

# E3MAC-1P

1,000-12,500 VA Single Phase Modular AC Inverter

DATE:	COMMENTS:
PROJECT:	

## FEATURES

- 65KAIC
- Optional Web-based Monitoring Platform – easily view, interact with, download and manage records as needed on any PC or mobile device
- Programmable and password protected user interface
- 98% efficient for minimal BTU losses
- PWM Inverter provides pure sine wave output with less than 3% THD
- Crest factor >4 overload protection for demanding high in-rush loads
- Programmable transfer time – select between standard and fast transfer times for load and site compatibility
- UL listed 90 minute run-time
- Compatible with all lighting loads, including HID
- Variable time delay
- Battery recharges in less than 24 hours
- Single phase output
- Start-up diagnostics checks for proper installation



## SEISMIC CERTIFIED

- Optional Zone 4 Seismic Restraints are shaker table tested and seismic certified to the latest California Building Code (CBC) 2016
- The shake table testing was performed in accordance with International Code Council-Evaluation Service Acceptance Criteria 156 (ICC-ES AC156)
- OSHPD (California Office of Statewide Health Planning and Development)



## ORDERING INFORMATION E3MAC-1000-1P-LC-IA-OA-C##-O##-S##

1. SERIES	2. VA RATING	3. PHASE	4. BATTERY TYPE	5. INPUT VOLTAGE	6. OUTPUT VOLTAGE
E3MAC	-	1P	LC	-	-
1000	1000 VA Single Phase	1P	Lead Calcium	IA 120V	OA 120V
1600	1600 VA Single Phase			IB 277V	OB 277V
2200	2200 VA Single Phase			IC 208V <sup>3</sup>	
2800	2800 VA Single Phase			IE 480V <sup>3</sup>	
3000	3000 VA Single Phase				
4000	4000 VA Single Phase				

7. OUTPUT BREAKER - NORMALLY ON*	8. OUTPUT BREAKER - NORMALLY OFF*	9. OUTPUT BREAKER - SWITCHED*
-	-	-

C\* \* Normally On Breakers

O\* \* Normally Off Breakers

S\* \* Switched Breakers

## SEE BREAKER CONFIGURATION TABLE ON PAGE 3 FOR MAXIMUM BREAKERS

## 10. OPTIONS

### BLANK = NO OPTION

<b>MB</b> Maintenance Bypass Switch	<b>TA</b> Trip Alarm with Breaker	<b>BTMS</b> Battery Thermal Management System
<b>CB</b> Custom Breaker	<b>RA</b> Remote Annunciator (Not Included with TB)	<b>EO</b> Emergency Power Off
<b>DT</b> Delayed Transfer	<b>TB</b> Programmable Terminal Block (Not Included with RA)	<b>WEB</b> Web Monitoring Connection <sup>2</sup>
<b>EBW20</b> Extended Battery Warranty	<b>Z4</b> Seismic Zone 4 Restraints (Includes KE)	<b>LO</b> Breaker Locks
<b>EEW</b> Extended Electronics Warranty	<b>WB</b> Wall Mounting Bracket <sup>1</sup>	<b>SK</b> Stacked Configuration <sup>5</sup>
<b>KE</b> Keyed Enclosure	<b>BI</b> BMS Integration	

NOTE Maximum number of OUTPUT breakers supported depends on sizing and option selection. Contact factory for specific details.

## ORDERING NOTES

- WB option only available on 1KVA inverters.
- In order to use the web-based monitoring available at Isolite.com, the -WEB option must be selected.
- Upon special request, requires extra transformer(s), cabinet configuration may change.
- Indicated VA ratings may be ordered as a stacked unit using Configuration H. This configuration is not seismic certified. Contact factory for specific details.
- Only compatible with 8000kVA to 12500kVA.

## ACCESSORIES ON NEXT PAGE



## ACCESSORIES; ORDER SEPARATELY

- **E3MAC-MP#** = Maintenance Plan plus number of years (#)
- **FS** = Factory Startup

## SPECIFICATIONS

### OPTIONAL FEATURES

- Maintenance bypass switch
- Circuit breakers – supervised or unsupervised
- Maintenance contract/plan
- Remote Annunciator
- Factory startup – increases electronics warranty to 3 years
- Circuit breaker protected loads (switched, normally on, and normally off)
- Fault summary alarm and 2 programmable alarms – form C dry contacts
- Keyed lockable enclosure

### FRONT PANEL

- Modern 4x20 LCD character display with white LED back-light
- Heads-up diagnostic LEDs include 5 status (AC present, battery charging, inverter power, system ready, switched load energized), fault summary LED, and 5 specific faults (unit in bypass, circuit breaker trip, startup fault, charger fault, inverter fault)
- Dedicated System Test button – initiates 30-second test with UL compliant diagnostics
- 5-button keypad for menu navigation
- Sonic alarm with dedicated enable/disable pushbutton with heads up LED. Alarm silence has 24-hour ring-back for alarm reminder
- SD memory card – download and store all events, tests, and alarm logs (password protected)
- USB connector – access to all event, tests, and alarm logs (password protected)
- Ethernet – 10 BASE-T, TCP/IP web serving

### BATTERY

- Front access VRLA batteries with 10-Year pro-rated warranty

### TEMPERATURE RATING

- From 68°F to 86°F
- *Battery service life will be negatively impacted at ambient temperatures above 77°F*

