

Power Assembly



INVERTER FOR DC CRANE CABIN 3/5KW

In many locations, having air conditioning in a crane cabin is very important for the crane operator. But inexpensive 120V or 240V air conditioning units cannot easily be used on cranes supplied by a DC bus. With this inverter, you can also supply electrical devices like: lights, heaters, and vacuums.

This inverter is adapted to convert 250Vdc system voltages to 120/240Vac to allow the use of standard air conditioning units on DC cranes. In addition, the inverter is specifically designed to operate in the harsh environmental conditions found near cranes.



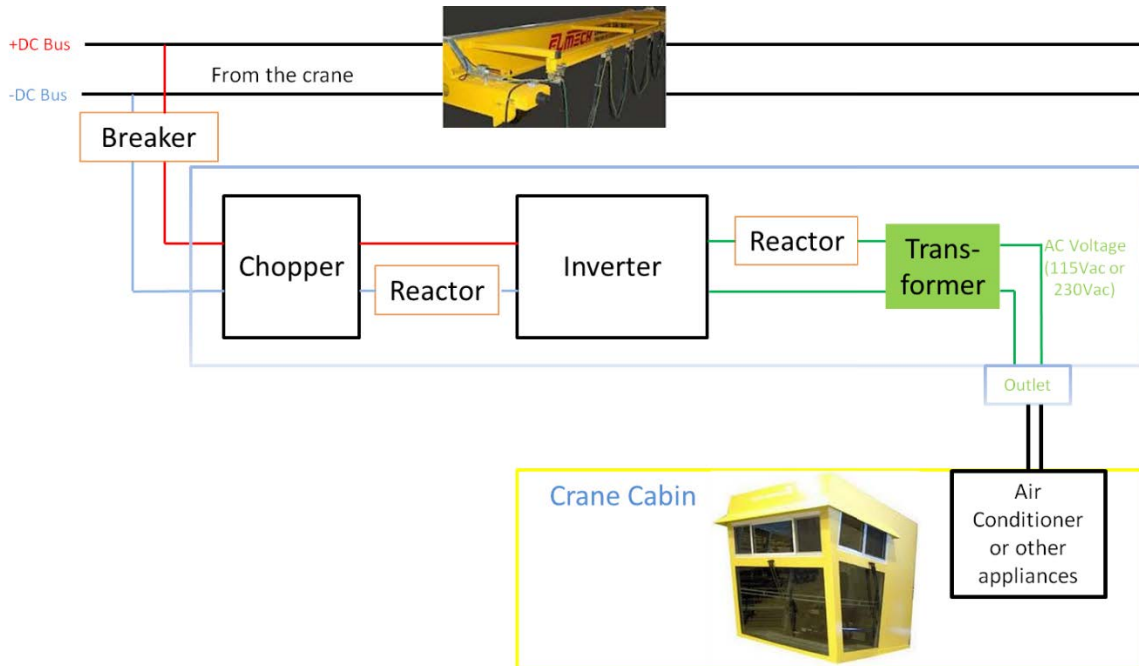
TECHNICAL SPECIFICATIONS

Our product has been designed based on the standard requirements of the industry. If the specifications below do not match your needs, please contact us and we will customize our design for your specific application.

Output power version	3kW		5kW	
Part number	A037270		A037305	
DC Line input				
Steady State voltage	250 to 400 Vdc RMS			
Max (Temporary) voltage	200 to 650 Vdc RMS			
Under voltage trip point	185 Vdc RMS			
AC output (all inverters have 115Vac and 230Vac outputs available)				
Output voltage	Output 1	Output 2	Output 1	Output 2
	1p/115VAC	1p/230VAC	1p/115VAC	1p/230VAC
Frequency	60Hz	50/60Hz	60Hz	50/60Hz
Max Load nominal current	18A	9A	30A	15A
Max allowable starting current	48A	24A	79A	40A
Max Power	10,000 BTU/hr		17,000 BTU/hr	
Operating limits				
IP rating	(NEMA 4 & 12)			
Operating temp. range	32 – 122°F (0 - 50°C)* *Cold start Option available for low temp. <32°F/0°C			
Humidity	0 – 90%			
Inverter cabinet dimensions	777 x 354.5 x 476.5mm			
	30.6 x 14 x 18.8 inch			
Weight	156lbs / 71Kg		195lbs / 89Kg	

ELECTRICAL SPECIFICATIONS

Electrical Diagram:



We recommend that you install a fused service disconnect or safety switch similar to the Square D D321NRB or GE TG3221 between the Crane DC Bus and the power input to the Crane Inverter box. The DC Input to the Inverter needs a fuse rated at the below current following your product version. Please follow the wiring instructions bellow. There is a diode protection circuit that prevents damage to the inverter in case the + and - are inadvertently reversed.

