



Unit Shown with LED Display



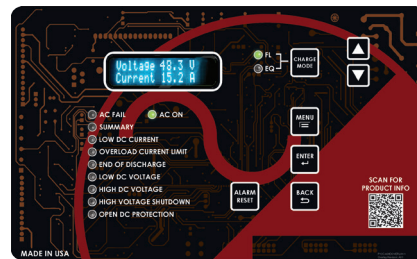
Unit Shown with VFD Display



Controlled Ferroresonant Rectifier / Power Supply

The La Marche Model A36D Controlled Ferroresonant Rectifier / Power Supply has many inherent advantages such as voltage regulation, high efficiency, high power factor and short circuit protection. These chargers provide adjustable voltage levels for floating or equalizing lead or nickel-cadmium cells, which can be done digitally with the LCD/VFD display options. The equalize cycle is activated either manually through a switch on the front panel, or automatically scheduled (adjustable through the menu).

Steady state output voltage remains within $\pm 0.5\%$ of the setting from no load to full load and for AC input voltages within $\pm 10\%$ of the nominal input voltage. The model A36D is internally filtered to be no greater than 32dBm (“C” message weighting) and 30 millivolts RMS for all conditions on input voltage and output load with or without batteries connected. This allows the A36D to be used as a battery eliminator.



LCD Display
(Option 550)



VFD Display
(Option 551)

Standard Features

- Digital Metering
- Load Sharing / Paralleling
- Current Walk In
- Equalize Timer - adjustable from 1-144 hours with five selectable modes of operation (manual, automatic every 7, 14 or 30 days and equalize after sensing a low DC voltage)
- LED Status Indicators:
 - Float & Equalize Voltage, AC “ON”, Low DC Current, Low & High DC Voltage, Blown DC Protection, Summary
- AC Input Breaker
- One Pole DC Output Breaker / Single Phase Units
- Output Fusing / Three Phase Units
- AC Power Failure Alarm, One form “C” Contact
- 2 Form “C” Contacts for each of the following:
 - Low DC Current
 - Low DC Voltage
 - High DC Voltage
 - High Voltage Shutdown
 - Summary Alarm
 - Load Sharing
- Temperature Compensation
- UL 1012, CSA Listed
- 5 Year Warranty

A36D with LCD/VFD Display (Option 550/551)

A36D units equipped with an LCD or VFD display support the same features as standard units plus the following additions:

- 2 Line LCD or VFD Display
- Digital adjustments for the Charger Output (No Potentiometers), Alarms and Communication Settings
- User-Friendly Menu structure with push-button switches for ease of navigation
- Completely Configurable Alarm System
 - Alarm Thresholds
 - Delays
 - Contact Operations (Latching/Non-latching)
- Alarm Contacts testing capability to confirm functionality (Via front panel or remotely with optional communication card)
- Additional LED Indicators
 - AC Power Fail
 - Overload Alarm
 - End of Battery Discharge
 - High Voltage Shutdown
- Quick Start Instructions on the Front Panel with QR Code Link to the Charger’s Instruction Manual



Specifications

ELECTRICAL

- **AC Voltage**
Voltage range: $\pm 10\%$ from nominal
Frequency range: 60 Hz or 50 Hz $\pm 5\%$
Single Phase models:
120VAC, 208VAC, 220VAC, and 240VAC
Three Phase models:
208VAC, 240VAC, 380VAC, and 480VAC
- **DC Output**
DC Amps: 15 to 400 Amps
DC Volts: 12V, 24V and 48V
Output Filtering: 30m Vrms
- **Efficiency**
Up to 90%
- **Power Factor**
Up to 0.95
- **DC Voltage Regulation Steady-State**
 $\pm 0.5\%$ of the setting from no load to full load over the specified input voltage, frequency and ambient temperature ranges.
- **Dynamic Response (On Battery)**
Voltage transient $< \pm 5\%$ over a step change in the load from 20% to 100%
Recovery Time $< 200\text{mS}$
- **Audible Noise**
Less than 65dBA at any point 5 feet from any vertical surface of the charger / power supply.
- **Voice Band Noise Filtering**
Less than 22dB when tested according to REA Form 524. All A36D units are filtered to 32 dBm "C" with or without batteries connected.
- **Load Sharing**
Identical La Marche A36D 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. Two sets of form "C" contacts are provided to indicate when connected rectifiers are capable of loadsharing.
- **Temperature Compensation**
5 step curve with an average slope of $-0.001\text{v}/\text{cell}/\text{C}^\circ$
Consult factory for other compensation rates.
- **Remote Equalize**
When Remote Equalize feature is enabled, switching one A36D charger into Equalize mode would switch all other parallel A36D chargers, in the system, into Equalize mode.

