



Invert™ Pure Sine Wave Inverter

1500 and 2000 Watt Pure Sine Wave Inverters

Purkeys Invert™ Pure Sine Wave inverters provide reliable 110 VAC power in heavy-duty vehicles. Inverters are available in 1500 and 2000 watts.

For features and benefits see page 4.



Specifications:

Battery System Voltage 12 VDC
 Input DC Voltage (operating).....9.5-16.0V +/-2%
 Absolut Maximum Input DC Voltage..... 20.0 V
 Nominal Input Current150 A/200 A
 (Max Continuous Load)
 Input Current (Surge)300 A/400 A
 Input Current at No Load..... < 0.5 A
 Quiescent Current (Inverter off).....< 25 mA
 Maximum Continuous Output Power..... 1500 W/2000 W
 Surge Output Power (<2 Seconds) 3000 W/4000 W
 Output Waveform..... Pure Sine
 Output Voltage..... 115 VAC +/-10%
 Output Frequency 60 Hz +/-5%
 Efficiency (at 10-100% Output)>86%
 Peak Efficiency 94%
 Operating Temperature Range-4° F to 98° F
 (-20° C to 37° C)
 Over Temperature Shutdown..... 149° F (65° C)
 Over Temperature Recovery113° F (45° C)
 Operating Humidity..... < 90%
 LVD Threshold.....Dynamic

Auxiliary I/O Input Voltage0-16.0 V
 Auxiliary I/O Input Resolution 15 mV
 Auxiliary I/O Input Impedance..... 167 K Ohm
 Auxiliary I/O Output Type..... Active Low
 Maximum Auxiliary I/O Output Current 0.4 A
 Maximum USB Output Current.....2.4 A
 Neutral to Chassis Bonding No, neutral is floating
 Weight..... 10.3 lbs./12.6 lbs. (4.7 kg/5.7 kg)
 Shipping Size.....7”x13”x19”/7”x15 x 20”
 Shipping Weight 13 lbs/15 lbs
 Controller Cables Supplied 1 ft and 8 ft

Note: The inverter controller cable can be CAT5, CAT5e, or CAT6 and must have male RJ45 connectors on both ends (shielded or unshielded are both okay).

We recommend :

- the conductor in the cable be 24 gauge or larger
- the cable be 16’ or shorter

The cable must be 8 position and 8 conductor (8p8c) and it cannot be a cross-over cable. Most RJ45/Ethernet type cables will work as long as the conductors are 24 gauge or larger.

DynaBalance™ Monitoring Technology

The Invert comes with a patent-pending controller that measures input voltage and input current (even under load) to dynamically estimate the battery's state of charge. This enables the controller to indicate available battery capacity and turn off when the battery's state of charge drops to the turn-off point.

Inverters that do not have this functionality can turn off too late if the inverter is only supplying a small amount of power, or too soon when the inverter is supplying high power (such as when powering a microwave).

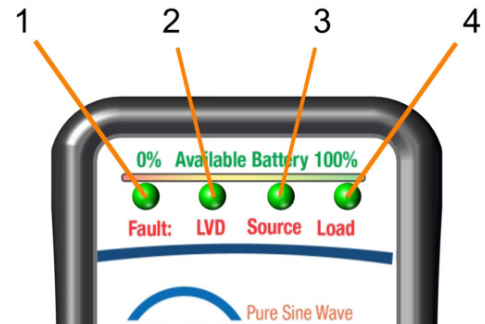
Applications:

- Heavy-Duty Truck Cabs
- Semi-Trailers
- Box Trucks
- Any vehicle application requiring battery protection when using inverters

LED Logic

Normal Operation

LED	Description
ON: NO Fault	
1	Solid Green: Less than 25% (about to shutdown)
2	Solid Green: 25-50% available battery
3	Solid Green: 50-75% available battery
4	Solid Green: 75-100% available battery