### ENVIRONMENTAL

- Operating temp: 20C° to 30C° (68°F to 86°F)
- Storage temp: Electronics - 20C° to 70C° (68°F to 158°F)

BATTERY STORAGE TEMP	
51°F (11°C) TO 77°F (25°C)	180 DAYS
78°F (26°C) TO 92°F (33°C)	90 DAYS

- Relative humidity: <95 % (non-condensing)

### MAINTENANCE PLAN

- Once per year the manufacturer's technician shall visit the site to perform maintenance and software upgrades as needed. Maintenance shall include battery voltage checks, torque setting verification, cleaning, and a thorough visual inspection. All electronics warranties shall be extended to the duration of the Maintenance Plan. Maintenance Plans can be purchased for a duration of 1 year to 5 years.

### APPROVALS

- UL 924
- OSHPD Seismic Certified (with Z4 option)
- New York City Approved, Calendar Number 51575
- NFPA 101 Life Safety Code
- NFPA 70-NEC
- OSHA
- NEMA Type 1 enclosure
- BAA Compliant

### BMS INTEGRATION

- BACNet IP
- BACNet MS/TP
- Modbus TCP
- Modbus RTU

### WARRANTY

- Isolite warrants the E3MAC series electronics assembly against defects in material and workmanship for a period of 2 years, or 3 years with factory startup option. Extended Warranty options available.
- Isolite warrants the E3MAC series lead calcium batteries for a 1-year full and 9-year pro-rated limited warranty.
- For further details, refer to General Warranty and Obligations in the Isolite manual or on our website.
- The EEW option extends the electronics warranty to 5 years. Batteries are not included in the extended warranty.


**MAXIMUM BREAKERS**

Model	# of Breakers Normally On	# of Breakers Normally On with TA	# of Breaker Normally On with MB	# of Breaker Normally On with EO	# of Breakers Normally On with TA + MB	# of Breakers Normally On with MB + EO	# of Breakers Normally On with TA + EO	# of Breakers Normally On with TA + MB + EO	# of Breakers Normally Off	# of Breakers Switched
E3MAC-1000-1P	8	5	7	7	4	6	4	3	4	4
E3MAC-1600-1P	11	7	10	10	6	9	6	5	6	6
E3MAC-2200-1P	11	7	10	10	6	9	6	5	6	6
E3MAC-2800-1P	11	7	10	10	6	9	6	5	6	6
E3MAC-3000-1P	11	7	10	10	6	9	6	5	6	6
E3MAC-4000-1P	12	8	11	11	7	10	7	6	8	8
E3MAC-5000-1P	12	8	11	11	7	10	7	6	8	8
E3MAC-6000-1P	12	8	11	11	7	10	7	6	8	8
E3MAC-8000-1P	24	16	23	23	15	22	15	14	12	12
E3MAC-10000-1P	24	16	23	23	15	22	15	14	12	12
E3MAC-12500-1P	24	16	23	23	15	22	15	14	12	12

**WEIGHT & DIMENSIONS**

Model	Cabinet Config (See Next Page)	# of Cabinets	Inverter Cabinet Weight	Battery Cabinet Weight	Battery Count	Pallet Count	Total Weight
E3MAC-1000-1P	A	1	308		4	1	343
E3MAC-1600-1P	G	1	414		6	1	549
E3MAC-2200-1P	G	1	492		8	1	627
E3MAC-2800-1P	G	1	570		10	1	705
E3MAC-3000-1P	G	1	648		12	1	783
E3MAC-4000-1P	B	1	995		8	2	1060
E3MAC-5000-1P	B	1	1155		10	2	1220
E3MAC-6000-1P	B	1	1280		12	2	1380
E3MAC-8000-1P	E/H	2	400	1570	16	3	2020
E3MAC-10000-1P	E/H	2	400	1890	20	3	2340
E3MAC-12500-1P	E/H	2	400	2210	24	3	2660

**ELECTRICAL DATA**

Model	Power Rating (kW)	Minimum Feed Breaker					Suggested Feed Breaker					Full Load BTU/Hr	AH Ratings
		Input Voltage IA	Input Voltage IB	Input Voltage IC	Input Voltage ID	Input Voltage IE	Input Voltage IA	Input Voltage IB	Input Voltage IC	Input Voltage ID	Input Voltage IE		
E3MAC-1000-1P	1.0 kW	13.0 A	5.6 A	7.5 A	6.5 A	3.3 A	20 A	20 A	20 A	20 A	20 A	68	2640
E3MAC-1600-1P	1.6 kW	20.8 A	9.0 A	12.0 A	10.4 A	5.2 A	30 A	20 A	20 A	20 A	20 A	109	3960
E3MAC-2200-1P	2.2 kW	28.6 A	12.4 A	16.5 A	14.3 A	7.2 A	30 A	20 A	20 A	20 A	20 A	150	5280
E3MAC-2800-1P	2.8 kW	36.5 A	15.8 A	21.0 A	18.2 A	9.1 A	40 A	20 A	30 A	20 A	20 A	190	6600
E3MAC-3000-1P	3.0 kW	39.1 A	16.9 A	22.5 A	19.5 A	9.8 A	40 A	20 A	30 A	20 A	20 A	209	7920
E3MAC-4000-1P	4.0 kW	52.1 A	22.6 A	30.0 A	26.0 A	13.0 A	60 A	30 A	40 A	30 A	20 A	286	9600
E3MAC-5000-1P	5.0 kW	65.1 A	28.2 A	37.6 A	32.6 A	16.3 A	70 A	30 A	40 A	40 A	20 A	355	12000
E3MAC-6000-1P	6.0 kW	78.1 A	33.8 A	45.1 A	39.1 A	19.5 A	80 A	40 A	50 A	40 A	20 A	426	14400
E3MAC-8000-1P	8.0 kW	104.2 A	45.1 A				110 A	50 A				563	19200
E3MAC-10000-1P	10.0 kW		56.4 A					60 A				716	24000
E3MAC-12500-1P	12.5 kW		70.5 A					80 A				852	28800



