

The Frontier Power does for power protection what RAID did for data storage.
The Frontier Power is combined with the complete line of CROSS data-center.
Protection software and accessories to provide the most critical five elements
of total data-center protection:

- Scalability, redundancy, manageability, serviceability, and total solution.
This total solution promises to change the way you look at the power protection of computer room. Advances in enterprise computing and storage technologies are demanding a change in enterprise power protection technology. Today's computer room houses mission critical applications and databases running on Wintel and Unix-based machines, Web server, and dozens to hundreds of consolidated file and print servers. The reliability and availability of these machines depends on technological advances such as RAID storage, server mirroring, server clustering, and fail-over recovery. Despite these advances in storage and processing availability, the mid-sized power protection industry has been populated with only legacy UPS-centralized box-type UPS that create multiple single points of failure.
- These UPS offer little in the way of redundancy and scalability. According to one frustrated director of the Uninterruptible Uptime User System "a single legacy UPS failure can wipe out three years worth of carefully planned and controlled systems uptime".
- But that all changes, with an exciting new power protection technology from CROSS introducing the world's first Frontier Power & RAID UPS, a completely new category of power protection system designed by CROSS to meet today's customer demand for scalable and highly available power solutions.
- A Frontier Power & RAID is a single unit composed of modular components. This modular architecture provides the foundation for building and scaling near-continuous availability power systems with a flexible range of power capacity.
- Frontier Power & RAID UPS redundancy reduces the risk of systems downtime. By using an N+1 redundant RAID UPS, customers ensure maximum uptime and near-continuous system availability.
- Power RAID scalability protects your investment in power protection by enabling expansion or reconfiguration simply by adding or removing modules. Scalable runtime allows extended back-up time with the addition of Battery Modules. Scalable power capacity enables you to pay as you grow by adding Power Modules in increments of N+1.
- Power RAID serviceability decreases the cost of systems ownership. Modular and hot-swappable components make maintenance simple.
- Power RAID manageability means you can use CROSS exiting software and environment, as well as to shut down multiple servers and reboot individual locked up machines.



Frontier RAID 3000



Protect your investment: scalable kVA N+1 and runtime ensure that Power RAID will meet your power needs now and in the future.

Do Managers want to be able to "pay as they grow" to meet the computing demands of the future? Changes in data-center power requirements can make cost-effective power protection planning difficult. The Frontier Power & RAID offers the flexibility to adapt and grow UPS power and runtime without complete reinvestment.

The Frontier Power & RAID UPS consists of load sharing modules so, you can easily build and reconfigure your RAID. If you add computing power to your data-center, you can add Power Modules, in increments expand your power capacity N+1. And if you re-deploy system at different locations, you can move modules from one Power RAID to another.

BATTERY MODULE (Scalable battery extension runtimes)

PowerCell XR(PXR) E6516(20)+ (N+1)

PowerCell XR(PXR) E1816(20)+ (N+1)



(PXR6520)



Choose additional Battery modules and Extended Run Battery frames for longer backup times if needed. Use the Runtime chart for your order.

- Low cost shipping and installation
- Isolated Battery Module

By physically isolating the Battery Modules from the heat-producing Power Modules, the Battery is maximized in both battery runtime and life

- Parallel Battery Modules
- Provide the runtime as long as you need
- Power modules and Battery modules are hot-swappable and user Replaceable
- Long battery Life
- Simple maintenance



(PXR 1816/1820)

By keeping the batteries separated from the UPS, and enhanced through PowerCell XR intelligent battery management with high precision Float & equalizing charging and automatic true load battery tests.

Each PXR module includes its own charger. For this reason, you can add as many as battery Module (PXR) to your Frontier power cluster and still keep a reasonable recharge time. The modular PXR lets the user easily hot-swapping batteries even when the protected equipment remains up and running.

- Redundancy -

N+1 Hot sync Redundancy ensures maximum uptime and continuous availability.

Power RAID N+1 redundancy through a new power sharing technology. Power sharing means that all of the modules in a Power RAID run in parallel and share the load evenly. N+1 redundancy means running one extra module then will support you full load. In this way, all the modules support one another N+1 redundancy is used in dispense Power arrays, in processor power supplies, and in processor themselves. But until now, redundancy has never been offered for server level power protection. As critical applications and databases are moved to smaller machines, the Power RAID brings glass house reliability to the mid-sized power protection range.

