



VERTIV[™]

NETXTEND[™] FLEX SERIES

Equipment Enclosures



FEATURES & BENEFITS

- **Full flexibility and scalability** — one enclosure for various wireless and wireline telecom applications
- **Multiple climate control solutions** — satisfy your specific equipment heat dissipation and environmental demands
- **Increased ability to customize** — diverse configuration, cooling and mounting options available
- **One standard enclosure platform for multiple applications** — means fewer configurations and cabinet types to specify, install and maintain
- **Industry standards** — platform designed to meet Telcordia GR-487-CORE, IP55, UL 60950/ NWIN Type 3R, NEMA, NEC as well as other local requirements
- **Environmentally friendly cooling** — low-energy consumption and low-noise fans are ideal for residential areas
- **Pad, pole and wall-mounting options** — accommodate site requirements and limitations
- **Field-upgradable climate units** — door-mounted with slide-off hinge to simplify service and replacement
- **Permanent ventilation ports** — eliminate replacement of screens and filters, reducing field maintenance cost
- **NetXtend Cabinet Controller** — cycles fan to maintain desired temperature, reducing power consumption and acoustic noise

The NetXtend™ Flex Series of integrated outdoor enclosures delivers best-in-class performance and flexibility for a wide variety of wireline and wireless applications. By leveraging simplicity, flexibility and scalability across the platform, the NetXtend Flex Series provides a rapidly deployable, cost-efficient solution to service providers around the world.

As subscriber interest for the ever-increasing array of broadband service grows, more and more sophisticated electronic equipment is being deployed in the outside plant. To provide the proper protection and controlled operating environment for this sensitive equipment and preserve the reliability of your network, Vertiv™ has developed the NetXtend Flex Series of integrated outdoor enclosure solutions. Its flexibility enables you to support a wide variety of OEM equipment with a single platform, under the wide range of weather extremes, thermal and electrical issues, and physical stresses encountered in the OSP environment.

By standardizing on the NetXtend Flex Series, you simplify network expansion and reduce the burden of stocking service parts, with the confidence that you will be able to deploy any OSP equipment--anywhere in your network – that the next generation of technology is sure to bring.

Description

The NetXtend Flex platform is a proven structural system, with integrated climate control and power options. NetXtend Flex enclosures are offered in a broad range of standard sizes designated by the rack unit (RU) capacity of the equipment chamber. Sizes range from 8 RU (Flex 8) to 43 RU (Flex 43). Single-bay, 2-bay and 4-bay enclosures are available as standard configurations, with a variety of door, base and side-chamber (SC) options. Pad, pole and wall mount options are offered.



Protection against destructive weather, thermal, electrical, environmental and mechanical forces is vital to assuring the reliability and revenue-producing capability of your wireless and wireline networks

NetXtend™ Flex Series — scalable, flexible, global



*NetXtend Flex Series
(shown with integrated heat exchanger)*



NetXtend Flex Series



*NetXtend Flex Series
(shown with open side chamber)*

- 1. Painted Frame (Optional)
- 2. Climate System (Optional)
- 3. External Battery Base (Optional)
- 4. Standard Frame

- 5. Standard Door
- 6. Swing Handle or 1/4 Turn Lock
- 7. AC Load Center (Optional)
- 8. Vertiv™ Protection (Optional)

- 9. Side Chamber
- 10. Cable Entry
- 11. Ground Bar

Typical Configurations

NetXtend™ Flex enclosures are designated by rack units (RU): Flex 8, Flex 12, etc. The height of the cabinet is determined by the required rack space, solar shield, and battery base or plinth options.

The cabinet footprint (width and depth) is determined by the number of equipment bays (4 maximum) and side chambers (2 maximum). See Dimension Table on page 7 and 8.

A solar shield is standard on all NetXtend Flex cabinets, which provides additional solar protection. All NetXtend Flex enclosures are constructed of recyclable materials.



Enclosure Options

Materials and finishes

Exterior panels are aluminum, finished with an off-white polyester powder coating. The external frame components are anodized aluminum. An optional off-white polyester powder coating finish for the frame is optional. All exterior cabinet surfaces and components are corrosion and UV resistant.

Racks

Fixed equipment racks are available in both 23" (612 mm) and 19" (510 mm) sizes with industry-standard EIA hole spacing. Swing racks are standard options for cabinets between 12 RU and 27 RU. Additional swing rack options are available upon request.