PROTECTION

- **Current Limit**
Electronic Current Limit circuit with an adjustable range from 90% to 115%. A36D has an inherent magnetic current limiting feature to protect against short circuits.

PROTECTION

- **Current Walk In**
Output current will gradually increase after the charger is turned on eliminating surges and overshoot.
- **AC Breaker**
A two pole breaker, on single phase units opens both legs of the AC service to 208 and 240. Breaker opens phase side of 120 VAC service. A three pole breaker is supplied on three phase units.
- **DC Breaker / DC Fuse**
A single pole output breaker is supplied as standard on single phase units. A DC Fuse is standard on three phase units.
- **Alarm Relay Contact**
Form "C" Alarm Contacts for:
 - AC Power Failure
 - High Voltage Shutdown
 - High DC Voltage
 - Low DC Voltage
 - Low Current
 - Summary Alarm

MEAN TIME BETWEEN FAILURE

The mean time between failure (MTBF) as tested per the Bell Communications Standard TR-TSY-000332 is 225,000 hours at 50°C.

REMOTE MONITORING

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

ENCLOSURES

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 Minit powder finish.

ENVIRONMENTAL

- **Operating Temperature**
0 to 50°C
- **Storage Temperature**
-40 to 85°C
- **Humidity**
0 to 95% Relative Humidity (Non-Condensing)
- **Cooling**
Convection cooled

Optional Accessories

- 550** Digital Controller with LCD Display
- 551** Digital Controller with VFD Display
- 11W** 15 Foot External Temperature Probe
- 09A** UL 1481 Label (Fire Alarm). Available For 48V 60 Hz Single Phase Models Only
- 09C** I.D. Tags (Black / White / Black)
- 09V** I.D. Tags (White / Black / White)
- 09U** Seismic Bracing
- 012** DC BKR 1P

Communication Protocols

- 21J** IEC 61850
- 21P** DNP 3.0 Communications RS232/RS485/Ethernet
- 21Q** Modbus Communications RS232/RS485/Ethernet
- 21S** Modbus RTU - Serial Data Port
- 21X** SNMP



