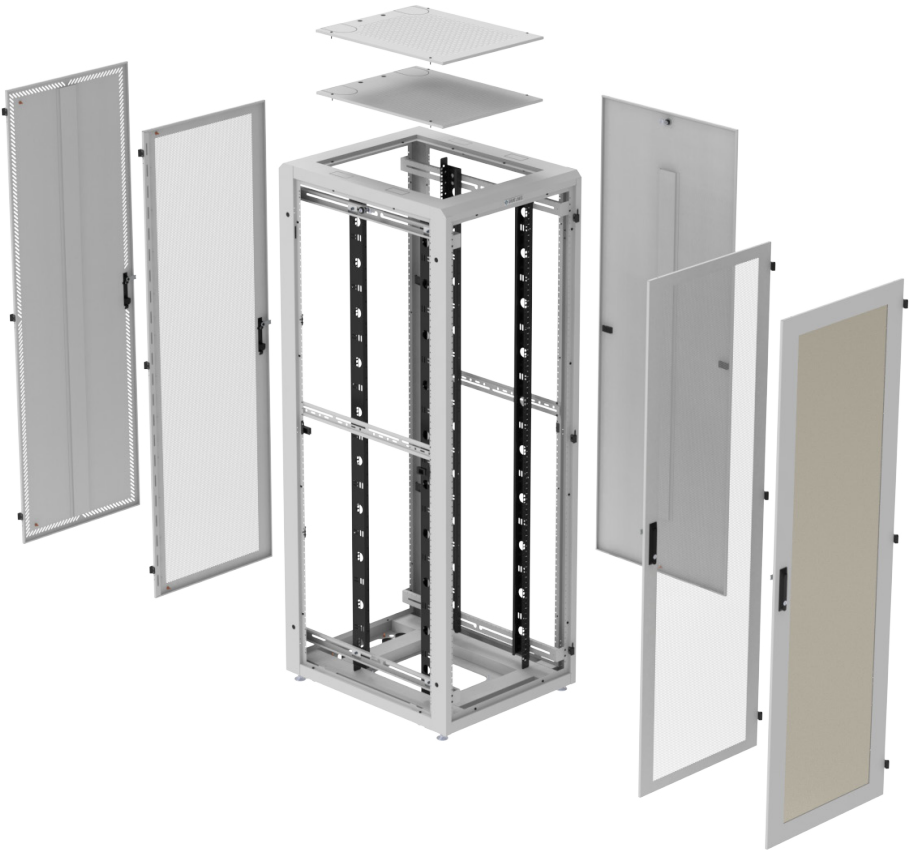




E Series Cabinets Installation Instructions

(UL60950-1/UL2416 E Equipment Cabinet/Rack)



Instructions apply to 72 and 84"H E cabinets.
See page 4 for a complete list.

GreatCabinets.com

1.866.879.4522

TABLE OF CONTENTS

What's Included	4
Installation Warnings	5
Doors	6
Door Handles	8
Side Panels	10
Caster & Leveler Mounting	11
Top & Bottom Panel	12
Mounting Rails	13
Standard Power Strip Mounting	14
Optional PDU Brackets	14
Cable Management Fingers	17
Hinged Cover Vertical Cable Manager	18
Cable Bar Kits	19
¼ Turn "D" Rings	20
Networking/Ganging Kit	21
Grounding	21
Copper Bus Bars	22
Protective Grounding	23

PREFACE

This manual is provided to prevent service personnel from committing an act that results in the risk of fire, electric shock, or injury to persons. Only trained service personnel should receive, unpack, and assemble E cabinets (UL60950 -1/UL2416 E Series Equipment Cabinet/Rack). In addition, only trained service personnel should install equipment in cabinets.

SAFETY SYMBOLS USED IN THIS MANUAL

This manual provides general safety guidelines to be observed during installation, operation, and maintenance of the E cabinet.



WARNING: Failure to follow directions in the warning could result in injury to persons or loss of life.



CAUTION: Failure to follow directions in the caution could result in damage to equipment or storage data.

SAFETY CONSIDERATIONS



WARNING: Improper handling and use of the E cabinet could result in equipment damage, serious injury, or possible death.

Only trained service personnel should be used to remove the cabinet from the shipping pallet. Also, be sure you have a sufficient number of service personnel. Do not attempt to move cabinets by yourself.

Only UL® Listed ITE (Information Technology Equipment) units should be installed inside the E cabinet.

Be sure to read and follow all individual manufacturer equipment manuals for safety and installation instructions.

Proper spacing is required when installing electrical equipment to avoid electrical shock. Maintain minimum spacing between the accessories and components and the computer cabinet assembly for safe operation of the equipment when installed in accordance with the National Electric Code ANSI/NFPA 70-1999.

The ambient temperature operating range for the E cabinet and accessories is +50 to +95° F (+10 to +35° C).

The non-operating temperature is -4 to +140° F (-20 to +60° C).

SERVICE

E cabinets should be repaired by personnel trained by Great Lakes, or returned to Great Lakes for repair or replacement. Contact Great Lakes Technical Support at 814.734.7303 or at GreatCabinets.com

WHAT'S INCLUDED

- E unit (assembled)
- Keys as needed (depending on configuration)
- (50) M6 cage nuts (3/8" square) and M6 screws (#10-32 tapped rails available, must be specified at time of order)
- This user's manual

This user's manual applies to the following Great Lakes E cabinets:

Part No.	RMU	H"	W"	D"	Usable Depth"
GL840E-2936	44	84	29	36	34
GL840E-2932	44	84	29	32	30
GL840E-2436	44	84	24	36	34
GL840E-2432	44	84	24	32	30
GL720E-2936	37	72	29	36	34
GL720E-2932	37	72	29	32	30
GL720E-2436	37	72	24	36	34
GL720E-2432	37	72	24	32	30

Weight capacity of 72 and 84"H E cabinet: 1500 lbs.

INSTALLATION

Receiving, Unpacking, and Removing the E cabinet from the shipping pallet

Inspect and report any damage before receiving. Unpack the cabinet by carefully removing the corrugated carton and corners. Avoid damaging the cabinet when removing packaging.



WARNING: Only trained service personnel should be used to remove the cabinet from the pallet. Also, be sure you have a sufficient number of service personnel. Do not attempt to move cabinets by yourself.



WARNING: Be careful when moving cabinets before installation. Sudden stops and starts, excessive force, obstructed routes, and uneven floor surfaces may cause the cabinet to topple over.

Loading Equipment



WARNING: Only install equipment after the E cabinet has been properly secured. Do not move the E cabinet assembly while loaded.

