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Vertiv™ 360AI

Solution Design Specifications

Model Number: 1X80

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Executive summary

Vertiv™ 360AI Solutions uniquely combine deep domain expertise in power architectures, thermal management, r emote management, and seamless service delivery to enable rapid deployment of infrastructure for AI applications and high-performance computing. Your goals for high-density, floorspace optimization, sustainability and efficiency became our teams' key design criteria, focusing their efforts on designing the solution that exceeds your goals and expectations with seamlessly integration into your environment. Our world class solutions and engineering team delivered on this promise, and our services team fully supports it with their unmatched expertise and global footprint.

General technical description

This high-density solution is sized for IT load of 80 kW across 1 rack, assuming 80 kW of air-cooling capacity via rear door heat exchangers. The cooling solution is rear door heat exchangers, assuming an air inlet temperature to the rear door heat exchanger of 111.9°F (44.4°C) and an air outlet temperature of 78.4°F (25.8°C) in an environment at 50% relative humidity. The technical water loop assumes water at inlet temperature of 68°F (20°C) and a water outlet temperature of 82.4°F (28°C). Included products are heavy-duty racks that house rack PDUs, rear door heat exchangers, and top-of-rack management appliance, as well as other accessories necessary for integration and normal data center operation.
Also included are comprehensive deployment services for installation, recurring a warranty service such as warranty inspection, start-up, and acceptance testing. Optional services include workforce training on thermal management operation and servicing.

System capacity

01	Rack(s)	**80 kW**	Total solution capacity	**80 kW**	Load per rack

Technologies used

Cooling Method	Air-cooled (Rear-Door Heat Exchangers)
Heat Rejection Type	Refrigerant

Material list

Qty.	SKU	Description
1	DCD80E101GX001	Rear Door Heat Exchanger: Liebert DCD Water-Cooled Passive Module Rack Door, 80 kW
1	DCD72E0F00A001	Rear Door Heat Exchanger: Active Module
1	DCD Rack Adapter Kit	Adapter kit to mount to VR Rack
2	VP7UA002	Rack PDU: Switched Outlet Level Monitoring, 80 A, 240/415 V WYE, 57.6 kW, Vertical, (36) Combi C13/C19, Hardwired
1	VR9359	Heavy Duty Rack: VR-HD 52U 800 mm x 1200 mm
1	RDU501	1U Liebert RDU501 Intelligent Infrastructure Management Appliance
1	POESWITCH24PORT	1U POE Switch for Solutions

Material list only includes major components, other supporting peripheral components such as the hoses, valves, cable, adapter kits, etc. would be part of final quote document.

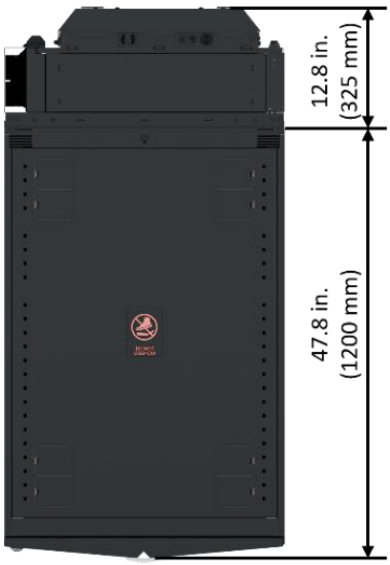
Solution pictures

Front quarter view

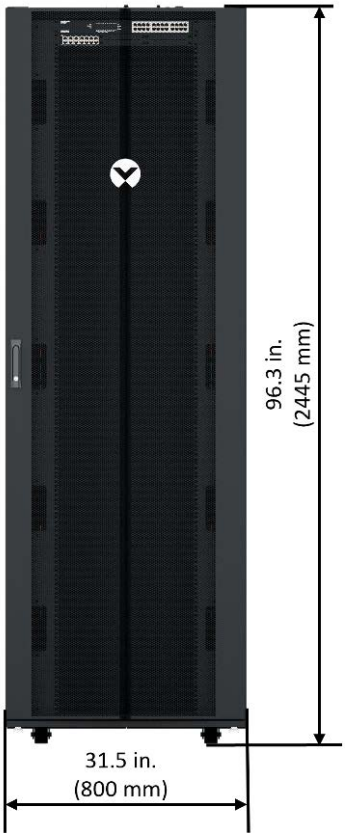
Back quarter view

The images shown are for representation and may not be an exact representation of the product.

