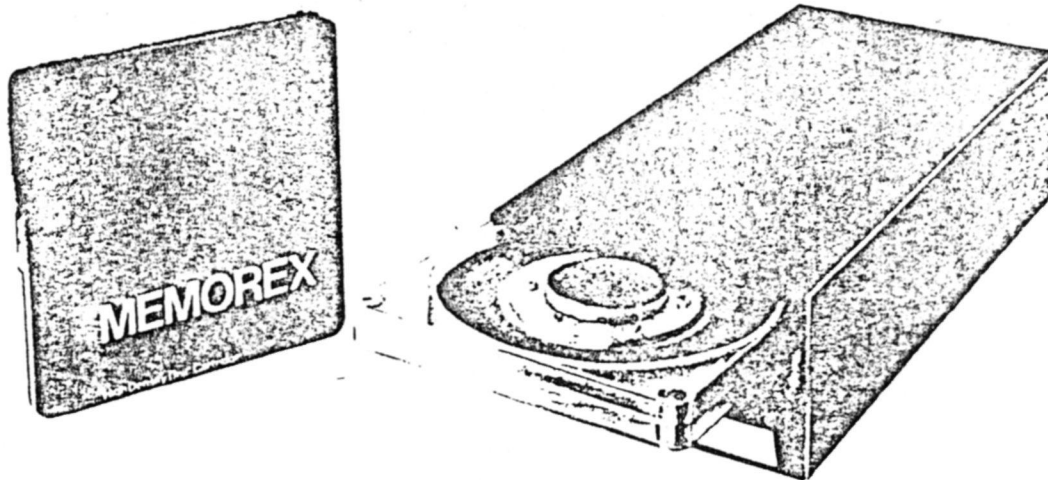


# Memorex 201 Fixed/Removable 8" Disc Drives

MEMOREX



## PRODUCT DESCRIPTION

MRX 201 is a high performance, 8" Rigid Disc Drive providing 25 MB of storage capacity and incorporating 1 2.5 MB of fixed and 1 2.5 MB of removable storage on a cartridge. A fast, random access, on-line storage device, it is designed to provide high throughput for a CPU/Storage Subsystem through its high data transfer rate of 9.67 MHz and an average data seek time of 30 ms.

Geared specifically for the OEM market, the 201 features:

- Multiple Interface Capability — MRX Interface and SMD Interface
- Daisy/Star-Connected Subsystem Configuration to connect up to eight 201 disc drives or ability to mix and match 201 with larger SMD-compatible disc drives.
- Integral Circuitry for comprehensive self-diagnostics affording high level of data availability as well as reduced maintenance costs.
- Assured Cartridge Interchangeability achieved through interspersed servo patterns embedded in each data track.
- Proven Reliability of Winchester Heads and Media.
- Compact Floppy Size Packaging and Mechanical Simplicity provide suitability for desk top office environment.

These features result in a low-cost mass storage solution offering high-performance, medium-capacity storage with built-in data back-up capability in a small size package. The Quark is especially suitable for small business systems operating in office environments and general-purpose, low-cost systems requiring removable mass storage at a favorable price.

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T. Gardner December 2008

# Memorex 201 - SPECIFICATION SUMMARY

## PERFORMANCE SPECIFICATIONS

Capacity/Drive:	Total	Fixed	Removable Cartridge
Unformatted	25 MB	12.5 MB	12.5 MB
Formatted	20.2 MB	10.1 MB	10.1 MB
Data Organization:	Total Unformatted, 20,672 Bytes/Track		
User Data:	32 Sectors/Track, 512 Bytes/Sector, or 64 Sectors/Track, 256 Bytes/Sector 312 Cylinders (Including 3 Spares) 4 Data Surfaces, 2 in Fixed Disc, 2 in Removable Cartridge		
Servo:	1 Dedicated Servo Surface Plus Interspersed Embedded Track Servo		
Transfer Rate:	1.209 MBytes/Sec (9.67 MHz)		
Data Access Time:	10 mS Track to Track 30 mS Average 50 mS Maximum, Across all Tracks Average Latency, 8.5 mS		

## FUNCTIONAL SPECIFICATIONS

Spindle Speed	3510 RPM
Index	1 Per Track, Electronic
Recording Density	8540 BPI
Flux Density	8540 FCI
Track Density	480 TPI
Tracks	1248 Per Drive 312 Per Surface
Recording Heads	Winchester, Self Loading 4 Read/Write Heads 1 Servo Head
Discs	2 Fixed: 2 Data Surfaces 1 Protective Surface 1 Servo Surface 1 Removable: 2 Data Surfaces Lubricated, Advanced Oxide Coated Media 200 mm x 100 mm Dia.

## PHYSICAL SPECIFICATIONS

Environmental Specifications:	
Operating Temp.	10°C to 40°C (50°F to 105°F)
Humidity	20-80% RH, Noncondensing
Storage Temp.	- 40°C to 70°C (- 40°F to 158°F)
Humidity	
Dissipation	150 Watts Steady State, 200 W Peak

## PHYSICAL SPECIFICATIONS (Continued)

### Power Requirements:

DC Voltage	+ 24 VDC ± 10 %	-A Steady State, -A Peak
	+ 5 VDC ± 5 %	- A Steady State, -A Peak
	-5VDC ± 5 %	-A Steady State, - A Peak

### Mechanical

2 Modules Floppy Size 4.62" x 8.55" x 18" Each. One Drive Module (28 lbs. approx.) and One Electronics Module Weight (15 lbs. approx.).