Fuse rating:

3kW-115Vac version: 25 to 30Amps

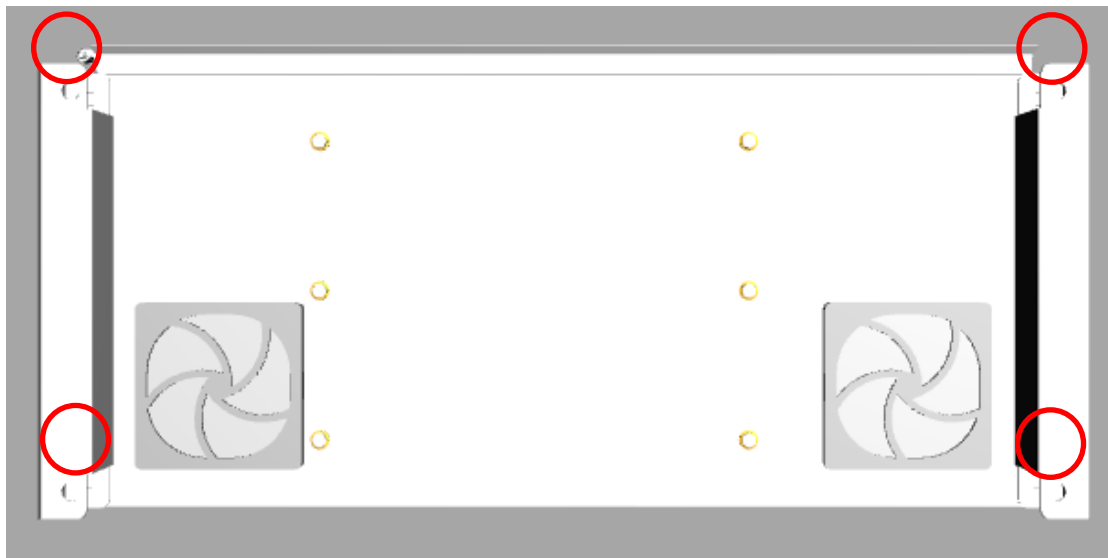
5kW-115Vac version: 50 Amps

Voltage Over/Under-protection Algorithm

There is a circuit in the Adelsler Crane Inverter that protects the output section in the event that the input DC bus falls below 185VDC or rises above 550VDC. When the input voltage is outside this range, the inverter disables the output for a period of 45 seconds. The reason for this time delay is to allow for an air conditioner compressor to return to a low pressure condition and prevent the air conditioner from demanding a spike of current from the inverter which would then cause the inverter to shut down (again) in response. Once the input voltage returns to the voltage level of 250-450VDC, the inverter will wait 45 seconds and resume normal operations. The crane operator may notice the momentary interruption in air conditioning during some crane operations which affect the DC bus voltage. The inverter is designed to withstand momentary spikes on the DC bus not to exceed 725 VDC.

Mounting instructions

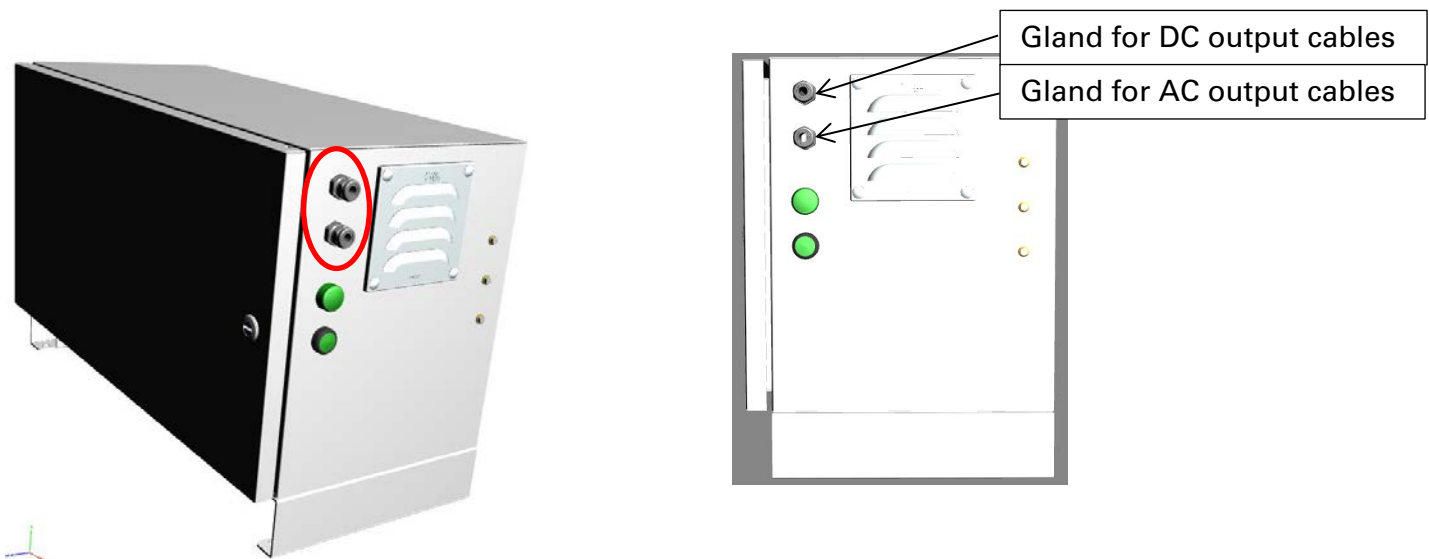
You can screw the inverter using the 4 holes (red circles) on the bottom of the inverter. Use proper screws, nuts and washers to fix the enclosure safely. See picture below.



