



# La MARCHÉ<sup>®</sup>

ISO 9001 CERTIFIED

**A36D**  
**BATTERY CHARGER / POWER SUPPLY**



Model Shown: A36D-50-48V-ABD1-24L

## 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 separate adjustable voltages for floating or equalizing lead or nickel-cadmium cells. The equalize switch located on the front of the chargers can be used to manually activate an equalize cycle or to program the automatic multi-mode EQ timer.

Steady state output voltage remains within  $\pm 1/2\%$  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.

The A36D comes fully equipped with standard features such as Digital Meter Display and Alarm Indicators, Electronic Equalize Timer and Temperature Compensation. Several form 'C' alarm contacts are included to remotely monitor the A36D's operating condition.

### Standard Features

- Recognized La Marche Quality and Reliability
- Digital Metering
- Load Sharing/Paralleling
- Current Walk In
- Led Status Indicators
  - Float & Equalize Voltage
  - AC "ON"
  - Low DC Current
  - Low & High DC Voltage
  - Blown DC Protection
  - Summary
- AC Input Circuit 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
  - Summary Alarm
  - Load Sharing
- Temperature Compensation
- UL 1012, UL 1481, CSA Listed
- 5 Year Warranty

The optional communications module allows you to interface with your SCADA system to remotely monitor and control the operation of the A36D. Refer to the DNP3.0/Modbus data sheet for further details.

The A36D battery charger assures the quality, reliability and performance you have come to expect from La Marche with an MTBF in excess of 225,000 hours at 50°C.

**La Marche Manufacturing Company**  
106 Bradrock Drive, Des Plaines, IL 60018-1967  
Tel: 847-299-1188 Toll Free Fax: 1-888-232-9562  
sales@lamarchemfg.com www.lamarchemfg.com

Made in USA

## Input Specifications

### AC Voltage

Voltage range  $\pm 10\%$  from nominal  
Frequency range 60 Hz  $\pm 5\%$   
Optional 50 Hz

### Regulation

#### Steady State

$\pm 1/2\%$  of the setting from no load to full load over the specified input voltage, frequency and ambient temperature ranges.

#### Dynamic Response (on battery)

Maximum voltage transient will not exceed  $\pm 5\%$  of initial steady-state voltage for step change from 20% to 100% of the full rated load. Recovery to steady state voltage regulation range does not exceed 200ms and all transient behavior disappears within 500ms.

### Audible Noise

Less than 65dBA at any point 5 feet from any vertical surface of the charger / power supply.

### Filtering

#### Voice Band Noise

Less than 22dB when tested according to REA Form 524 and less than 32 dBrn "C" on batteries rated in amperehours at four times the rated rectifier current. All A36D units are filtered to 32 dBrn "C" without batteries connected.

### Protection

#### Current Limit

The chargers have an inherent magnetic current limiting feature. Electronic current limiting control circuitry provides for an adjustable value of 90 to 115% of the rated output current.

### 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.

### Metering

A switch selectable 1% combination digital volt / amp meter is supplied.

### 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.

### Environmental

#### Operating Temperature

0 to 50°C

#### Storage Temperature

-40 to 85°C

#### Humidity

0 to 95% Relative Humidity (Non-Condensing)

#### Cooling

Convection cooled

### Load Sharing

Load sharing terminals are provided on the alarm interface board. When connected, two (2) or more La Marche units are forced to share to the load within  $\pm 5\%$  with individual unit outputs greater than 10% of the rated output. 2 sets of form "C" contacts are provided to indicate when connected rectifiers are operating.

### Current Walk In

Output current will gradually increase after the charger is turned on eliminating surges and overshoot.

### Temperature Compensation

5 step @ .001v / Deg. C

### Remote Equalize

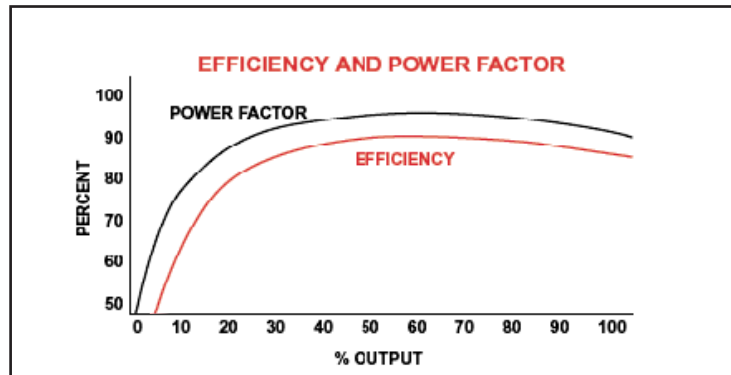
Single wire control. Switch any charger into equalize and all that are wired together also go into equalize.

