DLTLs & SOBs

SOB (Shut Off Box)

MidNite Solar has four shutoff boxes: the MNSOB3R-2P, MNSOB3R-4P, MNSOB4X-2P and the MNSOB4X-4P. These shutoff boxes, depending on the model, have two to four pole switches which break both the positive and negative of a PV string to a transformer-less inverter. It has a rating of 600v at 20 amps with two to four circuits.

DLTL Combiners

SMA requested that MidNite Solar design and build Combiners that will be compatible with their TL series inverters. These DLTL combiners preserve SMA's unique emergency power back up feature during grid failure. The MNPVHV8-DLTL-3R, MNPVHV8-DLTL-4X and MNPVHV16-DLTL-4X are specifically designed for the new dual channel MPPT transformer-less inverters with an AC outlet that can be powered during a utility outage. The two MNPVHV8 DLTLs have four strings entering the combiner with 2 separate strings out while the MNPVHV16 has eight strings entering and two strings out.

Power Supply Board (MNDiscoPSB)

Battery Disconnect Module (MNBDM)

MidNite Solar SOB & DLTL Specifications

	MNSOB3R-2P	MNSOB3R-4P	MNSOB4X-2P	MNSOB4X-4P	MNPVHV8-DLTL-3R	MNPVHV8-DLTL-4X	MNPVHV16-DLTL-4X
Maximum Volts	600	600	600	600	600	600	600
Fuses/Fuse holders	Not Required	Not Required	Not Required	Not Required	Eight 15A	Eight 15A	Sixteen 15A
Deadfront - Clear	YES	YES	YES	YES	YES	YES	YES
Lug Temperature Rating	90° C	90° C	90° C	90° C	90° C	90° C	90° C
Strain Reliefs & Hole Plugs	NO	NO	YES	YES	YES	YES	YES
Enclosure Rating	Type 3R	Type 3R	Type 4X	Type 4X	Type 3R	Type 4X	Type 4X
Enclosure - Powder Coated Aluminum	YES	YES	YES	YES	YES	YES	YES
Number of PV Circuits	Two 1+ & 1-	Four 2+ & 2-	Two 1+ & 1-	Four 2+ & 2-	2+ & 2- Two strings combined each	2+ & 2- Two strings combined each	2+ & 2- Four strings combined each
Maximum String Fuse Rating	20 Amp	20 Amp	20 Amps	20 Amp	20 Amp	20 Amp	20 Amp
Output Switch Rating	100 Amp switch	100 Amp switch	100 Amp switch	100 Amp switch	100 Amp switch	100 Amp switch	100 Amp switch
Positive Feed back	YES	YES	YES	YES	YES	YES	YES
Optional Power Supply Board (MNDiscoPSB)	YES	YES	YES	YES	YES	YES	YES
Strings In	ONE	TWO	ONE	TWO	FOUR	FOUR	EIGHT
Strings Out	ONE	TWO	ONE	TWO	TWO	TWO	TWO
Lockable	YES	YES	YES	YES	YES	YES	YES
Listed To UL & CSA	UL1741 & C22.2	UL1741 & C22.2	UL1741 & C22.2	UL1741 & C22.2	UL1741 & C22.2	UL1741 & C22.2	UL1741 & C22.2
Output Wire Range	10 AWG (2.59mm)	10 AWG (2.59mm)	10 AWG (2.59mm)	10 AWG(2.59mm)	14 to 2/0 AWG (1.63mm to 8.25mm)	14 to 2/0 AWG (1.63mm to 8.25mm)	14 to 2/0 AWG (1.63mm to 8.25mm)
Wire Range for String Input	14 to 10 AWG (1.63mm to 2.59mm)	14 to 10 AWG (1.63mm to 2.59mm)	14 to 10 AWG (1.63mm to 2.59mm)	14 to 10 AWG (1.63mm to 2.59mm)	14 to 10 AWG (1.63mm to 2.59mm)	14 to 10 AWG (1.63mm to 2.59mm)	14 to 10 AWG (1.63mm to 2.59mm)
Mounting Options and Angle	Vertical wall mount, pole mount or sloped roof mount to 14 degrees incline (3 in 12 roof pitch)	Vertical wall mount, pole mount or sloped roof mount to 14 degrees incline (3 in 12 roof pitch)	Any orientation	Any orientation	Vertical wall mount, pole mount or sloped roof mount to 14 degrees incline (3 in 12 roof pitch)	Any orientation	Any orientation

MidNite Solar's

Rapid Shutdown System (NEC 690.12)

MidNite Solar offers a complete Rapid Shutdown System with audio and visual communications!