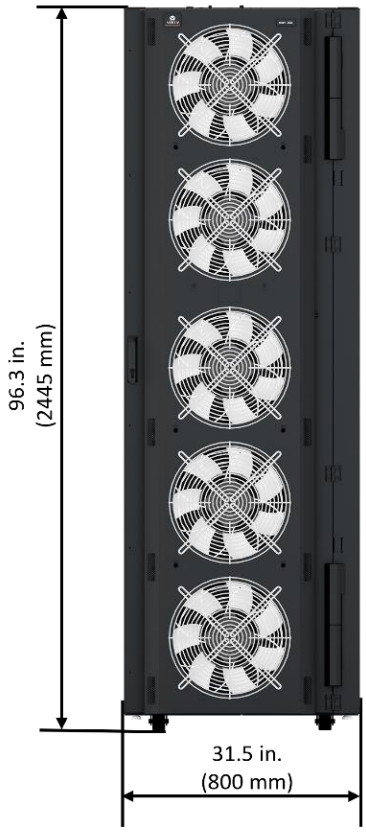
Top view



Front view



Rear view



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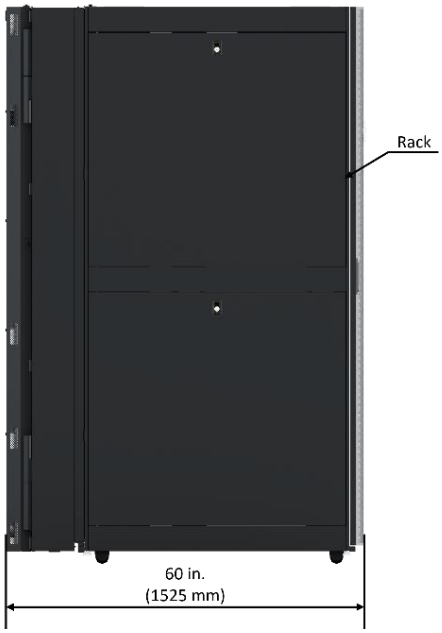
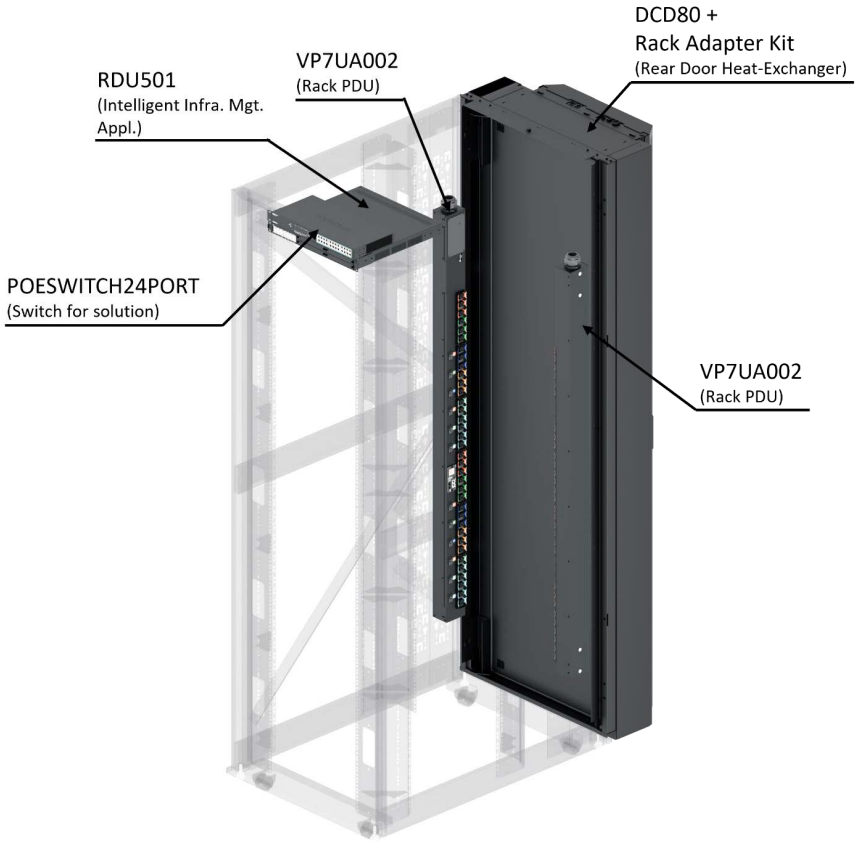
Side view



