

Flash Copy Tester **SD 300⁺**

Fast Copy and Problem Diagnosis !



EN User Guide

Content Index

Content Index

I. Introduction	
1. Features	3
2. Outlook Introduction	4
3. Model Information	4
4. Function table	5
II. Function Overview	
1. Copy	6
2. Compare	8
3. Copy + Compare	9
4. Capacity check	9
5. Information	10
6. Utility	10
6.1 Do Format	
6.2 Measure Speed	
6.3 Media Check	
6.4 Quick Erase	
6.5 Full Erase	
6.6 DoD Erase	
6.7 System Update	
6.8 Calc. CheckSum	
7. System Setup Function	14
7.1 Start up menu	
7.2 Copy Area	
7.3 Button Sound	
7.4 Target Tolerance	
7.5 Asynchronous	
7.6 Check Befor Copy	
7.7 Power Off Time Between Copy+Compare	
7.8 Language	
7.9 Select Speed	
7.10 Set to Default	
III. FAQ	18

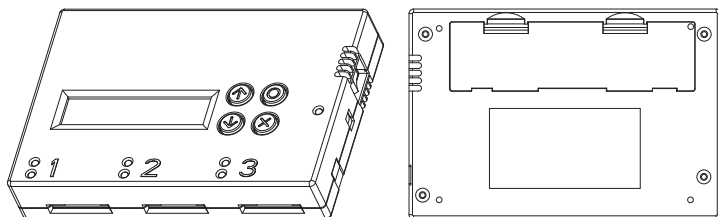
I. Introduction

1. Features

- 1.5GB per minute transmission speed. Each Flash media channel is independent from each other.
- Real multi-task processing capability, no matter copy, compare, media check and format are all independently executed. Each Flash slot has an independent control processing unit. So, during asynchronous copy , it can use ▲ ▼ button to check the status of each Flash media status and progress.
- Powerful quality check machine for copy, speed and media quality check.
- Not a PC system, no risk of virus infection. Instant power on and off.
- Simple one touch copy, real time information shown on the LCD screen.
- Support Synchronous and Asynchronous copy/ compare/ erase/ format/ media check /speed check.
- Real high speed bit by bit hardware comparison.
- What is the difference between our Flash duplicator and PC based duplicator:
 - ▶ Multi-task processing capability, it can copy Flash media independently at the same time during the copy or check process, on the other hand, even though PC has more powerful CPU, it is difficult to copy too many Flash devices simultaneously.
 - ▶ No risk of virus infection. Flash duplicator is an embedded system; it only copies whatever is on the source. When the system is turned off, nothing will be left in the system. No risk of virus infection
 - ▶ No mistake of copying wrong files. It 100% duplicates from source to target directly.
 - ▶ Instant system on and off. No need to wait for system boot up or shut down. Easy and fast.
- Different copy speed selection is available for different quality level Flash devices.

I. Introduction

2. Outlook Introduction



3. Model Information

Model		SD300
Target		1:2
Operation		Stand Alone
Support media		SD Card
Display		2 *16 Monochrome LCD display
Control Button		4 push buttons (▲, ▼, ◀, ▶, OK, ESC)
LED		LED (Green/Red) on each slot
Support Language		English, Japanese
Temperature	Working	5°C~45°C
	Storage	-20°C~85°C
Humidity	Working	20%~80%
	Storage	5%~95%
Power Supply		+5V, 2A
Copy Mode		System and Files, Whole media
Check Function		H3/H5 Media Check, Capacity Check, Measure Speed
System Dimension (mm)		137 (L) x 92 (W) x 25 (H)
Weight		157g

*The product spec will be subjected to change without further notice.