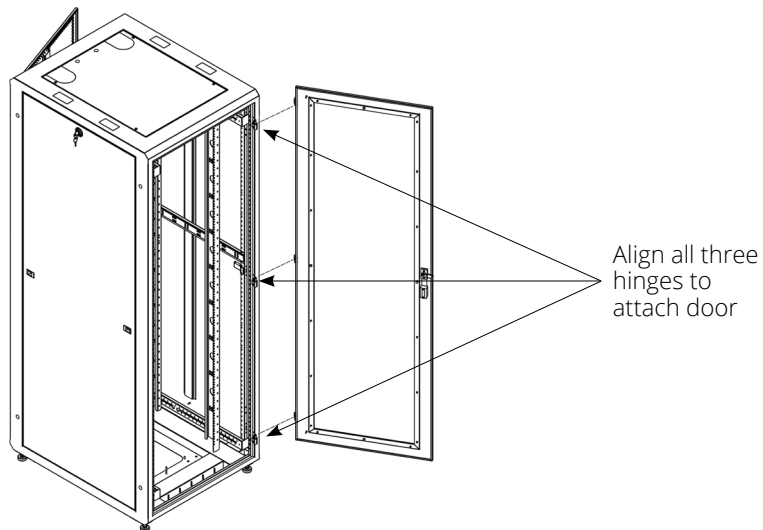
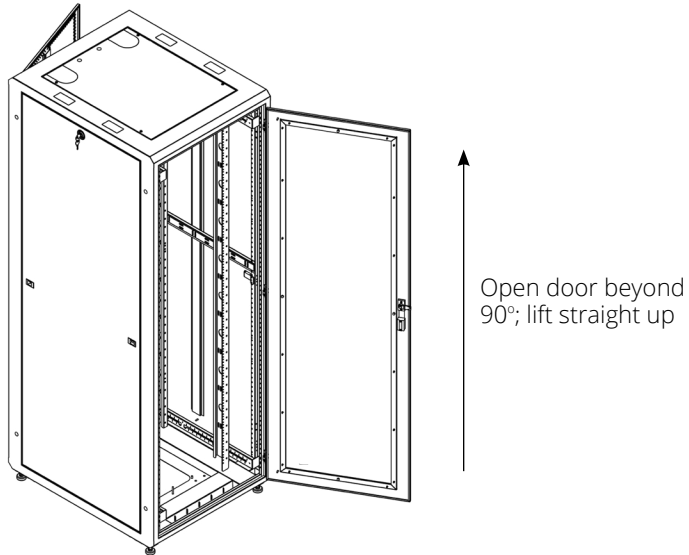
Once in place at the desired/intended location, deploy the leveling feet for maximum stability.

Rated or maximum load capacity for the E cabinet is 1500 pounds on the floor or on leveling glides.

To maintain a uniform distribution of the mechanical load in the E cabinet, load the heaviest equipment first, at the bottom of the E cabinet and load the lighter units at the top.

DOORS

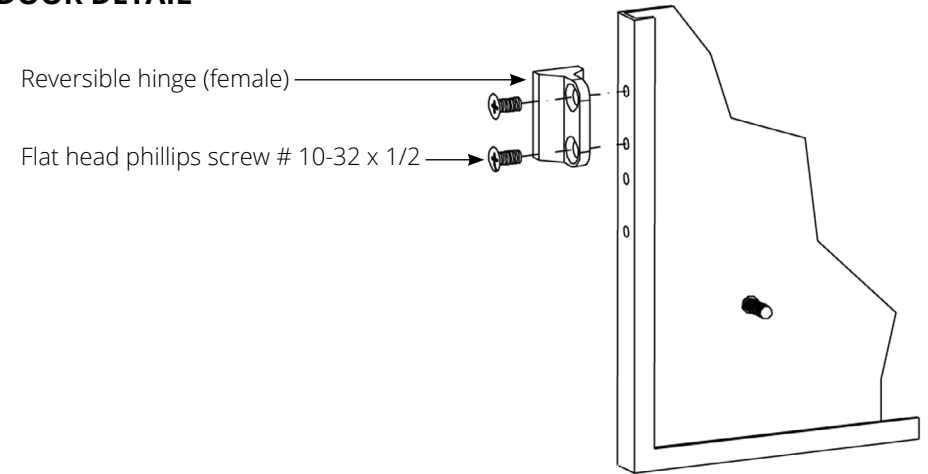
- **BEFORE REMOVING,**
pull apart the quick-disconnect grounding wires
- **TO REMOVE,**
open the door beyond 90°, grasp the door with both hands and lift upward, when the door is free of all three hinge pins, pull the door away from the cabinet
- **TO ATTACH,**
align all three hinges of the door to their respective hinge pins on the cabinet and slowly slide the door down until seated



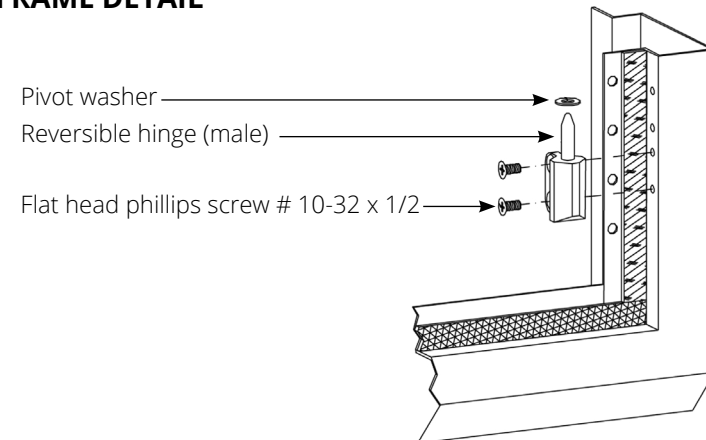
REVERSING THE DOOR

- Front and rear doors are installed right-hand hinge as standard from the manufacturer
- **TO REVERSE,**
 - Remove hinges and handle from door
 - Rotate door 180°
 - Reinstall hinges and handle after rotating both 180° (see page 8)

