

# Silicon Disk Drives

## IDE Interface - PC-SDD V Series

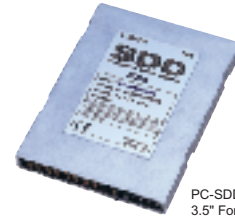


2.5" Form Factor	PC-SDD64V	64MB
	PC-SDD128V	128MB
	PC-SDD192V	192MB
	PC-SDD320V	320MB
	PC-SDD500V	512MB
	PC-SDD1000V	1GB
	PC-SDD2000V	2GB



PC-SDD V series  
2.5" Form Factor

3.5" Form Factor	PC-SDD32V3	32MB
	PC-SDD64V3	64MB
	PC-SDD320V3	320MB
	PC-SDD500V3	512MB
	PC-SDD1000V3	1GB
	PC-SDD2000V3	2GB



PC-SDD V3 series  
3.5" Form Factor

### Specifications [IDE model]

Model	2.5"	-	PC-SDD64V	PC-SDD128V	PC-SDD192V	PC-SDD320V	PC-SDD500V	PC-SDD1000V	PC-SDD2000V
Model	3.5"	PC-SDD32V3	PC-SDD64V3	-	-	PC-SDD320V3	PC-SDD500V3	PC-SDD1000V3	PC-SDD2000V3
Formatted capacity		32MB	64MB	128MB	192MB	320MB	512MB	1024MB	2048MB
Bus	2.5"	-	ATA (IDE-AT 44-pin)						
specifications	3.5"	ATA (IDE-AT 40-pin)		-	-	ATA (IDE-AT 40-pin)			
Transmission Speed									
ATA bus transfer rate	8.0Mbyte/sec (read / write)								
Memory (Read) speed	5.0Mbyte/sec								
Memory (Write) speed	0.7Mbyte/sec		1.5Mbyte/sec	2.5Mbyte/sec	3.0Mbyte/sec				
Access (Read)*1 speed	2.0Mbyte/sec								
Access (Write)*1 speed	0.6Mbyte/sec		1.1Mbyte/sec	1.4Mbyte/sec	1.6Mbyte/sec				
Data reliability	Frequency of unrecoverable errors per bit: Less than 1 / 10 <sup>14</sup> reads								
ECC	64bits/Sector								
Max. limit on number of overwrites	300,000 times per physical overwrite								
Rated voltage	DC5V±5%								
Power standby / idle	85mW (Typ.) / 175mW (Typ.)								
Consumption read / write	275mW (Max.) / 300mW (Max.)								
Temperature	Operating: 0~60°C; Storage: -20~80°C								
Humidity (Operating)	8~95% (no condensation)								
Vibration resistance / Impact resistance (Operating)	15G(Max.) / 1000G(Max.)								
Dimensions	2.5"	-	69.85(W) x 100(D) x 12.5(H)						
(mm)	3.5"	101.6(W) x 143.5(D) x 12(H)		-	-	101.6(W) x 143.5(D) x 12(H)			
Weight	2.5"	Approx. 100g		-	-	Approx. 300g			
	3.5"	Approx. 300g		-	-	Approx. 300g			

\*1: Access rate is for reference only. Actual rate may vary according to application and conditions  
 Ⓞ These specifications are the same for SCSI models

## SCSI interface - PC-SDD V3-SCH series

3.5" Form Factor	PC-SDD64V3	NEW	64MB
	PC-SDD320V3	NEW	320MB
	PC-SDD500V3	NEW	512MB
	PC-SDD1000V3	NEW	1GB
	PC-SDD2000V3	NEW	2GB



PC-SDD V3-SCH series

### Specifications [SCSI]

Model	PC-SDD64V3-SCH	PC-SDD320V3-SCH	PC-SDD500V3-SCH	PC-SDD1000V3-SCH	PC-SDD2000V3-SCH
Formatted capacity	64MB	320MB	500MB	1000MB	2000MB
Bus specification	SCSI-3				
Terminator	Controlled via switch on the substrate [Factory Default is "OFF"]				
Setting of ID Address	Controlled via switch on the substrate [Factory Setting is "ID 0"]				
Transmission Speed					
SCSI I/F speed	5.0Mbyte/sec (read / write)				
Memory (Read) speed	5.0Mbyte/sec				
Memory (Write) speed	1.5Mbyte/sec		3.0Mbyte/sec		
Access (Read)*1 speed	2.0Mbyte/sec				
Access (Write)*1 speed	1.1Mbyte/sec		1.6Mbyte/sec		
IDE specifications marked with "Ⓞ" are the same for the SCSI models					
Power Consumption	450mA (Max.)				
Dimensions (mm)	101.5(W) x 146.0(D) x 25.4(H)				
Weight	Approx. 265g				

\*1: Access rate is for reference only. Actual rate may vary according to application and conditions.

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INDUSTRIAL PCs

Box PCs

Panel PCs

Flat Panel Displays

Silicon Disk Drives

Options

Box PCs with Windows CE

Panel PCs with Windows CE

■ Features

**Fully Compatible With Standard IDE**

These silicon disk drives are interchangeable with 2.5" and 3.5" IDE hard disk drives.

**Wide Range of Capacities**

CONTEC's silicon disk drives are available in capacities from 32MB to 2GB.

**Flash Life Span**

Employing the wear leveling function (flash life span extender), the average rewrite life span is approximately 1.8 times greater than in other silicon disk drives not using this technology. (individual drive lifespan dependant upon application and environment)

**Low power consumption**

These drives have a maximum power consumption of 300mW.