VR Rack ISO view



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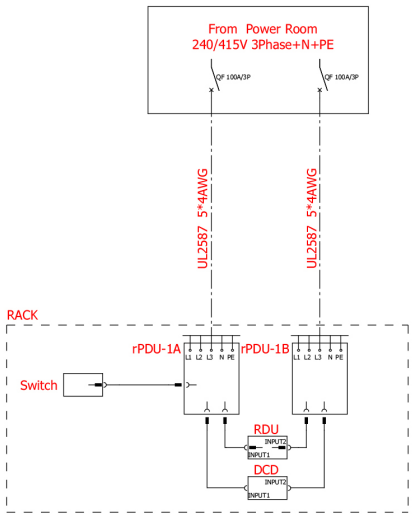
Technical description

Single line diagram



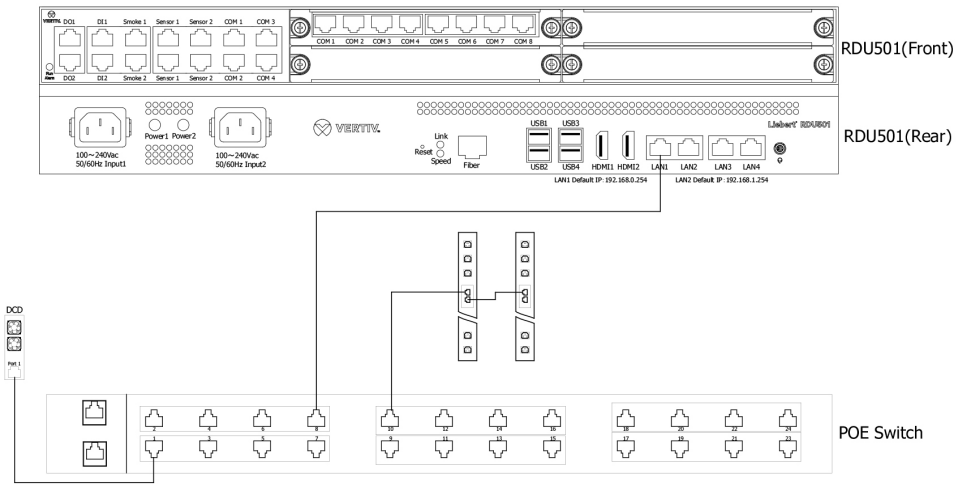
DEVICE	MODEL	DESCRIPTION	Qty
rPDU1A/1B	VP7UA002	Rack PDU: Switched Outlet Level Monitoring, 80 A, 240/415 V WYE, 57.6 kW, Vertical, (36) Combi C13/C19, Hardwired	2
DCD	DCD80E101GX001	Rear Door Heat Exchanger: Liebert DCD Water-Cooled Passive Module Rack Door, 80 kW	1
DCD	DCD72E0F00A001	Rear Door Heat Exchanger: Active Module	1
RDU	RDU501	Data sampling unit, 100~240VAC, 50/60Hz	1
SWITCH	POESwitch24Port	1U POE Switch for Solutions	1

LEGEND:

- CABLE OR COPPER BAR PROVIDED BY VERTIV
- CABLE PROVIDED BY OTHER
- EQUIPMENT OR ASSEMBLY UNIT
- SUBSYSTEM

Notes:
1. PLEASE REFER TO PRODUCT MANUALS FOR DETAILS.
2. AC CABLE SHALL BE 600V RATED, 4WIRE+GROUND.
3. MAIN INPUT MUST BE 415Y/240VAC, 3PHASE+NEUTRAL+GROUND. IF NOT, PLEASE CONTACT WITH VERTIV TO CONFIRM.
4. DRAWING DEPICTS POWER SYSTEM CONNECTION AND IS NOT REPRESENTATIVE OF PHYSICAL LAYOUT, PLEASE REFER TO MECHANICAL DRAWINGS FOR PHYSICAL LAYOUT.

Monitoring diagram



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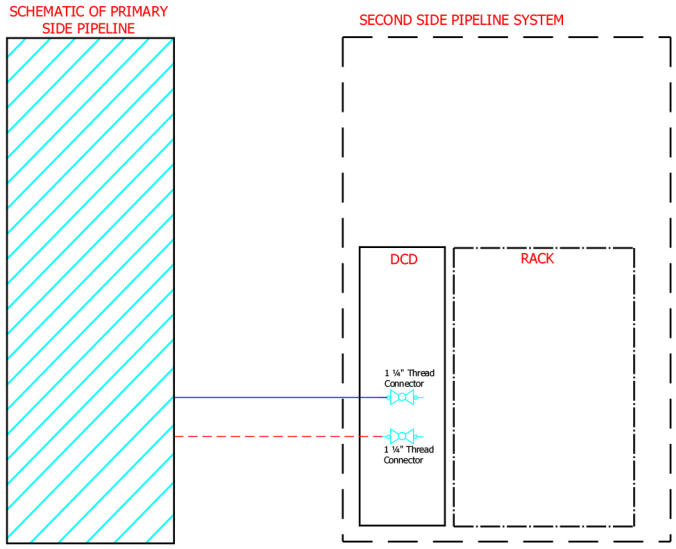
DCD	DCD72E0F00A001	Rear Door Heat Exchanger: Active Module	1
RDU	RDU501	Data sampling unit	1
SWITCH	POE Switch24Port	Monitoring switch	1