Climate controls/thermal

Door-mounted climate control options include air conditioners (850 to 19,000 BTU) equipped with internal heaters, air-to-air heat exchangers (1000W to 2800W), thermoelectric (Peltier) coolers (200W per unit), and fan/filters. (See the



Table on page 10) Enclosures ordered with thermoelectric coolers and air conditioners incorporate insulation to maximize cooling capacity.

Heat exchangers, thermoelectric coolers and fan/filters are controlled by the NetXtend Cabinet Controller that turns fans on and off to maintain equipment chamber temperature within designated limits. It also reduces fan speed at low load or low ambient temperature to reduce power consumption and minimize acoustic noise. The controller reports fan failures and extreme high and low temperatures as alarms. The controller also monitors door intrusion alarms

(remote and audible). Heat exchangers, thermoelectric coolers, and fan/filter climate systems are available with +24VDC and -48VDC voltage inputs.

DC Power Systems

NetXtend Flex enclosures may be integrated with utilize NetSure DC power technology to ensure the reliability of every active OSP enclosure. NetSure DC power delivers constant power to meet load or recharge demand. Units are available to provide -48 VDC and +24 VDC power equipped with distribution options and low-voltage disconnect (LVD). Flex enclosures are optimized for use with NetSure 211, 502, 700 and 701 DC power systems, ranging from 30 to 400 amps.

AC Systems

AC options include a 4x4 junction box, power distribution panel/load center with AC distribution to power shelf, and GFCI-protected outlets.

Standardizing on a single enclosure platform increases your network reliability, leaves less chance for errors, simplifies network expansion, and reduces the burden of stocking service parts and repairing damage to panels, doors and other enclosure components.

Power transfer switch

NetXtend™ JuiceBox® PTS units are available to provide primary AC surge protection. The load center offers 100 amp or 200 amp main service. Numerous configurations are offered, utilizing switching, distribution and circuit protection components from world-class manufacturers. The PTS is manufactured from weather-resistant exterior components and can be mounted adjacent to the NetXtend Flex cabinet. It meets UL3R rainproof requirements.

Acoustics

See “Climate controls/thermal” regarding fan speed reduction to reduce noise.

Battery options

Internal and external battery compartments and 19" or 23" battery racks or battery shelves are available to support 12 VDC 155 A-Hr front-post batteries. Battery kits are rated at 100 Ah, 155 Ah and 190 Ah. Battery shelves are normally sealed from the electronics compartment. A battery heater pad kit is optional.



Mounting options

All enclosures may be pad mounted. Generic installation plinths with cable entrance provisions and battery compartment plinths are offered for pad mountings. Pour-in-place pad templates are available. Single-bay cabinets with up to two side chambers may also be pole-mounted. Pole mounting kits are available.

Protection panel options

Optional protection panel kits are available for 100-pair, 200-pair and 400-pair panels to provide protection from lightning strikes and other over-voltage conditions.

Security systems

NetXtend Flex enclosure security systems include quarter-turn cam latch or and push-to-lock swing-handle door locks. All locks include padlock hasps for additional security. An intrusion alarm is offered with local and remote indication.

Accessories

Accessories include an emergency generator connector and transfer system (requires load center), smoke detector and lighting.

Application

The NetXtend™ Flex Series of enclosures houses a variety of next-generation roadband electronic equipment for both wireline and wireless outside plant applications where physical protection and environmental stability are required.

Enclosure Assembly, Integration and Testing

Vertiv™ has the industry experience and in-house product knowledge to recommend, engineer, integrate, implement and support NetXtend Flex enclosures that you can confidently deploy as your network grows. When we configure a new Flex enclosure in one of our regional configuration centers, we integrate the climate control, DC power and backup, alarms, accessories and customer equipment. Prior to production, a skilled test team operates the completed enclosure in our thermal and acoustic chambers. If necessary, we modify the configuration to reduce the chance of encountering any unexpected glitches once the units are installed in the field.



The local presence of a global organization

To be profitable, your wireline and wireless networks must be properly deployed and individual sites must perform reliably, night and day. Vertiv understands this and offers a wide array of global installation and support services.

Our experienced technicians will conduct site surveys of your current installations, and recommend and engineer the necessary enclosure and power solutions to accomplish your goals. We will prepare prints and other documentation and prestage and configure all equipment to assure efficient installation. We will install and test enclosures and power systems prior to going on line. And we will provide post-installation maintenance contracts and emergency services to keep all systems running efficiently.

