

# Off-Grid Power Solutions

## EVOLUTION™ SERIES

# INVERTER/CHARGERS



**REMOTE LOCATIONS**



**RV/MARINE**

**COMMERCIAL VEHICLES**



**BACKUP POWER**



**samlex**america®

Do you need reliable AC power in a vehicle, remote location or for emergency backup? Samlex's EVO™ inverter/charger is THE choice for a complete off-grid power solution.

1 Pure Sine Inverter

2 Battery Charger

3 Transfer Switch

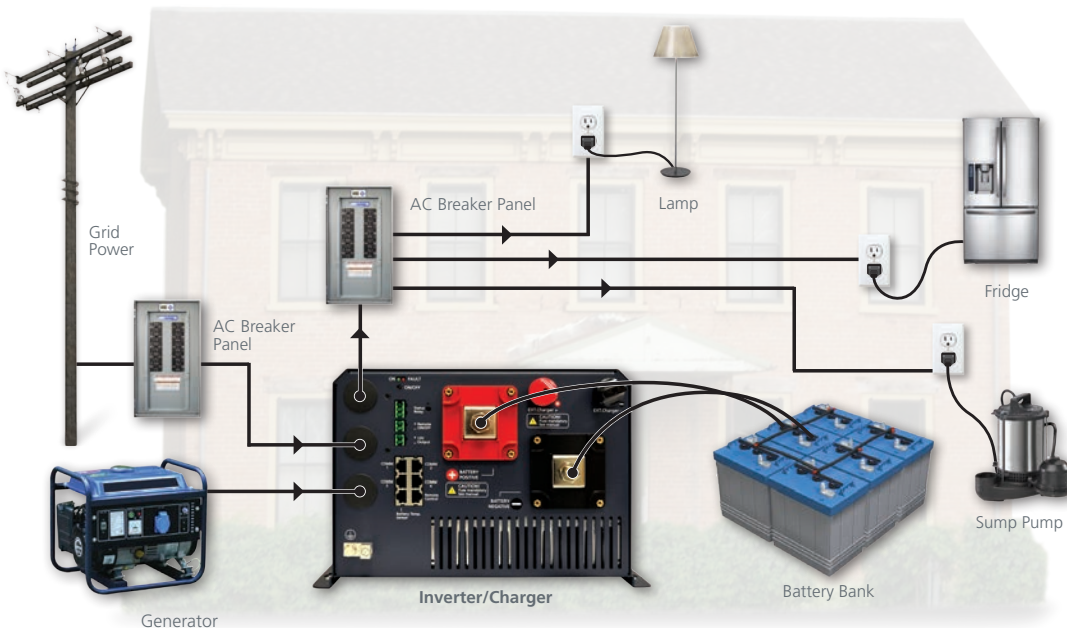
All in **ONE** device!

## How an Inverter/Charger Works...

The primary function of an inverter/charger is to charge a bank of batteries and convert current from the batteries into usable AC power (the same type you receive from the wall at home).

