



Microprocessor Controlled SCR Battery Charger



Made in U.S.A



The La Marche Model A77 Series Battery Charger is engineered for the demanding requirements of Switchgear, Process Control, Oil Exploration and other stationary DC power applications. The A77 can automate NERC PRC-005 & TPL-001 Compliance.

Powered by Microprocessor Controlled SCR technology, the A77 Series Battery Charger / Battery Eliminator has $\pm 0.25\%$ DC voltage regulation from no load to full load over the specified input voltage, frequency and ambient temperature ranges.

These chargers are available in DC output voltages of 24, 48, 130, and 260 VDC with DC output currents from 6 amps and above. Consult factory for any special input and output requirements not mentioned above.

The La Marche A77 charger provides value added features such as AC/DC breakers, easy to read LCD display with text readout alarm LED's and form "C" alarm contacts. Communication options are available to remotely monitor and control the charger using DNP3, Modbus, IEC 61850 and SNMP protocols. The SNMP option features easier and faster charger setup and configuration using a web browser.

Designed to meet IEEE-2405 & NEMA PE5, and listed to UL 1012.

Standard Features

Microprocessor Controlled SCR Technology

A77D - Level-1 Filter *

A77DE - Level-2 Filter **

Automatic AC Voltage Compensation

AC & DC Surge Protection (MOV)

AC & DC Breaker

Float / Equalize Mode Switch

Digital Float and Equalize Adjustments

Digital Current Limit Adjustment 50 to 110%

$\pm 0.25\%$ DC Voltage Regulation

Battery Continuity Test

Load Sharing

Remote Equalize

LCD Display

✓ DC Voltage and Current

✓ Alarms

Available for Lithium-Ion Battery configurations

LED Indicators

✓ Float / Equalize

✓ AC ON

✓ Charger Failure

✓ Overload / Current Limit

✓ End of Discharge

✓ High DC Voltage Shutdown

✓ Positive & Negative Ground Detection

Remote Annunciation Form "C" Contacts

✓ AC Failure

✓ AC Failure

✓ Summary Alarm

✓ Low DC Current

✓ Low DC Voltage

✓ High DC Voltage

(See Optional Accessories For Additional Alarm Contacts)

Alarms Latching / Non-Latching

Equalize Timer - adjustable from 1-255 hours with five selectable modes of operation (manual, automatic every 7, 14 or 30 days and equalize after sensing a low DC voltage)

Advanced Data Logging (Micro SD)

UL 1012, CUL, CE, IBC & ABS

NERC PRC-005 & TPL-001 Compliant

5 Year Warranty

* Level-1 Filter Equivalent to NEMA PE5 Filtered Output

** Level-2 Filter Equivalent to NEMA PE5 Battery Eliminator Filter



Specifications

ELECTRICAL

- **AC Input Operating Range Voltage**
Voltage range: +10, -12% from nominal
Frequency range: 60 Hz \pm 5%
(50Hz Consult Factory)
- **Single Phase Voltages:**
120, 208, 240, 480 or 600 VAC
(Tap selectable 120/208/240 on units up to 25 amp output. All other units must specify single input voltage).
Consult factory for other voltages.
- **Three Phase Voltages:**
208, 240, 480 or 600 VAC
Consult factory for other voltages.
- **DC Output**
24, 48, 125/130, 250/260VDC
6 to 500 amps
- **Efficiency***
Single Phase > 85%
Three Phase > 90%
* Based on 125/130VDC output units

• Output Filtering (with or without batteries):

	24V	48V	125/130V	250/260V
A77D Level-1 Filter (w/o battery)	240mV (1%)	480mV (1%)	2.6V (2%)	5.2V (2%)
A77D Level-1 Filter (w/battery)	30mV	30mV	100mV*	200mV*
A77DE Level-2 Filter (w/o battery)	30mV	30mV	100mV**	200mV

* Battery AH = 4x the charger's ampacity
** 30mV filtering available as an option