## OPTION DEFINITIONS

### **Battery Thermal Management System (BTMS)**

A more advanced temperature reading configuration that measures temperature at the busbar between every two batteries.

### **BMS Integration (BI)**

The inverter sends info to a Building Management System via a wired connection.

### **Breaker Locks (LO)**

Allows breakers to be locked in the on or off position.

### **Custom Breaker (CB)**

Output breakers of unique amperage/voltage.

### **Delayed Transfer (DT)**

This slows down "Fast Transfer" from 2mS to a standard transfer time of 50mS. This option is ideal for movie theaters or other places with soft ambient lighting to avoid premature deployment of emergency lighting power in a brownout situation.

### **Emergency Power Off (EO)**

A big red button that kills power to everything.

### **Extended Battery Warranty (EBW20)**

Extends the prorated battery warranty schedule to 20 years.

### **Extended Warranty (EW)**

Extended Warranty can be purchased only if the on-site Factory Start-Up has been purchased as well. Extended Warranty increases the electronics warranty from the standard 3 years (with Factory Start-Up) to a full 5 years.

### **Factory Start-Up (FS)**

On-site Factory Start-Up includes an on-site visit from an Isolite Technician for inverter activation and demonstration. On-site Factory Start-Up increases electronics warranty from 2 to 3 years. Please see page 34 for full warranty details. To purchase and schedule Factory Start-Up, please visit our website and select "inverters" on the main menu and see "Start-Up Form." Fill out the form, and send it to the email address on the form.

Free phone start-up is available as well. For over the phone assistance with your inverter or start-up, please call our Inverter Tech Support at 800-967-5573, and they will be happy to assist you. Note that the phone start-up does not increase the warranty.

### **Keyed Enclosure (KE)**

Locking cabinet with key for areas where unauthorized tampering is a concern.

### **Maintenance Bypass Switch (MB)**

Internal switch to bypass all inverter operations. When activated, input power is transferred directly to the output breakers, allowing inverter servicing.

### **Maintenance Plan (M#)**

Customer may choose from 1 year (M1) to 5 year (M5) maintenance plans. Once per year an Isolite Technician will visit the site to perform maintenance and software upgrades. The maintenance includes battery voltage checks, torque setting verification, cleaning, and physically ensuring that the inverter is 100% operational. If any issues with the inverter are found, Isolite will fix or replace parts as necessary. All electronics warranty is extended to the duration of the maintenance plan. Note that the battery warranty is not extended and will keep the standard 10 year pro-rated schedule.

### **Programmable Terminal Block (TB)**

Allows inverter operations to be output to another system such as Lutron, or Crestron. Form C dry contact ensures integration into these systems with ease.

### **Remote Annunciator (RA)**

An LED indicator and audible alarm which enables the user to monitor the status of the inverter from a remote location where the annunciator is mounted. An annunciator located in a separate office will alert those present that the inverter is in an alarm condition.

### **Seismic Restraints (Z4)**

Seismic Restraints are shaker table tested and seismic certified to the latest California Building Code (CBC) 2016. Shake table testing was performed in accordance with International Code Council Evaluation Service Acceptance Criteria 156 (ICC-ES AC156) and is OSHPD approved. For more details, please reference our Seismic Certified Inverters booklet. Locked cabinet (KE) standard when Z4 is chosen.

### **Stacked Configuration (SK)**

Save floor space by stacking the cabinets. The lighter of the cabinets which houses the electronics mounts on top of the battery cabinet via specialized cutouts and steel mounting plates. See configuration diagrams (D/H/I) for dimensions and appearance.

### **Trip Alarm with Breaker (TA)**

Trip Alarm is a feature of Isolite Inverters that notifies the instrument panel if any breaker output is tripped. This will broadcast an alarm to the remote (\*requires additional Remote Annunciator (RA) purchase).

### **Wall Mounting Bracket (WB)**

Mounts inverter to the wall (E3MAC-1000 only).