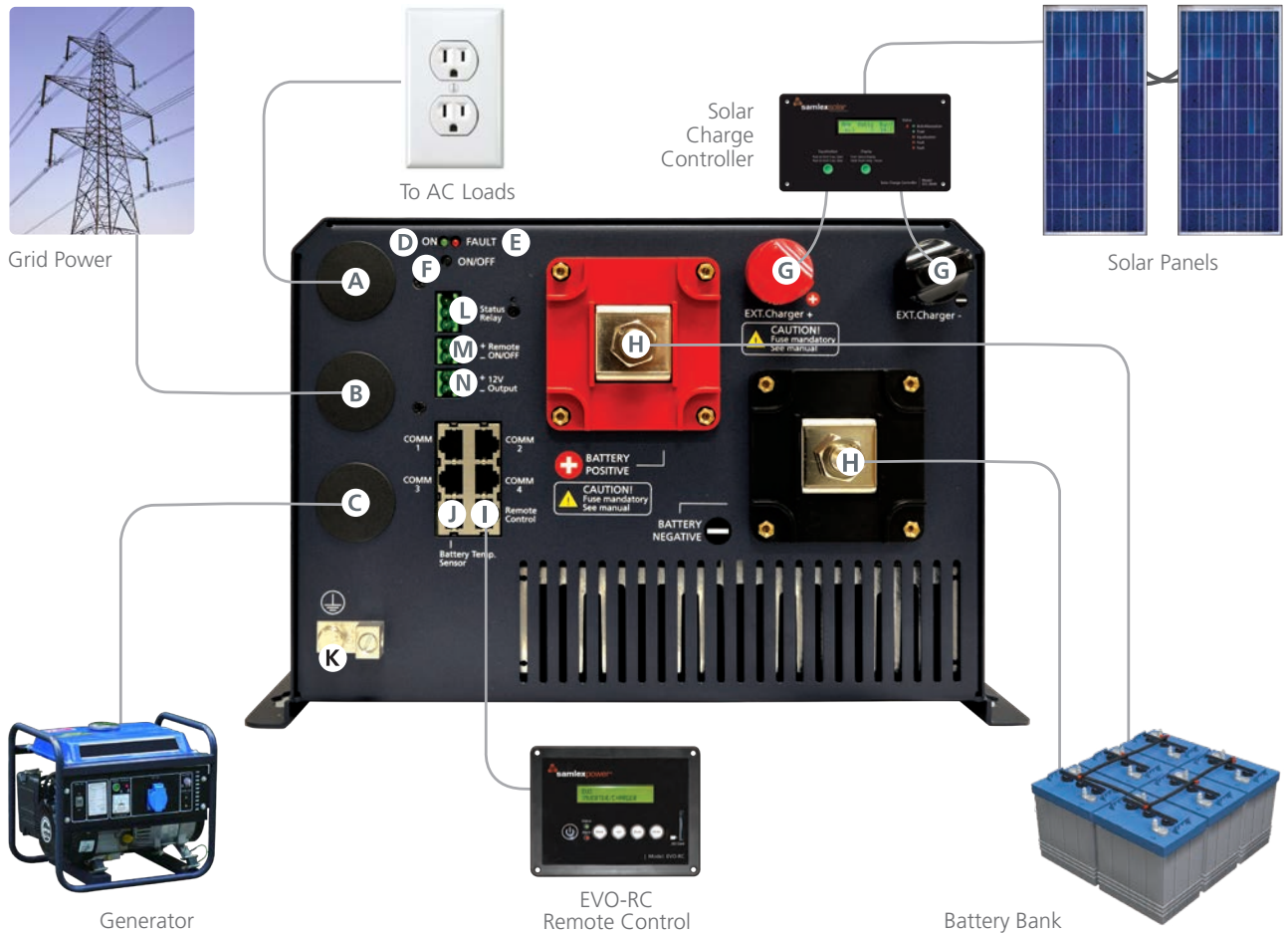
The EVO™ inverter/charger can accept input from the grid, a generator or a solar charge controller to charge a bank of batteries – and all can be connected at the same time. The unit will automatically switch between power sources as they become available, ensuring the batteries are charging efficiently and the AC loads are being powered without delay.

◀ Here's an Example



## BACKUP POWER

You can have a refrigerator, sump pump and the lights in your home connected to the EVO™ inverter/charger, but primarily powered by the grid. When the grid power goes out, the EVO™ is programmed to switch to generator or battery/inverter mode to power your equipment. When the grid comes back, the fridge, pump and lights automatically return to grid power, and the grid simultaneously charges your batteries for future use.



- A** Output to power AC Loads
- B** AC Input for Grid (prioritized)
- C** AC Input for Generator
- D** LED Status Indicator
- E** LED Fault Indicator
- F** ON/OFF Button
- G** Battery Charger External DC Input (Solar Input)
- H** Battery Terminals
- I** Remote Control Jack (EVO-RC)
- J** Battery Temperature Sensor Jack (Sensor Included)
- K** Ground Connector
- L** Status Relay Contact – Use for GenStart or Fault Condition
- M** Remote Input – Use to turn inverter ON or OFF with Ignition Start, Ignition AUX, or any other Remote ON/OFF switch
- N** Low Power 12V Output Source



EVO-RC

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

The EVO-RC remote control (sold separately) can accept a 16GB 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.

# Experience the EVOLUTION™

## Product Features

- Pure Sine Wave Inverter
- 3 or 4 Stage Battery Charger with Equalization
- <16ms Transfer from Grid/Generator to Inverter
- Standard Mounting Footprint

### Two Separate AC Inputs for Grid & Generator

Connect Grid and Generator simultaneously. Priority is given to Grid. Both AC input ranges are fully programmable. Generator input is specifically designed to have more tolerance for wave form distortion.

### Adaptive Battery Charger

Algorithm monitoring in the Bulk Stage assesses the battery's condition. The remaining charging stages are based on the battery's condition rather than a pre-set charging time. Reduces excess charging time and extends life of battery.