- **DC Voltage Regulation Steady State**
 \pm 0.25% of setting from no load to full load over the specified input voltage, frequency and ambient temperature ranges.
- **DC Output Voltage Range**

	Volt		Cells	
	Float	Equalize	Lead Acid	Ni-Cad
24V	23.8-29.5	24-31	11-13L	17-20N
48V	46-57	48-59	22-26L	33-39N
125/130V	115-140	123-147	53-62L	83-93N
250/260V	230-280	246-294	106-124L	166-186N

Consult Factory for other ratings.
Note: Typical cell ranges are based on the following:
Lead Acid 2.17 vpc Float, 2.33 vpc Equalize
NiCad 1.40 vpc Float, 1.55 vpc Equalize
VRLA 2.25 vpc Float, 2.27 vpc Equalize

Front Display Panel



- **Data Logging**
A77 Battery Charger is equipped with data logging capability on an internal Micro-SD Card. It logs and stores data of Event-Driven and Time-Interval-Driven Events. The charger's data-log file does not need proprietary software to examine the data; it could be viewed and easily formatted with many popular spreadsheet programs.
- **Dynamic Response (On Battery)**
Voltage transient < \pm 5% over a step change in the load from 20% to 100%
Recovery Time < 200 ms
- **Audible Noise**
Less than 65dBA at any point 5 feet from any vertical surface of the unit.

- **Load Sharing**
Identical La Marche A77 units, when connected in parallel, are capable of sharing the DC load within \pm 5% for individual unit outputs greater than 5% of the rated output.

REMOTE MONITORING

- Form "C" Alarm Contacts
- With optional Communications Card:
 - Connect to SCADA System
 - Web Monitoring
 - Alarm / Notification E-mails

PROTECTION

- **Current Walk-in**
The output current will gradually increase after the charger is turned on, eliminating surges and overshoot.
- **Current Limit**
Electronic Current-Limiting Control Circuitry provides a digitally adjustable limit from 50 to 110% of the rated output current of the charger, Factory set at 110%.
- **AC Breaker**
Single Phase units are equipped with a 2-pole circuit breaker.
Three Phase units are equipped with a 3-pole circuit breaker.
- **DC Breaker**
Standard units are equipped with a 2-pole circuit breaker.

ENVIRONMENTAL

- **Operating Temperature**
0 to 50°C (32 to 122°F)
- **Storage Temperature**
-40 to 85°C (-40 to 185°F)
- **Relative Humidity**
0 to 95% (non-condensing)
- **Cooling**
Convection Cooled

ENCLOSURES

- **NEMA Type 1**
Consult factory for other enclosure ratings.
- **Dimensions**
Overall dimensions and weight are listed on the last page. When space requirements are critical, please consult the factory. Case specifications are subject to change.
- **Mounting**
Floor, wall or rack mounting is available; see enclosure specifications on page 4 for details.
- **Finish**
Pretreated with a seven stage iron phosphate wash, sealer and deionized rinse. Then coated with an environmentally safe and durable ANSI 61 gray Polyester TGIC Minite powder finish.

STANDARDS

- ABS
- IBC*
- CE
- UL/CUL 1012
- EN 55011
- NEMA PE5
- FCC Part 15
- IEEE/ANSI C37. 90.1
- IEC 60255-22-3
- IEC 60950-1
- IEC 61000-4
- IEC 61000-6-4
- IEC 61000-6-2
- IEEE-2405

