VelociRack™ PXR-INT42U Installation Instructions

Product Description
Siemens' VelociRack™ is a factory-assembled, high-density, integrated automation solution. With a pre-engineered design and innovative approach to construction and factory witnessed testing, the VelociRack delivers a significant reduction in the build cycle and helps minimize potential time delays and capital outlays during construction.

VelociRack no-server option consists of:
- VelociRack enclosure
- Automation enclosure, PXA-ENC25U.1 with PXC Modular Controllers and TX-I/O
- Automatic transfer switch and A/B power distribution units
- Uninterruptible Power System with four external battery cabinets and enclosure temperature and humidity sensor network
- Power over Ethernet (PoE) network switch
- Cameras for viewing front and rear doors of the rack
- Card access readers, controllers, and door contact sensors for front and rear doors
- 5U rack space for site-specific servers

VelociRack server option also contains:
- Monitor, keyboard, mouse console
- KVM Switch with three cables

Product Numbers
- PXR-INT42U.1NS Rack Solution no-server option
- PXR-INT42U.1S: Rack Solution, server enabled option

Caution Notations

<table>
<thead>
<tr>
<th>Notation</th>
<th>Symbol</th>
<th>Meaning</th>
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<tr>
<td>CAUTION</td>
<td><img src="https://example.com/exclamation_mark.png" alt="Exclamation Mark" /></td>
<td>Indicates that equipment damage, or loss of data may occur if you do not follow a procedure as specified.</td>
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Receiving and Unpacking the VelociRack

Inspect and report any damage before receiving the shipment.

The VelociRack is shipped with a shock sensor (Figure 1). If the sensor indicates rough handling, check if the shock sensor was activated on the receiving documents. Inspect the rack for any visual damage and note those items on the receiving documents. Thoroughly evaluate and report concealed damage to the shipment within five days of the delivery date.

![Shock Sensor Warning](image)

**Figure 1: Shock Sensor Warning.**

Unpack the VelociRack by carefully removing the outer packaging carton and corners. Avoid damaging the rack when removing packaging.

Use extra caution when removing the VelociRack from the pallet. Also, be sure you have enough service personnel. Do not attempt to move racks by yourself.

1. Unpack the ramps.

   - After removing the wrapping from the cabinet, you should have two ramps (Figure 2). A small hardware back wrapped to the outside of one ramp will contain four wood screws.
2. Locate the proper end of the pallet.

   One end of the pallet will be cut to accommodate the ramps. Pilot holes drilled into this end of the pallet will be used to attach the ramps with the supplied wood screws (Figure 3).

3. Secure ramps to pallet.

4. Insert the wood screws into the pilot holes and tighten them (Figure 3).
5. With several people, carefully and slowly roll the VelociRack down the ramps and off the pallet. Be careful when moving racks before installation. Sudden stops and starts, excessive force, obstructed routes, and uneven floor surfaces may cause the rack to topple over.

6. Move the VelociRack to the installation location.
Installing the VelociRack

This section provides information for installing the VelociRack.

Leveling the VelociRack

After the VelociRack has been moved to the installation location, the leveling feet can be lowered for additional stability.

Leveling feet are installed at the factory. They are easily accessible in the front and rear of the rack’s frame. Figure 5 illustrates how to adjust the leveling feet from beneath the VelociRack using a 3/4-inch open-end wrench. Leveling feet can also be adjusted from inside the rack using a 5/16 socket.

![Figure 5: Leveling-Feet Adjustment Detail.](image)

Connecting the VelociRack Power

The VelociRack power connection is made using one of three forms of data center power as recorded on a submittal drawing in power diagram.

Verify each data center power distribution for the rack has a NEMA 5-15R outlet run to dedicated 120 Vac 15-amp branch circuit located in the overhead busway or below the floor within reach of the PDU 10-foot power cord.

**NOTE**

PDU A is located at the rear of the rack’s enclosure, at bottom left, and PDU B is located at the rear of the rack’s enclosure, at bottom right. If necessary, relocate the PDU higher in the rack’s enclosure to reach an overhead outlet. The PDU power cords in the horizontal wire management are at the bottom rear of the rack.
• **Standard A/B power**: Plug PDU A into the outlet for service A and PDU B into the outlet for service B.

• **Optional emergency power**: Plug PDU A into the outlet for building service and PDU B into the outlet for the emergency service.

• **Optional no backup power**: Plug PDU A into the outlet for building service and leave PDU B unplugged with the cord remaining in wire management.

*Figure 6: VelociRack Factory-Installed Power Distribution Wiring.*

Do not plug in additional equipment to the UPS unless a current load calculation is done to ensure maximum load is not exceeded.
Power Distribution
Ensure the power distribution is configured as follows:

- VelociRack 120 Vac single supply devices are plugged into the UPS.
- Four battery cabinets are plugged into UPS.
- ATS is plugged into UPS, PDU A, and PDU B.
- Dual supply servers are added to the rack plug directly into open PDU A and B outlets.
- Power to PDU A and B is plugged into the data center outlets.

Field Wiring Termination
NOTE Refer to A6V101101269, VelociRack Application Guide for detailed field wiring terminations.

FLN Field Termination Wiring
The following information applies to Controller Floor Level Network ports on Drawer 1 & 2, Rail A and Rail B, and Drawer 3 Rail A.

