XO SERIES OPERATION AND INSTALLATION MANUAL

EXELTECH

7317 Jack Newell Blvd North
Fort Worth, Texas 76118-7100
817.595.4969 voice, 817.595.1290 fax
800.886.4683 toll free
website www.exeltech.com

c UL US

Manufacturer of UL Listed Products

Table of Contents

Exeltech
7317 Jack Newell Blvd North
Fort Worth, Texas 76118-7100

Warnings / Cautions/ Notes:

CAUTION: It is essential to read and understand all Warnings, Cautions, and Notes before any connections are made to the Unit or System. If further assistance is needed call (817) 595-4969 and ask for Customer Service.

WARNING: The inverter is designed to operate from a Battery. Performance cannot be guaranteed when a charger or power supply is used without a battery in the circuit.

WARNING: Inverter Chassis and Neutral AC output lead will connected together. The unit will be shipped with this connection . If this connection is removed, it most be provided somewhere else in the system. Either one of the Battery connections should be connected to Ground or Chassis to comply with most code requirements.

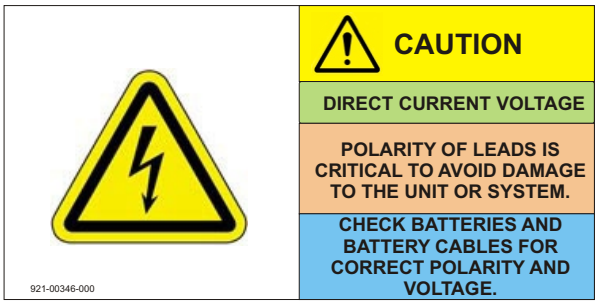
CAUTION: Before any connections are made to the Unit or System, be sure to disconnect the grounded battery terminal. Reconnect this lead when work is finished.

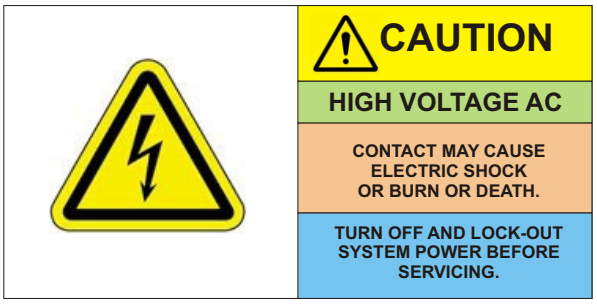
CAUTION: Polarity of leads is critical to avoid damage to the unit or system. Check batteries and battery cables for correct polarity and voltage.

CAUTION: Observe all National and Local Electric Codes when connecting AC Power Connections. All wiring should be copper and must follow the NEC, local or other codes in effect at the installation, regardless of suggestions in this document.

CAUTION: The inverter is a ruggedized piece of electronic equipment. However, gasses emanating from the battery can be corrosive and highly flammable. Therefore, the inverter should be isolated from the battery bank as much as possible.

CAUTION: Unit requires 6 inch minimum clearance from each side of the system to provide adequate ventilation.





Safety/ Health: (Installation)

