

Control Data® 9409

Flexible Disk Drive

Designed for Original Equipment Manufacturers (OEM)



The Control Data 9409 Flexible Disk Drive is a double-sided, random-access, low-cost storage device. Maximum storage capacity is 500 kilobytes on a 133.4-millimeter (5.25-inch) interchangeable disk. This disk drive is interchangeable with comparable products, providing industry compatibility in size, mechanical mountings, electrical interface, power requirements and physical appearance.

The CDC® 9409 operates in single- or double-density formats. Single-density operation is achieved by using Frequency Modulation (FM) encoding, providing 250 kilobytes of unformatted storage. Double-density operation uses Modified Frequency Modulation (MFM), and provides 500 kilobytes of unformatted capacity.

Features

- Lightweight and compact size
- Full industry compatibility
- Requires only + 12 and + 5 V dc operating power
- Band-stepper positioning
- Long-life ceramic read/write heads
- Hard- or soft-sectored media compatibility
- Activity light on front panel indicates that 9409 is in use
- Write protect provides data security
- Spares commonality with CDC 9408 Flexible Disk Drive
- Industry-standard face plate
- No electrical adjustment or preventive maintenance required

Description

The 9409 provides ease of operation. To load, the operator opens the access door and inserts a disk into the drive. When the door is closed, an expanding cone automatically centers and clamps the disk to the drive spindle. The disk rotates within the jacket, cushioning and cleaning the medium.

A write protect capability is provided by mechanical sensing through an on-board switch. Masking the slot in the disk jacket activates write protect, allowing the drive to operate in read-only

mode. When the slot is present, normal write functions can be performed.

Applications

The 9409 Flexible Disk Drive is used for applications requiring up to 500 kilobytes of unformatted storage capacity. Typical applications include:

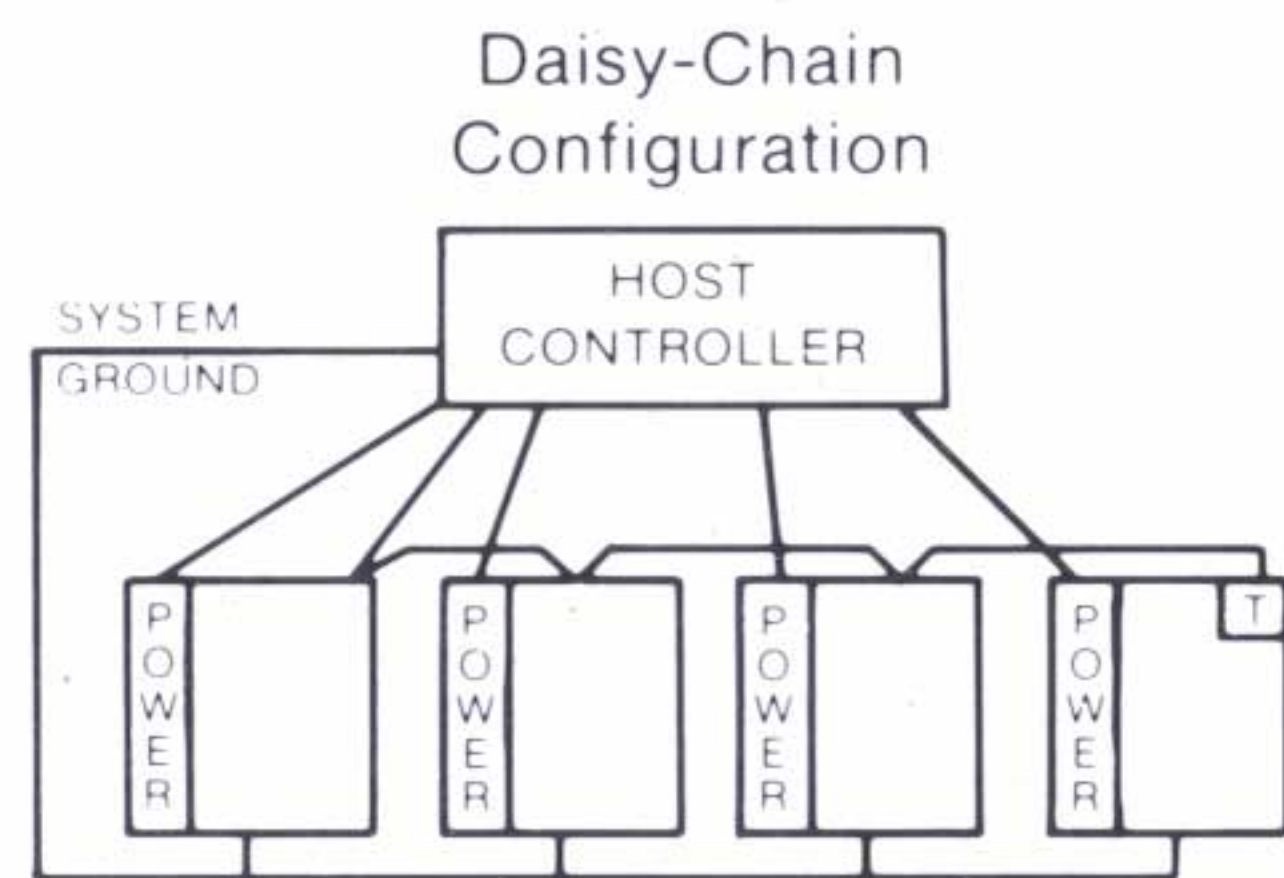
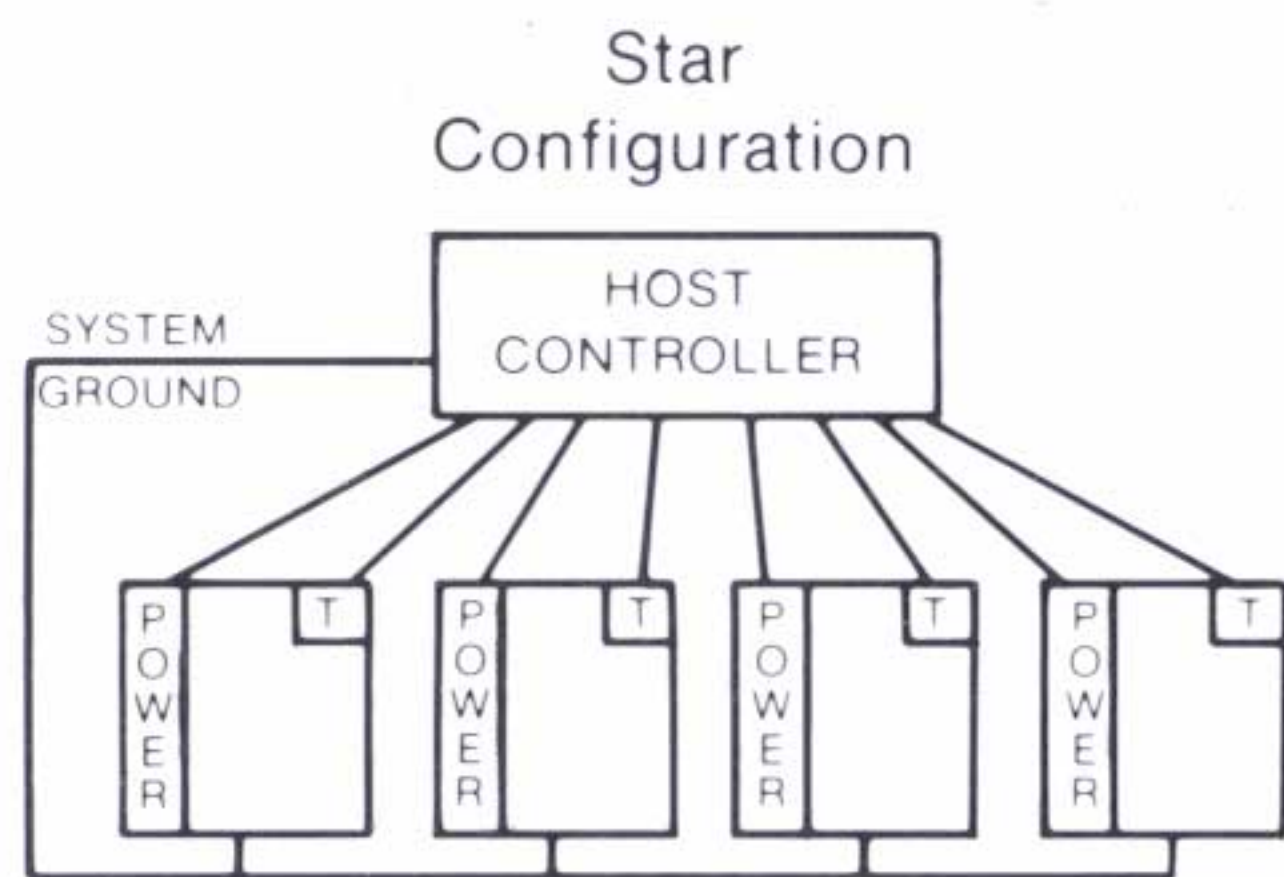
- Key entry systems
- Point of sale terminals
- Data collection and logging
- Word processing
- Distributed processing
- Small business systems
- Personal or home computers
- Program loading



