

Safety and Disconnect Equipment

To have a safe code compliant photovoltaic system you need to install the appropriate disconnects, fuses and/or breakers throughout your system. The National Electrical Code (NEC) states that a disconnect is required for every piece of equipment (charge controllers, inverters, etc.) to isolate them from all sources of power (solar modules, batteries and generators). This might sound complicated, but it is really pretty easy. On the following pages you will find several disconnect and overcurrent protection options for your system. If you aren't sure which disconnects you should use and where, just give your KSI dealer a call and he can point you in the right direction.

SMA PV Combiner Boxes



The Sunny Boy Combiner Boxes, SBCB 6-90 & SCCB 28-420, make installing large projects easier. The large NEMA 3R enclosures provide ample room for conductors and will help reduce installation time. Designed with installers in mind, you'll find the new SBCB & SCCB Combiner Boxes, a welcome addition to the SMA product line.

Product Name and Description	Part Number
SBCB 6 Combiner box 600VDC Max, 90 Amps Max output current (72A continuous), 3R Enclosure, 6 positive, 6 negative PV inputs, 10-6 AWG input wire size, 6-300MCM output wire size, 1-20 Amp circuits. Midget input fuse, 10"H x 8"W x 6"D, Shipping weight: 12 lbs.	705454
SBCB 12 Combiner box 600VDC Max, 3R Enclosure, 12 PV inputs, 10-6 AWG input wire size, 6-300MCM output wire size, 1-20 Amp circuits. Midget input fuse, 16"H x 16"W x 6"D, Shipping weight: 30 lbs	705455
SCCB 28 Combiner box 600VDC Max, 420 Amps Max output current (340A continuous), 3R Enclosure, 28 positive, 28 negative PV inputs, 10-6 AWG input wire size, 6-300MCM output wire size, 15 Amps 600VDC Midget Max. input fuse size, 20"H x 20"W x 8"D, Shp. wt.: 55 lbs	704184
SCCB 52 Combiner box 600VDC Max, 4 - 8 Amp circuits, 3R Enclosure, 52 positive, 52 negative PV inputs, 10-6 AWG input wire size, 6-300MCM output wire size, 42"H x 30"W x 8"D, Ships via truck, call for details	705456
Combi-Switch - Combination DC disconnect and PV combiner box. The combi-Switch is designed for the Sunny Boy 6000U inverter. Four-circuit fused protection in a NEMA 3R steel enclosure. 5 year warranty	704200
DC Disconnect - 600VDC, 18A (per pole), 30A (2 poles in series) Square D HU361RB Lockable, Visible blade disconnect. ETL listed, NEMA 3R Enclosure, 5 year warranty	704196
Fused DC Disconnect - 600VDC, 18A (per pole), 30A (2 poles in series) Square D H361RB Lockable, Visible blade disconnect. ETL listed, NEMA 3R Enclosure, 5 year warranty, Fuses not included.	704197



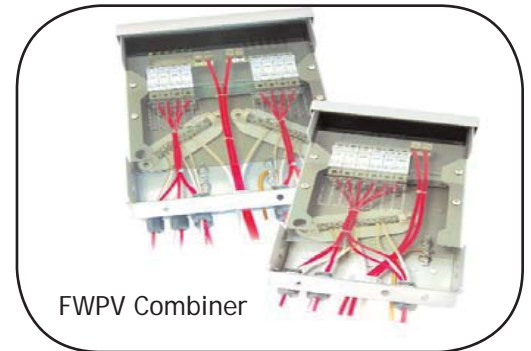
SMA SBCB 6



Combi-Switch - DC Disconnect
Fused DC Disconnect

OutBack offers a PV array combiner which can be used with a wide variety of PV system designs and module configurations. It can be configured with DC breakers for low voltage systems (under 150 VDC) or touch safe type fuse holders for high voltage systems (up to 600 VDC). FWPV is designed to provide NEC code compliant overcurrent protection and interconnection of multiple PV panels or sub-arrays into one or more PV arrays for connection to charge controllers or inverter systems. The FWPV is easily field configured to match your PV system design and ampacity requirements. The FWPV PV Combiner provides series over-current protection of PV module circuits allowing NEC compliant installation. FWPV-8 includes space for up to **eight** 150 VDC rated breakers or **six** 600 VDC rated fuse holders. Includes one positive output bus bar with two #2/0 terminals, one insulated negative TBB and one ground bar. The FWPV-12 accommodates up to **twelve** 150 VDC rated breakers or **eight** 600 VDC fuse holders. Includes two insulated neg. TBB's, one ground bar and two combiner bus bars. Enclosure only without breakers or fuse holders.