DOOR DETAIL



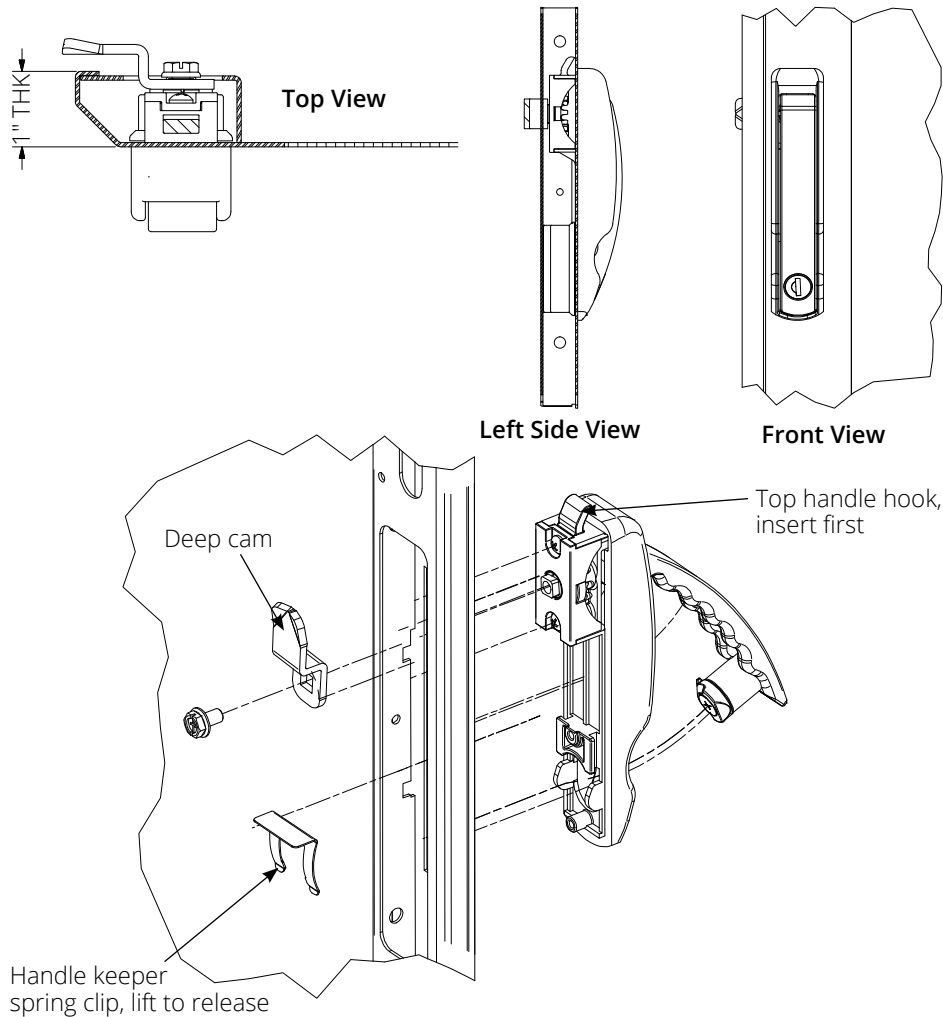
FRAME DETAIL



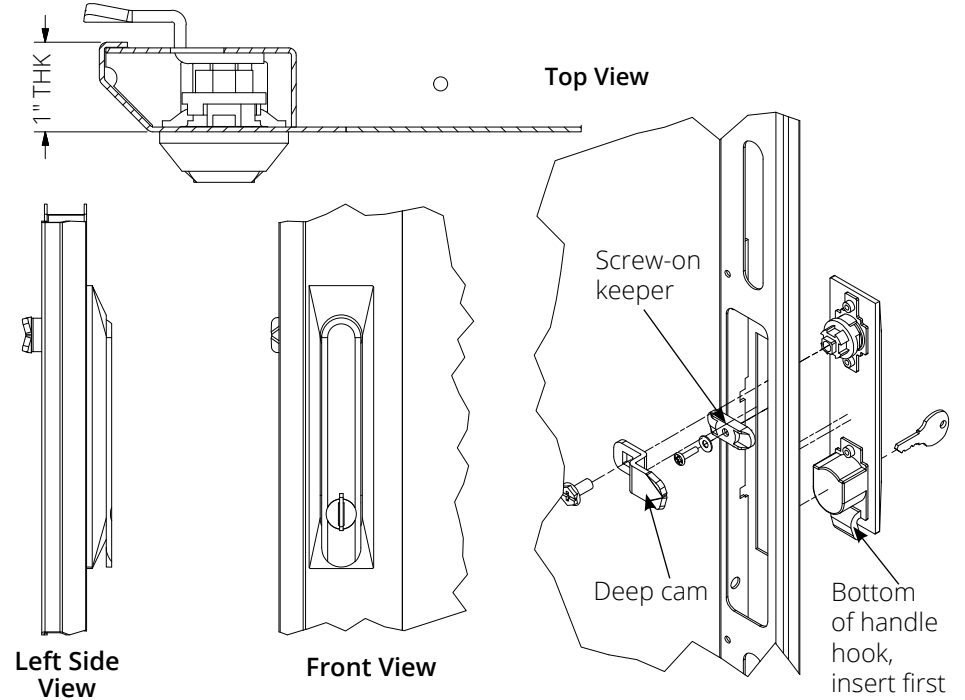
DOOR HANDLES

- Mesh contour doors come standard with a locking lever handle (see install below)
- The lever handle on mesh contour doors can be interchanged with a swing handle (see install, page 9)
- All other doors (mesh, steel, plexi, etc.) come standard with a locking swing handle (see install, page 9); swing handles cannot be interchanged with a lever handle
- If a handle is ordered separately, the handle can be swapped in the field. When interchanging the door handle, additional hardware may be required (and will ship with the handle)

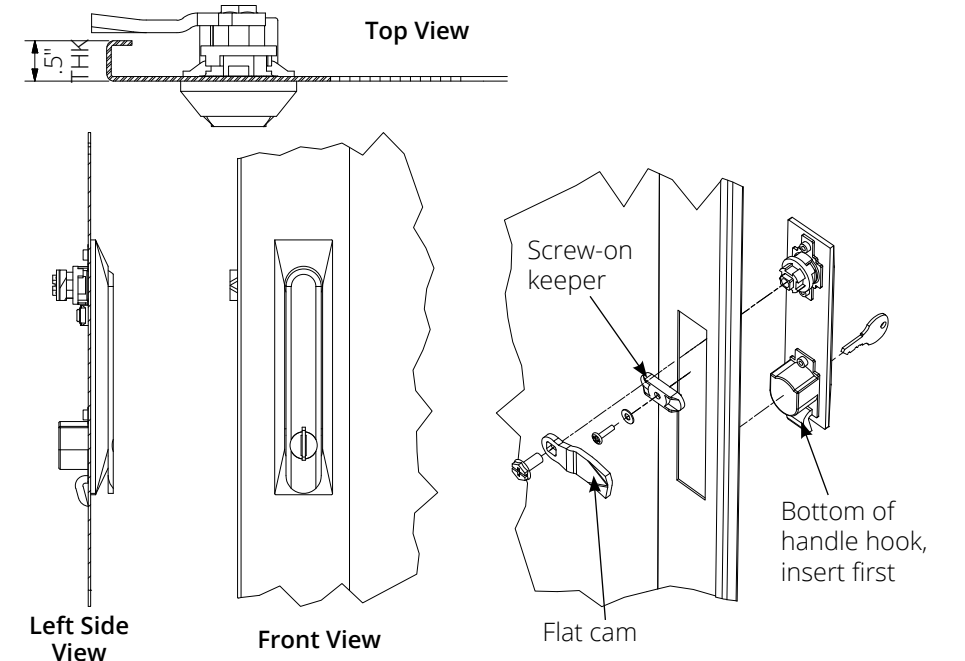
ASSEMBLY OF LEVER HANDLE ON MESH CONTOUR DOORS



ASSEMBLY OF SWING HANDLE ON MESH CONTOUR DOORS

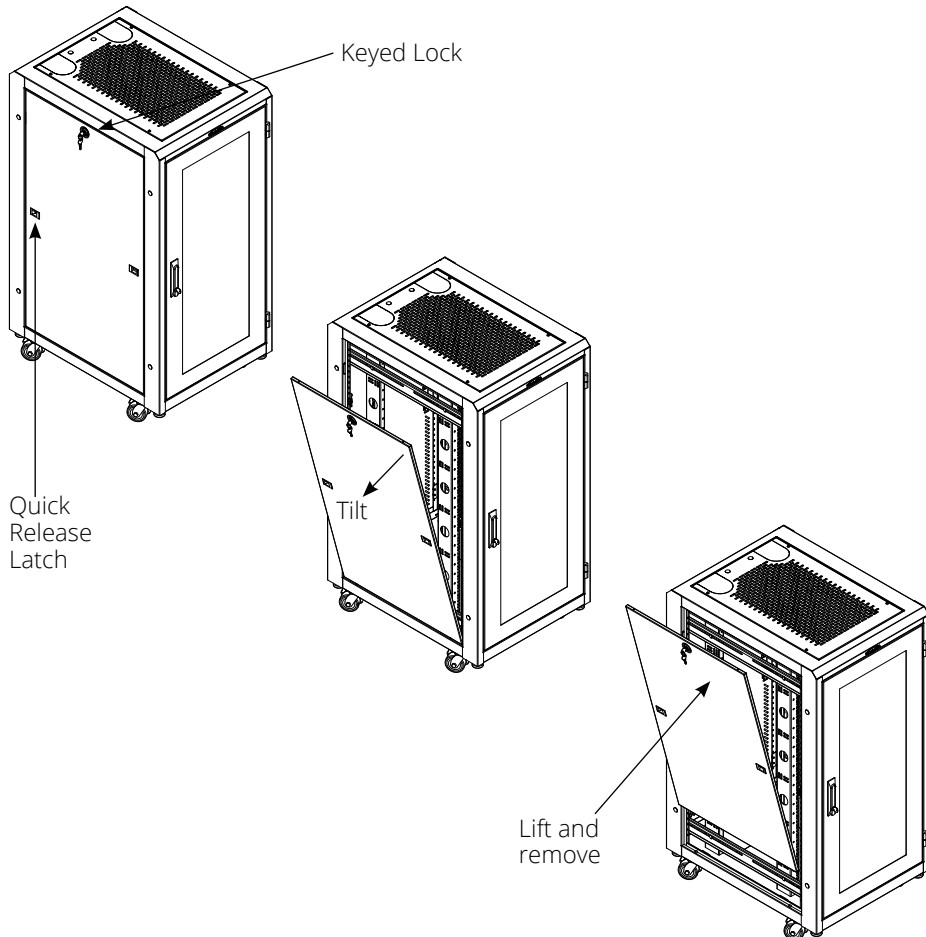


ASSEMBLY OF SWING HANDLE ON STANDARD MESH, STEEL, PLEXI AND PERIMETER VENTED DOORS



SIDE PANELS

- **BEFORE REMOVING,**
pull apart the quick-disconnect grounding wires and unlock the side panel
- **TO REMOVE**
 - Squeeze the quick-release latches toward each other
 - Tilt the top of the side panel out slightly
 - Lift the side panel up a couple of inches until it is free from the two tabs at the bottom of the cabinet frame
- **TO INSTALL**
 - Engage the side panel with the two tabs at the bottom of the frame
 - Push the panel fully into the frame
 - Ensure quick-release latches engage with slots on the side of the frame