### **Web Monitoring Connection (WEB)**

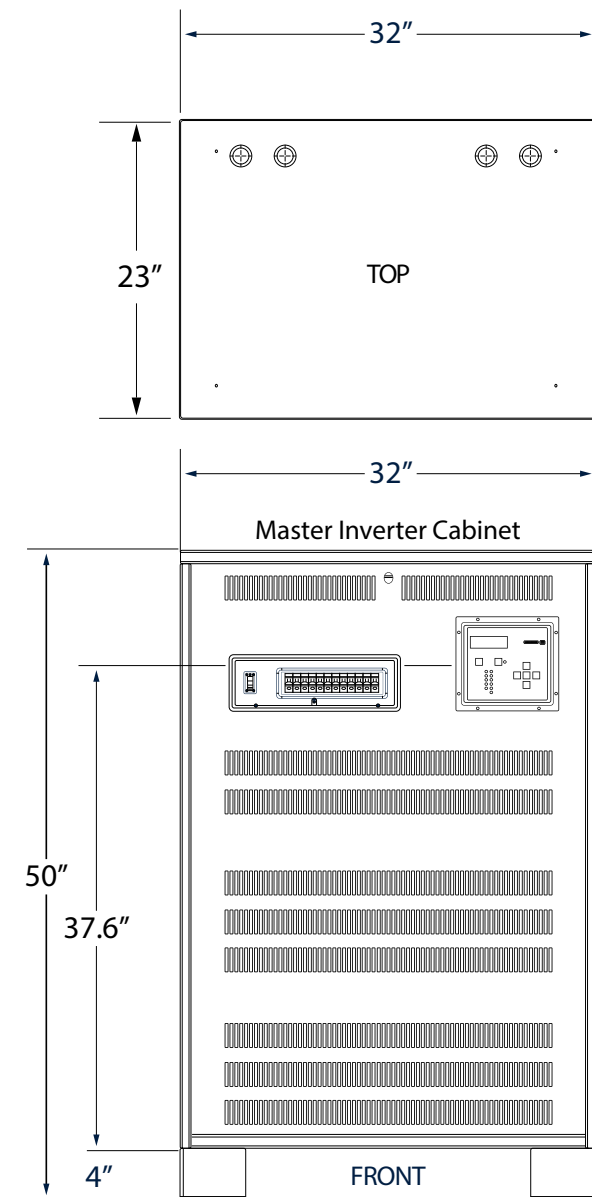
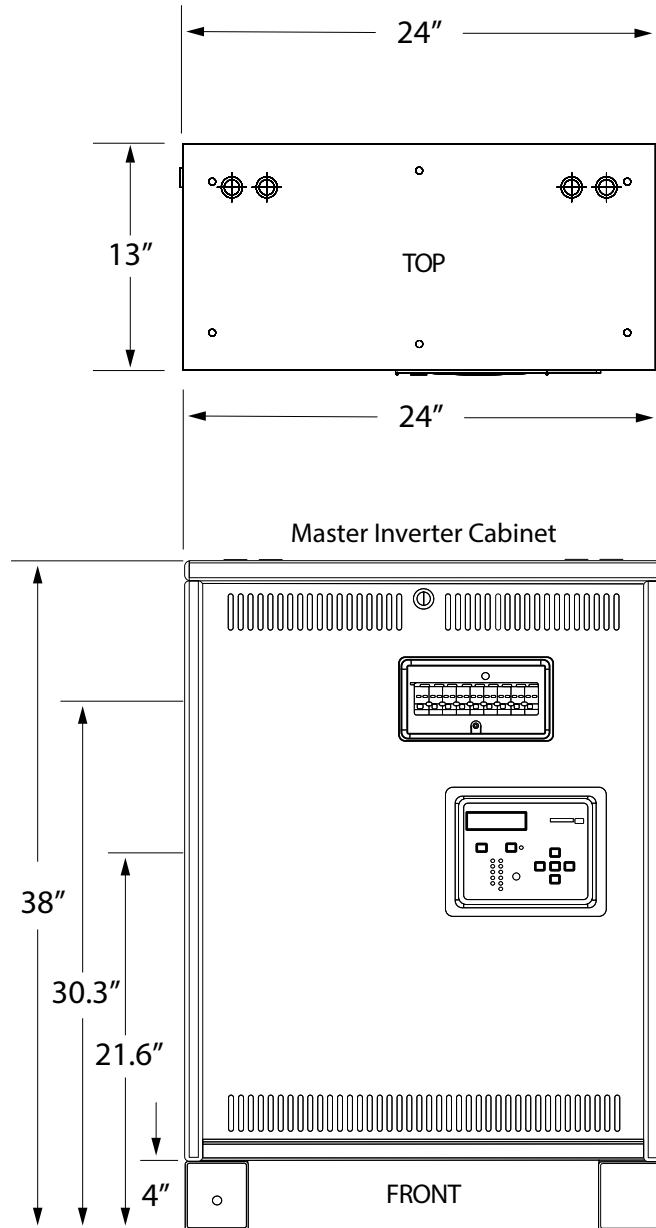
Access critical data from the inverter through the internet.



