renkforce

Portable 1 to 2 SD/MicroSD Flash Duplicator

Index

Before You Start

Important Notice

- Carefully read the entire manual before operating.
- Make sure the source device is correct and functioning.
- Equal capacity of source and target is recommended for guaranteed data consistency.
- Using the Copy+Compare function provides the most flawless duplication.
- Damage incurred due to noncompliance with U-Reach operating instructions will void the warranty.
- Store the equipment safely when not in use and keep out of the reach of children.
- Please turn off duplicator before replacing the socket.
- Never turn off the power while the firmware updating.
- Use only approved, stable power sources.
- Use product only in a clean, dry, dust free, and ventilated area. Liquids or foreign debris can severely damage your duplicator.
- It is typical for the machine to heat up during operation.
- While in use, do not move the duplicator or remove HDDs.
- Static electricity may cause duplication error. Please pay attention to the duplicator's environment and operator's equipment. Purchasing static electricity elimination equipment to avoid static electricity shock while in high static electricity areas.

Notice Symbols

Special items, procedures, or notes to be observed prior to use.

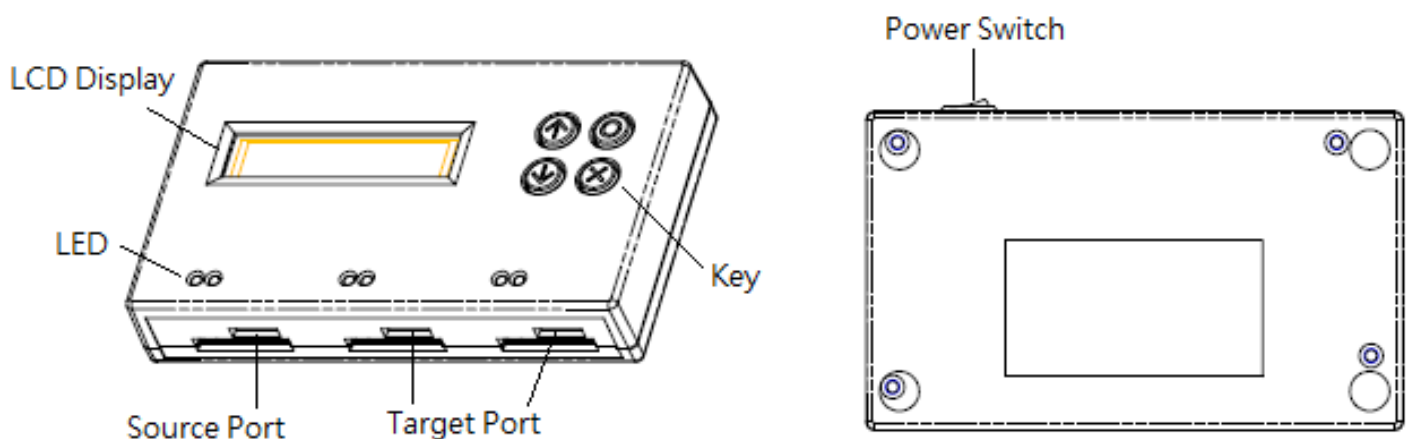| Note	Refers to related duplicator operations, special details, tips, or suggestions for operational effectiveness.

Caution	Refers to procedures that need to be adhered to or precautions.

Introduction

1. Features

- Ultra-high transmission speed.
- Real multitask processing capability. Whether copy, compare, media check or format, each feature is independently executed. Each flash slot has an independent processing unit.
- Powerful H3/H5/H6 for speed and flash quality check.
- Non-PC based, with no risk of virus infection.
- One touch copy. Real time information will be displayed on the LCD screen.
- Supports Synchronous and Asynchronous Copy/Compare/Erase/Format/Media Check/Speed Check. The status of each flash media can be viewed during copy operation by pressing the↑↓keys.
- Ultra-high speed bit-for-bit hardware comparison.
- Various copy speed selection is available for assorted flash media quality.
- Special speed selection function to filter out qualified flash media during quality control process.
- Small footprint design allows portability.

