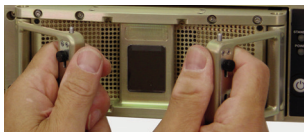


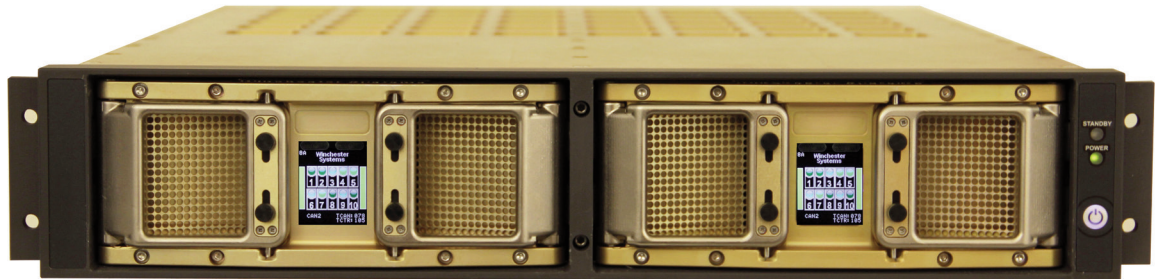
FlashDisk® Rugged Removable Canister RR2P™ Series

Lightweight, Rugged Dual-Pluggable Canister RAID with 20 Disks For Airborne, Shipboard and Ground Mobile Data Recorder

Designed as transportable data storage for mobile field use aboard planes, ships and ground transport, the RR2P is a lightweight aluminum 2U RAID disk array, weighing 48 pounds fully loaded, featuring two secure, yet easily removable disk canisters. Each canister holds 10 compact 2.5" Small Form Factor (SFF) disk drives with capacity up to 2 TB each and total system capacity to 40 TB. For speed, capacity and economy a variety of SAS and Solid State Disks (SSDs) are available in the 2.5" SFF size to meet varying needs. The RAID controller delivers up to 2,000 MB per second write throughput for rapid data recording and up to 2,200 MB per second for data reading and transfer from SAS disks.



Pluggable canisters are easy to insert and remove.



For rapid field re-deployment of critical surveillance vehicles including planes, ships and Humvees, the RR2P dual canister systems enables recorded data to be removed and replaced immediately with fresh canisters in under two minutes.

In a typical surveillance application, the post-mission canisters with the critical images are easily removed and plugged into a ground station. Fresh canisters are immediately loaded into the mobile unit for rapid redeployment. All 10 disks in a canister are carried as a single unit by a handle for safe transport. Each canister locks into place with a positive locking lever. Reliable canister connectors are military grade for field usage. For personnel safety during deployment, the canisters are held by secure restraints for crash protection impact to 200G. Canister connectors are military grade and rated for 10,000 insertion cycles.

The RR2P has four 8 Gb Fibre Channel that can be user configured as dual ports per canister and offers options including AC or DC power supplies variety of disk and SSD storage alternatives. It is conveniently only 17" wide to mount with steel rails or special 1U mounting tray instead of ball bearing rollers to avoid potential Foreign Object Damage (FOD).

The RR2P is designed to facilitate rapid data transfer from mobile vehicles to ground stations. Importantly, the RR2P will operate at 40° C and at 10,000 foot pressurized altitudes. Variable speed fans provide cooling on demand while reducing noise and vibration at moderate ambient temperatures. A front-mounted LCD on each canister provides power, activity and status information.

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RR2P Series

Pluggable Canister RAID

- Two canisters per 2U rackmount shelf
- Canister holds ten 2.5" SFF disks or SSDs
- Rated for 10,000 insertion cycles
- Positive canister locking mechanism
- Canister restraints for crash protection
- Four 8 Gb Fibre Channel ports
- 5° to 40° C operating temperature
- 2,200 MB read/2,000 MB write throughput

Connectivity, Capacity & Scalability

- Supports 20 SAS or SSD 2.5" SFF disks
- 17" wide x 22" deep for ease of mounting
- Rackmount rail kits available
- AC or DC power input
- 2 GB controller cache

Reliability & Serviceability

- RAID 0, 1, 5, 6, 10, 50, 60 data protection

Centralized & Remote Management

- Manage via IP, SMTP, SNMP, RS-232, CLI

Designed to Meet Military Standards

- MIL-STD-810F - Environmental
- MIL-STD-901D - Shock and Vibration
- MIL-STD-461E - EMI/RFI
- MIL-STD-1686A - ESD

RR2P Pluggable Canisters



Sturdy lightweight, milled-aluminum canister records up to 20 TB and is designed for quick data transfer to ground stations from mobile vehicles. Canister LCD provides status information.



Rear view of canister shows high speed SAS 6 Gb connectors and four variable speed, high performance cooling fans.

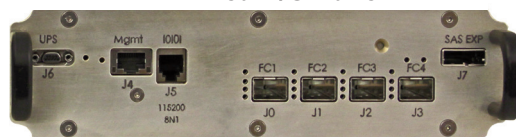


Interior view shows the 10 disk drives in the canister.

