



## MidNite Solar E-Panels Explained

A MidNite Solar E-panel is an AC/DC Disconnect Box that has the Inverter installed on the door of the E-Panel or above the E-panel. MidNite's E-Panels place the AC and DC breakers in the same Disconnect Box for a compact solution. MidNite makes E-Panels for Magnum, Outback, Schneider Conext SW, Schneider XW and SMA Sunny Islands. Each E-Panel contains a battery disconnect breaker, AC input and output breakers with appropriate bus bars, 120V and 120/240V configurations, bypass breaker, neutral and ground bus bars, shunt and mounting hardware. All units have knockouts for surge protection and conduit connections. The E-panels all have spaces for additional breakers such as for charge controllers and loads.

### Magnum Energy 120VAC E-Panels for MS and RD series

Magnum Energy makes a very interesting line of inverters, both modified and pure sine wave. Internal AC wires are routed to match the Magnum inverter. The accessory components like the DC cover, top shield, remote bracket and such are specific to the Magnum E-Panels. The Magnum has a PV input plus and DC plus busbar as well as the regular AC input and output busbars.



This chassis is 14.4 inches wide, so has ample room for all your wiring needs. The chassis is only 3.5" deep so wiring access is the best in the industry. All of the present 12 and 24 volt / 120VAC Magnum inverters have a 120VAC inverter/charger input/output as well as a 120VAC input/output that does not go through the electronics. It is strictly a pass through for the other leg of a 240VAC input.

The pass through leg can be useful when attempting to utilize both legs of a 240VAC generator. One leg is used for charging and the other is used to pass through to your 240VAC deep well pump. The 120VAC E-Panel here is not able to handle the extra leg of AC, so look to the 240 E-Panel to accommodate this unique feature. Normal installations jumper AC 1 & 2 on the inverter for 50 amp service at 120VAC.

A major advantage of these E-Panels is that they can be tested in the shop to insure that the system is functioning properly. These E-Panels can be field modified to be right hand units. A right hand door is required to do this in the field.

### The Magnum Energy 240VAC E-Panel for PAE series

This is our flagship E-Panel. It accommodates the Magnum Energy MS4448-PAE and MS4024-PAE inverters. These inverters are a true 120/240 input and output. Unlike the regular Magnum MS and RD series that have a second 120VAC pass through leg, these inverters are like having a stacked pair of inverters. It will charge from either a 120VAC source or a 240VAC source.

The output is 120/240 just like the utility grid. Compare this system with a stacked pair of 120VAC inverters (from any company) and you will realize thousands of dollars of savings! The Magnum 240VAC E-Panel uses a white steel chassis to match the MS series. It has black and red AC input and output terminal bus bars, red terminal bus bars for PV+ and Bat+, six additional din rail slots, 500A shunt, ground busbar, remote bracket, wall mount brackets, inverter cables, charge control mounting bracket, 120/240 AC bypass switch pre-wired and a 120/240 AC input disconnect pre-wired.



### Outback AL PLUS and STS Models

These E-Panels come standard with the AC bypass and AC input disconnect pre-wired into the box. It has din-rails for six additional 13mm wide AC or DC breakers along with a battery breaker installed with inverter plus and minus cables. There is a 500 amp/50mV shunt, a battery plus busbar plus a number of features included: battery minus busbar, AC busbars, ground busbar, DC cover, AC flex conduit tubing with couplers, MX60/Classic mounting bracket, grommets and bushings, numerous knock outs for cable entry and exit, lots of hardware for mounting inverter, charge controller etc., wall mounting brackets, installation instructions, wiring diagram mounted on the door.

All AL PLUS models are white aluminum and are used in places like Hawaii or Maine or wherever salt air is a factor. Aluminum E-Panels also weigh 9 pounds less than the STS gray powder coated steel versions. These models can be purchased in right hand versions.

