



# TOWER HDD DUPLICATOR

# USER MANUAL





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## I. Introduction

This duplicator system is designed and developed based on the FPGA from the world famous semiconductor company XILINX. Every processing channel is parallel to each other with its own control unit, therefore the duplicator will not sacrifice speed for the increasing number of targets loaded - always remain the same and fast copy speed. The duplicator supports fast copy with multiple file formats created by three major operating systems (Windows/Linux/macOS), and makes mirror copies of data efficiently. GPT and MBR partition formats, and 4K advanced format hard disk drive (HDD) are all supported. Furthermore, this duplicator has been fully tested with quality assurance before leaving our manufacturing facility.

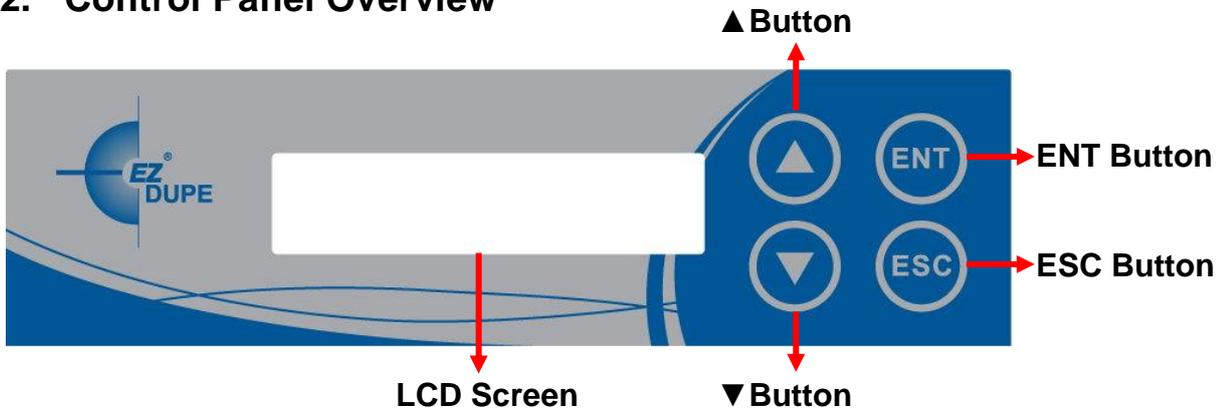
### 1. Features

- a. Each processing channel has its own control unit and operates independently with dedicated bandwidth of up to 150MB or 300 MB per second depends on model.
- b. Standalone operation. No PC or software is required, minimizing possible computer virus infection.
- c. Instant power on and off, no warm-up or cool-down required.
- d. Easy-to-use One-Touch copy operation.
- e. Compare function available for verification of copy accuracy.
- f. Menu options are user-friendly and easily accessed through the 4-button control panel. Use ▲ or ▼ button to scroll through the options and view the operation status of each channel on the 2-line backlit LCD display.
- g. Powerful 32-bit CRC checksum to assure data integrity.
- h. Heavy-duty hardware construction for commercial production or personal use.
- i. 115V and 230V switching power supply maximizes portability for operation anywhere.
- j. Designed to save users time and effort in creating multiple copies quickly and reliably.
- k. Unique source data analysis to copy data area only to achieve highest efficiency.
- l. Supports multiple file systems: Windows: FAT16/32, exFAT, NTFS, Linux: ext 2/3/4, macOS: HFS, HFS+, HFSX.



m. Not only to do copy, but also test hard disk drive capacity and reading/writing speed.

## 2. Control Panel Overview



**▲ Button:** Up, Backward: To navigate backward in the menu.

**▼ Button:** Down, Forward: To navigate forward in the menu.

**ENT Button:** Enter, OK: Execute the function.

**ESC Button:** Escape, Cancel: Go back to the previous level in the menu.



### 3. Specifications

<b>Operation</b>	Standalone (No PC or Software is required)
<b>Target</b>	1~24
<b>Copy Speed</b>	150 MB/s for SATA 1, 300 MB/s for SATA 2
<b>Copy Mode</b>	Synchronous
<b>Copy Area</b>	Whole Media, System and Files (Intelligent Copy)
<b>Supported Media</b>	2.5" and 3.5" SATA HDD/SSD
<b>Supported File Systems (for Intelligent Copy)</b>	Windows : FAT16/32, exFAT, NTFS Linux : ext2/3/4 macOS : HFS, HFS+, HFSX
<b>Display</b>	2-line Backlit Monochrome LCD
<b>Control Button</b>	4 push-button control panel (ENT, ESC, UP, DOWN )
<b>Memory</b>	128MB DDR3