Standard LED Display

1-Phase																
Model Number	DC Amps	DC Protection	60Hz							50Hz ⁽³⁾					Heat Loss BTU's/ Hour ⁽⁴⁾	
			AC Current Draw ⁽¹⁾ Recommended Feeder AC Supply Breaker				Case No.	Shipping Weight		AC Current Draw ⁽¹⁾ Feeder AC Supply Breaker		Case No.	Shipping Weight			
			A1 120	ABD1 120/240/208	BLD1 240/220/208	Feeder** Breaker Size		lbs	kgs	5BL1 240/220	Feeder** Breaker Size		lbs	kgs		
12 Volt ⁽²⁾	A36D-15-12V	15A	25	2.4	---	---	5.0	39	45	20.4	---	---	---	---	429	
	A36D-20-12V	20A	30	3.2	---	---	7.5	39	50	22.7	---	---	---	---	388	
	A36D-25-12V	25A	40	4.0	---	---	7.5	39	54	24.5	---	---	---	---	347	
	A36D-30-12V	30A	40	5.0	---	---	10.0	33	78	35.4	---	---	---	---	674	
	A36D-50-12V	50A	80	---	8.4/4.2/4.8	---	20.0/10.0/10.0	33	99	45	4.2/4.6	10	33	109	49.5	695
	A36D-75-12V	75A	100	---	12.6/6.3/7.3	---	30.0/15.0/15.0	33E	110	50	6.3/6.9	15	33	121	55	1043
	A36D-100-12V	100A	130	---	16.8/8.4/9.7	---	30.0/15.0/15.0	33E	130	59	8.4/9.2	15	4D	143	64.9	1227
	A36D-150-12V	150A	200	---	25.2/12.6/14.5	---	30.0/15.0/15.0	9D	145	65.8	12.6/13.8	15	9D	160	72.6	3068
A36D-200-12V	200A	250	---	33.6/16.8/19.4	---	40.0/20.0/20.0	9D	180	81.6	16.8/18.3	20	9D	198	90	3272	
24 Volt ⁽²⁾	A36D-10-24V	10A	15	3.3	---	---	5.0	39	50	22.7	---	---	---	---	150	
	A36D-12-24V	12A	15	4.0	---	---	7.5	39	54	24.5	---	---	---	---	191	
	A36D-15-24V	15A	25	5.0	---	---	7.5	39	58	26.3	---	---	---	---	241	
	A36D-20-24V	20A	30	6.7	---	---	10.0	39	64	29	---	---	---	---	321	
	A36D-25-24V	25A	40	---	8.4/4.2/4.8	---	15.0/7.5/7.5	33	99	44.9	4.2/4.6	7.5	33	109	49.5	402
	A36D-30-24V	30A	40	---	10.0/5.0/5.8	---	15.0/7.5/7.5	33	115	52.2	5.0/5.5	7.5	33	127	57.6	482
	A36D-50-24V	50A	80	---	16.8/8.4/9.7	---	30.0/15.0/15.0	33	130	59	8.4/9.2	15.0	33	143	64.9	803
	A36D-75-24V	75A	100	---	25.2/12.6/14.5	---	40.0/20.0/20.0	33E	145	65.8	12.6/13.8	20.0	33E	160	72.6	1205
48 Volt ⁽²⁾	A36D-10-48V	10A	15	6.7	---	---	10.0	39	64	29	---	---	---	---	312	
	A36D-12-48V	12A	15	8.0	---	---	15.0	39	70	31.7	---	---	---	---	383	
	A36D-15-48V	15A	25	10.0	---	---	15.0	33	110	49.9	---	---	---	---	386	
	A36D-20-48V	20A	30	---	13.4/6.7/7.7	---	15.0/7.5/7.5	33	118	53.5	6.7/7.3	7.5	33	130	59	643
	A36D-25-48V	25A	40	---	16.8/8.4/9.7	---	30.0/15.0/15.0	33	125	56.7	8.4/9.2	15.0	33	138	62.6	803
	A36D-30-48V	30A	40	---	20.0/10.0/11.6	---	30.0/15.0/15.0	33	133	60.3	10.1/11.0	15.0	33	147	66.7	964
	A36D-50-48V	50A	80	---	33.6/16.8/19.4	---	50.0/25.0/25.0	33	180	81.6	16.8/18.3	25.0	33	198	89.8	1606
	A36D-75-48V	75A	100	---	50.4/25.2/29.1	---	70.0/35.0/35.0	9D	260	118	25.2/27.5	35.0	9D	287	130.2	2410
A36D-100-48V	100A	130	---	67.2/33.6/38.8	---	80.0/40.0/40.0	9D	286	129.7	33.6/36.7	40.0	9E	315	142.9	3213	
A36D-150-48V	150A	200	---	---	50.4/55.0/58.2	70.0	72	528	239.5	---	---	---	---	---	4819	
A36D-200-48V	200A	250	---	---	67.3/73.3/77.6	80.0	72	572	259.5	---	---	---	---	---	6426	