## DIAGRAMS

CONFIGURATION A

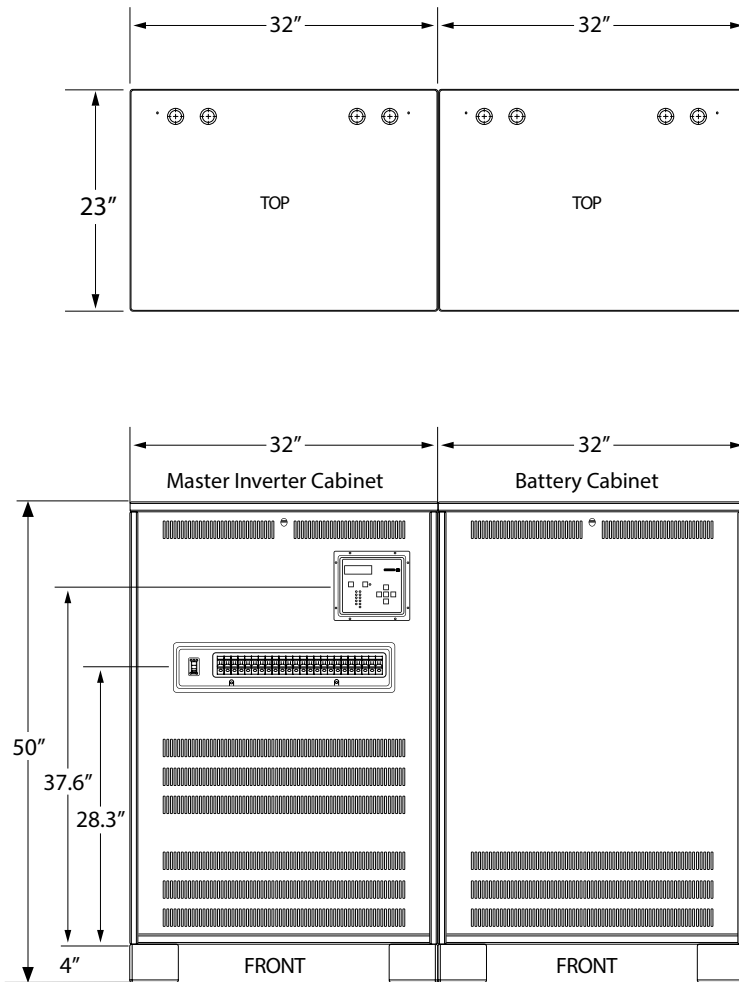
CONFIGURATION B



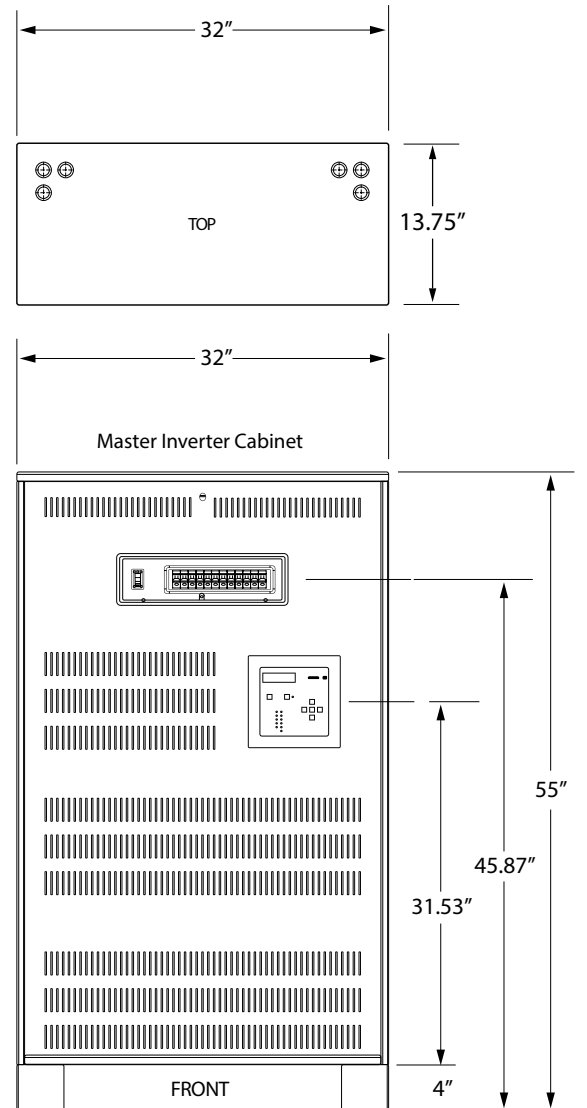


## DIAGRAMS (CONTINUED)

CONFIGURATION E