### Schneider Conext SW and XW E-Panels

The Conext SW E-Panels are perfect for off-grid, backup power and self-consumption applications. They are made for a single Schneider Electric Conext SW inverter/charger. The SW inverter is mounted directly to the right of the E-Panel. The Conext SW's are available with the 175 amp breaker (MNE175SW) for the SW2524 inverter or with the 250 amp breaker (MNE250SW) for the SW4024 inverter. The MNE175SW or MNE250SW features inverter battery breaker, knockouts for up to 6 din rail mount AC or DC breakers (or the optional Bypass Kit) and 4 panel mount or DC-GFP80 breakers. Massive tin plated copper bus bars directly connect to the SW's battery terminals, bus bars for AC inputs, AC output, neutral, ground, PV + in, PV- in, Bat +, Bat-, 500 amp shunt, Location to mount two charge controllers to the top. There are knockouts that correspond to the 1 inch knock outs in the charge controller. The Conext XW E-Panels are perfect for grid-tie and AC coupled applications.



The Conext XWs feature:

- Inverter battery breaker
- 2 separate 60 amp AC inputs for generator and utility
- 60 amp AC bypass switch
- Knockouts for up to seven din rail mount DC DCGFP63 or AC breakers and 12 panel mount or DC-GFP80 breakers
- Massive tin plated copper bus bars directly connect to the XW's battery terminals
- Bus bars for AC inputs
- AC output neutral, ground, PV + in, PV- in, Bat +, Bat-
- 500 amp shunt (MNSHUNT)
- Metal dead front behind the reversible door
- Charge controllers mount to either side or both sides at once for dual controllers
- AC bypass can be configured as input & output on/off as well as AC bypass.(Note: The XW 60 amp controller can mount on the Right side only due to their isolated communications compartment)
- The XW MPPT controller requires no mounting bracket. FM60, FM80 and Classic require Right or Left E-Panel charge control mounting brackets. Right hand bracket furnished standard.
- Main Breaker Current Rating – 175 and 250
- Number of breaker spaces - 19
- Environmental Rating - Type 1 (Indoor)
- Max. Wire Size - 4/0 AWG
- Max. AC Voltage - 240VAC
- Max. DC Voltage - 300VDC
- Warranty - 5 yrs.
- Listed by ETL for US & Canada
- Made in the USA

### SMA E-Panels

**MNE250SMA-AC-SINGLE Master** E-Panel is for a single Sunny Island AC Coupled system. (MidNite Autoformer and SunnyBoy inverter required)

The MNE250SMA-AC SINGLE Master includes the input/output 60amp, 120/240vac bypass system along with separate 60 amp, 120/240vac AC input and output breakers. This E-Panel comes with a 250amp remote trip battery disconnect breaker and inverter cables. Pre-wired with AC input and output wiring.

RS485 boards are required when AC Coupling to SunnyBoy inverters if 3 stage charging is desired. One RS485 board goes into the Sunny Island inverter and each SunnyBoy Inverter. AC Coupling to the SunnyBoy grid-tie inverter is possible without RS485 boards. The Sunny Island grid-tie inverter will frequency shift based on battery voltage to knock the grid-tie inverter off line. SunnyBoy inverters can switch between off-grid and grid-tie mode automatically when RS485 boards are used. To program this feature you must use either a SMA service cable (USBPBS) or SMA web box (SUNNYWEBBOXU).

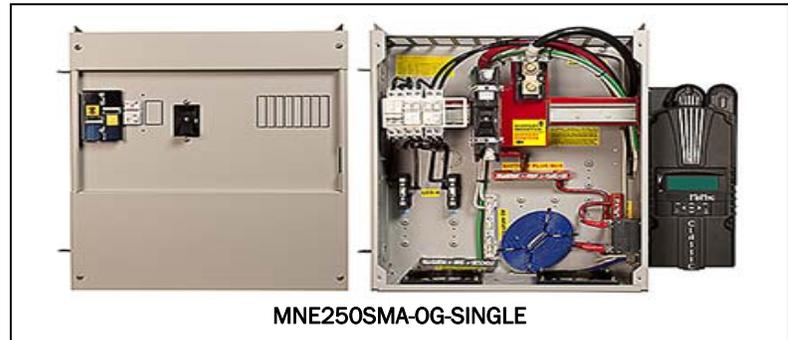


The backed up critical loads panel always has 120/240vac available. 60amps is available on leg 1 and 30amps on leg 2 in the critical loads panel. Comes standard with one MNSPD-300 (surge protection device).