Fault Indication

LED	LED STATUS	FAULT	SOLUTION
1	Blinking red	Communication fault	Check cable connection at inverter and controller. Check cable for opens or shorts, replace if necessary.
2	Blinking red	Low Voltage Disconnect	Battery is low, inverter shut off to protect batteries. Turn off inverter, start engine to charge battery.
1, 2	Blinking red Fault LED, solid red LED 2	Undervoltage fault	Voltage to inverter is below 9.5 V, turn inverter off, then back on.
1, 3	Blinking red Fault LED, solid red LED 3	Overvoltage fault	Turn off inverter, correct overvoltage.
1, 3	Blinking red Fault LED, solid red LED 3	Over-temperature fault	Turn inverter off and let it cool down.
1, 4	Blinking red Fault LED, solid red LED 4	Overload fault	Turn off inverter, turn off some of the loads being used.

LVD Function

There are five low voltage disconnect (LVD) settings available on the controller.

Note that unlike other inverters that have a fixed LVD point, these inverters have a dynamic LVD point based on how much current the inverter is drawing from the battery. The approximate voltages listed here are the voltages of the battery after the inverter turns off. The inverter will actually operate down to as low as 9.5 volts under heavy loads. The inverter measures the current draw and dynamically adjusts the LVD point so that after it turns off the unloaded battery voltage will be approximately what is listed here.

Setting	Approximate Voltage	Function
Low 1	11.0	This setting is activated by connecting an active high 12 volt signal (indicating that engine auto-start is enabled) to the auxiliary I/O pin
Low 2	11.8	Default setting. Allows the battery to reach near 0% state of charge (ideal for deep cycle batteries that are not needed to start a truck)
Medium 1	12.0	Allows the battery to reach about 25% state of charge
Medium 2	12.2	Allows the battery to reach about 50% state of charge
High	12.4	Allows the battery to reach about 75% state of charge

Buzzer Function

The Invert controller includes a buzzer function that does the following:

Beep Type	Description
Short Beep	Indicates power button has been pressed
Constant Beep	LVD shutoff warning (will shut off in 30 seconds)

Harness Recommendations

The current rating for the 1500 W inverter is 150 amps and the current rating for the 2000 W inverter is 200 amps. The harness that connects the inverter to the battery must be constructed with cables large enough to safely handle the high currents that the inverter will draw from the battery.

For best operation, cables should also be sized so that the total voltage drop in the cables does not exceed 0.5 volts at the rated output of the inverter. The positive cable must be fused with an appropriately sized fuse so as to protect the cables in case of a short circuit.

The following tables show the acceptable cables gauges, the maximum recommended cable length (length of the positive cable plus the length of the negative cable), and the recommended fuse sizes for harnesses for the 1500 W and 2000 W inverters.

1500 watt inverter:

Wire Gauge	Max Recommended ft. (Pos. Length + Neg. Length)	Recommended Fuse Size
6	-	-
4	13	150
2	21	200
1	27	200
0	34	200
00	43	200
000	54	200
0000	68	200

2000 watt inverter:

Wire Gauge	Max Recommended ft. (Pos. Length + Neg. Length)	Recommended Fuse Size
6	-	-
4	-	-
2	16	200
1	20	250
0	25	300
00	32	300
000	40	300
0000	51	300

