

QUICKSTART "BASIC" INSTRUCTIONS FOR MODEL 1000 INVERTERS



Refer to Manual 1000-065 for complete installation instructions.

Energy Hazard
Dangerous Voltage Present

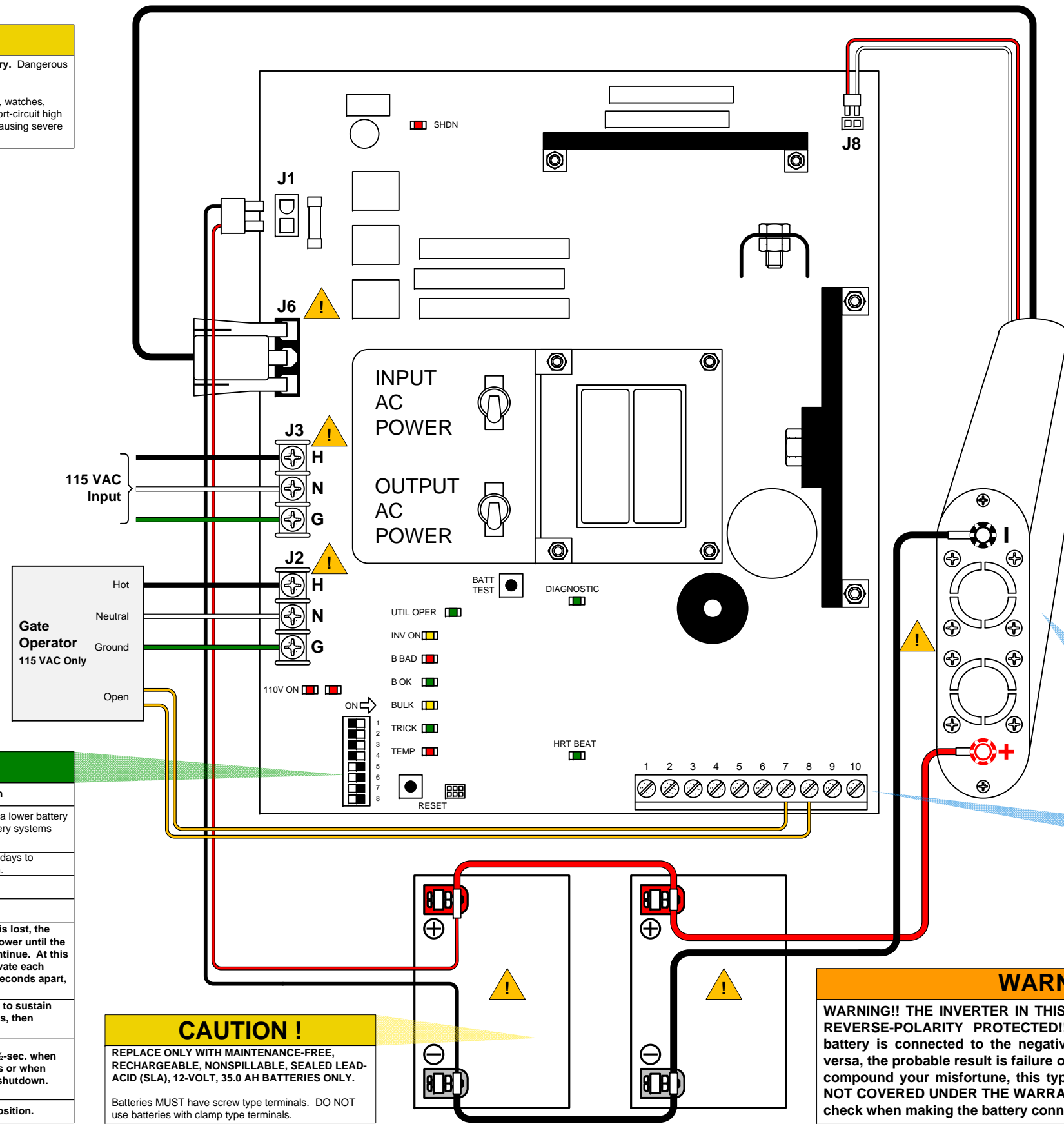
CAUTION !
The Model 1000 produces lethal voltages. It should be installed by a qualified licensed electrician and operated with care and attention. The batteries are capable of supplying hazardous current.

CAUTION !
Risk of Energy Hazard, 12 V, 35 AH Battery. Dangerous voltages are present even when AC is off.
Remove personal metal items such as rings, watches, bracelets, etc. These items can cause a short-circuit high enough to weld a ring, or the like, to metal causing severe burns.

Modified Sine Wave
The DKS Model 1000 Power Inverter uses a modified sine wave as the AC output. Because of this, vehicular gate operators that use a current sensor device (ERD) as an inherent entrapment protection system can experience false entrapment inputs when the inverter powers the gate operator. DKS gate operators that use an ERD have been specifically designed to work within the limits of the modified sine wave.

