**610 Executive Campus Drive**
**Westerville, OH 43082**
**FAX:**
**PH: (614) 841-5401**

# BILL OF MATERIAL

## Siemens Medical Solutions

## 200 kVA PC System
## EXMA200PMR1

**Liebert EXM Power Conditioner System including: One (1) 200kVA Nameplate Liebert EXM UPS, model 51SA200LAA00HCS, with the following features:**

- Fixed Capacity 200kVA / 200kW UPS System
- System Input Voltage of 480V, 60Hz, 3 Phase, 3 wire plus ground
- System Output Voltage of 480V, 60Hz, 3 Phase, 3 wire plus ground
- Single Input Configuration
- One (1) IntelliSlot Unity Dual Protocol Card; P/N: IS-UNITY-DP; Monitoring and configuration of Vertiv products and environmental sensors through stand-alone Web UI or integration with Trellis™, Liebert Nform, LIFE™ Services. Supports third-party management systems using SNMP, Modbus or BACnet.
- One (1) IS-RELAY Relay Contact Card
- 65kAIC Rating - Provides interrupting rating and labeling of 65kA
- Active Power Factor Corrected IGBT Input Converter
- PWM transistorized (IGBT) inverter
- Continuous Duty Static Bypass Switch
- Input Contacts - Dry contacts are available for functions including monitoring external breakers, on-generator signal, and other functions
- Output Contacts - Dry contacts are available for functions including a permissive signal to maintenance bypass SKRU, to trip external breakers, and other functions
- Generator Load Control - Suppresses battery charging reducing power demand by an external signal. Shifts unit from Eco Mode to double conversion (if applicable), and synchronizes the inverter output with the bypass
- DSP based controls - Provides digital control of power conversion and system operation
- Backlit LCD display - Monitors power conversion, UPS operation and utility conditions. Deviations are logged for troubleshooting
- Temperature-Compensated Charging/Battery Load Test
- Bottom cable entry to UPS, top cable entry through matching bypass or optional wiring cabinet
- Front only service access
- Local Emergency Power Off (EPO)
- LIFE™ Services for the 1st year
- IP 20 enclosure
- Casters and leveling feet
- UL and cUL Listed to UL Standard 1778 5th Edition
- Liebert EXM Factory Services Certified Test Report

The system includes **One (1) Maintenance Bypass Matching Cabinet(s), model 51MBL33AA0R0HCS** with the following features:

- 3 Switching Devices (BIB,MBB,MIB)
- Padlock Provisions for Breakers MBB and MIB
- 350 Amp Breaker Trip Rating
- Cabinet Mounted Right Attached to Module with connecting cables factory supplied
- Cabinet ships attached to the UPS Module
- 300 MM - 11.8 inches Frame Size
- Front Access service design

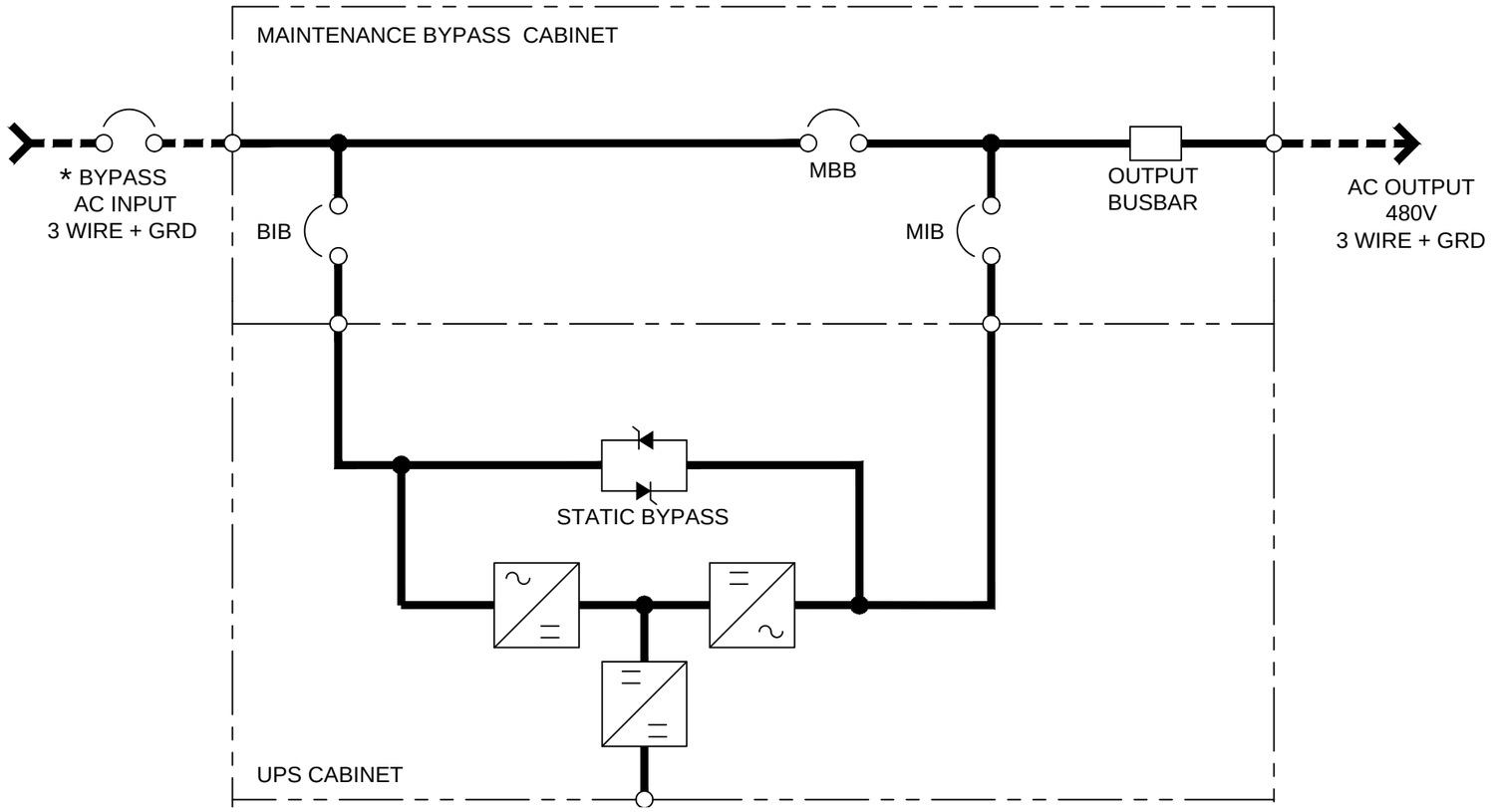
**System Startup Services**

Startup includes one site trip by a LS customer engineer after the UPS has been installed. The site trip includes the following services for one UPS module: non-powered inspection, UPS electrical and operational checkout, full parts and labor for any remedial work required on the UPS or battery cabinets, and customer operation training. Startup also includes remedial onsite labor, parts, and travel for the full warranty period.

- Startup 24x7 is scheduled at the customers designated time
- MBC/BDC/Wallmount Panel Startup is included

**Optional Accessories (If Included in Order)**

- Seismic Anchor Kits for UPS Module and Maintenance Bypass Cabinet Where Applicable
- Remote Monitoring Panel




BIB - BYPASS ISOLATION BREAKER

MBB - MAINTENANCE BYPASS BREAKER

MIB - MAINTENANCE ISOLATION BREAKER

* EXTERNAL OVERCURRENT PROTECTION BY OTHERS

FIELD SUPPLIED WIRING

NOTES:
1. INSTALL IN ACCORDANCE WITH NATIONAL AND LOCAL ELECTRICAL CODES.
2. INPUT AND BYPASS MUST SHARE THE SAME SINGLE SOURCE.
3. GROUNDING CONDUCTORS ARE REQUIRED.
4. BYPASS AND RECTIFIER INPUTS AND OUTPUT CABLES MUST BE RUN IN SEPARATE CONDUITS.
5. CONTROL WIRING MUST BE RUN IN SEPARATE CONDUITS.

| | | | | | | |
|---|---|---|---|---|---|---|
| DRAWN BY K. STACY | SHEET NO. 1 OF 1 | ONE-LINE DIAGRAM<br>SINGLE INPUT 50kVA - 250kVA<br>WITH 3 BREAKER MAINTENANCE BYPASS CABINET<br>LIEBERT 480VAC eXM | | | | VERTIV. |
| CHK BY M. ROCKWELL | ECN NO. | | DWG. NO. EXM41011 | DATE 10/21/15 | REV. # 0 | 1050 DEARBORN DRIVE<br>P.O. BOX 29186<br>COLUMBUS, OHIO 43229 |
| REF. DWG. | ORDER NO. | | | | | |

FILE NAME: I:\appl\Ohio Appl\AE Submittals - Standard\eXM dwg\480V\A) One-Line Diagram\EXM41011-00.dwg

| ELECTRICAL DATA | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| kVA RATINGS | VOLTAGE | | AC INPUT CURRENT "A" | | | BATTERY | | AC OUTPUT CURRENT "A" | |
| | INPUT | OUTPUT | NOM. | MAX | REC. OPD | NOM. VDC | MAX. DISCHARGE, A | NOM. | REC. OPD |
| 30 | 480 | 480 | 38 | 42 | 60 | 432 | 87 | 36 | 50 |
| 40 | 480 | 480 | 50 | 56 | 70 | 432 | 116 | 48 | 60 |
| 50 | 480 | 480 | 63 | 69 | 90 | 432 | 145 | 60 | 80 |
| 75 | 480 | 480 | 94 | 104 | 150 | 432 | 218 | 90 | 125 |
| 100 | 480 | 480 | 126 | 138 | 175 | 432 | 290 | 120 | 150 |
| 125 | 480 | 480 | 157 | 173 | 225 | 432 | 363 | 150 | 200 |
| 150 | 480 | 480 | 189 | 208 | 300 | 432 | 435 | 180 | 225 |
| 175 | 480 | 480 | 220 | 243 | 350 | 432 | 508 | 210 | 300 |
| 200 | 480 | 480 | 252 | 277 | 350 | 432 | 581 | 241 | 300 |
| 225 | 480 | 480 | 284 | 312 | 400 | 432 | 654 | 271 | 350 |
| 250 | 480 | 480 | 315 | 346 | 450 | 432 | 726 | 301 | 400 |

| HEAT / WEIGHT INFORMATION | | | |
|---|---|---|---|
| kVA RATINGS | HEAT | WEIGHT PACKAGED, LBS (KG) | |
| | UPS (BTU/HR) | 200kVA FRAME | 250kVA FRAME |
| 30 | 4,712 | 748 (339) | 868 (394) |
| 40 | 6,283 | 748 (339) | 868 (394) |
| 50 | 7,854 | 748 (339) | 868 (394) |
| 75 | 10,388 | 842 (382) | 962 (436) |
| 100 | 13,851 | 842 (382) | 962 (436) |
| 125 | 15,015 | 936 (425) | 1056 (479) |
| 150 | 18,019 | 936 (425) | 1056 (479) |
| 175 | 22,242 | 1030 (467) | 1150 (522) |
| 200 | 25,491 | 1030 (467) | 1150 (522) |
| 225 | 31,164 | N/A | 1244 (564) |
| 250 | 34,627 | N/A | 1244 (564) |

THIS CHART IS FOR UPS WEIGHTS ONLY. FOR MBC OR BDC WEIGHTS REFER TO SUBMITTAL EXM18014 OR EXM18015.

