



## A31 DC-AC Inverter

The La Marche A31 Inverter is the ideal choice when AC power requirements are critical. This inverter has a wide range of standard features such as a sine wave output, voltage regulation, protection from AC-DC shorts, under/over-voltage conditions, input filtering and overload protection. It incorporates a DC input breaker and an automatic under/over-voltage shutdown circuit to protect the inverter. The A31 has a polarity indicator to tell you if the battery is connected incorrectly. The unit is equipped with an input filter pre-charge circuit which includes an indicator to inform you that the inverter is ready for operation. Applications may include data centers, fire alarms, telecommunications, emergency lighting, security, oil exploration and utility substation systems.

Available in 50 or 60 Hz 120, 240, 208 or 220 AC Output.

### Standard Features

- Highly Reliable Ferroresonant Transformer
- Available DC Inputs 24V or 48V or 120V
- DC to AC Isolation
- Pure Sine Wave Output
- Adjustable DC Under/Over Voltage Shutdown
- Analog AC Ammeter & Voltmeter (2%)
- Overload/Current Limit
- Inverter On/Off Switch
- AC Circuit Breaker
- DC Circuit Breaker
- IGBT Power Block Technology
- UL 1012 Listed, UL 1481 Listed (selected models) and C-UL Listed
- AC Ammeter
- AC Voltmeter
- 5-Year Limited Warranty

### Options

- 22P** 1ms Static Transfer Switch (Inverter Prime)
- 22S** 1ms Static Transfer Switch (Inverter Standby)
- 22A** Static Switch Alarm Package consisting of the following: 2 Form "C" Contacts for Phase Lock, Utility Available, Inverter Available, Load on Preferred, Load on Alternate, Requires 22P or 22S.
- 22D** Digital Display (replaces AC analog meters). Used only with 1ms Static Switch. Requires 22P or 22S.
- 09A** UL 1481
- 164** 10-15ms Static Switch Transfer (Inverter Prime) (not available on 4KVA & above)
- 165** 10-15ms Static Switch Transfer (Inverter Standby) (not available on 4KVA & above)
- 130** Inverter Failure Relay and Light (not available with option 22A)
- 132** Inverter Failure Relay (1 Form "C") (not available with option 22A)
- 133** Utility Available Relay (1 Form "C") (not available with option 22A)
- 123** Duplex Receptacles (not UL Listed)
- 06C** DC Ammeter (2%)
- 06D** DC Voltmeter (2%)

Model Number	DC Input Amps		AC Output			BTU Hour***	Case No.	Approx. Weight	
	No Load	Full Load***	VA	Volts	Amps			lbs	kgs
A31-1K-24V-A6 <sup>(1)</sup>	11.0	59.0	1000	120	8.33	817	9D	105	48
A31-1.5K-24V-A6 <sup>(1)</sup>	12.0	87.0	1500	120	12.50	1118	9D	120	55
A31-2K-24V-A6 <sup>(1)</sup>	17.0	116.0	2000	120	16.67	1491	9E*	175	80

Model Number	DC Input Amps		AC Output			BTU Hour***	Case No.	Approx. Weight	
	No Load	Full Load***	VA	Volts	Amps			lbs	kgs
A31-1K-48V-A6 <sup>(1)</sup>	5.0	28.0	1000	120	8.33	602	9D	105	48
A31-1.5K-48V-A6 <sup>(1)</sup>	7.0	40.0	1500	120	12.50	616	9D	120	55
A31-2K-48V-A6 <sup>(1)</sup>	10.0	54.0	2000	120	16.67	917	9E*	175	80
A31-3K-48V-A6 <sup>(1)</sup>	13.0	81.0	3000	120	25.00	1375	9E*	270	123
A31-4K-48V-A6 <sup>(1)</sup>	15.0	106.0	4000	120	33.33	1546	9E*	310	141
A31-5K-48V-A6 <sup>(1)</sup>	16.0	132.0	5000	120	41.67	1860	9E*	340	155
A31-10K-48V-A6	29.0	278.0	10000	120	83.33	5732	44**	800	364