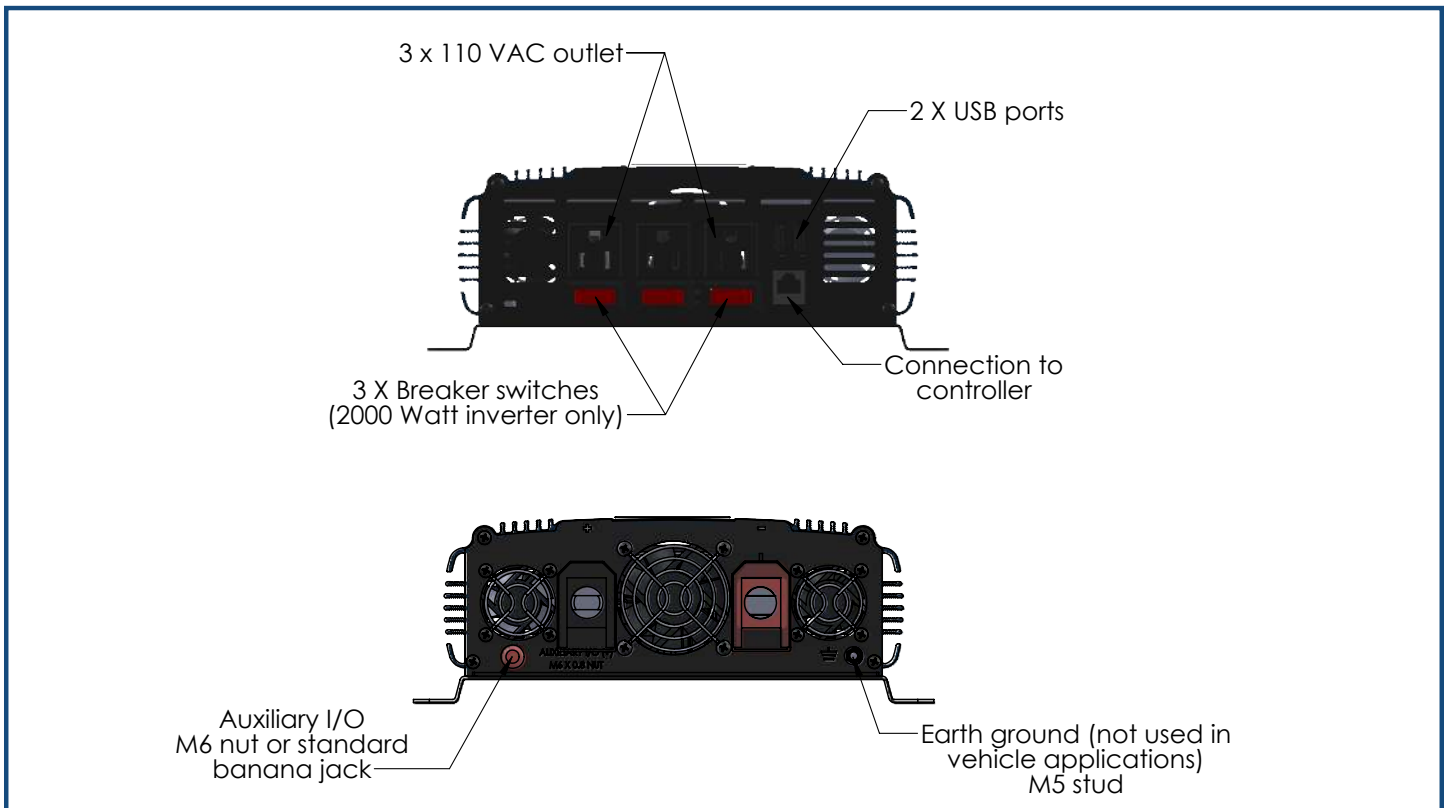