## NOTES

1. NOMINAL INPUT CURRENT (CONSIDERED CONTINUOUS) IS BASED ON FULL RATED OUTPUT LOAD. MAXIMUM CURRENT INCLUDES NOMINAL INPUT CURRENT AND MAXIMUM BATTERY RECHARGE CURRENT (CONSIDERED NONCONTINUOUS). CONTINUOUS AND NONCONTINUOUS CURRENT ARE DEFINED IN NEC 100. RECOMMENDED OVERCURRENT PROTECTION IS BASED ON 80% RATED DEVICES. * THE RECOMMENDED OVERCURRENT PROTECTION REPRESENTS 125% OF NOMINAL FULL LOAD CURRENT (CONTINUOUS) PER NEC 215.
2. MAXIMUM INPUT CURRENT IS CONTROLLED BY THE CURRENT LIMIT SETTING.
3. RECOMMENDED AC INPUT EXTERNAL OVERCURRENT PROTECTION IS BASED ON 80% RATED DEVICES AND MAXIMUM INPUT CURRENT LIMIT SETTING.
4. RECOMMENDED AC OUTPUT EXTERNAL OVERCURRENT PROTECTION IS BASED ON 80% RATED DEVICES AND FULL RATED OUTPUT CURRENT.
5. NOMINAL BATTERY VOLTAGE IS SHOWN AT 2.0 VOLTS / CELL.
6. INPUT POWER FACTOR OF 0.99 IS USED FOR THE CALCULATIONS.

| | | | | |
|---|---|---|---|---|
| SHEET NO.: 1 OF 1 | DRAWN BY: J. SHIPMAN | TITLE: TECHNICAL INFORMATION<br>50-250kVA, 60Hz, 480VAC IN, 480VAC OUT<br>SINGLE INPUT<br>LIEBERT 480VAC EXM | DWG. NO.: EXM48001 | VERTIV. |
| ECN NO.: | DESIGNED BY: D. HUDSON | | DATE (LATEST REV.): 06/04/2018 | |
| REF DWG.: | APPROVED BY: D. HUDSON | | REVISION: 5 | 1050 DEARBORN DR<br>P.O. BOX 29186<br>COLUMBUS, OH 43229 |

| 2-Breaker MBC Circuit Breaker Schedule | | | | | | | |
|---|---|---|---|---|---|---|---|
| KVA Rating | MIB/MBB | | | | | | |
| | AF/AT | Ir | Isd | Ii/Im | MFG | MFG PN | KAIC |
| 50 | 150/80 | Fixed | NA | 10 | Square D | HJF36080YE | 65 |
| 100 | 150/150 | Fixed | NA | 10 | Square D | HJF36150YE | 65 |
| 150 | 250/225 | Fixed | NA | 10 | Square D | JJF36225YE | 65 |
| 200 | 400/300 | 300 | 1.5 | 9 | Square D | LJF36400TU33XTW | 65 |
| 250 | 400 | 400 | 1.5 | 10 | Square D | LJF36400TU33XTW | 65 |

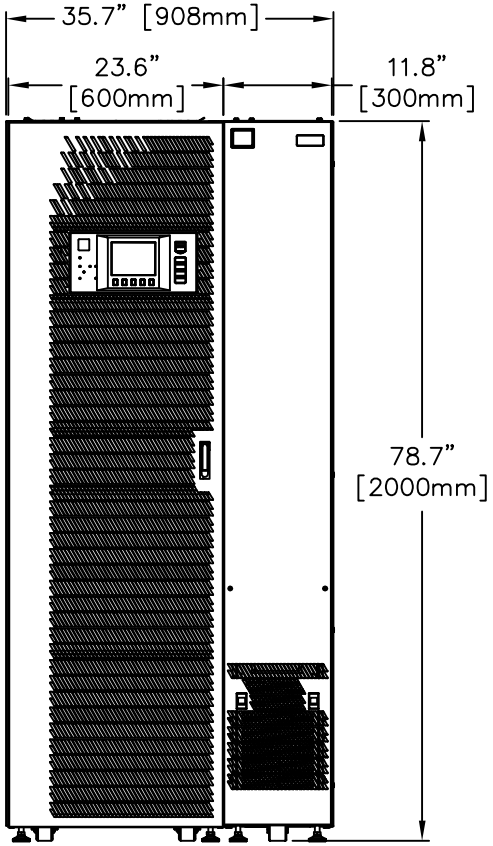
| WEIGHT INFORMATION | | |
|---|---|---|
| MBC WIDTH | kVA RATING | WEIGHT lb (kg) |
| 200mm | 50-100 | 195 (90) |
| 300mm | 150-250 | 288 (131) |
| 300mm W/CHOKE | 50-100 | 408 (185) |
| 600mm W/CHOKE | 150-250 | 649 (295) |

| 3-Breaker MBC Circuit Breaker Schedule | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| KVA Rating | BIB | | | | | | | MIB/MBB | | | | | | |
| | AF/AT | Ir | Isd | Ii/Im | MFG | MFG PN | KAIC | AF/AT | Ir | Isd | Ii/Im | MFG | MFG PN | KAIC |
| 50 | 150/90 | Fixed | NA | 10 | Square D | HJF36090YE | 65 | 150/80 | Fixed | NA | 10 | Square D | HJF36080YE | 65 |
| 100 | 250/175 | Fixed | NA | 10 | Square D | JJF36175TYE | 65 | 150/150 | Fixed | NA | 10 | Square D | HJF36150YE | 65 |
| 150 | 400/300 | 300 | 1.5 | 9 | Square D | LJF36400TU33XTW | 65 | 250/225 | Fixed | NA | 10 | Square D | JJF36225YE | 65 |
| 200 | 400/350 | 350 | 1.5 | 10 | Square D | LJF36400TU33XTW | 65 | 400/300 | 300 | 1.5 | 9 | Square D | LJF36400TU33XTW | 65 |
| 250 | 600/450 | 450 | 1.5 | 8 | Square D | LJF36600TU33XTW | 65 | 400 | 400 | 1.5 | 10 | Square D | LJF36400TU33XTW | 65 |

| 4-Breaker MBC Circuit Breaker Schedule | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| KVA Rating | RIB | | | | | | | BIB | | | | | | | MIB/MBB | | | | | | | |
| | AF/AT | Ir | Isd | Ii/Im | MFG | MFG PN | KAIC | AF/AT | Ir | Isd | Ii/Im | MFG | MFG PN | KAIC | AF/AT | Ir | Isd | Ii/Im | MFG | MFG PN | KAIC |
| 50 | 150/90 | Fixed | NA | 10 | Square D | HJF36090YE | 65 | 150/80 | Fixed | NA | 10 | Square D | HJF36080YE | 65 | 150/80 | Fixed | NA | 10 | Square D | HJF36080YE | 65 |
| 100 | 250/175 | Fixed | NA | 10 | Square D | JJF36175TYE | 65 | 150/150 | Fixed | NA | 10 | Square D | HJF36150YE | 65 | 150/150 | Fixed | NA | 10 | Square D | HJF36150YE | 65 |
| 150 | 400/300 | 300 | 1.5 | 9 | Square D | LJF36400TU33XTW | 65 | 250/225 | Fixed | NA | 10 | Square D | JJF36225YE | 65 | 250/225 | Fixed | NA | 10 | Square D | JJF36225YE | 65 |
| 200 | 400/350 | 350 | 1.5 | 10 | Square D | LJF36400TU33XTW | 65 | 400/300 | 300 | 1.5 | 9 | Square D | LJF36400TU33XTW | 65 | 400/300 | 300 | 1.5 | 9 | Square D | LJF36400TU33XTW | 65 |
| 250 | 600/450 | 450 | 1.5 | 8 | Square D | LJF36600TU33XTW | 65 | 400 | 400 | 1.5 | 10 | Square D | LJF36400TU33XTW | 65 | 400 | 400 | 1.5 | 10 | Square D | LJF36400TU33XTW | 65 |

| | | | | | |
|---|---|---|---|---|---|
| SHEET NO. 1 OF 1 | DRAWN BY: K. STACY | TITLE | | DWG. NO. EXM48004 | |
| ECN NO. | DESIGNED BY: D. McLAURIN | TECHNICAL INFORMATION<br>MAINTENANCE BYPASS CABINETS (MBC)<br>LIEBERT 480VAC EXM | | DATE (LATEST REV.) 8/9/2017 | |
| REF DWG. | APPROVED BY: D. McLAURIN | | | REVISION 2 | 1050 DEARBORN DR<br>P.O. BOX 29186<br>COLUMBUS, OH 43229 |

VERTIV.