LEGEND:

- COMMUNICATION CABLE, CAT5E

Notes:
1. ALL THE COMMUNICATION CABLE SHAELL BE CAT5E.
2. PLEASE REFER TO PRODUCT MANUALS FOR DETAILS.
3. DRAWING DEPICTS MONITORING SYSTEM CONNECTION AND IS NOT REPRESENTATIVE OF PHYSICAL LAYOUT, PLEASE REFER TO MECHANICAL DRAWINGS FOR PHYSICAL LAYOUT.

Piping diagram



DEVICE	MODEL	DESCRIPTION	Qty
DCD	DCD80E101GX001	Rear Door Heat Exchanger: Liebert DCD Water-Cooled Passive Module Rack Door, 80 kW	1
DCD	DCD72E0F00A001	Rear Door Heat Exchanger: Active Module	1

LEGEND:

- WATER SUPPLY HOSE
- WATER RETURN HOSE
- Thread Connector

Notes:
1.ALL PIPELINE INSTALLATIONS MUST BE RELIABLY CONNECTED .
2.PIPE CONNECTIONS NEED TO ENSURE THAT THE INSIDE OF THE PIPE IS CLEAN AND NO FOREIGN MATTER IS INTRODUCED.
3.PLEASE REFER TO PRODUCT MANUALS FOR DETAILS.
4.DRAWINGS DEPICT PIPING SYSTEM CONNECTIONS AND DO NOT REPRESENT THE PHYSICAL LAYOUT. PLEASE REFER TO MECHANICAL DRAWINGS FOR PHYSICAL LAYOUT.
5.THE PRIMARY SIDE PIPELINE AND THE SECONDARY SIDE SYSTEM ARE DESIGNED AS INDEPENDENT SYSTEMS. THIS DIAGRAM ONLY PROVIDES A SCHEMATIC. THE PRIMARY SIDE IS ACTUALLY CONNECTED AND FIXED BY THE ON-SITE CONSTRUCTION AS REQUIRED.

Technical specifications

Product weight

SKU	Quantity	Weight (per SKU)	Total weight
DCD80 (Rear Door Heat Exchanger)	1	353 lbs (160 kg)	353 lbs (160 kg)
VP7UA002 (Rack PDU)	2	22 lbs (10 kg)	44 lbs (20 kg)
VR9359 (Heavy Duty Rack)	1	617 lbs (280 kg)	617 lbs (280 kg)

Maximum static load capacity of rack

SKU	Maximum static load capacity
VR9359 (Heavy Duty Rack)	4248 lbs (1927 kg)

Operation & storage conditions

Operation conditions	Storage conditions
Operation temperature range: 50°F to 95°F (10°C to 35°C)	Storage temperature range: -4°F to 122°F (-20°C to 50°C)
Operation relative humidity range: 10% to 90% RH (non-condensing)	Storage relative humidity range: 5% to 93% RH (non-condensing)

Product specification

Vertiv™ VR9359 Rack

Standardize your deployments around the world and bring them online faster with the Vertiv™ VR rack. The Vertiv VR supports a wide variety of equipment including servers, storage, switches, routers, PDUs, UPSs, console port servers and KVM switches. The Vertiv VR is delivered ready for high density environments to serve your mission critical needs — even as they evolve and change. This rack gives you the flexibility you need with easy installation.

Key Benefits:

- Built-to-last engineering: This 52U rack is designed for rapid deployment even in high density environments with load capacities of 4,248 pounds (1,927 kg) static and 3,550 pounds (1,610 kg) dynamic.
- Fully configurable: Tool-less installation and removal of accessories and additional shelves allow you to modify this rack cabinet to suit the ever-changing needs of your network.
- 2.5 Inches more usable depth: The Vertiv VR Rack is designed to provide you around 2.5 inches more useable depth than any standard 19-inch rack cabinet.
- Dimensions: This server enclosure has dimensions of 96.3" x 31.5" x 47.8" (2445 mm x 800 mm x 1200 mm) (height, width, and depth).
- Supports wide variety of equipment: This 52U server rack supports rack-based equipment including servers, storage, PDUs, UPSs, console servers, and KVM switches.