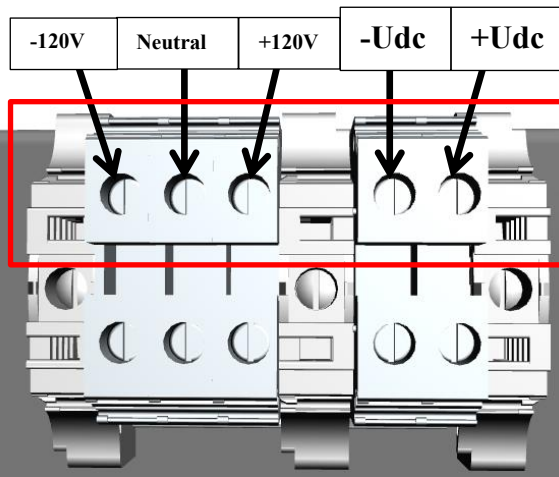
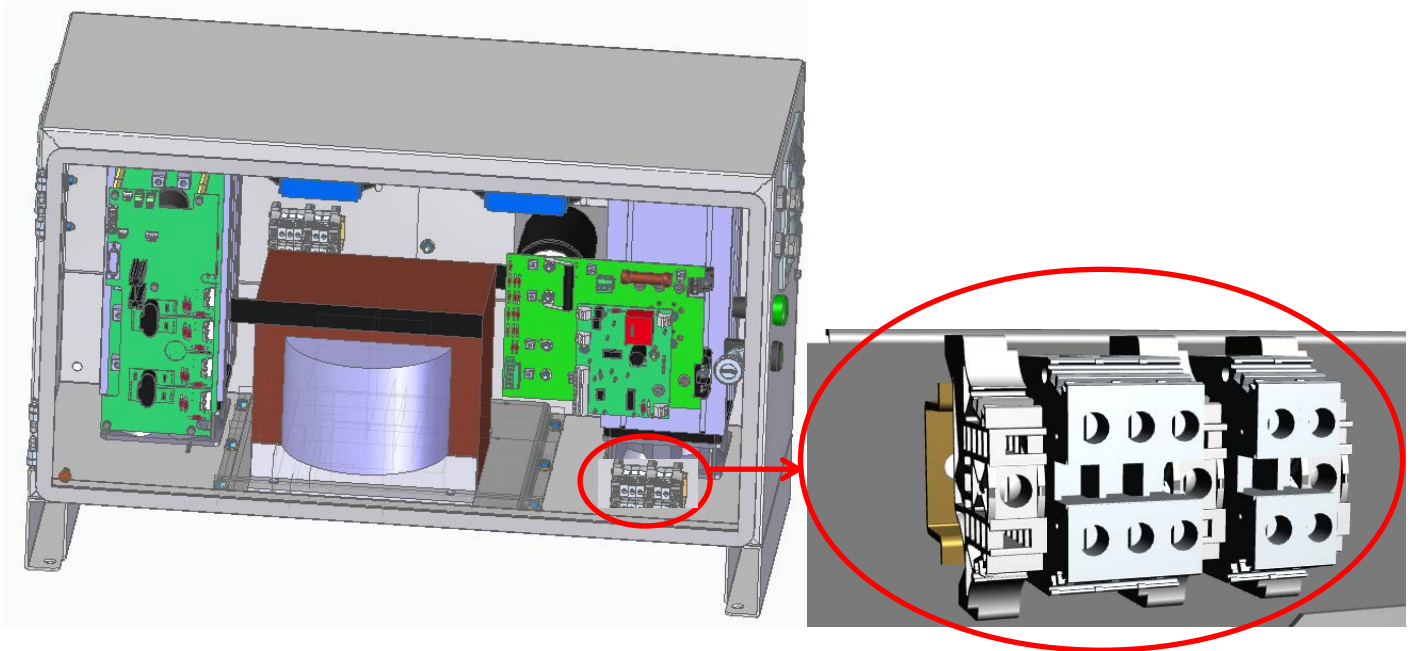
Wiring instructions

- To wire the inverter you must use 10AWG wires or bigger.
- All the wires need to be properly crimped and screwed to the terminal.
- 2 wires are needed for the DC
- 3 wires are needed for the 120Vac option and 4 wires are needed for the 240Vac option.(If ground outputted)

To wire the inverter with a 120Vac or 240Vac output follow these instructions:



Be sure to cut the wire for the length needed. Put the DC and AC cables through the glands. Follow the next instruction to wire the inverter in the 120Vac or 240Vac configuration.