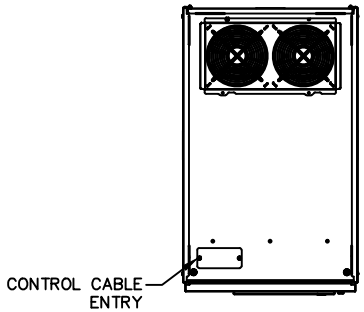

FRONT VIEW

NOTES:

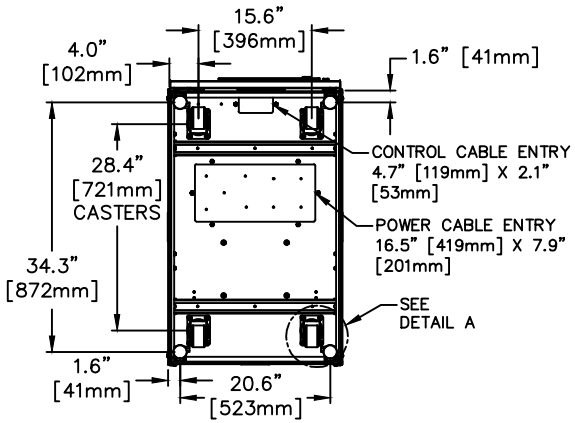
1. ALL DIMENSIONS ARE IN inches [mm].
2. 24" [610] MINIMUM CLEARANCE ABOVE UNIT FOR AIR EXHAUST. 36" [914] FRONT ACCESS REQUIRED FOR SERVICE.
3. KEEP CABINET WITHIN 15 DEGREES OF VERTICAL.
4. UPS – BOTTOM CABLE ENTRY THROUGH REMOVABLE PLATES. MBC – TOP AND BOTTOM ENTRY THROUGH REMOVABLE PLATES. REMOVE, PUNCH TO SUIT CONDUIT SIZE AND REPLACE.
5. UNIT BOTTOM IS STRUCTURALLY ADEQUATE FOR FORKLIFT HANDLING.
6. CONTROL WIRING AND POWER WIRING MUST BE RUN IN SEPARATE CONDUITS.
7. ALL WIRING IS TO BE IN ACCORDANCE WITH NATIONAL AND LOCAL ELECTRICAL CODES.
8. ALL BATTERY CABINETS MUST BE POSITIONED ON THE LEFT SIDE OF UPS.

| | | | | | | |
|---|---|---|---|---|---|---|
| DRAWN BY<br>K. STACY | SHEET NO.<br>1 OF 1 | LINE-UP DETAIL<br>150kVA - 200kVA<br>UPS TO MAINTENANCE BYPASS CABINET (300mm)<br>LIEBERT 480VAC EXM | | | | VERTIV. |
| CHK BY<br>L. BRAZIS | ECN NO. | | | | | |
| REF. DWG. | ORDER NO. | | DWG. NO.<br>EXM43013 | DATE<br>1/15/16 | REV. #<br>1 | 1050 DEARBORN DRIVE<br>P.O. BOX 29186<br>COLUMBUS, OHIO 43229 |

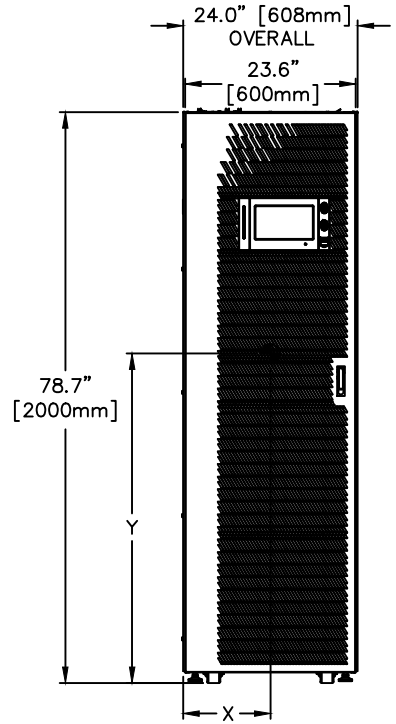
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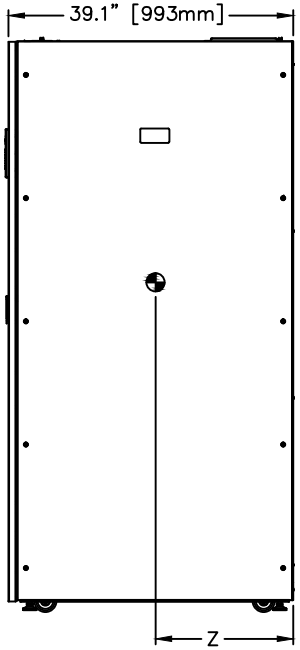

TOP VIEW




BOTTOM VIEW

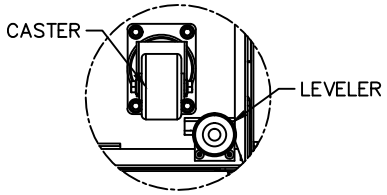



FRONT VIEW




RIGHT SIDE VIEW

NOTES:
1. ALL DIMENSIONS ARE IN inches [mm].
2. 24" [610] MINIMUM CLEARANCE ABOVE UNIT AIR EXHAUST. 36" [914] FRONT ACCESS REQUIRED FOR SERVICE.
3. KEEP CABINET WITHIN 15 DEGREES OF VERTICAL.
4. BOTTOM CABLE ENTRY AVAILABLE THROUGH REMOVABLE ACCESS PLATES. REMOVE, PUNCH TO SUIT CONDUIT SIZE AND REPLACE.
5. UNIT BOTTOM IS STRUCTURALLY ADEQUATE FOR FORKLIFT HANDLING.
6. CONTROL WIRING AND POWER WIRING MUST BE RUN IN SEPARATE CONDUITS.
7. ALL WIRING IS TO BE IN ACCORDANCE WITH NATIONAL AND LOCAL ELECTRICAL CODES.
8. OVERALL DIMENSIONS ARE SHOWN WITH SIDE PANELS.




DETAIL A

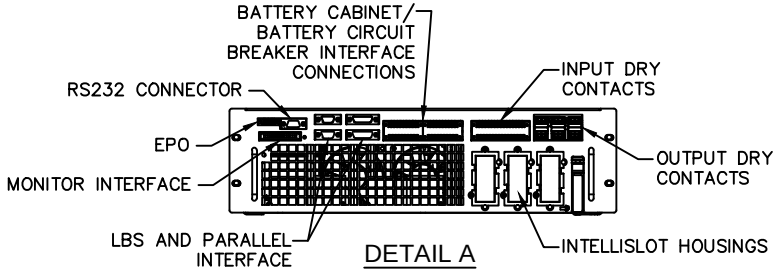
| UPS kVA RATING | CENTER OF GRAVITY (mm) | | |
|---|---|---|---|
| | X | Y | Z |
| 50 | 12.00"(305mm) | 33.47"(850mm) | 18.90"(480mm) |
| 100 | 12.00"(305mm) | 37.40"(950mm) | 18.90"(480mm) |
| 150 | 12.00"(305mm) | 41.34"(1050mm) | 18.90"(480mm) |
| 200 | 12.00"(305mm) | 45.27"(1150mm) | 18.90"(480mm) |

| | | | | | |
|---|---|---|---|---|---|
| DRAWN BY<br>J. SHIPMAN | SHEET NO.<br>1 OF 2 | OUTLINE DRAWING<br>50kVA - 200kVA UPS<br>LIEBERT 480VAC EXM | | | |
| CHK BY<br>B. SANBORN | ECN NO. | | | | |
| REF. DWG. | ORDER NO. | | DWG. NO.<br>EXM42001A | DATE<br>4/6/18 | REV. #<br>3 |

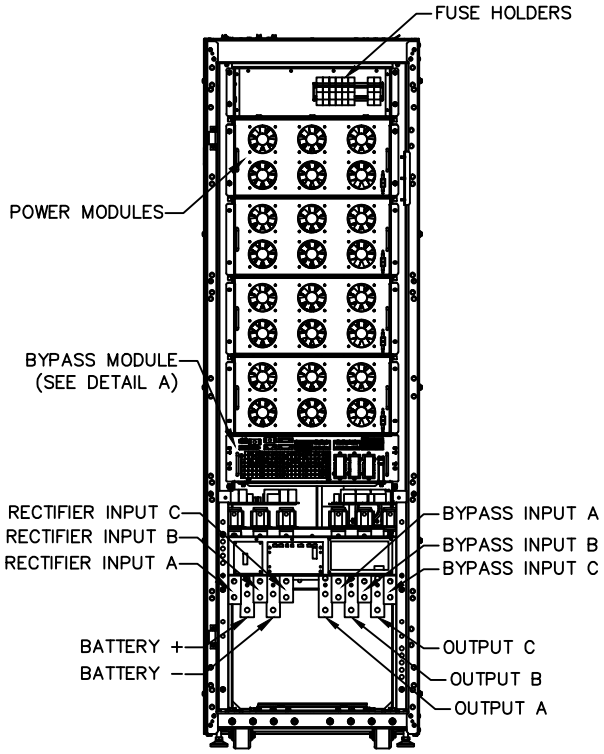
VERTIV.

1050 DEARBORN DRIVE
P.O. BOX 29186
COLUMBUS, OHIO 43229

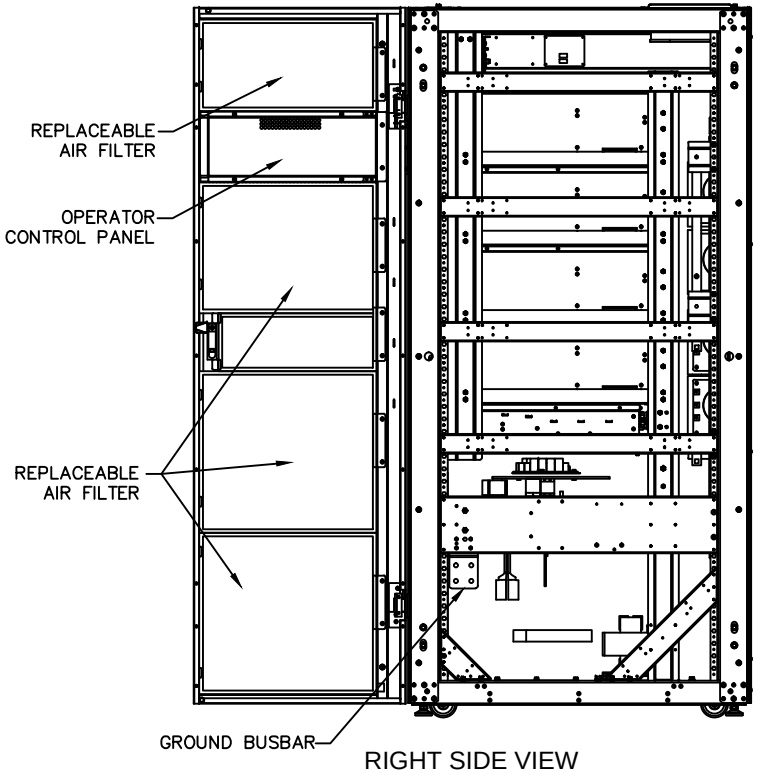
FILE NAME: I:\appl-DLW\Ohio Appl\AE Submittals - Standard\eXM dwg\480V\B) Outline Dwg\EXM42001A-03.dwg




DETAIL A




FRONT VIEW
WITH DOOR OPENED




RIGHT SIDE VIEW
WITH DOOR OPENED
(AND SIDE PANEL REMOVED)

| | |
|---|---|
| DRAWN BY<br>J. SHIPMAN | SHEET NO.<br>2 OF 2 |
| CHK BY<br>B. SANBORN | ECN NO. |
| REF. DWG. | ORDER NO. |

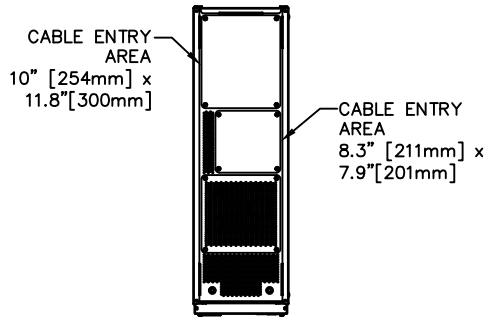
OUTLINE DRAWINGS
MAIN COMPONENTS LAYOUT
50kVA - 200kVA UPS
LIEBERT 480VAC EXM

| DWG. NO. | DATE | REV. # |
|---|---|---|
| EXM42001B | 4/6/18 | 3 |

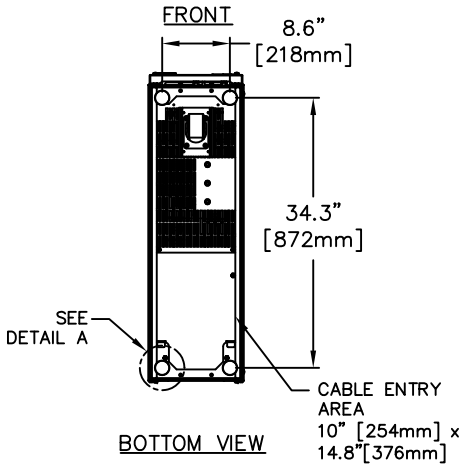
1050 DEARBORN DRIVE
P.O. BOX 29186
COLUMBUS, OHIO 43229

VERTIV.