3-Phase																
Model Number	DC Amps	DC Protection	60Hz							50Hz ⁽³⁾					Heat Loss BTU's/ Hour ⁽⁴⁾	
			AC Current Draw ⁽¹⁾ Recommended Feeder AC Supply Breaker				Case No.	Shipping Weight		AC Current Draw ⁽¹⁾ Feeder AC Supply Breaker		Case No.	Shipping Weight			
			BD3 240/208V	Feeder** Breaker Size	C3 480V	Feeder** Breaker Size		lbs	kgs	5G3 380V	Feeder** Breaker Size		lbs	kgs		
24 Volt ⁽²⁾	A36D-200-24V	200A	250	16.9/19.5	25	---	---	43	600	272.1	10.7	15	43	661	299.8	2514
	A36D-300-24V	300A	400	25.4/29.3	35	---	---	43	700	317.5	16	20	43	771	349.7	3772
	A36D-400-24V	400A	500	33.9/39.1	50	---	---	43	800	362.9	21.4	25	44	881	399.6	5029
	A36D-200-24V	200A	250	---	---	8.5	15	43	600	272.1	10.7	15	43	661	299.8	2514
	A36D-300-24V	300A	400	---	---	12.7	20	43	700	317.5	16	20	43	771	349.7	3772
	A36D-400-24V	400A	500	---	---	16.9	25	43	800	362.9	21.4	25	44	881	399.6	5029
48 Volt ⁽²⁾	A36D-200-48V	200A	250	33.9/39.1	50	---	---	43	755	342.5	21.4	25	43	832	377.4	5029
	A36D-300-48V	300A	400	50.8/58.6	80	---	---	44	900	400.2	32.1	40	44	992	450	7543
	A36D-400-48V	400A	500	67.7/78.1	100	---	---	44	1193	541.1	42.8	50	44	1315	596.5	10057
	A36D-200-48V	200A	250	---	---	16.9	25	43	755	342.5	21.4	25	43	832	377.4	5029
	A36D-300-48V	300A	400	---	---	25.4	40	44	900	400.2	32.1	40	44	992	450	7543
	A36D-400-48V	400A	500	---	---	33.9	50	44	1193	541.1	42.8	50	44	1315	596.5	10057

- 1) AC Current Draws based @ 100% load and standard battery cells of 6L (12V), 12L (24V) and 24L (48V). Maximum Current Draw is 115% of ratings shown.
- 2) Must specify only one battery type and number of cells from range shown above. Please consult factory for other available cell ranges if desired range not shown.
- 3) 50Hz units are not UL listed. Please consult factory as enclosure size may change.
- 4) BTU's are based on 6L (12V), 12L (24V) and 24L (48V). Heat loss is stated for nominal float voltage, 100% output current and nominal AC line.

Output Voltage Chart

DC Voltage	12V	24V	48V
Number of Cells	6L*	12L*	24L*
Float	12.7 to 13.8	25.4 to 27.6	50.9 to 55.2
Equalize	13.6 to 14.4	27.1 to 28.8	54.2 to 57.6

