



# AEM/RSD RSD/FSD Drive Emulation System

**UPGRADE**

**10-INCH**

**HALF-RACK**

**HARD**

**DISK**

**DRIVES**

## Improved Performance and Capabilities: Featuring:

- Up to 4.2 GB Capacity
- SMD thru SMD-E Interface Compatibility
- Single or Dual Port Available
- Data transfer rates up to 24 Mbits per second
- Seek Times - Up to 50% less
- Available with fixed, removable, or Jaz drive
- Multiple Volumes on a single drive
- Power Reduced up to 75%, Weight Reduced - 24 lbs
- 200,000 to 500,000 Hr drive MTBF
- Data Erase per DoD 5220.22-M
- Continuous Self-test.

## NEW capabilities for 10-Inch Half-Rack drives. Optional Features:

- Backup to second disk, 4 mm DAT, QIC tape, Jaz, or Optical disk
- RAID-1 Internal Mirroring and On-line Copy
- Removable Disk Drives
- Disk to Disk Image Copy

### **PLUG COMPATIBLE with SMD or SMD-E Drives**

The AEM/RSD is an upgraded data storage unit for RSD and FSD style disk drives made by Control Data, Century Data, Hitachi, Fujitsu, NEC, and many others. The head disk assembly is replaced with an emulator that includes a 3.5" SCSI drive for data storage. An entirely new control system, that emulates various drive types, replaces the original electronics. Dual porting and daisy chaining are fully implemented. Merely unplug the existing drive and install the AEM/RSD using the same cables.

### **MAINTENANCE FREE / DEFECT FREE**

The AEM/RSD uses SCSI disk drives for low maintenance operation. Drives are rated in excess of 200,000 hours MTBF and up to five years of continuous operation. Drives appear defect-free to the host computer.



*AEM/RSD with dual removable drives and MultiVolume Support.*

### **MORE DATA STORAGE**

MultiVolume provides additional drive space by creating multiple SMD images in separate volumes on the SCSI device. With sufficient space, up to 8 volumes can be stored on the SCSI drive. Internal software allows copying between volumes. The front-panel MultiVolume thumbwheel switch allows user selection of the active and bootable volume. Changing the thumbwheel switch during operation will spin the drive down, change the "pack", and spin the drive back up, all in less than a second.

### **CACHE BUFFERING for FAST ACCESS to Data**

Up to 64 MBytes of data caching provides significantly reduced access times to common data. Cache is managed by a "Least Recently Used Track" algorithm.

### **HIGHER DATA TRANSFER RATES**

Some host controllers are capable of data transfer rates well beyond those of the original SMD disk drive. The AEM/RSD supports up to 24 Mbits per second which can provide a threefold increase in transfer rate when used with some controllers.

### **DISK MIRRORING**

RAID-1 internal disk to disk Mirroring Option also adds on-line copy to the AEM/RSD. Alternating reads continually assure the user of a valid mirror. Disk to disk mirroring provides a continuous, on-line, backup of critical data.

## OFF-LINE BACKUP, DISK COPY

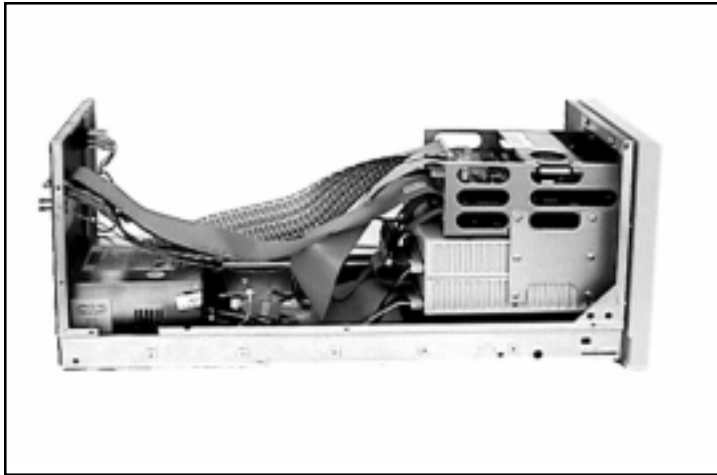
The Off-line Backup Option allows the user to backup or copy the SMD image to a removable SCSI or Jaz drive. A 300 MByte image can be copied in as little as five minutes. An off-line backup to 4 mm DAT or QIC tape can be performed in as little as 15 minutes.