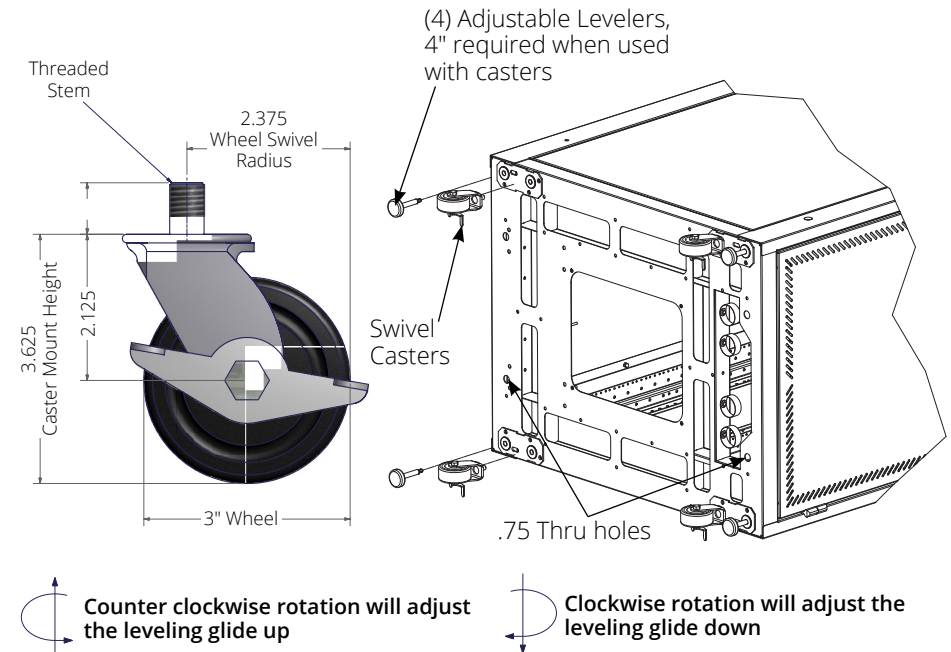
CASTER AND LEVELER MOUNTING



CAUTION

- To install casters or levelers, the cabinet must be tipped onto its side. The cabinet can be very heavy; several people will be required in this process. Please practice safe lifting techniques.
- **DO NOT** lay the cabinet on its front or back, this may damage the door hinges.
- Before tipping, remove the side panels and doors to reduce cabinet
- Cabinets ship standard with 2.5" levelers (part no. 7209-HD)
- If installing optional casters (part no. 7208-E) with levelers, 4" levelers (part no. 7209-4HD) are required
- **TO INSTALL**
 - Place cabinet on its side
 - Insert a stem caster into threaded inner hole (as shown below) rotate clockwise
 - Tighten with a 1/2" socket or nut driver
 - Repeat the above steps for the three remaining casters
 - Install leveling glides into threaded outer holes (as shown below) rotate to desired height

Note: Great Lakes ES will install levelers and casters if specified at time of order



TOP & BOTTOM PANELS

TOP PANEL

- Top panel is installed at the manufacturer
- **TO REMOVE**, unscrew the four #10-32 x 1"lg screws, lift off the top panel
- **TO INSTALL**, insert four #10-32 x 1"lg screws

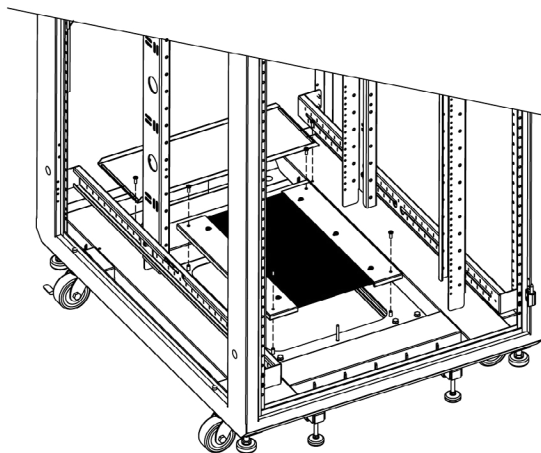
5 TOP PANEL OPTIONS



** indicates 24 or 29" cabinet width

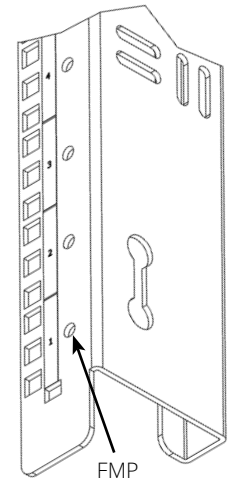
BOTTOM PANEL

- Bottom Panel is installed at the manufacturer if ordered with the cabinet
- Panels for 36"D cabinets come in two sections: one for the center opening and one for the rear opening
- Panels for 32"D cabinets consist of one large section
- **TO INSTALL**
 - Align large panel over four internal studs around the center opening of the cabinet
 - Secure large panel with #10-32 x 1/2" screws
 - Rear section: align the holes in the rear bottom panel with holes in the rear of the cabinet; secure with #10-32 x 1/2" screws
 - If cinch straps are installed in the bottom of the cabinet, straps must be removed before installing rear bottom panel



MOUNTING RAILS

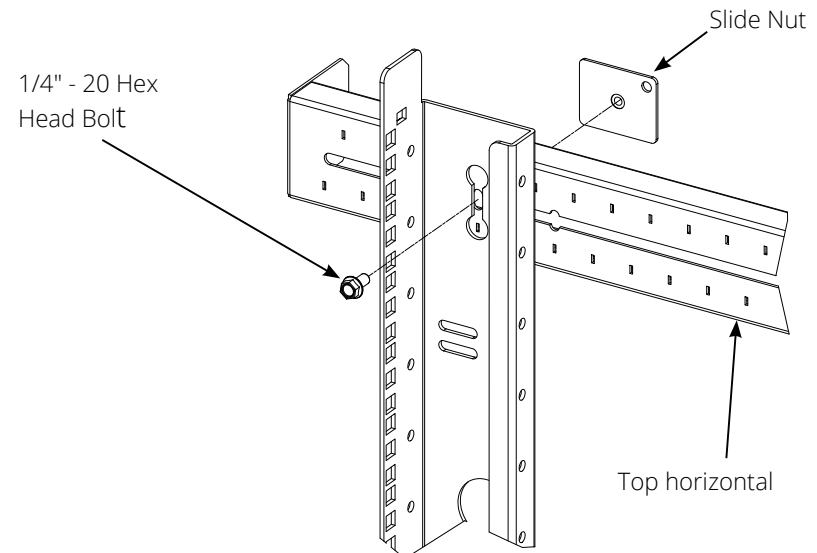
- Two pairs of 12 gauge steel, powder coated vertical mounting rails for 19" EIA 310-E equipment are installed in each cabinet
- 29"W E cabinet can be configured to 23" EIA mounting with an optional replacement bracket set
- Universal 3/8" sq. (M6) rails are standard; Tapped #10-32 rails are available and will be installed if specified at time of order
- Rack Mount Units (RMU) are marked on all rails
- Flexible Mounting Profile (FMP): a series of holes outside of the EIA pattern that allows mounting of zero-U accessories; FMP is on the front and rear face of all rails
- Round cable pass through holes, and vertical and horizontal cable tie down slots can be found on all rails



