

ETC SERIES

BATTERY CABINET

INSTALLATION, OPERATION, AND MAINTENANCE MANUAL



This manual provides instructions regarding safety, storage, installation, operation and maintenance. Failure to observe the precautions as presented may result in injury or loss of life.

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TABLE OF CONTENTS

1. INTRODUCTION	2
2. PRECAUTIONS.....	2
3. INSPECTION UPON RECEIPT OF GOODS	2
3.1 General	2
3.2 Visible damage	3
3.3 Concealed damage	3
3.4 Return of damaged goods	3
4. SYSTEM OVERVIEW	3
5. GENERAL SYSTEM SPECIFICATIONS.....	4
5.1 DC Output Characteristics	4
5.2 Batteries.....	4
5.3 Grounding.....	5
5.4 Environmental Conditions.....	5
• Cabinet Dimensions	5
• Cabinet Weights (Assembled)	5
6. INSTALLATION PROCEDURES.....	6
6.1 Preparation	6
6.1.1 Necessary Equipment and Tools	6
6.1.2 Equipment Inspection	6
6.1.3 Safety Precautions.....	6
7. INSTALLATION STEPS	7
7.1 Cabinet Location.....	7
7.2 Cabinet Mounting	7
7.3 DC Connections	7
7.4 Grounding.....	8
7.5 System Operation	8
8. SYSTEM MAINTENANCE.....	8
8.1 Blown Fuse Replacement.....	8
8.2 Battery Replacement Steps.....	8
9. WARRANTY RELATED MAINTENANCE.....	9
10. DRAWINGS/SCHEMATICS	10
• General Cabinet Drawing (ETC40).....	10
• General Cabinet Drawing (ETC36/ETC32).....	11
• Anchor Specifications	12
• Anchor Placement Dimensions.....	13
• ETC41 Battery Cabinet, Mechanical Drawing	14
• ETC41, Electrical Drawing	15
• ETC40 Battery Cabinet, Mechanical Drawing	16
• ETC40, Electrical Drawing	17
• ETC36, Mechanical Drawing	18
• ETC36, Electrical Drawing	19
• ETC32, Mechanical Drawing	20
• ETC32, Electrical Drawing	21
• ETP41, Mechanical Drawing.....	22
• ETP41, Electrical Drawing	23
• ETP40, Mechanical Drawing.....	24
• ETP40, Electrical Drawing	25
• ETP36, Mechanical Drawing.....	26
• ETP36, Electrical Drawing	27
• ETP32, Mechanical Drawing.....	28
• ETP32, Electrical Drawing	29
• Notes Page	30
• Notes Page	31












1. INTRODUCTION

ESS ETC Series Top Terminal Battery Cabinets are shipped loaded with batteries partially assembled, internally pre-wired and come standard with an over current breaker. The removable hinged front doors and removable rear cover also allow for easier battery access. Refer to the battery layout drawings and schematics at the end of this manual. Consult the battery manufacturer's battery operation and maintenance manual for complete instructions.

These battery systems are built and tested to UL 1778 standards at the factory prior to shipment. All system settings are also adjusted at this time according to the specification sheet. Sales support for future equipment or upgrades is provided by our sales staff and qualified representatives. All technical questions and service issues should be directed to our office at 972-272-2468.

2. PRECAUTIONS

-  **It is very important to read, understand and follow the instructions in this manual. Also note all SAFETY PRECAUTIONS before beginning the installation of this system.**
-  **Consult the Battery Manufacturer's Operation and Maintenance Manual for important battery information.**
-  **Battery cabinet systems are very heavy. Total weight can exceed 5,500 lbs, for a fully loaded cabinet. Use at least 3 people when unloading and setting equipment in place.**
-  **It is imperative that only qualified personnel work on this system and installation, maintenance or upgrades be performed with insulated tools and equipment.**
-  **When installing this battery system, follow all applicable federal, state and local regulations and industry guidelines to insure a proper installation.**
-  **DC power and battery supplies are dangerous and have extremely high short circuit currents. Severe burns or death can result from a system short. They also can leak potentially explosive gas (hydrogen). Never enclose batteries or battery cabinets in a sealed air tight room.**
-  **All jewelry and watches must be removed prior to installing or servicing this system.**
-  **Do not smoke or present flame near or around any battery cabinet system.**
-  **Never leave a panel off or door open and unattended.**

3. INSPECTION UPON RECEIPT OF GOODS

3.1 General

Special precautions and care have been taken to ensure the cabinet system arrives safe and undamaged. However, upon receipt, you should inspect the entire shipment, including the crate and any boxes for evidence of damage that may have occurred during transit.



3.2 Visible Damage

It is the responsibility of the person receiving the shipment to inventory and fully inspect all materials against the bill of lading or way bill IMMEDIATELY, while the carrier representative is still present. Ensure that all items are accounted for, including number of skids and quantity of boxes. Also note any visible external damage that may have occurred during transit. Make all applicable notations on the delivery receipt before signing even if notating "POSSIBLE CONCEALED DAMAGE" and file a damage report with the carrier.

3.3 Concealed Damage

Immediately after receipt, unpack the cabinet system and check for any concealed damage. Check the materials received against the detailed packing list to verify the quantity and the condition as complete and satisfactory.

Note any damage to the internal packaging, then request an inspection by the carrier and file a concealed damage claim. If there is a material shortage, contact ESS at the number listed at the end of this manual.

Please contact your shipping company for all shipping damage. ESS is not responsible for any shipping damage.

3.4 Return of Damaged Goods

A RMA number must be obtained before returning equipment to ESS. Please contact an ESS representative or call the corporate number listed at the end of this manual.

4. SYSTEM OVERVIEW

The enclosed cabinet systems provide the necessary DC backup power required in UPS applications. Over-current breaker/fuse protection is supplied. DC connections are front accessible and made via terminal blocks and/or mechanical lugs. Refer to the drawings and schematics at the end of this manual for these connections. Cabinets are equipped with 3-pole breakers. There are 2 holes per polarity on 300 Amp to 600 Amp breakers. Breakers 30 Amps to 250 Amps have a single hole per polarity. It is recommended to use multiple runs of cables into cabinets and breakers where possible due to tight bend radius requirements inside the cabinets. **See table below for standard output lug sizes of breakers.**

BREAKER SIZING						
BREAKER SIZE AMPS	30A	40A	50A	75A	100A	125A
A.I.C. RATING, 500DC	20,000 A.I.C	20,000 A.I.C	20,000 A.I.C	20,000 A.I.C	20,000 A.I.C	20,000 A.I.C
OUTPUT LUG SIZE	(1)#14-3/0	(1)#14-3/0	(1)#14-3/0	(1)#14-3/0	(1)#14-3/0	(1)#4-3/0
BREAKER SIZE AMPS	150A	175A	200A	225A	250A	300A
A.I.C. RATING, 500DC	20,000 A.I.C	20,000 A.I.C	20,000 A.I.C	20,000 A.I.C	20,000 A.I.C	20,000 A.I.C
OUTPUT LUG SIZE	(1)#4-4/0	(1)#4-4/0	(1)3/0-350	(1)3/0-350	(1)3/0-350	(2)2/0-500
BREAKER SIZE AMPS	350A	400A	450A	500A	600	
A.I.C. RATING, 500DC	20,000 A.I.C	20,000 A.I.C	20,000 A.I.C	20,000 A.I.C	20,000 A.I.C	
OUTPUT LUG SIZE	(2)2/0-500	(2)2/0-500	(2)2/0-500	(2)2/0-500	(2)2/0-500	

During normal conditions the UPS supplies the load power and the necessary power required to keep the batteries at the proper float voltage. Verify that the charger is set to charge parameters within the approved float voltage range of the batteries, refer to manufacturer's battery operation and maintenance manual.

When AC fails, the batteries discharge in order to provide the necessary backup power. It is the responsibility of the customer to make sure the batteries are not discharged below the battery manufacturer's recommendations. Always recharge batteries per manufacturer's battery operation and maintenance manual.



Batteries will be damaged if not recharged right away. See the UPS or DC system manual for more information.

5. GENERAL SYSTEM SPECIFICATIONS

5.1 DC Output Characteristics

- **Voltage:** (UPS Application) 48 to 480 VDC Nominal
- **Breaker:** Standard
- **Fuse Type:** Not standard, consult factory. If a fuse is provided, it is only to be replaced by a factory service technician.

CAUTION! Fire Hazard Warning:
 Replace only with same type and rating of fuses supplied with the system.

- **Wire Size and Type:** Per NEC and/or local building and electrical codes.
- **Disconnect:** If a fuse has been provided in lieu of a breaker inside the cabinet, a disconnecting method must be provided per NEC code. This may be a fuse switch or circuit breaker. Size accordingly.

5.2 Batteries

- **Type:** Valve Regulated Lead Acid (VRLA), sealed, non-spillable.
- **Voltage:** 6 or 12 Volt DC Nominal, Top Terminal Design.

UL approved battery models:

Energys.....	12HX205
Energys.....	12HX300
Energys.....	12HX330
Energys.....	12HX400
Energys.....	12HX505
Energys.....	12HX540
Energys.....	6HX800
C&D Dynasty UPS HR.....	UPS12-210MR
C&D Dynasty UPS HR.....	UPS12-300MR
C&D Dynasty UPS HR.....	UPS12-350MR
C&D Dynasty UPS HR.....	UPS12-400MR
C&D Dynasty UPS HR.....	UPS12-490MRLP
C&D Dynasty UPS HR.....	UPS12-490MR
C&D Dynasty UPS HR.....	UPS12-540MR
C&D Dynasty UPS HR.....	UPS12-600MR
C&D Dynasty UPS HR.....	UPS6-620MR
GNB Sprinter.....	S12V120F
GNB Sprinter.....	S12V170F
GNB Sprinter.....	S12V285F
GNB Sprinter.....	S12V300F
GNB Sprinter.....	S12V370GNF
GNB Sprinter.....	S12V500F
GNB Sprinter.....	S12V550GNF
GNB Sprinter.....	S6V740GNF
Deka Unigy High Rate.....	45HR2000
Deka Unigy High Rate.....	HR3000
Deka Unigy High Rate.....	HR3500
Deka Unigy High Rate.....	HR4000
Deka Unigy High Rate.....	31HR5000
Deka Unigy High Rate.....	HR5500

UL approved battery models:

CSB HRL Series.....	HRL12110W
CSB HRL Series.....	HRL12150W
CSB HRL Series.....	HRL12200W
CSB HRL Series.....	HRL12280W
CSB HRL Series.....	HRL12330W
CSB HRL Series.....	HRL12390W
CSB HRL Series.....	HRL12500W
CSB XHRL Series.....	XHRL12360W
CSB XHRL Series.....	XHRL12410W
CSB XHRL Series.....	XHRL12475W
CSB XHRL Series.....	XHRL12620W
Fiamm.....	12FLX200
Fiamm.....	12FLX250
Fiamm.....	12FLX300
Fiamm.....	12FLX300
Fiamm.....	12FLX350
Fiamm.....	12FLX400
Fiamm.....	12FLX450
Fiamm.....	12FLX540
Interstate Marquis.....	MQ800
Interstate Marquis.....	MQ1200
Interstate Marquis.....	MQ1800
Interstate Marquis.....	MQ2100
Interstate Marquis.....	MQ2400
Interstate Marquis.....	MQ3000
Interstate Marquis.....	MQ4100
Northstar Battery.....	NSB12-310
Northstar Battery.....	NSB12-425
Northstar Battery.....	NSB12-540

- **Only cabinets with flame retardant batteries are suitable for computer room use.**



5.3 Grounding

- All grounding should be derived from the main building ground source.
- **Note:** All cabinet systems require grounding.
- All cabinets have a defined ground connection point.

5.4 Environmental Conditions

Breakers are located at the top of the cabinet.

Standard Cabinet Dimensions:

ETC41 Top Breaker is 40.0" W x 29.5" D* x 78.7" H (applies to ETP41)
 ETC40 Top Breaker is 40.0" W x 29.5" D* x 78.7" H (applies to ETP40)
 ETC36 Top Breaker is 36.0" W x 29.5" D* x 78.7" H (applies to ETP36)
 ETC32 Top Breaker is 32.0" W x 29.5" D* x 70.9" H (applies to ETP32)

* All depth dimensions are of the cabinet only. The exterior breaker handle (optional) extends from the front of the cabinet 2.25"; consider this distance when calculating aisle space in front of the cabinet.

For mounting hole dimensions, please refer to the cabinet layout drawing at the end of this manual.

Max Cabinet Weights: (Assembled)

(Based on 540 Ah batteries unless specified)	VDC	# of Blocs
ETC41XX41 is 5,011 lbs.	492	41
ETC41XX40 is 4,905 lbs.	480	40
ETC41XX32 is 4,057 lbs.	384	32
ETC40XX41 is 4,991 lbs.	492	41
ETC40XX40 is 4,885 lbs.	480	40
ETC40XX32 is 4,037 lbs.	384	32
ETC36XX40 is 4,850 lbs.	480	40
ETC36XX32 is 4,002 lbs.	384	32
ETC36XX30 is 3,790 lbs.	360	30
ETC36XX24 is 3,154 lbs.	288	24
ETC32XX32 is 3,942 lbs.	384	32
ETC32XX30 is 3,730 lbs.	360	30
ETC32XX24 is 3,094 lbs.	288	24
ETC32XX20 is 2,680 lbs.	240	20
ETP41XX40 is 5,105 lbs.	480	40
ETP40XX40 is 5,085 lbs.	480	40
ETP36XX40 is 3,982 lbs.	480	32
ETC32XX32 is 3,130 lbs.	384	32 (based on 400 WPC batteries)

**Consult with factory for additional configurations.

- **Temperature:** Normal operating temperatures are between 68°F -77°F. **Note:** Batteries typically should be at 77°F for optimum battery life and performance.
- **Ventilation/Cooling:** Provided through ventilation slots in the rear panel, bottom panel, and top of cabinet, thus providing a chimney effect for natural convection cooling. If local codes require forced air exhaust, unused covers serve as conduit entry or duct work entry points. Fan kits are also available from ESS.
- **Clearance:** A minimum of four inches is required in both the front and the rear of the cabinet. This refers to obstruction of ventilation only. Clearance around cabinet sides is suggested by NEC and local codes.



CAUTION! Explosion/Fire Hazard Warning:
Batteries can generate potentially explosive gas (hydrogen).
Never enclose batteries or battery cabinets in a sealed, airtight room.

6. INSTALLATION PRODEDURES

BEFORE PROCEEDING WITH INSTALLATION READ THE FOLLOWING:

6.1 Preparation

6.1.1 Necessary Equipment and Tools

- Rigging tools for moving cabinets. Pallet jack and forklift of 5,500 lbs. minimum capacity.
- Heavily insulated assortment of hand tools.
- Digital Voltmeter

6.1.2 Equipment Inspection

Remove the packaging material from the cabinet and inspect for any concealed shipping damage that may have been overlooked upon receipt of goods. Use the packing list to verify the system has all components and cables for installation.



6.1.3 Safety Precautions

DC VOLTAGE WARNING!
Hazardous DC Voltages are present in the battery cabinet. This hazard will always be present, even when the battery system is off-line. Accidental short circuit of the positive and negative terminals will cause tremendous currents to flow resulting in severe burns, fire and possible death.
Use extreme caution!

IMPORTANT SAFETY INSTRUCTIONS. SAVE THESE INSTRUCTIONS!!

- ⚠ All disconnecting means should be in the open/off position before servicing.
- ⚠ All installation drawings and schematics should be reviewed and clearly understood before hooking up this system.
- ⚠ Only qualified DC power technicians or electricians should attempt to work on and install this equipment.
- ⚠ All jewelry, rings and watches should be removed when working on this equipment.
- ⚠ All tool handles and shafts must be heavily insulated.
- ⚠ Do not rest any tools or loose cables on top of batteries.
- ⚠ Make sure all connections are properly torqued and secure. Torque values are provided on battery label.
- ⚠ Do not smoke or present flames near or around any battery system.
- ⚠ Always wear safety glasses and gloves and use insulating mats to stand on when working on this system.



-  **Do not allow bare skin to come into contact with battery cabinet, as this could result in an electrical shock.**
-  **Do not install any cable terminations until it has been verified that such a termination will not create a short circuit.**

7. INSTALLATION STEPS

7.1 Cabinet Location

Prior to installation, verify floor loading requirements and all applicable codes pertaining to the related equipment. Environmental conditions should also be reviewed. Proper ventilation and cooling must be adequate for optimum battery life and performance. A clearance of 4" is recommended at the front and rear of the cabinet. This refers to obstruction of ventilation only. Clearance around the cabinet sides should be as suggested by NEC and local codes. Ambient temperature should be between 68°F -77°F.

7.2 Cabinet Mounting

1. Remove any remaining packaging materials (cardboard, plastic).
2. Unbolt the cabinet from the pallet. Remove the cabinets from the pallet using a forklift rated for at least 5,500 lbs.
3. The battery cabinet is equipped with narrow pallet jack or forklift access openings in the front and rear of the cabinet. Move the equipment into the desired location and set in place.
4. In order to meet seismic requirements, refer to the SEISMIC ANCHORING drawings included with this manual. The following steps detail the necessary actions to be taken to meet Zone 4 mounting requirements.
5. For safety purposes, all cabinets must be anchored to floor per local building codes. Use Seismic anchors for seismic applications. Use standard concrete anchors for standard installations.
6. On the floor, mark the location of the 6 mounting holes found at the bottom of the cabinet legs.
7. Use the hole location drawing provided with each shipment to mark holes for anchors. Use ½" or 13mm anchors. Install anchors per manufacturer's instructions.
8. Move the cabinet into place, align holes, check levelness, and tighten hardware. **Note:** Should any drilling be performed on this equipment, make sure all exposed batteries and connections are completely covered using insulated type mats. Prevent dust from entering cabinets and clear any debris that has collected.
9. Install the front doors on the cabinet.
10. If multiple battery cabinets are installed, repeat above steps. Check height and levelness with adjoining cabinets.

7.3 DC Connections

CAUTION!
PLEASE READ ALL SAFETY INSTRUCTIONS BEFORE PROCEEDING.

1. Open the cabinet door and check for any noticeable problems or damage that may have occurred during shipment.
2. Review the installation drawing and schematic diagram included in this manual. Cables and bus bars have been left off in the battery string for safety and will need to be installed later.
3. Connect main cables to the circuit breaker, when applicable, inside the cabinet from the UPS or charger source. All cables should be sized per NEC and any other local codes pertaining to this equipment. Refer to the UPS or charger manual for wiring external batteries. **Note:** Make sure charging source is disconnected before making these connections; also verify the battery cabinet is turned off.