2. Appearance

Function Table

Function	Description
1. Copy	Data or whole media duplication only.
2. Compare	Bit by bit comparison between the source and target flash medias.
3. Copy+Compare	First copies, then compares the target to the source once duplication is completed.
4. Capacity Check	Checks the real capacity of the flash.
5. Information	**5.1 SD Card Info.** Displays flash's data info, such as file format, content size, and capacity. **5.2 System Info.** Displays duplicator's system info, such as model number and software version.
6. Utility	**6.1 Do Format** **6.1.1 Auto Format** — Auto formats media to FAT16 or 32. **6.1.2 FAT16 Format** — Formats media to FAT16. **6.1.3 FAT32 Format** — Formats media to FAT32. **6.1.4 Set FAT 16 Cluster Size** — Sets FAT16 Cluster size. **6.1.5 Set FAT 32 Cluster Size** — Sets FAT 32 Cluster size. **6.2 Measure Speed** Measures the flash reading and writing speed. This function will damage the format and content. **6.3 Media Check** **6.3.1 H3 Safe** — Checks the flash's quality by reading it. This safe check will not change the flash's content or format. **6.3.2 H5 RW** — Checks the flash's quality by reading and writing. This function will change the flash's content and format. **6.3.3 H6 SafeRW** — Checks the flash's quality by writing and reading its empty space. This function will not change the flash's content or format.

		6.3.4 Setup Range % Sets the flash's checking range percentage.
		6.3.5 Setup Range MB Sets the flash's checking range in MB.
		6.3.6 Set Error Limit Sets the error tolerance range when checking the flash. (Units: Sector/KB/MB)
	6.4 Quick Erase Erases the flash media's content. It will keep the FAT format.	
	6.5 Full Erase Completely erases the flash's data, bit by bit, including format and content.	
	6.6 DoD Erase Erases flash three times complying with USA Department of Defense (DoD) standards.	
	6.7 System Update Updates system firmware via the flash media.	
	6.8 Calc. Checksum Calculates the source's flash media Checksum value.	
7. Setup	7.1 Start-up Menu Selects which function is first displayed when powered on.	
	7.2 Copy Area	7.2.1 System and Files Automatically analyzes source data's format and copies only the data area.
		7.2.2 Whole Media Copies the entire flash content, including the empty space.
	7.3 Button Sound Enables or disables the audible beep when a button is pressed.	
	7.4 Target Tolerance Sets the range of capacity gap tolerance between the source and target. Default setting is "No limit".	
	7.5 Asynchronous Enable opens Asynchronous function. Disable closes this function.	
	7.6 Check Before Copy Checks flash media check before copying.	

	7.7 Power Off Time Between Copy+Compare Sets the power-off time between Copy and Compare when executing this function.
	7.8 Auto Start After Fill Device Sets automatic start of "copy/compare" once all targets are connected.
	7.9 Language Sets system language.
	7.10 Select Speed Sets data transmission speed.
	7.11 Purge Before Copy Cleans out target device's data and format first, and then runs the "Copy" process.
	7.12 Monitor Device After Copy Allows user to set a device status check after duplication
	7.13 Set to Default Reverts everything back to original manufacturer settings.

Above functions and features are subject to change without notice.

Start to Copy

Before executing this function, please read "copy setup" to better understand the copy process and results.