* Requires an option code

Optional Accessories

- **01C** 2 - Pole High Interrupting Capacity AC Breaker †
65KAIC @ 240 VAC / 35KAIC @ 480 VAC
- **01D** 2 - Pole High Interrupting Capacity AC Breaker †
100KAIC @ 240 VAC / 65KAIC @ 480 VAC / 25KAIC @ 600 VAC
- **01F** 3 - Pole High Interrupting Capacity AC Breaker †
65KAIC @ 240 VAC / 35KAIC @ 480 VAC
- **01G** 3 - Pole High Interrupting Capacity AC Breaker †
100KAIC @ 240 VAC / 65KAIC @ 480 VAC / 25KAIC @ 600 VAC
† Only available for Breakers Rated 15A & Larger.
- **19T** AC Breaker Trip on HVSD
- **19U** Adjustable Ground Detection Sensitivity
- **19V** AC Voltage & Current Metering (1%)
- **11F** Special 30mV Filtering
- **20Q** Equalize Fan Control Relay
- **434** Reverse Polarity Protection
- **38D** Copper Ground Bus Bar
- **11L** Lightning Arrestor
- **11W** External Probe 24Ft (Adj Temp Comp.)
- **11Y** External Probe 100Ft (Adj Temp Comp.)
- **102** Blocking Diode
- **09C** I.D. Tags - White text on black background
- **09V** I.D. Tags - Black text on white background
- **09W** Heat Shrink Wire Markers with Electrical Schematic
- **46R** Discrete Alarm Relays
 - Positive Ground
 - Negative Ground
 - High DC Volts
 - Charger Failure
 - Low DC Volts
 - Low DC Amps
 - Battery End of Discharge
 - High Voltage Shutdown
- **17B** 12 Pulse Rectification, 5% THD
- **57D** Hydrogen Det. HUB, Alarm Interface & Sensor
- **57H** Hydrogen Det. HUB, Alarm Interface
- **10Z** Electrolyte Level HUB, Alarm Interface & Sensor
- **538** IBC Certification Label (consult factory for Anchor Kits)
- **182** Ventilation Fan Interlock
- **56E** Compliance to IEC 62477-1:2012 and IEC 61204-7:2016
- **219** Equipment Over Temperature Alarm

Communication Protocols

- **21J** IEC 61850 Ethernet
- **21P** DNP 3.0 Communications RS232/RS485/Ethernet
- **21Q** Modbus Communications RS232/RS485/Ethernet
- **21S** Modbus RTU RS232/RS485
- **21X** SNMP & Web Browser (Ethernet)

* Case size subject to change, consult factory.

A77 Charger Chart

	Model Number	DC Amps	DC Protection DC Breaker/ Rating	Three Phase AC Input Current Draw Amps @ 100% Load (Recommended Feeder AC Supply Breaker)						Enclosure	Shipping Weight** (Approximate)		
				(D)208	(B)240	Rating	(C)480	Rating	(ZD)600		Rating	lbs	kgs
				250/260 Volt Systems	A77D(E)-25-260V†	25	40/25 KAIC	36 (50)	31 (50)		25 KAIC	16 (25)	25 KAIC
A77D(E)-50-260V†	50	70/25 KAIC	72 (100)		62 (90)	25 KAIC	31 (50)	25 KAIC	26 (40)	18 KAIC	72N	700	317
A77D(E)-75-260V†	75	100/25 KAIC	108 (150)		94 (125)	25 KAIC	47 (70)	25 KAIC	39 (60)	18 KAIC	46N	900	408
A77D(E)-100-260V†	100	150/25 KAIC	144 (200)		125 (175)	25 KAIC	62 (90)	25 KAIC	50 (70)	18 KAIC	47N	1800	816
A77D(E)-150-260V†	150	225/25 KAIC	---		187 (250)	25 KAIC	94 (150)	25 KAIC	75 (100)	18 KAIC	47N	2200	998
A77D(E)-200-260V†	200	300/25 KAIC	---	---	25 KAIC	125 (175)	25 KAIC	100 (150)	18 KAIC	57N	3000	1360	