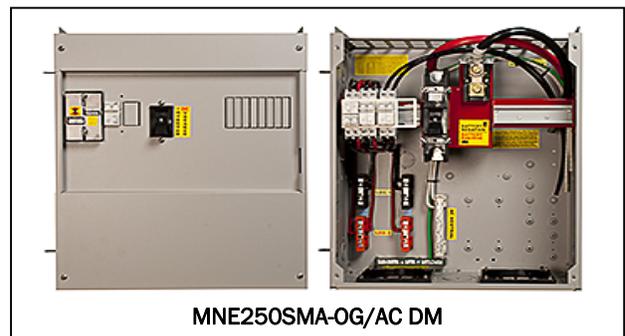
**MNE250SMA-OG-SINGLE** - The Off Grid Single is designed for a single Sunny Island off grid system. It includes the 60amp, 120vac Manual input/output bypass system along with separate 60amp, 120vac AC input and output breakers. Comes with a 250amp battery disconnect breaker and inverter cables. Pre-wired with AC input and output wiring. NOTE: A back plate (MNESMA-Short BP or MNESMA-Tall-BP) is recommended for the proper wiring./

**MNE250SMA-OG-SINGLE**  
FEATURES:

- 60amp, 120vac AC output/bypass assembly and independent 60amp
- 120vac AC input and output breakers
- 500A/50mV shunt (MNSHUNT)
- Neutral and AC IN and OUT terminal busbars
- 250amp remote trip battery breaker with inverter cables
- AC wiring to inverter.
- alignment of the Sunny Island.
- Warranty - 5 yrs.
- Listed by ETL for US & Canada
- Made in the USA



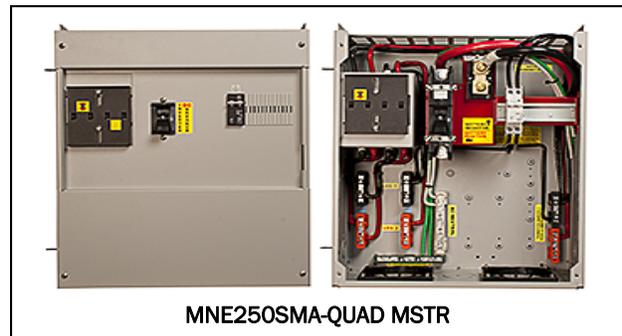
**MNE250SMA-OG/AC DM** - The Dual Master E-Panel works with one of the MNE250SMA-Slave E-Panels to create a 120/240 VAC AC coupled or off-grid system. The MNE250SMA-OG/AC DM includes the 60amp, 120/240vac input/output bypass system. Terminals are provided for hookup to leg 2 from the Slave E-Panel. Comes with 250amp battery disconnect breaker and inverter cables. Pre-wired with AC input and output wiring for leg 1 (master) inverter. (One slave E-Panel is required for 120/240.)



#### MNE250SMA-OG/AC DM FEATURES:

- 60amp, 120/240vac Output/Bypass system
- Separate 60amp, 120/240vac AC input and output breakers for the master inverter
- 250amp remote trip battery breaker with inverter cables
- 500amp/50mV shunt (MNSHUNT)
- Battery negative busbar
- AC input and output busbars
- Neutral and ground busbars
- AC input and output wiring
- All breakers are hydraulic-magnetic and rated for continuous duty
- Space provided for 6 additional 1/2" wide din rail mount AC or DC breakers and up to 12 3/4" wide panel mount breakers
- Knockouts located for battery cables
- AC conduit connections
- Warranty - 5 yrs.
- Listed by ETL for US & Canada
- Made in the USA

**MNE250SMA-QUAD MSTR** - This E-Panel works with three of the MNE250SMA-Slave E-Panels to create a Quad stack of Sunny Islands. The MNE250SMA-Quad Mstr includes the Quad 125amp, 120/240vac input/output bypass system. This E-Panel can be used in conjunction with a Sunny Island inverter as part of a Quad off-grid, battery backup or AC Coupled system. Terminals are provided for hookup to leg 1 + 2 in the Slave E-Panels. This unit comes with a 250amp remote trip battery disconnect breaker and inverter cables and is pre-wired with AC input and output wiring for leg one (master) inverter. (Three slaves are also required for Quad system.) NOTE: A back plate (MNESMA-Short BP) is recommended for the proper wiring alignment of the Sunny Island.