4. Connect the battery interconnect cables that were left off during shipment and install as shown on the installation drawing included in this manual. Torque connections properly. Torque values are provided on battery label.

7.4 Grounding

Ground the battery cabinet to the main building ground. A ground stud inside the cabinet is provided for this.

7.5 System Operation

Refer to the UPS or charger manual for start up and operation of system.

8. SYSTEM MAINTENANCE

CAUTION!
PLEASE READ ALL SAFETY PRECAUTIONS BEFORE PROCEEDING

8.1 Blown Fuse Replacement

If a fuse has blown in the system, contact an authorized factory technician to replace it.

CAUTION! Fire Hazard Warning:
Replace only with same type and rating of fuses supplied with the system.

8.2 Battery Replacement Steps

Servicing of batteries should be performed or supervised by personnel knowledgeable about batteries and the required precautions. When replacing batteries, replace with the same type and number of batteries.

CAUTION!
Do not dispose of batteries in a fire. The batteries may explode.
Do not open or mutilate batteries. Released electrolyte is harmful to the skin and eyes.
It may be toxic.

A battery can present a risk of electrical shock and high short-circuit current. The following precautions should be observed when working on batteries:

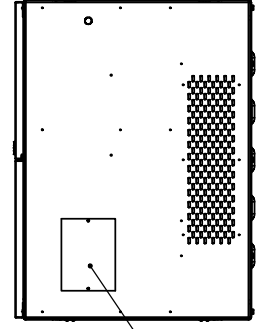
- Remove jewelry, rings, watches or other metal objects.
- Use tools with insulated handles.
- Wear rubber gloves and boots. Wear safety glasses.
- Do not lay tools or metal parts on top of batteries.



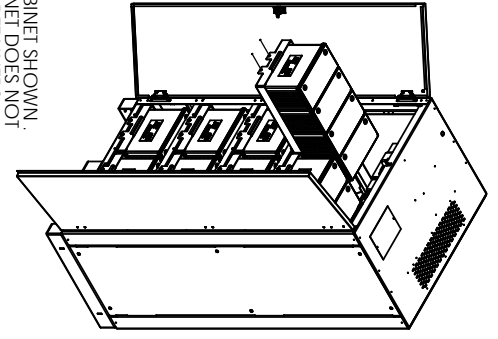
- Disconnect charging source prior to connecting or disconnecting battery terminals.
 - Determine if the battery is inadvertently grounded. Remove string from buss and check voltages to ground. Contact with any part of a grounded battery can result in electrical shock. The likelihood of such shock can be reduced if grounds are kept during installation and maintenance.
1. Prepare the new battery for installation. Check to make sure the battery is the same type and amp-hour rating. Use a non-metallic brush or scotch brite pad to clean the terminals. Apply a light coat of No-ox grease to the terminal to avoid corrosion "per battery manufacturer's recommendation".
 2. Disconnect the charger or UPS from the battery string by opening the breaker.
 3. Remove the center jumper on the battery string to reduce the voltage. If replacing all batteries, continue reducing the voltage in this manner.
 4. Disconnect the interconnect bus bars and/or cables from the battery to be replaced.
 5. Remove the old battery.
 6. Install the new battery. Make sure the new battery is installed the same way regarding polarity orientation and verify with drawing.
 7. Reconnect cables to the battery. Make sure connections are properly torqued. Torque values are provided on the battery label.
 8. Reconnect the center jumper. Make sure connections are properly torqued. Torque values are provided on the battery label.
 9. Check voltage at terminal block.
 10. Close breaker when ready. If your model has a disconnect with an exterior handle to the door, close and latch on the door first before closing the breaker.

9. WARRANTY RELATED MAINTENANCE

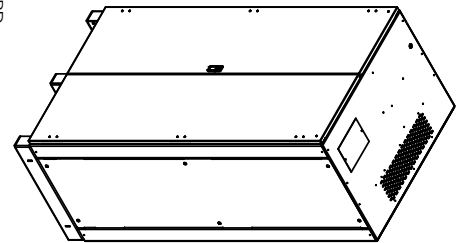
1. The purchaser (user) shall give freshening charges to the battery a minimum of every six (6) months for Lead-Calcium batteries after shipment from the factory and until final installation. Refer to the installation and maintenance instructions from the battery manufacturer for maximum storage intervals at different environmental situations. Extreme heat could cause more frequent freshening charges.
2. At least once every six (6) months, purchaser (user) must take readings and record information per battery manufacturer's installation/maintenance instructions. These records must be maintained for warranty claim purposes. If warranty records are not kept, the warranty shall be null and void.
3. Parallel strings should be limited to five (5) strings.
4. Movement of batteries from original point of installation shall immediately void the product warranty, except with the expressed written consent from ESS.
5. Any storage shall be in a dry area having ambient temperature of 77° F (25° C), or less, and in accordance with battery manufacturer published installation, operation and maintenance instructions. Failure to follow the battery manufacturer's published guidelines and/or instructions may invalidate the product warranty, at the sole discretion of ESS.
6. During service or extended storage, a battery system monitor is recommended to be used to record temperatures, voltages, AC ripple, Float currents, Discharge and more to provide more accurate battery and environmental data for warranty with battery manufacturer's claims.



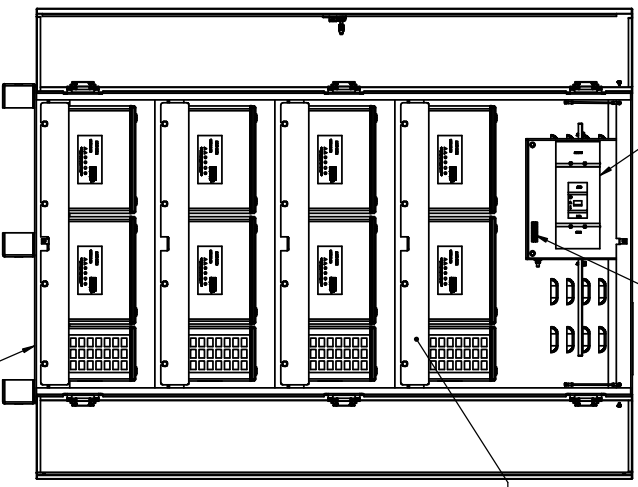
6.25 X 8.00
TOP CABLE ENTRY
KNOCK OUT PLATE



ETP40 CABINET SHOWN.
THIS CABINET DOES NOT
USE FRONT RETAINERS.
SHELVES ARE BOLTED TO FRAME



STANDARD
ETC40 CABINET
SHOWN

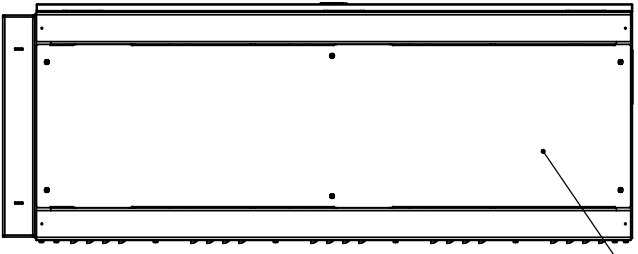


MAIN DC BREAKER
WITH POSITIVE AND
NEGATIVE OUTPUTS

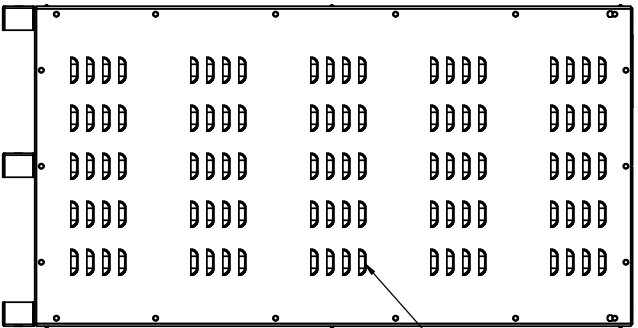
SHUNT AND AUXILIARY
CONTACT TERMINAL STRIP

REMOVABLE
FRONT
BATTERY
RETAINERS

6.25 X 8.00
BOTTOM CABLE ENTRY
KNOCK OUT PLATE



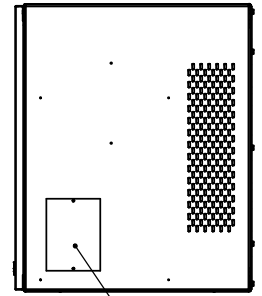
REMOVABLE
SIDE PANELS
ALLOW INTERNAL
CABLE RUNS
FROM CABINET
AND TO UPS



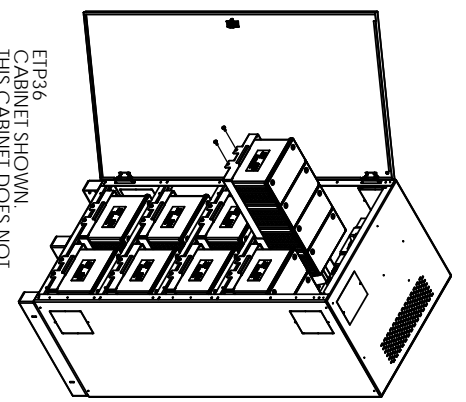
REAR PANEL
WITH VENTILATION
LOUVERS

PROPRIETARY AND CONFIDENTIAL
THE INFORMATION CONTAINED IN THIS DRAWING IS THE PROPERTY OF ESS. IT IS TO BE USED FOR THE PROJECT AND SITE SPECIFICALLY IDENTIFIED HEREIN. ANY REUSE OR DISSEMINATION OF THIS INFORMATION WITHOUT THE WRITTEN PERMISSION OF ESS IS STRICTLY PROHIBITED.

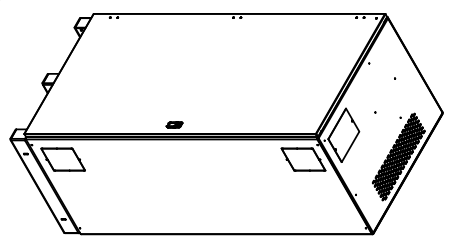
ESS	ELECTRONIC SYSTEMS SUPPORT	3233 W. Kingsley Rd. Garland, Texas 75041 PH: 972-272-2468 WWW.ESS.IO FAX: 972-276-9844
NAME	DATE	TITLE
RNA	11-06-14	MANUAL DRAWING, ETC40
APPROVED	DATE	TITLE
		GENERAL DRAWING, ETC40
DWG. NO.	REV	
DOC-007700	A	
PROJECTION	DO NOT SCALE DRAWING SHEET 1 OF 1	



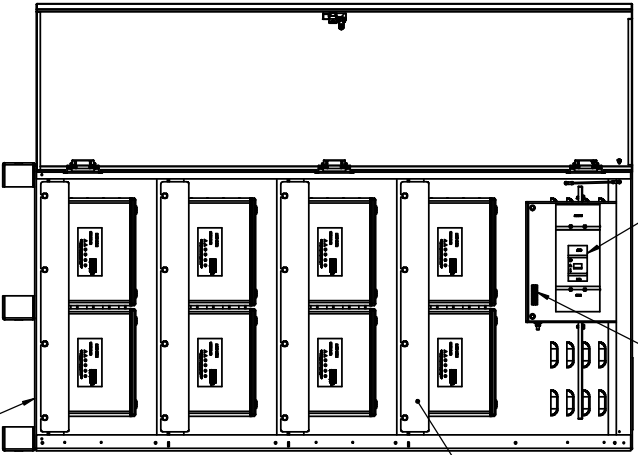
TOP CABLE ENTRY
KNOCK OUT PLATE



ETP36
CABINET SHOWN.
THIS CABINET DOES NOT
USE FRONT RETAINERS.
SHELVES ARE BOLTED TO FRAME.



STANDARD
ETC36/32 CABINET
SHOWN

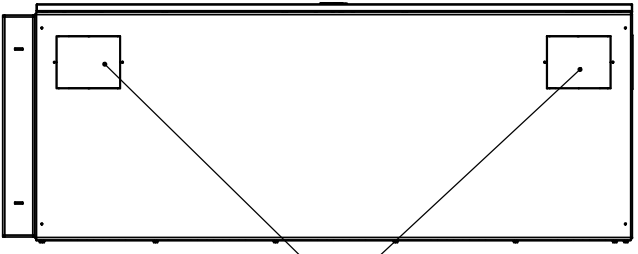


MAIN DC BREAKER
WITH POSITIVE AND
NEGATIVE OUTPUTS

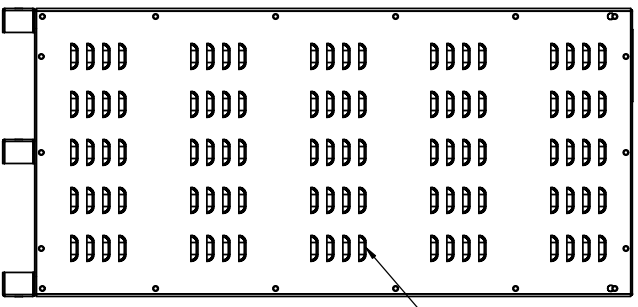
SHUNT AND AUXILIARY
CONTACT TERMINAL STRIP

REMOVABLE
FRONT
BATTERY
RETAINERS

BOTTOM CABLE ENTRY
KNOCK OUT PLATE



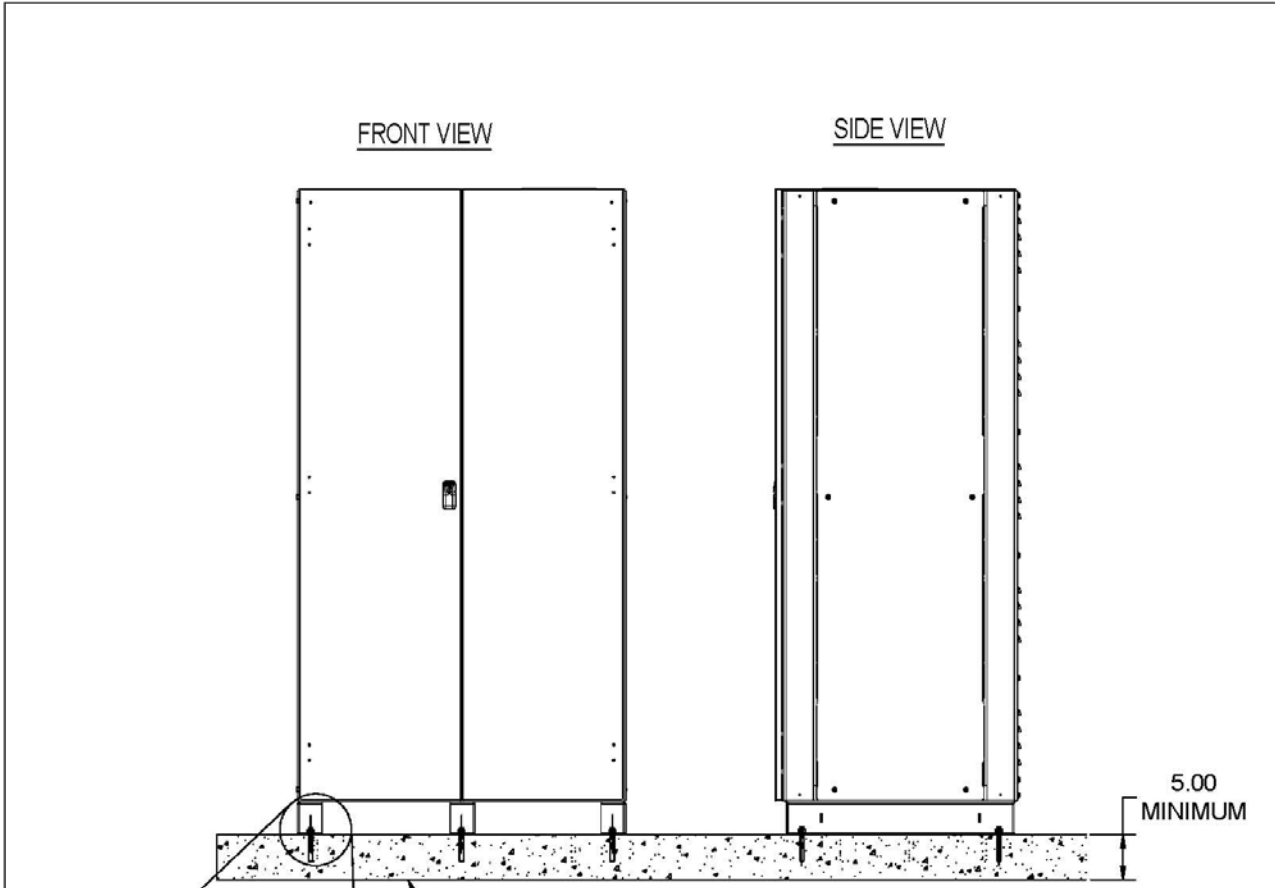
KNOCKOUT FOR
CABLE ENTRY TOP
AND BOTTOM,
BOTH SIDES



REAR PANEL
WITH VENTILATION
LOUVERS

*NOTE: STANDARD HEIGHT FOR ETC36 IS 78.7". STANDARD HEIGHT FOR ETC32 IS 70.9".