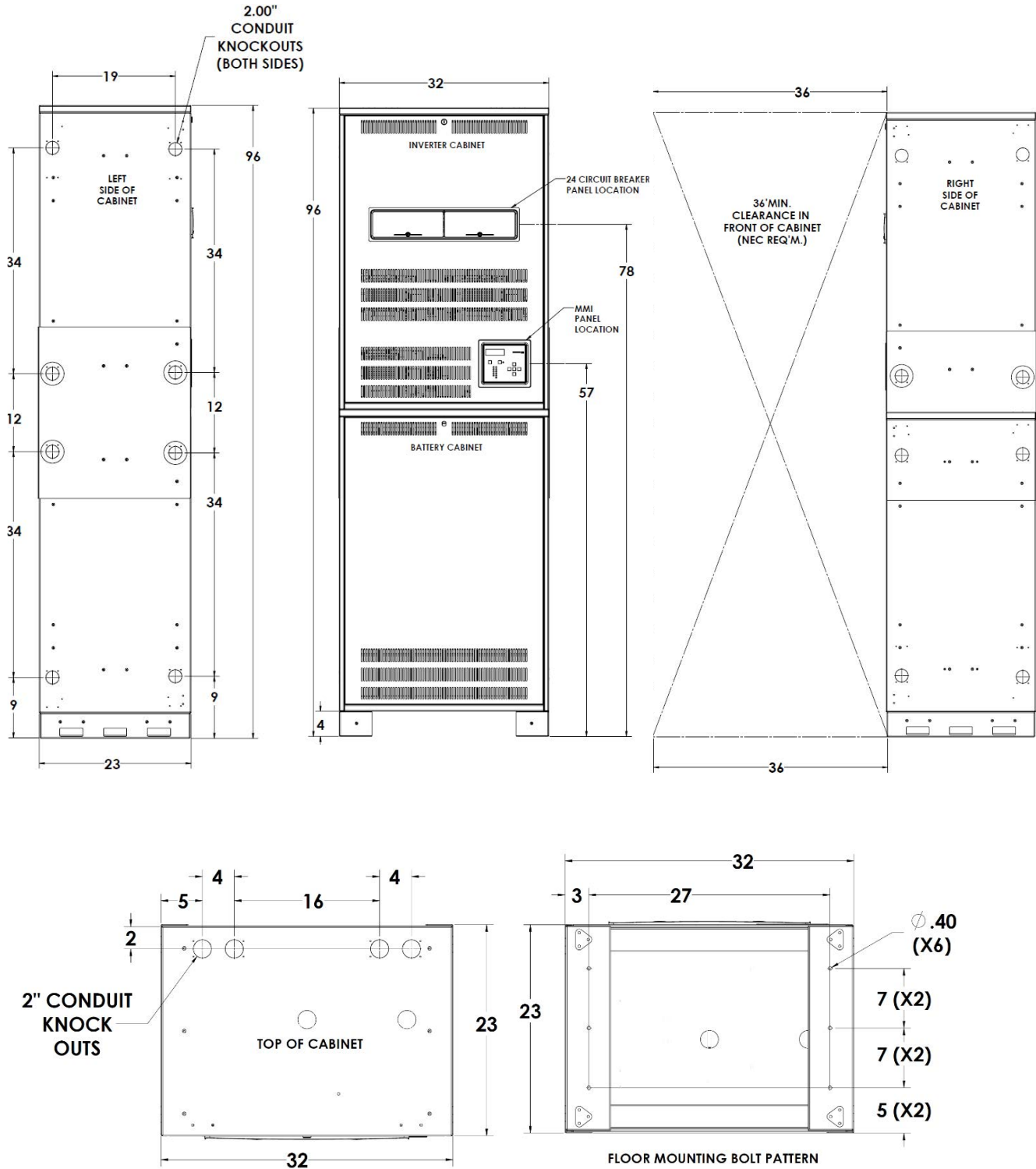
CONFIGURATION G





## DIAGRAMS (CONTINUED)

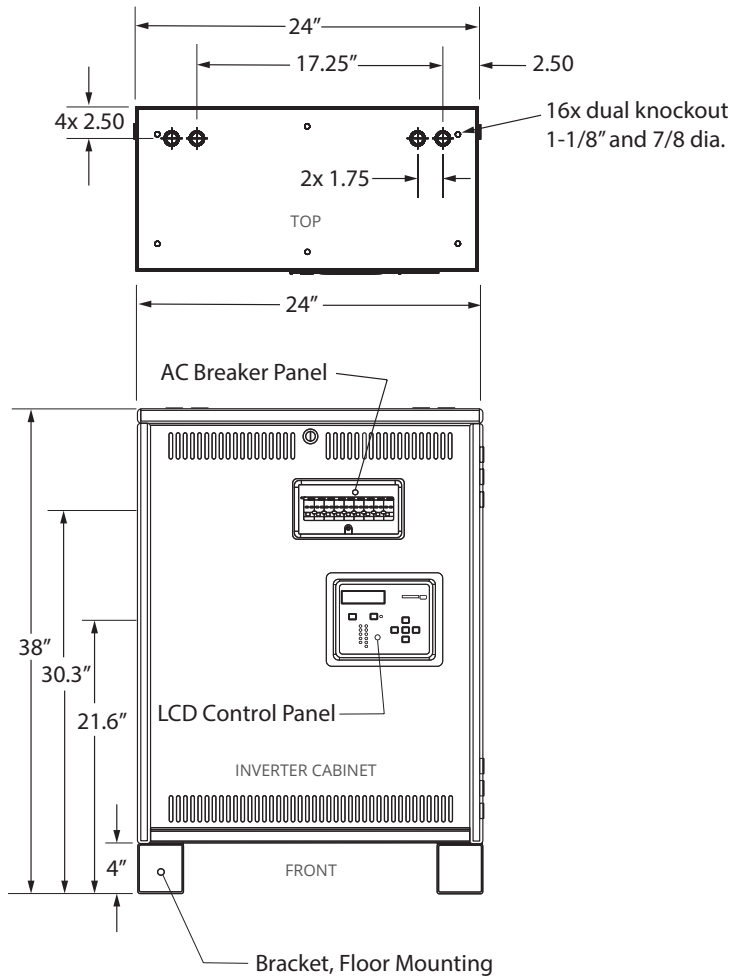
### CONFIGURATION H



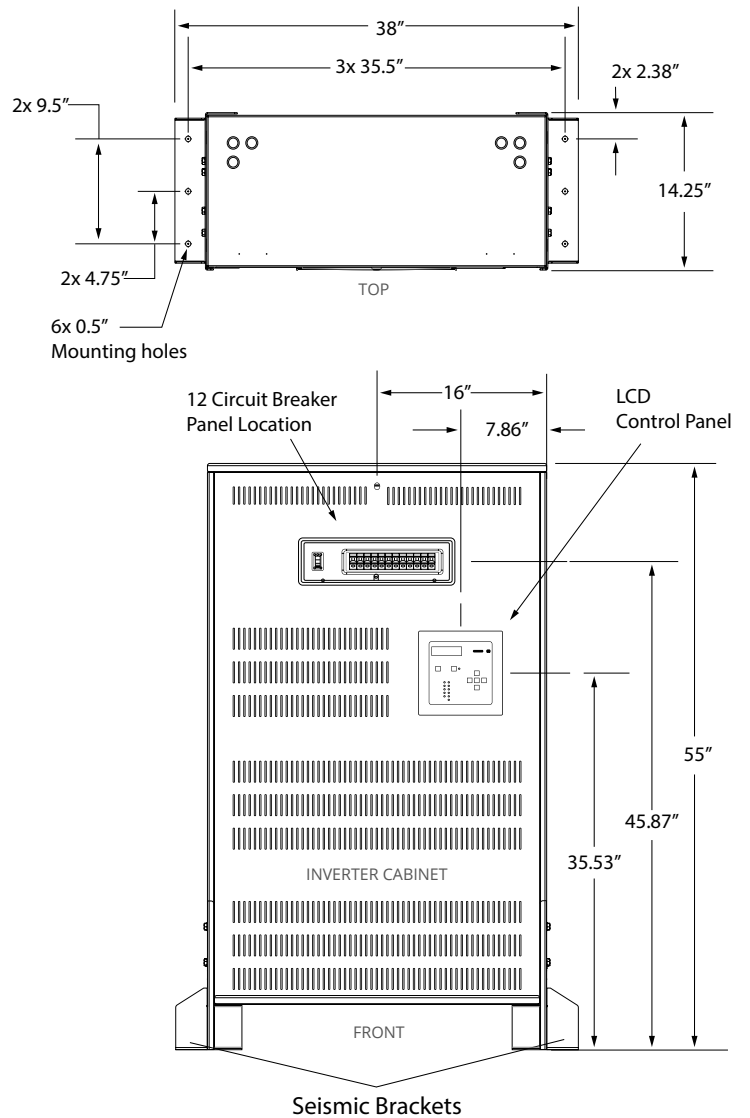