Product Name and Description	Part Number	Price	Shipping Weight (lbs.)
FWPV-8	706358	\$139.00	5.0
FWPV-12	706359	\$199.00	10.0



FWPV Combiner

PV Array Breakers

DIN rail snap-in mount with #2 AWG setscrew type compression terminals. ETL listed for up to 150 VDC. **Maximum of twelve breakers.** Fits in the PSPV only.

Product Name and Description	Part Number	Price
OBB-6-150VDC-DIN	704245	\$14.00
OBB-9-150VDC-DIN	705483	\$14.00
OBB-10-150VDC-DIN	704246	\$14.00
OBB-15-150VDC-DIN	704247	\$14.00
OBB-20-125VDC-DIN	705484	\$14.00
OBB-30-125VDC-DIN	704248	\$14.00

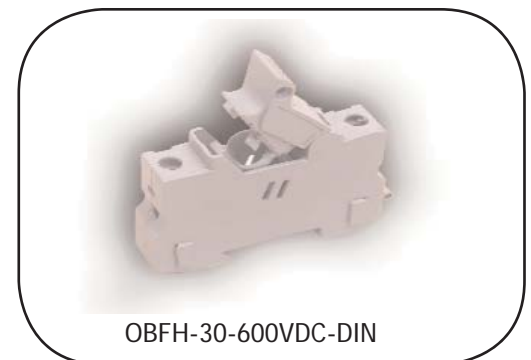


OBB-15-125VDC-DIN

High Voltage PV Array Fuseholder

DIN rail snap-in mount with #8 AWG setscrew type compression terminals. Touch-safe design. Not rated for load make or load break usage. UL listed for up to 600 VDC. **Maximum of eight fuseholders in one PSPV enclosure.**

Product Name and Description	Part Number	Price
OBFH-30-600VDC-DIN (Fuse Holder)	704244	\$18.00
OBF-6-600VDC (1A fuse)	705460	\$18.00
OBF-10-600VDC (10A fuse)	704578	\$18.00
OBF-15-600VDC (15A fuse)	705459	\$18.00



OBFH-30-600VDC-DIN

OutBack DC Ground Fault Protection System

The OutBack Power systems GFP is required for PV arrays mounted on dwelling roofs. A GFP protects wiring and system components for one or two PV arrays: Dual 80 amp PV circuits 125 VDC max Voc. Requires three small breaker spaces. The GFP has 1/4" stud terminals. The OBB-GFP-80D-125VDC PNL system includes the GFP unit, a ground bus bar, neutral and ground connection wiring and mounting hardware. The PSR includes mounting for only one GFP along with two PV disconnects and one large battery breaker. For use in OutBack PSR, FW1000-DC and FW500-DC's.

Product Name and Description	Part Number	Price	Shipping Weight (lbs.)
OBDC-GFP-80D-125VDC-PNL	704571	\$129.00	2.0

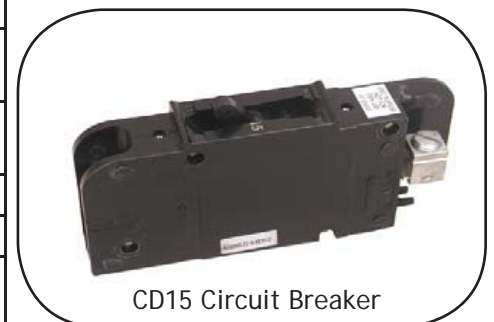


OBDC

Xantrex Disconnect

The Xantrex DC175 / DC250 disconnect offers the ultimate in terms of overcurrent protection and a disconnect means for your inverter all in one enclosure. It also interfaces very nicely with the Xantrex SW, PS & DR series inverters. These disconnects can also serve as a central wiring point for your system by housing a DC bonding block and/or shunt. Each disconnect comes with one main 175A or 250A breaker with space for adding a second breaker. Four smaller knockouts on the side can each house a 15-60A DC breaker for solar input or DC load output. Size 21" x 10.5" x 4.8".

Product Name and Description	Part Number	Price	Shipping Weight (lbs.)
DC250 - 250 Amp breaker and enclosure (for #4/0 cables).	704219	\$329.00	16.0
DC175 - 175 Amp breaker and enclosure (for #2/0 cables).	704222	\$329.00	16.0
GJ250 - Additional 250 Amp breaker	704223	\$195.00	3.0
GJ175 - Additional 175 Amp breaker	705225	\$195.00	3.0
CD60DC - 60 Amp circuit breaker	704225	\$39.00	1.0
CD15 - 15 Amp circuit breaker	705451	\$35.00	1.0
CD20 - 20 Amp circuit breaker	704226	\$35.00	1.0
DCBB - Negative / ground block handles up to four #4/0 cables	704224	\$75.00	1.0

DC250
Breaker / Enclosure

CD15 Circuit Breaker



MidNite Solar, Inc. PV Combiner [MNPV]

The MNPV3 and MNPV6 combiners are rated for outdoor use. Although designed primarily for combining PV strings up to 150VDC, the MNPV may be used for combining high voltage strings using MNATM fuses up to 15 Amps. The use of touch safe DIN rail mount fuse holders and fuses allow operation up to 600 Volts. The MNPV6 combiner comes with two copper bus bars. One for circuit breakers and one for fuses. The MNPV3 busbar is designed for circuit breakers only. MNPV6 is rated for 150VDC, 120 Amps total output. MNPV6 accepts up to four strings using touch safe fuse holders rated for 600VDC, 60 Amps.