RAIL ADJUSTMENT

- Do **NOT** attempt to adjust rails once equipment has been loaded
- Rails are attached using a sliding nut plate and a 1/4" - 20 hex head bolt
- **TO ADJUST**, loosen the top and bottom bolts on the horizontals with a 3/8" drive socket
- Slide rails to appropriate placement and tighten all hardware to secure rails

TOP & BOTTOM RAIL ATTACHMENT



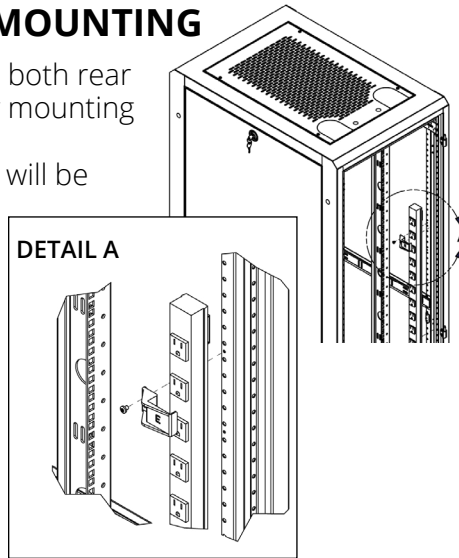


POWER

When using power distribution units (PDUs), each PDU should be connected to a committed branch circuit that is rated for the continuous load of all the equipment connected. When not using a PDU, each piece of equipment should be connected to a dedicated branch circuit.

STANDARD POWER STRIP MOUNTING

- One set of brackets are installed in both rear corners of the cabinet for vertically mounting basic power strips
- Power strip ordered with a cabinet will be installed at the manufacturer
- To install a power strip in the field, remove the #10-32 x 1/2" screws from bracket
- Place the power strip into the corner post of the frame
- Place one bracket between the top two outlets and install the #10-32 x 1/2" screw into the threaded hole in the frame
- Repeat for bottom bracket



Part No.	Description
----------	-------------

STANDARD POWER STRIPS, VERTICAL MOUNTING

UL Listed; 15' cord - Note: 15 amp, derated 12 amp; 20 amp, derated 16 amp; 30 amp, derated 24 amp

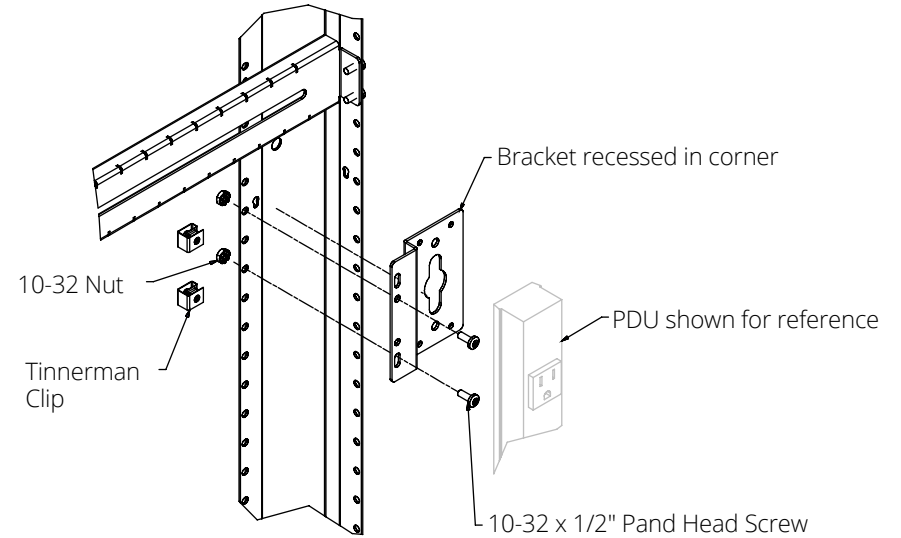
7215	16 receptacles, 5-15R receptacle, 5-15P, 15 amp, 125V
7215-S	16 receptacles, 5-15R receptacle, 5-15P, 15 amp, 125V, surge suppressor
7215-20ARTLP	16 receptacles, 5-20R receptacle, L5-20P, 20 amp, 125V
7215-20AR	16 receptacles, 5-20R receptacle, 5-20P, 20 amp, 125V
7215-30A	24 receptacles, 5-20R receptacle, L5-30P, 30 amp, 125V
7218-24	8 receptacles, 5-15R receptacle, 5-15P, 15 amp, 125V

PDU BUTTON MOUNTING - PSBKE

- PSBKE allows the button mounting of a single PDU in any corner of the E cabinet
- Based on the length of the PDU, determine if brackets will install in a recessed or flipped orientation, see next page

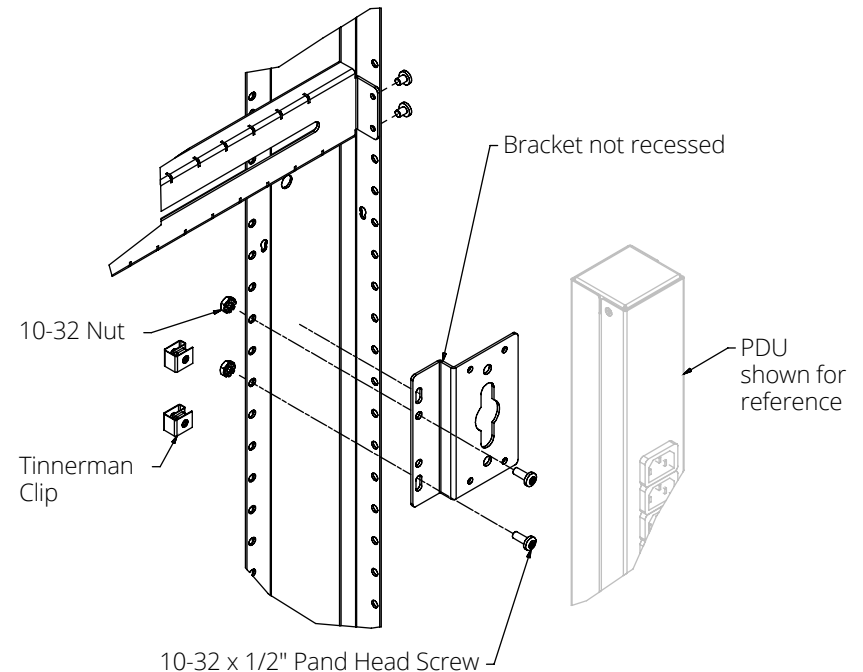
RECESSED PDU BRACKET ORIENTATION

- 72"H E Series cabinet will accept 58"L (MAX) PDU
- 84"H E Series cabinet will accept 70"L (MAX) PDU
- For longer PDU's, see Flipped PDU Bracket Orientation (below)



FLIPPED PDU BRACKET ORIENTATION

- 72"H E Series cabinet will accept 69"L (MAX) PDU
- 84"H E Series cabinet will accept 81"L (MAX) PDU