4. Function table

Function	Description	
1. Copy	Flash card copy	
2. Compare	This option makes bit-by-bit comparison between the source and all other copied flash cards.	
3. Copy+Compare	This option will make a copy first and then compare the copied Flash media with the source immediately after the copy has finished.	
4. Capacity check	Checks the Flash real capacity	
5. Information	5.1 SD Card Info. This feature will show flash card's information; file format, content size, and capacity.	
	5.2 System Info This feature will show information of the duplicator system, including controller model number and software version.	
6. Utility	6.1 Do Format To Execute flash FAT 16/32 format	6.1.1 Auto Format
		6.1.2 FAT16 Format Format media to be FAT16.
		6.1.3 FAT32 Format Format media to be FAT32.
		6.1.4 Set FAT 16 Cluster Set the size of FAT16 Cluster
		6.1.5 Set FAT 32 Cluster Set the size of FAT32 Cluster
	6.2 Measure Speed This function can measure the flash reading and writing speed. This function will damage the format and content.	
	6.3 Media check	6.3.1 H3 Safe 100% To check the quality of flash by reading it. This safe check will not delete flash content and format.
		6.3.2 H5 R/W 100% To check flash's quality by reading and writing the flash. This function will delete content and format.
		6.3.3 H6 Safe RW 100% To check flash's quality by writing and reading its empty space. This function will not change flash's content and format.
		6.3.4 Setup Range % To set the % of tolerance range of error when checking the flash.
		6.3.5 Setup Range MB To set the checking range of flash from 1MB~9000MB.
		6.3.6 Setup Error Limit To set the % of tolerance range of error when checking the flash.
	6.4 Quick Erase To erase flash media flash content. It will keep the FAT format.	
	6.5 Full Erase To completely erase data of flash including format and content, but it needs more time.	
	6.6 DoD Erase Erase Flash three times complying with USA Department of Defense (DoD) standard.	
	6.7 System Update System firmware update via the Flash media. i.e. USB/SD/CF/MSD.	
	6.8 Calc. CheckSum Calculate the CheckSum number of the Flash media in source port.	

II. Function Overview

7. Setup	7.1 Start-up Menu To select which function is shown first when the system is turned on.	
	7.2 Copy Area	7.2.1 System and Files The system can automatically analyze the format of source and only copy the data area. (Available for FAT16/32/NTFS/Linux (Ext2, Ext3, Ext4)
		7.2.2 Whole Media The system will copy the whole content of flash including the empty space.
	7.3 Button Sound Choose whether to hear a beep or not when a button is pressed.	
	7.4 Set Target Tolerance To set the tolerance % of the source and target capacity. The default setting is "No limit".	
	7.5 Asynchronous "Enable " to open Asynchronous function, "Disable" to close the function.	
	7.6 Check Before Copy Set if you would like to cckek the Flash media befor copy.	
	7.7 Power Off Time Between Copy+Compare To set the power-off time between Copy and Compare when executing "Copy+Compare" function.	
	7.8 Language To set system language interface i.e. English, Japanese.	
	7.9 Select Speed To select the speed of data transmission. ("Fastest", "Faster", "Normal", "Slower", and "Slowest")	
7.10 Set to Default Back to original manufacturer setting.		

II. Function Overview


1. COPY

There are two kinds of copy mode for Asynchronous and Synchronous Copy. The system will check the content size of the source. If the source content size is less than system's buffer memory, it will automatically start asynchronous copying. If the source content size is larger than the system's buffer memory, it will copy by synchronous mode.

Note: Data in the target SD card will be damaged after the copy process have completed. User needs to backup their own data before duplicator process.

1.1 Synchronous Copy

- 1

Plug in the source Flash media. Select either copy / compare / copy+compare function and then press .

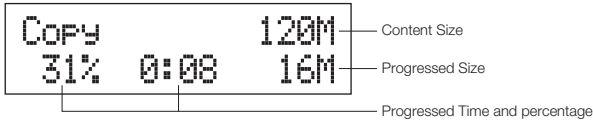


II. Function Overview

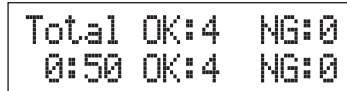
- 2 Plug in the target flash cards. The LCD will show the number of target flash plugged in and ready to copy.



- 3 When all flash cards are plugged in, press the **OK** key to start copy. Or when all slots are plugged, the system will automatically start copy.



- 4 When copy finished, the LCD shows the total time of copy, quantity of pass and quantity of copy fail.