Can be used for a DC load center by using MNPV breakers. MNPV combiners are powder coated aluminum.

PV negative bus bar and chassis ground bus bar have 14 usable openings (10 #14-6 and 4 #1/0-14)

Both feature a dead front cover for safety.

Knock outs on bottom and sides.

ETL listed for exterior use in the US and Canada for up to 3/12 pitch MNEPV breakers are available in: 1,2,3,4,5,6,7, 8,9,10,12,15,20,30,40,50 & 63 Amps



MNPV 6 Combiner

Product Name and Description	Part Number	Price	Shipping Weight (lbs.)
MNPV-3	706521	\$89.00	2.0
MNPV-6	706947	\$109.00	4.0
MNTS Touch Safe fuse holder	706949	\$13.00	<1.0
MNATM6 600VDC, 6 Amp fuse	706971	\$13.00	<1.0
MNATM10 600VDC, 10 Amp fuse	706972	\$13.00	<1.0
MNATM15 600VDC, 15 Amp fuse	706973	\$13.00	<1.0
MNPV6 BUSBAR	706522	\$15.00	<1.0
MNPV6 FUSE BUSBAR	706528	\$13.00	<1.0
MNPV3 BUSBAR	706523	\$13.00	<1.0
MNEPV15 DIN rail mount breaker	706524	\$13.00	<1.0
MNEPV20 DIN rail mount breaker	706974	\$13.00	<1.0
MNEPV30 DIN rail mount breaker	706975	\$13.00	<1.0

DC Overcurrent Protection

These 125 VDC rated breakers are for DC inputs / loads and power inverters. The Amps Interrupt Capacity, AIC, rating is in accordance with UL489.

Product Name and Description	Part Number	Amperage	Stud Terminal Size	Price	Shipping Weight (lbs.)
OBB-250-125VDC-PNL	704254	250	3/8"	\$137.00	3.0
OBB-175-125VDC-PNL	704255	175	3/8"	\$137.00	3.0
OBB-125-125VDC-PNL	704249	125	5/16"	\$63.00	1.0
OBB-100-125VDC-PNL	704256	100	5/16"	\$63.00	1.0
OBB-80-150VDC-PNL	705480	80	1/4"	\$27.00	1.0
OBB-60-150VDC-PNL	704257	60	1/4"	\$27.00	1.0
OBB-50-150VDC-PNL	705468	50	1/4"	\$27.00	1.0
OBB-40-150VDC-PNL	704258	40	1/4"	\$27.00	1.0
OBB-30-150VDC-PNL	704259	30	1/4"	\$27.00	1.0
OBB-20-125VDC-PNL	704279	20	1/4"	\$27.00	1.0
OBB-15-150VDC-PNL	704260	15	1/4"	\$27.00	1.0
OBB-10-150DC-PNL	704261	10	1/4"	\$27.00	1.0



DC Overcurrent Protection

AC Overcurrent Protection

All AC breakers are DIN rail snap-in mount and can be used for AC input or load circuits. All breakers accept #2 to 14 AWG wire. OutBack AC breakers are hydraulic magnetic type which are not sensitive to ambient temperature like other breakers in the market.

Product Name and Description	Part Number	Amperage	Panel Space Width	Price
OBB-60-277VAC-DIN	704567	60	1/2"	\$20.00
OBB-50T-480VAC-DIN	704567	50	1 1/2"	\$63.00
OBB-50D-480VAC-DIN	704243	50	1"	\$41.00
OBB-50-277VAC-DIN	704242	50	1/2"	\$20.00
OBB-30T-480VAC-DIN	704565	30	1 1/2"	\$63.00
OBB-30D-480VAC-DIN	704564	30	1"	\$41.00
OBB-30-277VAC-DIN	705470	30	1/2"	\$20.00
OBB-15-277VAC-DIN	704563	15	1/2"	\$20.00
OBB-10-277VAC-DIN	704562	10	1/2"	\$20.00
OBB-25D-240VAC-DIN	705466	25	1"	\$41.00
OBB-20D-240VAC-DIN	704561	20	1"	\$41.00
OBB-20-120VAC-DIN	704241	20	1/2"	\$20.00
OBB-15D-240VAC-DIN	705469	15	1"	\$41.00
OBB-15-120VAC-DIN	704240	15	1/2"	\$20.00



AC Overcurrent Protection