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<p>DATE: 11-06-17 DRAWN: LEM</p>	<p>NAME: ETP36 APP: 11-06-17</p>	<p>TITLE: ELECTRONIC SYSTEMS SUPPORT MANUAL DRAWING, ETC/41/ETC36/32</p>	<p>REV: C DWG. NO. DOC-007800</p>
<p>PROJECTION: 1st Angle</p>	<p>DO NOT SCALE DRAWING</p>	<p>SHEET 1 OF 1</p>	

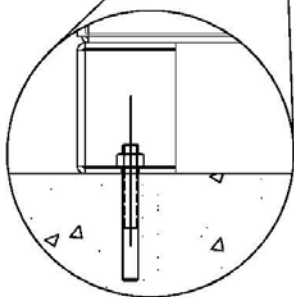


FRONT VIEW

SIDE VIEW

5.00
MINIMUM

CONCRETE FLOOR
MIN. 2000 PSI



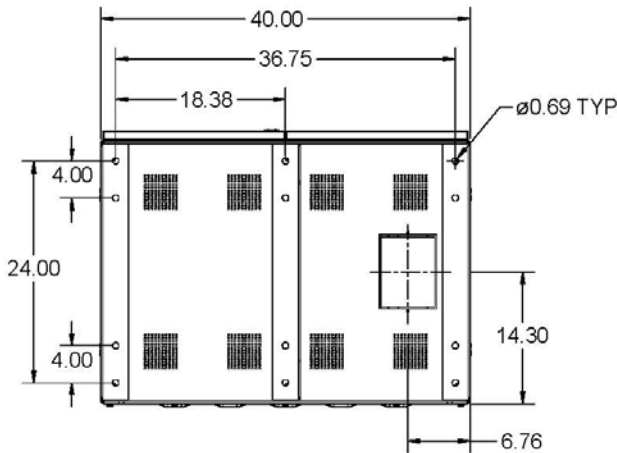
1/2" DIA. HILTI KB-II EXPANSION ANCHORS
PER ER-4627
3-1/2" MIN. EMBED TYP. 6 PLACES (PER CABINET)

THE BATTERY CABINETS HAVE BEEN CERTIFIED TO THE IBC, SECTION 1621 & 1622. CABINET MUST BE ANCHORED WITH 6 HILTI KB-II EXPANSION BOLTS OR EQUIVALENT. BOLT SIZE, MINIMUM EMBEDMENT, AND CONCRETE SPECIFICATIONS MUST BE MET. THIS DRAWING IS A STANDARD REPRESENTATION. CABINET CONFIGURATIONS WILL VARY. ANCHORS SHALL BE 2 PER RAIL AS SHOWN.

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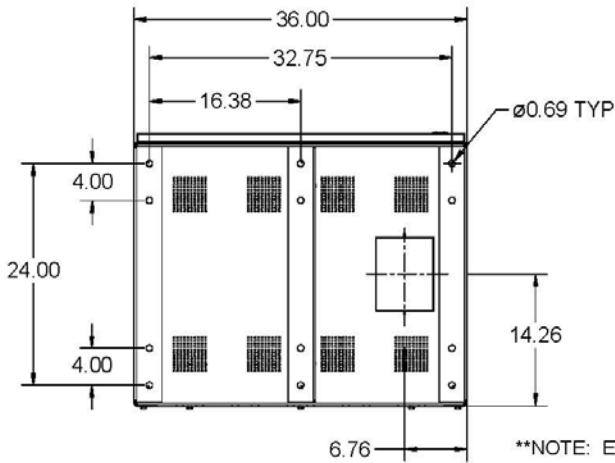
**AUTOCAD DWG

		ELECTRONIC SYSTEM SUPPORT www.ess.to		3233 W. Kingsley Rd. Garland, TX 75041 PH. 972-272-2468 FAX 972-276-9844		
		DRAWN RAN	NAME RAN	DATE 11-05-14	TITLE: ETC SERIES CABINETS SEISMIC ANCHORING	
CHECKED	ENG APPR.	MFG APPR.	O.A.	SIZE A	DWG. NO. DOC-007900	REV B
				SCALE: NONE	WEIGHT: N/A	SHEET 1 OF 2



ETC40/ETC41/ETP40/ETP41 FOOT PRINT

- 41 BLOCS, 492V
- 40 BLOCS, 480V
- 32 BLOCS, 384V
- 30 BLOCS, 360V



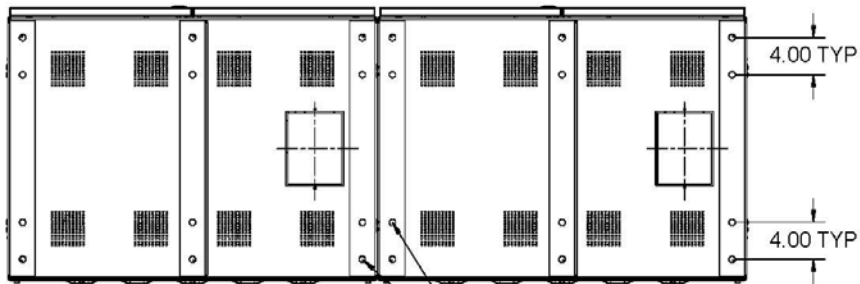
ETC36/ETP36 FOOT PRINT

- 40 BLOCS, 480V
- 32 BLOCS, 384V
- 30 BLOCS, 360V
- 24 BLOCS, 288V

ETC32/ETP32 FOOT PRINT

- 32 BLOCS, 384V
- 30 BLOCS, 360V
- 24 BLOCS, 288V
- 20 BLOCS, 240V

****NOTE: ETC36 AND ETC32 CABINETS HAVE THE SAME FOOT PRINT**

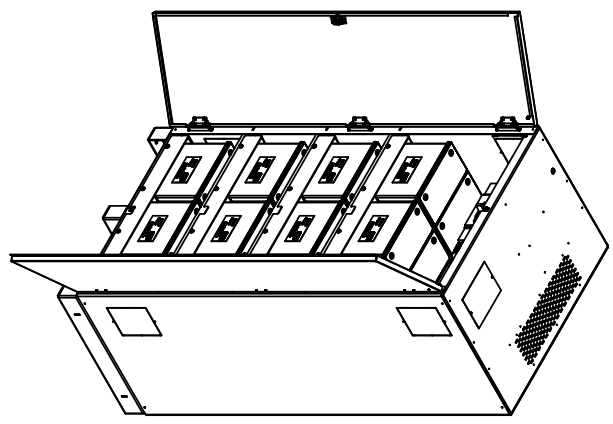
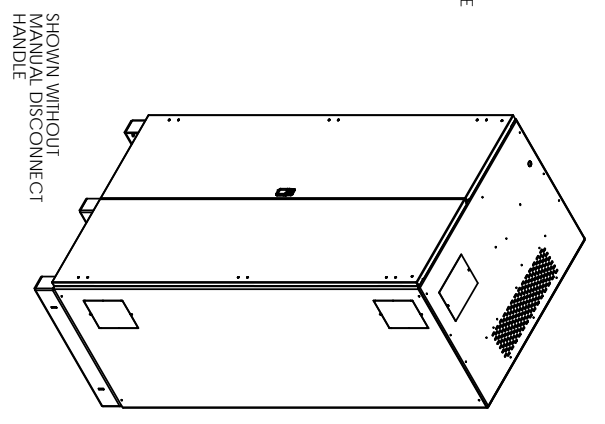
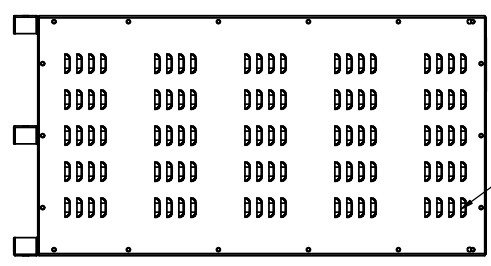
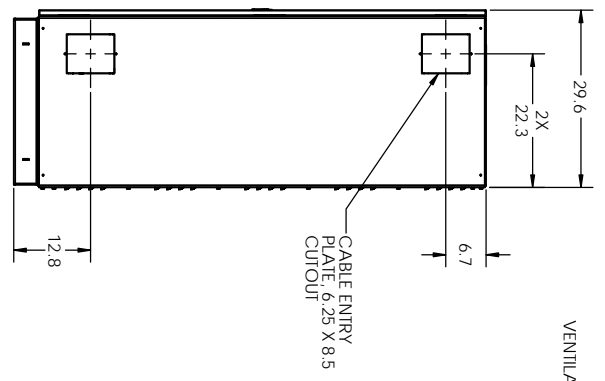
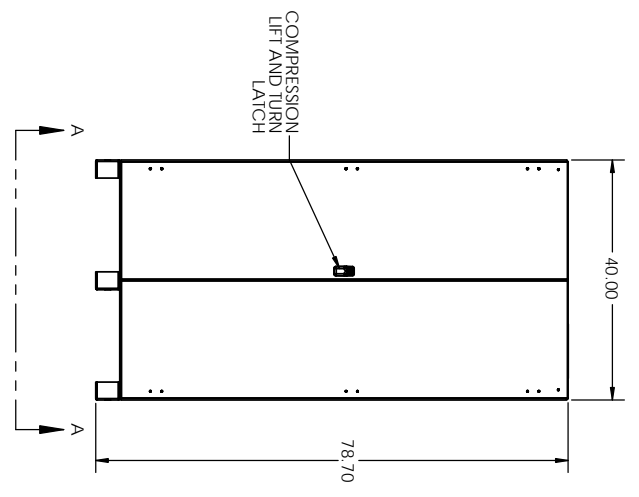
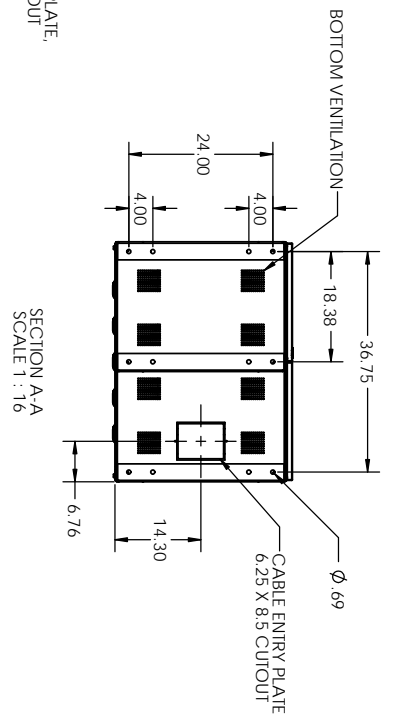
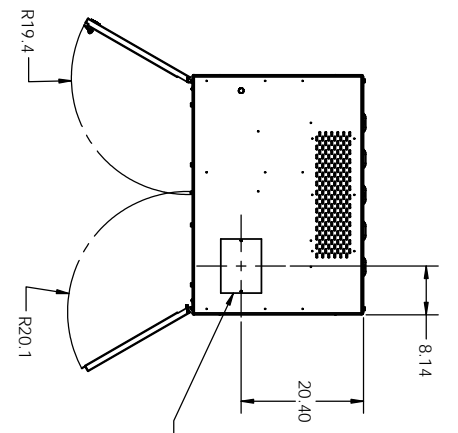


FOR SIDE BY SDIE INSTALLATIONS,
USE AN OFFSETTING PATTERN AT
THE JOINING LOCATION

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**AUTOCAD DWG

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DRAWN	NAME	DATE	TITLE:		
CHECKED	RNA	11-05-14	ETC SERIES CABINETS SEISMIC ANCHORING		
ENG APPR.			SIZE	DWG. NO.	REV
MFG APPR.			A	DOC-007900	B
Q.A.			SCALE: NONE		WEIGHT: N/A
			SHEET 2 OF 2		



- CABINET NOTES:**
1. NEMA 1 DESIGN.
 2. EMPTY CABINET WEIGHT 565 LBS (247.7 KG)
 3. UL 1778 LISTED AND FULLY TESTED AT THE FACTORY PRIOR TO SHIPPING.
 4. FULLY WELDED FRAME, MANUFACTURED FROM HEAVY GAUGE STEEL.
 5. POWDER COATED WITH A CORROSION RESISTANT, EPOXY HYBRID POWDER USING A FIVE STAGE EMERSON PRETREATMENT PROCESS.
 6. BATTERIES CAN BE ACCESSED FROM FRONT, REAR, AND BOTH SIDES.
 7. CUSTOM DESIGNED PALLETS FOR SHIPPING, ANYWHERE LOCALLY AND GLOBALLY (UPON REQUEST).
 8. BATTERY CABINET CAN BE MOVED WITH A NORMAL PALLET JACK FROM FRONT AND REAR.
 9. BATTERIES ARE SECURED WITH NON-CONDUCTIVE STRAPPING FOR SAFE TRANSIT.
 10. STANDARD AND CUSTOM SPILL CONTAINMENT OPTIONS ARE AVAILABLE.

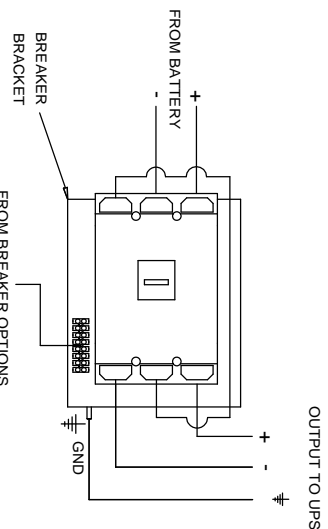
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ELECTRICAL NOTES:

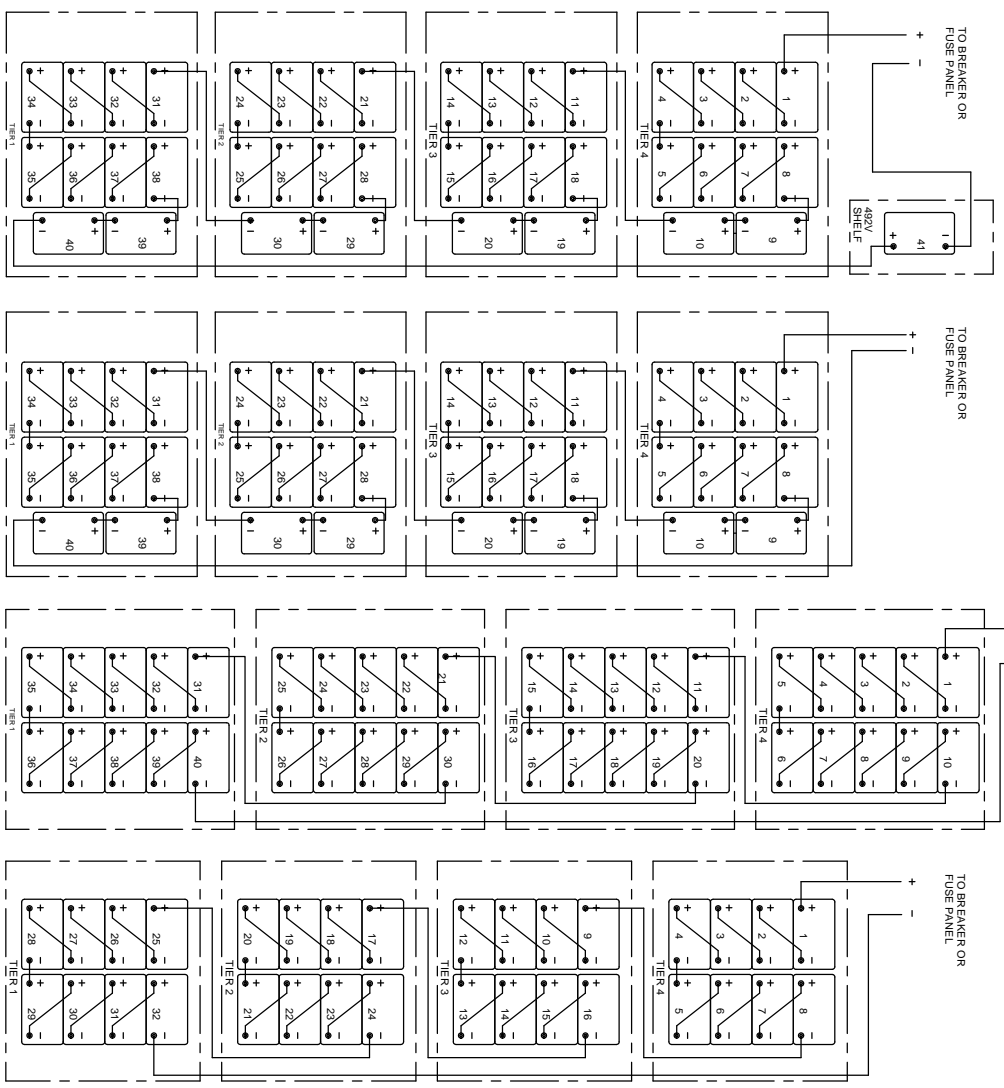
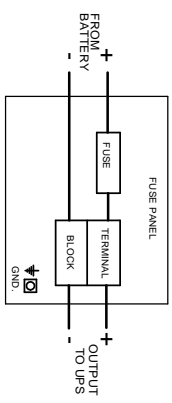
1. ALL CABLES ARE UL LISTED.
2. ALL BREAKERS ARE UL RECOGNIZED.
3. ALL FUSES ARE UL RECOGNIZED, TYPE A50P, A70P OR EQUIVALENT (FUSED CABINETS ARE NOT LISTED IN UL FILE). ALWAYS REPLACE WITH SAME TYPE OR ITS EQUIVALENT.
4. TERMINAL BLOCKS ARE UL RECOGNIZED, 6000V RATED.
5. CABINETS ARE SHIPPED WITH THE BREAKER IN THE TRIPPED POSITION.
6. CABINET GROUND CONNECTION IS A 5/16-18 THREADED STUD.
7. CABLES BETWEEN BATTERY CABINET TO UNINTERRUPTIBLE POWER SUPPLY ARE OPTIONAL.