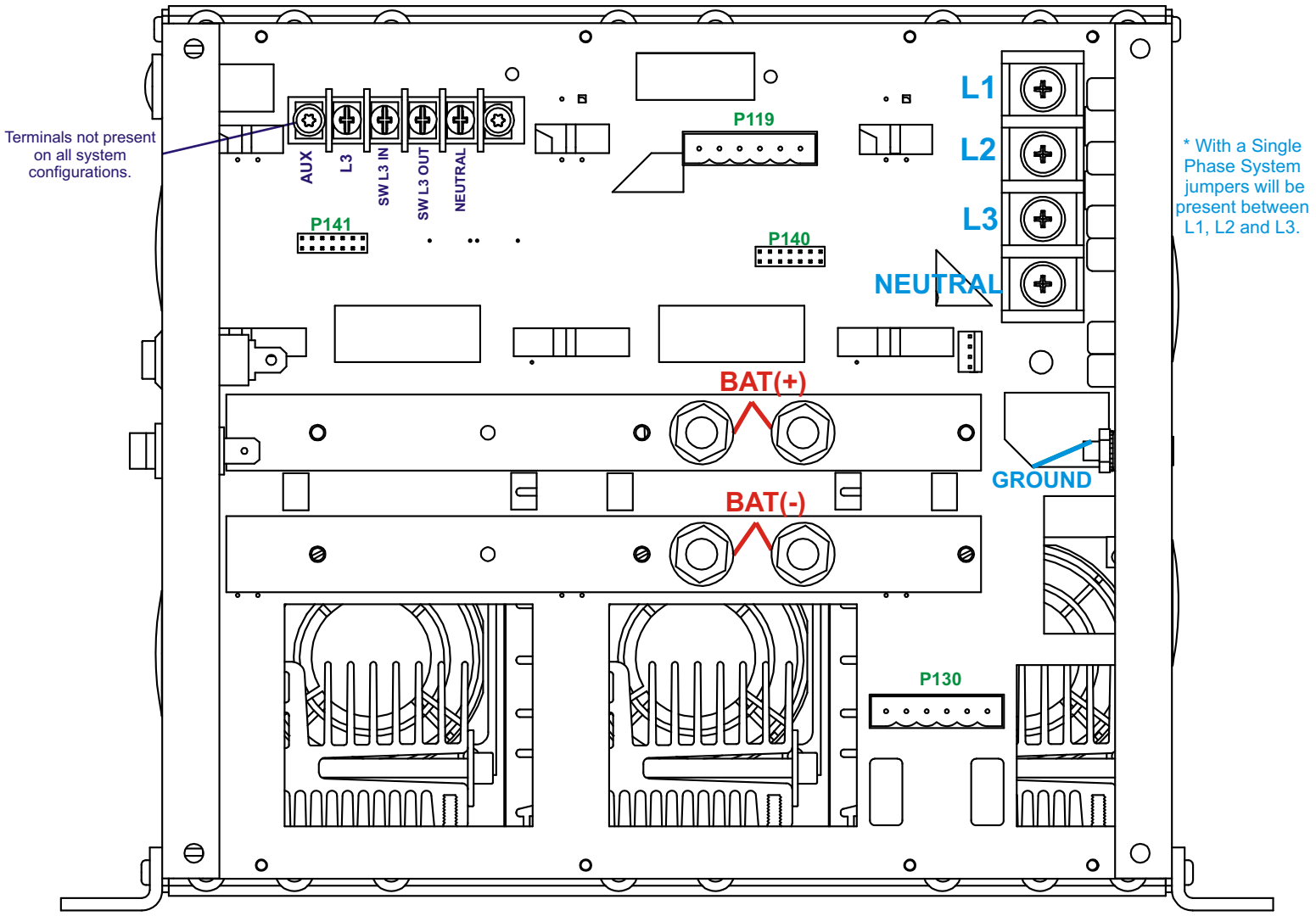
1. The inverter requires adequate ventilation for cooling. With proper cooling the inverter will operate efficiently and meet its published ratings.

2. The inverter should be mounted as close to the battery as possible. Shorter lengths of wire have less resistance, which translates to increased efficiencies.

An in line fuse may be desired to protect the battery and wiring to the inverter. This fuse should be located very close to the battery positive (+) terminal.

DC INPUT CONNECTIONS: Positive (+) and Negative (-) input terminals are 5/16" studs with brass hardware. They are provided under the Rear Access Cover. Choose appropriate gauge wire for your specific model and distance from the battery.

1. Disconnect **negative (-)** terminal of the battery and make sure the inverter is OFF.
2. Make DC input connections to the inverter as illustrated in red.
3. Load AC voltage connection will be hard wired as illustrated in blue.
4. Re-connect **negative (-)** terminal of the battery.



DC to AC Power Inverter Features

Features

The inverter is a stand-alone unit.