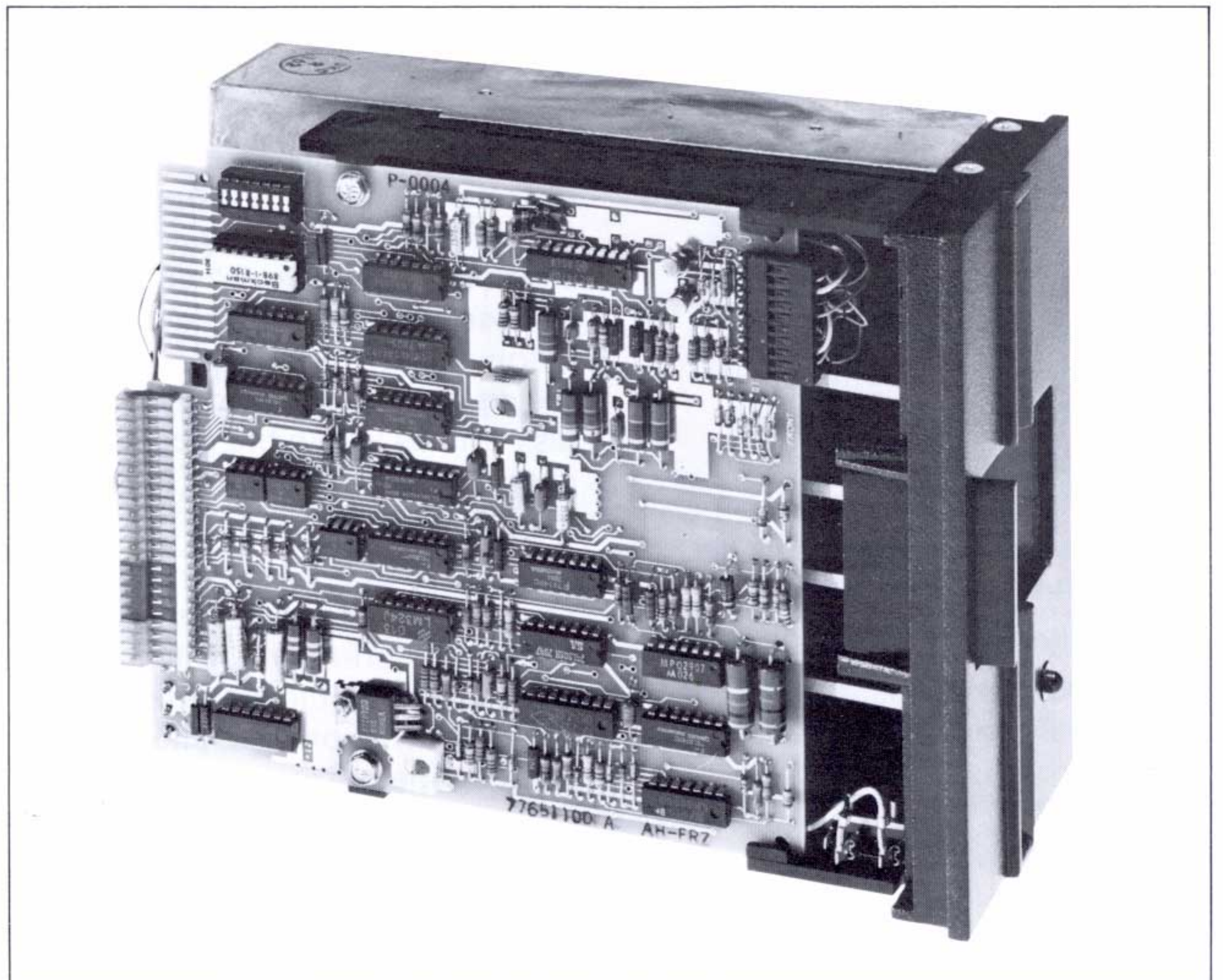
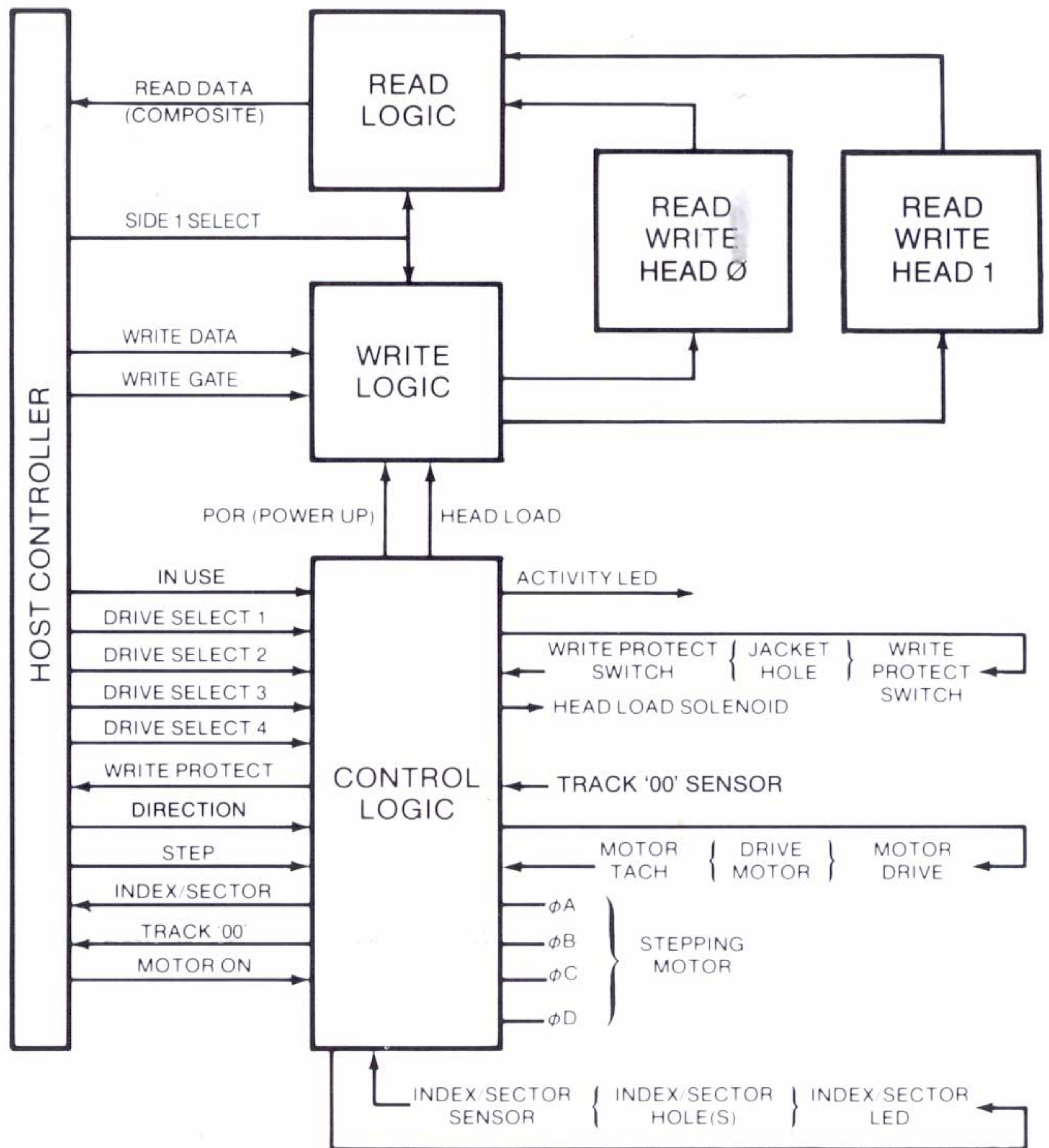
Multiple Drive Configuration

Additional storage and flexibility can be obtained by using a multi-drive configuration. The 9409 can be arranged with up to four drives in a star or daisy-chain configuration. The last drive in the arrangement can be up to 3.05 meters (10 feet) from the controller.

Configuration Options

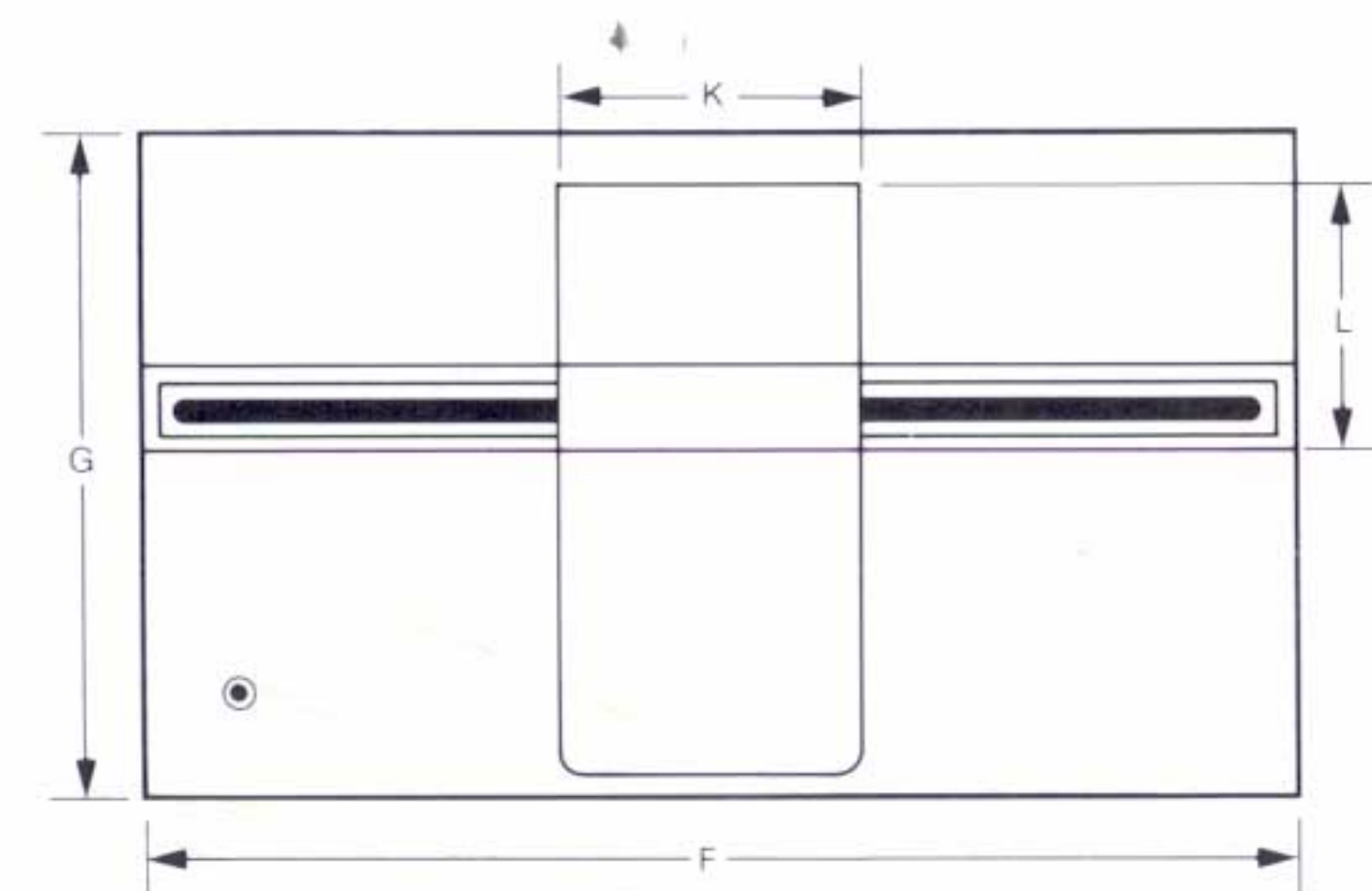
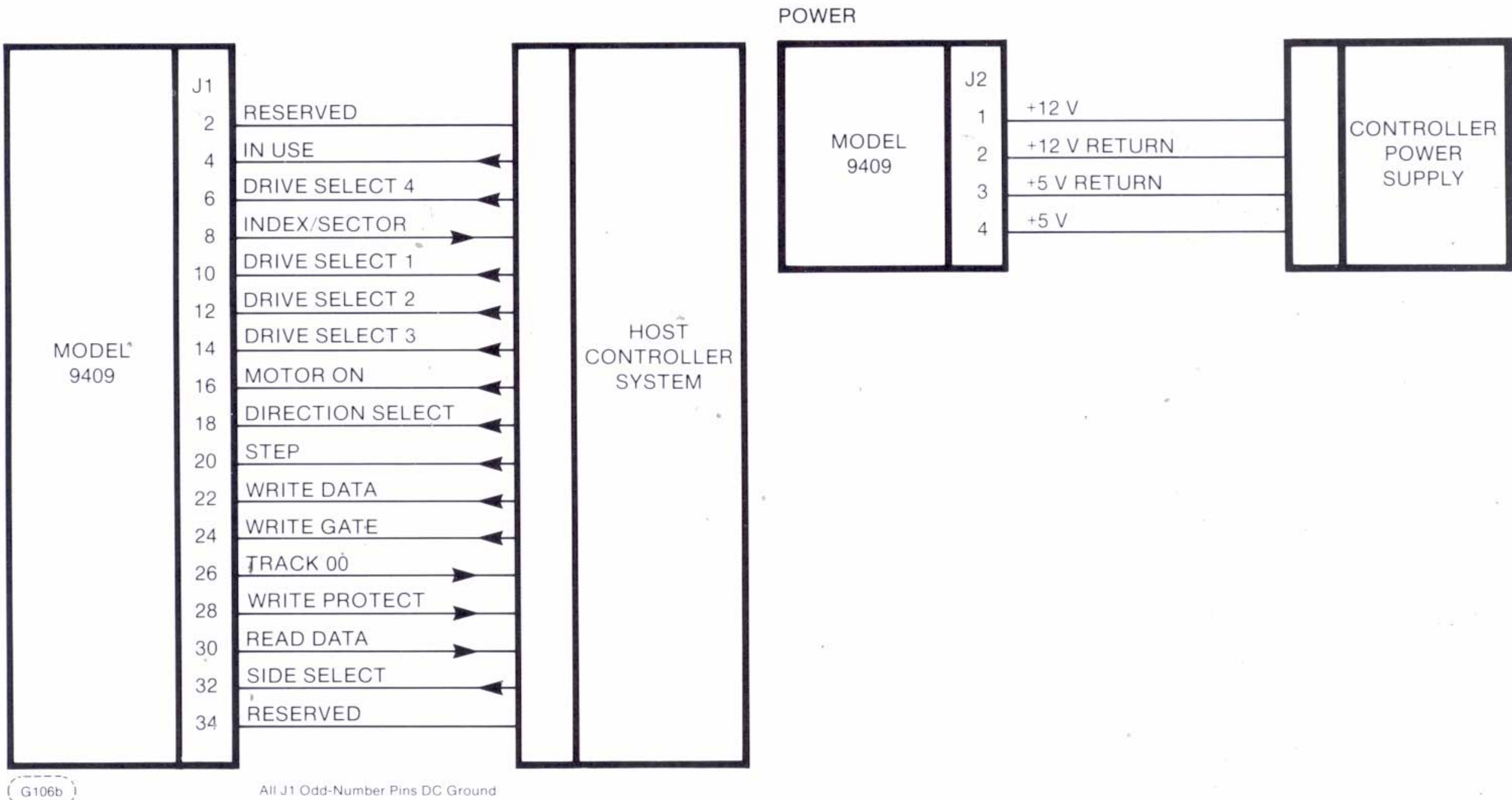


9409 Block Diagram



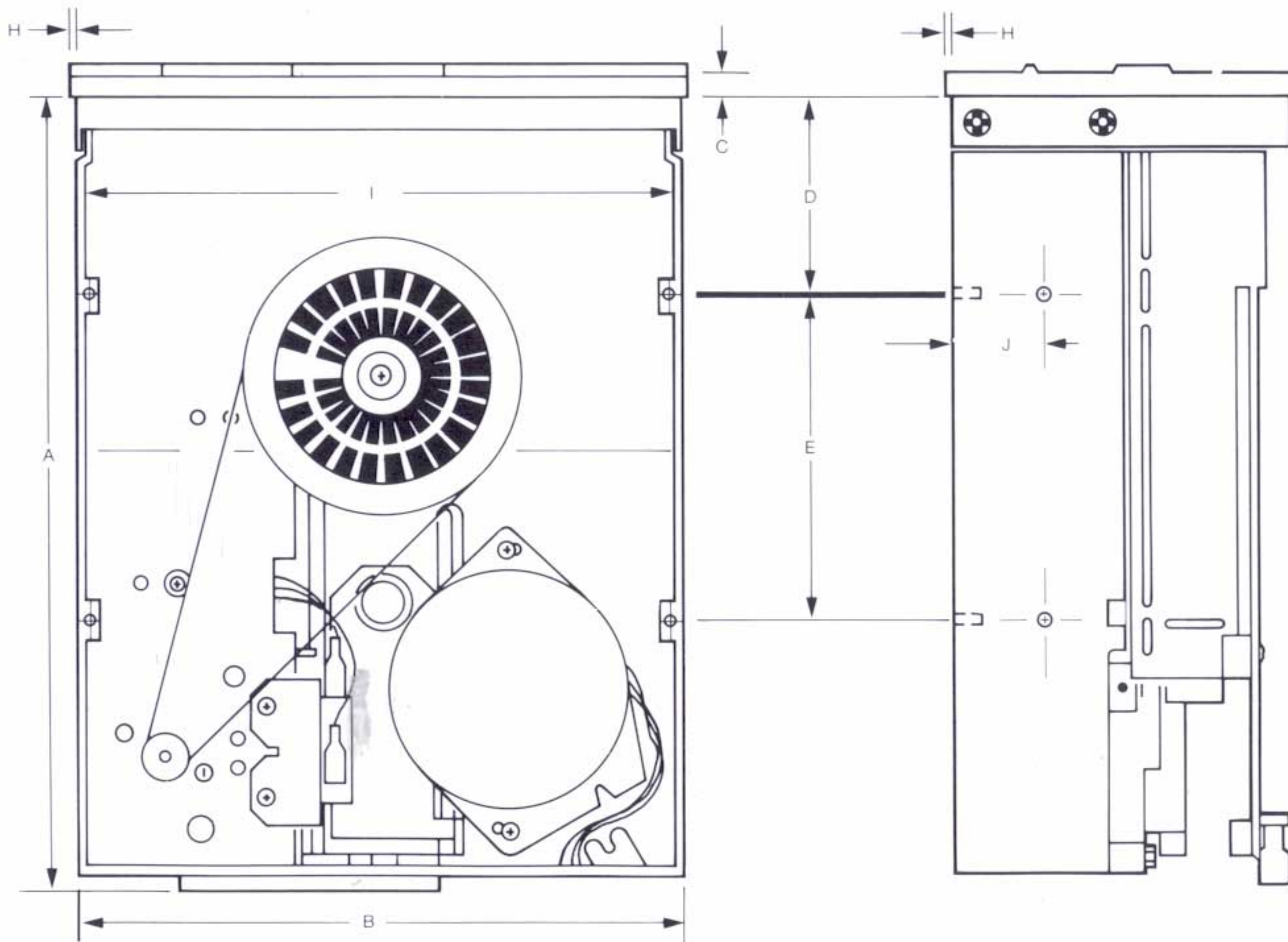
Fully compatible to CDC 9408 FDD

Interface Connections



WT: 3.2 lbs. (1.45 kg)

MOUNTING HOLES: FOUR ON BOTTOM, TWO EACH SIDE; =6-32 X 0.31 in. (7.9 mm) DEPTH



PACKAGE DIMENSION			
	INCHES		MILLIMETERS
A	8.00 MAX		203.2 MAX
B	5.75	+0.00 -0.02	146 +0.00 -0.5
C	0.29	±0.02	7.4 ±0.5
D	1.87	±0.02	47.5 ±0.5
E	3.12	±0.02	79.2 ±0.5
F	5.88	±0.01	149.4 ±0.3
G	3.38	±0.01	85.9 ±0.3
H	0.06	±0.01	1.5 ±0.3
I	5.50	±0.02	140 ±0.5
J	0.86	±0.02	21.8 ±0.5
K	1.50	±0.01	38.1 ±0.5
L	1.41	±0.01	35.8 ±0.5

Dimensions of 9409 FDD

Specifications

General Performance	Single Density	Double Density
Transfer Rate	125 K bits/s	250 K bit/s
Spindle Speed	300 r/min	300 r/min
Average Latency	100 ms	100 ms
Access Time		
Track-To-Track	5 ms	5 ms
Settle Time	15 ms	15 ms
Average	80 ms	80 ms
Head, Load Time	50 ms	50 ms
Capacity, Unformatted		
Per Disk	250 K bytes	500 K bytes
Per Track	3.125 K bytes	6.25 K bytes
Capacity, Formatted (16 sectors)		
Per Diskette	163.84 K bytes	327.68 K bytes
Per Track	2048 bytes	4096 bytes
Recording		
Track Density	48 tracks/in	48 tracks/in
Tracks per Disk	35	35
Recording Method	FM	MFM
Positioning Method	Band stepper	Band stepper
Media	Hard- or soft-sector	Hard- or soft-sector

Reliability

MTBF	8,000 POH
MTTR	30 min
Service Life	5 years
Preventive Maintenance	None
Adjustments	None

Data Reliability

Soft (recoverable errors)	Not more than 1 bit per 10^9 bits read
Hard (unrecoverable errors)	Not more than 1 bit per 10^{12} bits read
Seek Errors	1 per 10^6 seeks

Environmental

Operating Temperature	4° C to 46° C (40° F to 115° F)
Non-Operating Temperature	-40° C to 62° C (-40° F to 144° F)
Relative Humidity (Operating)	20% to 80%

Power Requirements (per drive)

Alternating Current	None
Direct Current	+ 12 V ($\pm 5\%$), 0.9 A, typical + 5 V ($\pm 5\%$), 0.5 A, typical

Physical Characteristics

Height	85.8 mm (3.38 in)
Width	149.4 mm (5.88 in)
Depth	203.2 mm (8 in) excluding front panel
Weight	1.45 kg (3.2 lb)

Specifications subject to change without notice.

Control Data sales offices are located in principal cities throughout the world.

CONTROL DATA CORPORATION
OEM Product Sales
Box 0
Minneapolis, Minnesota 55440