## II. Warning

1. The duplicator tasks mentioned in this user's manual are as following: Copy, Compare, Copy + Compare, Capacity Check, and the functions under Utility sub menu, such as Format FAT32, Format exFAT, Quick Erase, Full Erase, DoD Erase and Secure Erase.
2. The Green LED flashes during the execution process of a task. After the task is done, the Green LED will stay solid if the process is successful, otherwise the Red LED will be on if the process is failed.
3. Press and hold **ESC** button during the execution process of a task will stop and exit the execution of the task.
4. DO NOT unplug HDD from the duplicator during the execution process of a task. It may cause damage to the duplicator system and media.

5. It is strongly recommended that the capacities of the source and target media are equal or similar.

### III. Operation Overview

The duplicator will start to execute a task after the source and target devices have been inserted and the ENT button is pressed. The task will begin and end at the same time for all target devices. Any other target device plugged in during the process of a task will not be executed with the task.

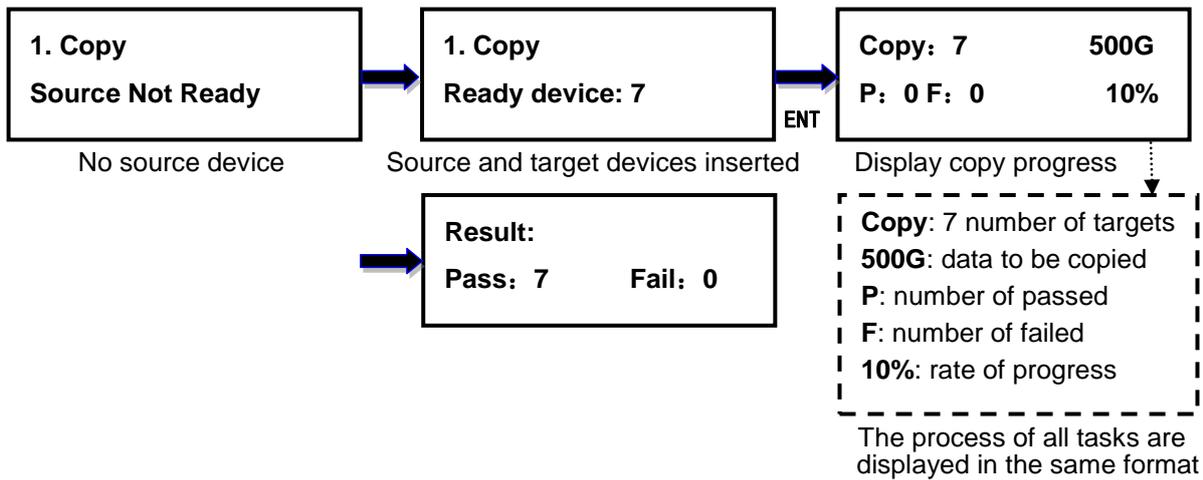
- a. Insert source media into the source channel and blank media into the target channels properly. The LCD display will show no source disk when source media is not plugged in yet, and show the number of target media inserted when source media plugged in.
- b. The green LED will be on if the target device is plugged in properly.
- c. Select the task from menu, and press **ENT** button to execute it.
- d. During the execution process, the status of each target device can be checked by using the ▲ and ▼ buttons.
- e. After the task is done, LCD display will show the number of successful and failed target(s), and execution time. Go to section **6.9 Show Result Time** to set up the display of time.
- f. If any target failed, LCD display will show the following information.  
(The LCD will only show error message when all targets failed).