Size

Mechanical dimensions: 4KW - 9 inches High X 18 inches Deep X 8 inches Wide
6KW - 9 inches High X 18 inches Deep X 11 inches Wide

Connections

Input and Output

Input connections: 2- 5/16" lugs on 1" centers (BATT + and BATT -)
Output connections: 4 pole connector strip. 4KW unit up to 8 ga.; 6KW unit up to 6ga.
Ground connection: Ground chassis connector up to 6ga.

Controls

"On" / "Off" switch.

Electrical input

The inverter operates on DC power.

Electrical Output

The inverter is capable of converting DC to AC, 120Vac (4KW and 6KW systems), 120/240Vac (4KW system) or 120/208Vac (6KW system). True sine wave.

Power

The inverter has an output capacity of 4,000 Watts (4KW system) or 6,000 Watts (6KW system) during continuous operation in ambient air temperatures. At extreme temperatures of -25°C to +50°C, the power output will not drop more than 660W (4KW system) and 1,000 Watts (6KW system).

Protective Features

Low Voltage

The inverter provides a low voltage light to warn the operators if steady-state input voltage drops below minimum voltage level Vdc. To allow for momentary voltage drops, the low-voltage sensing circuit incorporates a delay of 10 seconds. The inverter must be manually reset after shutting down for low voltage, and will draw no current until the reset is activated. The inverter draws no current after being manually switched off. The inverter will attempt to start 3 times within 30 seconds, if the voltage range does not return to normal then the inverter requires a restart.

Over Voltage

The inverter system will shutdown immediately if the DC voltage exceeds the set limits. When the voltage returns to the normal range, the inverter system will immediately restart. There is a small amount of hysteresis built into the over voltage turn off set point to avoid the possibility of turning off and on rapidly. An over voltage greater than 10% above the limit may cause damage.

Thermal Overload

The inverter provides automatic high temperature shut down capability when the internal temperature exceeds safe limits.

Electrical Overload

The inverter has an output overload protection circuit. In an overload condition the power module will shut down after a period of about 7 seconds. Once shut down, it requires cycling the inverter system's ON/OFF switch to reset from this condition. The cause of the overload/short circuit condition must be removed prior to cycling the ON/OFF switch, otherwise, the inverter system will shut down again after the 7 second delay.

Status Indication

The inverter has Light-emitting Diodes (LED) to indicate inverter power, low input voltage, overload, and high temperature.

Moisture

5 to 95% humidity non-condensing. The inverter circuit boards are conformal coated.

Physical hazard control

The inverter does not present any uncontrolled safety or health hazards.

Preparation for Use and installation:

Operating Instructions:

LED Functions:

Each module has its own Indication Led. (Located in the face plate of every Power Module)

Solid Green.....Unit OK
Solid Red.....Overload Warning/Shut Down Due to Overtemp/Overload of a Module.
Flashing Red.....Overload
Solid Amber.....Temperature warning
Flashing Amber.....Over temperature
Flashing Green & Orange..... .....DC Voltage too Low
Flashing Red-Green-Red-Off.....DC Voltage too High

* Overload Warning means the unit is in surge and will only stay in this condition for a max of 6 seconds before going into overload

* Warning means the unit is with in a few degrees of maximum allowed operational temperature. The Unit can stay in the condition indefinitely as long as the temperature does not continue to increase.

ON – this button will turn the inverter “ON”.

OFF – This button will turn the inverter “OFF”.

Note: “Reset” is accomplished by: PRESS “OFF” THEN PRESS “ON”

Maintenance and Servicing Instructions (preventive and corrective):