### AC Power Failure Relay

Indicates when an AC failure has occurred. One set of form "C" contacts provided.

### Enclosures

Front access NEMA 1, Relay rack or floor mount. Paint is ANSI 61 Gray.



## OPTIONS

- 11W 15 Foot External Temperature Probe
- 09A UL 1481 Label (Fire Alarm). Available For 48V 60Hz Models Only.
- 09C I.D. TAGS (Black / White / Black)
- 09V I.D. TAGS (White / Black / White)
- 09W Seismic Bracing
- 012 DC BKR 1P
- 21P DNP3.0
- 21Q Modbus

**NOTE:** Consult Factory for NI-Cad size availability

## Single Phase 60Hz Models

	Model Number	DC Amps	AC Input (60Hz Single Phase)				Protection					Case No.	Approx. Weight (lbs)	BTU's/ Hour	
			Volts	Amperes				Input							Output
				120	208	220	240	120	208	220	240				
12 VOLT	A36D-15-12V-A1	15A	120	2.4	---	---	---	5.0	---	---	---	25	39	45	429
	A36D-20-12V-A1	20A		3.2	---	---	---	7.5	---	---	---	30	39	50	388
	A36D-25-12V-A1	25A		4.0	---	---	---	7.5	---	---	---	40	39	54	347
	A36D-30-12V-A1	30A		5.0	---	---	---	10.0	---	---	---	40	33	78	674
	A35D-50-12V-ABD1	50A	120/208/240	8.4	4.8	---	4.2	20.0	10.0	---	10.0	80	33	99	695
	A36D-75-12V-ABD1	75A		12.6	7.3	---	6.3	30.0	15.0	---	15.0	100	33E	110	1043
A36D-100-12V-ABD1	100A	16.8		9.7	---	8.4	30.0	15.0	---	15.0	130	33E	130	1227	
A36D-150-12V-ABD1	150A	25.2		14.5	---	12.6	30.0	15.0	---	15.0	200	9D	145	3068	
A36D-200-12V-ABD1	200A	33.6		19.4	---	16.8	40.0	20.0	---	20.0	250	9D	180	3272	
24 VOLT	A36D-10-24V-A1	10A	120	3.3	---	---	---	5.0	---	---	---	15	39	50	150
	A36D-12-24V-A1	12A		4.0	---	---	---	7.5	---	---	---	15	39	54	191
	A36D-15-24V-A1	15A		5.0	---	---	---	7.5	---	---	---	25	39	58	241
	A36D-20-24V-A1	20A		6.7	---	---	---	10.0	---	---	---	30	39	64	321
	A36D-25-24V-ABD1	25A	120/208/240	8.4	4.8	---	4.2	15.0	7.5	---	7.5	40	33	99	402
	A36D-30-24V-ABD1	30A		10.0	5.8	---	5.0	15.0	7.5	---	7.5	40	33	115	482
	A36D-50-24V-ABD1	50A		16.8	9.7	---	8.4	30.0	15.0	---	15.0	80	33	130	803
	A36D-75-24V-ABD1	75A		25.2	14.5	---	12.6	40.0	20.0	---	20.0	100	33E	145	1205
	A36D-100-24V-ABD1	100A		33.6	19.4	---	16.8	40.0	20.0	---	20.0	130	33E	180	1606
	A36D-150-24V-ABD1	150A		50.5	29.1	---	25.2	70.0	35.0	---	35.0	200	9D	280	2410
A36D-200-24V-ABD1	200A	67.0	38.8	---	33.6	80.0	40.0	---	40.0	250	9D	310	3213		
48 VOLT	A36D-10-48V-A1	10A	120	6.7	---	---	---	10.0	---	---	---	15	39	64	312
	A36D-12-48V-A1	12A		8.0	---	---	---	15.0	---	---	---	15	39	70	383
	A36D-15-48V-A1	15A		10.0	---	---	---	15.0	---	---	---	25	33	110	386
	A36D-20-48V-ABD1	20A	120/208/240	13.4	7.7	---	6.7	15.0	7.5	---	7.5	30	33	118	643
	A36D-25-48V-ABD1	25A		16.8	9.7	---	8.4	30.0	15.0	---	15.0	40	33	125	803
	A36D-30-48V-ABD1	30A		20.0	11.6	---	10.0	30.0	15.0	---	15.0	40	33	133	964
	A36D-50-48V-ABD1	50A		33.6	19.4	---	16.8	50.0	25.0	---	25.0	80	33	180	1606
	A36D-75-48V-ABD1	75A		50.4	29.1	---	25.2	70.0	35.0	---	35.0	100	9D	260	2410
	A36D-100-48V-ABD1	100A		67.2	38.8	---	33.6	80.0	40.0	---	40.0	130	9D	286	3213
	A36D-150-48V-BLD1	150A	208/220/240	---	58.2	55.0	50.4	---	70.0	70.0	70.0	200	72	528	4819
A36D-200-48V-BLD1	200A	---		77.6	73.3	67.3	---	80.0	80.0	80.0	250	72	572	6426	