1. Copy

2016 11/10 11:26:31
1. Copy (Data)

➡

Copy   7695M
3%   0:27   (3) 270M

(3) indicates Port #3 is the slowest.
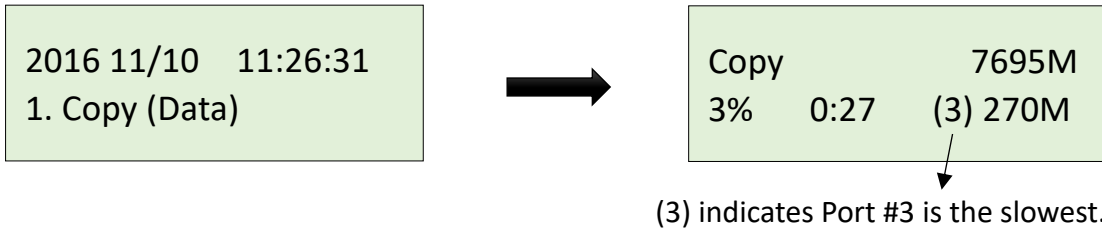
❶ Copy Area

Copy area
setting [7. Setup >> Copy Area]
Before duplication, select the data area with "Copy area".

Select "**System and Files**"   Select "**Whole Media**"

1. Copy (Data)

1. Copy (Whole)

❷ Asynchronous Copy

Copy mode setting [7. Setup >> Asynchronous]
Select "Enable" or "Disable" asynchronous.

Note	• If flash card is removed during copy process, the system will stop immediately and the red light will illuminate to notify user the copy has failed. Removing the flash card during copy is strongly discouraged as it will damage the flash card.
	• Backup the data on target flash cards before starting the copying process as any pre-existing data will be lost once copy is complete.

2. Compare

The compare function checks the accuracy of copy result. After the copy finishes, go to function 2 and press "OK" to start compare process.

```
2016 11/10    11:36:15
2. Compare
```

3. Copy+Compare

This function is the most convenient. Instead of going to function [2.Compare] and pressing "OK" after copy finishes. Function [3.Copy+Compare] will automatically run the compare function after copy process is finished to make sure the copied result is accurate.
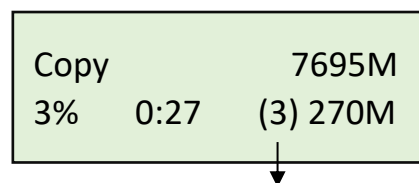
```
2016 11/10    11:36:15
3.Copy+Compare
```

■ How to stop above jobs during operating:

❶ Stop Single Port:

Press↑↓simultaneously for 5 seconds to stop the slowest port during operation.

```
Copy              7695M
3%     0:27    (3) 270M
```

Port 3 is the slowest in this Copy job.

❷ Stop All Ports:

Press and hold "ESC" for 5 seconds to terminate operation on all ports.

Setup Before Copy

There are several sub-functions related to copy results, which can be adjusted in function [7. Setup] before copying.

1. Copy Area Settings [7.Setup >> Copy Area]

❶ Copy Area: System and Files

Also known as "Quick Copy". The source's format is automatically analyzed and if it's recognizable, such as, FAT 16/32/64, NTFS, or Linux ext. 2/3/4, the system will copy the data only, rather than the entire flash.

[Copy Area]
System and Files

2GB → Copies 2GB data only

Note	If the file format is not recognized, the whole flash card, including empty space, will be copied even if you specify copy area in "System and Files".

❷ Copy Area: Whole Media

The system will copy the whole flash card, including empty space and format. This function is useful when users want to copy the whole flash or have a flash source with an unknown format. "Whole media" copies take a bit longer to complete.

[Copy Area]
Whole Media

2GB
8GB → Copy total 8GB

2. Target Tolerance Settings [7.Setup >> Target Tolerance]

This function sets the capacities tolerance range between the source and target flash. If the capacity is outside the tolerance range, the copy will fail.

For example, if the target tolerance is set to "±1%", targets whose capacities are 2.02GB or more and 1.98GB or less will not be copied.