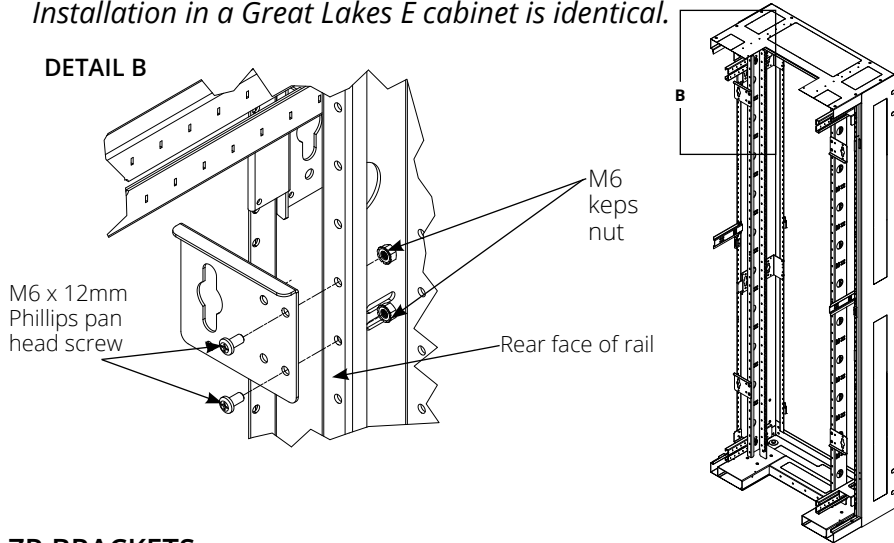


PSBKES-R-30 BRACKETS

- PDU Rail Brackets for 29"W cabinets allow the button mounting of a single PDU along the mounting rail
- The height of the PDU will determine where to position the brackets along the rail
- Brackets can install on any set of FMP holes

*Note: Installation drawing is shown in a Great Lakes ES cabinet.
Installation in a Great Lakes E cabinet is identical.*

DETAIL B

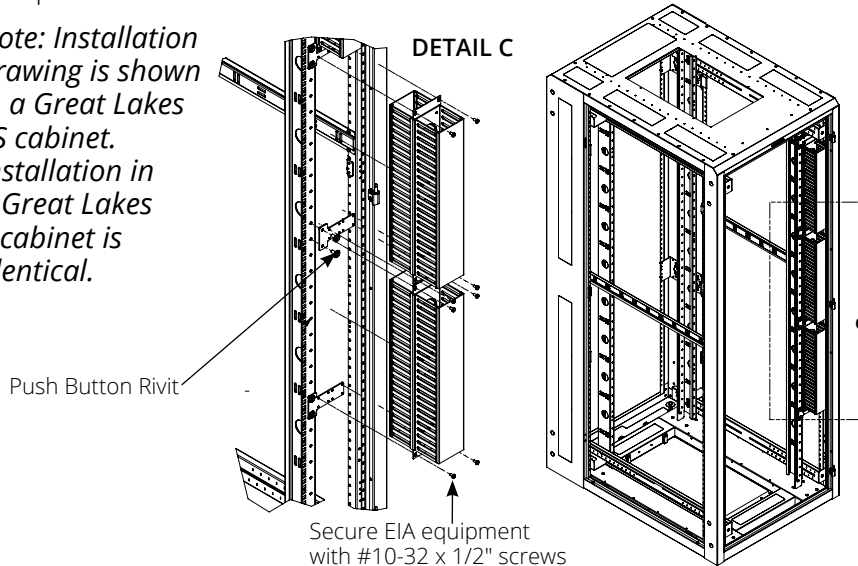


ZR BRACKETS

- ZR1 and ZR2 brackets fit in 29"W E cabinets and allow for "0" RMU mounting of 19" rack mount equipment
- Brackets should be spaced 18.31" between inner holes
- Use push button rivets to secure the bracket to the FMP holes

*Note: Installation drawing is shown in a Great Lakes ES cabinet.
Installation in a Great Lakes E cabinet is identical.*

DETAIL C

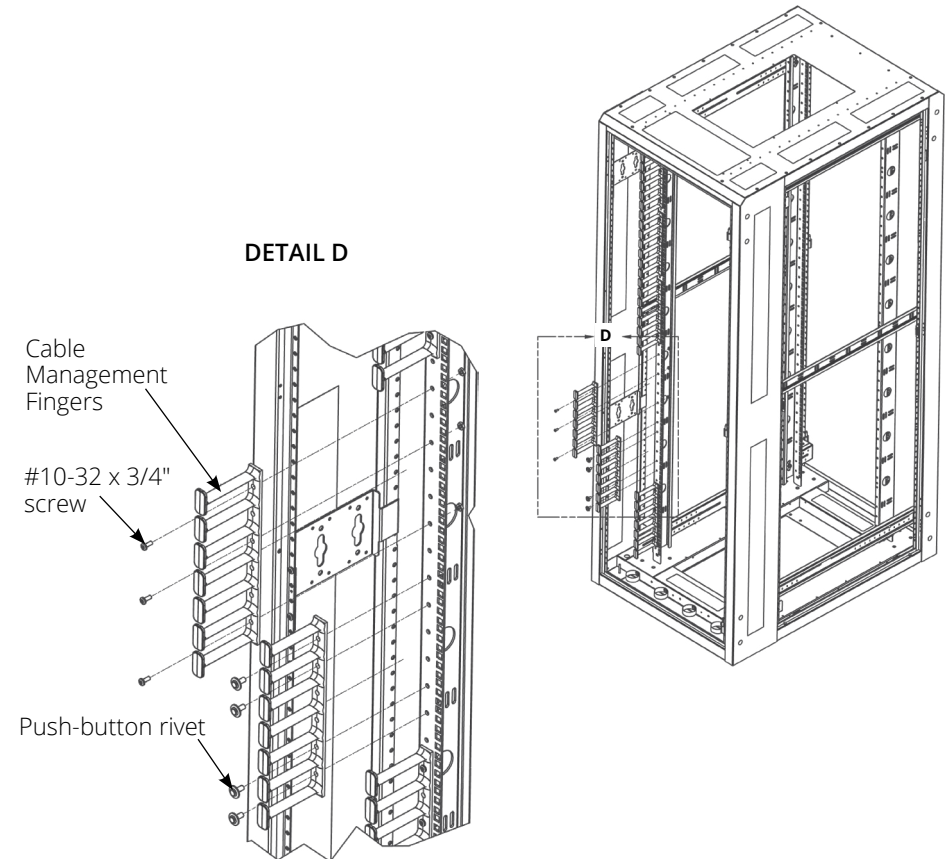


CABLE MANAGEMENT FINGERS

- Fingers install on the front or rear FMP of any rail
- If installing on front rails, rails must be recessed 4.5" to accommodate 4"D fingers or recessed 7.5" to accommodate 7"D fingers
- It is recommended that each set of fingers is installed using 3 points of attachment (with push-button rivets or screws and nuts)

*Note: Installation drawing is shown in a Great Lakes ES cabinet.
Installation in a Great Lakes E cabinet is identical.*

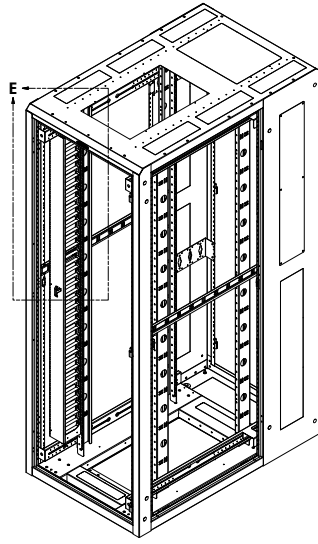
DETAIL D



Part No.	Description	Compatible E
CABLE MANAGEMENT FINGERS		
CM-47	4" X 7 RMU, single finger section	All E sizes
ESC-K12	4" x 7 RMU, set of 12 finger sections	All E sizes
CM-77	7" X 7 RMU, single finger section	All E sizes
ESC-K12-7	7" x 7 RMU, set of 12 finger sections	All E sizes