Note:

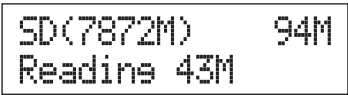
- 1 When copy is processing, the green LED will flash. When the copy has finished the green LED will stop flashing but will remain illuminated. If an error occurs, the red LED will illuminate.
- 2 During copying each card slot's green LED will flash, DON'T take out the card while copying.
- 3 'It is strongly recommended that the target and source have to be in close range of capacity. When target and source's capacity has big difference, such as copy 1GB source to a 4GB or 1GB source to a 2GB, it may cause error to the target's capacity, compatibility and format.
- 4 If copy NTFS or Linux format, targets' capacity must be bigger than the source capacity.
- 5 Some users may like to use a USB converter to copy other different types of flash cards, such as CF, SD, or Memory stick etc. Since the quality and stability of each USB converter in the market is very different, a poor quality USB converter may cause the damage to the machine and also the copy quality from the Flash card.

II. Function Overview

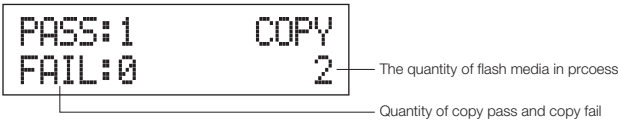
1.2 Asynchronous Copy

It only can work when the source content size is under controller buffer memory size.

- 1 Plug in the source flash and press **OK**. The system will start to read the source content into system's buffer. It will then immediately start to copy once a target flash card has been plugged in.



- 2 During copy, each card slots green LED will flash, DON'T take out the card while copying. When copy has finished, the green LED will stop flashing and remain illuminated, then you can take out the card and plug in another new flash card. The quantity of copy Pass/Fail and in "working" process will be displayed on the LCD. The Red LED will only illuminate when there is a copy error.
- 3 You can repeatedly take out cards which have finished copy and plug in new flash media. The LCD will show accumulated quantity of copied pass/fail media and the media still in process.

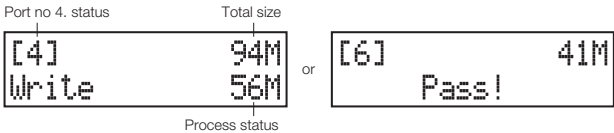


Note :

- 1 During asynchronous copy, you can press **▲ ▼** key to check each Flash media's copy status and progress.

- 2 When there is an error (Red LED on), you can also press key to check each Flash media's status.

For example :



- 3 The default setting is "Enable".

2. Compare

Compare function is to double check data correctness of target data. The operation is the same as copy.

3. Copy + Compare

This function will make sure if the data is correctly copied, and it will automatically run the compare function after the copy.

4 Capacity check

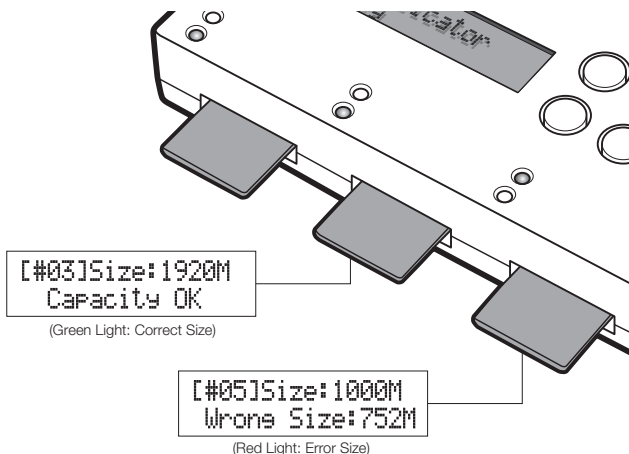
This function can check the real capacity of Flash media.

- 1 Plug the Flash media into slot and select function 4 “Capacity Check” then press **OK**.
About 2~3 seconds, the system will find out its exact capacity and if it can work.



SD Duplicator
4.Capacity Check

- 2 System will use Green/Red LED to show the check result.
- 3 You can use **▲▼** button to check the status of each slot.
- 4 This function can support asynchronous operation, it can continuously plug in and pull out, don't need to press any buttons.