Many Advantages of N plus 1 Power RAID (Redundant Array Inexpensive Dispense) redundant

Reduced Power Loss in comparison with parallel models due to usually power-unloaded status of Redundancy RAID UPS. The Power RAID redundant type is contributed to economically reduce loss and make time-saving through independently operating power load lines because all user have to do is cutting the line of error device out. It is no need to make power-down of the other normal equipment.

The Power RAID Redundancy has basic advantage of rotating both UPS and power load through By-Pass connection of all power load lines in the midst of readjusting UPS module with By-Pass function for repairing.

This aims to minimize customers' overall loss in after service.

In general, the other or parallel type UPS comes merely with one connecting line between parallel UPS module and power load line. And it is used mainly for old buildings connected by limited lines. On the contrary, the Power RAID Redundant type UPS devices provide more excellent reliability than parallel type models. It is not only because each independent line does not affect the other load line, but because the electrically power loaded line can be also transferred to the other normal module temporary or permanently when repairing or making maintenance of already inactivated module. Furthermore, it is free from electrical risk because it is available to separately repair each electric power line even when handling power output line.

N + 1 Power RAID (Fault tolerant)

The Outline of N plus 1 Power RAID Redundant
For the improvement of UPS reliability and the safety of power-loaded parts, the N+1 Power RAID Redundant System is capable of supporting standby of Back-UP equipment. Existed high power rated UPS is designed to provide all loaded computers with uninterrupted power. As a type of Power RAID System, the N+1 Power RAID Redundant System comes with a independently operating each power volume-rated supplier which can continue to make non-stop power supply in case of the load failure of existed power supplying device. With separately operating suppliers like this, the N+1 Power RAID Redundant System is focused on the maximized role of the unit power-supplying and the safeguard in power control.

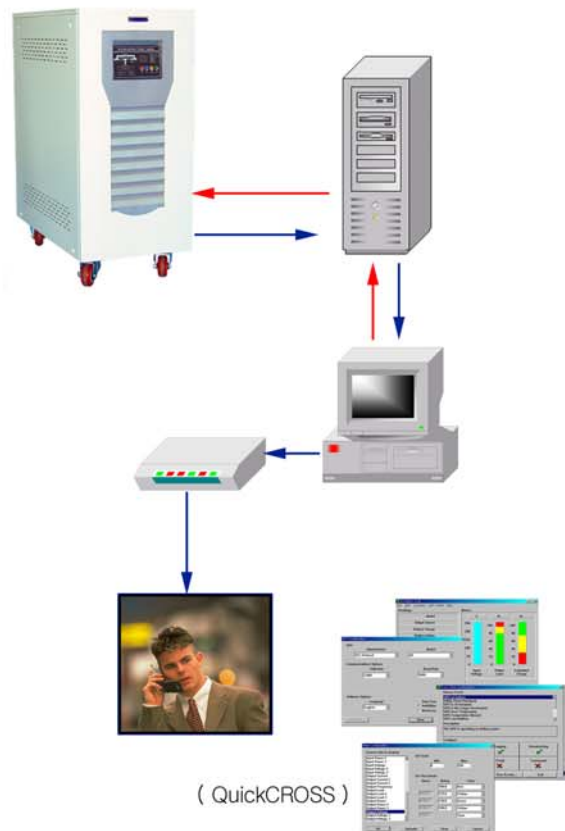
Serviceability

QuickCROSS(RS232C/485)

QuickCROSS is a UPS remote controlling program. Through QuickCROSS, user can easily monitor and control all equipment status and information on both Windows 95 and SingleView. The QuickCROSS provides user with convenient and clarity control of all UPS devices any time in advance or after matters, particularly when managing to simultaneously operate many UPS devices. Therefore, user can directly check and remotely control the UPS devices even at far distance via dial-up modem, thanks to QuickCROSS program.