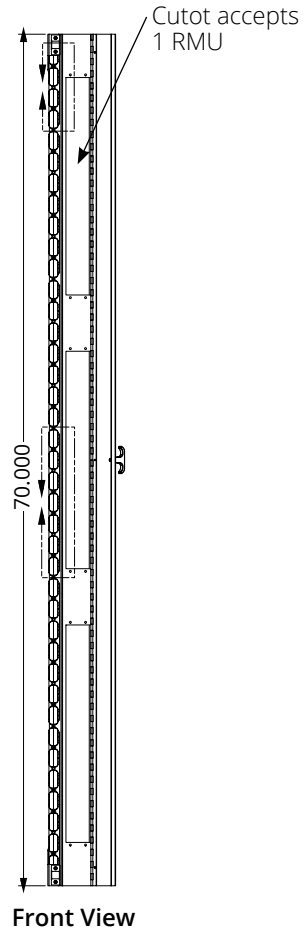
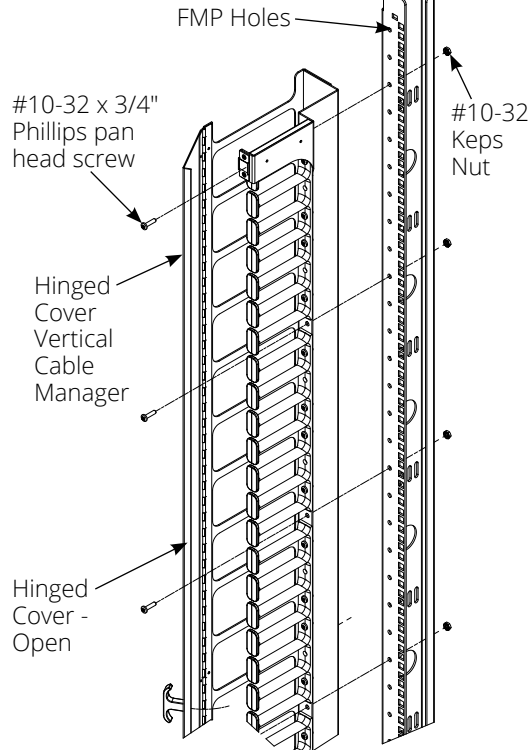
HINGED COVER VERTICAL CABLE MANAGER, VCM- 84

- Hinged Vertical Cable Manager (VCMK) mounts to the FMP of mounting rails in 84"H x 29"W E cabinets
- VCMK serves as cable manager but also accepts three pieces of 1 RMU 19" EIA equipment
- VCMK installs on the front or rear FMP of any rail
- If installed on front rails, rails must be recessed 9 1/8" for proper hinge clearance
- Secure the VCMK with a minimum of 6 points of attachment

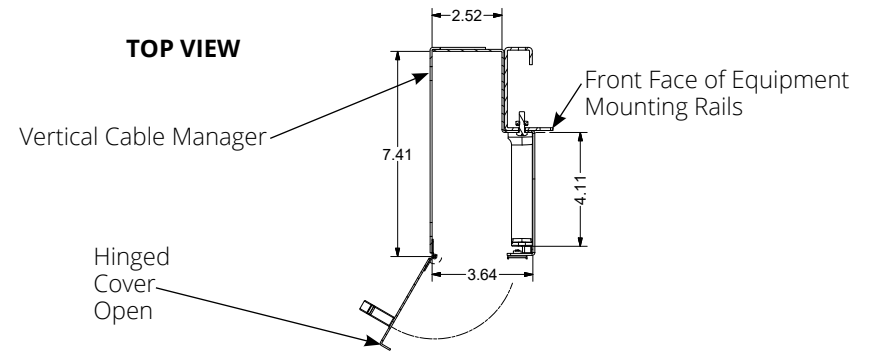


Note: Installation drawing is shown in a Great Lakes ES cabinet. Installation in a Great Lakes E cabinet is identical.

DETAIL E



TOP VIEW

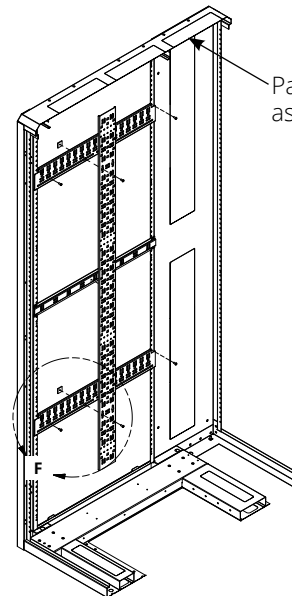


Part No.	Description	Compatible E
VERTICAL CABLE MANAGER		
VCM-84K	70"H x 3.78"W x 7.5"D VCM	4"H x 29"W E

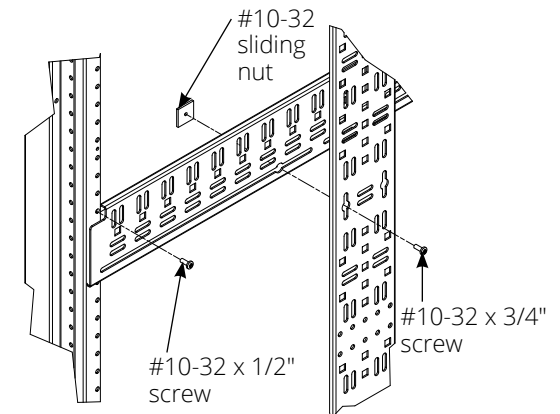
CABLE BAR KITS

- Vertical cable bar kits include two horizontal cable bars (HCB) and one vertical cable bar (VCB)
- Single VCB and HCB are available
- If ordering a single HCB, it can be installed alone (without a VCB), or in conjunction with a kit
- If ordering a single VCB, it can only mount when at least two horizontal bars are already installed
- Refer to Detail F for installation

Note: Installation drawing is shown in a Great Lakes ES cabinet. Installation in a Great Lakes E cabinet is identical.



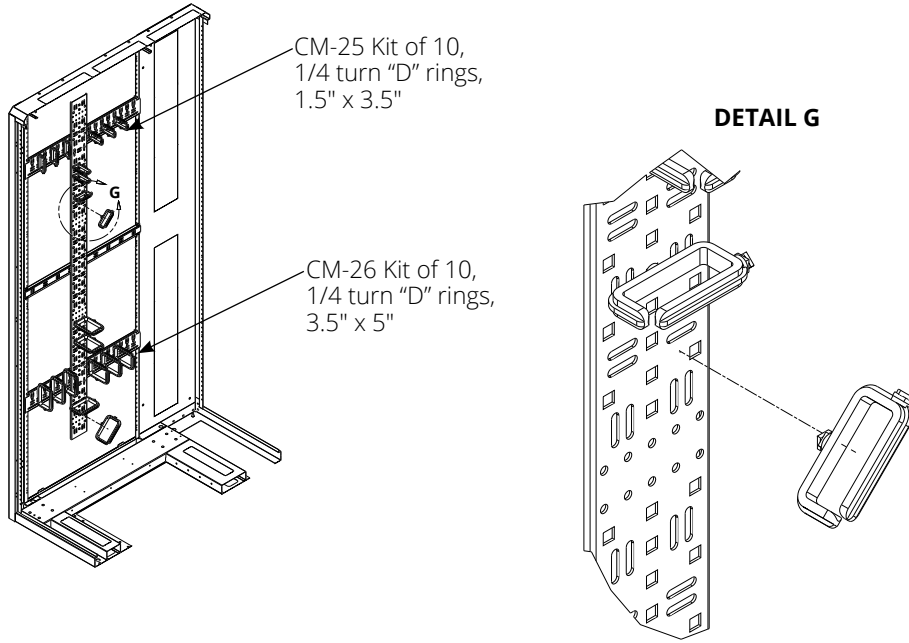
DETAIL F



¼ TURN “D” RINGS FOR USE WITH CABLE BARS

- All cable bars are designed with a square hole pattern to accept optional ¼ turn “D” rings
- Refer to Detail G for installation of “D” rings

Note: Installation drawing is shown in a Great Lakes ES cabinet. Installation in a Great Lakes E cabinet is identical.