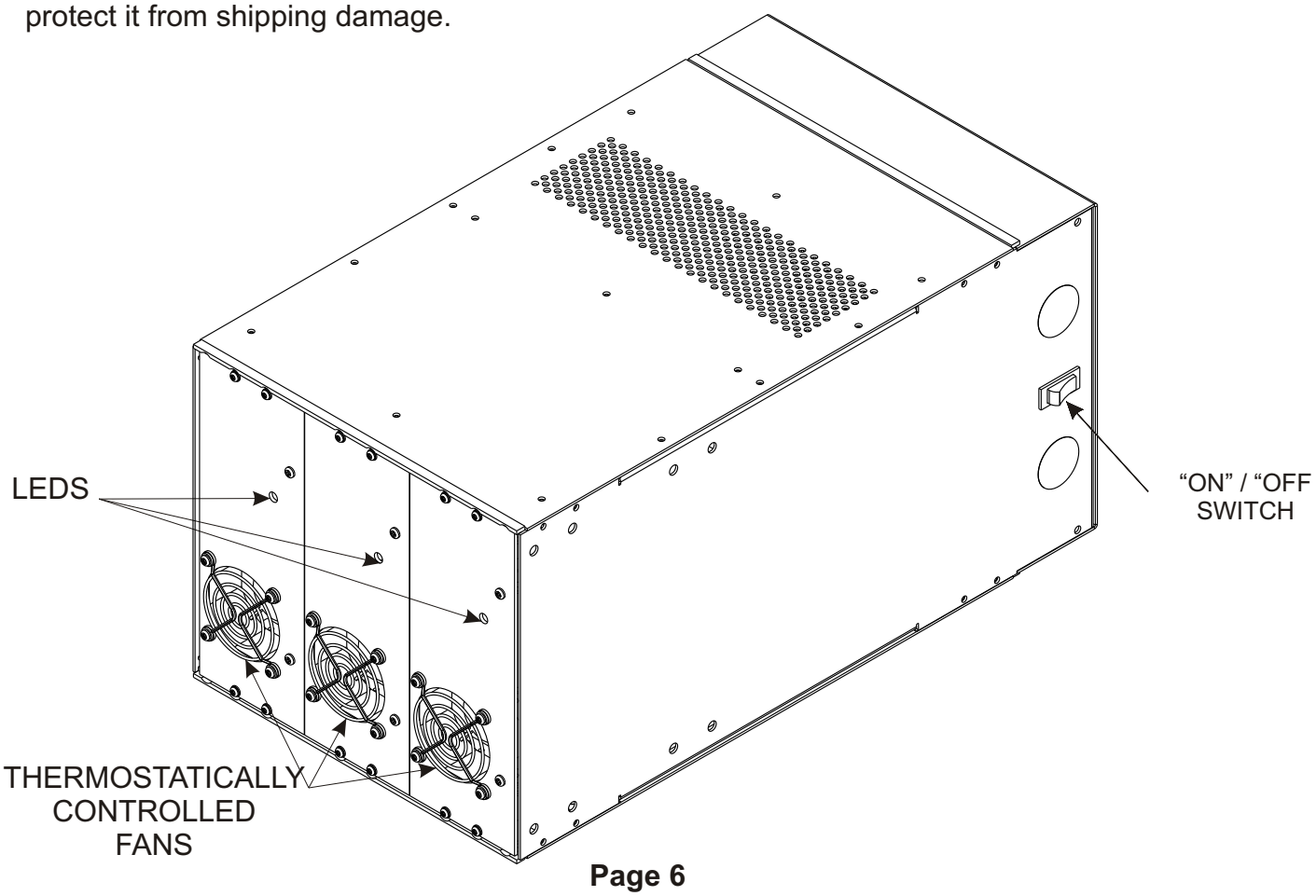
Make sure ventilation is not obstructed.

Periodically check torque on DC connections [90lbs-in max.] and AC connections [4.5 lbs-in max.] (every 6 month or as part of routine maintenance).Storage:

Storage temperature -25°F to +120°F (-32°C to +49°C)

Packaging

If you have to return unit for repair, send it back in the same double box or equivalent to protect it from shipping damage.



POWER INVERTER SPECIFICATIONS

OUTPUT POWER

CONTINUOUS POWER	SURGE POWER	NO LOAD POWER	OUTPUT VOLTAGE	OUTPUT CURRENT	WEIGHT LBS.
1700W	3400W	12W	100 +/-2%	16.7	15
3400W	6800W	24W	100 +/-2%	16.7	28.6
5100W	10200W	35W	100 +/-2%	16.7	37
2000W	4000W	12W	120 +/-2%	16.7 (15)*	15
4000W	8000W	24W	120 +/-2%	16.7 (15)*	28.6
6000W	12000W	35W	120 +/-2%	16.7 (15)*	37

*12Vdc Rating- 1800W

PROTECTION CIRCUITRY

Over Voltage:	Shutoff at maximum input voltage, per input table.
Under Voltage:	Shutoff at minimum input voltage, per input table.
Thermal:	Shuts off due to over temperature condition.
Output Short:	Unit shuts off: electronically limited. Manual reset required.