The MidNite Rapid Shutdown System is a firefighter/home owner's control system designed specifically for disconnecting rooftop PV panels. In case of emergencies or system maintenance, the press of a red button will trigger the Rapid Shutdown, activating all remote trip devices in the system. This process disconnects hazardous voltages from the PV array and the rest of the system.

The central component of the system, the Birdhouse, works in conjunction with MidNite Solar's disconnecting combiners, remote trip circuit breakers, cat5 cable, high voltage shut off boxes, battery disconnect modules and power supply board. It's designed to be mounted within 500 meters of the combiner and located in an accessible location for first responders.

The Birdhouse LEDs display the system status and automated speech gives further situation specific information. The Birdhouse has an attractive weather resistant enclosure made of anodized aluminum and high density plastic.

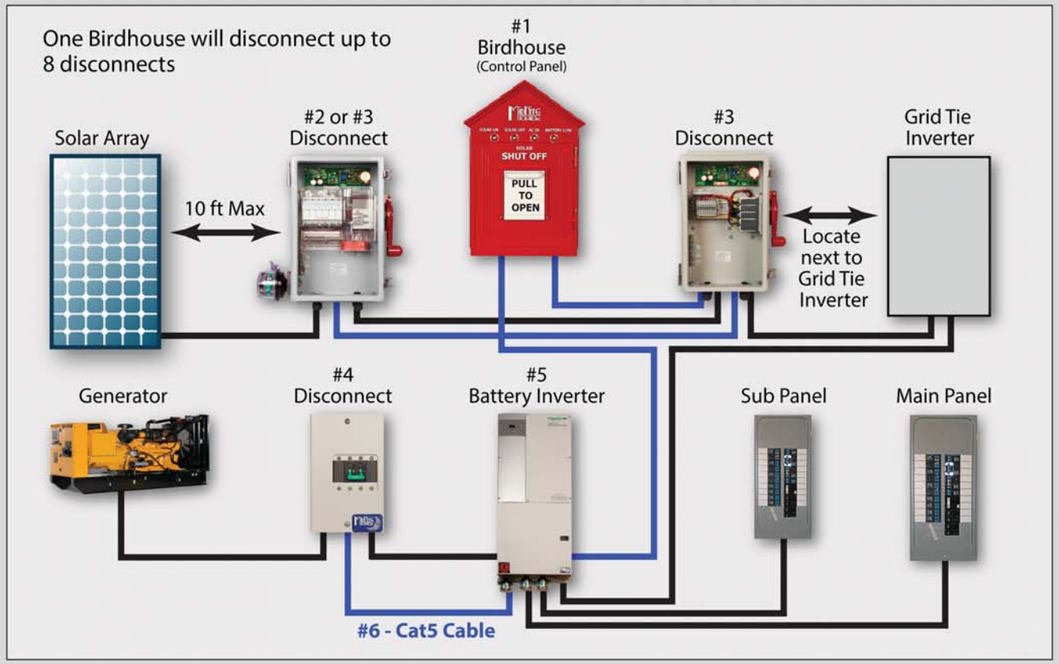
Firefighters love MidNite's Rapid Shutdown System!

MADE IN THE USA

www.midnitesolar.com ph. 360.403.7207 fax 360.691.6862

MIDNITE SOLAR'S

Rapid Shutdown System (NEC 690.12)



NEC 690.12 Rapid Shutdown Diagram Key

#1 Shutoff Switch Control Panel

MNBirdhouse (The control panel for the Rapid Shutdown system available in red or gray.)

#2 Available Disconnecting Combiners:

MNPV4HV-Disco 3R Deluxe-PSB
MNPV6HV-Disco 4X-PSB
MNPV8HV-Disco 3R-PSB
MNPV8HV-Disco 4X-PSB
MNPV16HV-Disco 4X-PSB
MNPVHV8-DLTL 3R-PSB
MNPVHV8-DLTL 4X-PSB
MNPVHV16-DLTL 4X-PSB

#3 Available Disconnects

MNSOB3R-2P-PSB, MNSOB4X-2P-PSB, MNSOB3R-4P-PSB or MNSOB4X-4P-PSB

#4 Disconnect

MNDC-GFP100RT-2P (Breaker mounted in MNEDC-Quad Box and MNBDM (Battery Disconnect Module))

#5 Battery Inverter

MidNite E-Panel with MNBDM (Battery Disconnect Module) and remote trip breaker. MNBDM and MidNite's remote trip breakers can shut down any battery based inverter from DC or AC or both. All MidNite E-Panels accommodate the MNBDM and remote trip breakers.