Source	Target tolerance setting: ± 1%	
Real Capacity 2GB	2.02GB (2GB +1%)	1.98GB (2GB − 1%)
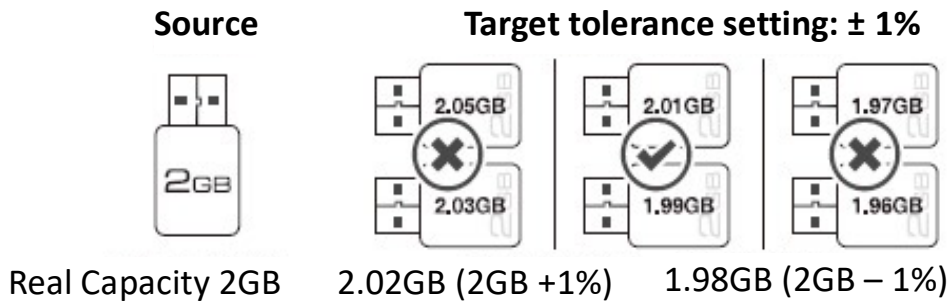
3. Asynchronous Settings [7.Setup >> Asynchronous]

Users can activate Asynchronous copy by selecting "Enable" or deactivating it by selecting "Disable" For Asynchronous copy to run, the source's data must be smaller than the system's buffer memory and set to "Enable". However, if set to "Disable", regardless of content size, synchronous copy will be performed.

The conditions of executing "Asynchronous Copy"		
	DISABLE Asynchronous Copy	**ENABLE** Asynchronous Copy
Data **>** Buffer	✖	✖
Data **<** Buffer	✖	✔

Note	The buffer memory may vary depending on product model.

4. Power Off Time Between Copy+Compare

The use of this setting is highly advised as it prevents data loss due to unstable flash. Users can set the time gap of power supply between copy and compare. The time gap can be set from 0 to 15 seconds. The default is "3".

[Power Off Time Between]

3

5. Auto Start After Fill Device

Sets auto start of copy/compare task upon insertion of all targets. Users can also choose to confirm tasks first by pressing "Ok".

```
[Auto Start After Fill Device]
      Yes, auto start
```

How to Prevent from Failed Duplication

1. Stable Devices

❶ Good Connection

The adapter, extension cord, and card reader must all be in good condition for secure connection.

❷ Stable Flash

Use a decent quality flash device.

❸ Good Source

Make sure your source is also of decent quality.

2. Suitable Data & Settings

❶ Target Tolerance Settings. [7. Setup >> Target Tolerance]

"Target Tolerance" checks the setting capacity range difference between source and target.
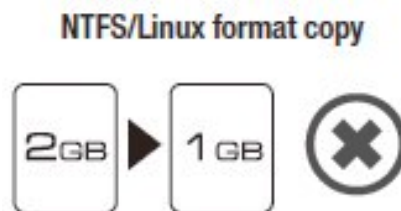
```
[Target Tolerance]
      No Limit
```

❷ Capacity of the Data in Source

Make sure that the source's data is within the target's capacity.

❸ Capacity of Targets

When copying NTFS/Linux formats, make sure that the target's capacity is equal to or larger than that of the source.

How to Ensure Duplication is Correct

SD312N provides the most precise "compare function" to supply our clients with the best duplications. Using function [2. Compare] or [3. Copy+Compare] is strongly recommended to guarantee copy accuracy.

(1) Execute Function [2. Compare] for data check between source and targets after copy has concluded.

(2) Select Function [3. Copy+Compare] to automatically execute data comparison after copy has finished.

Note	These two functions will examine the contained data, post copy, via a strict bit-for-bit comparison. This highly increases data accuracy.

Caution	User is responsible for verification of targets' quality. Testing a few completed targets in a mass production environment for quality control is recommended.

How to check Flash quality (Media Check)