<b>Pass 4 07:40</b> <b>0X F : M_vvv-5vvv9</b>	<b>F:</b> Failed <b>M:</b> Master _: the port # of unplugged target <b>X=number:</b> the port # of failed target <b>v:</b> stand for the port # of passed target ※The 2nd row in upper left square means port 1 has no HDD and port 05, 09 are fail. The 2nd row in bottom left square means port 10, 12, 17 are fail. Press ▼ can see the results of next 10 ports.
▼ <b>0X F : M_vvv-5vvv9</b> <b>1X F : 0v2vv-vv7vv</b>	

## Menu Overview

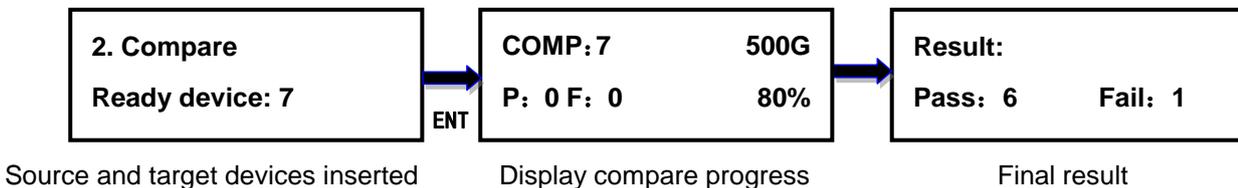
### 1. Copy

To copy from source device to target device(s), please go to **6.1 Copy Area** to select the setting first before this step.



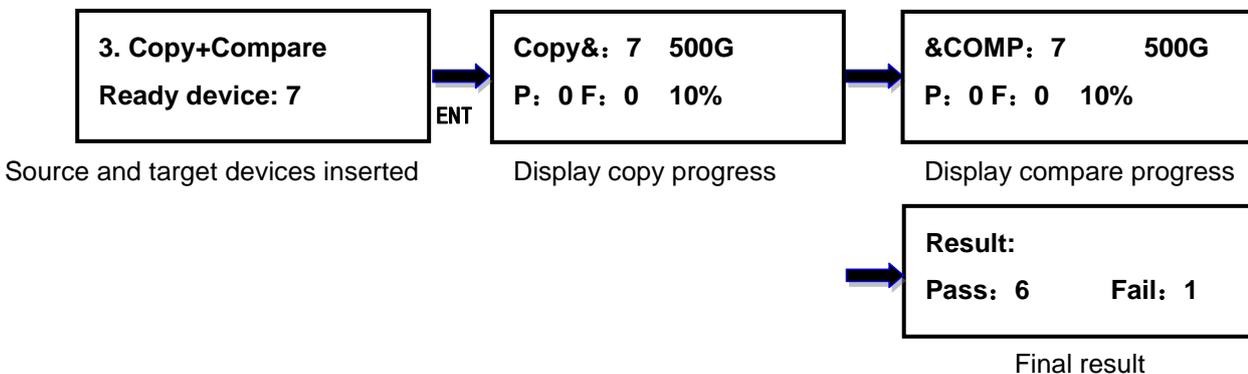
### 2. Compare

This command allows to compare the copied target devices against the source for accuracy.



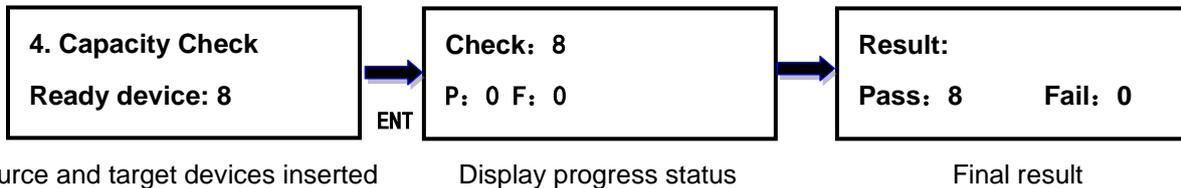
### 3. Copy + Compare

This command allows duplicator to start Copy process first, then follow with Compare process immediately.