INPUT

MODEL VOLTAGE	MINIMUM (TYPICAL)	SYSTEM (TYPICAL)	MAXIMUM (TYPICAL)	TYPICAL EFFICIENCY @ FULL POWER	PEAK EFFICIENCY @ 1/2 POWER
12V	10.4V	13.8V	15V	> 80%	> 83%
24V	20.8V	27.6V	30V	> 88%	> 90%
48V	41.6V	55.2V	60V	> 88%	> 90%
66V	57.2V	75.9V	82.5V	> 88%	> 90%
108V	93.6V	124.2V	135V	> 88%	> 90%

ENVIRONMENTAL

Temperature:	-25°C to +25°C full power, derated -17% @ 50°C then 20% per 10°C above 50°C.
Humidity:	5 to 95% non-condensing
Cooling:	Thermostatically controlled variable speed forced air
Finish:	Powder coated
Warranty:	Two years parts and labor.

GENERAL

CONDITIONS	MINIMUM	TYPICAL	MAXIMUM
WAVEFORM	-	SINUSOIDAL	-
LINE REGULATION	-	.1%	2%
LOAD REGULATION	-	1%	2%
DISTORTION	-	1.5%	2%
FREQUENCY	-.1%	60Hz	+.1%

MECHANICAL

Case size:
7" Case HOLDS UP TO 2 MODULES
9 inches High
18 inches Deep
7 inches Wide
Weight: 28 lbs.

9" Case HOLDS UP TO 3 MODULES
9 inches High
18 inches Deep
9 inches Wide
Weight: 37 lbs.

XO SERIES SYSTEM PART NUMBER

EXELTECH XO SERIES MODEL NUMBER _ _ _ _ * * * - _ _ _ _ _ - _ _

STEP # 1 Model number always starts with XO

STEP # 2 Cage assembly

7	9
7" XO	9" XO

STEP # 3 Configuration

1 phase	2 phase	3 phase
B	E	F

STEP # 4 Enter three asterisks (*)

STEP # 5 Character assigned by EXELTECH to represent changes or revisions levels.

STEP # 6 To designate power level, enter the number of modules required. (* if none used)

STEP # 7 Enter from the following character code
Q = 100Vac, M = 120Vac, O = 230Vac

STEP # 8 To designate input voltage, enter the single character from the VDC voltage chart below:

VDC INPUT VOLTAGE CHART			
DC VOLTS	24	48	66
DESIGNATION	2	4	E

STEP # 9 Output frequency is designated by using the first number of the frequency. 5 for 50Hz, 6 for 60Hz, 4 for 400Hz

STEP # 10 Character assigned by EXELTECH to represent revision level of Power Modules.

STEP # 11 For options, enter two digit code. If no option, enter (00).

