

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. |

DC FUSES and BUS BARS

ATC Fuse Box

- 354-007 ATC Fuse Box, 6 Positions \$18.00**
1.5" x 5.5" x 4.5" Plastic
- 354-009 ATC Fuse Box, 9 Positions \$35.00**
1.75" x 4.5" x 7" Metal

These fuse boxes use ATC automotive type fuses for DC distribution. They can be used in a camp or small cottage where a large DC distribution system isn't required. They have lugs to receive up to #4 ga. input wires. They have either a 6 or a 9 circuit fuse block and a negative bus both which will accept up to #10 ga. wires.



ATC Fuse Block

- 354-006 ATC Fuse Block \$12.00**

This 6 position fuse block will accept #10 ga. wire in its distribution terminals. The main power lug accepts #4 ga. wire. The negative bus bar has 11 holes which accept #10 ga. or smaller wire and 4 holes which accept #2 ga. or smaller wire. Use this fuse block along with the negative bus bar to make your own DC distribution panel.



ATC Fuse Holders

- 354-001 18 Ga. 3" Pigtails \$2.00**
Cover Included
- 354-002 12 Ga. 4" Pigtails \$2.50**
Cover Included

These ATC fuse holders can be used for that instance when only one fuse may be needed. They are effective and safe, and certainly better than no fuse at all. See below for fuses.



ATC Fuses

- 345-002,005,-010,-015,-020,-025,-030 \$0.35 each**
2 thru 30 amps respectively

Use these fuses in the ATC fuse boxes, fuse block or fuse holders described above.



Maxi Fuse Holders

- 354-004 6 Ga. Maxi Fuse Holder \$13.00**
Cover Included

Use the Maxi Fuse and fuse holder when a



larger than 30A fuse is required.

Maxi Fuses

- 347-020,-030,-040,-050,-060 \$2.00**
20 through 60
amps respectively

Use the Maxi fuses in the fuse holders described above.



Fuse Blocks

- 354-030 30 A Fuse Block \$15**
- 354-060 60 A Fuse Block \$19**

These are fuse holders for RK5 cartridge fuses. They can be used in situations where safety is desired, but code may not be required. They should be installed in an inaccessible place; or you should manufacture a cover for them. Fuses are available at most "big box" stores.



MidNite Solar Bus Bars

- 757-006 White Bus Bar \$17**
- 757-007 Red Bus Bar \$17**
- 757-008 Black Bus Bar \$17**
- 757-019 Ground Bus Bar \$13**

These bus bars are mounted in plastic end-cap insulators for use in all kinds of AC and DC wiring. The bar has four 1/0 and eleven #6 useable wire slots. Two 10-32 mounting screws are provided. The ground bar omits the end-cap insulators. Dimensions: 4.75"L x 7/8"W x 1.75H



Terminal Block

- 325-004 \$11**

This is a four position terminal block rated for 85 amps. It will accept up to 4 AWG wire. It can be used to facilitate wiring between your array and charge controller.

L 2-3/8" D 1-1/4" H 1-1/8"

Terminal Block

- 325-006 \$8**

This is a six position terminal block rated for 63 amps. It will accept up to 6 AWG wire. It can be used to facilitate wiring between your array and charge controller.

L 3-3/8" D 1-1/16" H 1-1/16"