SD312N was created not only for duplicating, but also boasts powerful diagnostic tools to assess flash device quality, real capacity and speed. It is very important to use high-quality flash devices. The flash duplicator can help users achieve this goal.
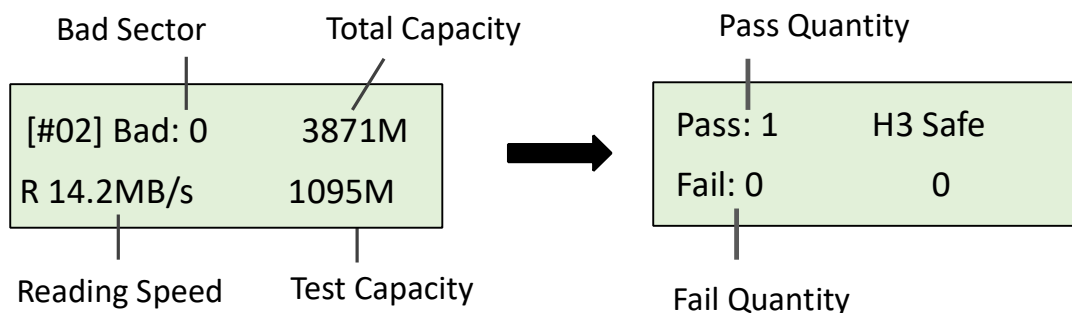
■ Media Check includes the following 3 test tools

H3 Read Only Test	This function performs a read only test to determine the flash's quality. The flash's original data will not be erased during this test.
H5 Write/Read Test	This function performs a read and write test to determine the flash's quality. The flash's original data will be erased during this test.
H6 Quality Test	This function performs a read and write test on the empty space to determine the flash's quality. The flash's original data will not be erased during this test.

You can also use the following settings to help you identify which flash cards are not up to standard requirements.

- Testing Area
- Error limit
- Capacity limit

1. H3 Safe100%

This function reads the flash media to assess its quality. After executing this function, the flash's bad sector quantity and reading speed will be displayed. Use the ↑↓ buttons to view the status of each port.

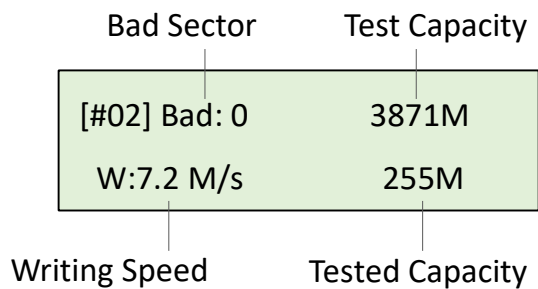
Bad Sector   Total Capacity   Pass Quantity

```
[#02] Bad: 0      3871M              Pass: 1        H3 Safe
R 14.2MB/s        1095M              Fail: 0             0
```

Reading Speed   Test Capacity   Fail Quantity

Note	• This function will not alter the content or format. • You can set the checking range in [6.3. Media Check >> Setup Range].

2. H5 RW 100%

This function will read and write the flash media to assess its quality. After executing this function, the flash's bad sector quantity and reading and writing speed will be displayed.
Scroll to view the status of each port.

```
              Bad Sector        Test Capacity
                   |                 |
           ┌──────────────────────────────┐
           │  [#02] Bad: 0        3871M    │
           │                               │
           │   W:7.2 M/s          255M     │
           └──────────────────────────────┘
                   |                 |
           Writing Speed       Tested Capacity
```

Note	• This function will alter the content and format of flash media, please do not execute this function if there is important data stored in it. • The flash card will be formatted at FAT 16/32 once testing is complete. • To protect source data, the system will not execute this function on the master device.

3. H6 SafeRW

This function will read and write the flash media empty space to assess its quality. Select [4.3 H6 SafeRW] and press "OK" to start this function. After finishing this task, the system will display the test result.

```
┌──────────────────────────────┐    ┌──────────────────────────────┐
│  [#02] Bad:0      3871M       │    │   Pass:1      H6 Safe Test    │
│   W: 7.2M/s    R:14.2M/s      │    │   Fail: 0              0       │
└──────────────────────────────┘    └──────────────────────────────┘
```

Note	• This function supports FAT16/32 format only. • This function will NOT alter the flash's content.

4. Settings

❶ **Setup Range %**

This function sets the quality check capacity range. Scroll to set the range from 1 to 100%. The higher the percentage, the longer it will take.

```
[Setup Range]
        100%
```

❷ **Setup Range MB**

This function sets the quality check capacity range in MB. Scroll to set the range from 1MB to 9000MB.

```
[Setup Range MB]
        2000MB
```

Note	The duplicator will abide by whichever was set last, if both Range% and Range MB are set.

