samlexamerica® EVOLUTION™

# EVOLUTION™ Series Inverter/Charger

## Pure Sine Wave Inverter, Adaptive Battery Charger, Transfer Relay – All in ONE unit.

Using state of the art technology, the Samlex EVO™ inverter/charger operates at 165 million instructions per second with lightening fast load & response times, has 9 points of physical protection monitoring (being scanned up to 10,000 times per second) to detect fault conditions & prevent product damage and uses 5 different temperature sensors to activate 2 speed controlled cooling fans. Experience the Evolution™.

### Two Separate AC Inputs for Grid & Generator

Connect grid and generator simultaneously. Priority is given to grid. Both AC inputs are fully programmable, this includes distortion tolerance (fine and course) to accommodate various types of generator sources.

### Programmable Battery Charger

Choose between the Adaptive Algorithm or other user programmable multiple charging profiles. For lead acid batteries, the Adaptive Algorithm monitors the bulk stage for the battery condition to set the remaining stage time, reduces excess charging time and extends the battery life. For lithium and other battery chemistries and applications, the 5 alternate 3 and 2-stage algorithms use timers and/or Voltage sensing with options to turn charging off when complete.

### Synchronized Zero Transfer Time from Inverter to Grid or Generator

Zero transfer time when switching from inverter to grid or generator. When grid or generator comes on, the inverter synchronizes with the incoming wave form and then transfers instantly at zero crossing without any interruption to the load.

### High Surge Inverter

The inverter has a surge capability of 3X its continuous power rating, allowing it to turn on and power demanding loads such as well and sump pumps, compressors, refrigerators, freezers, air conditioners, quartz lamps, microwaves and heaters.

### Active Power Boost

In addition to 3X surge startup, inverter loads can exceed the continuous power output by the Power Boost Allowances without triggering an overload fault. Get 150% for 5 seconds, 140% for 30 seconds, 120% for 5 minutes or 110% for 30 minutes! There is no need to upsize to a larger inverter/charger to handle a heavy surge load, resulting in reduced costs.

### Automatic Generator Start/Stop

Programmable contact closure signal to initiate automatic generator start/stop to keep the batteries fully charged.

### Input for Solar Charge Controller or other available DC source

Connect a solar charge controller directly to the EVO™ through the Battery Charger External DC Input (Solar Input). This reduces the power required from the AC source for charging batteries and allows more power to be available to the load when the sun is shining. Other sources of DC could be wind power for fixed installations or the alternator in the vehicle for mobile applications.

### Online Mode

Use to prioritize Batteries/Inverter over the grid. Ideal for those who want to operate primarily on solar power even when grid is available (when grid is costly). In Online Mode, grid is only used as backup power when batteries necessitate charge.

### Bullet Proof Intelligence

9 physical points of protection monitoring are scanned up to 10,000 times per second to detect adverse internal and external conditions. When detected, the unit will initiate a healthy shutdown before any damage can be done, making the EVO™ practically indestructible in the field.

### Wide Operating Temperature Range

Will operate below zero! -20°C to +60°C, -4°F to 140°F.

### Intelligent Temperature Controlled Cooling

2 internal fans are speed controlled based on 5 different temperature sensors, reducing unnecessary fan noise and energy consumption by cooling only when needed. Under some extreme conditions, the EVO™ is capable of adjusting charging currents from the AC source to keep the system's internal temperature within operational limits.

### Programmable Power Save Mode

Select sleep and wake up point based on load power draw. Power consumption is < 8 Watts in Sleep Mode. Configurable so that intermittent loads turn ON consistently from power save mode – extends battery/inverter run time during grid failure.

### Safety Certified and EMC Compliant

ETL safety listed to stringent UL (with Marine Supplement) and CSA standards. EMC Compliant to FCC requirements. See specifications on reverse side for details.

### Optional Remote Control w/ Removable SD Card for Data Logging

The EVO-RC or EVO-RC PLUS remote control (sold separately) can accept up to 32GB SD card to capture data. Log historic power consumption, inverter functionality, battery charging activity, faults and the conditions leading up to them. Use the remote to program parameters and view performance details in real time. 33 ft RJ-45 data cable included.

**FOR USE WITH:** Alternative Energy Systems, trucks, boats, RVs, cabins, remote locations, areas with unreliable utility power and for emergency power back-up.

## 3 YEAR LIMITED WARRANTY

samlexamerica®

# EVOLUTION™

Programmable Remote Control
Model: EVO-RC
(Sold Separately)

