

INVERTER CABLES AND DISCONNECTS

INVERTER CABLE NOTES

Your inverter cables should be sized long enough to "cross-corner" wire to your battery bank. This means the positive and negative inverter leads should be attached to the bank at opposite ends or corners, not at the same end. (See any of the kit diagrams on pages 8 to 25.) The inverter cables should also be of equal length even though it seems that cross corner wiring would force one cable to be much longer than the other. The cables should be taped together in a parallel fashion as far as possible before breaking towards their respective corners.

Once the length is determined, it is imperative that the cables be the right gauge. Inverter manufacturers would like zero voltage drop at the input of their inverters. While this is impossible, the voltage drop must be limited to less than 2%. It may seem that the sizes of the inverter cables are extreme. However, this is what is required for proper inverter operation.

Inverter Cables

These inverter cables are made from high quality battery cable and are sold in pairs. Ring terminals with 5/16" diameter holes are crimped on each end using a professional crimping tool which results in a gas-tight connection. The crimps are covered with glue-sealing heat shrink tubing—Red for the Positive cable and Black for the Negative cable. Consult the chart below for the correct gage cable according to inverter size and length of cable needed.

Number	Gage/Length	Price	>5' + /Ft.
312-045	4 Ga 5' Pair	\$43	\$6.00
312-0410	4 Ga 10' Pair	\$65	
312-025	2 Ga 5' Pair	\$49	\$7.00
312-0210	2 Ga 10' Pair	\$89	
312-205	2/0 Ga 5' Pair	\$79	12.00
312-2010	2/0 Ga 10' Pair	\$139	
312-405	4/0 Ga 5' Pair	\$119	\$20.00
312-4010	4/0 Ga 10' Pair	\$219	

Class T Fuse & Fuse Block

355-001	110A Class T Fuse & Fuse Block	\$69
355-002	200A Class T Fuse & Fuse Block	\$69
355-004	300A Class T Fuse & Fuse Block	\$83

The Class T Fuse Block reliably protects high amperage components from overloads and short circuit damage. It utilizes a Class T fuse which provides the highest amps of interrupting capacity (AIC) of any comparable fuse or breaker. The Class T-Fuse Block is designed with protective cover and base to meet the installation requirements of the National Electrical Code.



Replacement Class T Fuses

346-110	110A Class T fuse	\$26
346-200	200A Class T fuse	\$26
346-300	300A Class T fuse	\$45

AMPACITY of COPPER WIRE @ 75° C		
Wire Gauge	In Conduit	In Free Air
14 AWG	15 amps	20 amps
12 AWG	20 amps	25 amps
10 AWG	30 amps	40 amps
8 AWG	45 amps	65 amps
6 AWG	65 amps	95 amps
4 AWG	85 amps	125 amps
2 AWG	115 amps	170 amps
1/0 AWG	150 amps	230 amps
2/0 AWG	175 amps	265 amps
3/0 AWG	200 amps	310 amps
4/0 AWG	230 amps	360 amps

Manual Transfer Switch

753-101 MNTransfer - 240VAC

\$139

This switch, mounted in a Big Baby Box, consists of two 60A two-pole breakers interlocked such that either a generator or the power lines could supply an inverter with power to charge the battery bank. The inverter would be connected to a sub-panel for backed-up loads. This switch comes with a neutral bus bar and ground box terminal. Wiring diagrams are supplied.



Size: 8"H x 5"W x 3.5"D

(This is not a by-pass switch. This box can be converted to act as 120VAC (only) by-pass switch. See below.)

Inverter Bypass Box

753-102 Inverter Bypass Box-120VAC \$139

An inverter bypass box is used to let the generator bypass the inverter and directly feed the AC distribution panel. The box consists of two dual circuit 60A breakers and a special interlock which forces one breaker to be in the "off" position when its mate is "on" and vice-versa. In the on position the generator current flows through the inverter, charging the battery bank and powering the AC loads. In the by-pass position the generator current flows directly to the AC distribution panel and the inverter is completely out of the circuit. This is useful for testing purposes, or for when the inverter must be removed from the system. The box is prewired and can handle up to 60 amps.