FILE NAME: I:\appl-DLW\Ohio Appl\AE Submittals - Standard\eXM dwg\480V\B) Outline Dwg\EXM42001B-03.dwg

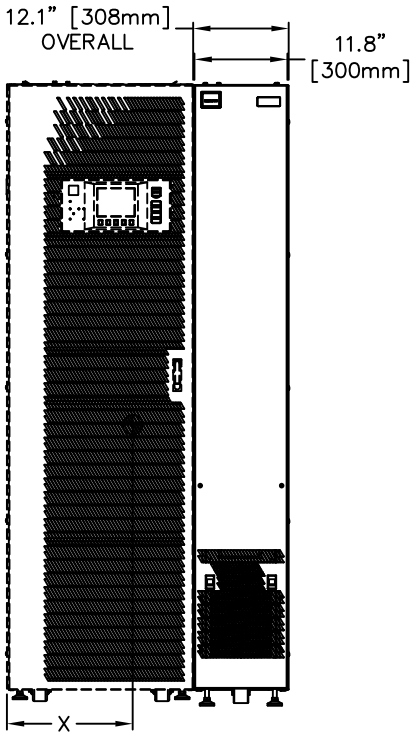



TOP VIEW

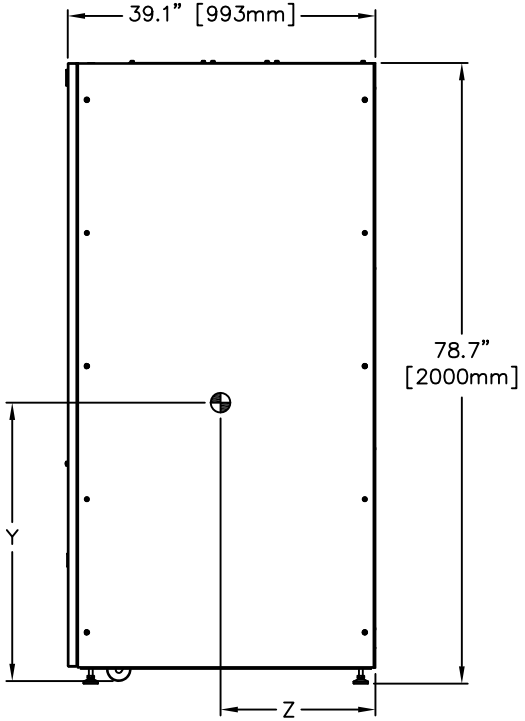



BOTTOM VIEW

NOTES:
1. ALL DIMENSIONS ARE IN inches [mm].
2. 24" [610] MINIMUM CLEARANCE ABOVE UNIT FOR AIR EXHAUST. 36" [914] FRONT ACCESS REQUIRED FOR SERVICE.
3. KEEP CABINET WITHIN 15 DEGREES OF VERTICAL.
4. UPS – BOTTOM CABLE ENTRY THROUGH REMOVABLE PLATES. MBC – TOP AND BOTTOM CABLE ENTRY THROUGH REMOVABLE PLATES. REMOVE, PUNCH TO SUIT CONDUIT SIZE AND REPLACE.
5. UNIT BOTTOM IS STRUCTURALLY ADEQUATE FOR FORKLIFT HANDLING.
6. CONTROL WIRING AND POWER WIRING MUST BE RUN IN SEPARATE CONDUITS.
7. ALL WIRING IS TO BE IN ACCORDANCE WITH NATIONAL AND LOCAL ELECTRICAL CODES.
8. UPS SHOWN FOR REFERENCE ONLY. REFER TO OUTLINE DRAWING OF YOUR UPS FOR ACCURATE DIMENSIONS.
9. OVERALL DIMENSIONS ARE SHOWN WITH SIDE PANELS.

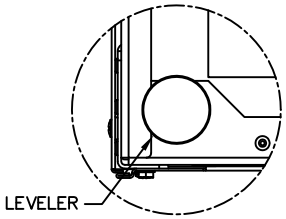



FRONT VIEW
(SEE NOTE 8)




RIGHT SIDE VIEW

| UPS kVA RATING | CENTER OF GRAVITY in(mm) | | | NOTE |
|---|---|---|---|---|
| | X | Y | Z | |
| 150 | 16 (406) | 46 (1168) | 16.1 (408) | WITH MBC |
| 200 | 16 (406) | 46 (1168) | 16.1 (408) | WITH MBC |



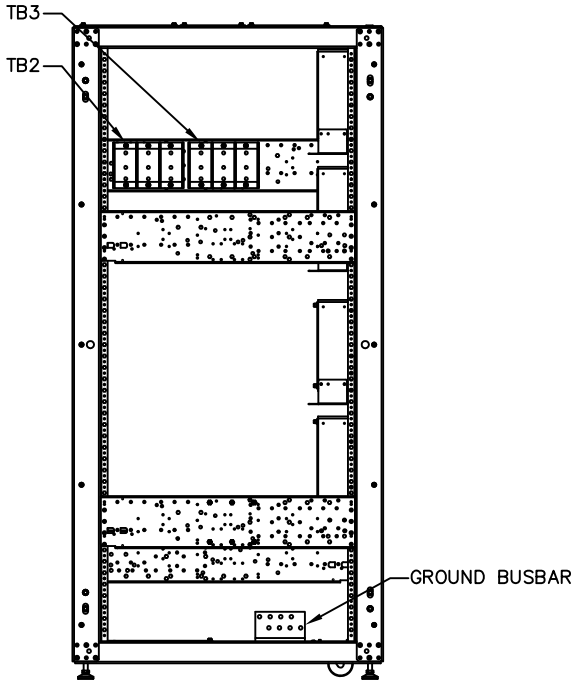

DETAIL A

| | | | | | |
|---|---|---|---|---|---|
| DRAWN BY<br>K. STACY | SHEET NO.<br>1 OF 2 | OUTLINE DRAWING<br>150kVA - 200kVA<br>2-4 BREAKER MAINTENANCE BYPASS CABINET (300mm)<br>LIEBERT 480VAC EXM | | | |
| CHK BY<br>J. SHIPMAN | ECN NO. | | | | |
| REF. DWG. | ORDER NO. | | DWG. NO.<br>EXM42007A | DATE<br>3/17/17 | REV. #<br>1 |

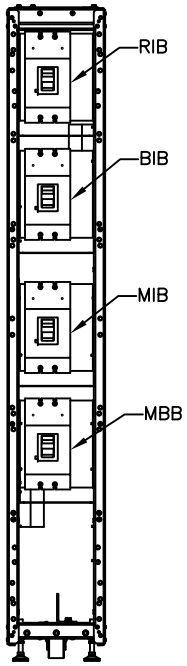
VERTIV.

1050 DEARBORN DRIVE
P.O. BOX 29186
COLUMBUS, OHIO 43229

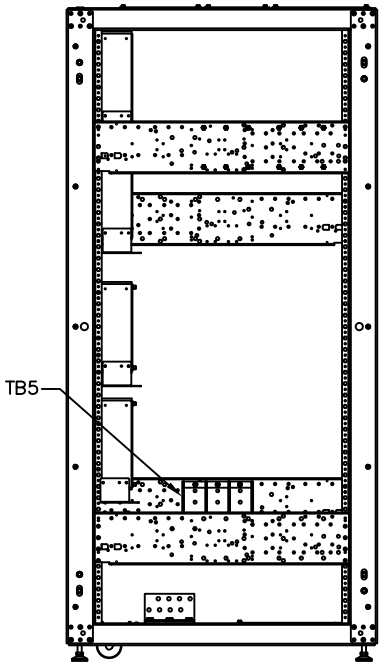
FILE NAME: I:\appl-DLW\Ohio Appl\AE Submittals - Standard\eXM dwg\480V\B) Outline Dwg\EXM42007A-01.dwg




LEFT SIDE VIEW
WITH PANEL REMOVED




FRONT VIEW
WITH DOOR REMOVED




RIGHT SIDE VIEW
WITH PANEL REMOVED

NOTES:
1. 2–BREAKER MBC CONSISTS OF MBB AND MIB.

2. 3–BREAKER MBC CONSISTS OF MBB, MIB, AND BIB.