## RELIABILITY & SERVICEABILITY SPECIFICATIONS

Error Rates	1 Soft Error per 10 <sup>9</sup> Bits 1 Hard Error Per 10 <sup>12</sup> Bits 1 Seek Error Per 10 <sup>4</sup> Seeks
MTBF	4500 Hrs. (Removable) 8000 Hrs. (Fixed)
MTTR	30 Minutes
PM	Routine quarterly preventive maintenance- consult factory for usage-based recommendations.
Component Life	5 Years

## INTERFACE SPECIFICATIONS

- Two General Purpose Host Interfaces Available:  
(a) MRX (b) SMD.
- For Interface Lines and Command List See *I/O Specifications*.
- Features Include: DC Power Only  
I/O Connectors Suitable for Flat Cable  
PLO/Data-Separator Integral  
User-Selectable 32 or 64 Sectors Per  
Track  
NRZ/MFM Data Encoding
- Daisy Chaining up to 8 Drives

**Memorex 201 - PRODUCT FEATURES**

**Low-Cost, High-Performance, 8" Drives:**

- 12.5 MB of Fixed and 12.5 MB of removable storage provide a low-cost, mass-storage solution for computers requiring medium-storage capacity with high-performance, high-reliability features at one-third the cost of 14" storage and cartridge module drives.

**Removable Cartridge Back-up**

- Removable storage provides one-for-one immediate back-up for the drive obviating need for expensive tape cartridge and controller or cumbersome time-consuming floppy back-up systems.

**Multiple Choice of Interfaces to Host CPU**

- Available with a choice of two interface configurations:
  - SMD Controller Interface
  - MRX Controller Interface

The flexibility provided by these interfaces offers OEM/System Integrators with low-cost system integration in existing and future systems designs, without extensive development and resource investment.

- The 201 is a complete disc drive designed for immediate operation after being plugged into a power supply and an SMD or MRX controller.

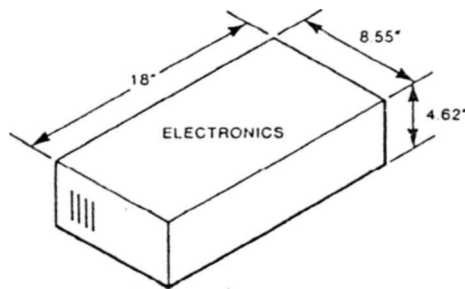
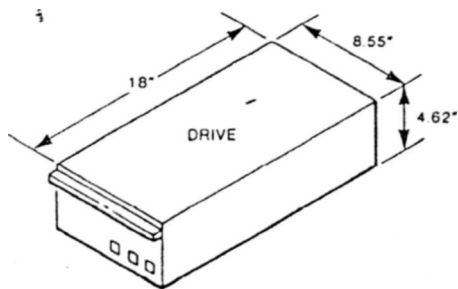
**Designed-in Reliability and Serviceability**

- A comprehensive, self-test diagnostic program built into the drive improves serviceability.
- Microprocessor-based control increases interface flexibility, improves reliability, facilitates internal diagnostics and provides for future enhancements.
- Requires only DC power and thus simplifies international usage.

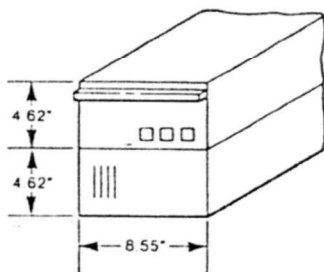
**Advanced Technology**

- Winchester Heads and Media Technology for high reliability and data integrity.
- MFM Recording and NRZ Interface code.
- Direct-drive, brushless DC Spindle Motor optimizes drive space utilization and provides higher reliability and quiet operation through elimination of belts, motor coupling, etc.
- Advanced, modular, high-performance, servo-positioning system permits a light, compact design and simplified assembly.
- Embedded and Dedicated Servo System provides fast access time via dedicated surface servo system plus the benefit of improved interchangeability of media through embedded servo patterns in each and every track. Further, it eliminates the need for periodic head alignment.

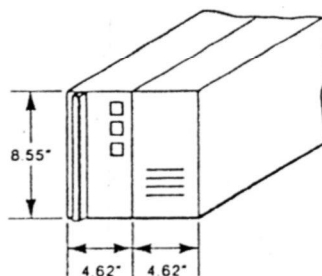
**PACKAGE—FLOPPY SIZE BEZEL**



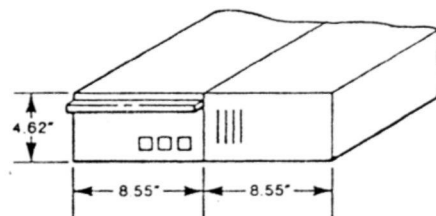
**DESK TOP MOUNT**



**RACK MOUNT**



**FITS IN STANDARD RACK MOUNT**



## **Memorex 201 — FUNCTIONAL CHARACTERISTICS**

### **WINCHESTER TECHNOLOGY**

The MRX 201 drive employs the state-of-the-art, proven Winchester technology. The Winchester head assembly is characterized by its low mass and light loading as it flies over the surface of the disc media.