Model Number	DC Input Amps		AC Output			BTU Hour***	Case No.	Approx. Weight	
	No Load	Full Load***	VA	Volts	Amps			lbs	kgs
A31-1K-120V-A6	4.0	11.0	1000	120	8.33	730	9D	105	48
A31-1.5K-120V-A6	4.5	PROJECT NAME	1500	120	12.50	975	9E*	120	55
A31-2K-120V-A6	5.0	22.0	2000	120	16.67	1060	9E*	175	80
A31-3K-120V-A6	6.0	32.0	3000	120	25.00	1231	9E*	270	123
A31-4K-120V-A6	8.0	42.0	4000	120	33.33	1402	9E*	310	141
A31-5K-120V-A6	9.0	52.0	5000	120	41.67	1573	9E*	340	155
A31-7.5K-120V-A6	10.0	79.0	7500	120	62.5	2719	72**	500	227
A31-10K-120V-A6	12.0	105.0	10000	120	83.33	3506	72**	800	364
A31-15K-120V-A6	25.0	162.0	15000	120	125.00	6874	44**	950	432
A31-20K-120V-A6 <sup>(2)</sup>	40.0	210.0	20000	120	166.67	8400	47B**	1900	861

Case No.	Case Type			RU	Height		Width****		Depth	
	Floor	Relay Rack			in	mm	in	mm	in	mm
		19"	23"							
39	N/A	✓	✓	4	7.0	178	16.75	425	16.25	413
33	N/A	N/A	✓	6	10.50	267	21.00	533	16.25	413
9D	N/A	N/A	✓	10	17.50	445	20.88	530	18.00	457
9E	N/A	N/A	✓	10	17.50	445	20.88	530	23.00	584
70	✓	N/A	N/A	N/A	41.00	1041	27.00	686	19.00	483
72	✓	N/A	N/A	N/A	44.50	1130	27.00	686	23.50	597
44	✓	N/A	N/A	N/A	72.10	1831	24.00	610	19.06	484
47B	✓	N/A	N/A	N/A	71.00	1803	38.00	965	47.00	1194

\* Requires a heat baffle when 2 or more units are used.  
 \*\* Floor mount case only (all others are rack mounted).  
 \*\*\* Typical at full load and minimum input voltage.  
 \*\*\*\* Main body width of case on relay rack units. Side mounting angles located 7.50" from front of relay rack.  
 (1) UL 1481 Listing Available  
 (2) Not UL Listed

## Input Specifications

- Battery Ranges**  
24 volt nominal 21-30VDC  
48 volt nominal 42-60VDC  
120 volt nominal 105-150VDC
- Input**  
Reverse Polarity Protection Indicator  
Filter Pre-charge Circuit; DC Breaker
- DC Under Voltage Shutdown**  
Adjustable
- DC Over Voltage Shutdown**  
Adjustable

## Output Specifications

- AC Output Voltage**  
120V Nominal (Standard)  
240V (Optional)  
208V and 220V (Optional, Not UL Listed)
- Output Power**  
Rated VA continuous for unity to .8  
lagging power factor
- Line Regulation**  
±3% Over DC Battery Range

- Load Regulation**  
±4% from no load to full load
- Frequency Regulation**  
±0.5% (Quartz Clock)
- Current Limit**  
Approximately 150%. Protected by AC Output Breaker
- Total Harmonic Distortion**  
Approximately 5% at nominal DC Input and Full Load. Less than 3% for any single harmonic.
- Noise**  
Less than 32 dBm "C" message weighted with a battery (24VDC and 48VDC only).
- Audible Noise**  
65 dB @ 5 feet
- Approximate Efficiency**  
24VDC models 70-75%  
48VDC models 85-90%  
120VDC models 85-90%
- Load Crest Factor**  
Will operate with Load Crest Factors up to 2.8

## Environmental

- Operating Temperature**  
0 to 50°C
- Storage Temperature**  
-20 to 60°C
- Relative Humidity**  
0-95% (non-condensing)  
Convection Cooled (3KVA and larger units may be fan assisted)

## Agency Approvals

- UL 1012
- UL 1481 (Available for selected models, refer to chart)
- C-UL

## Ordering Information

When ordering, please specify:

- La Marche Model Number A31 Inverter
- Desired output power (VA)
- Battery type and number of cells
- Output voltage and frequency
- Description of load
- Optional Accessories