- Each of the PXC100-E96.A Modular Controllers is associated with one FLN.
- Terminate the FLN cable as follows:
  - white wire to + non-inverting terminal (internal EOL terminator)
  - black wire to - inverting terminal (internal EOL terminator)
  - yellow wire to ↓ reference terminal (internal referenced to ground)
  - shield drain wire to S terminal (internal grounded)
- Plug identification tags do not include the drawer number, which is located only on the back of the top rack shelf of the automation enclosure.
- The plug identification tags are color-coded blue for communication signal.
- See Figure 20 for typical FLN plug wiring detail.

Factory-Installed Drawer Interconnect Area
- Factory-installed wiring from Drawer 3 XFMR 1 - 8 plugs to (8) TX-I/O bus plugs on Drawers 1 & 2.
  - D3 XFMR 1 to D1 RA TX-I/O bus 1
  - D3 XFMR 2 to D1 RA TX-I/O bus 2
  - D3 XFMR 3 to D1 RB TX-I/O bus 1

Figure 7: Typical FLN Plug Wiring Detail.
- D3 XFMR 4 to D1 RB TX-I/O bus 2
- D3 XFMR 5 to D2 RA TX-I/O bus 1
- D3 XFMR 6 to D2 RA TX-I/O bus 2
- D3 XFMR 7 to D2 RB TX-I/O bus 1
- D3 XFMR 8 to D2 RB TX-I/O bus 2

- Cables (8) are 2C 14 AWG.
  - Red wire between ~ terminals on each plug set.
  - Black wire between ↓ terminals on each plug set.

CS and CD terminals may be used to link TX-I/O bus between rails in alternate configurations.

- Plug identification tags do not include the drawer number, which is located only on the back of the top rack shelf of the automation enclosure.

- Plug identification tags are color-coded for Class 2 power.
  - White for Class 2 power output on XFMR tags.
  - Yellow for Class 2 power input and bus signal on TX-I/O bus tags.

![Diagram of TX-I/O Bus Wiring Area in middle of PXA-ENC25U.1.](image)

Figure 8: Factory-Installed TX-I/O Bus Wiring Area in middle of PXA-ENC25U.1.
Figure 9: Typical Class 2 Transformer Plug.

Figure 10: Typical TX-I/O Bus Plug.

Figure 11: Typical Factory Installed TXIO BUS Power Wiring.

Factory-Installed Modular Controller Ethernet Cables
The following information applies to Controller Ethernet ports (Figure 12) on Drawers 1 and 2, Rail A and Rail B, and Drawer 33 Rail A.

Each of the PXC100-E96.A Modular Controllers is associated with one BACnet IP.

- Factory-installed CAT5e Ethernet cables connect to the network switch.
- Plug identification tags do not include the drawer number, which is located only on the back of the top rack shelf of the automation enclosure.
- Plug identification tags are color-coded blue for communication signal.

Figure 12: Typical Ethernet Jack.

Automation Enclosure Factory-Installed Power Connection
This power connection applies to the Drawer 3 Power Panel.

- A single IEC C14 Power Inlet (Figure 13) provides 120 Vac to all transformers.
The factory-installed power cord is 10-foot, 3C 18 AWG IEC C13 to NEMA 5-15P.
The power cord plugs into the top UPS non-switched outlet and must remain connected while automation enclosure is operating.

![Automation Enclosure IEC C14 Power Inlet](image)

**Figure 13: Automation Enclosure IEC C14 Power Inlet.**

**Network Connection**
The network switch has several spare Ethernet ports that can be used to connect the rack to the building’s network where redundant fiber backbone is not used. Update the switch configuration to match the job site requirements. See Figure 14 for wiring information.

- Factory-installed automation enclosure controllers and UPS
- Factory-installed PoE cameras and door access controllers
- Server option, factory-installed LRA Console KVM Switch
- Server option, factory-installed servers
- Field-installed 100/1000X Fiber SFP ports (25-28) to fiber building network
Figure 14: Network Connections for Factory Installed Devices and Field Installed Servers.

Card Access

Access Without Power
You can power the Mechatronic Lock for Racks (MLR) externally using the battery pack (Figure 15).

1. Connect the cable to the battery, and toggle the onswitch.
   - If the blue LED does not illuminate, charge the Battery Pack.
2. Locate the rubber cover on the underside of the MLR, and pull the cover open.
3. Insert the battery pack plug into the MLR battery backup port firmly.
   - Within 3 to 5 seconds, the upper LED turns blue.
4. Hold one of the included MiFARE cards below the silver handle.
   - The upper LED turns static green (Figure 16), indicating the solenoid is now active.

5. Press the lower portion of the silver handle to eject the handle.

6. Rotate the handle to unlock and open the door.

7. Once opened, the battery pack is no longer necessary; however, it should be stored for emergency backup use.

**Standalone Mode**

In stand-alone mode, you can add additional user cards by doing the following.

1. Hold the General Card below the silver handle.
   - The top LED flashes red/green.

2. Hold the Group Card below the silver handle.
   - The Group Card is now programmed. It is not necessary to show the General Card again.
   - The top LED turns static blue.

3. Hold the Group Card below the silver handle.
   - The top LED flashes red/green.
4. Hold the new User Card below the silver handle.
   ☑ The top LED turns blue.
   ☑ The new User Card now has access to the handle.

**NOTE** Refer to A6V101101269, VelociRack Application Guide for complete details about the rack.

The installation is now complete.