❸ **Setup Error Limit**

This function sets the error tolerance range while checking the flash. Scroll to set the error limit value. Select which units to use (KB or MB), then select the value.

```
[Setup Unit]
        MB
```

```
[Setup Error Limit]
        9000MB
```

Note	When the red-light illuminates to indicate that an error has occurred, scroll to view the error information.

How to check Flash quality – more tools

1. Measure Speed [6. Utility >> Measure Speed]

This function measures the read and write flash media speed.

(1) Plug flash media into the slot, select function [6.2 Measure Speed], then press "OK" to start this function.

[Utility] 2. Measure Speed	[#02] Read: 14.7MB Write: 7.0MB

(2) Scroll keys to view the exact Read and Write flash media speed on each port.

Note	• To protect source data, the system will not execute "Measure Speed" on the master device. • The function may alter the format and data content of flash.

2. Capacity Check [4.Capacity Check]

This function can quickly check the real capacity if it's claimed.

(1) Plug in flash media, select function [4. Capacity Check], then press "OK".
It will take about 3 seconds to determine the exact capacity.
(2) System will show the checking result by use of Green/Red LED light.
(3) Scroll buttons to check the status of each slot.

Green Light: Capacity OK	Red Light: Error
[#02] SIZE: 3781M Capacity OK	[#04] SIZE: 8M BAD!

Note	• This function supports asynchronous operation; you can continually plug and unplug flash media without having to push any buttons. • The function may alter the data content and format of flash. • To protect source data, the system will not run a Capacity Check on the master device. • When the red error light illuminates, scroll to view error information.

Format the Flash Card

Caution	User is responsible for verification of targets' quality. Testing a few completed targets in a mass production environment for quality control is recommended.

1. Auto Format [6. Utility >> Do Format]

This function formats flash into FAT. Plug in the flash media and press "OK". The system will automatically detect its capacity, then format the media per its capacity.

- If the flash media format is already FAT16 or FAT32, the format function won't alter its original format.

- If the original flash media is not FAT format, i.e. NTFS, Linux or FAT multi-partition.
  The system will format per flash's capacity. If capacity is above 2GB, the system will format the flash to FAT32 and below 2GB, the system will format the flash to FAT16.

Capacity < 2GB	Format FAT16
Capacity > 2GB	Format FAT32

Note	The source port will not perform any formatting because this function will delete the flash media's data.

2. FAT16 Format

Sets the FAT16 format.

3. FAT32 Format

Sets the FAT32 format.

4. Set FAT16 Cluster Size

Sets the FAT16 cluster size.

5. Set FAT32 Cluster Size

Sets the FAT32 cluster size.

Erase the Flash Card

Caution	Flash data will be wiped out. Please make sure to backup all important data before using this function.

1. Quick Erase

This function erases flash data while keeping the format if the original flash format is FAT16/32. Scroll buttons to view status, progress, and information.

Note	Quick erase function will erase only FAT 16/32 formatted flashes.

```
[Utility]

4. Quick Erase
```

```
Do ERASE ALL
        Confirm?
```