Liebert® DCD Water-Cooled Active Rack Door, 80 kW

The Liebert® DCD chilled-water cooling unit is a highly efficient heat exchanger module that mounts on the rear of an IT rack and provides up to 80 kW of room-neutral cooling. The active fan module mounts on the DCD passive door and aids the server fans in properly removing the heat load from the high-density application. The DCD can be supplied by either the existing chilled water system or by a coolant distribution unit, such as the Liebert® DCP, providing flexibility during installation.

Key Benefits:

- Low energy consumption using variable speed fans to match airflow with demand provides low operational costs and high energy efficiency.
- Mounts on the rear side of the network rack, saving valuable floorspace for additional critical IT equipment.
- Few moving parts enable a much longer product lifespan, ensuring high cooling availability for years.
- Multiple inlet/outlet water connection options provide flexibility during selection and installation.
- Non-condensing heat exchanger reduces the risk of damage to critical IT equipment, providing peace of mind to IT managers.
- Available with advanced monitoring controls to provide easy remote access through Modbus communication.
- Doors swing open 135°, allowing for easy access to equipment inside the rack.

Vertiv™ Geist™ VP7UA002 rPDU

Upgradeable Switched Outlet Level Monitored rPDUs provide reliable power distribution to critical IT equipment while delivering individual outlet level control and a comprehensive view of outlet level power usage via remote network access. Includes environmental monitoring capabilities to obtain real-time environmental metrics.

Product Summary:

- rPDU, Switched Outlet Level Monitoring, 80 A, 240/415 V WYE, 57.6 kW, Vertical, (36) Combination C13/C19, Hardwired, Black Powder Coat.

Key Benefits:

- Remotely reboot outlets to power cycle unresponsive IT equipment or increase runtime of critical equipment upon power failure with outlet-level control.
- Reliable power distribution with local and remote outlet-level power monitoring options offers quick access to critical power usage information down to the device level to evaluate energy usage trends and maximize uptime.
- Environmental monitoring capabilities with the addition of optional environmental sensors ensure users have critical infrastructure data at their fingertips to prevent climate-related equipment failure and system downtime.
- Fault-Tolerant Daisy Chaining with RSTP simplifies intelligent rPDU connectivity and ensures data is reported even when a break in the network chain occurs. Supports up to 40 rPDUs.
- Daisy-chain up to 50 devices on a single IP address and reduce deployment time with self-configuration of downstream devices.

Scan the QR code to get more information

Vertiv™ Liebert® RDU501

The Liebert® RDU501 is an intelligent infrastructure management solution from Vertiv that allows data center administrators to monitor environmental conditions and infrastructure appliances such as UPS, precision cooling units, generator sets, etc. The RDU501 is a premium infrastructure gateway appliance equipped with out-of-band access to service processors as well as serial console management capabilities.

Fast Deployment:

- R 2.5D SmartSolutions Modelling with drag-and-drop interface.

Environmental Monitoring:

- Heat, Power and Assets Monitoring Dashboard.
- Thermal Management (including CRAC teamwork).
- Power Management.
- Security Management.
- Alarm and Data Reports.

IT Management Monitoring:

- Remote and local server management via IPMI 2.0 protocol
- Serial Console Management (Out-of-band access)
- Automated Startup and Shutdown of IT servers.

Scan the QR code to get more information

Service summary

SKU name	Description
VRTLC-1X80-SITEASSESS	LIQUID COOLING ENGINEERING SERVICES 1X80
VRTLC-ENG-1X80	LIQUID COOLING ENGINEERING SERVICES 1X80
VRTLC-INSTMATL-1X80	LIQUID COOLING INSTALLATION MATERIAL 1X80
VRTLC-INSTLAB-1X80	LIQUID COOLING INSTALLATION LABOR 1X80
VRTLC-MVS-1X80	LIQUID COOLING MOVING AND STORAGE 1X80
VRTLC-PROJMGT-1X80	LIQUID COOLING PROJECT MANAGEMENT 1X80
VRTLC-CUSTDEM-1X80	1X80 OPERATIONAL DEMONSTATION/CUSTOMER ORIENTATION
WI-1HR4	Warranty Inspection
DAPRPDU-GE1	Dist Assur Pkg Geist R-PDU or RTS Single
1WLTHERMLAB-D-EBS	WarrantyLaborLWCoverageD
DCD80YC	2PM ONLY 8X5 DCD80
VRTLC-L2	L2 - Delivery, QA/QC, Installation Assembly
VRTLC-L3	L3 - Start-up and Site Acceptance Testing

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