## DIAGRAMS (CONTINUED)

CONFIGURATION A - SEISMIC



CONFIGURATION J - SEISMIC

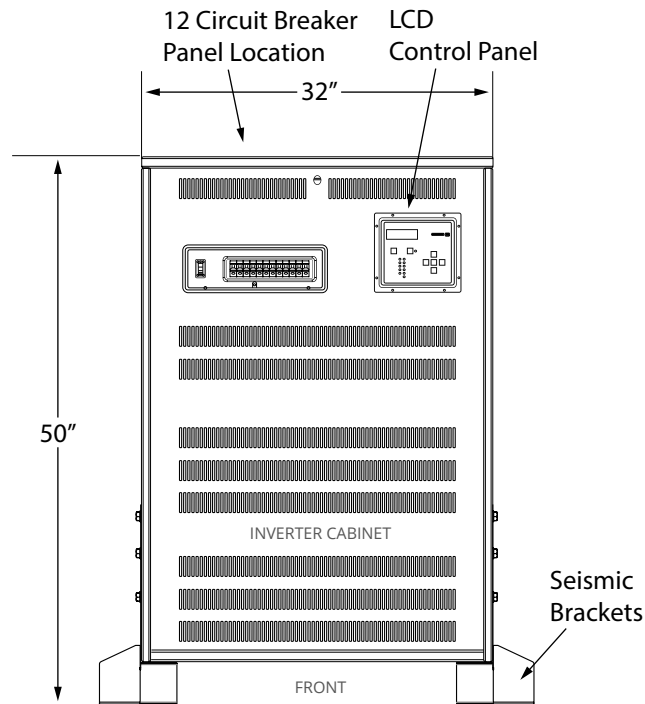
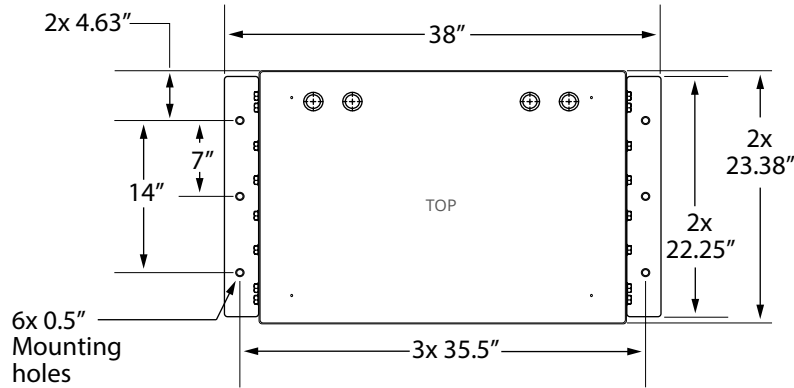