2. Full Erase

Completely erases the entire flash media, including format and content. This task takes longer. Pressing "ESC" during this process will abandon the task, but the original format and content will no longer be readable.

```
[Utility]

5.   Full Erase
```

```
Do ERASE ALL
        Confirm?
```
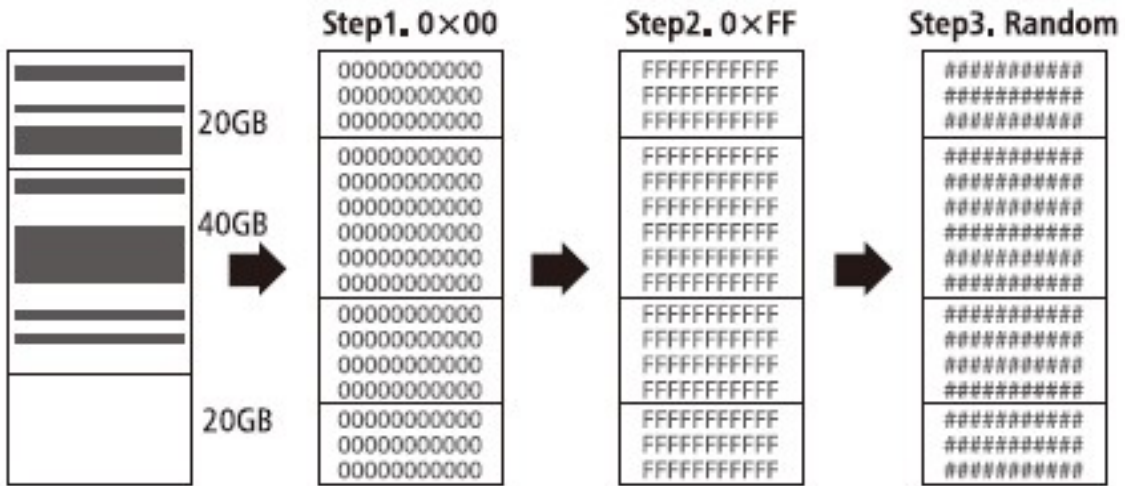
3. DoD Erase

DoD Erase complies with the U.S.A. Department of Defense (DoD 5220) standards by erasing the flash three times, which guarantees that data is completely scrubbed.

```
[Utility]

6. DoD Erase
```

```
Do ERASE ALL
        Confirm?
```

Note	Scroll buttons to view the status of each port during erase.

Caution	User is responsible for verification of targets' quality. Testing a few completed targets in a mass production environment for quality control is recommended.

Find out Related Information

1. Flash Info.

This setting displays the flash media's basic information such as file format, content size, and total capacity.
Scroll buttons to view the information of each flash media, source included.

```
[#01]              3871M   ———— Total Capacity of the Device
FAT32               230M   ———— Data Size
```

Note	Using this function will not delete the flash media content or format.

2. System Info.

This function displays system information such as model number and software version.

```
USB 1-31
Ver: 2.35.1
```
➡ Press ↓ for further information
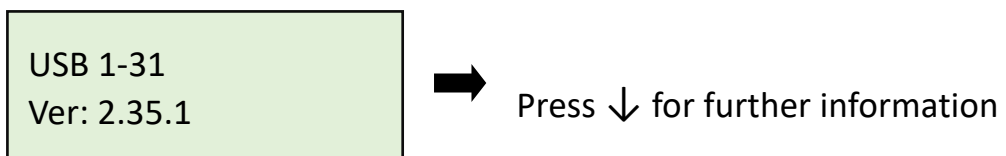
Other Settings

1. Start-up Menu

Sets which function is displayed powered on. The default setting is "1. Copy".

```
[Start-up Menu]
1. Copy
```

2. Button Sound

Controls whether to hear a sound when a button is pressed.

```
[Button Sound]
          ON
```

3. Language

Sets the system's language. (English or Japanese)

```
[Language]
          English
```

4. Purge Before Copy

This setting clears out the target devices' content and format before copying.

```
[Purge Before Copy]
        Disable
```

Note	This function will erase the flash media's data and format.

5. Monitor Device After Copy

Allows user to set a device status check after duplication. The settings could show different results because each device has various settings.

For example, if a device is set to power off automatically after "complete" command, then user must set "Do NOT Check" to make sure the LCD keeps the copy result for reference.

```
[Monitor Device After Copy]

        Do NOT Check
```

```
Total      OK: 2    NG: 0
12:48      OK: 2    NG: 0
```

In this case, if set at "Do Check", the copied device will power off automatically after Copy job completes and the LCD will back to the previous job.

```
[Monitor Device After Copy]

        Do Check
```

```
1. Copy (Data)
```

6. Set to Default

Restores original default settings.

```
Complete
    All Parameter was cleared!
```

Q&A

Q1: Can the flash duplicator copy any kind of file format, i.e. NTFS?
A: Yes, our flash duplicator supports the most common formats such as: FAT 16/32, NTFS, Linux (ext2, ext3, ext4), etc. Additionally, if you want to copy other formats, you can use the "Whole Area" function to copy whole flash media without formatting issues.