#6 Cabling

MNCAT5-600 (UL Listed Cat5 Cable, 600V 90°C USE2 Rated)

Available Breakers

MNEDC125RT, MNEDC175RT, MNEDC250RT, MNDC-GFP100RT-2P, MNEPV16-600RT and MNEPV20-600RT Breakers

www.midnitesolar.com
17722 67th Ave. NE., Arlington, WA. 360-403-7207 FAX: 360-691-6862

The Disco Combiners

MidNite Solar has 4, 6, 8 and 16 string Disconnecting PV Combiners. The MNPV8HV and MNPV16HV can be re-configured in the field to be used with non-isolated inverters where both the Positive and Negative need to be disconnected. NEC 2014 Section 690.12 requires Rapid Shutdown of all energized conductors over 30 volts. This includes PV arrays, batteries, generators, DC loads, and system wiring connecting these together. MidNite Solar's system allows for all of these requirements to be met with our comprehensive selection of disconnecting combiners, breakers, and associated power supply boards and remote disconnect modules.

MidNite Solar Disconnecting Combiner Specifications

	MNPV4HV 3R Basic	MNPV4HV 3R Deluxe	MNPV6HV 4X	MNPV8HV 4X Or 3R	MNPV16HV 4X
Strings	4	4	6	8-Single inverter 4 each for dual inv. 4-transformerless inv.	16-Single inverter 8 each for dual inv. 8-transformerless inv.
Maximum Volts	600	600	600	600	600
Optional PV Power Supply (MNDiscoPSB)	NO	YES	YES	YES	YES
*Surge Protection Device Included	NO	SPD600	SPD600	SPD600	SPD600
Fuses/Fuseholders	NOT PROVIDED	PROVIDED	PROVIDED	PROVIDED	PROVIDED
Deadfront	YES	YES	YES	YES	YES
Lug Temperature Rating	90° C	90° C	90° C	90° C	90° C
Strain Reliefs & Hole Plugs Provided	NO	YES	YES	YES	YES
**Convertible Configuration	NO	NO	NO	YES	YES
Enclosure Rating	Type 3R	Type 3R	Type 4X	Type 4X or 3R	Type 4X
Enclosure - Powder coated aluminum with stainless hardware	YES	YES	YES	YES	YES
Maximum Number of Switched Output Circuits	ONE	ONE	ONE	TWO	TWO
Wire range for String Input	14 to 6 AWG (1.63mm to 4.11mm)	14 to 6 AWG (1.63mm to 4.11mm)	14 to 6 AWG (1.63mm to 4.11mm)	14 to 6 AWG (1.63mm to 4.11mm)	14 to 6 AWG (1.63mm to 4.11mm)
Maximum String Fuse Rating	30 amp	30 amp	30 amps	30 amps	30 amps
Output Switch Rating	100 amp switch 80 amp busbar	100 amp switch 80 amp busbar	100 amp switch 100 amp basbar	175 amps - single 8 string 100 amps each - 2 inverters 100 amps - transformerless inverter	175 amps - single 16 string, 100 amps each - 2 inverters 100 amps - transformerless
Output Wire Range	14 to 1/0 (1.63mm to 8.25mm)	14 to 1/0 (1.63mm to 8.25mm)	14 to 2/0 AWG (1.63mm to 9.27mm)	14 to 2/0 AWG (1.63mm to 9.27mm)	14 to 350mcm
Lockable	YES	YES	YES	YES	YES
Listed To UL & CSA	UL1741 & C22.2	UL1741 & C22.2	UL1741 & C22.2	UL1741 & C22.2	UL1741 & C22.2
Mounting Options and Angle	Vertical wall mount, pole mount or sloped roof mount to 14 degrees incline (3 in 12 roof pitch)	Vertical wall mount, pole mount or sloped roof mount to 14 degrees incline (3 in 12 roof pitch)	Vertical wall mount, pole mount or sloped roof - Any angle	Vertical wall mount, pole mount or sloped roof NEMA 3R = mount to 14 degrees incline (3 in 12 roof pitch), NEMA 4X = Any angle	Vertical wall mount, pole mount or sloped roof NEMA 4X = Any angle

*Models with Surge Protection (SPD) are shipped with only one SPD. We suggest that with some of the configurations of the configurable combiners multple SPD's be used.

**Convertible Configurations can be combined for: All strings in paralell or be separated for use with 2 inverters or be separated for use with non-isolated inverters

MNPVHV4 Deluxe 3R

MNPVHV4 Basic 3R not shown

MNPVHV6 4X

MNPVHV8 4X

MNPVHV8 3R not shown

MNPVHV16 4X