### Synchronized Transfer at Zero Crossing

Zero transfer time when switching from Inverter to Grid. When grid comes on, the inverter synchronizes with the 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 on start up, 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.

### Input for Solar Charge Controller

Connect a solar charge controller directly to the EVO™ through the Battery Charger External DC Input (Solar Input).

### 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.

### Temperature Controlled Cooling

2 internal fans are speed controlled based on 5 different temperature sensors. Reduces unnecessary fan noise and energy consumption by cooling only where and when needed.

### Conformally Coated Circuit Board

Dampens vibration, protects from corrosion in high humidity environments or marine salt air.

### 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

ETL safety listed to stringent UL standards (with Marine Supplement). See specifications on reserve side for details.



## Models Available

### EVO-2212

2200 Watts  
12 VDC

### EVO-3012

3000 Watts  
12 VDC

### EVO-2224

2200 Watts  
24 VDC

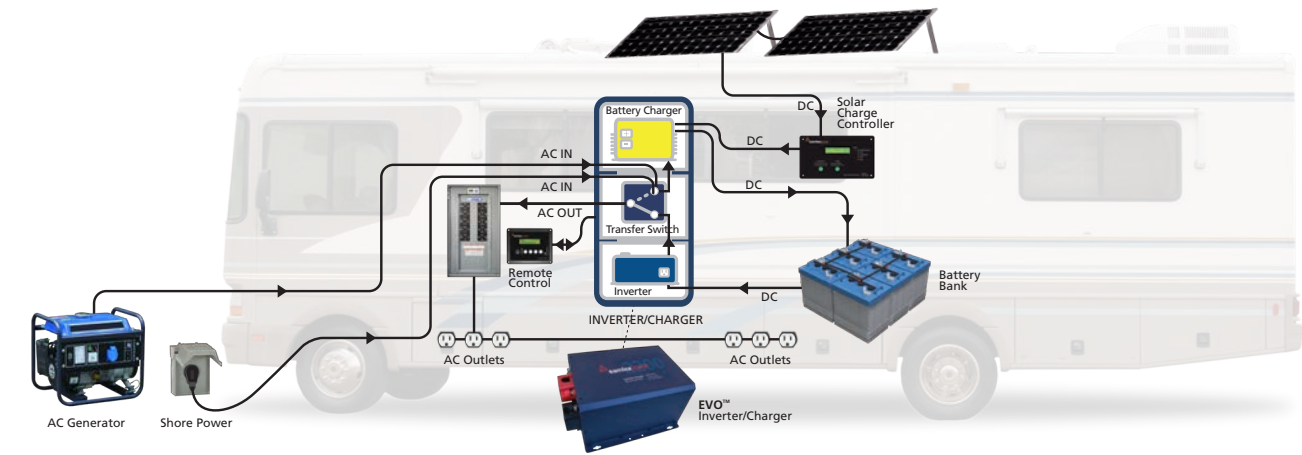
### EVO-4024

4000 Watts  
24 VDC

# Applications

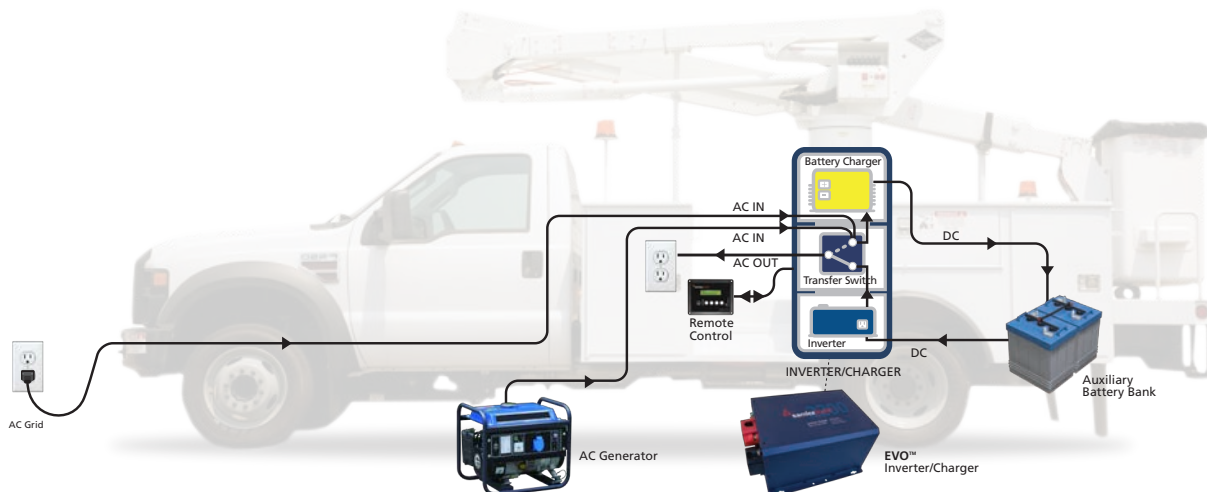
## REMOTE LOCATIONS

The EVO™ provides a complete power solution for remote locations where there is no electricity (grid power). Use solar as the primary source to charge your batteries. Turn on a generator if more power is needed without having to reconfigure any of your equipment. Connect the EVO™ to a breaker panel and receive clean 120 Volt power through all of your electrical outlets.



## RV/ MARINE

EVO's™ dual AC inputs for shore power and a generator are ideal for RV and Marine applications. Use shore power when it's available to run loads and charge batteries. There is no need to reconfigure if you want to use a generator; it has its own input. Also, connect a solar charge controller directly to the EVO™ without having to use an external transfer switch. Let the EVO™ transfer between power sources for you while you enjoy the comforts of home.



## COMMERCIAL VEHICLES

Use EVO™ to power tools, test equipment and other AC devices from an auxiliary battery bank. Safely and rapidly re-charge batteries when AC or a generator is available without having to reconfigure. Capable of driving heavy duty loads and sensitive electronics, the EVO™ provides reliable pure sine wave power wherever it's needed.