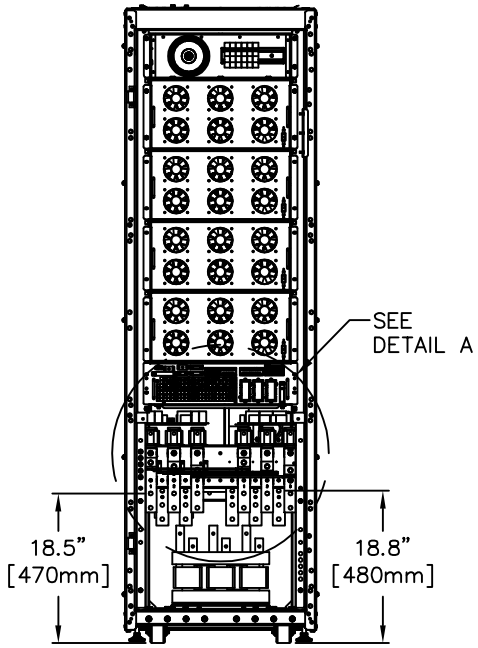
3. 4–BREAKER MBC CONSISTS OF MBB, MIB, BIB, AND RIB.

| | | | | | |
|---|---|---|---|---|---|
| DRAWN BY<br>K. STACY | SHEET NO.<br>2 OF 2 | OUTLINE DRAWING<br>MAIN COMPONENTS LAYOUT<br>150kVA - 200kVA<br>2-4 BREAKER MAINTENANCE BYPASS CABINET (300mm)<br>LIEBERT 480VAC EXM | | | VERTIV.<br>1050 DEARBORN DRIVE<br>P.O. BOX 29186<br>COLUMBUS, OHIO 43229 |
| CHK BY<br>J. SHIPMAN | ECN NO. | | | | |
| REF. DWG. | ORDER NO. | | DWG. NO.<br>EXM42007B | DATE<br>3/17/17 | REV. #<br>1 |

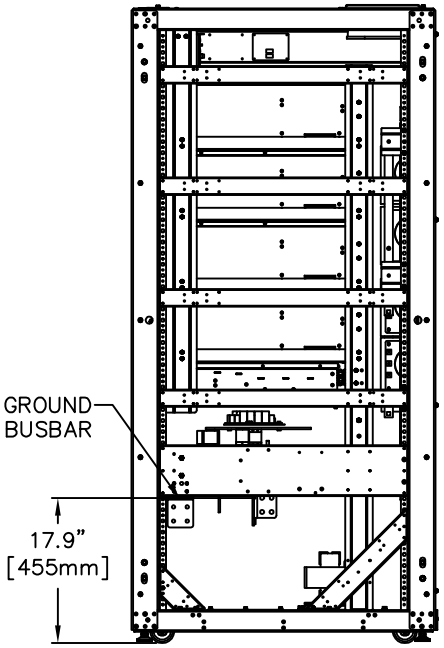
FILE NAME: I:\appl-DLW\Ohio Appl\AE Submittals - Standard\eXM dwg\480V\B) Outline Dwg\EXM42007B-01.dwg

NOTES:
1. ALL DIMENSIONS ARE IN inches [mm].
2. CONTROL WIRING AND POWER WIRING MUST BE RUN IN SEPARATE CONDUITS.
3. ALL WIRING IS TO BE IN ACCORDANCE WITH NATIONAL AND LOCAL ELECTRICAL CODES.

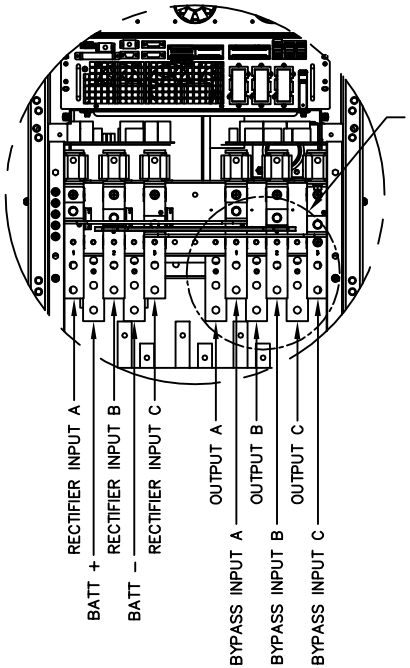
| TERMINAL SPECIFICATIONS | | | |
|---|---|---|---|
| UNIT RATING | UTILITY CONFIGURATIONS | | |
| | BOLT SHAFT SIZE | TORQUE | |
| | | LB-IN | N-M |
| 50-200 | M12 | 428 | 48 |



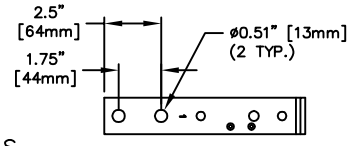

FRONT VIEW
WITH DOOR REMOVED



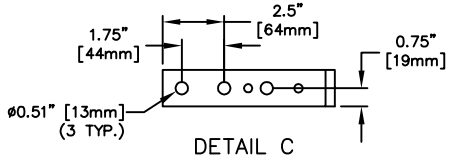

RIGHT SIDE VIEW
WITH PANEL REMOVED



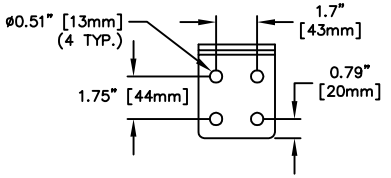

DETAIL A




DETAIL B
(RECTIFIER AND BYPASS INPUT BUSBARS)




DETAIL C
(BATTERY AND OUTPUT BUSBARS)




GROUND BUSBAR

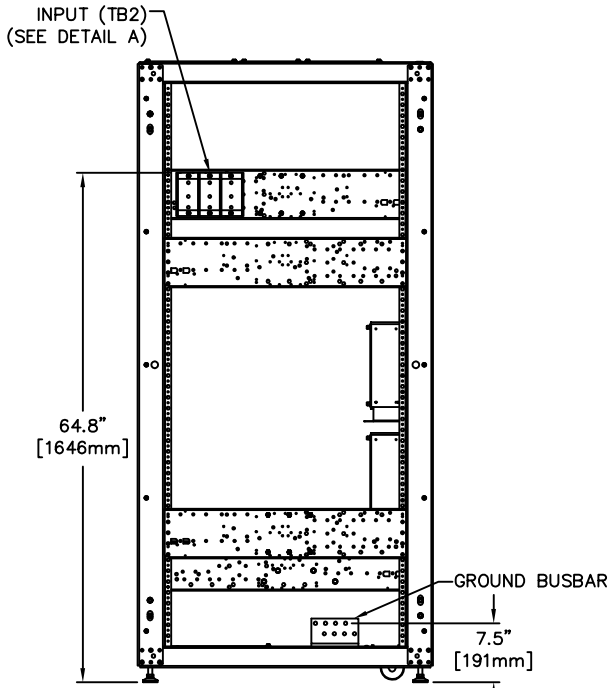
| | | | | | |
|---|---|---|---|---|---|
| DRAWN BY K. STACY | SHEET NO. 1 OF 1 | TERMINAL DETAIL 50kVA - 200kVA UPS LIEBERT 480VAC EXM | | | |
| CHK BY L. BRAZIS | ECN NO. | | | | |
| REF. DWG. | ORDER NO. | | DWG. NO. EXM46001 | DATE 1/21/16 | REV. # 1 |

1050 DEARBORN DRIVE
P.O. BOX 29186
COLUMBUS, OHIO 43229

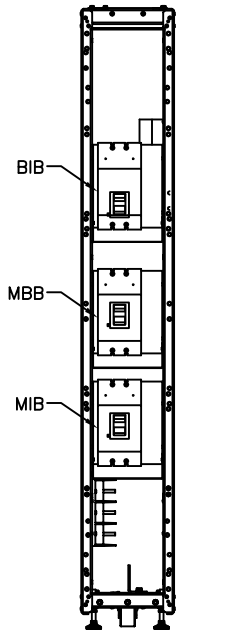
VERTIV.

FILE NAME: I:\appl\Ohio Appl\AE Submittals - Standard\eXM dwg\F) Terminal Details\EXM46001-01.dwg

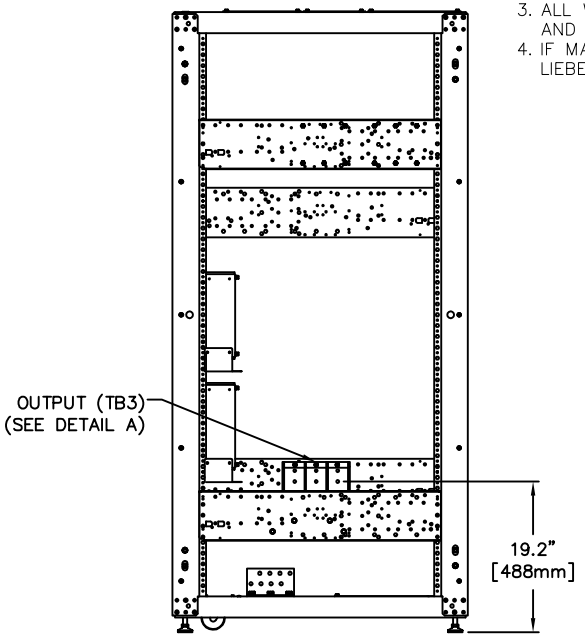
NOTES:
1. ALL DIMENSIONS ARE IN inches [mm].
2. CONTROL WIRING AND POWER WIRING MUST BE RUN IN SEPARATE CONDUITS.
3. ALL WIRING IS TO BE IN ACCORDANCE WITH NATIONAL AND LOCAL ELECTRICAL CODES.
4. IF MAINTENANCE BYPASS CABINET IS ATTACHED TO UPS, LIEBERT WILL SUPPLY THE INTERCONNECTION CABLES.



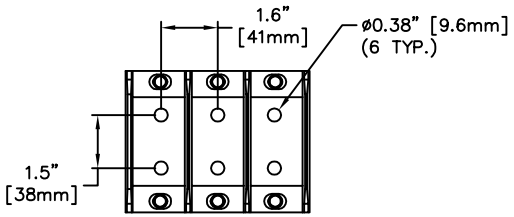

LEFT SIDE VIEW
WITH PANEL REMOVED



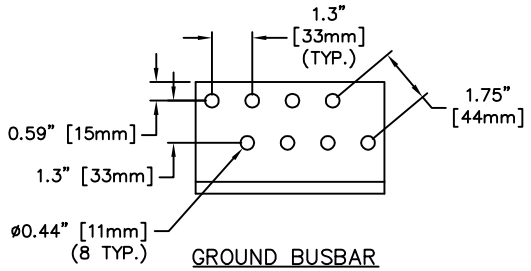

FRONT VIEW
WITH DOOR REMOVED




RIGHT SIDE VIEW
WITH PANEL REMOVED




DETAIL A

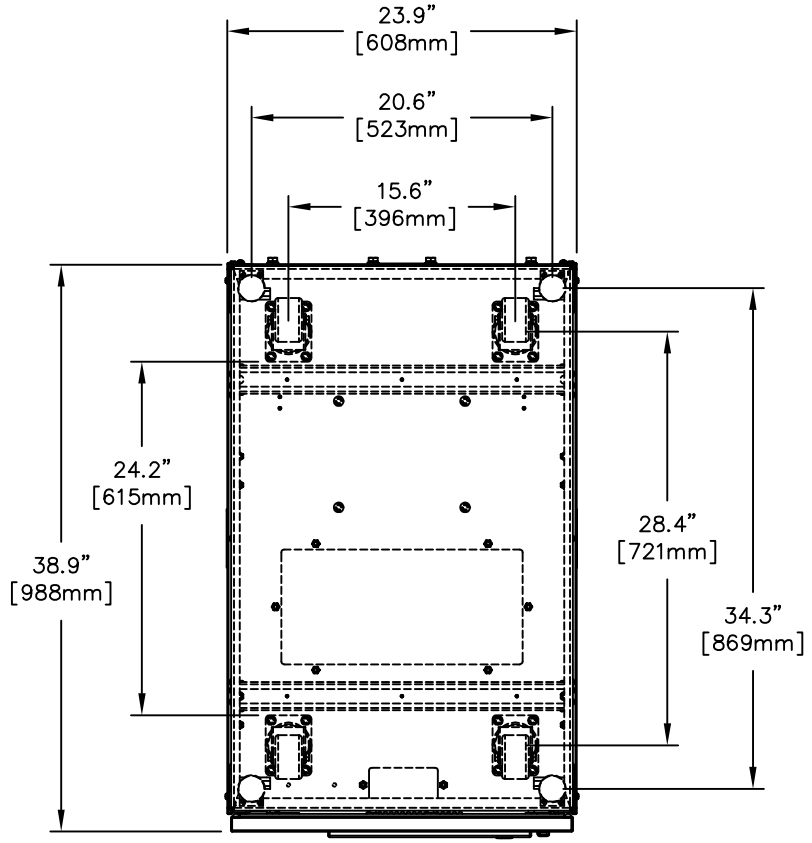



GROUND BUSBAR

| | | | | | |
|---|---|---|---|---|---|
| DRAWN BY<br>K. STACY | SHEET NO.<br>1 OF 1 | TERMINAL DETAIL<br>3 BREAKER MAINTENANCE BYPASS CABINET (300mm)<br>FOR USE WITH 150kVA - 250kVA UPS<br>LIEBERT 480VAC EXM | | | VERTIV. |
| CHK BY<br>M. ROCKWELL | ECN NO. | | | | |
| REF. DWG. | ORDER NO. | | | | |
| | | DWG. NO.<br>EXM46009 | DATE<br>12/2/15 | REV. #<br>0 | 1050 DEARBORN DRIVE<br>P.O. BOX 29186<br>COLUMBUS, OHIO 43229 |