LED Status Indicators	
LED	Description
UTIL OPER	GREEN – Indicates 115 VAC power output at J2 is sourced from the utility company and the inverter is in stand-by mode.
INV ON	YELLOW – Primary power is unavailable and 115 VAC at J2 is being sourced from the inverter.
B BAD	RED – Blinking indicates that the battery has been tested low. ON indicates battery is bad.
B OK	GREEN – Battery has been tested and is good.
BULK	YELLOW – ON indicates battery is being bulk charged. Blinking indicates battery is at 90% full charge.
TRICK	GREEN – Battery is fully charged and system is applying a trickle charge to maintain battery at full strength.
TEMP	RED – Battery is not being charged. Temperature is outside the safe operating range: 23°F (-5°C) to 126°F (52°C).
SHDN	RED – System is shutdown because of low battery voltage.
110V ON	RED – 115 VAC is present at power output terminal J2.
DIAGNOSTIC	GREEN – Status of charge state. Used by DK technicians only for troubleshooting.
HRT BEAT	GREEN – Blinking indicates that the microprocessor is operating.

Switch Settings (bold = default)			
SW	Description	OFF Position	ON Position
1	Low Battery Shutdown	HIGH – Shutdown occurs at a higher battery voltage. Use with heavier gates.	Low – Shutdown occurs at a lower battery voltage. Use with two battery systems and/or lighter gates.
2	Battery Test	Battery test OFF.	Battery is tested every few days to determine battery condition.
3	Number of Batteries	Two (2) batteries.	One (1) battery.
4	Beep Alert	Beep alert is OFF.	Beep alert is ON.
5	Relay Activation on AC Power Loss	When primary AC power is lost, relays will activate immediately to open gate, then the system will enter a shutdown condition.	When primary AC power is lost, the system will provide AC power until the battery is too weak to continue. At this time, the system will activate each relay individually for 55 seconds apart, then shutdown.
6	Low Battery	When battery is too weak to sustain operation, system will shutdown.	When battery is too weak to sustain operation – activate relays, then shutdown.
7	Relay Activation on AC Power Restore	Relays are not activated.	Relays are activated for ½-sec. when primary AC power returns or when board powers up from a shutdown.
8	Not Used	N / A	Not used – leave in ON position.



CAUTION !
REPLACE ONLY WITH MAINTENANCE-FREE, RECHARGEABLE, NONSPILLABLE, SEALED LEAD-ACID (SLA), 12-VOLT, 35.0 AH BATTERIES ONLY.
Batteries MUST have screw type terminals. DO NOT use batteries with clamp type terminals.

WARNING !
WARNING!! THE INVERTER IN THIS BACKUP POWER SYSTEM IS NOT REVERSE-POLARITY PROTECTED!! If the positive terminal of the battery is connected to the negative terminal of the inverter and vice versa, the probable result is failure of every power FET in the inverter. To compound your misfortune, this type of failure is very obvious AND IS NOT COVERED UNDER THE WARRANTY. Pay close attention and double check when making the battery connections.

WARNING !

Do Not connect batteries until installation and wiring is completed. The batteries will be the last component to be connected.
Use No. 12 AWG Copper wire for AC input and AC output connections.
Never disconnect the batteries while the system is delivering power or the battery charger is operating. Always turn the system OFF first.
The Model 1000 must be connected to a grounded, permanent wiring system.

WIRING INSTRUCTIONS

1. Insure both AC INPUT and OUTPUT switches are in the OFF (Down) position.
2. Insure that Plug J1 **IS NOT** plugged into circuit board.
3. Insure that Plugs J6 and J8 **ARE** plugged into the circuit board.
4. Connect 115 VAC Output at J2 to gate operator AC power input terminals: H to Hot, N to Neutral, G to Ground.
5. Connect 115 VAC utility power to J3: Black to H (Hot), White to N (Neutral), Green to G (Ground).
6. Connect normally open relay contacts (J4 Term 7 & 8) to gate operator open input terminals.
7. Connect the RED wire from J1 to the POSITIVE battery terminal. Connect the Black wire from J1 to the NEGATIVE battery terminal.
8. If two (2) batteries are being used, they must be connected in parallel; POSITIVE to POSITIVE; NEGATIVE to NEGATIVE.
9. **OBSERVE BATTERY POLARITY!** Connect RED battery cable to the POSITIVE (Red) terminal on the inverter. Connect the BLACK battery cable to the NEGATIVE (Black) terminal on the inverter.
10. Be sure ALL battery connections are tight.
11. Insert J1 into the circuit board.

INVERTER

1000 Watt Inverter (P/N 1000-080) for use with a single ½ HP operator only. 1000 Watt Inverter can operate with one (1) or two (2) batteries.
1500 Watt Inverter (P/N 1000-081) for use with a single 1 HP operator, or can be used with two (2) ½ HP operators. 1500 Watt Inverters MUST use two (2) batteries.

TERMINALS

1. RS-232 Serial Data (D9-Pin 2)
2. RS-232 Busy (D9-Pin 4)
3. RS-232 Ground (D9-Pin 5)
4. Signal Ground
5. Not Used
6. Not Used
7. Relay 1 Norm Open
8. Relay 1 Com
9. Relay 2 Norm Open
10. Relay 2 Com