## DIAGRAMS (CONTINUED)

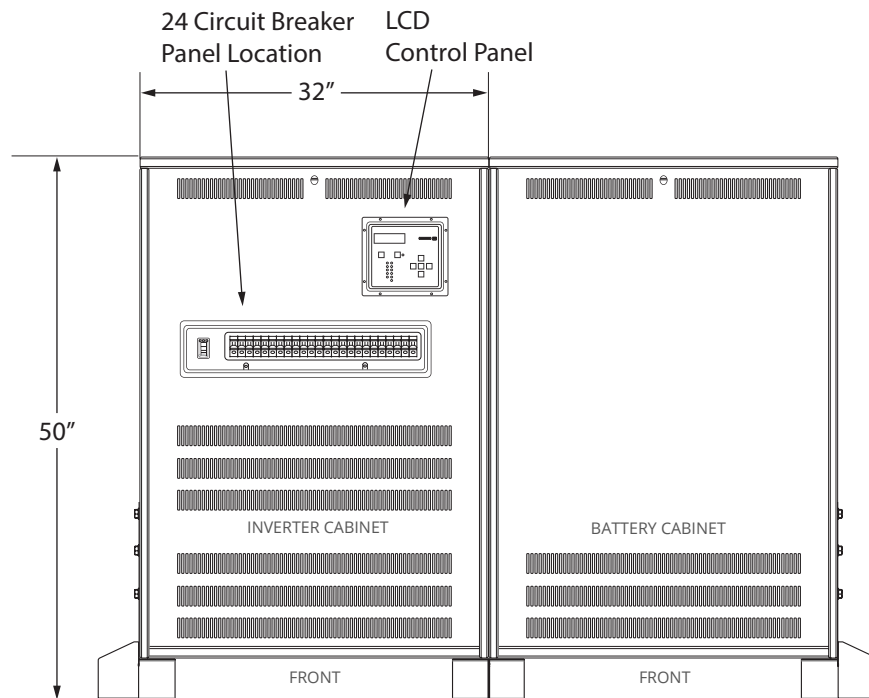
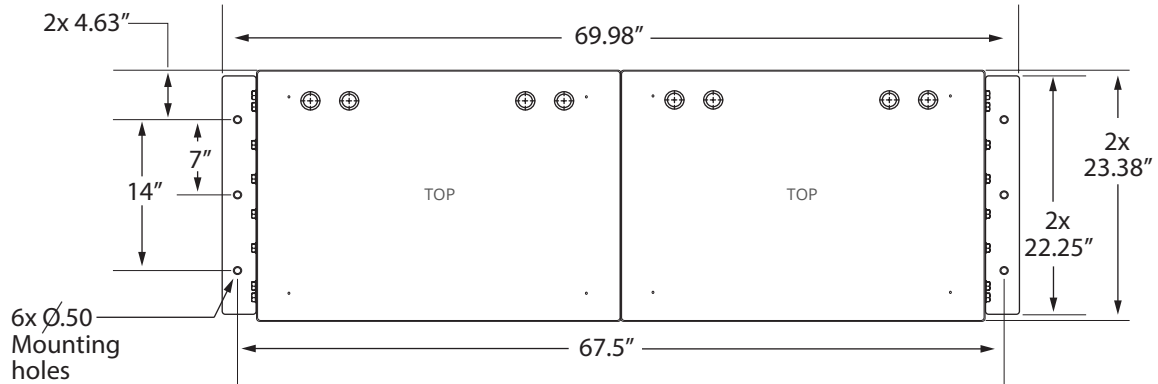
### CONFIGURATION H - SEISMIC





## DIAGRAMS (CONTINUED)

### CONFIGURATION I - SEISMIC




**BMS INTERFACE POINTS LIST**

POINT NAME	BACNET OBJECT TYPE	BACNET OBJECT ID	MODBUS REGISTER
Inverter	BI	1	10001
Charger	BI	2	10002
AC Present	BI	3	10003
Ready	BI	4	10004
Switched Load	BI	5	10005
Alarm Summary	BI	6	10006
Bypass	BI	7	10007
Circuit Breaker Tip	BI	8	10008
Startup Fault	BI	9	10009
Charger Fault	BI	10	100010
Inverter Fault	BI	11	100011
Input Voltage (Phase A)	AI	1	30001/30002 (FLOAT)
Input Voltage (Phase B)	AI	2	30003/30004 (FLOAT)
Input Voltage (Phase C)	AI	3	30005/30006 (FLOAT)
Output Voltage (Phase A)	AI	4	30007/30008 (FLOAT)
Output Voltage (Phase B)	AI	5	30009/30010 (FLOAT)
Output Voltage (Phase C)	AI	6	30011/30012 (FLOAT)
Output Current (Phase A)	AI	7	30013/30014 (FLOAT)
Output Current (Phase B)	AI	8	30015/30016 (FLOAT)
Output Current (Phase C)	AI	9	30017/30018 (FLOAT)
Battery Voltage	AI	10	30019/30020 (FLOAT)
Battery Current	AI	11	30021/30022 (FLOAT)
Temperature	AI	12	30023/30024 (FLOAT)
Output VA (Phase A)	AI	13	30101/30102 (UINT32)
Output VA (Phase B)	AI	14	30103/30104 (UINT32)
Output VA (Phase C)	AI	15	30105/30106 (UINT32)
Battery Power	AI	16	30107/30108 (UINT32)
System Runtime (Days)	AI	17	30109/30110 (UINT32)
Inverter Runtime (Minutes)	AI	18	30111/30112 (UINT32)
Inverter Runtime (Seconds)	AI	19	30113/30114 (UINT32)
System Events	AI	20	30115/30116 (UINT32)