FILE NAME: I:\appl\Ohio Appl\AE Submittals - Standard\eXM dwg\480V\F) Terminal Details\EXM46009-00.dwg

NOTES:
1. ALL DIMENSIONS ARE IN inches [mm].
2. UNIT BOTTOM IS STRUCTURALLY ADEQUATE FOR FORKLIFT HANDLING

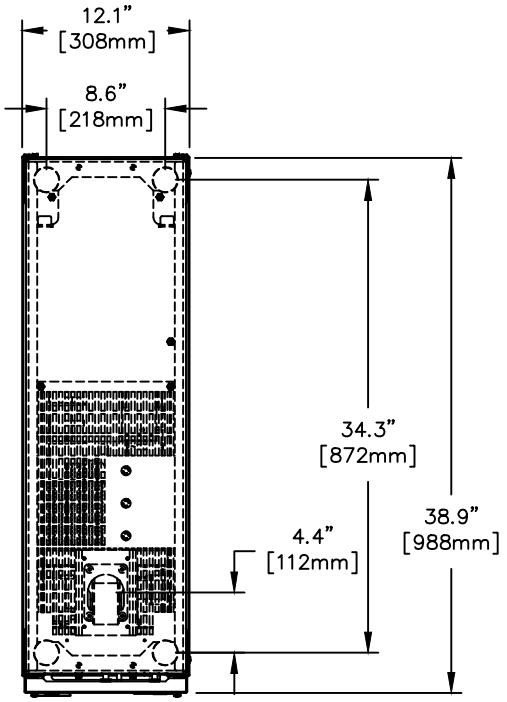



FRONT
(VIEWED LOOKING TOP DOWN)

| | | | | | | |
|---|---|---|---|---|---|---|
| DRAWN BY<br>K. STACY | SHEET NO.<br>1 OF 1 | BASE DETAIL<br>50kVA - 200kVA UPS<br>LIEBERT 480VAC EXM | | | | VERTIV. |
| CHK BY<br>L. BRAZIS | ECN NO. | | | | | |
| REF. DWG. | ORDER NO. | | DWG. NO.<br>EXM49001 | DATE<br>2/25/16 | REV. #<br>1 | 1050 DEARBORN DRIVE<br>P.O. BOX 29186<br>COLUMBUS, OHIO 43229 |

FILE NAME: I:\appl\Ohio Appl\AE Submittals - Standard\eXM dwg\I) Seismic & Base Details\EXM08001-01.dwg

NOTES:
1. ALL DIMENSIONS ARE IN inches [mm].
2. UNIT BOTTOM IS STRUCTURALLY ADEQUATE FOR FORKLIFT HANDLING




FRONT
(VIEWED LOOKING TOP DOWN)

| | | | | | | |
|---|---|---|---|---|---|---|
| DRAWN BY<br>J. SHIPMAN | SHEET NO.<br>1 OF 1 | BASE DETAIL<br>MAINTENANCE BYPASS CABINET (300mm)<br>LIEBERT 480VAC EXM | | | | VERTIV. |
| CHK BY<br>J. SHIPMAN | ECN NO. | | | | | |
| REF. DWG. | ORDER NO. | | DWG. NO.<br>EXM49005 | DATE<br>1/31/18 | REV. #<br>0 | 1050 DEARBORN DRIVE<br>P.O. BOX 29186<br>COLUMBUS, OHIO 43229 |

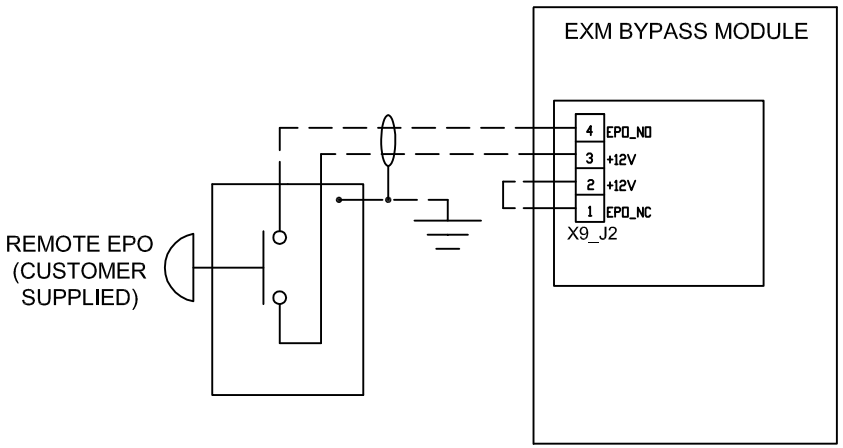
FILE NAME: I:\appl\Ohio Appl\AE Submittals - Standard\eXM dwg\480V\I) Seismic & Base Details\EXM49005-01.dwg

| CABLE GROUP #10A - MIB/MBB AUX CONTACTS | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| TERMINAL DESIGNATION | | COLOR | SIGNAL NAME | MAXIMUM VOLTAGE | MAXIMUM CURRENT | UPS TERMINATION WIRE RANGE | MAXIMUM LENGTH | REMARKS |
| FROM | TO | | | | | | | |
| TB1-3 | X9J26-9 | BLACK | MBB STATUS | 30VDC/ 250VAC | 8A | #16-20AWG | 200FT | |
| TB1-4 | X9J26-11 | WHITE | GROUND | | | | | |
| TB1-5 | X9J26-13 | BLACK | MIB STATUS | | | | | |
| TB1-6 | X9J26-15 | WHITE | GROUND | | | | | |
| **CABLE GROUP #10B - BIB SHUNT TRIP** | | | | | | | | |
| TERMINAL DESIGNATION | | COLOR | SIGNAL NAME | MAXIMUM VOLTAGE | MAXIMUM CURRENT | UPS TERMINATION WIRE RANGE | MAXIMUM LENGTH | REMARKS |
| FROM | TO | | | | | | | |
| TB1-7 | X9J23-3 | RED | BFP_S | 30VDC/ 480VAC | 4A | #16-20AWG | 200FT | |
| X9J23-1 | F5/F7 | BLACK | BFP_O | | | | | |
| TB1-8 | F6/F8 | BLACK | SHUNT TRIP | | | | | |
| **CABLE GROUP #10C - RIB SHUNT TRIP** | | | | | | | | |
| TERMINAL DESIGNATION | | COLOR | SIGNAL NAME | MAXIMUM VOLTAGE | MAXIMUM CURRENT | UPS TERMINATION WIRE RANGE | MAXIMUM LENGTH | REMARKS |
| FROM | TO | | | | | | | |
| TB1-10 | X9J24-3 | RED | MFP_S | 30VDC/ 480VAC | 4A | #16-20AWG | 200FT | |
| X9J24-1 | F5/F7 | BLACK | MFP_O | | | | | |
| TB1-9 | F6/F8 | BLACK | SHUNT TRIP | | | | | |
| **CABLE GROUP #10D - UPS ON BYPASS** | | | | | | | | |
| TERMINAL DESIGNATION | | COLOR | SIGNAL NAME | MAXIMUM VOLTAGE | MAXIMUM CURRENT | UPS TERMINATION WIRE RANGE | MAXIMUM LENGTH | REMARKS |
| FROM | TO | | | | | | | |
| TB1-11 | X9J23-6 | BLACK | INV_C | 30VDC/ 250VAC | 8A | #16-20AWG | 200FT | |
| TB1-12 | X9J23-4 | WHITE | INV_S | | | | | |