Note :

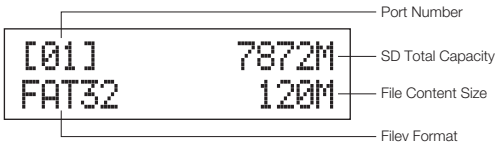
When the Red light illuminates (Error) you can use **▲▼** to check the error information.

II. Function Overview

5. Information

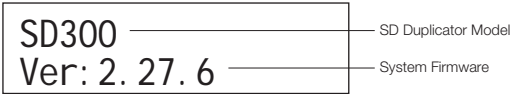
5.1 SD Card Information

This feature will show Flash media's basic information such as media type, content size, and total capacity.



5.2 System Information

This feature will show information of the duplicator system, including model number and software version.



6. Utility

6.1 Do Format

6.1.1 Auto Format

This function is to do flash FAT formatting. Plug the Flash media in the slot and press **OK**, the system will automatically detect its capacity and formate the media according to it.

- If Flash media format is already FAT16 or FAT32, the format function won't change it is original format.
- If Flash media format is not FAT format, i.e. NTFS, Linux or FAT multi-partition. The system will execute format according to flash's capacity. When it is capacity is above 2GB, the system will format the Flash to FAT32, if its capacity is below 2GB, the system will format the media to be FAT16.

During format process, you can use **▲▼** to check each Flash Card's formatting status, progress and information.



Note :
The source port (port#1) will not execute any formatting.

6.1.2 FAT16 Format

Format any flash media to be FAT16.

6.1.3 FAT32 Format

Format any flash media to be FAT32.

6.1.4 Set FAT16 Cluster Size


Set the size of FAT16 cluster.

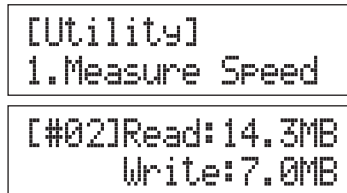
6.1.5 Set FAT32 Cluster Size



Set the size of FAT32 cluster.

6.2 Measure Speed

This function can measure the “reading” and “writing” speed of Flash media. The speed check will damage the format or content.

- 1 Plug the Flash media into slot and select function 6.1 “Measure Speed”, then press  to start.



- 2 Use   buttons to see Flash media exact “Read” and “Write” speed from each port.

6.3 Media Check

The function is to analyze flash quality. There are two kinds of ways to execute media check here, H3 Safe Test and H5 R/W Test. Users can also set the range that you would like to check and error tolerance according to your needs.

II. Function Overview

6.3.1 "H3 Safe 100%".

This function will show the reading speed and volume of bad sectors by reading the flash. H3 Test will NOT damage flash cards' format and content.

Pass:1	H3 Safe
Fail:0	1

** You can set the check range % by "6.3.3 Setup Range".

6.3.2 "H5 R/W 100% "

This function is to check flash cards' quality by writing and reading the flash.



Note :

This function will damage flash cards' format and content.

6.3.3 H6 Safe RW 100%

This function is used to check the flash's quality by writing and reading data on the empty space of flash media.



Note :

This function will NOT change the content of flash media.

6.3.4 "Setup Range %"

This is to set the % of the flash which you would like to check its quality. Using ▲ ▼ button to setup the flash examining area from 1% to 100%. 100% means to check the whole Flash, it will take more time.

[Setup Range]
100%

6.3.5 Setup Range MB

This function is to set the flash's range(MB) that you would like to check for its quality. Using ▲ ▼ button to set the examined range from 1MB to 9000MB.



```
[Setup Range MB]
      200MB
```

6.3.6 "Set ErrorLimit"

Set the % of error tolerance when checking the Flash. Using ▲ ▼ button to setup the range of tolerance.



```
[Media Check]
4.Set ErrorLimit
```

6.4 Quick Erase

This function will erase flash's data content, it will not erase flash FAT16/32 format.




Note :

Quick erase function can only erase the flash which is FAT 16/32 format.

Users can use ▲ ▼ button to check each Flash Card's erasing status, progress and information.