		EVO-2212	EVO-3012	EVO-2224	EVO-4024
<b>INVERTER</b>	NOMINAL AC OUTPUT, FREQUENCY, THD	120 ± 5% VAC, 50/60 Hz ± 0.1 Selectable, < 5% THD			
	INPUT BATTERY VOLTAGE RANGE	>9 - 17 VDC	>9 - 17 VDC	>18 - 34 VDC	>18 - 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 Save Mode: <8W		Normal Mode: 25W; Power Save Mode: <8W	
<b>AC INPUT FROM GRID/GENERATOR</b>		120 VAC Nominal (60 - 140 VAC, 40 - 70 Hz Selectable)			
	PROGRAMMABLE AC INPUT CURRENT	5-40A (Default 30A)	5-70A (Default 30A)	5-40A (Default 30A)	5-70A (Default 30A)
<b>TRANSFER RELAY</b>	TRANSFER RELAY TYPE AND CAPACITY	SPDT, 40A	DPDT, 70A (2X35A contacts)	SPDT, 40A	DPDT, 70A (2X35A contacts)
	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)			
<b>INTERNAL BATTERY CHARGER</b>	AC INPUT VOLTAGE RANGE	120 VAC Nominal (60 - 140 VAC, 40 - 70 Hz Selectable)			
	MAXIMUM AC INPUT CURRENT	15 Amps, AC	20 Amps, AC	19 Amps, AC	30 Amps, AC
	MAXIMUM DC OUTPUT CURRENT	100 Amps, DC	130 Amps, DC	70 Amps, DC	110 Amps, DC
	POWER FACTOR	> 0.95			
	CHARGER EFFICIENCY	75%	75%	86%	85%
	CHARGING STAGES	Adaptive Charging Control; Normal Mode: 3 Stages – Bulk, Absorption, Float; Equalization Mode: 4 Stages – Bulk, Absorption, Equalization, Float			
	BATTERY TEMPERATURE COMPENSATION	Battery Temperature Sensor included. Compensation Range from -20°C to + 60°C			
<b>BATTERY CHARGER EXTERNAL INPUT (SOLAR INPUT)</b>					
	CHARGING INPUT VOLTAGE RANGE	13 - 15VDC	13 - 15VDC	26 - 30VDC	26 - 30VDC
	MAXIMUM CHARGING CURRENT	50A			
<b>COOLING</b>		2 Fans – Temperature Controlled, Variable Speed			
<b>PROTECTIONS/ALARM</b>		Input Over Current, Output Overload, Short Circuit, Over Temperature, Battery Low Voltage /Over Voltage Immunity Against Conducted Electrical Transients in Vehicles			
<b>COMPLIANCE</b>	SAFETY/EMI/EMC	ETL listed to UL standards: 1741, 458 (with Marine Supplement), and to CSA C22.2 No. 107.1-01. EMI/EMC compliant with FCC Part 15(B), Class B and RoHS compliant.			
<b>ENVIRONMENTAL</b>	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			
<b>WEIGHT AND DIMENSIONS</b>	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

(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 unless specified otherwise  
(3) Specifications are subject to change without notice