BREAKER DETAIL

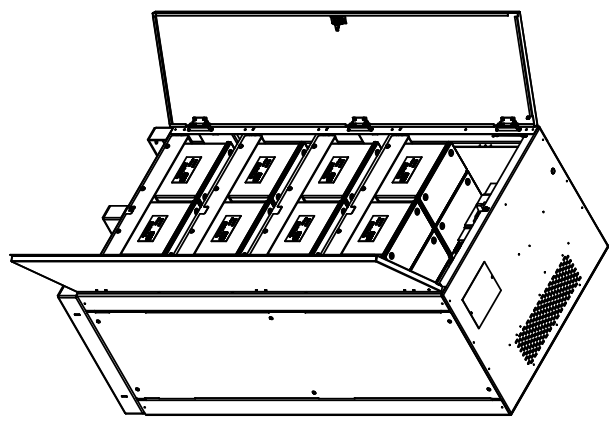
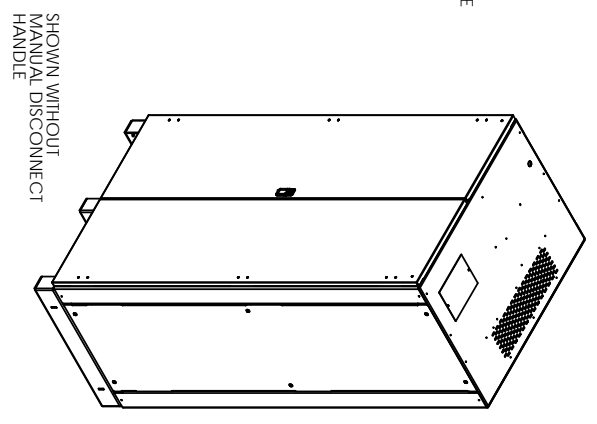
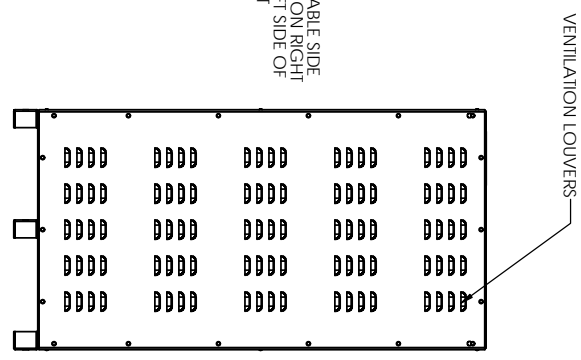
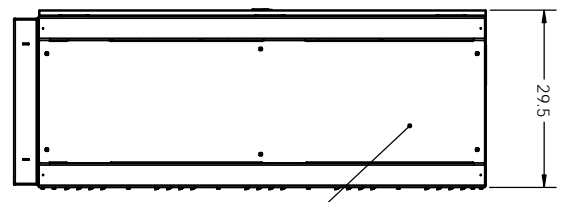
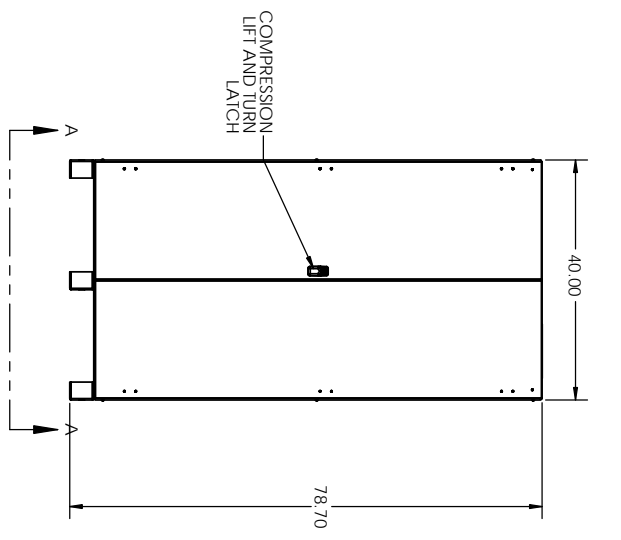
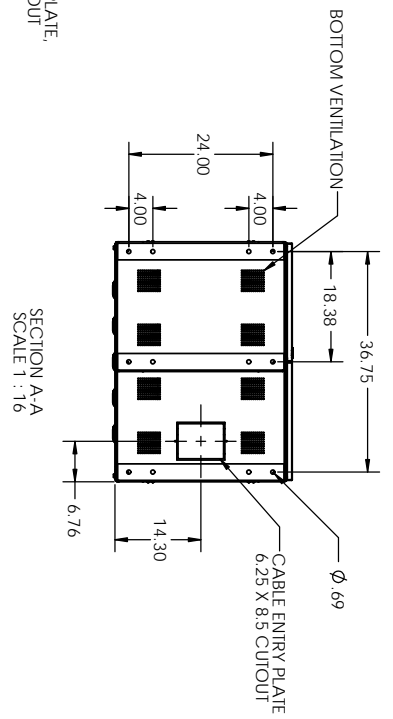
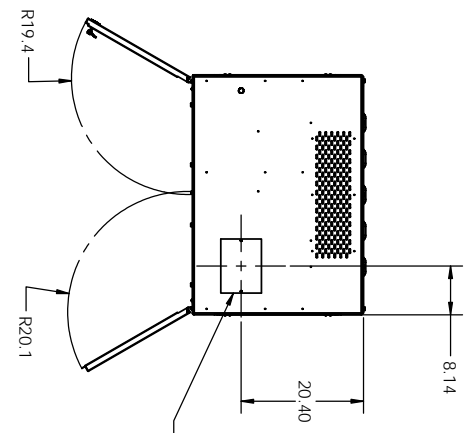


AUXILIARY CONTACTS LISTED APPLICABLE WHEN BREAKER IS IN THE CLOSED (ON) POSITION

FUSE OPTION



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<p>PROJECTION: </p>	<p>DO NOT SCALE DRAWING: </p>	<p>SHEET 2 OF 2</p>	



- CABINET NOTES:**
1. NEMA 1 DESIGN
 2. EMPTY CABINET WEIGHT 545 LBS (247.7 KG)
 3. FULLY LOADED CABINET WEIGHT 1778 LBS (806.2 KG)
 4. FULLY WELDED FRAME, MANUFACTURED FROM HEAVY GAUGE STEEL.
 5. POWDER COATED WITH A CORROSION RESISTANT, EPOXY HYBRID POWDER USING A FIVE STAGE EMERSON PRETREATMENT PROCESS.
 6. BATTERIES CAN BE ACCESSED FROM FRONT, REAR, AND BOTH SIDES.
 7. CUSTOM DESIGNED PALLETS FOR SHIPPING, ANYWHERE LOCALLY AND GLOBALLY (UPON REQUEST).
 8. BATTERY CABINET CAN BE MOVED WITH A NORMAL PALLET JACK FROM FRONT AND REAR.
 9. BATTERIES ARE SECURED WITH NON-CONDUCTIVE STRAPPING FOR SAFE TRANSIT.
 10. STANDARD AND CUSTOM SPILL CONTAINMENT OPTIONS ARE AVAILABLE.

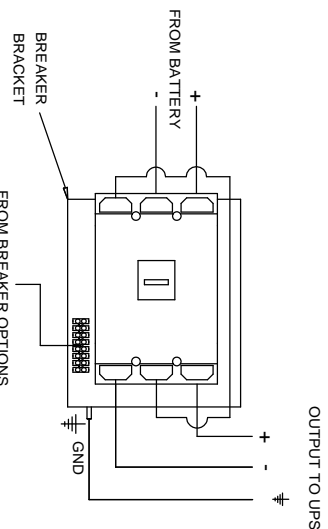
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<p>ESS ELECTRONIC SYSTEMS SUPPORT www.ess.io</p>	<p>DATE: 11-11-14</p>	<p>TITLE: MANUAL DRAWING, ETC-40, MECHANICAL/ELECTRICAL</p>	<p>3233 W. Kingsley Rd. Garland, Texas 75041 PH: 972-272-2468 FAX: 972-278-9848</p>
<p>DRAWN: RVA</p>	<p>DATE: 11-11-14</p>	<p>DWG. NO. DOC-008000</p>	<p>REV B</p>
<p>UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES</p>	<p>PROJECTION: </p>	<p>DO NOT SCALE DRAWING</p>	<p>SHEET 1 OF 2</p>



ELECTRICAL NOTES:

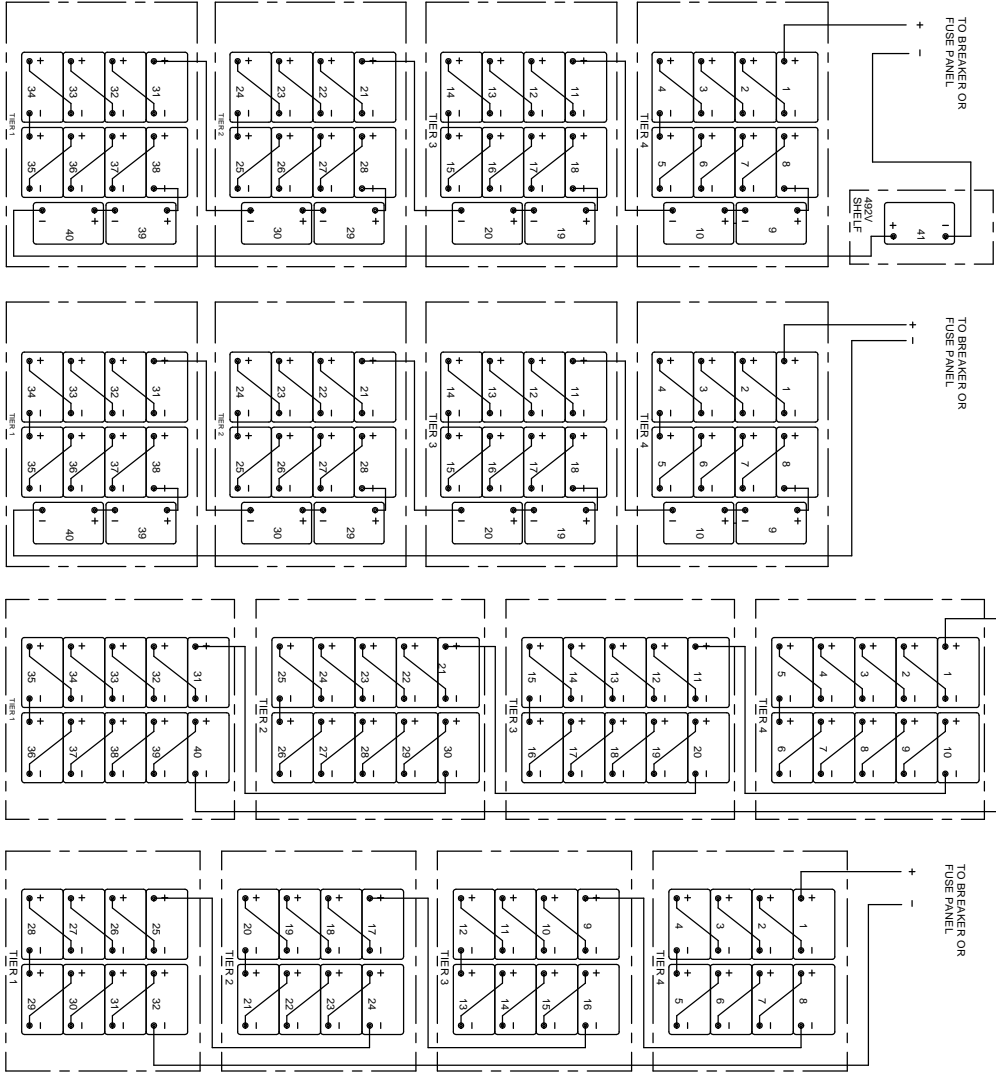
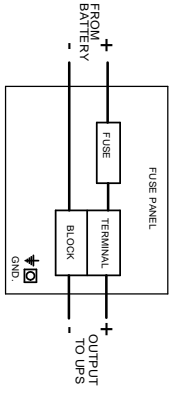
1. ALL CABLES ARE UL LISTED.
2. ALL BREAKERS ARE UL RECOGNIZED.
3. ALL FUSES ARE UL RECOGNIZED, TYPE A50P, A70P OR EQUIVALENT (FUSED CABINETS ARE NOT LISTED IN UL FILE). ALWAYS REPLACE WITH SAME TYPE OR ITS EQUIVALENT.
4. TERMINAL BLOCKS ARE UL RECOGNIZED, 600V RATED.
5. CABINETS ARE SHIPPED WITH THE BREAKER IN THE TRIPPED POSITION.
6. CABINET GROUND CONNECTION IS A 5/16-18 THREADED STUD.
7. CABLES BETWEEN BATTERY CABINET TO UNINTERRUPTIBLE POWER SUPPLY ARE OPTIONAL.

BREAKER DETAIL

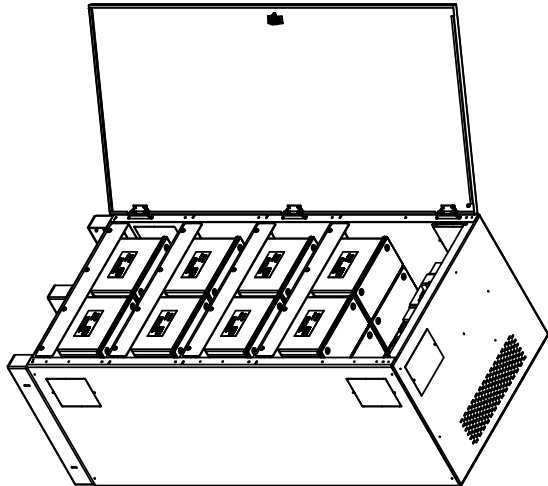
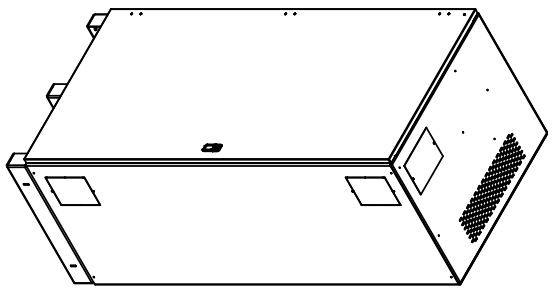
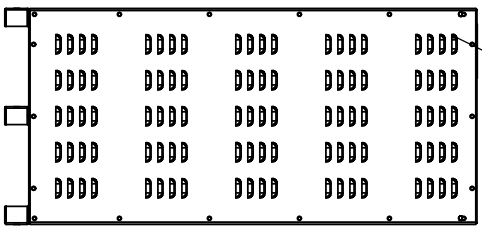
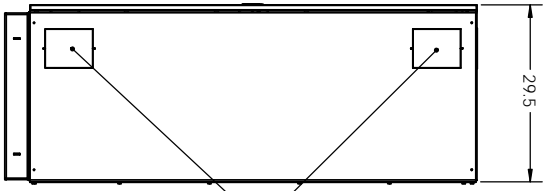
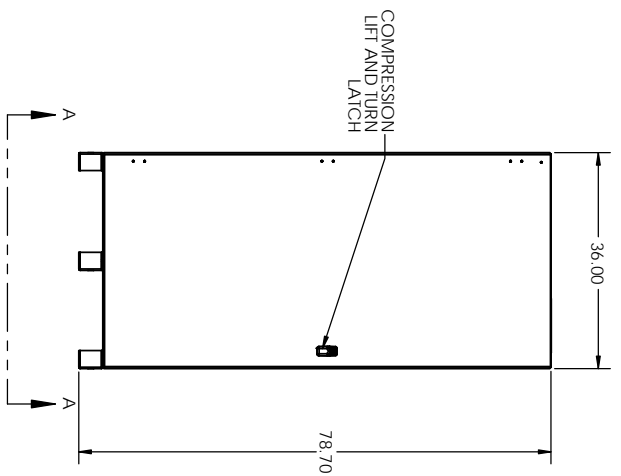
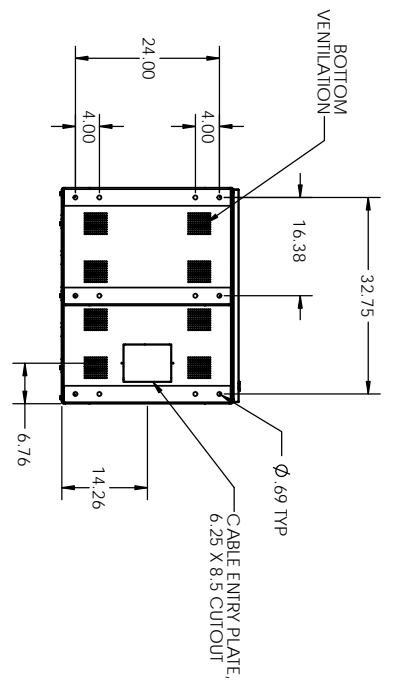
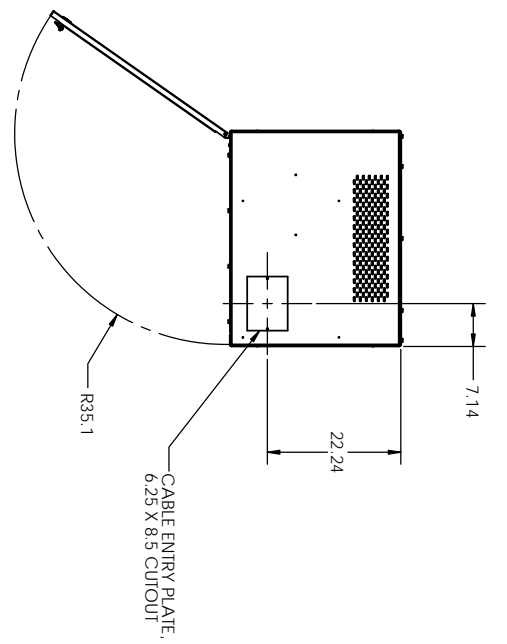


AUXILIARY CONTACTS LISTED APPLICABLE WHEN BREAKER IS IN THE CLOSED (ON) POSITION

FUSE OPTION



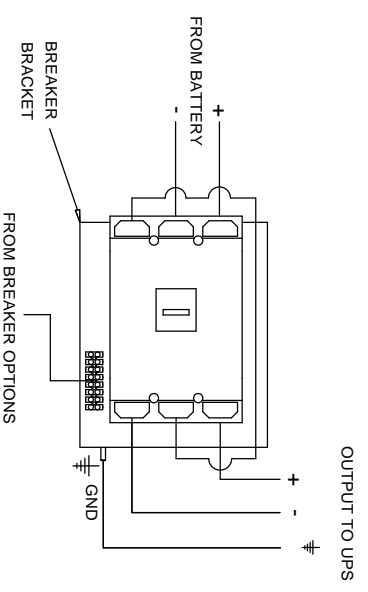
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<p>DRAWN: RNA DATE: 11-11-14</p>	<p>TITLE: MANUAL DRAWING, ETC40, MECHANICAL/ELECTRICAL</p>
<p>DESIGNED: RNA DATE: 11-11-14</p>	<p>DWG. NO. DOC-008000</p>
<p>PROJECTION: </p>	<p>REV: B</p>



- CABINET NOTES:**
1. NEMA 1 DESIGN.
 2. EMPTY CABINET WEIGHT: 510 LBS (231.8 KG)
 3. UL 1778 LISTED AND FULLY TESTED AT THE FACTORY PRIOR TO SHIPPING.
 4. FULLY WELDED FRAME. MANUFACTURED FROM HEAVY GAUGE STEEL.
 5. POWDER COATED WITH A CORROSION RESISTANT, EPOXY HYBRID POWDER USING A FIVE STAGE EMERSON PRETREATMENT PROCESS.
 6. BATTERIES CAN BE ACCESSED FROM FRONT, REAR, AND BOTH SIDES.
 7. CUSTOM DESIGNED PALLETS FOR SHIPPING. ANYWHERE LOCALLY AND GLOBALLY (UPON REQUESTED)