* LR for VRLA Settings

NOTE: Consult Factory for Ni-Cad size availability

Single Phase 19" Rack Mount

	Model Number	DC Amps	AC Input (60Hz Single Phase)				Protection				Case No.	Approx. Weight		BTU's/ Hour
			Volts	Amperes			Input			Output		lbs	kg	
				120	208	240	120	208	240					
12 Volt	A36DA-30-12V-A1	30A	120	8.0	---	---	10.0	---	---	40A	4D	78	35.4	674
	A36DA-50-12V-ABD1	50A	120/208/240	8.0	5.0	4.0	20.0	10.0	10.0	80A	4D	99	44.9	695
	A36DA-75-12V-ABD1	75A	120/208/240	16.0	9.0	8.0	30.0	15.0	15.0	100A	4D	110	49.9	1043
24 Volt	A36DA-25-24V-ABD1	25A	120/208/240	8.0	5.0	4.0	15.0	7.5	7.5	40A	4D	99	44.9	402
	A36DA-30-24V-ABD1	30A	120/208/240	11.0	6.0	6.0	15.0	7.5	7.5	40A	4D	115	52.2	482
	A36DA-50-24V-ABD1	50A	120/208/240	16.0	9.0	8.0	30.0	15.0	15.0	80A	4D	130	59	803
48 Volt	A36DA-75-24V-ABD1	75A	120/208/240	24.0	15.0	12.0	40.0	20.0	20.0	100A	4D	145	65.8	1205
	A36DA-15-48V-A1	15A	120	10	---	---	15.0	---	---	25A	4D	110	49.9	482
	A36DA-20-48V-ABD1	20A	120/208/240	13.0	7.0	6.0	15.0	7.5	7.5	30A	4D	118	53.5	643
48 Volt	A36DA-25-48V-ABD1	25A	120/208/240	16.0	9.0	8.0	30.0	15.0	15.0	40A	4D	125	56.7	803
	A36DA-30-48V-ABD1	30A	120/208/240	18.0	11.0	9.0	30.0	15.0	15.0	40A	4D	133	60.3	964
	A36DA-50-48V-ABD1	50A	120/208/240	29.0	16.0	14.0	50.0	25.0	25.0	80A	4D	180	81.6	1606

Case Specifications

	Case No.	Overall Dimensions					
		Width		Depth		Height	
		in	mm	in	mm	in	mm
19" Rack	4D	16.75	425.45	15.0	381	14.0	355.6
	39	16.75	425.45	15.0	381	7.0	177.15
23" Rack	9E	21.0	533.4	23.0	584.2	17.25	438.15
	33	21.0	533.4	16.25	412.75	10.5	266.7
	33E	21.0	533.4	17.5	444.5	10.5	266.7
Floor Mounting	39	16.75	425.45	15.0	381	7.0	177.8
	43	13.0	330.2	19.0	482.6	84.0	2133.6
	44	24.0	609.6	19.0	483	72.1	1831.34
	72	27	685.8	23.5	596.9	44.5	1130.3

NOTE:

- 1) BTU's on single phase units based on 85% efficiency.
- 2) Input Amps are at Nominal AC input and at 100% of rated load.

Case No.	Cable Entry (when facing unit)		Standard Mounting	Optional Mounting Kits
	AC Input	DC Output		
4D	LEFT TOP / BACK	RIGHT TOP / BACK	19/23" RACK	WALL*, FLOOR**
39	LEFT TOP / BACK	RIGHT TOP / BACK	19/23" RACK	WALL*, FLOOR**
9E**	LEFT TOP / BACK	RIGHT TOP / BACK	23" RACK	WALL* / FLOOR**
33***	LEFT TOP / BACK	RIGHT TOP / BACK	23" RACK	WALL* / FLOOR**
33E	LEFT TOP / BACK	RIGHT TOP / BACK	23" RACK	WALL* / FLOOR**
43	TOP LEFT	TOP BACK	FLOOR	---
44	TOP LEFT	TOP BACK	FLOOR	---
72	RIGHT / BOTTOM / SIDE	BOTTOM	FLOOR	---

- * Wall mounting brackets required and overall height would change. Case size may differ depending on optional accessories.
 ** Floor mounting brackets required and overall height would change. Case size may differ depending on optional accessories.
 Consult factory when dimensions are critical. Detailed dimensional drawings are available for mounting purposes.

Model Number Nomenclature

A36D(A) () - 50 - 24V - () ABD 1 - () - ()

Model Number: A36D(A) ()
 19" Rack: ()
 * Grounding: ()
 DC Amps: 50
 DC Volts: 24V
 Factory Assigned Accessory Code: ()
 Battery Cell Range: ABD
 AC Phase: 1
 AC Voltage: ()
 **AC Input Frequency: ()

System Ground	Special Input Frequency	AC Voltage	AC Phase
N= Negative Ground * positive ground is standard unless "N" is entered for Negative ground.	5 = 50Hz ** Leave Blank for 60Hz	A=120 B=240 C=480 D=208 L=220 G=380	1 = Single Phase 3 = Three Phase

Ordering Information

When ordering, please specify:

- La Marche Model Number A36D
- 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)