## Inverter/ Charger

Pure Sine Wave

Models:
- EVO-2212
- EVO-3012
- EVO-2224
- EVO-4024

**3 YEAR LIMITED WARRANTY**

| | | EVO-2212 | EVO-3012 | EVO-2224 | EVO-4024 |
|---|---|---|---|---|---|
| **INVERTER** | | | | | |
| | NOMINAL AC OUTPUT, FREQUENCY, THD | 120 ± 5% VAC, Single Phase, 60 Hz/ 50 Hz ± 0.1 Hz, Pure Sine Waveform < 5% THD | | | |
| | INPUT BATTERY VOLTAGE RANGE | 9.1 - 17 VDC | 9.1 - 17 VDC | 18.1 - 34 VDC | 18.1 - 34 VDC |
| | CONTINUOUS POWER OUTPUT AT 25° C | 2200 VA | 3000 VA | 2200 VA | 4000 VA |
| | CONTINUOUS AC OUTPUT CURRENT (A) | 18A | 25A | 18A | 33A |
| | SURGE POWER FOR 1 MS | 300% (6600VA, 54A) | 300% (9000VA, 75A) | 300% (6600VA, 54A) | 300% (12000VA, 99A) |
| | SURGE POWER FOR 100 MS | 200% (4400VA, 36A) | 200% (6000VA, 50A) | 200% (4400VA, 36A) | 200% (8000VA, 66A) |
| | POWER BOOST FOR 5 SECONDS | 150% (3300W) | 150% (4500W) | 150% (3300W) | 150% (6000W) |
| | POWER BOOST FOR 30 SECONDS | 140% (3080W) | 140% (4200W) | 140% (3080W) | 140% (5600W) |
| | POWER BOOST FOR 5 MINUTES | 120% (2640W) | 120% (3600W) | 120% (2640W) | 120% (4800W) |
| | POWER BOOST FOR 30 MINUTES | 110% (2420W) | 110% (3300W) | 110% (2420W) | 110% (4400W) |
| | MAXIMUM CONTINUOUS DC INPUT CURRENT | 266A | 373A | 133A | 266A |
| | INVERTER EFFICIENCY (PEAK) | 90% | 90% | 93% | 94% |
| | NO LOAD POWER CONSUMPTION | Normal Mode: 30W; Power Saving Mode: <8W; Standby Mode: <5W | | Normal Mode: 25W; Power Saving Mode: <8W; Standby Mode: <5W | |
| **AC INPUT FROM GRID/GENERATOR** | | 120 VAC Nominal (60 - 140 VAC ± 5% selectable) ; 60Hz / 50Hz (40 - 70 Hz selectable) | | | |
| | PROGRAMMABLE AC INPUT CURRENT | 5-40A (Default 30A) | 5-70A (Default 30A) | 5-40A (Default 30A) | 5-70A (Default 30A) |
| **TRANSFER RELAY** | TRANSFER RELAY TYPE AND CAPACITY | SPDT, 40A | DPDT, 70A (2X35A contacts in parallel) | SPDT, 40A | DPDT, 70A (2X35A contacts in parallel) |
| | TRANSFER TIME: INVERTER TO GRID/GENERATOR | < 1 ms (Synchronized transfer at zero crossing) | | | |
| | TRANSFER TIME: GRID/GENERATOR TO INVERTER | Up to 16 ms (Synchronized transfer at zero crossing) | | | |
| **INTERNAL BATTERY CHARGER** | AC INPUT VOLTAGE RANGE | 120 VAC Nominal (60 - 140 VAC ± 5% selectable) ; 60Hz / 50Hz (40 - 70 Hz selectable) | | | |
| | MAXIMUM AC INPUT CURRENT | 15A, AC | 20A, AC | 19A, AC | 30A, AC |
| | PROGRAMMABLE CHARGING CURRENT AND VOLTAGE | 0-100A ; 12-16.5 VDC | 0-130A ; 12-16.5 VDC | 0-70A ; 24-33 VDC | 0-110A ; 24-33 VDC |
| | POWER FACTOR | > 0.95 | | | |
| | CHARGER EFFICIENCY | 75% | 75% | 86% | 85% |
| | CHARGING PROFILES | 7 types of charging profiles to cover Lead Acid, Lithium Ion & Nickel-Zinc types of batteries: (i) Three, 3-Stage Profiles (with Adaptive Control) (ii) Three, 2-Stage Profiles (iii) One, 4-Stage Equalization Profile (Adaptive Control) | | | |
| | BATTERY TEMPERATURE COMPENSATION | Battery Temperature Sensor included. Compensation Range from -20°C to 60°C | | | |
| **BATTERY CHARGER EXTERNAL INPUT (SOLAR INPUT)** | | | | | |
| | CHARGING INPUT VOLTAGE RANGE | 13 - 16.5 VDC | 13 - 16.5 VDC | 26 - 33 VDC | 26 - 33 VDC |
| | MAXIMUM CHARGING CURRENT | 50A | | | |
| **COOLING** | | 2 Fans – Temperature Controlled, Variable Speed | | | |
| **PROTECTIONS/ALARM** | | Battery Low Voltage Alarm and Low / Over Voltage Shut Down; Shut Down under Input Over Current, Output Over Current, Output Overload and Output Short; Transformer and Heat Sink Overheat Shut Down; Immunity Against Conducted Electrical Transients in Vehicles | | | |
| **COMPLIANCE** | SAFETY/EMI/EMC/RoHS/ABYC | ETL listed to ANSI/UL Standards: 1741 & 458 (with Marine Supplement), and to CAN / CSA Std. C22.2 No. 107.1-16 ; Compliant with RoHS Directive 2011/65/EU ; EMI/EMC compliant with FCC Part 15(B), Class A. Meets ABYC A-31 and ABYC E-11 ; Meets Ignition Protection SAE-J1171 and ISO 8846. | | | |
| **ENVIRONMENTAL** | TEMPERATURE | OPERATING: -20°C to 60°C (-4°F to 140°F); STORAGE: -40°C to 70°C (-40°F to 158°F) | | | |
| | OPERATING HUMIDITY | 0 to 95% RH non condensing | | | |
| **WEIGHT AND DIMENSIONS** | W x D x H | 325 x 426 x 207mm / 12.79 x 16.77 x 8.15 inches | | | |
| | WEIGHT | 27 Kg / 59 lb | 29 kg / 64 lb | 26 Kg / 57 lb | 29 Kg / 64 lb |

**Note:**
**(1) All AC power ratings in the Inverter Section are specified at Power Factor = 0.95**
**(2) All specifications given above are at Ambient Temperature of 25°C / 77°F unless specified otherwise**
**(3) Specifications are subject to change without notice**

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