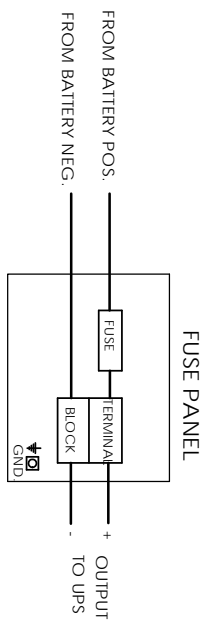
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<p>ESS ELECTRONIC SYSTEMS SUPPORT www.ess.io</p>	<p>NAME: [] DATE: 11-11-14 DRAWN BY: [] APPR: []</p>	<p>TITLE: MANUAL DRAWING, ETC36, MECHANICAL/ELECTRICAL</p>	<p>DWG. NO. DOC-008100 REV B</p>
<p>PROJECTION: []</p>		<p>DO NOT SCALE DRAWING. SHEET 1 OF 2</p>	

BREAKER DETAIL



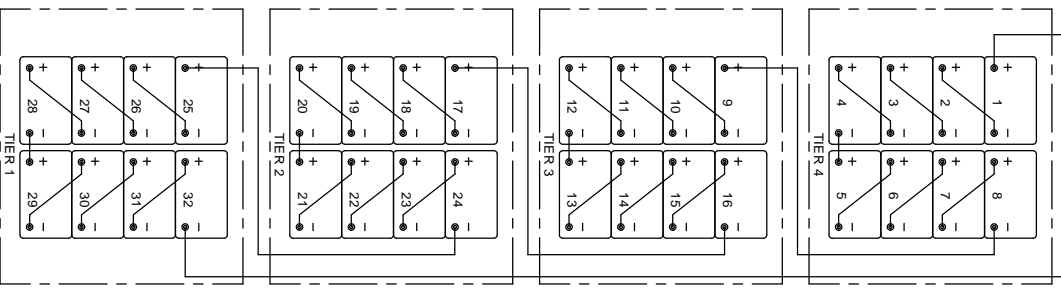
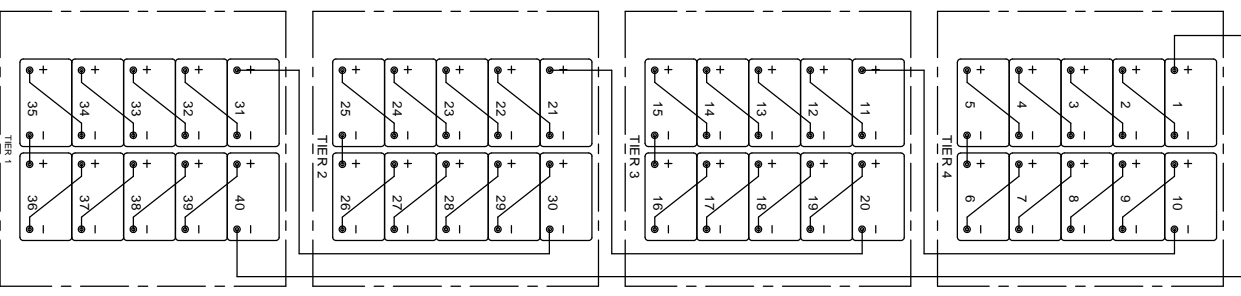
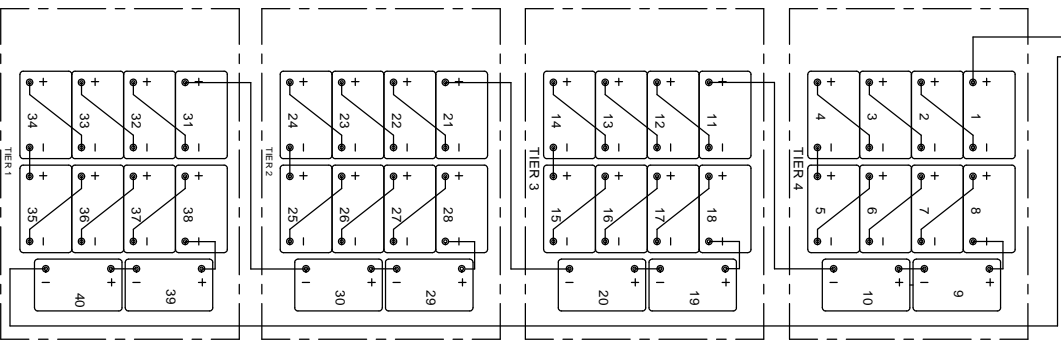
AUXILIARY CONTACTS LISTED APPLICABLE WHEN BREAKER IS IN THE CLOSED (ON) POSITION

FUSE OPTION



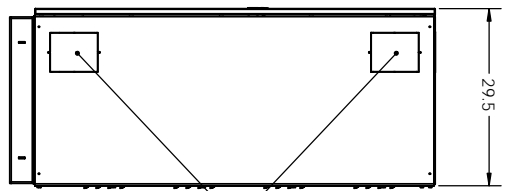
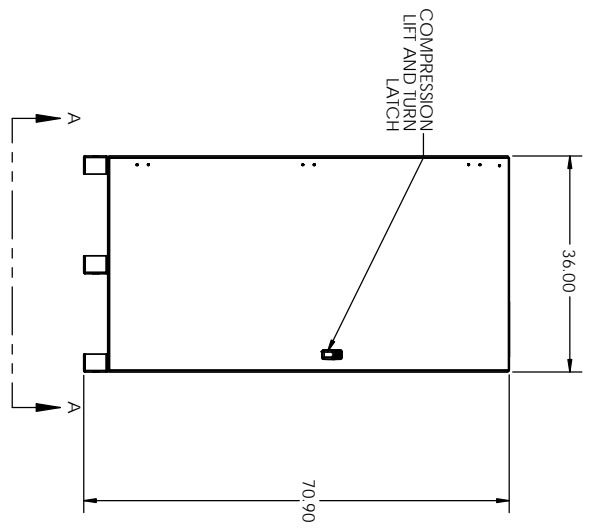
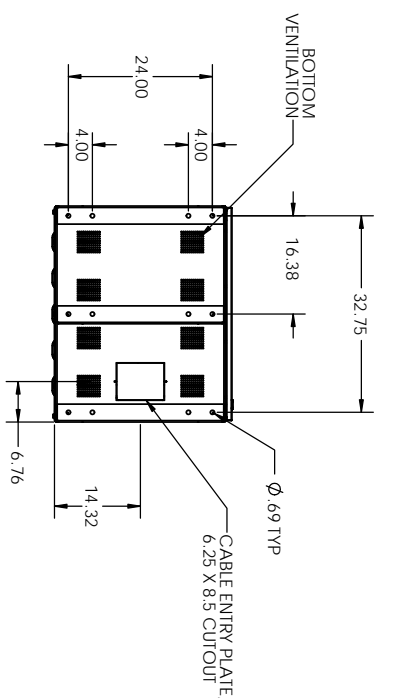
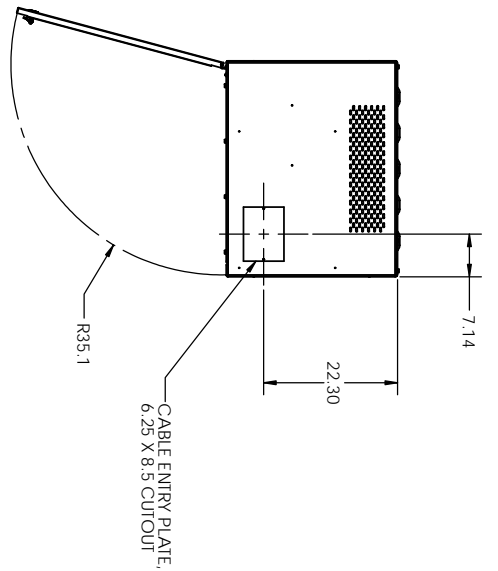
ELECTRICAL NOTES:

1. ALL CABLES ARE UL LISTED.
2. ALL BREAKERS ARE UL LISTED.
3. ALL FUSES ARE UL RECOGNIZED, TYPE A50P A70P OR EQUIVALENT (FUSED CABINETS ARE NOT LISTED IN UL FILE).
4. ALWAYS REPLACE WITH SAME TYPE OR ITS EQUIVALENT.
5. TERMINAL BLOCKS ARE UL RECOGNIZED, 600V RATED.
6. CABINETS ARE SHIPPED WITH THE BREAKER IN THE TRIPPED POSITION.
7. CABINET GROUND CONNECTION IS A 5/16-18 THREADED STUD. CABLES BETWEEN BATTERY CABINET TO UNINTERRUPTIBLE POWER SUPPLY ARE OPTIONAL.

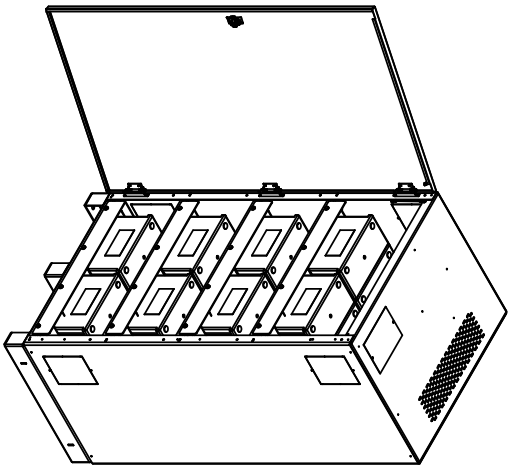
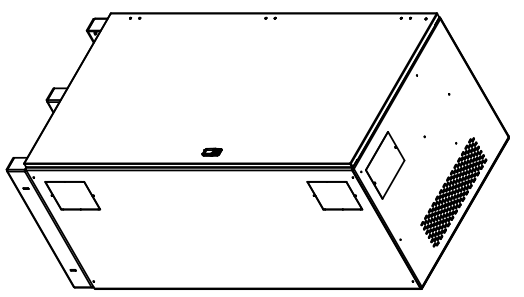
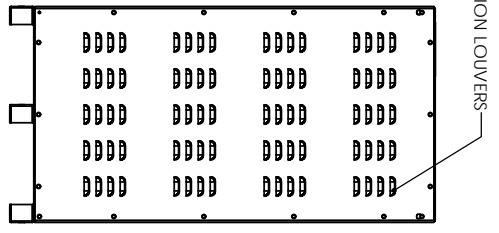


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DATE	11-11-14	TITLE	MANUAL DRAWING, ETC36, MECHANICAL/ELECTRICAL
DRAWN BY		DWG. NO.	DOC-008100
APPROVED BY		REV	B
DIMENSIONS ARE IN INCHES		DO NOT SCALE DRAWING	
PRECISION		SHEET 2 OF 2	



KNOCK-OUTS PROVIDED ON BOTH SIDES OF CABINET FOR EASY SIDE BY SIDE INSTALLATION OF CABINETS.



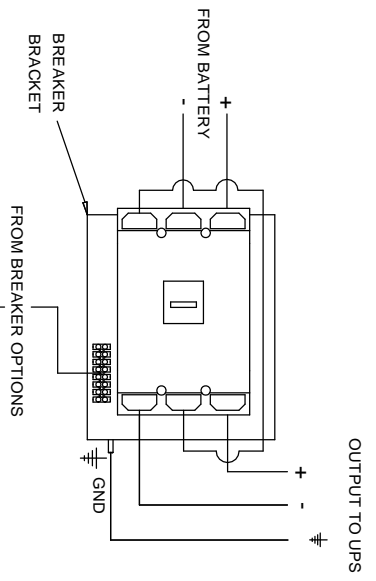
- CABINET NOTES:**
1. NEMA 1 DESIGN.
 2. EMPTY CABINET WEIGHT: 450 LBS
 3. UL 1778 LISTED AND FULLY TESTED AT THE FACTORY PRIOR TO SHIPPING.
 4. FULLY WELDED FRAME. MANUFACTURED FROM HEAVY GAUGE STEEL.
 5. POWDER COATED WITH A CORROSION RESISTANT, EPOXY HYBRID POWDER USING A FIVE STAGE EMERSON PRETREATMENT PROCESS
 6. BATTERIES CAN BE ACCESSED FROM FRONT, REAR AND BOTH SIDES
 7. CUSTOM DESIGNED PALETS FOR SHIPPING ANYWHERE LOCALLY AND GLOBALLY (UPON REQUEST).

		ELECTRONIC SYSTEMS SUPPORT www.ess.io		3233 W. Kingsley Rd. Garland, Texas 75041 PH: 972-272-2468 FAX: 972-276-9844	
DRAWN: RVA DATE: 11-11-14 CHECKED: [blank] DIMENSIONS ARE IN INCHES	TITLE: MANUAL DRAWING, ETC32, MECHANICAL/ELECTRICAL DWG. NO. DOC-008200 REV B	PROJECT: [blank]	DO NOT SCALE DRAWING	SHEET 1 OF 2	PROJECTION: [blank]

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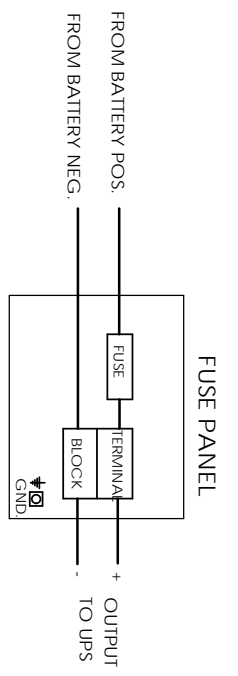


BREAKER DETAIL



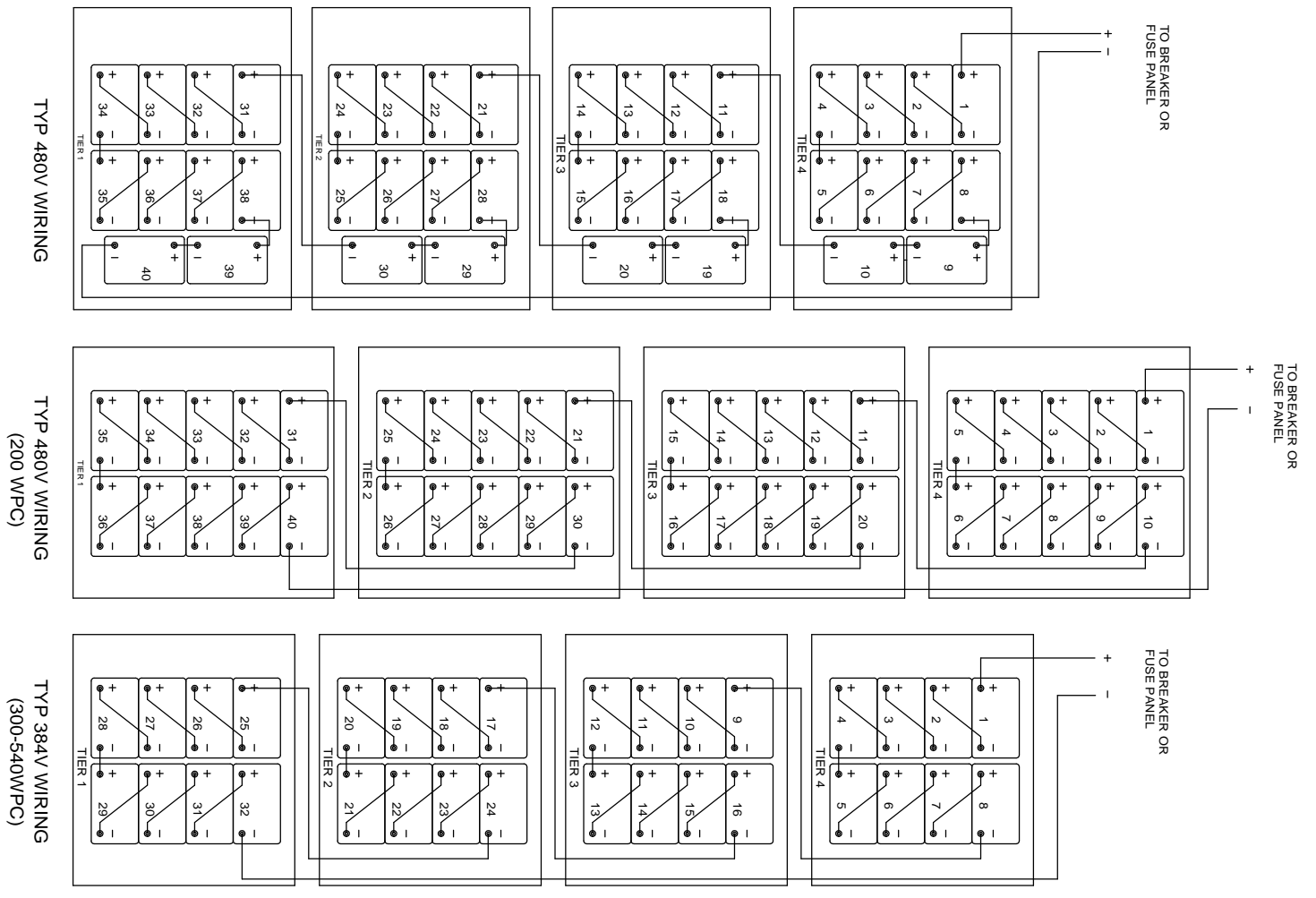
AUXILIARY CONTACTS LISTED APPLICABLE WHEN BREAKER IS IN THE CLOSED (ON) POSITION

