



LaMARCHE®

ISO 9001 CERTIFIED

A31 DC-AC INVERTER



Above photo is shown with optional 1ms Static Transfer Switch

Standard Features

- Highly Reliable Ferroresonant Transformer
- UL 1012 Listed Power Supply
- UL 1481 (Contact Factory)
- Available DC Inputs 24V or 48V or 120V
- Voltage Regulated
- Current Limited
- Adjustable DC Under/Over Voltage Shutdown
- Overload Protected
- Inverter On/Off Switch
- AC Circuit Breaker
- DC Circuit Breaker
- Quartz Time/Base Line Synchronization
- Reverse Polarity Protection/Indication Filtered DC Input
- Operating Temperature 0°-50°C
- Class H (180°C) Insulation
- 60 Hz Operation (50 Hz Optional)

A31 DC-AC INVERTER

The LaMarche A31 Inverter is the ideal choice when AC power requirements are critical. Its ferroresonant transformer-based design and transistor switching provide an extremely reliable and high quality sine wave output (<5% THD). Applications may include computer, alarm and telecommunication systems, emergency lighting, off-shore oil exploration, utility sub-station, security, etc.

The A31 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 precharge circuit which includes an indicator to inform you that the inverter is ready for operation.

| Code | Description |
|------|--|
| 22P | 1ms Static Transfer Switch (Inverter Prime) (available on 1KVA and larger) |
| 22S | 1ms Static Transfer Switch (Inverter Standby) (available on 1KVA and larger) |
| 22A | For 22P & 22S details, refer to datasheet P25-DSSS-1 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 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) |
| 06L | AC Ammeter (Std. on 750 VA and larger) |
| 06M | AC Voltmeter (Std. on 750 VA and larger) |
| 06C | DC Ammeter |
| 06D | DC Voltmeter |
| C.F | 50 Hz Output (Not UL Listed) |
| C.F | 208 or 220 or 240 VAC Output |

C.F. Consult Factory

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Made in USA

Input Specifications

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:

Two Wire Output
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:

60 Hz
50 Hz (Optional, Not UL Listed)

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 dBrn "C" message
weighted with a battery whose
ampere-hour rating is at least 4 times
the full load DC input current rating of
the unit (24VDC and 48VDC only).

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

Battery Ranges

24 volt nominal 21-30VDC
48 volt nominal 42-60VDC
120 volt nominal 105-150VDC

Specifications subject to change without notice

P25-DSA31-1
ECN: 18601
03/10

| Model Number | DC Input Amps | | AC Output | | | BTU Hour*** | Case No | Approx. weight | |
|-----------------|---------------|---------|-----------|-------|-------|-------------|---------|----------------|----|
| | N.L. | F.L.*** | VA | Volts | Amps | | | lb | kg |
| A31-250-24V-A6 | 3.0 | 16.0 | 250 | 120 | 2.08 | 294 | 39 | 60 | 27 |
| A31-500-24V-A6 | 5.0 | 28.0 | 500 | 120 | 4.17 | 301 | 39 | 75 | 34 |
| A31-750-24V-A6 | 6.0 | 44.0 | 750 | 120 | 6.25 | 595 | 33 | 80 | 36 |
| A31-1K-24V-A6 | 11.0 | 59.0 | 1000 | 120 | 8.33 | 817 | 9D | 105 | 48 |
| A31-1.5K-24V-A6 | 12.0 | 87.0 | 1500 | 120 | 12.50 | 1118 | 9D | 120 | 55 |
| A31-2K-24V-A6 | 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 | |
|-----------------|---------------|---------|-----------|-------|-------|-------------|---------|----------------|-----|
| | N.L. | F.L.*** | VA | Volts | Amps | | | lb | kg |
| A31-250-48V-A6 | 2.0 | 9.0 | 250 | 120 | 2.08 | 308 | 39 | 60 | 27 |
| A31-500-48V-A6 | 2.5 | 15.0 | 500 | 120 | 4.17 | 445 | 39 | 75 | 34 |
| A31-750-48V-A6 | 3.5 | 22.0 | 750 | 120 | 6.25 | 595 | 33 | 80 | 36 |
| A31-1K-48V-A6 | 5.0 | 28.0 | 1000 | 120 | 8.33 | 602 | 9D | 105 | 48 |
| A31-1.5K-48V-A6 | 7.0 | 40.0 | 1500 | 120 | 12.50 | 616 | 9D | 120 | 55 |
| A31-2K-48V-A6 | 10.0 | 54.0 | 2000 | 120 | 16.67 | 917 | 9E* | 175 | 80 |
| A31-3K-48V-A6 | 13.0 | 81.0 | 3000 | 120 | 25.00 | 1375 | 9E* | 270 | 123 |
| A31-4K-48V-A6 | 15.0 | 106.0 | 4000 | 120 | 33.33 | 1546 | 9E* | 310 | 141 |
| A31-5K-48V-A6 | 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 | |
|------------------|---------------|---------|-----------|-------|--------|-------------|---------|----------------|-----|
| | N.L. | F.L.*** | VA | Volts | Amps | | | lb | kg |
| A31-250-120V-A6 | 1.0 | 3.0 | 250 | 120 | 2.08 | 222 | 39 | 60 | 27 |
| A31-500-120V-A6 | 1.8 | 6.0 | 500 | 120 | 4.17 | 445 | 39 | 75 | 34 |
| A31-750-120V-A6 | 2.0 | 9.0 | 750 | 120 | 6.25 | 667 | 33 | 80 | 36 |
| A31-1K-120V-A6 | 4.0 | 11.0 | 1000 | 120 | 8.33 | 730 | 9D | 105 | 48 |
| A31-1.5K-120V-A6 | 4.5 | 17.0 | 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 |

| Case No | Case Type | | | RU | Height | | Width | | Depth | |
|---------|-----------|------------|-----|-----|--------|------|-------|-----|-------|-----|
| | Floor | Relay Rack | | | in | mm | in | mm | in | mm |
| | | 19" | 23" | | | | | | | |
| 39 | N/A | X | X | 4 | 7.00 | 178 | 16.75 | 425 | 16.25 | 413 |
| 33 | N/A | N/A | X | 6 | 10.50 | 267 | 21.00 | 533 | 16.25 | 413 |
| 9D | N/A | N/A | X | 10 | 17.50 | 445 | 20.88 | 530 | 18.00 | 457 |
| 9E | N/A | N/A | X | 10 | 17.50 | 445 | 20.88 | 530 | 23.00 | 584 |
| 70 | X | N/A | N/A | N/A | 41.00 | 1041 | 27.00 | 686 | 19.00 | 483 |
| 72 | X | N/A | N/A | N/A | 44.50 | 1130 | 27.00 | 686 | 23.50 | 597 |
| 44 | X | N/A | N/A | N/A | 72.10 | 1831 | 24.00 | 610 | 19.06 | 484 |

* 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

Environmental

Operating Temperature:

0 to 50°C

Storage Temperature:

-40 to 60°C

Relative Humidity:

0-95% (non-condensing)
Convection Cooled (4KVA and larger
units are fan assisted)

Agency Approvals

UL 1012
UL 1481 (Available for selected models,
consult factory)

Ordering Information

When ordering, please specify:

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



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