FlashDisk® *ATR Removable Canister* RR1P™ Series

Rugged ATR Format Pluggable-Canister RAID with 24 SSD Drives Perfect for Airborne, Shipboard and Ground Mobile Data Recorder

For rapid field re-deployment of critical surveillance vehicles including planes, ships and Humvees, the RR1P removable canister system enables recorded data to be removed and replaced immediately with a fresh canister in under two minutes.

The RR1P is a 3/4 ATR form-factor, true military rugged unit with COTS controller, transportable RAID data storage system for mobile field use aboard planes, ships and ground transport. The enclosure is 100% aircraft-grade aluminum for strength and light weight and is ARINC tray mountable. Weighing only 25 pounds, the RR1P features an easily removable disk canister that's light-weight, durable, and sustains 10,000 insertion cycles - enough for 5 years of daily use. Each canister holds up to 24 low-profile 1.8" Solid-State Disk (SSD) disk drives with capacity up to 800 GB each and total raw capacity up to 19.2 TB. The system delivers up to 2,200 MB per second write throughput for rapid data recording and up to 2,600 MB per second for data reading and transfer.

After a typical surveillance deployment, the canister with critical images is easily removed and plugged into a ground station. A fresh canister is immediately loaded into the mobile unit for rapid redeployment. All 24 SSDs in a canister are carried as a single unit by a handle for safe transport.

All RR1P data and power connectors, including four optical 8 Gb Fibre Channel ports are located on the front panel. The RR1P is forced air cooled and the front panel provides all intake air to the enclosure through an EMI honeycomb filter and removable dust filter. Captive military grade fasteners secure the front door.

Designed for the most demanding environments, the RR1P tolerates vibration through maximizing rigidity and damping characteristics of components and supporting structures, and the use of SSDs. RR1P operates from 0°C to 40°C from sea level to 10,000 feet.

Rugged RR1P Series

Pluggable Canister RAID
- Removable canister in 3/4 ATR enclosure
- Canister stores up to 19.2 TB in 24 SSDs
- Quick insertion/removal
- Positive canister locking mechanism
- Canister restraints for crash protection
- Four 2/4/8 Gb Fibre Channel ports
- 0° to 40° C operating temperature
- 2,600 MB read/2,200 MB write throughput

Connectivity, Capacity & Scalability
- Supports 24 SSD 1.8" low-profile disks
- 3/4 ATR form factor
- 8 GB controller cache
- Up to 4096 logical volumes

Reliability & Serviceability
- RAID 0, 1, 5, 6, 10, 30, 50, 60 protection

Centralized & Remote Management
- Manage via IP, SMTP, SNMP, RS-232, CLI

Tested to Meet Military Standards
- MIL-STD-810G   Environmental
- MIL-STD-901D   Shock and Vibration
- MIL-STD-461F   EMI/RFI
- MIL-STD-704E   Aircraft Power
- RTCA-DO-160   Humidity

RR1P Canister Removal

Sturdy, lightweight aluminum canister records up to 19.2 TB using 24 SSDs and is designed for quick data transfer to ground stations from mobile vehicles. The canister connects to the chassis with a military grade connector designed for 10,000 insertion cycles.

RR1P Interior View

RR1P shown with door open and canister installed.

Door sensor automatically powers down RR1P when opened.

"J-hook" thumbscrew secures canister to withstand vibration.

RR1P mounts to standard ATR mounting trays.

RR1P Canister

RR1P Removable Drive Canister holds twenty-four 1.8" SSDs.

Front mounted handle makes insertion, removal and carrying the canister easy.

Milled aluminum canister alignment rails slide easily on Delrin base into the rear-mounted guide pins for a secure fit.

ATR RAID Disk Array

RAID Controller	Single RAID controller
Canisters	1, holding up to twenty four 1.8" SSDs
RAID levels supported	0, 1, 5, 6, 10, 30, 50, 60
Host ports and interface	4 ports; 2/4/8 Gb Fibre Channel
Drive interface	SAS/SATA
Number of drives/Total capacity	24 drives/19.2 TB maximum raw capacity
Cache memory capacity	8 GB
Maximum LUNs	4096 LUNs
LUN masking	Configurable for each host LUN on FC SAN
Port mapping	Map ports to servers for direct attach environments
Multipathing (MPIO)	MPIO supported for Windows and Linux
Color	FED-STD-595, color 12197

Canisters

Capacity	24 SSD disks
Weight	5 lbs.
Connectors	Military grade for high field reliability
Insertion Cycles	10,000
Restraints	Crash resistant canister restraints for personnel safety

Disk Drives

1.8" SSD disk drives	SAS or SATA 400 GB MLC, 800 GB MLC

Controls and Indicators

Firmware embedded web browser	Use standard web browser on 10/100 Gb LAN port
Firmware embedded CLI	Command Line Interface for text management
Firmware embedded SMTP	Monitor system events via email
Firmware embedded SNMP	Monitor system events via SNMP without agent
Indicators	Front panel power, status, activity and service indicators

Compatibility

Operating systems	Supports industry standard operating systems
Platforms supported	Supports servers and FPGA hosts with Fibre Channel
Protocols supported	SCSI-2 and SCSI-3 over Fibre Channel
Remote monitoring ports	10/100 Ethernet

Storage Management

Event notification	Service light, SNMP trap, SMTP notification, event log
Manage out of band	10/100 Ethernet

General

AC power	Single 100-240 VAC Inlet, 40-400 Hz standard
AC connector	Military circular connector
DC Power	26-32 VDC option
Power consumption	250W rated, 185W typical
RAID unit dimensions	3/4 ATR (9.0" h x 7.5" w x 12.5" d)
RAID unit weight	25 lbs. (fully loaded)
Temperature	0° to 40° C operating; -40° to 65° C non-operating
Humidity	5% to 95% non-condensing, operating & non-operating
Cooling system	1 rear mounted, high volume cooling fan; 9,550 rpm, 91.8 CFM, 59 dBA
Compliance	UL approval pending; FCC & CE pending

Warranty

Standard Warranty	One year warranty and toll-free hotline
Service Contracts	Extend standard warranty for subsequent years,

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