FUSE OPTION

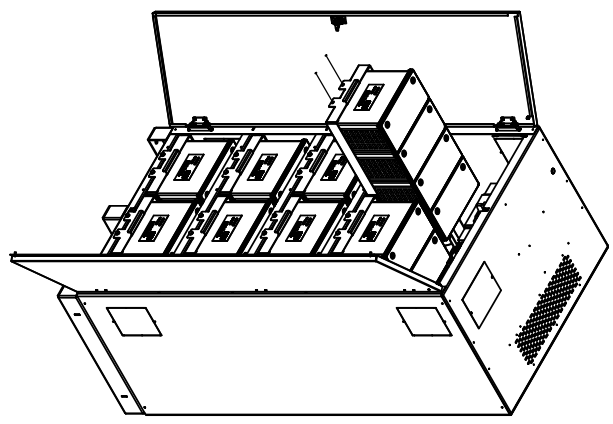
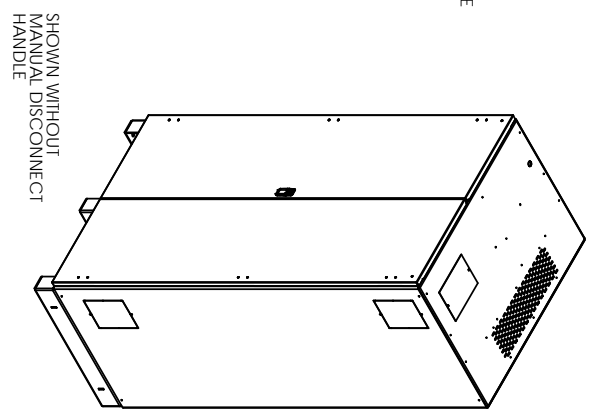
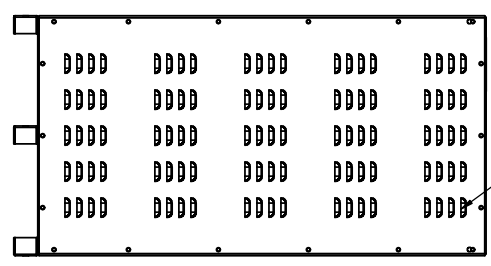
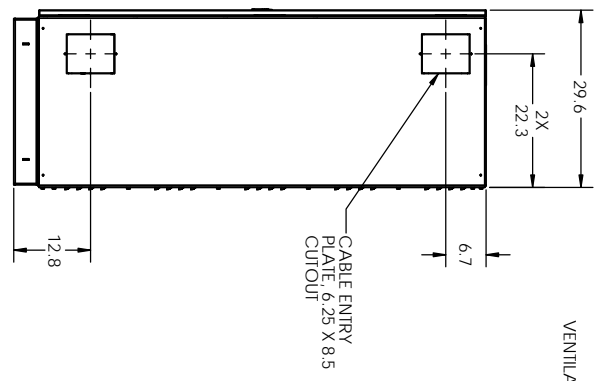
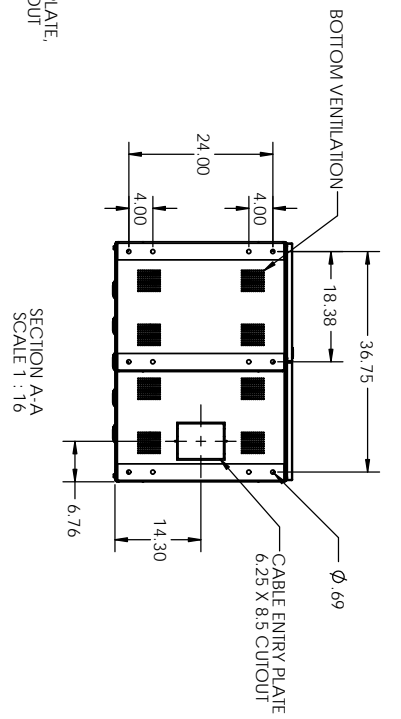
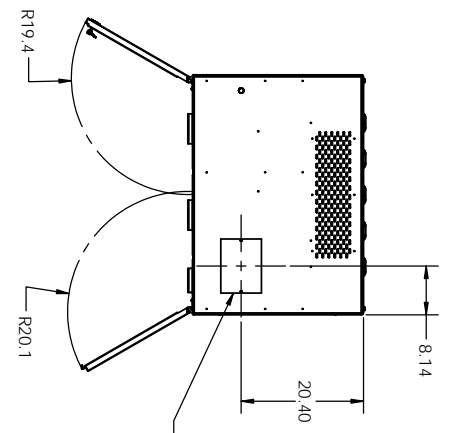


ELECTRICAL NOTES:

1. ALL CABLES ARE UL LISTED
2. ALL BREAKERS ARE UL RECOGNIZED
3. ALL FUSES ARE UL RECOGNIZED TYPE A50P, A70P OR EQUIVALENT (FUSED CABINETS ARE NOT LISTED IN UL FILE). ALWAYS REPLACE WITH SAME TYPE OR ITS EQUIVALENT.
4. TERMINAL BLOCKS PER UL RECOGNIZED 600V RATED
5. CABINETS ARE SHIPPED WITH THE BREAKER IN THE TIPPED POSITION.
6. CABLES AND WIRE CONNECTIONS ARE 5/16"-18 BRASS PLATED STUD SUPPLY ARE OPTIONAL.
7. SUPPLY ARE OPTIONAL.



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DRAWN: [] DATE: 11-11-14 APPR: [] PROJECT: []	NAME: [] TITLE: MANAGER DWG. NO. DOC-008200 REV B	TITLE: MECHANICAL/ELECTRICAL SHEET 2 OF 2	PROJECT: []



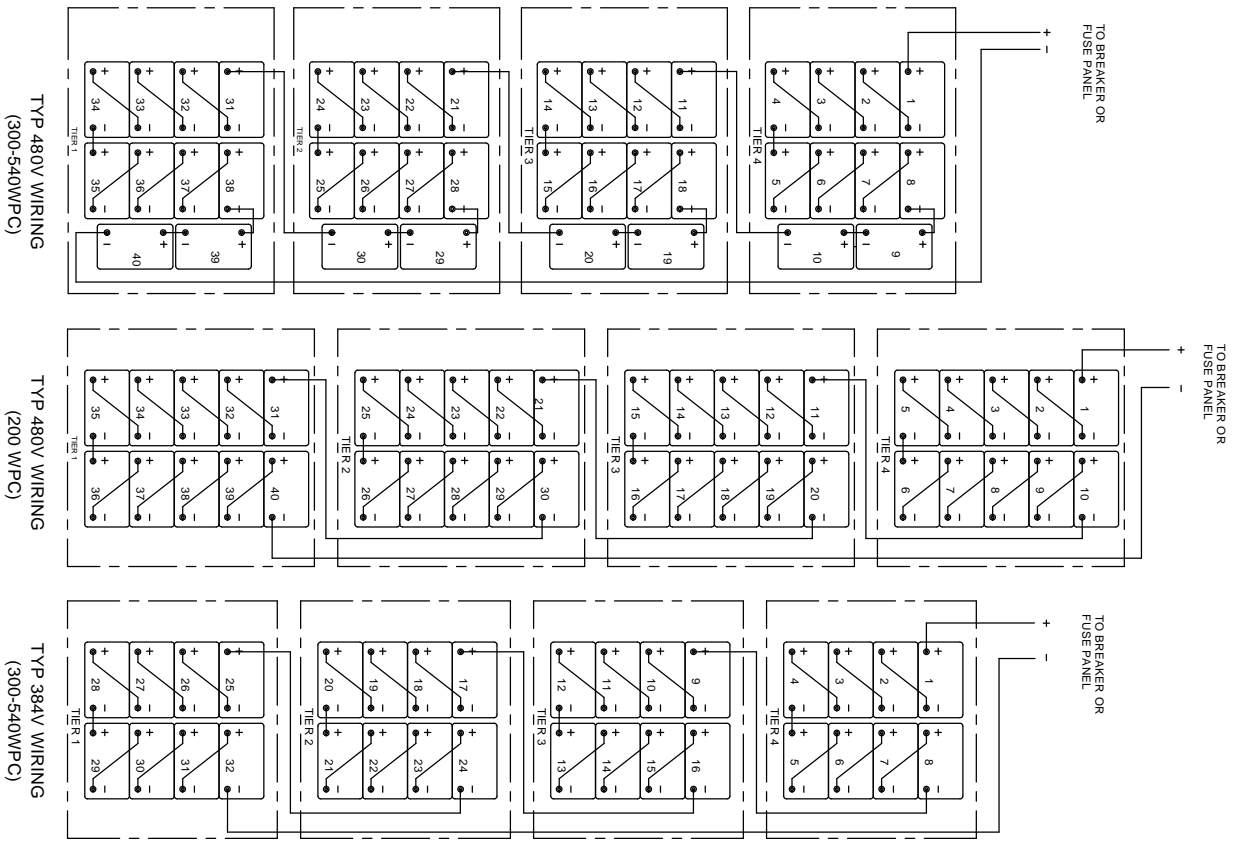
- CABINET NOTES:**
1. NEMA 1 DESIGN.
 2. EMPTY CABINET WEIGHT 7.45 LBS (256 KG).
 3. UL 1778 LISTED AND FULLY TESTED AT THE FACTORY PRIOR TO SHIPPING.
 4. FULLY WELDED FRAME, MANUFACTURED FROM HEAVY GAUGE STEEL.
 5. POWDER COATED WITH A CORROSION RESISTANT, EPOXY HYBRID POWDER USING A FIVE STAGE EMERSON PRETREATMENT PROCESS.
 6. BATTERIES CAN BE ACCESSED FROM FRONT, REAR, AND BOTH SIDES.
 7. CUSTOM DESIGNED PALLET FOR SHIPPING, ANYWHERE LOCALLY AND GLOBALLY (UPON REQUEST).
 8. BATTERY CABINET CAN BE MOVED WITH A NORMAL PALLET JACK FROM FRONT AND REAR.
 9. BATTERIES ARE SECURED WITH NON-CONDUCTIVE STRAPPING FOR SAFE TRANSIT.
 10. STANDARD AND CUSTOM SPILL CONTAINMENT OPTIONS ARE AVAILABLE.

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DRAWN: BNA DATE: 12-20-16 CHECKED: [Signature] DATE: [Signature] DIMENSIONS ARE IN INCHES	TITLE: MANUAL DRAWING, ETP#1, MECHANICAL/ELECTRICAL DWG. NO.: DOC-012900 REV: A
3233 W. Kingsley Rd. Garland, Texas 75041 PH: 972-272-2468 FAX: 972-278-9848 www.ess.io	PROJECTION: DO NOT SCALE DRAWING SHEET 1 OF 2

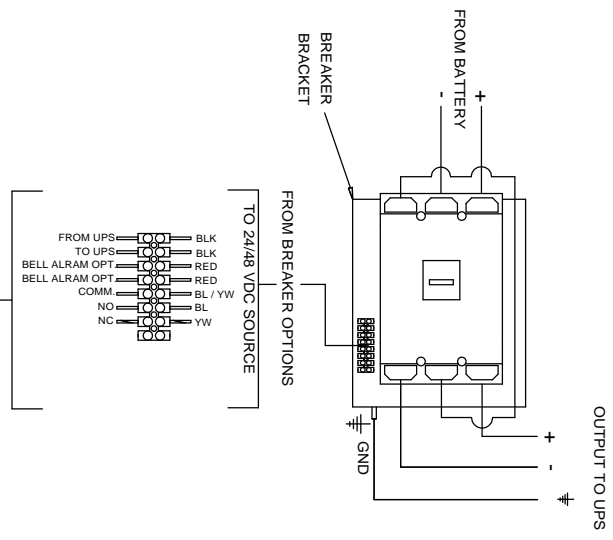


ELECTRICAL NOTES:

1. ALL CABLES ARE UL LISTED.
2. ALL BREAKERS ARE UL RECOGNIZED.
3. ALL FUSES ARE UL RECOGNIZED, TYPE A50P, A70P OR EQUIVALENT (FUSED CABINETS ARE NOT LISTED IN UL FILE). ALWAYS REPLACE WITH SAME TYPE OR ITS EQUIVALENT.
4. TERMINAL BLOCKS ARE UL RECOGNIZED, 600V RATED.
5. CABINETS ARE SHIPPED WITH THE BREAKER IN THE TRIPPED POSITION.
6. CABINET GROUND CONNECTION IS A 5/16-18 THREADED STUD.
7. CABLES BETWEEN BATTERY CABINET TO UNINTERRUPTIBLE POWER SUPPLY ARE OPTIONAL.

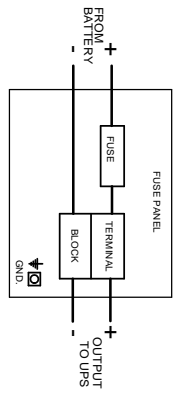


BREAKER DETAIL



AUXILIARY CONTACTS LISTED APPLICABLE WHEN BREAKER IS IN THE CLOSED (ON) POSITION

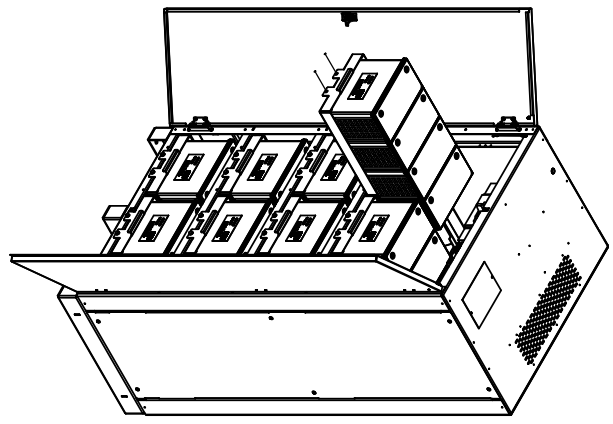
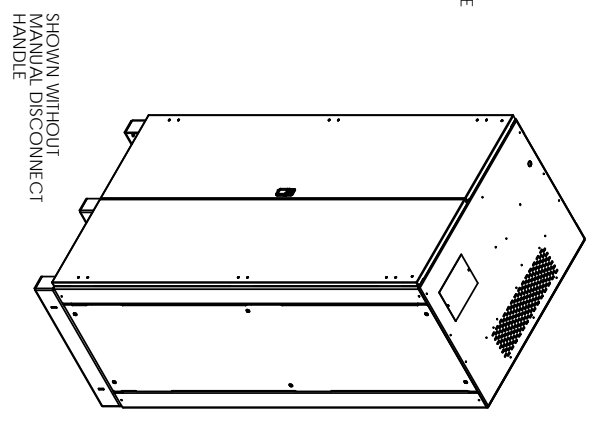
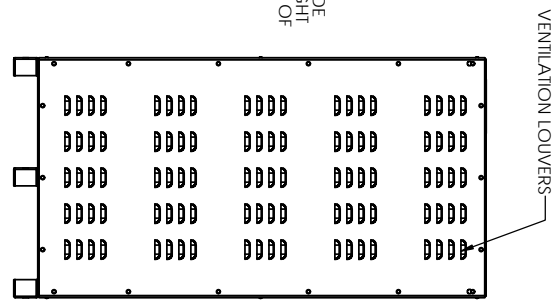
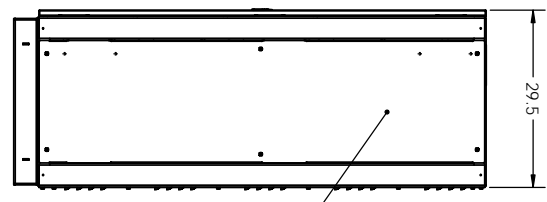
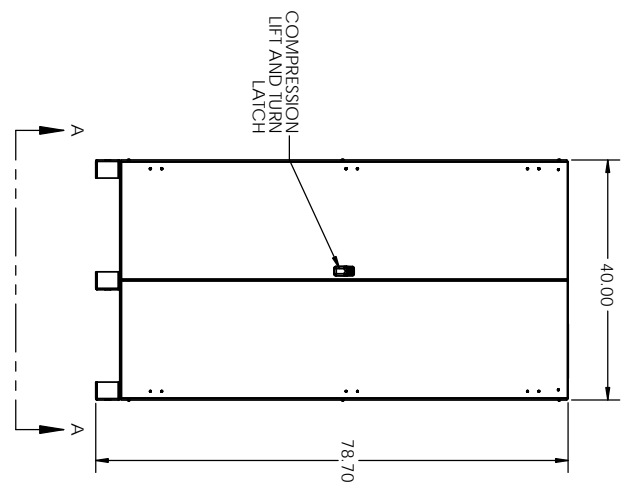
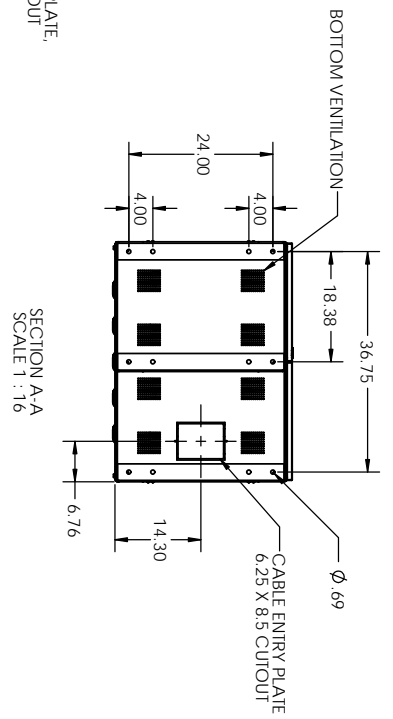
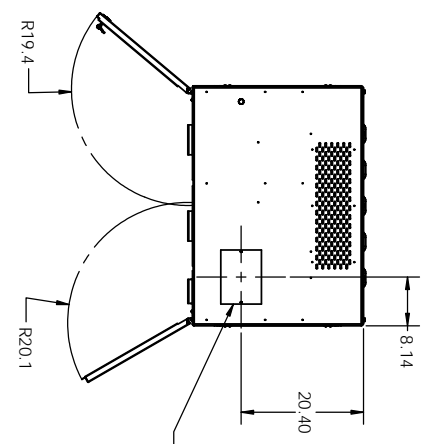
FUSE OPTION



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DRAWN: RNA	DATE: 12-20-16
APPR: [Signature]	TITLE: MANUAL DRAWING, ETP41, MECHANICAL/ELECTRICAL
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES	DWG. NO. DOC-012900
PROJECTION: [Symbol]	REV: A
DO NOT SCALE DRAWING	SHEET 2 OF 2