Service & Management

Frontier Power & RAID UPS reduces your ownership cost by simplifying maintenance. Frontier power Service Made Easy. As legacy UPS are not modular, they require a special UPS technician for repair service. With only a handful of these proprietary technicians across the country and around the world, service contracts can add up to 50% to the cost of the UPS. Frontier Power & RAID UPS serviceability makes maintenance simple because its components are modular and hot swappable. With a FRONTIER Power & RAID UPS, you can reduce service costs by servicing the unit for yourself, by using your current computer room service provider, or by choosing an on-site service contract directly from CROSS. Because of its intelligence, Power RAID is self-diagnosing and automatically gives early-warning problem notification. With its redundancy, the system remains up, running and protected during the entire service process.



Frontier Power 1000

- Single-Phase in / Single-Phase out

Capacity (kVA)	Dimension(mm)			Weight(kg)	Back up Battery
	Width	Depth	Height		
8	395	750	895	170	Except battery (External battery needed/PXR1816)
10	395	750	895	200	
8	433	905	1075	239.5	Including battery (PXR1816)
10	433	905	1075	253.5	
16	433	905	1075	265	PXR E6520 + PXR E1816 N+1
22	433	905	1075	280	



Frontier Power 2000

- Three phase in / Single phase out

Capacity (kVA)	Dimension(mm)			Weight(kg)	Back up Battery
	Width	Depth	Height		
8	395	750	895	170	Except battery (External battery needed/PXR1816)
10	395	750	895	200	
8	433	905	1075	239.5	Including battery (PXR1816)
10	433	905	1075	253.5	
16	433	905	1075	265	PXR E6520*N+1 or PXR 1820*N+1
22	433	905	1075	410	
30	453	1020	1518	580	12v 20cell
40	453	1020	1518	600	
50	750	850	1695	670	
60	750	850	1695	700	
80	453	1020	1518	830	
100	453	1020	1518	980	



FP 1000
FP 2000
Display



Frontier RAID 3000

- Three phase in / Three phase out

Capacity (kVA)	Dimension(mm)			Weight(kg)	Back up Battery
	Width	Depth	Height		
8	453	1020	1518	239.5	12v 20cell
10	453	1020	1518	253.5	
16	453	1020	1518	350	
20	453	1020	1518	410	
30	750	800	1345	580	
40	750	800	1345	615	
50	900	850	1620	670	
60	900	850	1620	700	
80	1000	940	1825	830	
100	1000	940	1825	980	
120	1710	980	1905	1050	
150	1710	980	1905	1150	



FRAID 300 Display



OPTION	Frontier Power 1000	Frontier Power 2000	Frontier RAID 3000
Power Capacity(KVA)	8 – 22KVA	8 – 100KVA	8 – 150 KVA
Battery type	Lead – acid maintenance free & user's optional		
Recharge time(normal)	1 – 3 hours		
Extended Battery Option	Yes		
Topology	Full True on – line C.V.C.F (i IGBT)		
Input Specification			
Nominal input voltage	1 Phase 208/220/240	3 Phase 208/120, 380/220, 415/240 & Optional	
Nominal input frequency	50 / 60Hz		
Input voltage range	20%	15%	
Input frequency range	6%		
Output Specification			
Nominal output voltage	1 Phase 208/220/240	3 Phase 208/120, 380/220, 415/240	
Output voltage regulation	1%		
Total voltage harmonic distortion	3% at full load		
Load crest factor supported	up to 5:1	up to 3:1	
Power factor tolerance	Load with 0.5 to 1.0 power factor		
Efficiency inverter at full load	90%	92%	93%
Overload capacity	125% 10min.	150% for 1min.	150% for 6 millisecond
Feature			
N+1 Redundancy	Yes		
Power(KVA) Expandability	N+1		
Runtime(battery)Expandability	Yes		
User serviceable	Yes		
Automatic bypass	Solid state		
Manual bypass	Yes		
Indicators, Interface & control			
LED Display	Load level, Battery level, Input fail, Over load, Trouble, Input voltage, output voltage, Output current, Output frequency, Battery voltage		
Intelligent serial interface	Yes		
SNMP Capability	Yes		
Multiple server/OS Shutdown	via MultiLink		
Modem(out of band) control	QuickCROSS & SmartMon		
Emergency power off capability	Auto static switch (solid state)		
Others			
DC Characteristics	168 – 216V	8–10 KVA(168–216)V 16–22KVA(211–270)V	210–270 V
Bypass isolation transformer	Provides a galvanic isolation while operating on the emergency bypass line		
Warrant (Power Plan)	2 years		
On site service	Optional		

Block Diagram