6.5 Full Erase

It will completely erase the whole flash card, including format and content. Therefore full erase will take more time. During the process, you can use  to escape the erase process, but the original format and content can't be read any more.

6.6 DoD Erase

This is to comply with the U.S.A. Department of Defense (DoD 5220) standard to fully erase the Flash three times bit by bit to guarantee the data was deleted. It will damage the data in Flash, please make sure you have backup all important data before using this function.

II. Function Overview

6.7 System Update

This is to update the system's firmware version. Please save an un-zipped update file to your Flash media (please don't put it in a folder). Select function 6.5 system update, and press **OK**, it will automatically start system updating. When finished, please turn off the system for 5 seconds and then turn on again. The new version of firmware will have been uploaded.

6.8 Calc. CheckSum

This function will calculate the CheckSum number of the Flash device plugged in the source port. The CheckSum calculate area will based on the "copy area" you set. If you set "Data only ", CheckSum will calculate data area only; if you set "Whole media", the CheckSum number will be calculated based on the whole flash devise size. Be aware that even two flash devices have the same data, if the capacity has any difference, their CheckSum value will be different.



Note :

the function is not for compare purpose. If you want to double check data correctness, please use the Compare function which can provide you the safest and fastest by hardware bit by bit comparison.

7 System Setup Function

7.1 Start up Menu

You can select which function is shown first when the duplicator is turned on.

7.2 Copy Area

7.2.1. System and Files

This is also called "quick copy" mode. The system will automatically analyze the source flash card's file format. If the data's file format is FAT16/32, NTFS, Linux (Ext2/Ext3/Ext4) which is recognizable by the system, it will be able to copy data only instead of the whole flash. Otherwise, if the file format is non-recognizable, the system will copy the whole flash card including the empty space. For example, a 2GB flash card which is FAT32 file format and has only 50 MB data inside, the system will only copy that specific 50MB of data, it takes only a few seconds to copy the source.

7.2.2. Whole Media

When choosing "Whole Media" copy mode, the system will copy the whole flash card, including the empty space and format. This function is used when you have a flash source which has an unknown file format. For example a 2GB flash card which is FAT32 file format and has only 50 MB of data inside, if you setup "Whole Media", the system will copy whole 2GB of Flash. It will take longer time to copy the source.

7.3 Button Sound

Choose whether to hear a beep or not when a button is pressed.

7.4 Target Tolerance

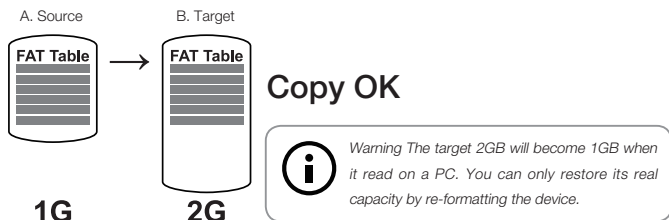
The purpose of this function is to set the flash card capacity tolerance between the source and target. The default setting is "No Limit" that means there is no limit of tolerance between the source and target. If you require the source and target flash cards to be limited to a certain capacity tolerance then you can set the % of the it. For example if your source device has a capacity of 1919MB and you set Ignore size is 3%, that means the acceptable target devices' capacity will be limited between 1976MB to 1861MB.

** If the capacity difference between the source and target is larger than the tolerance setting, when you start to copy the error (Red) LED will illuminate. You will then see a message "Fail".

A. When Source and Target capacity has big difference

- i** If Source capacity is SMALLER than the target, for example 1GB to 2GB:

Example:



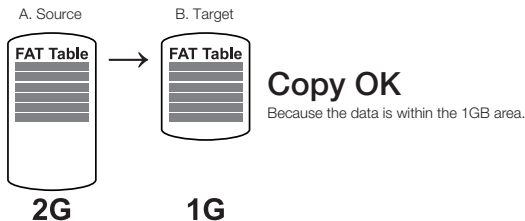
Note :

When target and source's capacity has big difference, such as 1GB to 4GB or 1GB to 2GB, there is a possibility to cause error to the target's capacity, compatibility and format.