Q2: How do we know the data is correct after copy?
A: Use the [2. Compare] function to ensure duplication accuracy.

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

❶ Double check that source capacity is not larger than the target capacity. [5.1 Flash info] function allows you to view the source and target's data size and capacity.
❷ Ensure that your source flash media isn't corrupt.
❸ If the flash quality is poor, copy results may be affected, to remedy this:
(1) [4. Media Check] will check both source and target's quality.
(2) Use "Select Speed" to slow down the copy speed.

Q4: Why is the copy speed so slow?
A: Intelligent 9 Series flash duplicator can reach high transmission rate, but speed depends on actual flash quality and models/series. If you find the copy speed is slow, double check flash quality. You can use function, "Measure Speed" to check the flash speed.

Q5: Is it possible to use a 1GB source copy to 2 GB targets (source capacity less than target)?
A: Yes, copying from 1GB to 2GB is doable, but the target becomes 1GB when read on PC. After duplication, the target's FAT table will be identical to the source. You can restore its real capacity by re-formatting the device.

Q6: Is it possible to copy when there is a big difference between Source and Target's capacity? For example, a 2GB source copy to 1GB targets?
A: Yes, but the source data must be within the capacity of the target devices. However, due to capacity discrepancy, errors and lost data may occur. Using flash medias with the same capacity is strongly recommended.

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

Example:

Source   Target

1GB   2GB
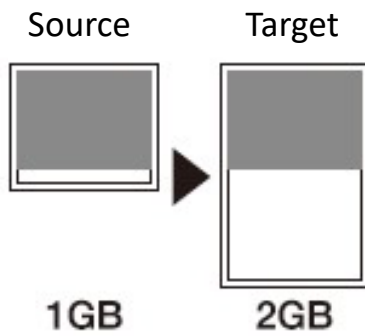
Copy OK

Warning:

The 2GB target WILL BECOME 1GB WHEN READ ON PC. You can reset its 2GB capacity by reformatting the device.

Caution	When there is a big difference between target and source's capacity, such as 1GB to 4GB or 1GB to 2GB, there is a risk of target capacity, compatibility and format errors. It is strongly recommended that target and source be in close range of capacity.

❷ If source capacity is LARGER than the target, for example 2GB copy to 1GB:

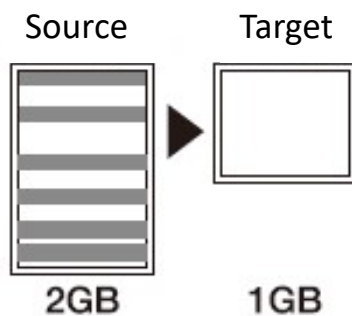▶There are two results as shown in illustrations (1) and (2)

(1) When a content is within the target flash media's capacity.

Source   Target

2GB   1GB
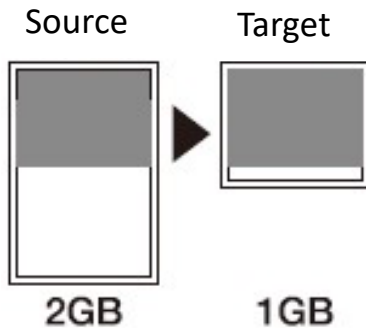
Copy OK

Because the data is within the 1GB area.

(2) When the content is outside the target flash media's capacity.

Source   Target

2GB   1GB

Can't Copy

Because the data is outside of the 1GB area.

Caution	The copy will fail because the data was stored beyond the 1GB area. The duplicator will copy the data as is which means the location remains intact.