**Noiseless**

Without the motor noise of a standard hard disk drive, these disks are exceptionally quiet.

**Extremely Rugged and Reliable**

CONTEC's silicon disk drives provide exceptional robustness against environmental factors such as vibration, shock or signal interference. They are suitable for any application where high reliability is required.

■ Write Access Mean Time before Failure

CONTEC's PC-SDD V Series incorporates "wear leveling" a feature that extends the lifetime of its drive by averaging the number of write accesses to individual disk sectors. If an error occurs in an attempt to write to a sector (even during wear leveling), the PC-SDD V Series uses an internally reserved spare sector as a substitute for that sector. If an error occurs during a write to a sector when all of the spare sectors are used up, the sector is marked as a bad sector. The time interval that will elapse before the bad sector appears is referred to as "write access mean time before failure." This interval is calculated differently when part of the drive is rewritten than it is when a drive's entire capacity is rewritten.

① When part of the drive is rewritten (total size of files to be updated < total SDD capacity)

■ Average number of rewritable times before failure =

$$1.37 \times 10^8 \times \left\{ -\ln \left[ 1 - \left[ \frac{\text{Total SDD capacity}}{0.576(\text{MB}) \times \text{file size being written to (MB)}} \times 0.018 \right] \right\}^{1.16}$$

Note: This is an empirical formula.

■ Mean time before failure for write access (hr.) =  $\frac{\text{Average number of rewritable times before failure}}{\text{number of rewritable times per hour}}$

Ex. 1) If a 9.6MB file is updated once every five minutes on the PC-SDD64V:  
Average number of rewrites before failure [No. of accesses] = 22,047,597  
Mean time before failure for write access [in hrs.] = 22,047,597/12 = 1,837,300 (~ 209 years)

Ex. 2) If a lifespan of 10 years (87,600 hours) is required, what swapping interval is allowable for a 3MB file?  
Number of times swapping occurs per hour [times / hour] = 60,682,175/87,600 = 692.7  
Swapping interval [Seconds / times] = 3600/692.7 = 5.19  
A measured swapping interval of 5.19 seconds or more indicates a life expectancy of 10 years or more

② When the entire drive is rewritten at once (total size of files to be updated = total SDD capacity)

■ Average number of rewritable times before failure =

$$1.37 \times 10^8 \times \left[ -\ln(0.982) \right]^{1.16} = 4,325,538 \text{ (Fixed value)}$$

Note: The above-mentioned expression is an empirical formula.

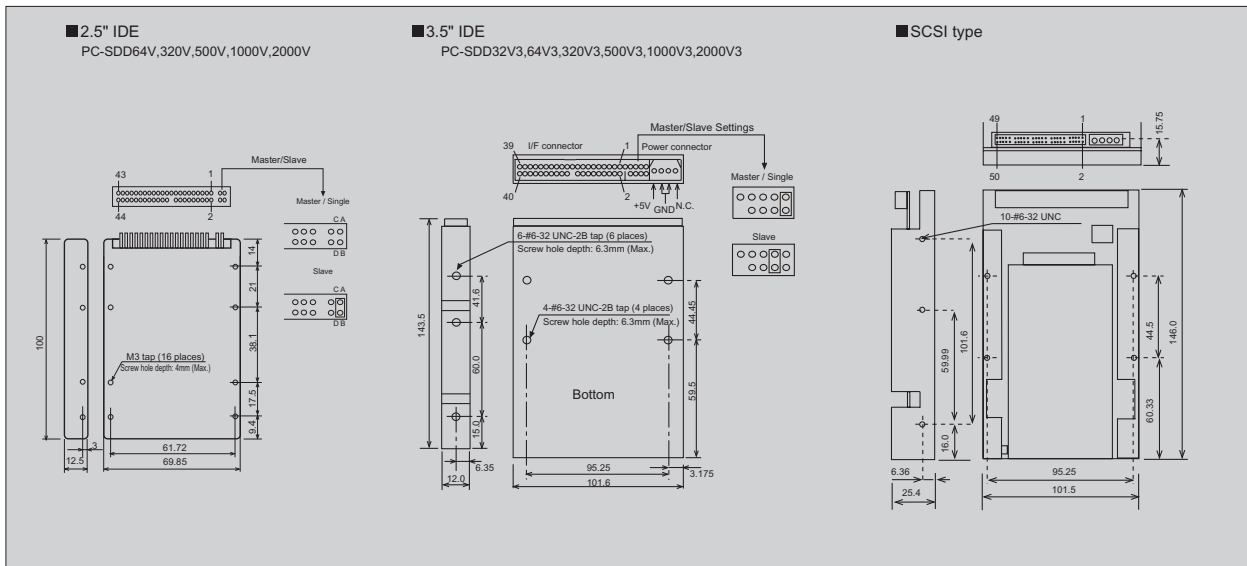
■ Mean time before failure for write access (hr.) =  $\frac{4,325,538}{\text{number of rewritable times per hour}}$

Ex.) When a 64MB file is updated once every five minutes [12 times an hour] on the PC-SDD64V  
Mean time before failure for write access [hr.] = 4,325,538 / 12 = 360,461 = 41 years (approx.)

\*About wear leveling: When the drive attempts to write to the same sectors to update a file over and over again, this feature substitutes less frequently accessed sectors for more frequently accessed ones (alternating the sectors to write to) to average the number of write accesses to individual sectors, thereby providing longer lifetime.

■ Dimensions

(Unit: mm)



Silicon Disk Drives

Options

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