

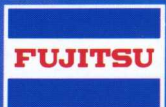
3/89
MAR 10 1989

FUJITSU

Quality OEM Products

3.5-inch magnetic disk drives

M2611S/T
M2612S/T
M2613S/T
M2614S/T



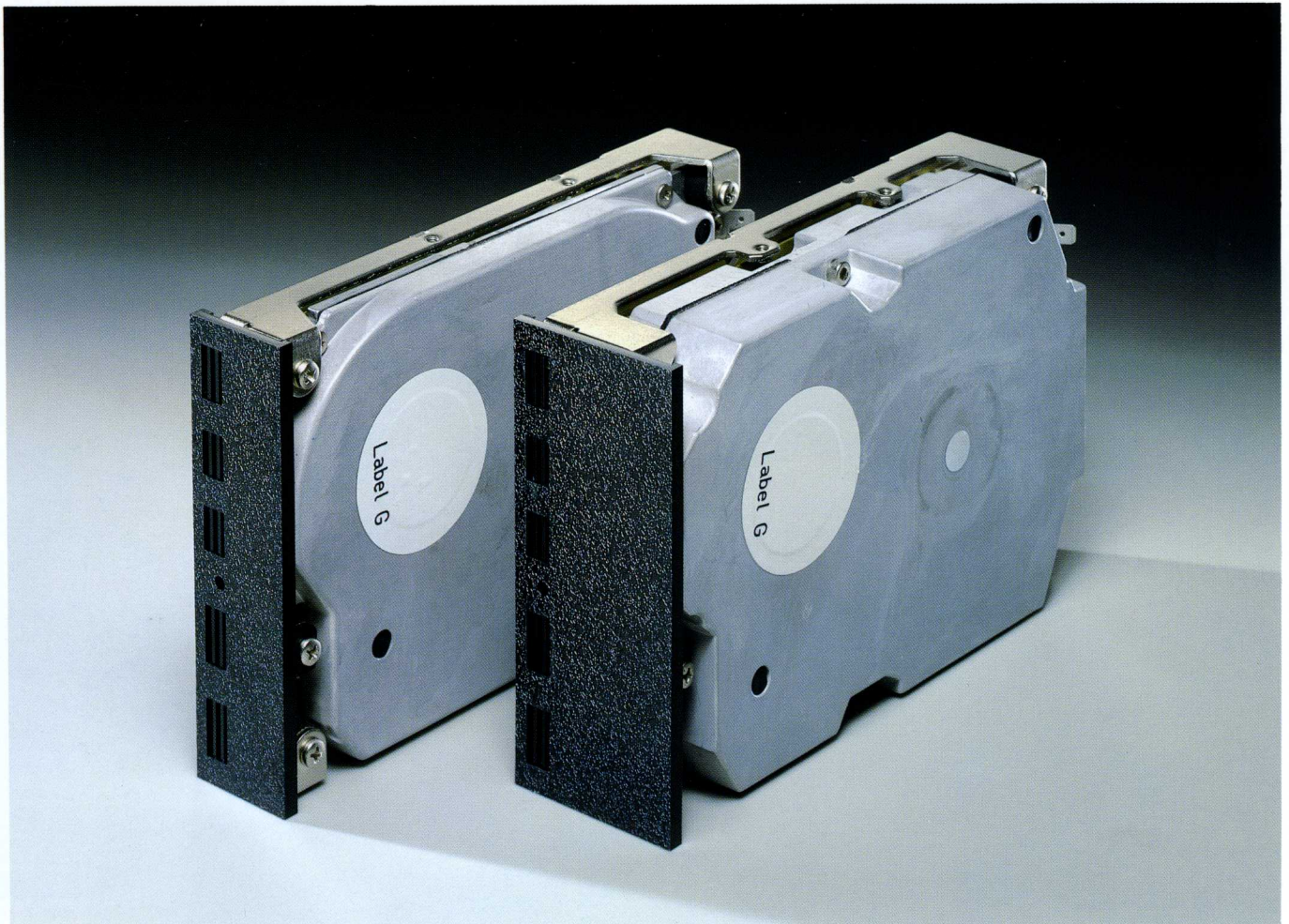
Fujitsu M2611S/T, M2612S/T, M2613S/T, and M2614S/T are high-performance 3.5-inch magnetic disk drives, having an embedded SCSI controller for S type, or an embedded controller with PC-AT interface for T type. These disk drives provide storage capacities from 45.07 to 182.36 MB (S type), 45.07 to 180.31 MB (T type). Each model's disk enclosure is completely sealed, and includes one to four disks, two to eight Whitney heads, a rotary voice coil motor (VCM), and a DC spindle motor. The capacities of these drives make them ideal for intelligent office systems requiring the storage of image, voice, and video data.