Canister Mirroring

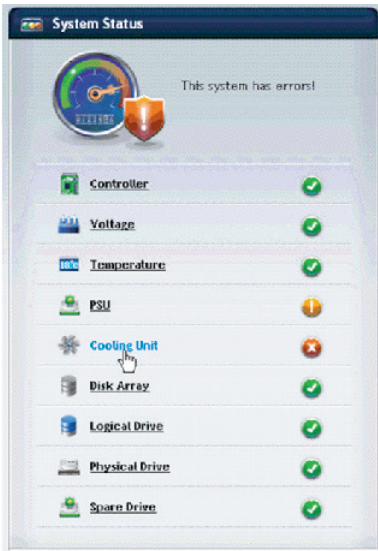
RR2P can write the same data to both canisters for added protection in the event that one canister is lost or damaged during a hazardous mission. Data is written simultaneously to both canisters and striped across the 10 disks in each, using all 20 disks continuously.

RR2P Rear I/O Panel



Panel shows four 8 Gb fibre channel ports, SAS expander port and various management ports.

RR2P System Status



RR2P monitors status with easy to recognize fault indicators.

2U RAID Disk Array

RAID Controller
 Canisters
 RAID levels supported
 Fibre Channel host interface
 Drive interface
 Number of drives/Total capacity
 On-line capacity expansion
 Cache memory capacity
 Hot spare drives
 Non-volatile cache
 Maximum LUNs
 LUN masking
 Port mapping
 Multipathing (MPIO)

Canisters

Capacity
 Weight
 Display
 Keying
 Connectors
 Latch
 Restraints
 Cooling fans

Disk Drives

2.5" SAS disk drives, 15k rpm
 2.5" SAS disk drives, 10k rpm
 2.5" SAS disk drives, 7.2k rpm
 SSD MLC disk drives

1 high speed RAID controller, SBB 2.0
 2, each with 10 SFF 2.5" disks or SSDs
 0, 1, 5, 6, 10, 50, 60
 4 x 8 Gb also supports 4 Gb & 2 Gb
 6 Gb SAS
 20 drives/40 TB maximum capacity
 Automatically adds new drives to existing array
 2 GB standard, 4 GB and 8 GB optional
 User configurable with 1 or more per canister available
 Optional battery backup option with 72 hour protection
 1024 LUNs
 Configurable for each host LUN on FC SAN
 Map ports to servers for direct attach environments
 MPIO supported for Windows and Linux

Rugged ultra-flexible
 Fibre Channel cables



10 SAS or SSD disks
 10 lbs with HDDs; 8 lbs with SSDs
 Center mounted LCD with status information
 Keyed left/right canisters optional
 Military grade rated for over 10,000 insertion cycles
 Individual canister latching lever for secure insertion
 Crash resistant canister restraints for personnel safety
 4 variable speed cooling fans per canister

146, 300 GB
 600, 900 GB, 1.2 TB
 1 TB
 400, 800 GB, 2.0 TB

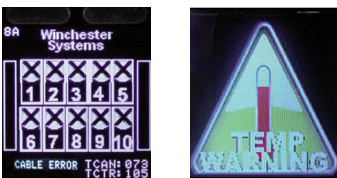
RR2P LCD Front Panel Status



Canister LCD displays drive status including internal temperatures. Red indicators signify failed drives.



The "X" indicates drives not present and the "fan warning" indicates fan failure.



Cable errors and temperature failures trigger warning messages.

Controls and Indicators

Firmware embedded manager
 Firmware embedded web browser
 Firmware embedded CLI
 Firmware embedded SMTP
 Firmware embedded SNMP
 Indicators

Access via RS-232 port
 Use standard web browser on 10/100 Gb LAN port
 Command Line Interface for text management
 Monitor system events via email
 Monitor system events via SNMP without agent
 Front panel power and status indicators

Compatibility

Operating systems
 Platforms supported
 Remote monitoring ports

Supports industry standard operating systems
 Supports Fibre Channel and embedded FPGA hosts
 RS-232 and 10/100 Ethernet

Storage Management

Event notification
 Manage out of band
 Centralized management

Automatic event and problem alert notification
 Ethernet
 Manage from any LAN workstation with web browser and no additional software

General

Power mode
 AC power; DC power
 Power connector
 Power consumption
 RAID unit dimensions
 RAID unit weight
 Temperature
 Cooling system
 Compliance

Available in with AC or DC power
 100-240 VAC, 47-63 Hz, 750 W; 10-36 VDC, 600 W
 Military circular, capped connector
 550 Watts peak, 350 Watts operating
 3.5" (2U) high x 17" wide x 22" deep
 48 lbs. with HDDs; 44 lbs with SSDs
 0° to 40° C operating; -40° to 60° C non-operating
 2 high volume cooling fans on rear panel
 UL approved; FCC & CE pending



Warranty

Standard Warranty
 Service Contracts

One year warranty and toll-free hotline
 Extend standard warranty for subsequent years,
 Upgrade to on-site service in continental US

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