#### MNE250SMA-QUAD MSTR FEATURES:

- 125amp, 120/240vac AC Output/Bypass system
- Separate 60amp, 120/240vac AC input and output breakers for the master inverter
- 250amp remote trip battery breaker with inverter cables
- 500amp/50mV shunt (MNSHUNT)
- Battery negative busbar
- AC input and Output busbars
- Neutral and ground busbars
- AC input and output wiring
- Transition terminals to Slave E-Panels
- Space provided for 6 additional 1/2" wide din rail mount AC or DC breakers and up to 12 3/4" wide panel mount breakers. All breakers are hydraulic-magnetic and rated for continuous duty.
- Knockouts located for battery cables

- AC conduit connections
- Warranty - 5 yrs.
- Listed by ETL for US & Canada
- Made in the USA

**MNE250SMA-3PH Master** - The MNE250SMA-3PH Master E-Panel works with two of the MNE250SMA-Slave E-Panels to create a three phase system. The MNE250SMA-3PH Master includes the three phase 60amp input/output bypass system. This E-Panel can be used in conjunction with a Sunny Island inverter as part of a three phase off-grid, battery backup or AC Coupled system. Terminals are provided for hookup to leg two and leg three E-Panels. This unit comes with 250A remote trip battery disconnect breaker and inverter cables. The MNE250SMA-3PH Master E-Panel is pre-wired with AC input and output wiring for leg one (master) inverter. (Two slaves are also required for three phase.)



The three phase master includes the three phase 60amp input/output bypass system. This E-Panel can be used in conjunction with a Sunny Island inverter as part of a three phase off-grid, battery backup or AC Coupled system. Terminals are provided for hookup to leg two and leg three E-Panels. Comes with 250amp battery disconnect breaker and inverter cables. This unit is pre-wired with AC input and output wiring for leg one (master) inverter. (Two slaves are also required for three phase.)

This E-Panel does not come with a relay board, RS485 (485USPD-NR) boards or MNSPD surge protection device. RS485 boards are required when AC Coupling to SunnyBoy inverters if three stage charging is desired. One RS485 board goes into the master inverter and each SunnyBoy Inverter. AC Coupling to a SunnyBoy or any other grid-tie inverter is possible without RS485 boards. The Sunny Island inverter will frequency shift based on battery voltage to knock the grid-tie inverter off line. SunnyBoy inverters can switch between off-grid and grid-tie mode automatically when RS485 boards are used. To program this feature you must use either SMA service cable (USBPBS) or SMA web box (SUNNYWEBBOXU).

**MNE250SMA-SLAVE** - The MNE250SMA-SLAVE is a companion E-Panel for dual, triple and quad Sunny Island inverter systems. The Slave E-Panel is the same part number for all multiple SMA E-Panel systems regardless of off-grid, AC coupled, battery backup, three phase or quad.

- Separate 60amp, 120/240vac AC input and output breakers for the slave inverter
- 250amp remote trip battery breaker with inverter cables
- 500amp/50mV shunt (MNSHUNT)
- Battery negative busbar
- AC input and Output busbars
- Neutral and ground busbars
- AC input and output wiring
- Comes with Red busbars installed
- Additional black and blue insulators included for tailoring to suit the application



- Space provided for 6 additional 1/2" wide din rail mount AC or DC breakers and up to 12 3/4" wide panel mount breakers
- Mounting hole spaces for additional terminal busbars
- Knockouts located for battery cables
- AC conduit connections
- Warranty - 5 yrs.
- Listed by ETL for US & Canada

**MNX-240 AUTOFORMER** - The 6000 Watt Autoformer (based around SMAs Toroid) is for turning a Single Sunny island 120vac inverter into a 120/240vac inverter. The MNX-240 AUTOFORMER is useful for using the single Sunny Island to AC couple with multiple grid-tie inverters. NOTE: A back plate (MNESMAXW-SHORT BP or MNESMA-TALL-BP) is recommended for the proper wiring alignment of the Sunny Island.