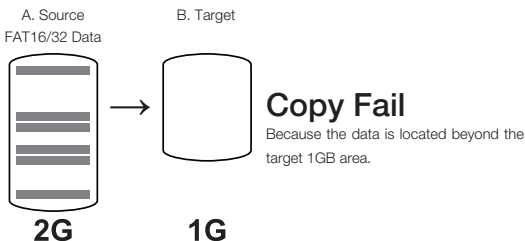
It is strongly recommended that target and source have to be in close range of capacity.

II. Function Overview

- 2 If source capacity is LARGER than the target, for example 2GB copy to 1GB:
- ▶ there are two results as shown in illustrations 1 and 2
1. When a content is within the target flash card's capacity.



2. When the content is located beyond the target flash card's capacity.



**** The copy will fail because the data was stored beyond the 1GB area. The duplicator will copy whatever the data is, it won't change the data's location**

7.5 Asynchronous

You can select "Disable" to close Asynchronous copy or "Enable" to open the function. If the setup is "Enable", and the data in source is smaller than system buffer memory, it will automatically use asynchronous mode to do copy. If the setting is "Disable", no matter what the content size is or copy method, the system will keep synchronous copy.

7.6 Check before Copy

You can select if you would like to check the media before copy.

[Setup]
7.Check Before C

7.7 Power Off Time Between Copy+Compare

To prevent from any data loss problem of unstable flash, we strongly recommend you to follow function 7.7 to set the time gap of power supply between copy and compare.

The default setting is 3 seconds and the selecting range is from 0~15 seconds.

7.8 Language

Set system language interface i.e. English, Japanese.

7.9 Select Speed

The working mode has 5 copy speed for your selection:

- Slowest Mode
- Slower Mode
- Normal Mode
- Faster Mode
- Fastest Mode

Please make sure your Flash media has good quality and support faster mode. If you are not confident on the flash quality or you find a high failure rate on copy or compare. It is recommended to slow down the working mode. The factory default setting is "Normal Mode"

7.10 Set to Default

Back to original manufacturer setting.

III. FAQ

III. FAQ

Q1: Can the Flash duplicator copy any kind of file format, i.e. NTFS?

A: Our Flash duplicator supports the most common formats such as, FAT 16/32, NTFS, Linux(Ext2/Ext3/Ext4)...etc. In addition, if you want to copy other formats, you can use the "Whole Area" (function 7.2.2) to copy whole Flash media, it doesn't care about the format and will copy the entire flash media.

Q2: How do we know the data is correct after copy?

A: Run "Compare" function to double ensure the correctness of copied data.

Q3: What should I do if I encounter a copy fail?

A:

1. Please make sure the source size is not over than the target capacity. You could use function "5.1 SD Card Info." to check the source/target Flash data size and capacity.
2. If you use a SD card, please ensure that your SD card isn't locked.
3. If the Flash quality is poor, it may affect the copy result, you can use (1) "6.3 Media Check" to check your Flash quality in both source and target (2) "select Speed" to slow down the copy speed..

Q4: Why after copy, the data compare fail, but check in a PC, the data is present?

A: The main reason is the Flash maybe unstable, which may cause the copy pass but compare fail issue. You also can follow steps in Q3 to check further.

Q5: Why is the copy speed so slow?

A: Our Flash duplicator can reach 1.5GB/min, if you find the copy speed is slow, it may be the flash quality effecting the speed of copy. You can use function "6.2 Measure Speed" to check the Flash speed.

Q6: Is it possible to use a 1GB source copy to 2 GB targets (source capacity less than target)?

A: Yes, it can copy 1 GB to 2 GB, but the target 2GB will become 1GB when it read on a PC. The reason is after copy, the target will completely be the same as the source. You can restore it's real capacity by re-formatting the device.

- Q7. Is it possible to use a 2GB source copy to 1GB targets (source capacity larger than target)?
- A: If the data is less than target capacity, it is possible to copy from source to small size target, but the source data must be within the capacity of the target devices (i.e. page 13). Also, the data may be loss or error due to different capacity copy. It is strongly recommended to use Flash media with the same capacity to do copy.