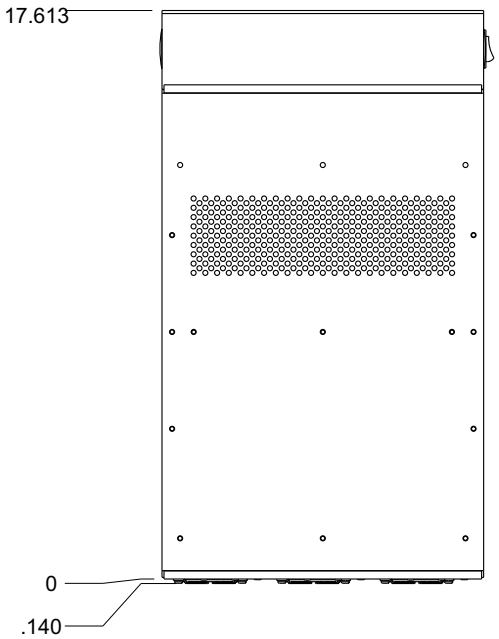
Example: XO9B***-3ME6-01

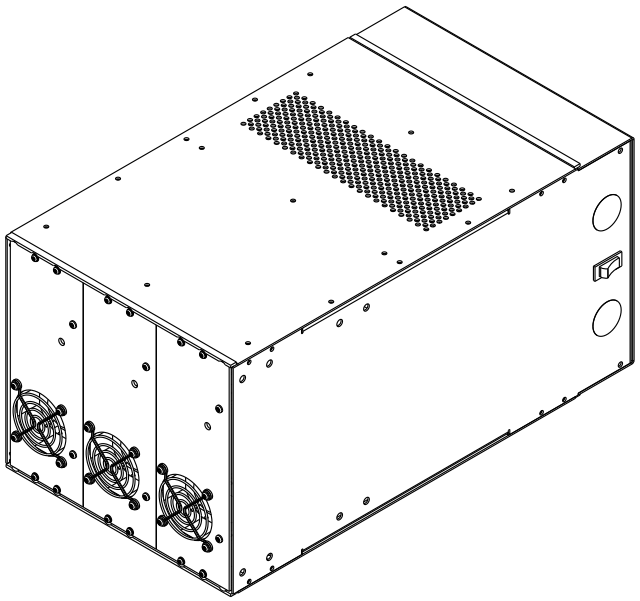
EXELTECH

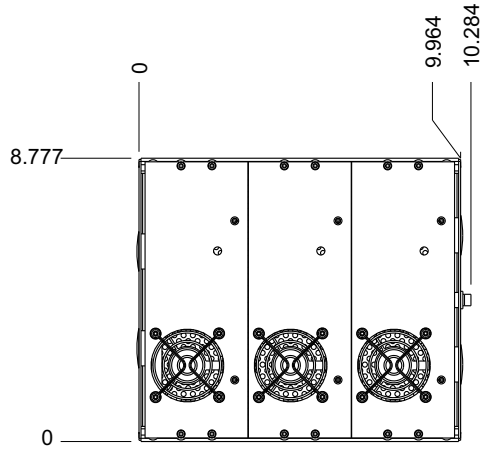
7317 Jack Newell Blvd North
Fort Worth, Texas 76118-7100
817.595.4969 voice, 817.595.1290 fax
800.886.4683 toll free
website www.exeltech.com

