 30 mV on batteries (PE5: Filtered on battery)
	125/240 Volt: 2% on resistive load (PE5 filtered off battery); 100 mV on batteries (PE5: Filtered on battery)
	<b>T Option:</b> 12/24/48 Volt: 30 mV on resistive load 125 Volt: 100 mV on resistive load 240 Volt: 200 mV on resistive load
<b>Static Regulation</b>	< 0.5% for simultaneous variations of +10/-12% input voltage, ±5% input frequency and 0-100% load
<b>Dynamic Regulation</b>	±6% from 10%-90% and 90%-10% load variation (t<300msec)
<b>Parallel Operation</b>	<b>Random:</b> Similar chargers can be operated in random Parallel
<b>EMC (CE Marked Units Only)</b>	<b>Conducted (150kHz-30MHz) and radiated (30MHz-1GHz):</b> en55011 class A
	<b>Electrostatic discharge:</b> EN61000-4-2 level 2/3 (4kV contact, 8kV air)
	<b>Radiated susceptibility:</b> EN61000-4-3 level 3 annex D (80MHz-1GHz @ 10V/m)
	<b>Electrical fast transient:</b> EN61000-4-4 level 3 (2kV)
	<b>Surge immunity:</b> EN61000-4-5 level 3 (1kV I/I, 2kV L/GND)
	<b>Conducted susceptibility:</b> EN61000-4-6 level 3 (150kHz to 80MHz, 10v) <b>Voltage interrupt:</b> EN61000-4-11 (30, 60 & 90%-10-10 & 500ms)
Protection	
<b>Over-Current</b>	Soft start
	Automatic current limiting circuit, adjustable from 20% to 120% of nominal rating
	Input thermal-magnetic circuit breaker and DC output fuse standard
<b>Voltage Transients</b>	Surge suppression on input and output reverse polarity
Mechanical and Physical	
<b>Enclosure</b>	CEMA/NEMA1(IP20), 14GA (2mm) steel C/W hinged front access door
<b>Finish</b>	Phosphatised and primed prior to painting with ASA61, light gray
	Natural convection colling up to 130A output current
<b>Cooling</b>	Forced air cooling assistance for units over 130A output current (N.B. Floor mounted models are provided with 3in. (75mm) clearance at bottom to facilitate handling by lift truck, pallet truck or slings)
Environmental	
<b>Audible Noise</b>	45 to 65 dBA at 3ft (1 meter) rating dependant
<b>Operating Temp. Range</b>	32°F to +122°F (0°C to 50°C)/Storage -40°F to 185°F (-40°C to 85°C)
<b>Temperature De-Rating</b>	0.83%/°F from 122°F to 140°F (1.5%/°C from 50°C to 60°C)
<b>Operating Humidity</b>	Up to 95% (non condensing)
<b>Altitude De-Rating</b>	0% for 1st 3300ft (1000m), 7% per 3300ft (1000m) over 3300ft (1000m)

## Metering & Control

### Metering and Timing

- ▶ Simultaneous 0.5% Accuracy DC voltage and current metering
- ▶ Remaining and elapsed equalize time

### Control Modes

- ▶ Manual float/equalize toggle

### Control Adjustments (Password Protected)

- ▶ Float and equalize voltage
- ▶ Current limit
- ▶ Equalize period 0-100 hours
- ▶ Float period 0-100 days
- ▶ Equalize mode termination based on voltage, time and/or low DC volts event(s)

### Indicating LEDs

- ▶ AC On Green LED
- ▶ Common alarm flashing red LED

### Alarm Menu Indications

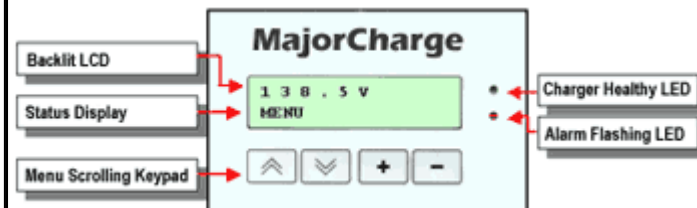
- ▶ Charger failure based on low volts & low output DC current
- ▶ High DC volts
- ▶ Low DC volts
- ▶ Positive ground fault
- ▶ Negative ground fault
- ▶ AC fail

### Alarm Menu Functions (Password Protected)

- ▶ Adjustable alarm time delay
- ▶ Indications latch
- ▶ Alarm relays latch
- ▶ Alarm acknowledgement
- ▶ Alarm levels adjustment
- ▶ LED, LCD and relay test

### Remote Indications

- ▶ All alarms are wired to a common voltage free N.O. and N.C. (form "C") dry contacts



The Digital Multilingual Display delivers all charger information to your fingertips. The user-friendly display menu is your standard link to all monitoring controls & alarms. All set points for control and alarm parameters are user-definable.

## Charger Standard Adjustment Range (VDC)

Voltage	12V	24V	48V	125V	250V
Float	10-15	20-30	40-60	100-145	200-290
Equalize	10-16	20-32	40-65	100-150	200-300
Single Level	10-16	20-32	40-65	100-150	200-300
Formation	10-16	20-32	40-65	100-150	200-300

## Suggested Battery Voltages

(May vary with manufacturer, type, duty and ambient)

Flooded L/A	Sealed L/A	Nickel Cadmium
2.15 - 2.25	2.25 - 2.35	1.35 - 1.45
2.3 - 2.5	2.3 - 2.4	1.45 - 1.55
2.23 - 2.3	2.25 - 2.4	1.42 - 1.55
2.5 - 2.7	2.5 - 2.7	1.55 - 1.65

## Available Options

- ▶ Individual alarms form C contacts
- ▶ RS 232/485
- ▶ SNMP interface
- ▶ DC circuit breakers
- ▶ Negative temperature compensation 0.2% C
- ▶ Distribution panel
- ▶ High temperature alarm and shut-down
- ▶ High volts shutdown via the AC breaker trip
- ▶ AC input volts, amps and frequency readings
- ▶ High and low AC input voltage alarm
- ▶ High ripple alarm
- ▶ Power factor correction to 0.95 lagging
- ▶ Tropicalization and fungus proofing
- ▶ Remote voltage sensing terminals
- ▶ Remote shutdown and equalize control
- ▶ Audible alarm
- ▶ Manual voltage control
- ▶ Input harmonic filter to comply with EC
- ▶ 50Hz or 400Hz Input frequency
- ▶ Low DC volts load disconnect (load shedding)
- ▶ End of discharge alarm
- ▶ Battery discharging alarm
- ▶ Battery high temperature alarm and shutdown
- ▶ Battery ammeter and voltmeter
- ▶ Amp-hour meter reading battery capacity % or AH DC distribution panel
- ▶ Oversized cabinets to fit batteries in separate compartments
- ▶ Special paint and NEMA/IP protection
- ▶ Seismic design