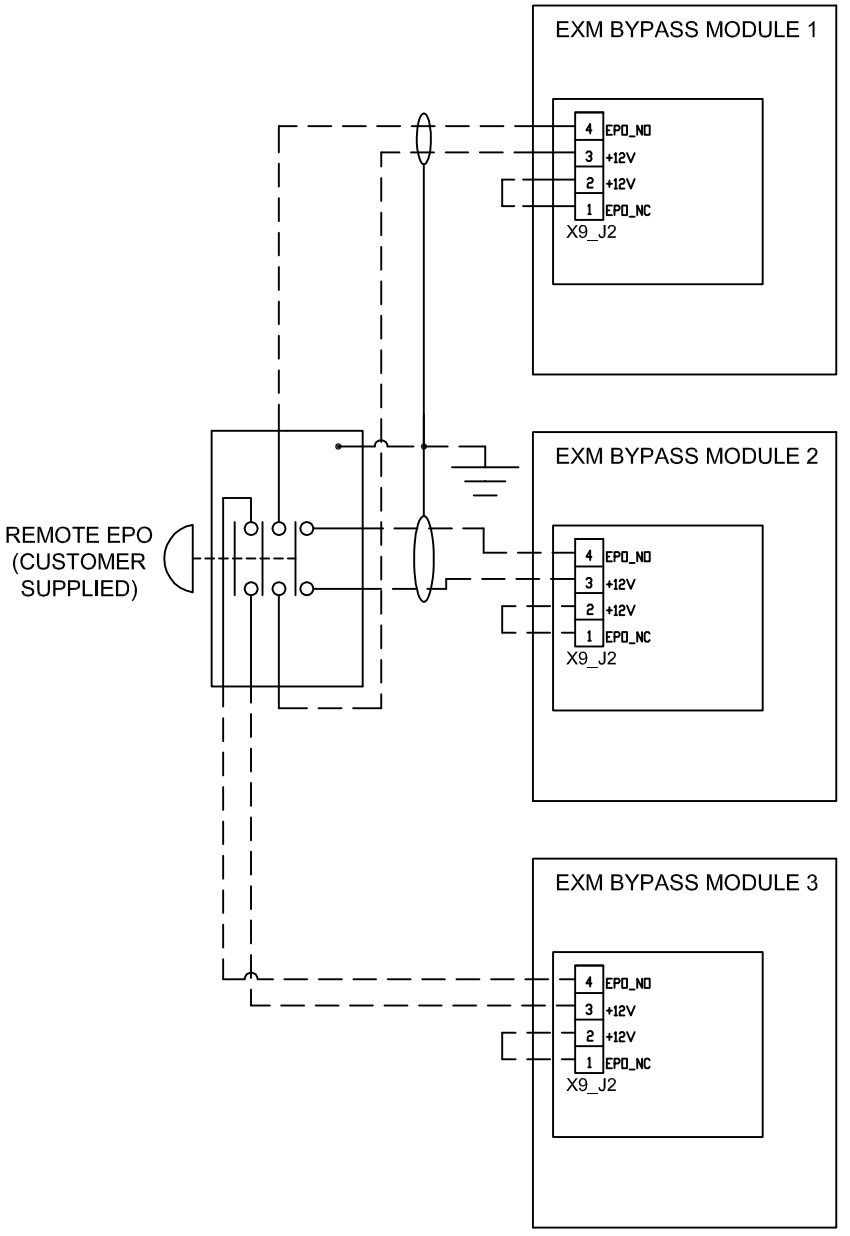
| | | | | |
|---|---|---|---|---|
| SHEET NO.: 1 OF 1 | DRAWN BY: J. SHIPMAN | TITLE: CONTROL WIRING<br>CABLE GROUP #10<br>UPS TO MAINTENANCE BYPASS CABINET (MBC)<br>LIEBERT 480VAC EXM | DWG. NO.: EXM44015 | VERTIV™ |
| ECN NO.: | DESIGNED BY: G. HOGE | | DATE (LATEST REV.): 11/29/2017 | |
| REF DWG.: | APPROVED BY: G. HOGE | | REVISION: 4 | 1050 DEARBORN DR<br>P.O. BOX 29186<br>COLUMBUS, OH 43229 |

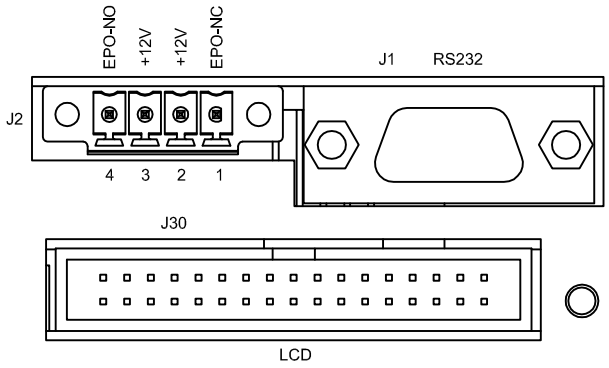
— — FIELD SUPPLIED WIRING

## SINGLE EXM MODULE




## THREE MODULES IN PARALLEL




## EXM BYPASS MODULE

| | | | | | |
|---|---|---|---|---|---|
| DRAWN BY<br>K. STACY | SHEET NO.<br>1 OF 1 | WIRING DIAGRAM<br>REMOTE EPO<br>50kVA - 250kVA<br>LIEBERT 480VAC EXM | | | |
| CHK BY<br>N. JENKINS | ECN NO. | | | | |
| REF. DWG. | ORDER NO. | | DWG. NO.<br>EXM44016 | DATE<br>5/3/16 | REV. #<br>0 |

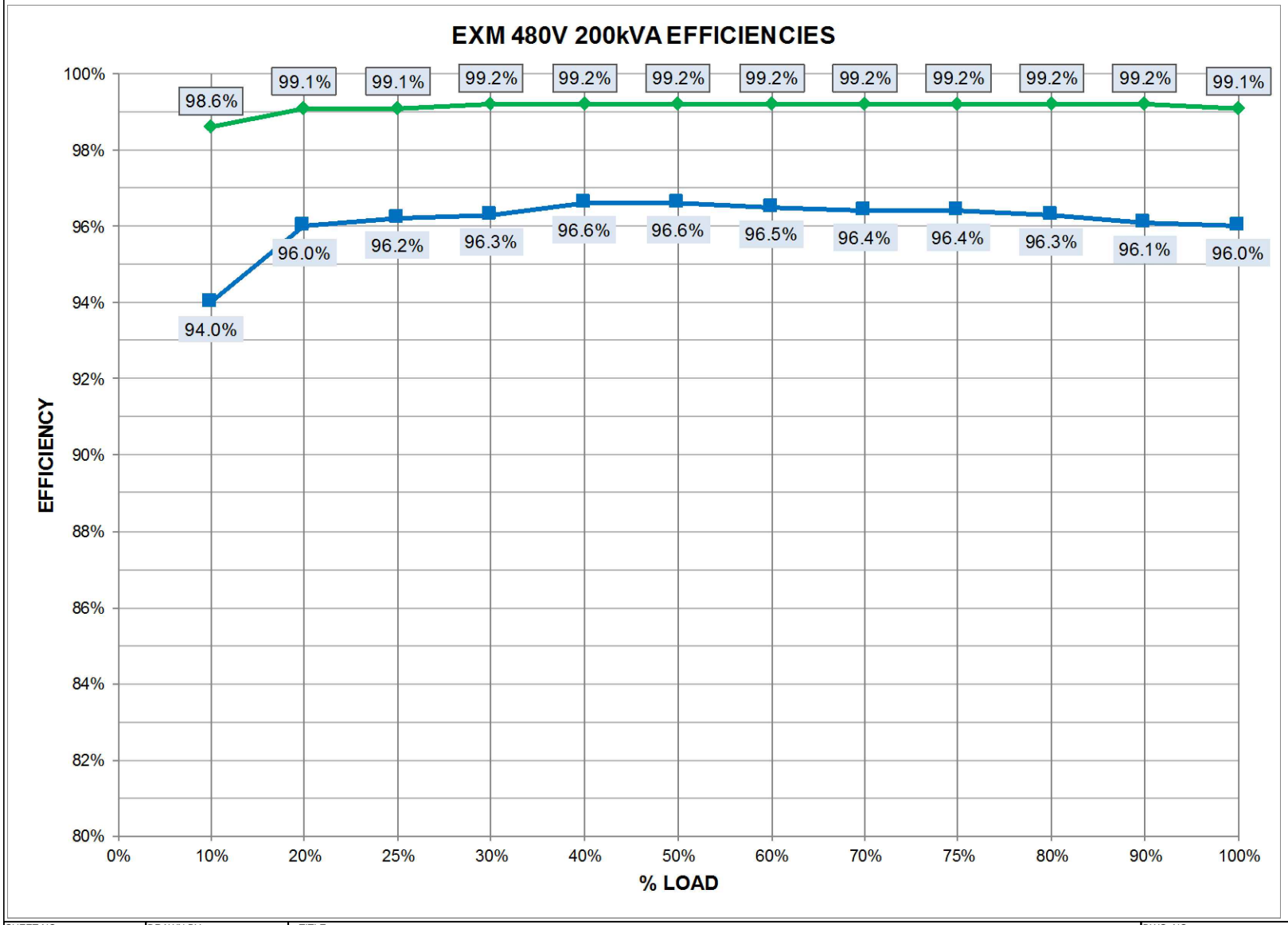
VERTIV™

1050 DEARBORN DRIVE
P.O. BOX 29186
COLUMBUS, OHIO 43229

FILE NAME: I:\appl-DLW\Ohio Appl\AE Submittals - Standard\eXM dwg\480V\D) Power & Control Wiring\EXM44016-00.dwg

NOTES

1. NO LOAD POWER LOSS: 1.48 kW




ECO MODE

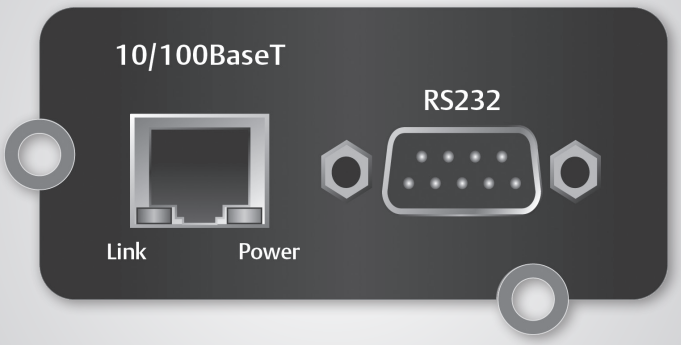
NORMAL MODE

| | | | | |
|---|---|---|---|---|
| SHEET NO.: 1 OF 1 | DRAWN BY: J. SHIPMAN | TITLE: UPS EFFICIENCY<br>200 kVA<br>LIEBERT 480VAC EXM | DWG. NO.: EXM47009 | VERTIV |
| ECN NO.: | DESIGNED BY: B. SANBORN | | DATE (LATEST REV.): 12/06/2018 | |
| REF DWG.: | APPROVED BY: B. SANBORN | | REVISION: 0 | 1050 DEARBORN DR<br>P.O. BOX 29186<br>COLUMBUS, OH 43229 |

# LIEBERT® INTELLISLOT™ CARDS
## Product Specification/Installation Guide

VERTIV™

**Liebert® IntelliSlot Web Card**




### INTELLISLOT™ WEB CARD FAMILY

- Liebert® IntelliSlot Web Card
- Liebert® IntelliSlot Web Card-LB
- Liebert® IntelliSlot WebCard-LBDS

The Liebert IntelliSlot Web Card family delivers enhanced communications and control to Liebert UPS, Power Management and Precision Cooling systems.

Liebert IntelliSlot Web cards bring SNMP, Telnet and Web-management capability to many models of Liebert UPS, power and cooling equipment. The cards employ an Ethernet network to monitor and manage a wide range of operating parameters, alarms and notifications.