45.07 to 182.36/180.31 megabytes of storage

The one-inch high M2611S/T and the M2612S/T, M2613S/T, and M2614S/T standard-height, 3.5-inch disk drives have large capacities which were previously achievable only with 5¼-inch disk drives. The M2611S/T provides 45.07 megabytes storage capacity, the M2612S/T 90.84/90.15 megabytes, the M2613S/T 136.60/135.23 megabytes, and M2614S/T 182.36/180.31 megabytes – all formatted.

High performance

The M2611S/T, M2612S/T, M2613S/T, and M2614S/T have achieved fast positioning time – 10 milliseconds track-to-track, 25 milliseconds average, and 42 milliseconds maximum, including settling time. Each S type model has a large, 24-kilobyte data buffer which further improves the total transfer rate: 2.5 megabytes per second (synchronous



mode) and 1.5 megabytes per second (asynchronous mode). Each T type model has a 64-kilobyte data buffer and a high transfer rate: 3.7 megawords per second (7.4 megabytes per second).

Embedded SCSI controller (S type)

The M2611S, M2612S, M2613S, and M2614S each have an embedded SCSI controller for quick and easy installation. The controller's commands meet the SCSI CCS (Common Command Set for Direct Access Device).

Embedded controller with PC-AT interface (T type)

The M2611T, M2612T, M2613T, and M2614T each have an embedded controller with PC-AT interface. The controller supports PC-AT basic commands and additional commands.

Microprocessor controlled

The voice coil motor of these drives is controlled by a microprocessor. This simplifies the seek control circuit and further increases reliability.

Reliable, maintenance free

The completely sealed disk enclosure contains a breathing filter and a recirculation filter to provide a contamination-free environment. Whitney heads eliminate moving parts for head loading and unloading. All models use LSI drive logic, and the Head IC prevents read errors caused by external electrical noise. With these features, the drives' mean time between failures (MTBF) is more than 30,000 power-on hours, and their mean time to repair (MTTR) is less than 30 minutes.

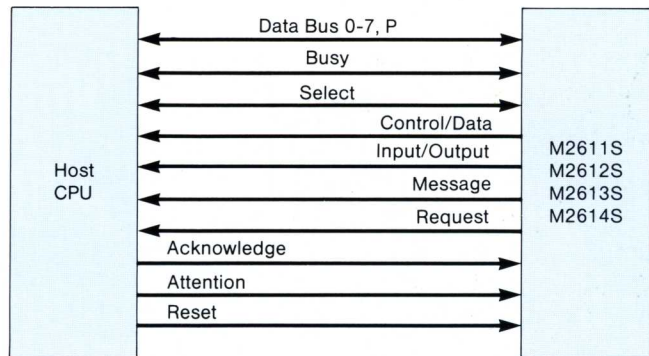
Compact, economical

The new drives' large capacities and high performance have not been achieved at the expense of compactness. Their physical size is the same as that of a 3.5-inch flexible disk drive, and they can be installed in 3.5-inch flexible disk drive cabinets to increase storage capacity. They can be mounted horizontally or vertically. Each disk drive consumes only 10.4 watts. Noise and vibration have been also minimized. These features make the drives ideal choice for office applications.

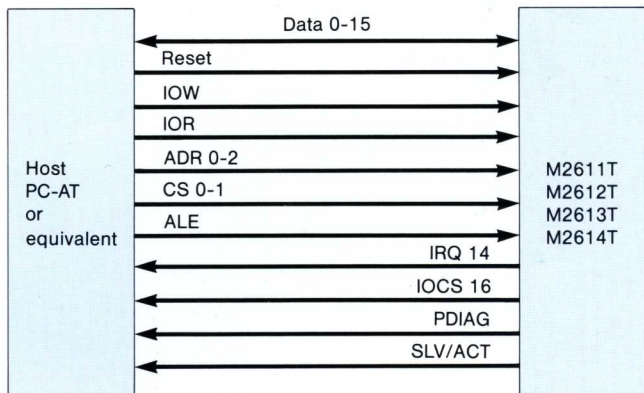
Internationally compatible

The M2611S/T, M2612S/T, M2613S/T, and M2614S/T disk drives use low-voltage DC power of +12V and +5V, permitting international applications and freedom from the effects of power line fluctuations.