## Three Phase 60 Hz Models

	Model Number	DC Amps	AC Input (60 Hz Three Phase)			Protection				Case No.	Approx. Weight (lbs)	BTU's/ Hour		
			Volts	Amperes			Input						Output	
				208	240	480	208	240	480					
24 VOLT	A36D-200-24V-BD3	200A	208/240	19.5	16.9	---	25	25	---	250	43	600	2514	
	A36D-300-24V-BD3	300A		29.3	25.4	---	35	35	---	400		700	3772	
	A36D-400-24V-BD3	400A		39.1	33.9	---	50	50	---	500		800	5029	
24 VOLT	A36D-200-24V-C3	200A	480	---	---	8.5	---	---	15	250	43	600	2514	
	A36D-300-24V-C3	300A		---	---	12.7	---	---	20	400		700	3772	
	A36D-400-24V-C3	400A		---	---	16.9	---	---	25	500		800	5029	
48 VOLT	A36D-200-48V-BD3	200A	208/240	39.1	33.9	---	50	50	---	300	43	755	5029	
	A36D-300-48V-BD3	300A		58.6	50.8	---	80	80	---	400		44	900	7543
	A36D-400-48V-BD3	400A		78.1	67.7	---	100	100	---	500		44	1,193	10057
48 VOLT	A36D-200-48V-C3	200A	480	---	---	16.9	---	---	25	300	43	755	5029	
	A36D-300-48V-C3	300A		---	---	25.4	---	---	40	400		44	900	7543
	A36D-400-48V-C3	400A		---	---	33.9	---	---	50	500		44	1,193	10057

## Single Phase 50 Hz Models

	Model Number	DC Amps	AC Input (50Hz Single Phase)		Protection			Case No.	Approx. Weight (lbs)	BTU's/ Hour	
			Volts	Amperes		Input					Output
				220	240	220	240				
12 VOLT	A36D-50-12V-5BL1	50A	220/240	4.6	4.2	10.0	10.0	80	33	109	695
	A36D-75-12V-5BL1	75A		6.9	6.3	15.0	15.0	100	33	121	1043
	A36D-100-12V-5BL1	100A		9.2	8.4	15.0	15.0	130	4D	143	1227
	A36D-150-12V-5BL1	150A		13.8	12.6	15.0	15.0	200	9D	160	3068
	A36D-200-12V-5BL1	200A		18.3	16.8	20.0	20.0	250	9D	198	3272
24 VOLT	A36D-25-24V-5BL1	25A	220/240	4.6	4.2	7.5	7.5	40	33	109	402
	A36D-30-24V-5BL1	30A		5.5	5.0	7.5	7.5	40	33	127	482
	A36D-50-24V-5BL1	50A		9.2	8.4	15.0	15.0	80	33	143	803
	A36D-75-24V-5BL1	75A		13.8	12.6	20.0	20.0	100	33E	160	1205
	A36D-100-24V-5BL1	100A		18.3	16.8	20.0	20.0	130	33E	198	1606
	A36D-150-24V-5BL1	150A		27.5	25.2	35.0	35.0	200	9D	309	2410
	A36D-200-24V-5BL1	200A		36.7	33.6	40.0	40.0	250	9E	342	3213
48 VOLT	A36D-20-48V-5BL1	20A	220/240	7.3	6.7	7.5	7.5	30	33	130	643
	A36D-25-48V-5BL1	25A		9.2	8.4	15.0	15.0	40	33	138	803
	A36D-30-48V-5BL1	30A		11.0	10.1	15.0	15.0	40	33	147	964
	A36D-50-48V-5BL1	50A		18.3	16.8	25.0	25.0	80	33	198	1606
	A36D-75-48V-5BL1	75A		27.5	25.2	35.0	35.0	100	9D	287	2410
	A36D-100-48V-5BL1	100A		36.7	33.6	40.0	40.0	130	9E	315	3213
	A36D-150-48V-5BL1	150A		55.0	50.5	70.0	70.0	200	72	582	4819
	A36D-200-48V-5BL1	200A		73.4	67.3	80.0	80.0	250	72	630	6426