Note: Case size subject to change without notice

**Consult Factory for optional export crating weight

† UL Pending

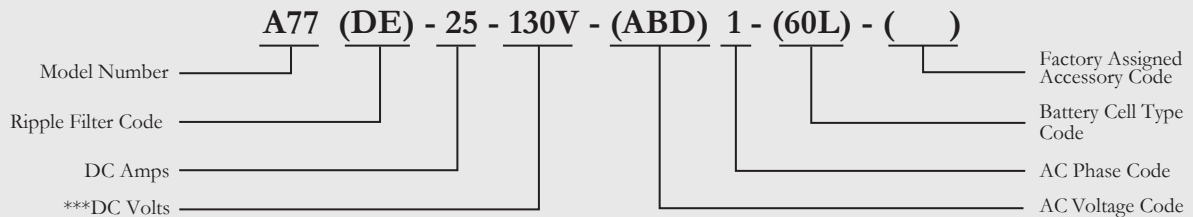
Enclosure Specifications

Enclosure	Overall Dimensions						Cable Entry		Standard Mounting	Optional Mounting Kits	
	Width		Depth		Height		AC Input	DC Input		Rack	Floor
	in	mm	in	mm	in	mm					
10	19	483	15.1	384	12.2	310	RIGHT TOP / BOTTOM	LEFT TOP / BOTTOM	WALL	19" / 23"	✓
477	19	483	15.6	396	23.6*	602*	RIGHT TOP / BOTTOM	LEFT TOP / BOTTOM	WALL/FLOOR	19" / 23"	STD
977	20.5	521	15.8	403	37.8	962	RIGHT TOP / BOTTOM	LEFT TOP / BOTTOM	FLOOR	23"	STD
72N	27	686	24.4	621	43.6	1109	RIGHT TOP / BOTTOM	LEFT TOP / BOTTOM	FLOOR	---	---
46N	30	762	20	508	66	1676	RIGHT TOP / BOTTOM	LEFT TOP / BOTTOM	FLOOR	---	---
47N	35.4	899	33.4	848	67.5	1715	RIGHT TOP / BOTTOM	LEFT TOP / BOTTOM	FLOOR	---	---
57N	60	1524	30	763	77	1962	RIGHT TOP / BOTTOM	LEFT TOP / BOTTOM	FLOOR	---	---

*Floor mounting brackets add 2" (51mm) to overall height. Case sizes may differ depending on optional accessories.

Consult factory when dimensions are critical. Detailed dimensional drawings are available for mounting purposes.

Model Number Nomenclature



Configuration as Shown: Level-2 Filtered Charger with 25ADC/130VDC Output, for 60 Lead Acid Cells, with a 120/240/208VAC Single-Phase Input.

AC Voltage Codes

ABD - 120/240/208
 A - 120
 D - 208
 L - 220
 Q - 230
 BL - 240/220
 B - 240

DC Voltage Codes

G - 380
 ZA - 400
 J - 415
 K - 440
 C - 480
 ZD - 600

24VDC Nominal; Use 24V
 48VDC Nominal; Use 48V

*** For 125VDC or 130VDC Nominal;
 Use 130V in the Part Number

*** For 250VDC or 260VDC Nominal;
 Use 260V in the Part Number

AC Phase Codes

1 - Single Phase
 3 - Three Phase

Ripple Filter Codes

D = Level-1*
 DE = Level-2**

Battery Cell Type Code

11L 12L 13L 22L 23L 24L 25L 26L 53L
 54L 55L 56L 57L 58L 59L 60L 61L 62L
 110L 115L 116L 120L
 17N 18N 19N 20N 33N 34N 35N 36N
 37N 38N 39N 83N 84N 85N 86N 87N
 88N 89N 90N 91N 92N 93N

L = Lead Acid
 N = Nickel Cadmium
 LR = VRLA
 LON = Lithium Ion
 SOD = Sodium

Ordering Information

When ordering, please specify:

- La Marche Model Number A77D/A77DE
- DC Amps
- DC Volts
- Special Frequency, When Required
- AC Voltage Code
- AC Phase Code
- Battery Cell Type Code
- Optional Accessories (Option Code)

Battery Charger Sizing Guidelines

- Required Battery Backup Time (Hours)
- DC Output Voltage
- Ampere Hour Capacity of Battery
- Allowable Recharge Time From Full Discharge (Hours), Where Applicable
- Continuous and Intermittent DC Loads and Duration (Amps)