Inverter Disconnect and Cable Size					
Inverter Model	Breaker Size	Class "T" Fuse	Minimum Cable Gauge (in free air)		
			<5'	5'-10'	11'-20'
1500W 12V	175 A	200 A	2/0 Ga	2/0 Ga.	4/0 Ga.
2000W 12V	250A	300A	2/0 Ga,	4/0 Ga.	N/R
2800W 12V	250 A	300 A	4/0 Ga.	4/0 Ga.	N/R
1500W 24V	175 A	110 A	2 Ga	2 Ga.	2/0 Ga.
2000W 24V	175 A	110 A	4 Ga	2 Ga.	2/0 Ga.
2400W 24V	175 A	200 A	2/0 Ga.	2/0 Ga.	4/0 Ga.
3600W 24V	250 A	300 A	4/0 Ga.	4/0 Ga.	4/0 Ga.
4000W 24V	250 A	300 A	2/0 Ga.	4/0 Ga.	4/0 Ga.
4500W 48V	175 A	200 A	2/0 Ga.	2/0 Ga.	4/0 Ga.
6000W 48V	250 A	300 A	4/0 Ga.	4/0 Ga.	4/0 Ga.

INVERTER CABLES AND DISCONNECTS

MidNite Solar E-Panels

757-001	For Magnum PAE Inverters MNE175/250STM-L-240	\$799
757-016	For Magnum MS Inverters MNE175/250STM-L	\$619
757-016	For Magnum RD Inverters MNE175/250STM-L	\$619
757-003	For Magnum MM Inverters MNE125STMM-L	\$529
757-002	For OutBack VFX Inverters MNE175/250STS-L	\$619
757-010	For Xantrex XW Inverters MNE250XW	\$950
757-004	Mini Disconnect MNDC175/250	\$250

MidNite Solar has a full line AC/DC disconnects for all brands of inverters and charge controllers. We now feature these disconnects in almost all of our kits.

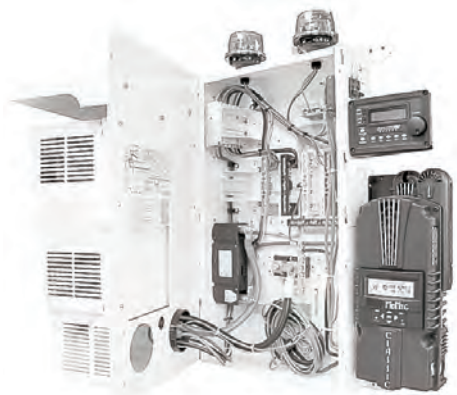
The E-Panels include AC bypass and AC input disconnect breakers pre-wired to terminals strips for easy AC wiring installation. There is room for 6 additional AC or DC din rail mounted breakers and 3 to 4 DC panel mount breakers. The main inverter breaker (175A or 250A) is installed with positive and negative inverter cables from the disconnect to the inverter. (Cables to the battery bank are extra.) Also included is a 500amp/50mv shunt with negative bus bar attached, a battery plus bus bar, a PV array bus bar, AC bus bars, a ground bus bar, and lots of hardware for mounting and wiring charge controllers to the disconnect. Wall mounting brackets and complete illustrated instructions complete the package.

The boxes are made of powder coated steel or in some cases, powder coated aluminum.

E-Panels are by far the nicest, easiest-to-use disconnects in the business.

E-Panel Options

757-006	White Bus Bar	\$17
757-007	Red Bus Bar	\$17
757-008	Black Bus Bar	\$17
343-0xx	DC Din Rail Breakers 10,15,20,30,40,63 Amps 150VDC AIC 10,000	\$15
344-0xx	AC Din Rail Breakers 120VAC 10,15,20,30,40,50,60,Amps AIC 10,000 Hold 100% Rated A	\$17
746-xxx	DC Panel Breakers 150VDC 10,15,20,30,40,650,60,70,80 90 & 100 Amps AIC10,000	\$25
746-125	DC Panel Breaker 125A 125VDC AIC 10,000	\$25
746-175	DC Panel Mount Breaker 175A 125V AIC 10,000	\$109
746-250	DC Panel Mount Breaker 250A 125V AIC 10,000	\$109
757-009	Array Ground Fault Breaker 63A 150VDC DIN-Rail Mount	\$69
757-017	Array Ground Fault Breaker 80A 150VDC Panel Mount	\$89



MidNite E-Panel shown with Magnum MS-PAE Inverter, a Classic 150 Charge Controller and two MidNite MESP300 Lightning Arrestors



Magnum E-Panel



Mini Disconnect