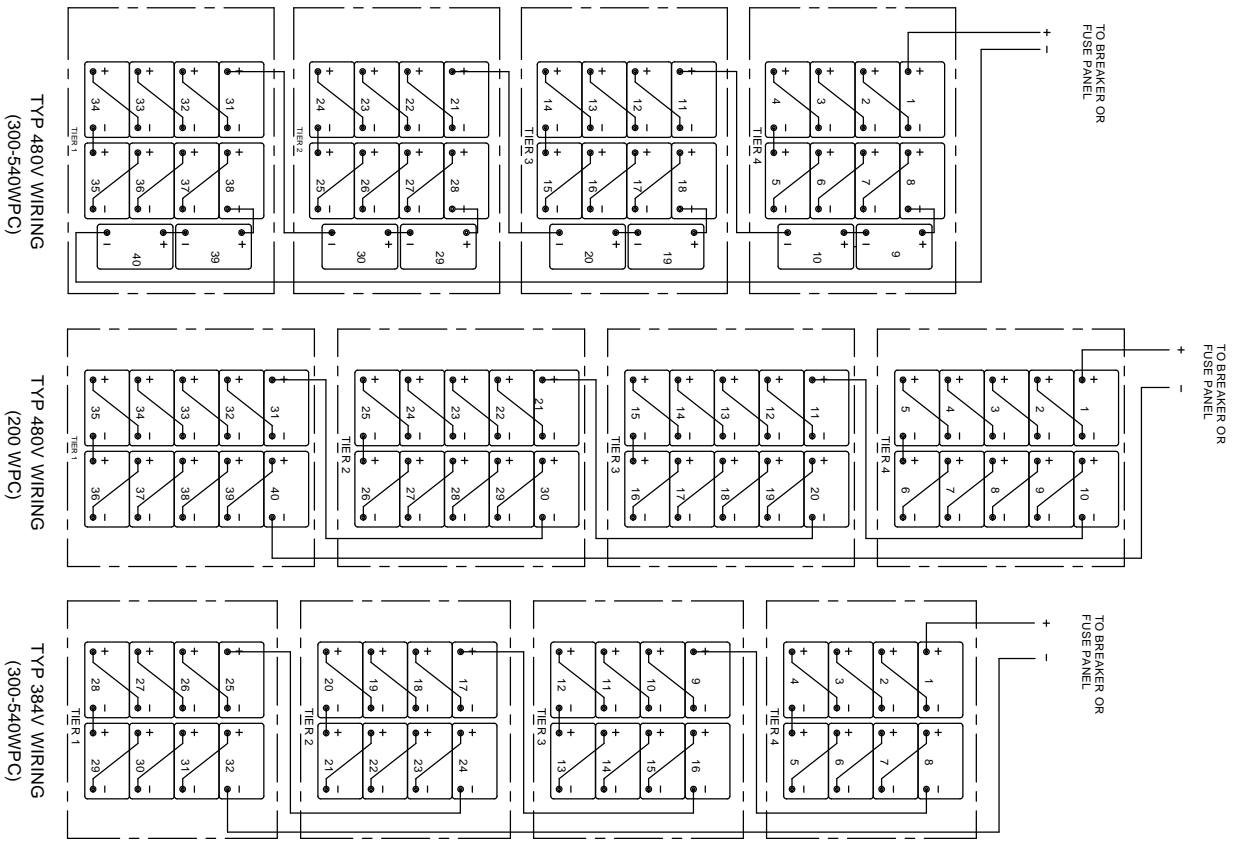
- CABINET NOTES:**
1. NEMA 1 DESIGN.
 2. EMPTY CABINET WEIGHT 7.45 LBS (256 KG).
 3. UL 1778 LISTED AND FULLY TESTED AT THE FACTORY PRIOR TO SHIPPING.
 4. FULLY WELDED FRAME, MANUFACTURED FROM HEAVY GAUGE STEEL.
 5. POWDER COATED WITH A CORROSION RESISTANT, EPOXY HYBRID POWDER USING A FIVE STAGE EMERSON PRETREATMENT PROCESS.
 6. BATTERIES CAN BE ACCESSED FROM FRONT, REAR, AND BOTH SIDES.
 7. CUSTOM DESIGNED PALLETS FOR SHIPPING, ANYWHERE LOCALLY AND GLOBALLY (UPON REQUEST).
 8. BATTERY CABINET CAN BE MOVED WITH A NORMAL PALLET JACK FROM FRONT AND REAR.
 9. BATTERIES ARE SECURED WITH NON-CONDUCTIVE STRAPPING FOR SAFE TRANSIT.
 10. STANDARD AND CUSTOM SPILL CONTAINMENT OPTIONS ARE AVAILABLE.

PROPRIETARY AND CONFIDENTIAL THE INFORMATION CONTAINED IN THIS DRAWING IS THE PROPERTY OF ESS. IT IS TO BE USED FOR THE PROJECT AND SITE SPECIFICALLY IDENTIFIED HEREIN. ANY REUSE OR DISSEMINATION OF THIS INFORMATION WITHOUT THE WRITTEN PERMISSION OF ESS IS PROHIBITED.		3233 W. Kingsley Rd. Garland, Texas 75041 PH: 972-272-2468 FAX: 972-278-9848 www.ess.io	
DRAWN: BNA DATE: 12-20-16 CHECKED: [Signature] DIMENSIONS ARE IN INCHES	TITLE: MANUAL DRAWING, ETP40, MECHANICAL/ELECTRICAL DWG. NO.: DOC-013000 REV: A	PROJECT: DO NOT SCALE DRAWING SHEET 1 OF 2	PROJECTION: [Symbol]

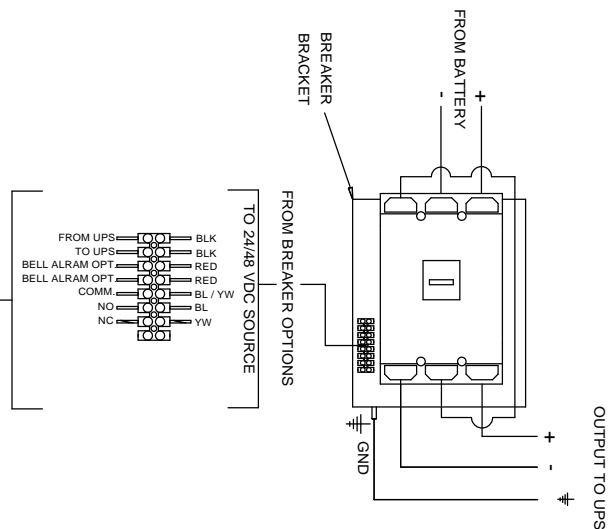


ELECTRICAL NOTES:

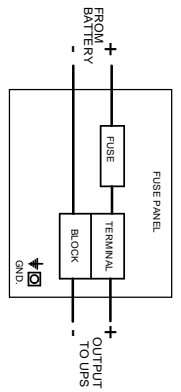
1. ALL CABLES ARE UL LISTED.
2. ALL BREAKERS ARE UL RECOGNIZED.
3. ALL FUSES ARE UL RECOGNIZED, TYPE A50P, A70P OR EQUIVALENT (FUSED CABINETS ARE NOT LISTED IN UL FILE). ALWAYS REPLACE WITH SAME TYPE OR ITS EQUIVALENT.
4. TERMINAL BLOCKS ARE UL RECOGNIZED, 600V RATED.
5. CABINETS ARE SHIPPED WITH THE BREAKER IN THE TRIPPED POSITION.
6. CABINET GROUND CONNECTION IS A 5/16-18 THREADED STUD.
7. CABLES BETWEEN BATTERY CABINET TO UNINTERRUPTIBLE POWER SUPPLY ARE OPTIONAL.



BREAKER DETAIL



FUSE OPTION



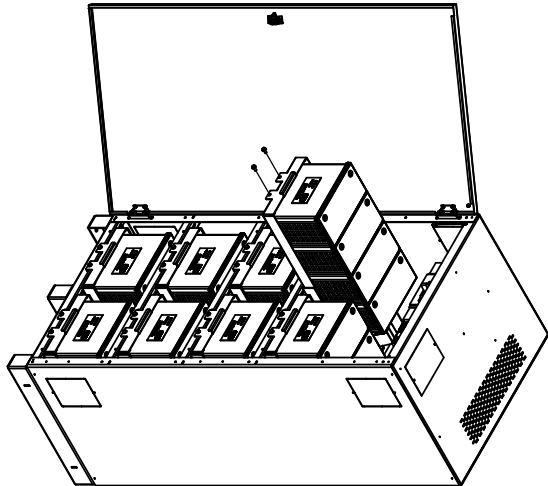
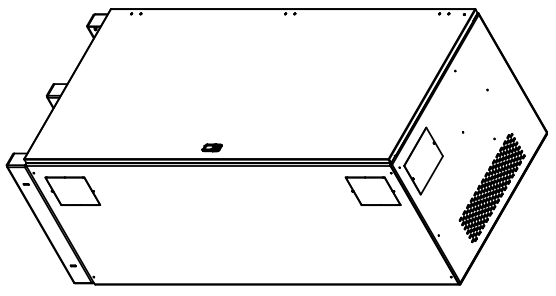
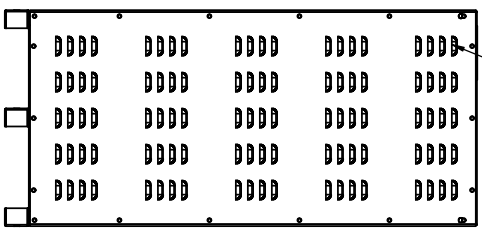
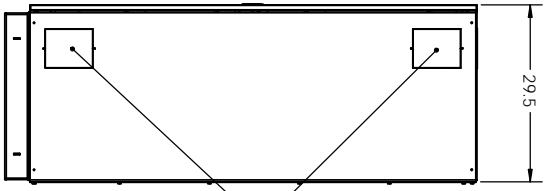
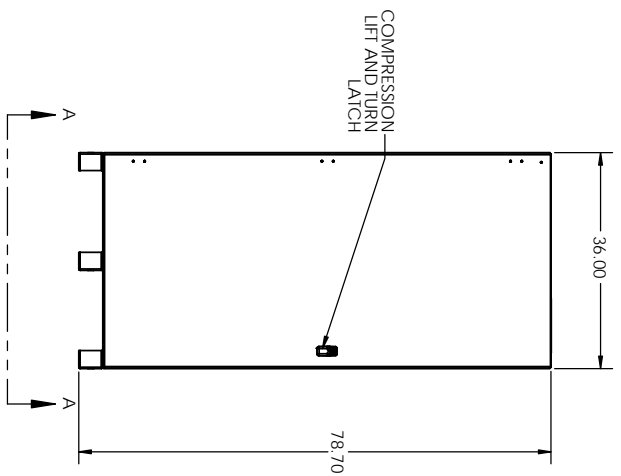
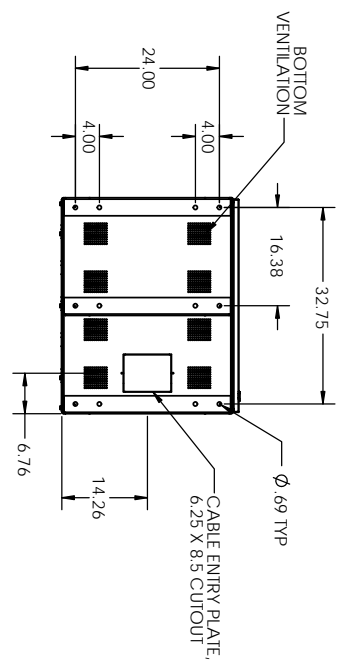
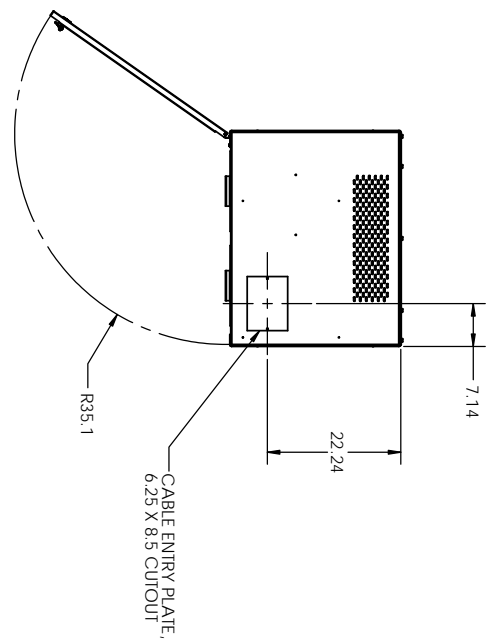
AUXILIARY CONTACTS LISTED APPLICABLE WHEN BREAKER IS IN THE CLOSED (ON) POSITION

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DATE:	12-20-16	TITLE: MANUAL DRAWING, ETP40
DESIGNER:	RNA	DWG. NO. MECHANICAL/ELECTRICAL
CHECKER:		DOC-013000
APPROVED:		REV A

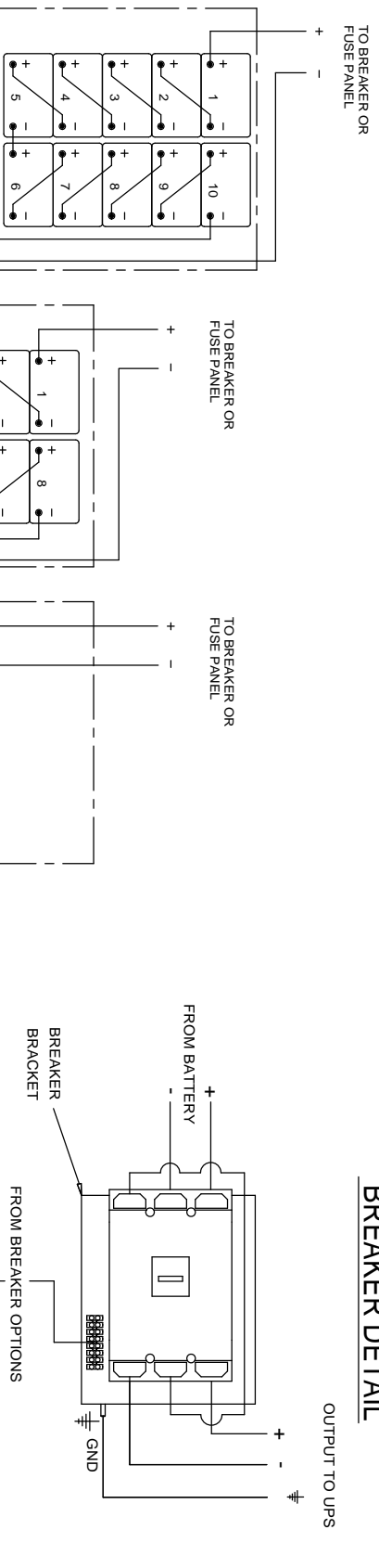
PROJECTION: DO NOT SCALE DRAWING. SHEET 2 OF 2



- CABINET NOTES:**
1. NEMA 1 DESIGN.
 2. EMPTY CABINET WEIGHT: 590 LBS (268 KG)
 3. UL 1778 LISTED AND FULLY TESTED AT THE FACTORY PRIOR TO SHIPPING.
 4. FULLY WELDED FRAME. MANUFACTURED FROM HEAVY GAUGE STEEL.
 5. POWDER COATED WITH A CORROSION RESISTANT, EPOXY HYBRID POWDER USING A FIVE STAGE EMERSON PRETREATMENT PROCESS.
 6. BATTERIES CAN BE ACCESSED FROM FRONT, REAR, AND BOTH SIDES.
 7. CUSTOM DESIGNED PALLETS FOR SHIPPING. ANYWHERE LOCALLY AND GLOBALLY (UPON REQUESTED).

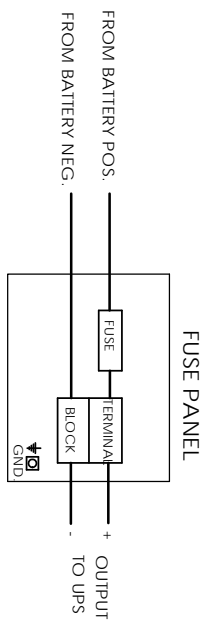
<p>PROHIBITARY AND CONFIDENTIAL</p> <p>THE INFORMATION CONTAINED IN THIS DRAWING IS THE PROPERTY OF ESS. ANY REPRODUCTION OR TRANSMISSION OF THIS INFORMATION WITHOUT THE WRITTEN PERMISSION OF ESS IS PROHIBITED.</p>		<p>ESS ELECTRONIC SYSTEMS SUPPORT</p> <p>www.ess.io</p> <p>3233 W. Kingsley Rd Garland, Texas 75041 PH: 972-272-2468 FAX: 972-278-9848</p>	
DATE:	01-04-17	TITLE:	MANUAL DRAWING, ETP36,
DESIGNER:	RVA	DWG. NO.:	MECHANICAL/ELECTRICAL
CHECKED:		DOC. NO.:	DOC-013100
PROJECTION:	⊕	REVISION:	A
DO NOT SCALE DRAWING		SHEET 1 OF 2	

BREAKER DETAIL



AUXILIARY CONTACTS LISTED APPLICABLE WHEN BREAKER IS IN THE CLOSED (ON) POSITION

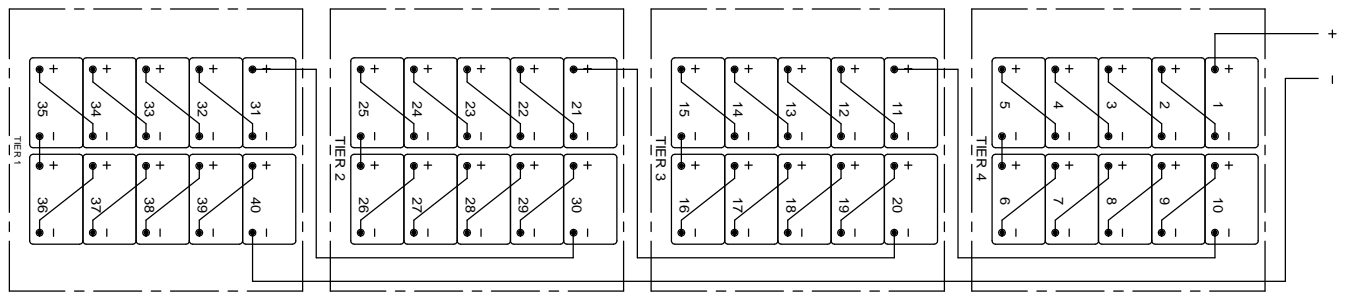
FUSE OPTION



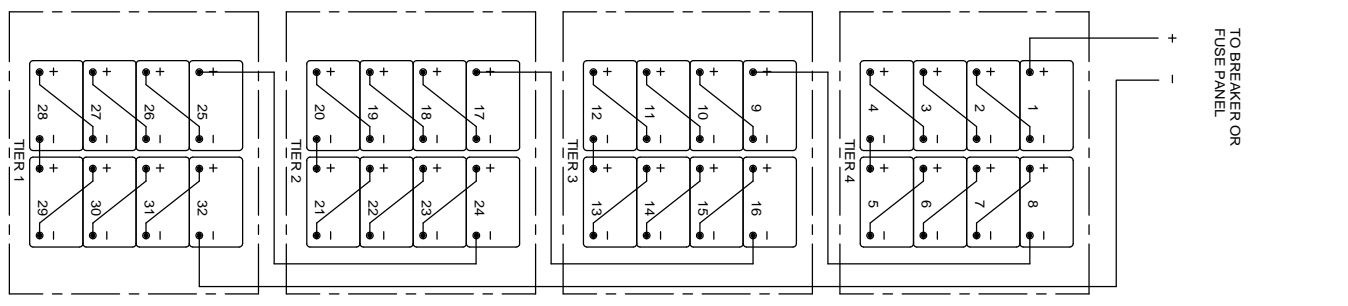
ELECTRICAL NOTES:

1. ALL CABLES ARE UL LISTED.
2. ALL BREAKERS ARE UL RECOGNIZED.
3. ALL FUSES ARE UL RECOGNIZED, TYPE A50P A70P OR EQUIVALENT (FUSED CABINETS ARE NOT LISTED IN UL FILE).
4. ALWAYS REPLACE WITH SAME TYPE OR ITS EQUIVALENT.
5. TERMINAL BLOCKS ARE UL RECOGNIZED, 600V RATED.
6. CABINETS ARE SHIPPED WITH THE BREAKER IN THE TRIPPED POSITION.
7. CABINET GROUND CONNECTION IS A 5/16-18 THREADED STUD. CABLES BETWEEN BATTERY CABINET TO UNINTERRUPTIBLE POWER SUPPLY ARE OPTIONAL.