SCSI interface



PC-AT interface



FUNCTIONAL SPECIFICATIONS

	M2611S	M2612S	M2613S	M2614S	M2611T	M2612T	M2613T	M2614T
Storage capacity (Formatted*1)	45.07 MB	90.84 MB	136.60 MB	182.36 MB	45.07 MB	90.15 MB	135.23 MB	180.31 MB
Disks (3.5-inch)	1	2	3	4	1	2	3	4
Heads (Read/write)*2	2	4	6	8	2	4	6	8
Track capacity (Formatted*3)	17,408 bytes				16,896 bytes			
Tracks per cylinder*2	2	4	6	8	2	4	6	8
Cylinders*2	1,334							
Sectors	34				33			
Positioning time (including settling time)	Track-to-track		10 ms					
	Average		25 ms					
	Maximum		42 ms					
Average latency time	8.6 ms							
Rotational speed	3,490 rpm							
Data transfer rate	1.5 MB/s (asynchronous mode) 2.5 MB/s (synchronous mode)				3.7 MW/s (7.4 MB/s)			
Recording code	RLL (1/7)							
Interface	SCSI				PC-AT			
Start time	Less than 15 seconds							
Stop time	Less than 25 seconds							

*1) Typical sparing: for S type

*2) Physical: for T type, a host computer must use cylinders, heads, and sectors corresponding to the BIOS (logical) specifications.

*3) 512B/block

PHYSICAL SPECIFICATIONS

		M2611S/T	M2612S/T, M2613S/T, M2614S/T
Power requirements		12VDC±5%, 0.35A (max. 1.5A)	12VDC±5%, 0.45A (max. 2.0A)
		5VDC±5%, 1.0A	
Dimensions	Height	25.4 mm (1.0 in.)	41.3 mm (1.6 in.)
	Width	101.6 mm (4.0 in.)	
	Depth	146 mm (5.7 in.)	
Weight		0.5 kg (1.1 lbs)	1.0 kg (2.2 lbs)
Ambient temperature	Operating	5°C to 45°C (41°F to 113°F)	
	Not operating	-40°C to 60°C (-40°F to 140°F)	
	Gradient	Less than 15°C (27°F)/hour	
Relative humidity	Operating	20% to 80%, non condensing	
	Not operating	5% to 95%, non condensing	
Vibration	Operating	0.3G (5Hz to 150Hz), 0.5G (150Hz to 250Hz)	
	Not operating	0.5G (5Hz to 150Hz), 1G (150Hz to 250Hz)	
Shock resistance	Operating	5 G (max. 10 ms)	
	Not operating	50 G (max. 10 ms)	
Altitude	Operating	3,000 m (10,000 ft)	
	Not operating	12,000 m (40,000 ft)	

RELIABILITY SPECIFICATIONS

		M2611S/T, M2612S/T, M2613S/T, M2614S/T
Mean time between failure (MTBF)		More than 30,000 power-on hours
Mean time to repair (MTTR)		Less than 30 minutes
Component life		5 years
Error rates	Unrecoverable errors	10 per 10 ¹⁵ bits read
	Seek errors	10 per 10 ⁷ seeks

PC-AT is a trademark of International Business Machines Corporation.

Specifications are subject to change without notice. For the latest information, contact your local Fujitsu representative.

Second edition, March 1989

North American contact:
FUJITSU AMERICA INC.
3055 Orchard Drive, San Jose,
CA 95134-2017, USA
Phone: (1-408)432-1300
Telex: 176207 TWX: (910)338-2193

FUJITSU CANADA INC.
6280 Northwest Drive, Mississauga,
Ontario L4V 1J7, Canada
Phone: (1-416)673-8666
Telex: 968132

European contact:
FUJITSU EUROPE LTD.
2 Longwalk Road, Stockley Park,
Uxbridge, Middlesex UB11 1AB,
England Phone: (44-1)573-4444
Telex: 263871

FUJITSU DEUTSCHLAND GMBH
Rosenheimer Straße 145, D-8000,
München 80, F.R. Germany
Phone: (49-89)413010
Telex: 897106

FUJITSU ITALIA S.p.A.
Via Melchiorre, Gioia 8, 20124
Milano, Italy
Phone: (39-2)657-2741
Telex: 350142

FUJITSU NORDIC AB
Torggatan 8, S-171 54
Solna, Sweden
Phone: (46-8) 764-7690
Telex: 13411

Australasian contact:
FUJITSU AUSTRALIA LTD.
475 Victoria Avenue Chatswood,
N.S.W. 2067, Australia
Phone: (61-2)410-4555 Telex: 25233

Hong Kong contact:
FUJITSU HONG KONG LTD.
R.M. 2521, Sun Hung Kai Centre,
30 Harbour Road, Hong Kong
Phone: (852-5)8915780
Telex: 62667

FUJITSU LIMITED
Communications and Electronics

6-1, Marunouchi 1-chome, Chiyoda-ku, Tokyo 100, Japan
Phone: National (03) 216-3211 International (Int'l Prefix) 81-3-216-3211
Telex: J22833 Cable: "FUJITSULIMITED TOKYO"

©1989 FUJITSU LIMITED
Printed in Japan
OL1039-893S2