## Three Phase 50 Hz Models

	Model Number	DC Amps	AC Input (50Hz Single Phase)		Protection		Case No.	Approx. Weight (lbs)	BTU's/ Hour
			Volts	Amperes	Input	Output			
				380	380				
24 VOLT	A36D-200-24V-5G3	200A	380	10.7	15	250	43	661	2514
	A36D-300-24V-5G3	300A		16	20	400	43	771	3772
	A36D-400-24V-5G3	400A		21.4	25	500	44	881	5029
48 VOLT	A36D-200-48V-5G3	200A	380	21.4	25	300	43	832	5029
	A36D-300-48V-5G3	300A		32.1	40	400	44	992	7543
	A36D-400-48V-5G3	400A		42.8	50	500	44	1315	10057

Note:

- 1) Case size may change on certain models in 50Hz applications.
- 2) 50Hz units are not UL listed.
- 3) 50 Hz units are optional. Please consult factory as enclosure size may change.

## Output Voltage Chart

Number of Cells	6L*	12L*	24L*
DC Voltage	12	24	48
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

# Single Phase 19" Rack Mount

	Model Number	DC Amps	AC Input (60 Hz Single Phase)				Protection				Case No.	Approx Weight (lbs)	BTU's/ Hour
			Volts	Amperes			Input			Output			
				120	208	240	120	208	240				
12 VOLT	A36DA-30-12V-A1	30A	120	8.0	---	---	10.0	---	---	40A	4D	78	674
	A36DA-50-12V-ABD1	50A	120/208/240	8.0	5.0	4.0	20.0	10.0	10.0	80A	4D	99	695
	A36DA-75-12V-ABD1	75A	120/208/240	16.0	9.0	8.0	30.0	15.0	15.0	100A	4D	110	1,043

	Model Number	DC Amps	AC Input (60 Hz Single Phase)				Protection				Case No.	Approx Weight (lbs)	BTU's/ Hour
			Volts	Amperes			Input			Output			
				120	208	240	120	208	240				
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	402
	A36DA-30-24V-ABD1	30A	120/208/240	11.0	6.0	6.0	15.0	7.5	7.5	40A	4D	115	482
	A36DA-50-24V-ABD1	50A	120/208/240	16.0	9.0	8.0	30.0	15.0	15.0	80A	4D	130	803
	A36DA-75-24V-ABD1	75A	120/208/240	24.0	15.0	12.0	40.0	20.0	20.0	100A	4D	145	1,205

	Model Number	DC Amps	AC Input (60 Hz Single Phase)				Protection				Case No.	Approx Weight (lbs)	BTU's/ Hour
			Volts	Amperes			Input			Output			
				120	208	240	120	208	240				
48 VOLT	A36DA-15-48V-A1	15A	120	10	---	---	15.0	---	---	25A	4D	110	482
	A36DA-20-48V-ABD1	20A	120/208/240	13.0	7.0	6.0	15.0	7.5	7.5	30A	4D	118	643
	A36DA-25-48V-ABD1	25A	120/208/240	16.0	9.0	8.0	30.0	15.0	15.0	40A	4D	125	803
	A36DA-30-48V-ABD1	30A	120/208/240	18.0	11.0	9.0	30.0	15.0	15.0	40A	4D	133	964
	A36DA-50-48V-ABD1	50A	120/208/240	29.0	16.0	14.0	50.0	25.0	25.0	80A	4D	180	1,606