### ADDITIONAL FEATURES

- SNMPv1, SNMPv2c and with MIB-II support
- HTTP/HTTPS 1.1
- Telnet
- BootP, DHCP per RFC2131/2132
- Remote sockets
- Remote firmware updates via HTTP

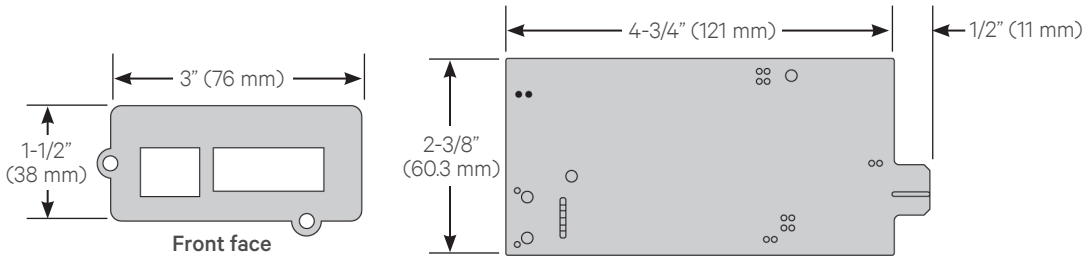
### COMPATIBILITY with Liebert Equipment

| IntelliSlot Web Card | Part Number | Compatible with: | | |
|---|---|---|---|---|
| Liebert IntelliSlot Web Card | IS-WEBCARD | • Liebert PowerSure PSI™<br>• Liebert GXT™ | • Liebert GXT™ 6kVA<br>• Liebert GXT™ 6kVA | • Liebert GXT2U™<br>• Liebert Nfinity® |
| Liebert IntelliSlot Web Card-LB | IS-WEBLB | • Liebert NX™ | • Liebert Hinet™ | |
| Liebert IntelliSlot Web Card-LBDS | IS-WEBLBDS | • Liebert DS™ Precision Cooling Unit | | |

### COMPATABILITY with Communication Protocols

| IntelliSlot Web Card | Part Number | Compatible with: | | | | | |
|---|---|---|---|---|---|---|---|
| | | SNMP | HTTP | HTTPS | EMAIL | SMS | TELNET |
| Liebert IntelliSlot Web Card | IS-WEBCARD | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Liebert IntelliSlot Web Card-LB | IS-WEBLB | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Liebert IntelliSlot Web Card-LBDS | IS-WEBLBDS | ✓ | ✓ | — | — | — | ✓ |

## DIMENSIONS




## SPECIFICATIONS

| | | |
|---|---|---|
| Power Requirements | AC Inputs | 18 - 24 VAC; 50/60 Hz |
| | DC Inputs | 12 - 36VDC |
| | Power Consumptions: | 6VA maximum (1.75W) |
| Dimensions, W x D x H | 3 x 5-1/4 x 2-3/8 (76 x 134 x 38 mm) | |
| Weight (assembled) | Net: | 7 oz (0.2 kg) |
| | Shipping: | 1.3 lb (0.6 kg) |
| Ambient Operating Environment | 32 to 104°F (0 to 40°C); 10% to 90% RH (non-condensing) | |
| Ambient Storage Temperature | –4 to 140°F (–20 to 60°C) | |
| Protection | SELV Isolated User Connections, Watchdog Timer Circuitry | |
| Communication Ports | Service Terminal (RS-232) | DB9F, DTE |
| | Ethernet Communications | RJ45 |

## WIRING

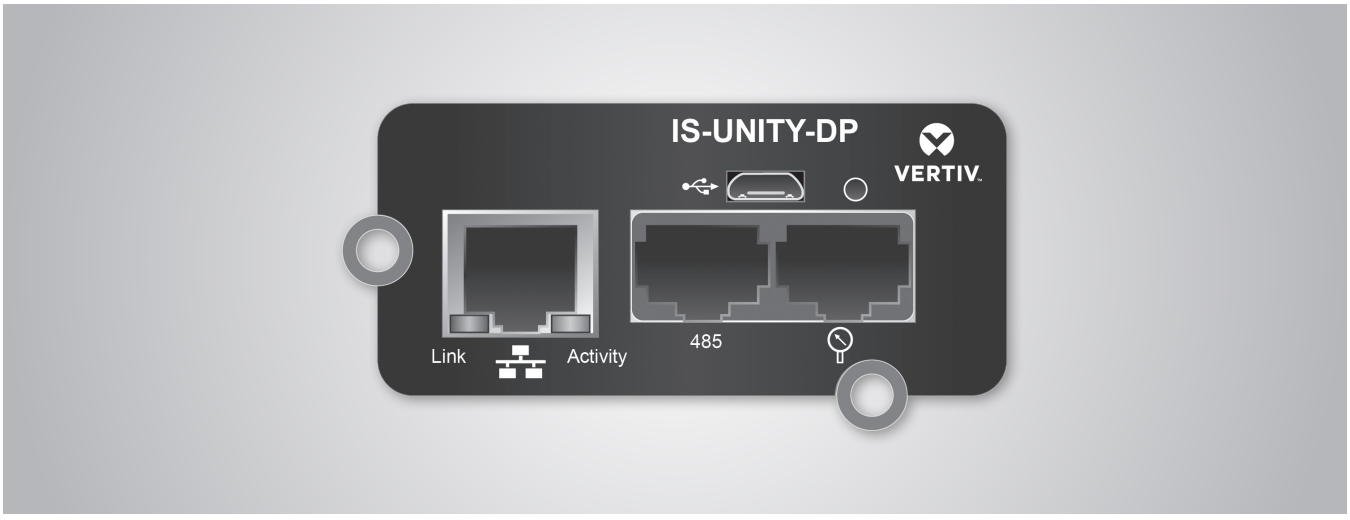
| Connection | Supported Wire Type | Max. Wire Length |
|---|---|---|
| 1RS-232 | Null Modem Cable | 50 ft. (15.3m) |
| DB9F Connector | DTE Null Modem Cable | 50 ft. (15m) |
| RJ45 Connector | Standard Category 5 Cable | 328 ft. (100m) |

**To contact Vertiv Technical Support: visit www.VertivCo.com**

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# LIEBERT® INTELLISLOT™ UNITY PLATFORM CARDS

Product Specification/Installation Guide




The Liebert IntelliSlot Unity Platform brings SNMP, BACnet IP, BACnet MSTP, Modbus TCP, Modbus RTU, YDN23 and Web management capability to many models of Vertiv's power and cooling equipment. The cards employ Ethernet and RS-485 networks to monitor and manage a wide range of operating parameters, alarms and notifications. The card also supports communication for LIFE™ Services by VERTIV.

## ADDITIONAL FEATURES

- SNMPv1, SNMPv2c and SNMPv3 with MIB-II support
- HTTP/HTTPS 1.1
- BootP
- DHCP per RFC2131/2132
- Remote firmware updates via a Web browser
- IPv6 support for HTTP/HTTPS, DHCPv6, e-mail, SMS, SNMP v1/v2c/v3 and Modbus TCP
- Liebert SN Environmental Sensor Support (Web, SNMP, SMS and SMTP): Temperature, Humidity, Door Closure, Contact Closure and Leak Detection: Liebert SN-2D, Liebert SN-3C, Liebert SN-L, Liebert SN-T, Liebert SN-TH, Liebert SN-Z01, Liebert SN-Z02 and Liebert SN-Z03

IntelliSlot Unity cards are a form, fit, and function replacement for several Liebert IntelliSlot Web and 485 cards.

## COMPATABILITY with Liebert Equipment

| IntellSlot Card | Compatible with | | | |
|---|---|---|---|---|
| IS-UNITY-DP<br>IS-UNITY-SNMP<br>IS-UNITY-LIFE | Alber BDSU-50™ | Liebert Deluxe System/3™ | Liebert GXT3™ | Liebert PeX™ * |
| | Liebert APM™ | Liebert DS™ | Liebert GXT4™ | Liebert PPC™ |
| | Liebert APS™ | Liebert DSE™ | Liebert HPC™ | Liebert RDC™ |
| | Liebert Challenger 3000™ | Liebert EPM™ | Liebert HPC-S/M/R/W/Generic™ | Liebert RX™ |
| | | Liebert EXC™ | Liebert HPM™ | Liebert XDC™ |
| | Liebert CRV™ | Liebert eXL™ | Liebert NX™ 225-600 kVA | Liebert XDP™ |
| | Liebert CW™ | Liebert EXL™ S1 | Liebert NXC™ | Liebert XDP-Cray™ |
| | Liebert DCL™ | Liebert eXM™ | Liebert NXL™ * | |
| | Liebert DCP™ | Liebert FDC™ | Liebert NXR™ | |
| | | Liebert FPC™ | Liebert PCW™/PDX™ | |

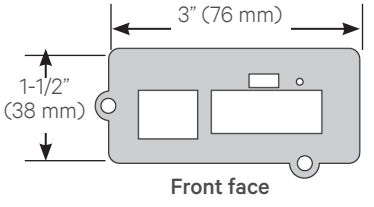
** YDN23 supported only for Liebert PeX and Liebert NXL.*

## COMPATABILITY with Communication Protocols

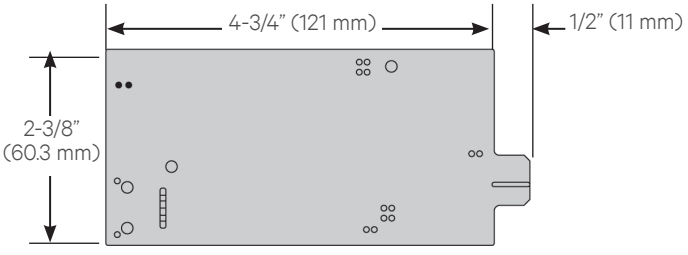
| Liebert IntelliSlot Card | Life Services Support | Communication Protocol | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | HTTP HTTPS | Velocity Protocol | Email | SMS | SNMP v1, v2c, v3 | BACnet IP BACnet MSTP | Modbus TCP Modbus RTU | YDN23* |
| IS-UNITY-DP | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| IS-UNITY-SNMP | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | — | — | — |
| IS-UNITY-LIFE | ✓ | ✓ | ✓ | ✓ | ✓ | — | — | — | — |

* YDN23 supported only for Liebert PeX and Liebert NXL.

## DIMENSIONS



Front face



Board

## SPECIFICATIONS

| | | |
|---|---|---|
| Power Requirements | DC Inputs | 7 to 12 VDC |
| | Power Consumptions: | 3.6 W maximum |
| Dimensions, W x D x H | 2.97 x 5.2 x 1.45 in. (75.5 x 15 x 37 mm) | |
| Weight (assembled) | Net: | 7 oz (0.2 kg) |
| | Shipping: | 1.3 lb (0.6 kg) |
| Ambient Operating Environment | 32 to 104°F (0 to 40°C); 10% to 90% RH (non-condensing) | |
| Ambient Storage Temperature | –4 to 140°F (–20 to 60°C) | |
| Communication Ports | Ethernet Communication | RJ-45 (LIFE™ Services requires a network connection to the Internet) |
| | RJ-45 (RJ-45 to 2-position terminal-block adapter) | |

## WIRING

| | | |
|---|---|---|
| 10/100 Mb/s Ethernet connector | Standard Category 5E Cable | 328 ft. (100m) |
| RJ-45 - One-Wire Connector | Liebert® Integrated One-Wire Sensor Cable or 2m Cat 5E to Modular 1-Wire | 65.6 ft. (20m) |

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