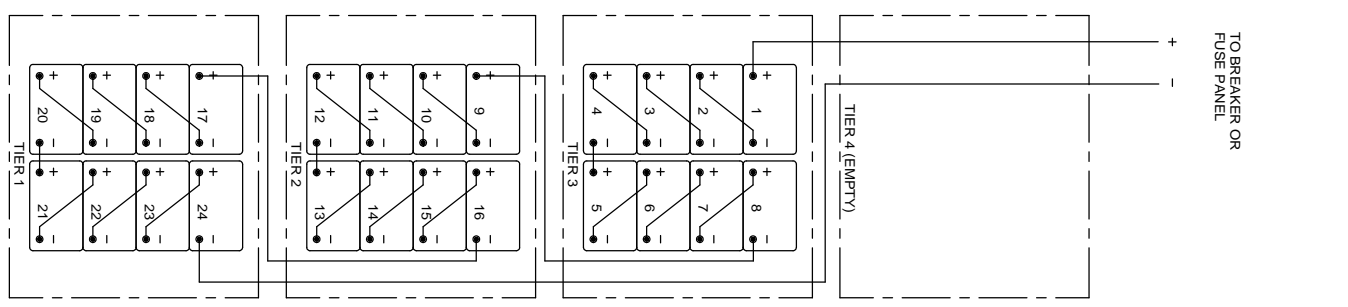
TYP 480V WIRING
(200 WPC)



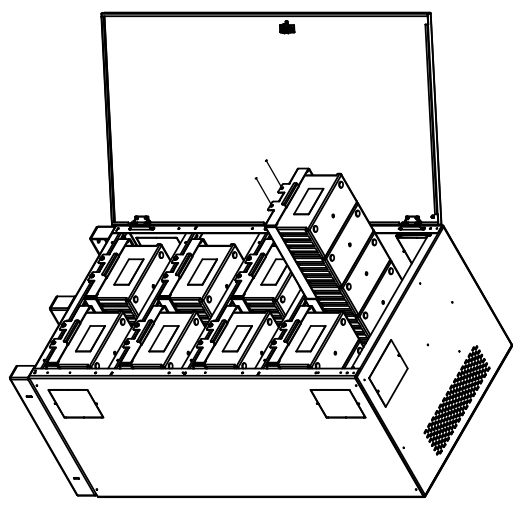
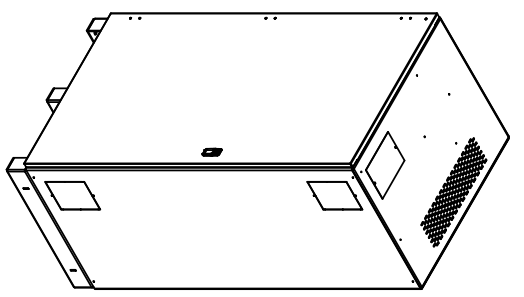
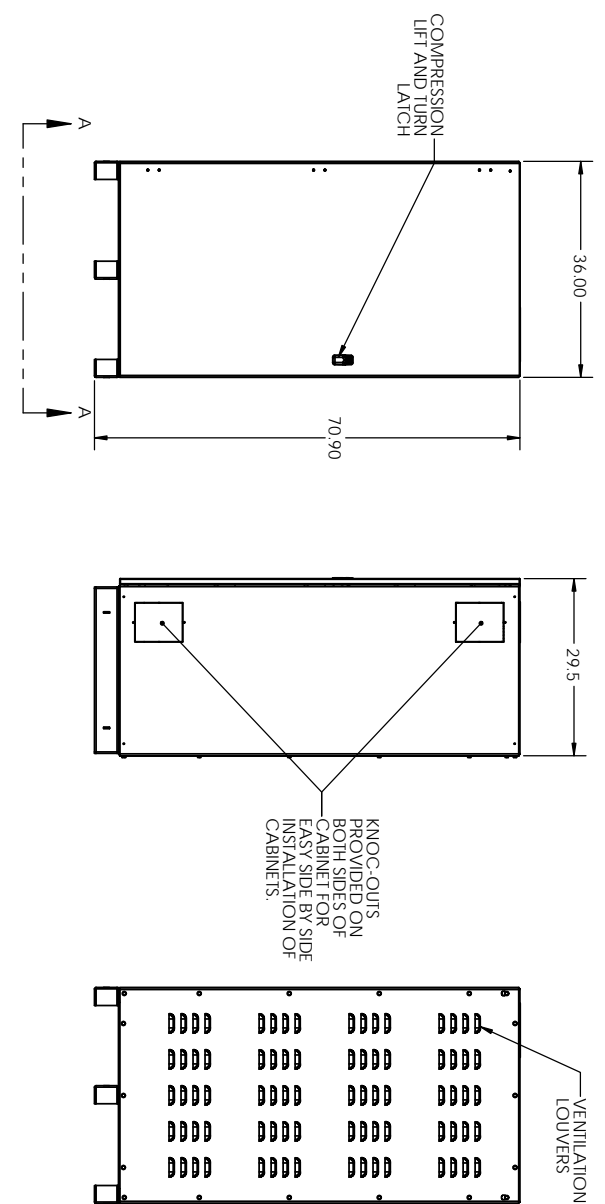
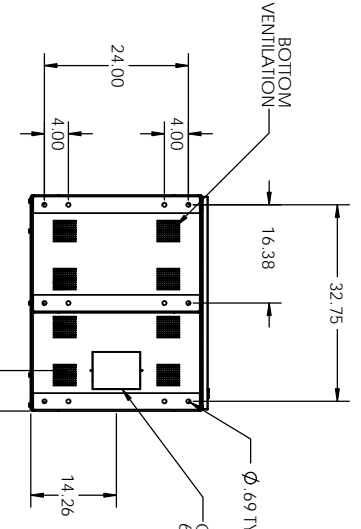
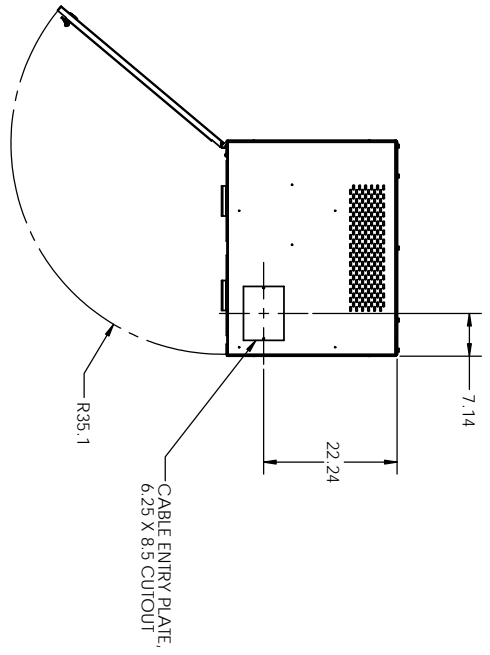
TYP 384V WIRING
(300-540 WPC)



TYP 288V WIRING
(300-540 WPC)



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PROJECT: DO NOT SCALE DRAWING. SHEET 2 OF 2		ESS ELECTRONIC SYSTEMS SUPPORT www.ess.io		3233 W. Kingsley Rd. Garland, Texas 75041 PH: 972-272-2468 FAX: 972-278-9844	

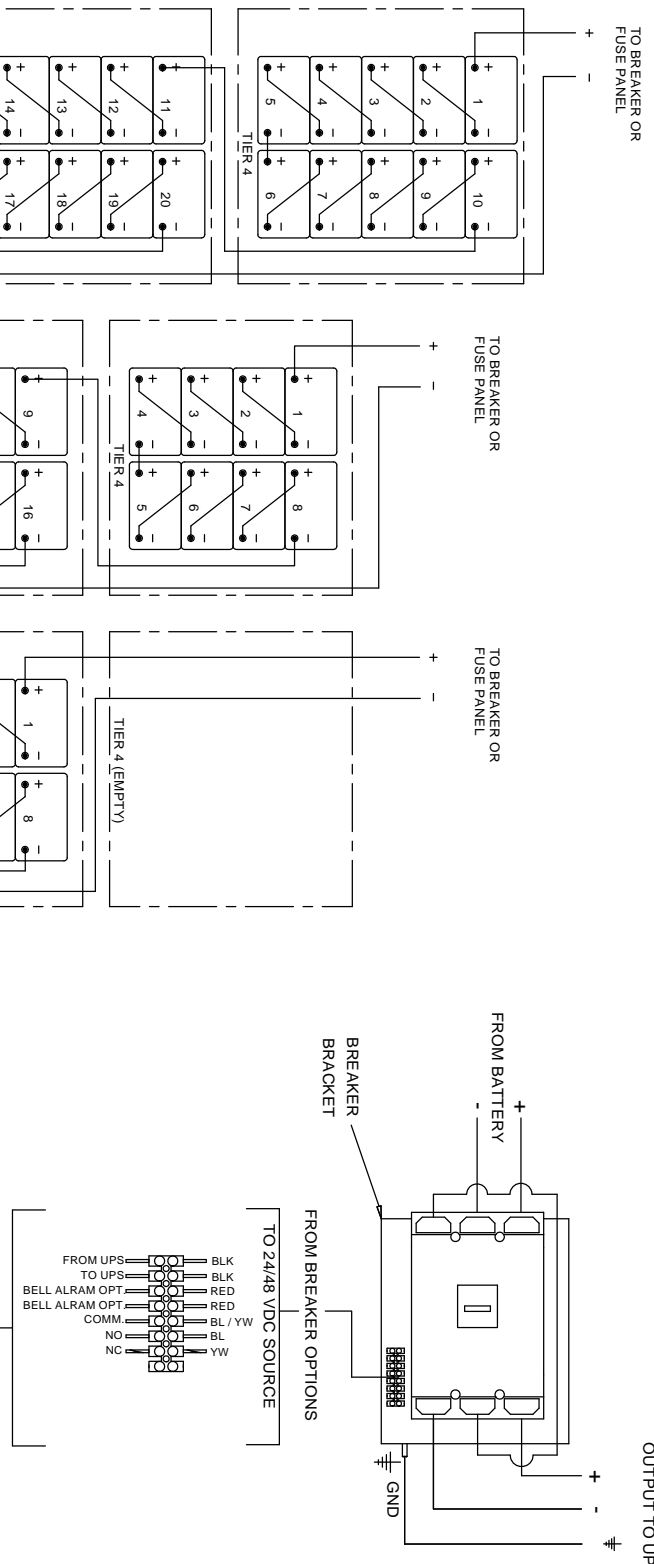


- CABINET NOTES:**
1. NEMA 1 DESIGN.
 2. EMPTY CABINET WEIGHT: 570 LBS (259 KG)
 3. UL 1778 LISTED AND FULLY TESTED AT THE FACTORY PRIOR TO SHIPPING.
 4. FULLY WELDED FRAME, MANUFACTURED FROM HEAVY GAUGE STEEL.
 5. POWDER COATED WITH A CORROSION RESISTANT, EPOXY HYBRID POWDER USING A FIVE STAGE EMERSON PRETREATMENT PROCESS
 6. BATTERIES CAN BE ACCESSED FROM FRONT, REAR AND BOTH SIDES
 7. CUSTOM DESIGNED PALETS FOR SHIPPING ANYWHERE LOCALLY AND GLOBALLY (UPON REQUEST).

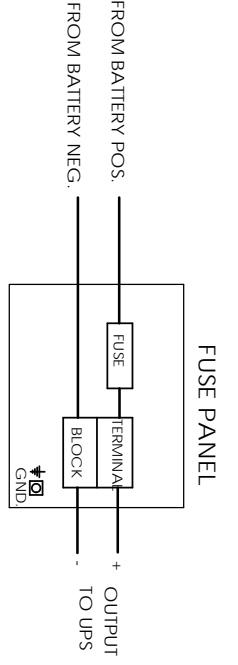
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DRAWN: RVA DATE: 01-04-17 CHECKED: DWG. NO. DOC-013200 TITLE: MANUAL DRAWING, ETP32, MECHANICAL/ELECTRICAL PROJECT: DO NOT SCALE DRAWING	3233 W. Kingsley Rd. Garland, Texas 75041 PH: 972-272-2468 FAX: 972-278-9844 www.ess.io
SHEET 1 OF 2	SHEET 1 OF 2

BREAKER DETAIL

OUTPUT TO UPS

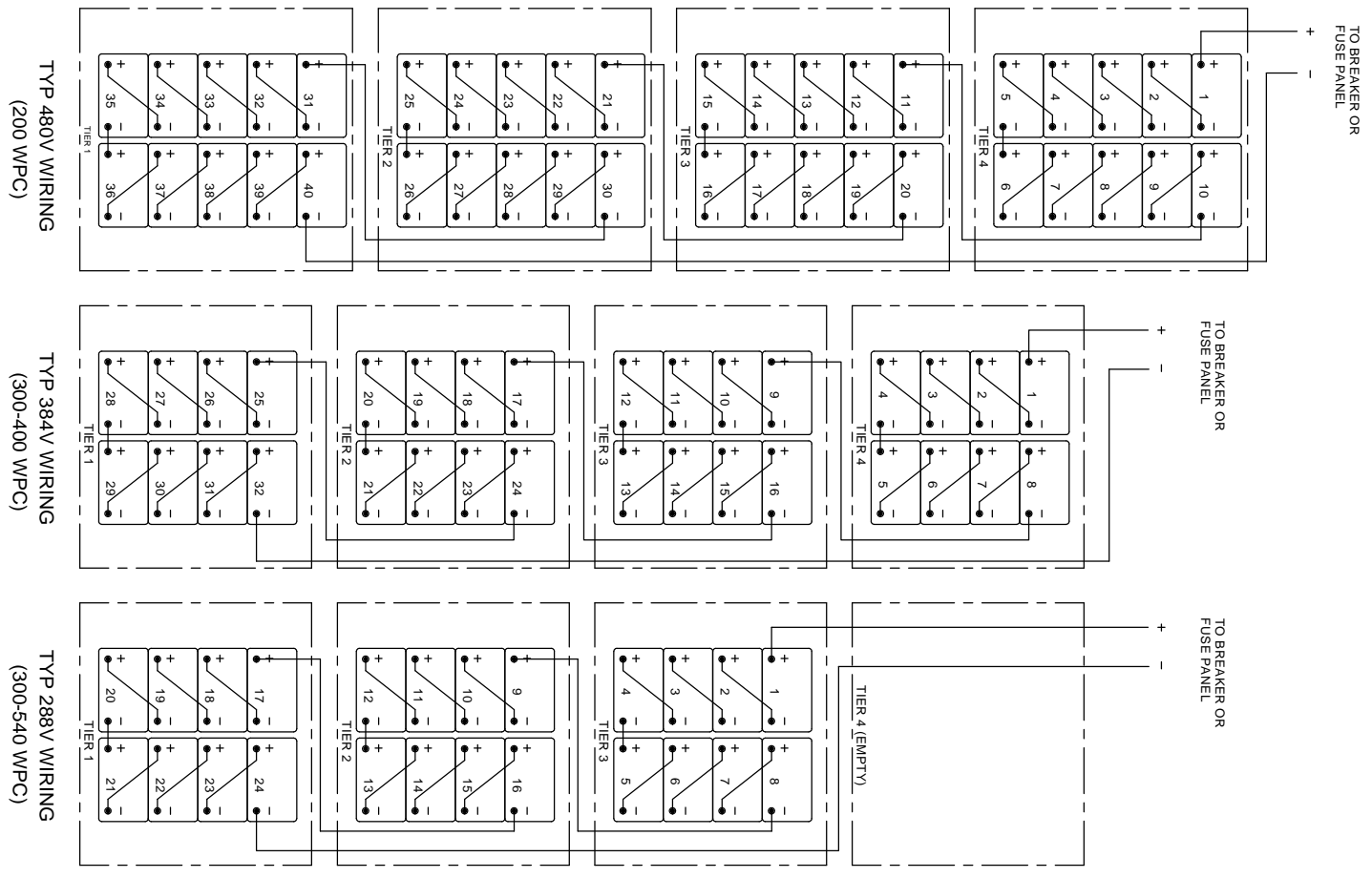


FUSE OPTION



ELECTRICAL NOTES:

1. ALL CABLES ARE UL LISTED
2. ALL BREAKERS ARE UL RECOGNIZED
3. ALL FUSES ARE UL RECOGNIZED. TYPE A50P, A70P OR EQUIVALENT (FUSED CABINETS ARE NOT LISTED IN UL FILE). ALWAYS REPLACE WITH SAME TYPE OR ITS EQUIVALENT.
4. TERMINAL BLOCKS PER UL RECOGNIZED 600V RATED.
5. CABINET'S FACE SHIPDED WITH THE BREAKER IN THE TAPPED POSITION.
6. CABLES BETWEEN BATTERY CABINET TO UNINTERRUPTIBLE POWER SUPPLY ARE OPTIONAL.
- 7.



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<p>DATE: 01-06-17</p> <p>DESIGNER: RNA</p> <p>CHECKED: [Signature]</p> <p>PROJECT: [Signature]</p>	<p>TITLE: MANUAL DRAWING, ETP32, MECHANICAL/ELECTRICAL</p> <p>DWG. NO. DOC-013200</p> <p>REV. B</p>	<p>DO NOT SCALE DRAWING. SHEET 2 OF 2</p>	



NOTES



NOTES



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