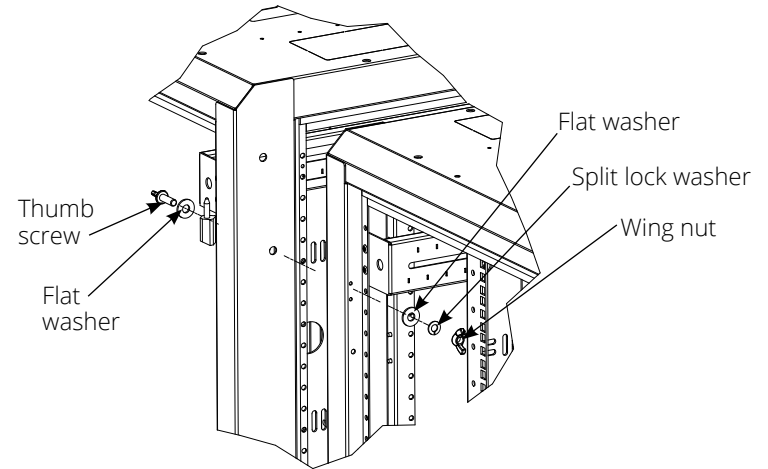


Part No.	Description	Compatible E
CABLE BARS		
Kit includes one vertical cable bar (VCB), two horizontal cable bars (HCB), and six 12”L cinch straps		
VCB-8436	62”H x 4”W VCB Kit	84”H x 36”D E sizes
VCB-8432	62”H x 4”W VCB Kit	84”H x 32”D E sizes
VCB-7236	56”H x 4”W VCB Kit	72”H x 36”D E sizes
VCB-7232	56”H x 4”W VCB Kit	72”H x 32”D E sizes
VCB-4832	32”H x 4”W VCB Kit	48”H x 32”D E sizes
VCB-84	68”H x 4”W single VCB	84”H E sizes
VCB-72	62”H x 4”W single VCB	72”H E sizes
VCB-48	32”H x 4”W single VCB	48”H E sizes
HCB-36	29.5”H x 4”W single HCB	36”D E sizes
HCB-32	25.5”H x 4”W single HCB	32”D E sizes
CM-25	1.5” x 3.5”, set of 10 rings	All E sizes
CM-26	3.5” x 5”, set of 10 rings	All E sizes

NETWORKING/GANGING KIT, G101

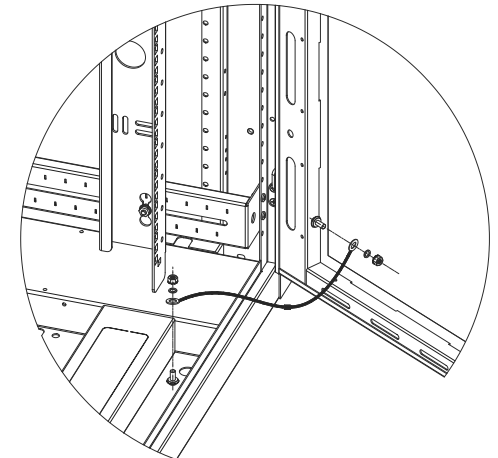
BEFORE INSTALL,

- remove plastic hole plugs from cabinet frame; one hole in each corner of the frame
- Align the networking holes of two cabinets
- Install hardware as shown



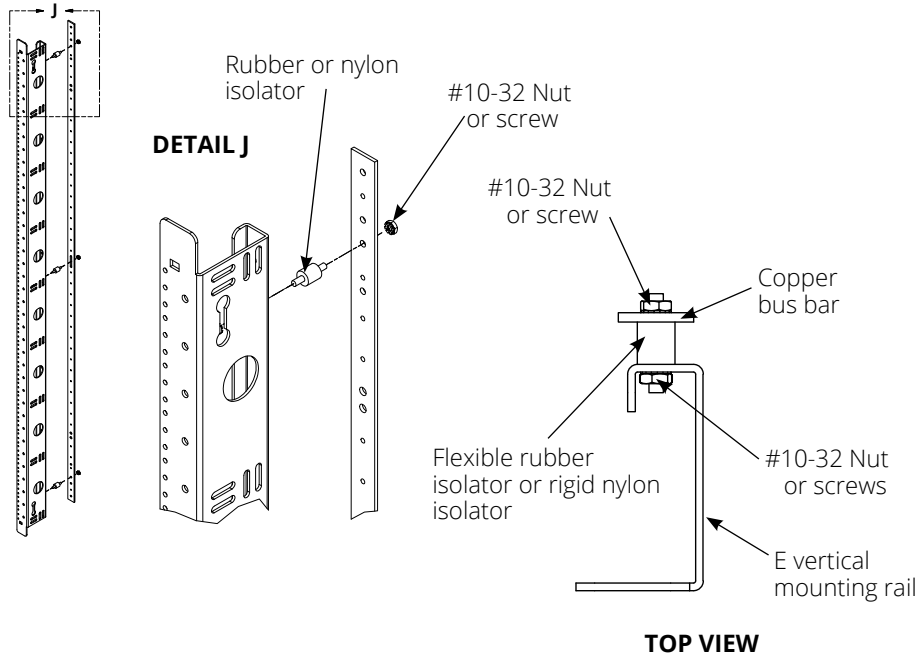
GROUNDING

- Protective grounding studs are provided along with quick disconnect jumper wires that electrically bond the cabinet doors and sides to the cabinet frame
- Before removing doors and side panels, pull apart the grounding wires
- **NOTE:** grounding the cabinet does not mean the EIA equipment in the cabinet is grounded



COPPER BUS BARS

- To ground EIA equipment, it must be connected to a copper bus bar
- Bus bars install on the front or rear FMP of any rail
- The bus bar can be installed using rubber isolators/#10-32 nuts or nylon isolators/#10-32 screws; both hardware options are included with the bus bar



Part No.	Description	Compatible E
COPPER BUS BARS		
CBB-19	19" mounting	All cabinets
CBB-60	58"L bar	72"H E sizes
CBB-72	66"L bar	84"H E sizes

PROTECTIVE GROUNDING

Protective grounding studs are provided along with grounding jumper wires that electrically bond the cabinet doors to the cabinet frame.



WARNING: To avoid injury to persons or loss of life, ground each cabinet individually to the dedicated branch circuit ground.

Connecting Main Protective Grounding Stud to the Dedicated Branch Circuit Ground

Connect the dedicated branch circuit ground connector to the main protective grounding stud located inside at the bottom rear of the cabinet frame using a listed ring or closed-loop terminal.

Connecting Main Protective Grounding Stud to the Protective Bonding Conductors

Connect the rear doors to the main protective grounding studs located inside at the bottom and top rear of the cabinet chassis using a listed ring or closed-loop terminal. Connect the front door to the grounding stud located inside at the bottom front of the cabinet frame using a listed ring or closed-loop terminal.

Parts Not Bonded to Protective Earthing Terminal

The following parts are not effectively bonded to the protective earthing terminal: rails and front to back rail horizontals. If these parts need to be bonded to the protective earthing terminal, do so in accordance with *Article 250 of the National Electric Code*.



GREAT LAKES
DATA RACKS & CABINETS

Thank you
for your
business!



Corporate
Sponsor

ETSI Associate Member

FORM: #MS - 5.02-59, REV 2