Because Winchester disc media has a special lubricated surface, limited head/media contact cannot damage the heads or the media. Head crashes are thus virtually eliminated, making the drive easier and less expensive to maintain.

### **HIGH-PERFORMANCE SERVO SYSTEM**

The MRX 201 family of Disc Drives achieves its fast data access performance through incorporation of Dedicated and Embedded Servo Patterns. A factory-written, dedicated servo system employing a dedicated servo head is used for fast access between different tracks. Once on track, the drive samples the embedded servo patterns and precisely follows the track by adjusting itself 32 times in each revolution of the disc. Thus the embedded servoing system permits the benefit of improved interchangeability of cartridges through allowing each R/W head to align itself electronically, obviating the need for field head alignment and periodic preventive maintenance. This significantly reduces maintenance costs and yields a low error rate.

### **COMPREHENSIVE SELF-DIAGNOSTICS**

Resident in the drive is a Z-80 microprocessor with extensive diagnostic programs capable of verifying proper drive operation and isolating malfunctions to the replaceable assembly level.

To improve serviceability, the self-test program may be initiated in one of the following ways:

- Self Test automatically executed whenever power is applied.
- The host system, through the controller, can initiate Self Test at any time during operation. Self Test results may be reported to the host system on command for display.

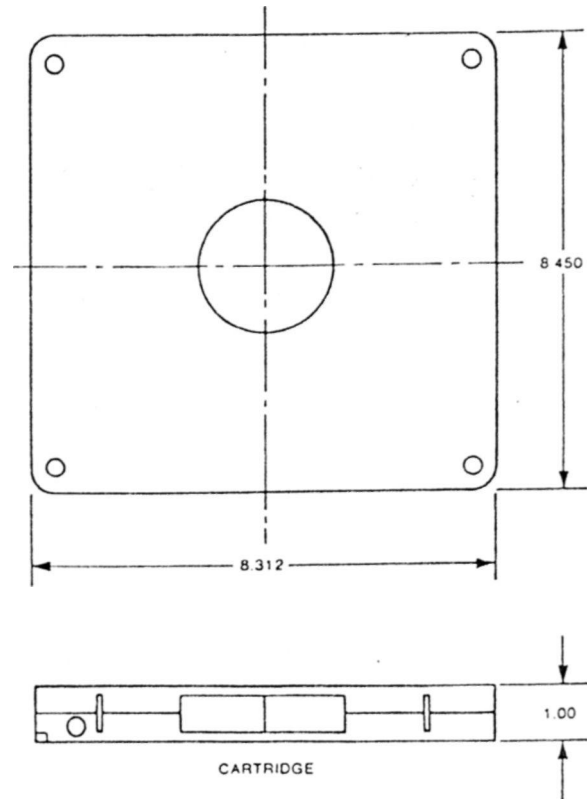
Improved serviceability afforded by the Self-Test Diagnostics features makes a major contribution to reduced system costs.

## MRX 2001 - 8" CARTRIDGE

The Memorex 2001 is a high-capacity, Industry-standard cartridge for use with Quark 8" Disc Drives. Designed as a compact, low-cost, removable media, it provides excellent interchangeability and data integrity through features such as environmental sealing, autocentering, and write protect.

### FEATURES

- Tamperproof auto-locking doors provide environmental sealing against contamination.
- Autocentering registration in the drive assures cartridge interchangeability between different drives.
- Write protect feature prevents unauthorized or accidental changing or erasure of data.
- Cartridge keying prevents improper insertion in drive.
- High-impact, drop-resistant design protects the disc despite rough handling of the cartridge.
- Compact size fits easily in office bookshelf or drawer.
- Label area for data-file identification.



### SPECIFICATIONS

#### • Capacity

12.5 MB unformatted; 10.1 MB formatted  
Per Surface: 6.25 MB unformatted  
5.0 MB formatted  
Per Track: 20,672 bytes  
unformatted  
16,384 bytes formatted

#### Densities

Recording: 8540 bits per inch  
Track: 480 tracks per inch  
Cylinders: 312 (includes 3  
alternates)  
Encoding Method: MFM

- **Formatting:**
  - Index:** 1 per track (electronic)
  - Servo: Embedded
  - Sectors: 32 per track or  
64 per track
  - User Data:** 512 bytes/sector or  
256 bytes/sector
- **Dimensions:**
  - Height: 1.0 inches
  - Width: 8.312 inches
  - Depth: 8.450 inches
  - Weight: 2 lbs.
- **Environment:**
  - Ambient Temperature: 50°F to 105°F
  - Relative Humidity: 20% to 80%  
noncondensing
- **Reliability:** MTBF: 4500 hours