## Dimensions

Case No.	Width		Depth		Height	
	in	mm	in	mm	in	mm
<b>19" Rack</b>						
4D	16.750	425	15.000	381	14.000	356
39	16.750	425	15.000	381	7.000	178
<b>23" Rack</b>						
9E**	21.000	533	20.000	508	17.250	438
33***	21.000	533	15.000	381	10.500	267
33E	21.000	533	17.500	445	10.500	267
39	16.750	425	15.000	381	7.000	178
<b>Floor Mounting</b>						
43	13.000	330	19.000	483	84.000	2134
44	24.000	610	19.000	483	72.100	1831
72	27.000	686	23.500	597	44.500	1130

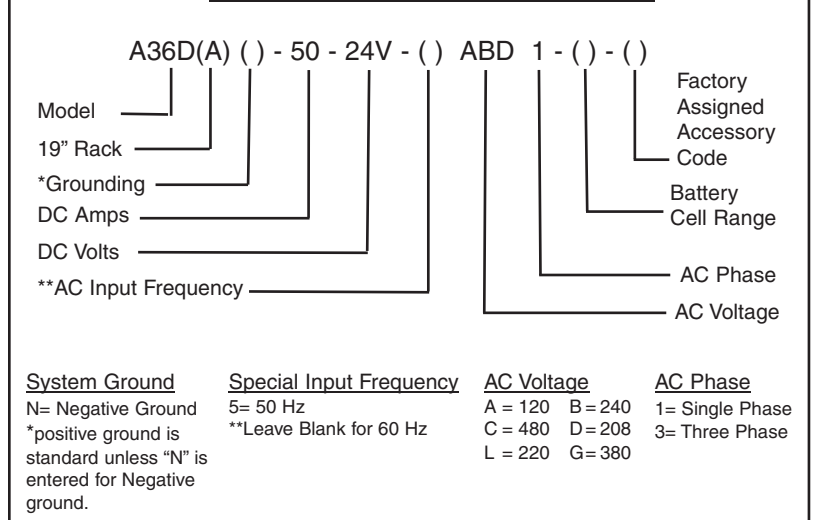
\*\* Add 3.000 inches to depth for Heat Sink

\*\*\* Add 1.250 inches to depth for Heat Sink

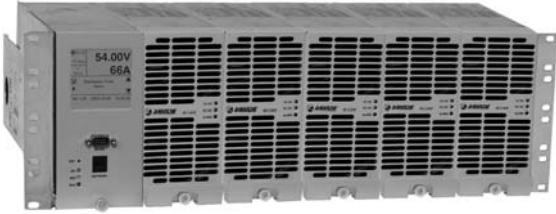
### Note:

- 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.

## Model Number Nomenclature



# Other La Marche Telecom Products



## LMHF

These rectifiers are available with nominal output voltages of 24VDC or 48VDC and can deliver 115 amps and 66 amps respectively. The nominal universal input range of 208VAC to 277VAC and the frequency range of 45 to 66Hz provides the flexibility for worldwide power requirements. The temperature controlled variable fan speed rectifier in a six across 23" rack configuration (five across in 19" configuration) offers high power density and efficiency.

## TPM

Compact high frequency units provide filtered, modular power to fit the needs of telecom applications. Available in 12, 24, and 48 volt DC output.



## A32P/A32S

Uninterruptible Power Supply is listed under UL 1481 fire protective signaling standard, making them ideal for central station and critical alarm system applications.



## TPSD

Microprocessor Controlled Ferroresonant design battery charger / battery eliminator is ideal for switchgear and process control. The TPSD comes fully equipped with standard features such as digital display, alarm indication, electronic timer, and temperature compensation.

Specifications subject to change without notice

P25-DSA36D-1  
ECN 17757  
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106 Bradrock Drive, Des Plaines, IL 60018-1967  
Tel: 847-299-1188 Toll Free Fax: 1-888-232-9562  
sales@lamarchemfg.com www.lamarchemfg.com