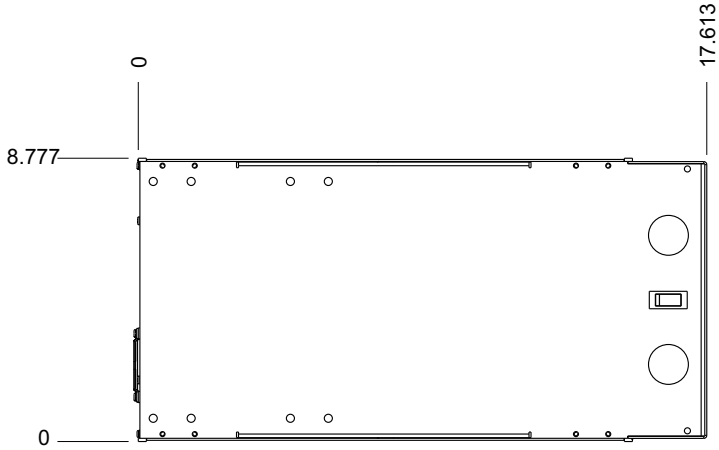
Made in the USA

MECHANICAL DRAWINGS - 6KW



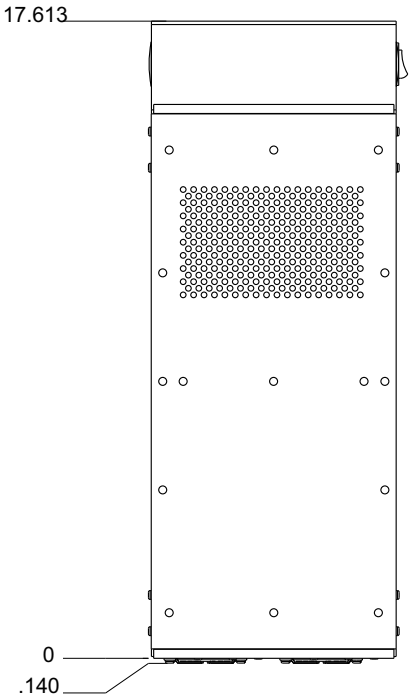


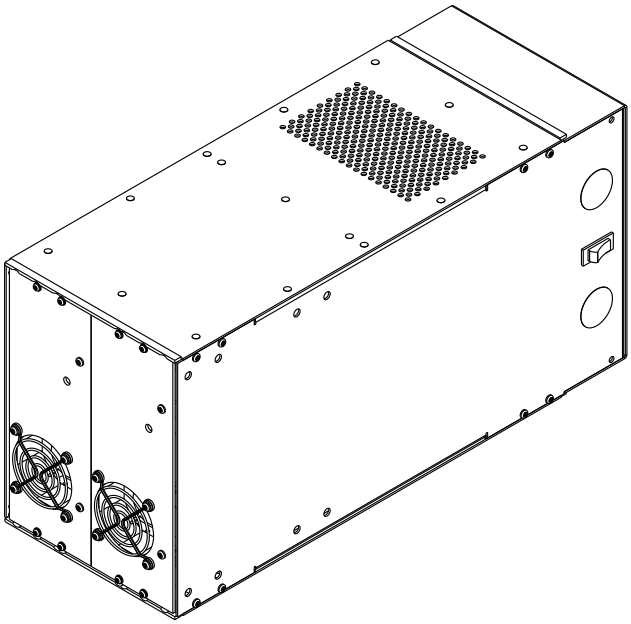


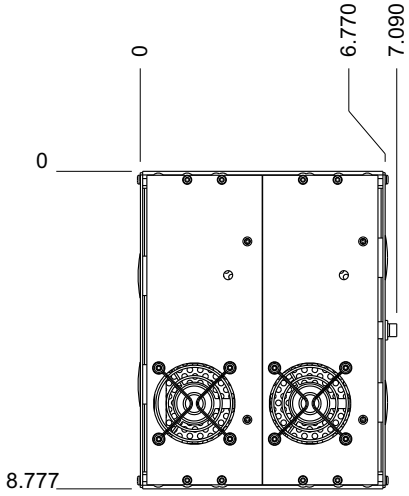


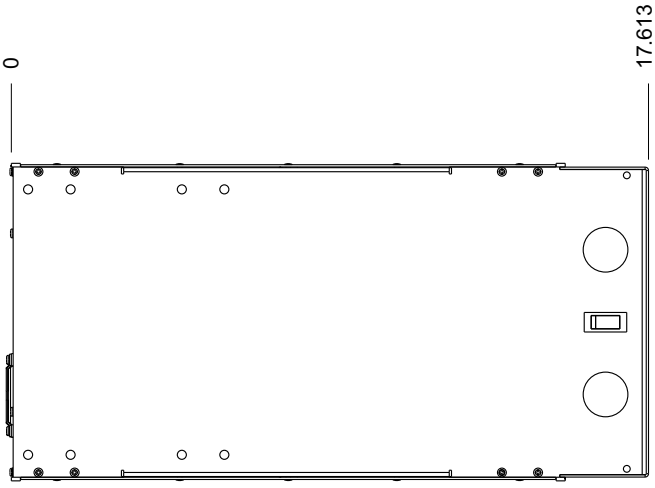
Made in the USA

MECHANICAL DRAWINGS - 4KW









931 - X0 * M* - * 0 E

Document subject to change without notice.
931-X0*M*-*0E

EXELTECH

7317 Jack Newell Blvd North
Fort Worth, Texas 76118-7100
817.595.4969 voice, 817.595.1290 fax
800.886.4683 toll free
website www.exeltech.com