In short, you can focus on keeping your customers connected, knowing you have Vertiv global service coverage, with over 150 service locations worldwide and 2,000 certified professionals with local knowledge behind you.

Technical Specifications

ENCLOSURE MOUNTING

All Enclosures	Pad mount
Single Bay Cabinets (up to two side chambers)	Pole mount
Maximum Cabinet Dimensions for Pole Bracket Kit (W x D)	30" x 25" (762 mm x 635 mm)
Maximum Cabinet Dimensions for Pole Chair Kit (W x D)	54" x 25" (1372 mm x 635 mm) and 42" x 46" (1067 mm x 1168 mm)

EQUIPMENT MOUNTING

Vertical Rack Spaces (standard)	8RU to 43RU - Refer to table for standard rack unit options Custom rack units can be provided upon request between 8RU and 43RUs
Hole Spacing	Standard EIA spacing; untapped holes for 12-24 thread forming hardware
Rack Widths	23" (584 mm) EIA fixed racks are standard 23" (584 mm) EIA swing rack available as option 19" (483 mm) EIA available as option
Center Mounting	Accepts standard 12" (533 mm) deep, center mount equipment (5" front, 7" rear)

ENVIRONMENTAL PROTECTION

Finish	Off-white, polyester powder coat
External Frame Finish	Anodized (standard); off-white, polyester powder coat (optional)

THERMAL PROTECTION

Heat Dissipation	Refer to "Climate Control Options" table on following page for details
Temperature Alarms	Temperature alarms provided with each cabinet
Controller	Available with heat exchangers and thermoelectric coolers

ELECTRICAL

AC System Options	4 X 4 AC junction box, 115Vac, 60 Hz, 15 amp 8-position load center, 120/240VAC, 60 Hz, 100A 12-position load center, 120/240VAC, 60 Hz, 125A 220VAC, 15A Twist Lock Receptacle Kit 220VAC, 30A Twist Lock Receptacle Kit
Convenience Outlets (GFCI protected)	One provided in equipment chamber or side chamber
Generator Connection (optional)	30 amp and 60 amp generator inlet kits are available

BATTERY COMPARTMENT

Battery Options	Ventilated external battery compartment Battery Shelf (internal to cabinet) for use with 30"W x 32"D cabinets only Riser Kit - [Two stacked battery compartments, ventilated, 31-inch height (787.4 mm)]
Compatible Batteries & Amp-Hour Reserve	Supports 12 VDC front post batteries (-48VDC and +24VDC) 155Ahr FIAMM®, 155Ahr GNB, 190Ahr Enersys, 170Ahr Northstar or equivalent batteries
Battery Size Capacity	Supports Up to 22.1" (561mm) D x 4.9" (124mm) x 12.6" (316mm)
Available Area per String (external battery compartment)	13.8" H x 21.38" W x 22.98"D (351 mm x 543 mm x 584 mm)
Battery Heater Pad Kit (optional)	Thermostat control "On" at 40° F, "Off" at 60° F For use with external battery compartment and riser kit

SECURITY

Padlockable Quarter-turn Cam Latch	Tamper resistant 216-type tool or Hex-pin (doors and removable panels)
Padlockable Swinghandle Cam Latch	Tamper resistant 216-type tool or Hex-pin (doors)
Intrusion Alarm	Intrusion alarm with local indication and remote location options
Access Covers	Battery compartment and cable covers are only accessible when cabinet doors are open

BONDING AND GROUNDING

Ground Bar	One 10-position, dual holed L49, copper buss, 3/16" (5 mm) thick, 1/4-20 hardware One ground bar is included in the equipment chamber for cabinets without side chamber(s)
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CABLE ENTRANCE

Single Bay Cabinets (25" Depth)	(2) 3" (76 mm) cable entrance cones
Single Bay Cabinets (32" Depth)	(3) 3" (76 mm) cable entrance cones
Cabinets with Side Chambers (25" Depth)	(2) 4" (102 mm) cable entrance cones standard per side chamber
Cabinets with Side Chambers (32" Depth)	(3) 4" (102 mm) cable entrance cones standard per side chamber
Cabinets with Side Chambers (46" Depth)	Up to (4) 4" (102 mm) cable entrance cones standard per side chamber (limitations may apply; cable dressing bracket provided with protection panel kit)

Cabinet Ordering Guide

Cabinet Type	NF = NetXtend™ Flex Cabinet		
Rack Units per Equipment Bay	08 = 8 rack units in each bay (standard rack units: 08, 12, 17, 22, 27, 32)		
Door Configuration	S = Single-sided cabinet (front doors only) D = Dual sided cabinet (front & rear doors) X = Single-sided cabinet (front & rear doors)		
Equipment Bays	1 = One bay per side 2 = Two bays per side		
Side Bays	0 = No side bay 1 = One side bay on left side 2 = Two side bay on left side		
AC Type	0 = None J = 4x4 junction box, 115VAC 1 = 8-position 100A load center	2 = 12-position 125A load center 3 = 220VAC, 15A, twist lock receptacle kit 4 = 220VAC, 30A, twist lock receptacle kit	
Battery*	0 = No base B = External Battery Compartment	I = Internal Battery Shelf R = Battery Riser Kit	
Solar Shield	0 = No shield S = Solar shield (standard)		
Cooling System*	Heat Exchangers H1 = 990W/1000W H2 = 14500W/1600W H3 = 2800W Fan/Vent Filter Kit F1 = F2 = F3 =	TE Coolers T1 = 200W T2 = 400W Air Conditioners A1 = 850 BTU w/150W heater A2 = 2000BTU w/500W heater A3 = 4000BTU w/1000W heater A4 = 8000BTU w/2000W heater A5 = 19000BTU w/3000W heater	
Door Security/Locking	1 = Quarter-turn Cam Latch – Hex/Pin 2 = Quarter-turn Cam Latch – 216 (7/16 Hex)	3 = Swinghandle Cam Latch – Hex/Pin 4 = Swinghandle Cam Latch – 216 (7/16 Hex)	
Generator Connection	0 = No connection option A = 30 Amp B = 60 Amp		

*Specify +24VDC or -48VDC.

Standard Cabinet Height and Rack Unit Count

CABINET TYPE	FIXED RACKS			SWING RACKS			HEIGHT					
	RACK UNITS	INCHES	MM	RACK UNITS	INCHES	MM	EQUIPMENT CHANGER		EQUIPMENT CHAMBER W/ SOLAR SHIELD		EXTERNAL BATTERY BASE*	
							INCHES	MM	INCHES	MM	INCHES	MM
NetXtend Flex 8	8	14.00	356	—	—	—	22.22	565	24.78	630	14	356
NetXtend Flex 12	12	21.00	534	9	15.75	400	27.51	699	30.07	764	14	356
NetXtend Flex 17	17	29.75	756	14	24.50	622	36.26	922	38.82	987	14	356
NetXtend Flex 22	22	38.50	978	19	33.25	845	45.01	1144	47.57	1209	14	356
NetXtend Flex 27	27	47.25	1201	24	42.00	1067	53.76	1366	56.32	1431	14	356
NetXtend Flex 32	32	56.00	1423	—	—	—	62.51	1588	65.07	1653	—	—
NetXtend Flex 38	38	66.50	1690	—	—	—	73.01	1855	75.57	1920	—	—
NetXtend Flex 43	43	75.25	1912	—	—	—	81.76	2077	84.32	2142	—	—

*External battery bases are not recommended for Flex 32, 38, and 43 cabinets due height limitatons.

Ordering Information

CABLE FOOTPRINT (W X D) INCHES (MILLIMETERS)	EQUIPMENT CHAMBER LAYOUT			SIDE CHAMBER OPTIONS		DOORS AND PANELS OPTIONS			
	NUMBER OF EQUIPMENT BAYS	FRONT ONLY	FRONT & BACK	SIDE BY SIDE	RIGHT SIDE CHAMBER	LEFT SIDE CHAMBER	FRONT ONLY	FRONT & REAR	REMOVABLE REAR PANEL
NetXtend Flex 8									
30 x 25 (762 x 635)	1	●					●	●	●
NetXtend Flex 12									
30 x 25 (762 x 635)	1	●					●	●	●
42 x 25 (1067 x 635)	1	●			●			●	
NetXtend Flex 17									
30 x 25 (762 x 635)	1	●					●	●	●
30 x 32 (762 x 813)	1	●					●	●	●
42 x 25 (1067 x 635)	1	●			●			●	
42 x 46 (1067 x 1168)	2		●		●			●	
NetXtend Flex 22									
30 x 25 (762 x 635)	1	●					●	●	●
NetXtend Flex 27									
30 x 25 (762 x 635)	1	●					●	●	●
30 x 32 (762 x 813)	1	●					●	●	●
42 x 25 (1067 x 635)	1	●			●			●	
42 x 46 (1067 x 1168)	2		●		●			●	
54 x 25 (1372 x 635)	1	●			●	●		●	
72 x 32 (1829 x 813)	2	●		●	●			●	
84 x 32 (2134 x 813)	2	●		●	●	●		●	
NetXtend Flex 32									
30 x 32 (762 x 813)	1	●					●	●	●

Note 1: NetXtend Flex 38 (38RU) and 43 (43RU) enclosures are available upon request.

Note 2: All NetXtend Flex cabinets less than 32RU are available with and without external battery compartment.

Note 3: The internal battery shelf is a standard option for 30Wx32D cabinets.

Climate Control Options

	HEAT EXCHANGERS*	THERMOELECTRIC COOLER *	AIR CONDITIONERS	FAN/FILTER*
Flex 8	1000W	200W	850 BTU with 150W internal heater	–
Flex 12	1000W	200W	850 BTU with 150W internal heater	–
Flex 17	1000W 1450W	200W	2000 BTU with 500W internal heater 4000 BTU with 1000W internal heater	Door mounted
Flex 22	1000W 1450W	200W	2000 BTU with 500W internal heater 4000 BTU with 1000W internal heater	Door mounted
Flex 27	1000W 1450W 2800W	200W 400W - (2) 200W units	2000 BTU with 500W internal heater 4000 BTU with 1000W internal heater 8000 BTU with 2000W internal heater 1900 BTU with 3000W internal heater	Door mounted
Flex 32	1000W 1450W 2800W	400W - (2) 200W units	2000 BTU with 500W internal heater 4000 BTU with 1000W internal heater 8000 BTU with 2000W internal heater 1900 BTU with 3000W internal heater	Door mounted

*Specify +24VDC or -48VDC.
Cabinet solar load is not factored in the listed thermal values.

Climate Unit Dimensions

NOMINAL RATING	RATING WITH BAFFLE	HEIGHT	WIDTH	DEPTH	APPROXIMATE WEIGHT
1000W	–	25.125" (638 mm)	18.00" (457 mm)	7.50" (191 mm)	40 lbs (18 kg)
1450W	–	32.875" (835 mm)	24.75" (629 mm)	7.50" (191 mm)	54 lbs (25 kg)
2800W	–	49.56" (1259 mm)	24.75" (629 mm)	7.50" (191 mm)	95 lbs (43 kg)
850 BTU w/150W internal heater	850 BTU 15.75	15.75" (400 mm)	7.50" (191 mm)	6.30" (160 mm)	37 lbs (17 kg)
2000 BTU w/500W internal heater	1500 BTU	20.00" (508 mm)	10.00" (254 mm)	9.90" (251 mm)	66 lbs (30 kg)
4000 BTU w/1000W internal heater	3000 BTU	28.97" (736 mm)	17.00" (432 mm)	11.3" (287 mm)	127 lbs (58 kg)
8000 BTU w/2000W internal heater	6000 BTU	43.00" (1092 mm)	15.75" (400 mm)	11.0" (279 mm)	155 lbs (70 kg)
19,000 BTU w/3000W internal heater	14250 BTU	52.85" (1342 mm)	20.85" (530 mm)	13.0" (330 mm)	237 lbs (108 kg)
200W TE Cooler	–	18.38" (467 mm)	20.00" (508 mm)	5.75" (146 mm)	30 lbs (14 kg)
Fan Filter	TBD	TBD	TBD	TBD	TBD

Mounting Accessories – Vertiv™ Part Number

FOOTPRINT DIMENSIONS (W X D)	PAD TEMPLATE	POLE KIT-CHAIR	POLE/WALL KIT-BRACKET	6" PLINTH	RISER KIT
30" x 25" (762 mm x 635 mm)	F1009326	F1009327	F1009328	F1009329	F1009686
42" x 25" (1067 mm x 635 mm)	F1009331	F1009341	-	-	-
54" x 25" (1372 mm x 635 mm)	F1009333	F1009342	-	-	-
30" x 32" (762 mm x 813 mm)	F1009332	F1009343	-	F1009330	F1009687
60" x 32" (1524 mm x 813 mm)	F1009335	-	-	-	-
72" x 32" (1829 mm x 813 mm)	F1009336	-	-	-	-
84" x 32" (2134 mm x 813 mm)	F1009337	-	-	-	-
42" x 46" (1067 mm x 1168 mm)	F1009685	-	-	-	-



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