## REDUCED POWER, COOLING, and WEIGHT

The AEM/RSD uses significantly less power and requires less cooling than the drives it replaces, up to 75% less. A modern switching supply replaces the heavy OEM supply. With the original HDA and power supply replaced, the weight of the AEM/RSD is just 36 lbs, a 60% reduction!

## FIRMWARE CONFIGURABLE

Drive emulation parameters may be changed via serial interface, RS-232 port with a front panel modular connector. Parameters such as number of heads, cylinders, track size, sector size, etc., are easily configurable by the user or maintenance personnel. This flexibility allows the AEM/RSD to be reconfigured in the field by the user to emulate any one of hundreds of SMD disk drives. Software updates and some optional features can be downloaded and installed in the AEM/RSD using an IBM compatible PC.



Side view of the AEM/RSD, with cover removed, showing the internal conversion for an FSD or RSD drive.

## MANY CONFIGURATIONS AVAILABLE

The AEM/RSD is available with fixed or removable SCSI drive/s and numerous options, never available before in the 10-inch half-rack, RSD and FSD form factor. The combination of highly reliable drives and new capabilities provide a dramatic upgrade to computer data storage.

## SPECIFICATIONS

### INTERFACE

SMD, SMD-0, SMD-H, SMD-X, SMD-E. Single port standard, dual port optional. Daisy-chain interface compatibility.

Control/Maintenance: RS-232 serial port, ASCII (8, N, 1), front panel RJ-11 modular connector.

### DATA TRANSFER RATE

6 to 24 Mbits per second. Crystal controlled.

### EMULATION

*All parameters programmable*

Cylinders	1024 max SMD 2048 max SMD-0 4096 max SMD-E
Heads	64 max SMD 32 max SMD-E
Track Length	30,720 to 61,440 Bytes max (Soft sectored) 32,768 to 65,535 Bytes max (Hard sectored)
Sector Length	Programmable 0 - 32,768 Bytes

### CACHE BUFFER

Size	2 to 64 MBytes
Capacity	64 to 1024 Tracks

### SEEK TIMES, TYPICAL

*Drive and Emulation Dependent*

Track to Track	0 - 20 ms
Average	4 - 18 ms
Maximum	20 - 30 ms
Average Access	11 - 28 ms
Average Latency	6.2 - 8.4 ms

### RELIABILITY

MTBF	200,000+ hours
MTTR	15 minutes

### POWER

Input Voltage	90 - 135, 180 - 264 VAC (Selectable)
Frequency	47 - 63 Hz
Power	50 - 90 Watts (Maximum)

### PHYSICAL

Chassis	<i>High x Wide x Deep; Weight</i> 10.2 in. x 8.5 in. x 30 in.; 40 lbs 259 mm x 216 mm x 762 mm; 18.2 kg
Drive Module	1.7 in. x 4.6 in. x 8.2 in.; 3 lbs 43.2 mm x 117 mm x 208 mm; 1.4 kg

*Specifications subject to change without notice.*

## COMMON OPTIONS

Opt-21	Dual Port SMD Interface
Opt-24	Additional Cache Memory
Opt-25	MultiVolume Support
Opt-46	Jaz Drive (1GB) Image Copy/Backup
Opt-51	Disk to Disk Image Copy
Opt-55	RAID Disk Mirroring and On-line Copy
Opt-6X	Disk to Tape Backup (DAT, QIC)
Opt-7X	Disk to Optical Disk Backup
	<i>Other Options Available</i>