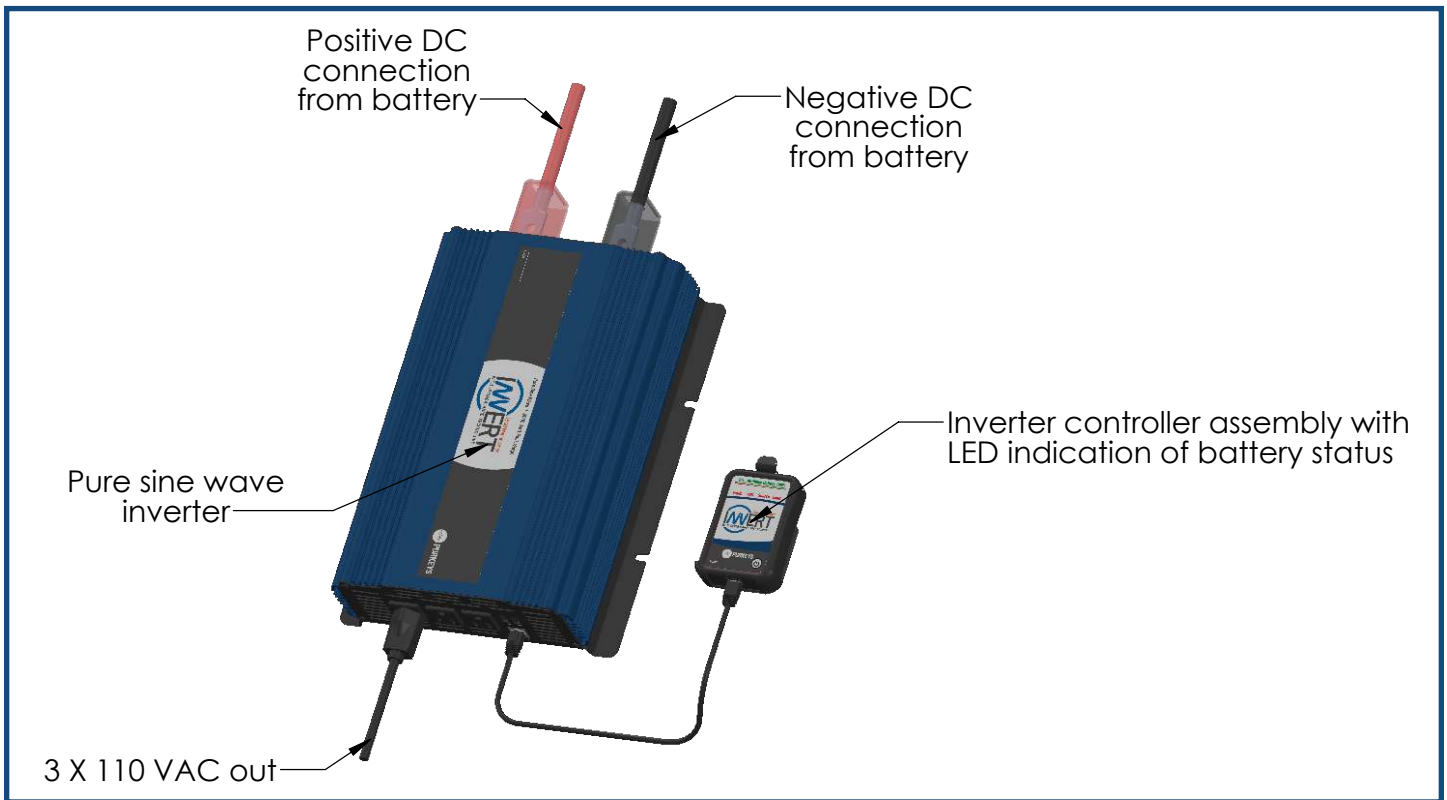
Features:

- Patent-Pending DynaBalance™ Technology
- Controller w/clip
- Pure Sine wave AC power
- Extruded aluminum housing
- 1500 W or 2000 W AC power
- 3000 W or 4000 W surge power
- Pre-shutdown warning buzzer
- Will function with input voltage as low as 9.5 V
- Selectable shut-down point
- Auxiliary input or output
- Heavy-duty lug terminals with 3/8” bolts
- Temperature-controlled fan cooling
- 3 NEMA5-15R AC power outlets
- Individually switched AC outlets (2000 W only)
- 2 USB power ports.....
- Flanged mounting
- Overload protection.....
- Undervoltage protection.....
- Overvoltage protection.....

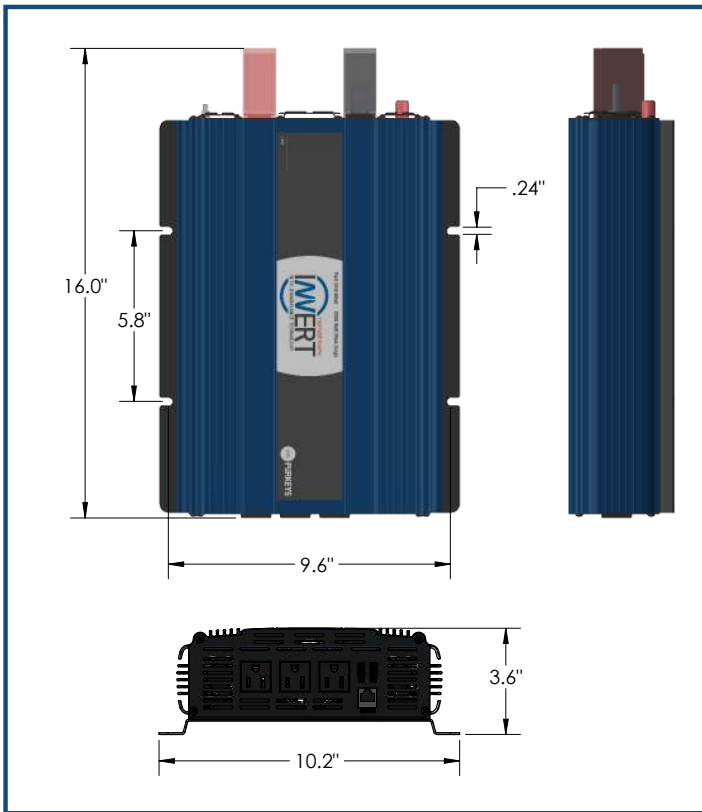
Benefits:

- Provides AC power while protecting truck batteries from discharging too deeply
- Puts control and indication where it is needed
- Powers any AC device, just like AC power in your house
- Durable, helps dissipate heat quickly
- Plenty of power when you need it
- Plenty of power when devices first power on
- Alerts driver before shutting down due to low voltage
- Will not turn off or reset during engine crank (important when powering medical devices such as CPAPs)
- Allows inverter to be configured for the application
- Can be specially configured to meet a unique fleet requirement (minimum purchase required)
- Allows for easy, robust cable connections
- Stays cool and runs quietly
- Provides sufficient connections for most applications
- Convenient AC power switching
- Convenient 5 V power for electronic devices
- Easy and secure mounting
- Protects itself from overload or short circuit
- Protects itself from undervoltage
- Protects itself from overvoltage

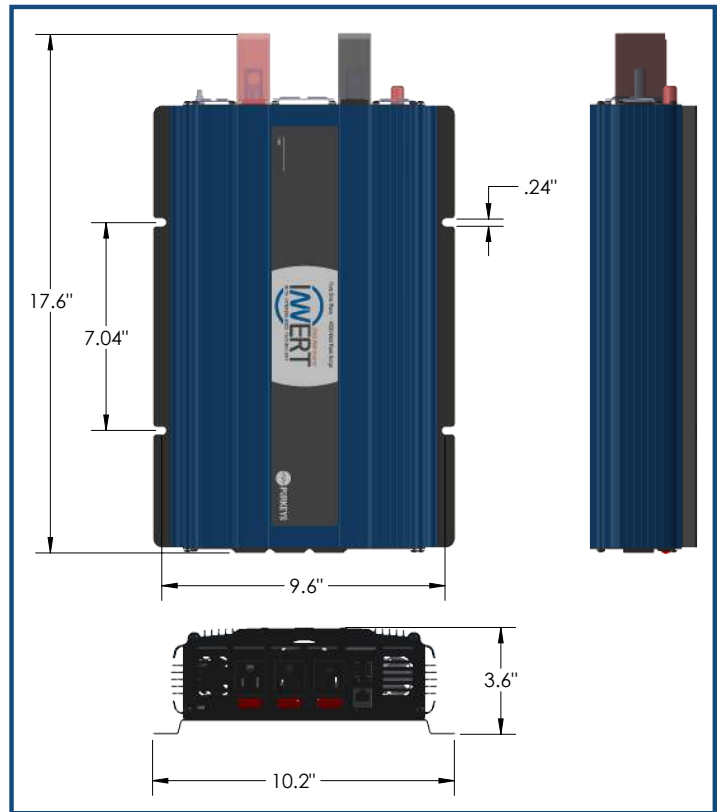
Call-outs:



1500 Watt Inverter Dimensions:



2000 Watt Inverter Dimensions:



Controller Dimensions:

