

Control Data® 9455 and 9457 Lark™ 8-Inch Disk Drives

Designed for Original Equipment Manufacturers (OEM).

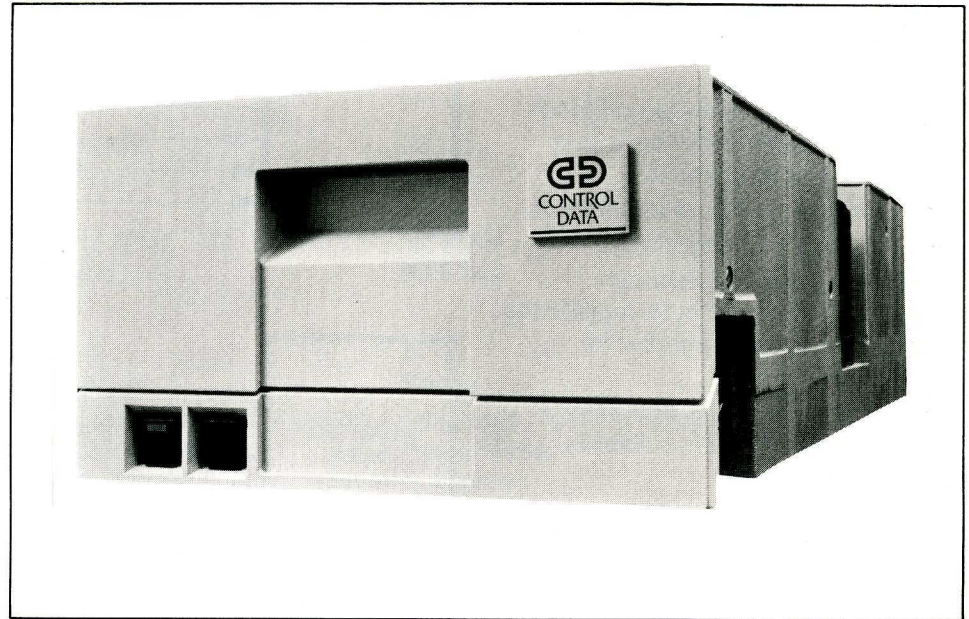


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The Control Data 9455 and 9457 Lark Disk Drives are low cost, compact, high performance 8-inch disk drives featuring Lark technology, which combines Winchester technologies with removability. The 9455 provides 8.35 megabytes on a removable cartridge and 8.35 megabytes on fixed disk. The 9457 provides 25 megabytes on a removable cartridge and 25 megabytes on fixed disk.

The removable Lark cartridge is sealed and self-contained. For ease of use and operator convenience, the cartridge is inserted from the front of the drive, and is automatically top-loaded into the spindle for superior media-to-drive registration.



Features

- Bit transfer rate of 9.67 megahertz.
- Low power requirements.
- Quiet operation.
- Removability provides backup and high performance.
- Self-contained, self-purging sealed cartridge.
- Closed loop, recirculating air system.
- Linear voice-coil actuator.
- Write-protect feature for cartridge.
- Write-protect switch for fixed media.
- Low mass, lightly loaded flying heads.
- Embedded servo information.

- 32-sector (512 byte) or 64-sector (256-byte) format based on drive configuration.
- Mount two drives horizontally or three drives vertically in a standard 482-millimeter (19-inch) RETMA rack.
- No head alignment.
- No preventive maintenance or electrical adjustments.
- Shock mounted.

Description

The 9455 and 9457 Lark Disk Drives consist of a disk assembly, spindle motor, linear voice-coil actuator, operator control panel and electronics. The 9455 uses a 91208 cartridge; and 9457 uses a 91210 cartridge. The 9457 also reads a 91208 (8.35-megabyte) cartridge.

Both drives use the latest Lark technology, including low-mass, lightly loaded, flying read/write heads attached to a linear voice-coil actuator. Embedded servo

information eliminates the need for a dedicated servo surface and provides position control signals, index and sector pulses, and a phase-locked oscillator reference clock. Servo information is written 32 times per revolution for each data track, and servo circuits use this information to function in a fixed sector format. The recommended format for 32-sector operation provides 512 bytes per sector. The drives can also be configured to function as 64-sector units, with a recommended format that yields 256 bytes per sector. Media can be formatted either way, depending on how the drive is configured.

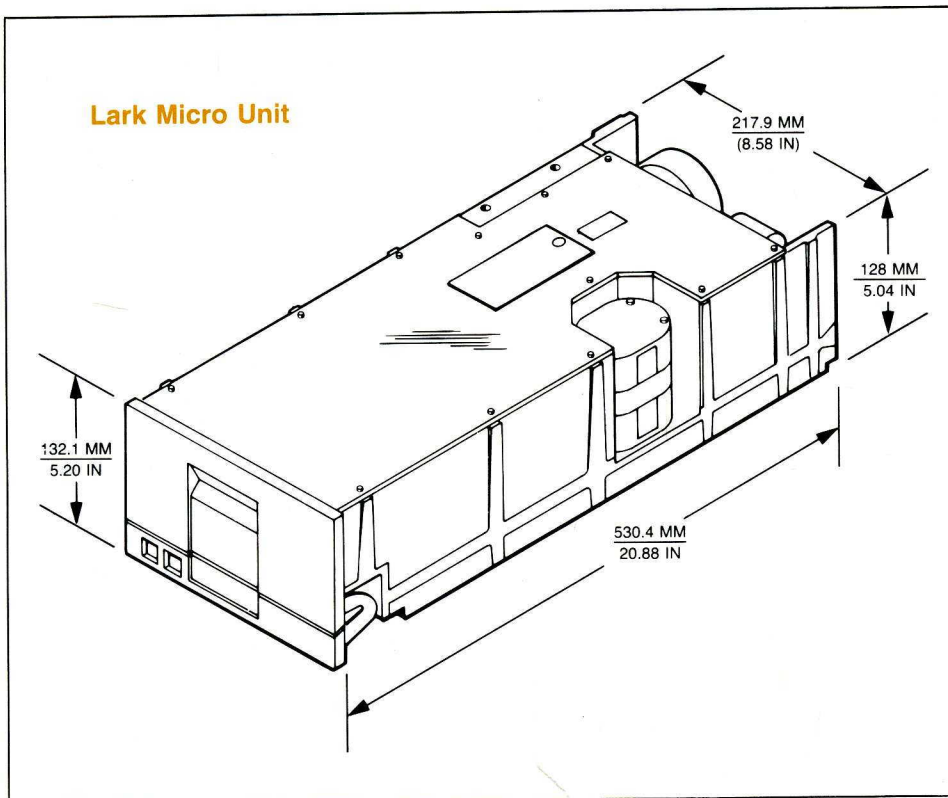
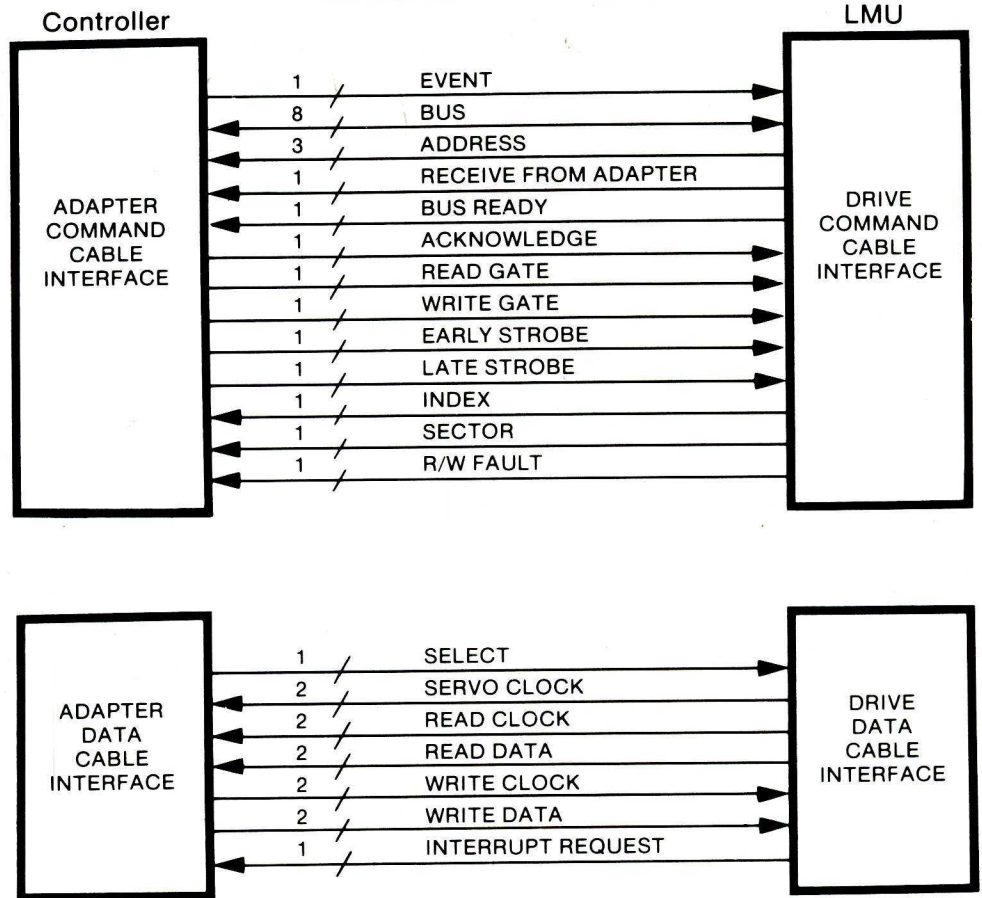
Embedded positioning control also eliminates the need for head alignment. These servo fields are automatically protected from controller overwrite by the drive electronics.

Interface

The Lark Device Interface (LDI) is standard on both drives and provides easy integration into an OEM system. An asynchronous bus permits LDI use in high performance applications as well as less demanding roles. LDI offers the following features:

- Asynchronous bus eliminates critical timing during command transfers.
- Microcomputer-oriented protocol allows multiple commands in a single command transfer.
- Allows star configuration or up to four units in a daisy-chain.
- Extensive drive status/fault visibility, including a 16-register log available to the controller for diagnostics.
- Separate command and data cables for maximum reliability.

Lark Device Interface (LDI)



Specifications

General

	9455	9457
Total Unformatted Capacity	16.7 Mb	51.5 Mb
Bytes Per Track (8-bit bytes)	20,672	20,672
Tracks Per Surface	206*	624
Data Surfaces Per Disk	2	2
Total Disks Per Drive	2	2
CDC® Disk Cartridges	91208	91210

Performance

Data Transfer	1.2 Mb/s	1.2 Mb/s
Spindle Speed	3,510 r/min	3,510 r/min

*Includes four spare tracks not included in total capacity.

Access Time

Average	50 ms	35 ms
Maximum, One Track	10 ms	10 ms

Latency

Maximum	17.8 ms	17.8 ms
Average	8.55 ms	8.55 ms

Recording

Read/Write Heads	4	4
Head Composition	Ferrite	Ferrite
Head Type	Low mass, lightly loaded flying heads.	Low mass, lightly loaded flying heads.
Mode	2, 9 code	2, 9 code
Bit Rate, Nominal	9.67 Mhz	9.67 Mhz
Disk Coating	Mag. oxide	Mag. oxide
Track Density	237 tracks/in	715 tracks/in
Flux Density (inner track)	6,774 FRPI	6,774 FRPI
Bit Density	10,161 bits/in	10,161 bits/in

Specifications (apply to both 9455 and 9457 drives)

Reliability and Service

MTBF	7,500 hours
MTTR	0.5 hour
Service Life	5 years
Preventive Maintenance	None

Power

AC Input	Single phase, 120 V, 60 Hz or 220/240 V, 50 Hz
DC Input	+ 16.5 V, 10%; - 16.5 V, 10%, + 5 V, 2% - 5.2 V, 2%
Power Dissipation	100 W (341 Btu)

Physical Characteristics

Height	
Drive	132.1 mm (5.20 in)
Drive and Shock Mounts (horizontal mount)	139.2 mm (5.48 in)
Width	
Drive	217.9 mm (8.58 in)
Drive and Shock Mounts (vertical mount)	248.4 mm (9.78 in)
Depth	530.4 mm (20.88 in)
Weight	18.1 kg (40 lb)

Environmental

Operating Temperature	10° C to 40° C (50° F to 104° F)
Non-Operating Temperature	- 40° C to 70° C (- 40° F to 104° F)
Operating Humidity	20% to 80% RH (non-condensing)
Non-Operating Humidity	5% to 95% RH (non-condensing)
Altitude, Operating	- 299 to 1983 m (- 980 to 6500 ft)

Optional Accessories

Control Data offers several optional accessories that simplify integration of the Lark 9455 and 9457 Disk Drives.

Power Supply

- Provides AC and DC power for one Lark drive.
- Input voltage of 120 volts, 60 hertz or 220/240 volts, 50 hertz (specify, must match drive).
- Output voltages:
AC Same as input.
DC +16.5, -16.5, +5 and -5.2 volts
- Includes 2.5 meter (7.5 foot) AC input cable and 1.22 meter (4 foot) AC and DC cables to drive.
- Mounting provisions and DC power for the optional Lark Device Interface (LDI) to Storage Module Drive (SMD) interface adaptor.

LDI-to-SMD Interface Adaptor

- Translates communications between a compatible SMD controller and the Lark Device Interface of a 9455 or 9457 drive.
- One adaptor per disk drive.
- Can be mounted in and powered by the optional power supply.
- Includes SMD terminator.

9050 LDI-ISI Control Module

- Manages up to two LDI devices. This includes formatting, error mapping, buffering, error correction and serial/parallel data conversion.
- Can be mounted on a Lark disk drive.
- Plugs into the Intelligent Standard Interface (ISI).
- Dimensions: 208 millimeters (8.2 inches) by 351 millimeters (13.8 inches)

LDI Cables

- Forty conductor command cable (daisy-chain).
- Twenty-six conductor data cable (star).
- Two cables for use with 9050 LDI-ISI control module when module is mounted on the Lark disk drive.
- Two cables for use with LDI-SMD adaptor when mounted in optional power supply or in customer cabinet.

LDI Tester, LDI I/O (9954)

- Provides extensive test and exercise capability for incoming inspection and field service.

Module Family Tester, SMD I/O (9967)

- Provides extensive test and exercise capability for incoming inspection and field service.
- Includes head alignment capability for module family products.

Specifications (for accessories)

Power Supply

Input (select)	120 V, 60 Hz or 220/240 V, 50 Hz
Output to Drive	
AC	Same as input.
DC	+16.5, -16.5, +5 and -5.2 V
Output to LDI-SMD Adaptor	+5 and -5.2 V
Dimensions	
Height	117.6 mm (4.63 in)
Width	217.9 mm (8.58 in)
Depth	254 mm (10 in)
Weight	6.8 kg (15 lb)

LDI-SMD Adaptor

Power Requirement	+5 V, 2% -5.2 V, 2%
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9050 LDI-ISI Control Module

Power Requirement	+5 V, 2%* -5.2 V, 2%
Dimensions	
Width	208 mm (8.2 in)
Depth	350 mm (13.8 in)

*Cannot be supplied by the optional power supply.

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

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Specifications subject to change without notice.