Only screw the upper part of the connectors

DO NOT unscrew the lower part of the connectors.

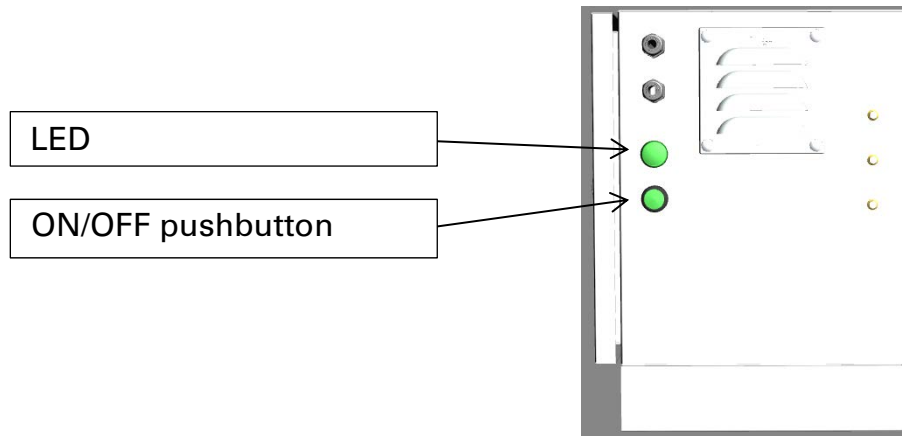
- DC input :

- Udc low voltage input DC voltage
- +Udc high voltage input DC voltage (250Vdc)

- AC output :

- 120V only used for the 240Vac output option
 - Neutral 0V output (used for 120Vac and 240Vac options)
 - +120V + 120Vac output (used for 120Vac and 240Vac options)
- You can also output the ground (green and yellow connector)

Startup instructions:



- Be sure to wire the inverter following the instructions above (wiring instructions section)
- Power the DC bus (250Vdc)
- The LED must light-up
- Push the pushbutton and the inverter will output 120V or 240Vac after a delay of 1 minute.

Stop command:

- Push the pushbutton. The inverter will stop its output. Be aware that even if the inverter is stopped, there is still a dangerous voltage inside the box.

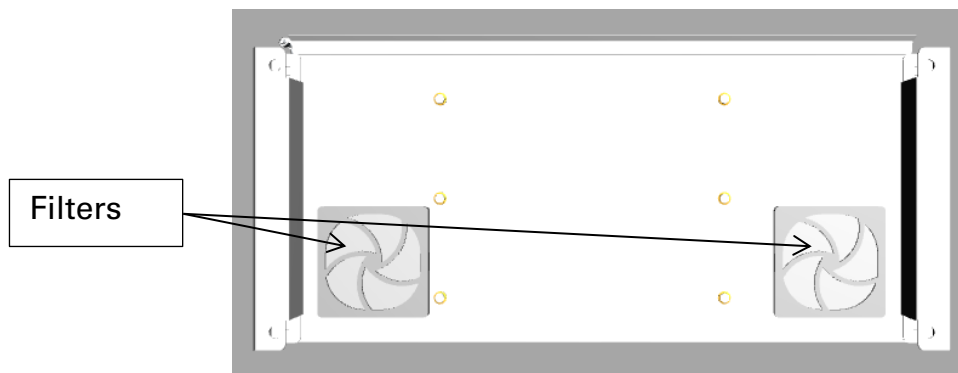
This pushbutton is just for a temporary stop of the inverter

IF YOU PLAN TO STOP THE INVERTER FOR MORE THAN 30 MINUTES YOU MUST STOP THE INPUT DC VOLTAGE WITH THE BREAKER.

- Once the inverter stops outputting voltage you can stop the DC voltage.
- Wait at least 7 minutes before opening the enclosure. To ensure your safety, you must wait 7 minutes between the moment when you stop the DC input and the moment when you open the enclosure. (Some large capacitors need time to discharge)

Special note:

- You must regularly clean/change the filters underneath the inverter. In harsh environment you must do this maintenance daily.



- Do not leave the inverter in its off state with the DC power on. If you plan to stop the inverter longer than 30 minutes, please stop the DC voltage with the breaker. A long period in off state will damage the inverter.