

# Model SW Series II

POWER CONVERSION CENTER

## A Revolution in Power Technology

The result of new ideas and technologies, the Trace SW Series II delivers sine wave power without compromise. Now sine wave output with high efficiency, high surge ability and low idle current draw is available. More than just the finest inverter, with three microprocessors and bi-directional power topology, it has features and capabilities that previously were non-existent or available only as separate products.

### New Series II Design

- Easier to use programming system with separate "User" and "Setup" menus.
- New backlight LCD display on the control panel improves use in low light conditions.
- Improved AC wiring access and AC conduit provisions makes installation easier.
- New "soft start" systems allows inverter to run even heavier loads and improves reliability.
- Includes a new, easier to read universal owners manual that covers all SW series II inverters.
- Enhanced generator start system works with a greater variety of generator types.

### As an Inverter

- Multiple step, low distortion, sine wave output with up to 96% peak conversion efficiency. Very low idle current draw allows high efficiency even when powering small loads.
- Two inverters can be operated in series to provide 120/240 vac three wire output with twice the power for 240 VAC loads. Requires optional series interface cable.
- Adjustable search mode can reduce idle power draw to 1 watt when not operating AC loads.
- Adjustable low battery cutout voltage with adjustable time delay prevents damaging batteries.
- Protection circuitry guards against over-current, short circuit, over temperature, low battery and high battery conditions. Includes islanding protection for utility connected applications.

### As a Battery Charger

- High efficiency, low current distortion design enables higher charger output from small generators.
- Three stage, temperature compensated charging algorithm ensures maximum battery life. Remote battery temperature probe is standard. Includes manual equalize mode with adjustable settings.
- Adjustable grid and generator size allows matching of charger to the AC source.
- Automatic "back-off" system prevents overloading of generators or nuisance tripping of input breakers.

When connected to grid or generator, the SW Inverter synchronizes its waveform to that of the AC source, locks to it and operates in parallel. This ability, coupled with the bi-directional power topology and microprocessor control, makes it possible for the unit to offer multiple operating modes.

**Generator Support Mode:** When charging from a generator, the generator's output voltage and current are monitored. If either falls outside user adjustable limits, the unit sheds itself as a load and then reverses the power flow if necessary. This delivers energy from the batteries to the loads assisting the generator. When operating two units in series at 240 VAC, one 120 VAC leg can be charging while the other is supporting.

**Standby Power Mode:** Two AC inputs are provided - one for generator and one for utility grid. When AC fails, transfer to inverter power is no longer than 34 milliseconds. If the grid and generator are connected, the unit can be set to start the generator after the grid has failed. After grid returns, the generator is automatically stopped. The inverter output is synchronized to the grid and the grid is reconnected to the loads.

**Battery Voltage Transfer Mode:** If the batteries are low, a low battery set point triggers connection to the grid.

**Generator Start Mode:** Automatic generator start features are standard and user programmable. Gen start can be triggered by either battery voltage or load size connected. A "quiet time" can be set to restrict generator operation unless absolutely required. The start sequence is fully adjustable and is now compatible with a greater variety of generator types. Generator must be set up for remote starting and designed for unattended operation.



From Trace Engineering, maker of the world's most reliable inverters

An advanced original and revolutionary design

Sine wave power without compromise



# Model SW Series II

## SPECIFICATIONS

**Utility Interactive Mode:** Operating as a bi-directional battery charger, power from any source that tries to raise the batteries above their programmed float voltage is delivered to the grid. A GRID USAGE TIMER can be set to allow selling of electricity to the utility only during prescribed hours. Sell back current is adjustable. Caution: Utility intertie must have approval of local utility company.

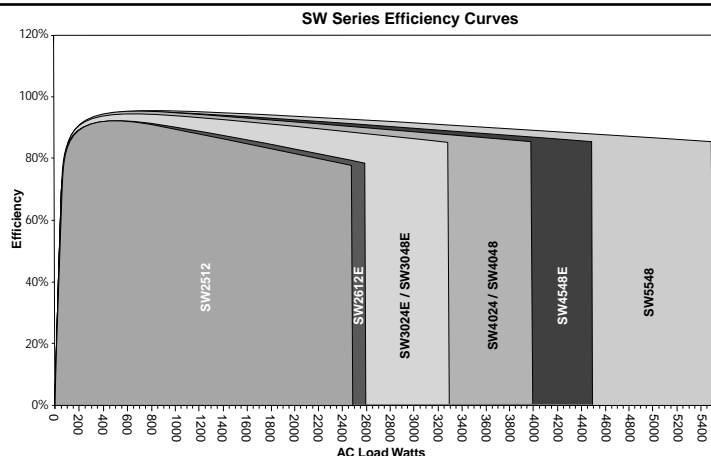
**Peak Load Shaving Modes - (1)** The sine wave series may be programmed to operate from batteries during a specified period of the day. Batteries may be charged during lower rate periods. **(2)** During a programmable time of the day, power is delivered to the grid from the batteries. An alternative (lower) adjustable float voltage is employed to allow variable battery discharge depths.

Three user adjustable voltage-controlled signal relays are provided to control charging sources and loads.

Selecting modes, enabling features and adjusting parameters are easily accomplished by moving thru a menu tree that is displayed on the control panel's LCD read-out. Doubling as a meter, the LCD displays INVERTER AMPS, INPUT AMPS, LOAD AMPS, BATTERY VOLTS DC and INVERTER VOLTS AC. Additionally, control panel LED's report the status of eight system conditions.



| Specifications   | SW2512   | SW2612E       | SW4024        | SW3024E       | SW4048        | SW3048E       | SW5548        | SW4548E       |
|--|--|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Nominal DC Input Voltage   | 12 VDC   | 12 VDC        | 24 VDC        | 24 VDC        | 48 VDC        | 48 VDC        | 48 VDC        | 48 VDC        |
| AC Output Voltage (RMS)  | 120 VAC  | 230 VAC       | 120 VAC       | 230 VAC       | 120 VAC       | 230 VAC       | 120 VAC       | 230 VAC       |
| Nominal Frequency  | 60 Hz  | 50 Hz         | 60 Hz         | 50 Hz         | 60 Hz         | 50 Hz         | 60 Hz         | 50 Hz         |
| Continuous Power @ 20°   | 2500 VA  | 2600 VA       | 4000 VA       | 3300 VA       | 4000 VA       | 3300 VA       | 5500 VA       | 4500 VA       |
| Continuous AC Output (@ 25°C)  | 21 amps  | 11 amps       | 33 amps       | 14 amps       | 33 amps       | 14 amps       | 46 amps       | 20 amps       |
| Maximum AC Output (RMS)  | 60 amps  | 28 amps       | 78 amps       | 34 amps       | 78 amps       | 34 amps       | 78 amps       | 34 amps       |
| Efficiency (peak)  | 90%  | 90%           | 94%           | 94%           | 95%           | 95%           | 96%           | 96%           |
| Automatic AC Transfer Relay  | 60 amps  | 30 amps       | 60 amps       | 30 amps       | 60 amps       | 30 amps       | 60 amps       | 30 amps       |
| Maximum Charging Rate  | 150 amps   | 150 amps      | 120 amps      | 100 amps      | 60 amps       | 50 amps       | 75 amps       | 60 amps       |
| <b>DC Input Requirements</b>   |  |               |               |               |               |               |               |               |
| Search Mode (typical)  | 0.08A (1W)   | 0.08A (1W)    | 0.04A (1W)    | 0.04A (1W)    | 0.025A(1W)    | 0.025A(1W)    | 0.04A (1W)    | 0.04A (1W)    |
| On (no load - idle) (typical)  | 1.0A (12W)   | 1.6A (12W)    | 0.66A (16W)   | 0.66A (16W)   | 0.33A (16W)   | 0.33A (16W)   | 0.40A (20W)   | 0.40A (20W)   |
| At Full Rated Power  | 275 amps   | 300amps       | 200 amps      | 166 amps      | 100 amps      | 83 amps       | 137 amps      | 106 amps      |
| Short Circuited Output   | 700 amps   | 700 amps      | 360 amps      | 320 amps      | 180 amps      | 160 amps      | 180 amps      | 138 amps      |
| Nominal DC Input Voltage Range   | 11.8 to 16.5   | 11.8 to 16.5  | 22 to 33      | 22 to 33      | 44 to 66      | 44 to 66      | 44 to 66      | 44 to 66      |
| <b>AC Output Characteristics</b>   | Sinewave, 34 to 52 steps per cycle   |               |               |               |               |               |               |               |
| AC Output Waveform   | +/- 3%   |               |               |               |               |               |               |               |
| Voltage Regulation   | 3 to 5% (stand alone operation)  |               |               |               |               |               |               |               |
| Total Harmonic Distortion  | -1 to 1  |               |               |               |               |               |               |               |
| Power Factor Allowed   | +/- 0.04% (crystal regulated)  |               |               |               |               |               |               |               |
| Frequency Regulation   | 16 to 240 Watts  |               |               |               |               |               |               |               |
| Load Sensing Range   |  |               |               |               |               |               |               |               |
| <b>Options</b>   |  |               |               |               |               |               |               |               |
| Remote Control Panel (50 ft. max)  | SWRC   | SWRC          | SWRC          | SWRC          | SWRC          | SWRC          | SWRC          | SWRC          |
| Stacking Interface for double power (*requires two inverters)  | SWI*   | No            | SWI*          | No            | SWI*          | No            | SWI*          | No            |
| Conduit Box  | SWCB   | SWCB          | SWCB          | SWCB          | SWCB          | SWCB          | SWCB          | SWCB          |
| DC Disconnect Breaker  | DC 250   | DC 250        | DC 250        | DC 250        | DC 175        | DC 175        | DC 250        | DC 175        |
| DC Battery / Inverter Cables   | BC5-4/0  | BC5-4/0       | BC5-4/0       | BC5-4/0       | BC5-2/0       | BC5-2/0       | BC5-4/0       | BC5-2/0       |
| <b>Enclosure Type</b>  | Indoor, ventilated, steel chassis with powdercoat finish                       |               |               |               |               |               |               |               |
| Specified Temp Range   | 32° F to 104° F (0° C to +40° C) (output will meet specified tolerances)       |               |               |               |               |               |               |               |
| Allowed Temp Range   | -40° F to 140° F (-40° C to +60° C) (output may not meet specified tolerances) |               |               |               |               |               |               |               |
| Dimensions - Inverter Only   | 15" (38 cm) high, 22.5" (57 cm) wide, 9" (23 cm) deep (when wall mounted)      |               |               |               |               |               |               |               |
| Dimensions - Shipping  | 20.5" (52 cm), 27" (69 cm), 15.5" (40 cm)                                      |               |               |               |               |               |               |               |
| Mounting   | Wall or Shelf Mount  |               |               |               |               |               |               |               |
| Weight - Inverter Only   | 90lbs (42kg)   | 95lbs (43kg)  | 105lbs (48kg) | 105lbs (48kg) | 105lbs (48kg) | 105lbs (48kg) | 136lbs (63kg) | 136lbs (63kg) |
| Weight - Shipping  | 96lbs (44kg)   | 111lbs (50kg) | 111lbs (50kg) | 111lbs (50kg) | 111lbs (50kg) | 111lbs (50kg) | 143lbs (65kg) | 143lbs (65kg) |
| Other Voltage/frequency for export are as follows:   |  |               |               |               |               |               |               |               |
| SW3024J=105VAC/50Hz SW4024K=105VAC/60Hz SW4024W=220VAC/60Hz (two wire output only) SW4548A-240VAC/50Hz |  |               |               |               |               |               |               |               |



\*specifications subject to change without notice

**Options:** Remote control panel (SWRC), stacking interface cable (SWI), conduit box for code approved DC input battery cables (SWCB).

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