## 4. Capacity Check

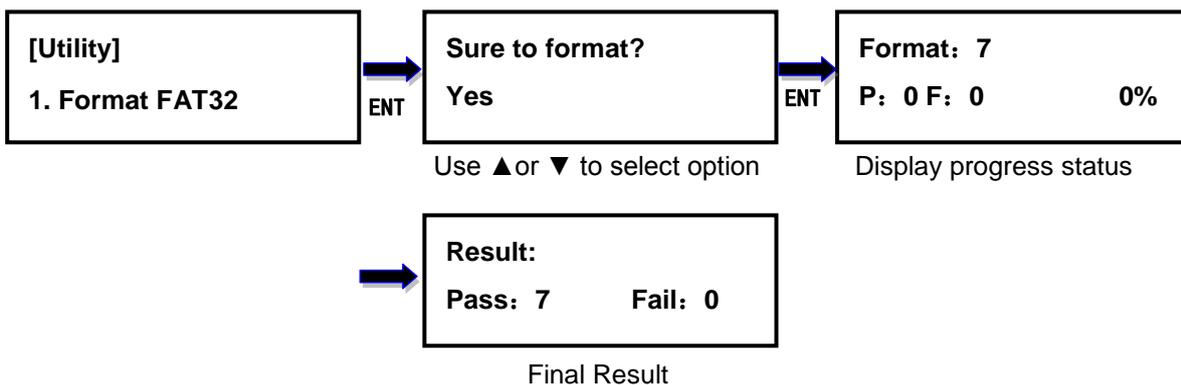
This command allows to verify the device capacity. It can detect the actual capacity of devices within 3 seconds.



## 5. Utility

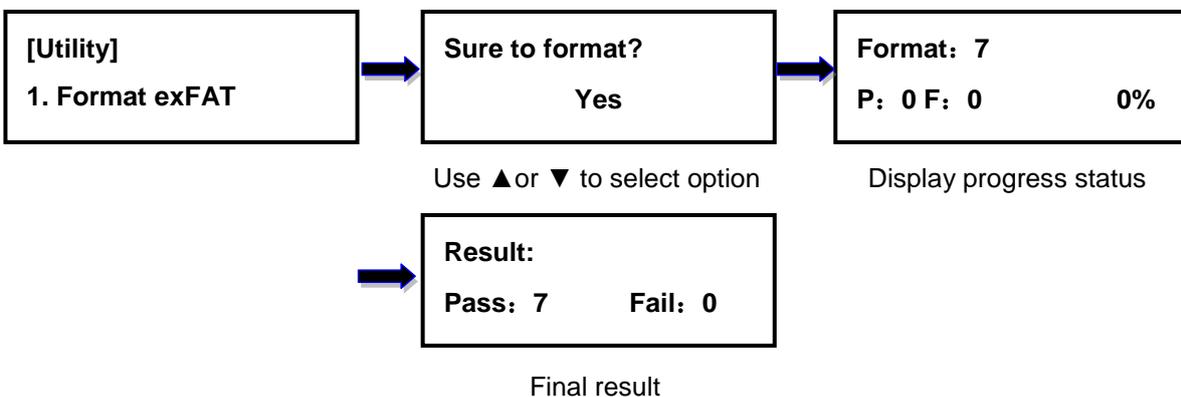
### 5.1. Format FAT32

This option allows to format the target device to FAT32 file system. It will not format the source device, avoiding accidentally erasing the original data content. User will be asked if it is sure to format the target devices before the Format process starts.



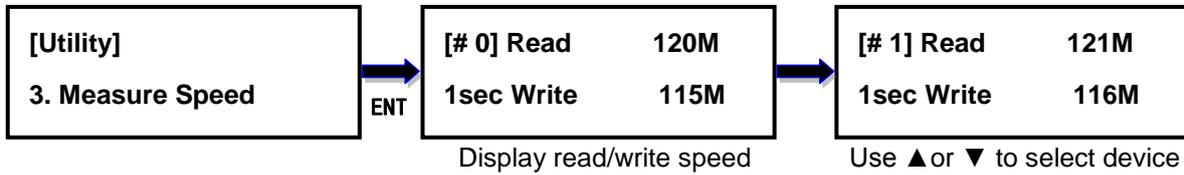
### 5.2. Format exFAT

This option allows to format the target device to exFAT file system. It will not format the source device, avoiding accidentally erasing the original data content. User will be asked if it is sure to format the target devices before the Format process starts.



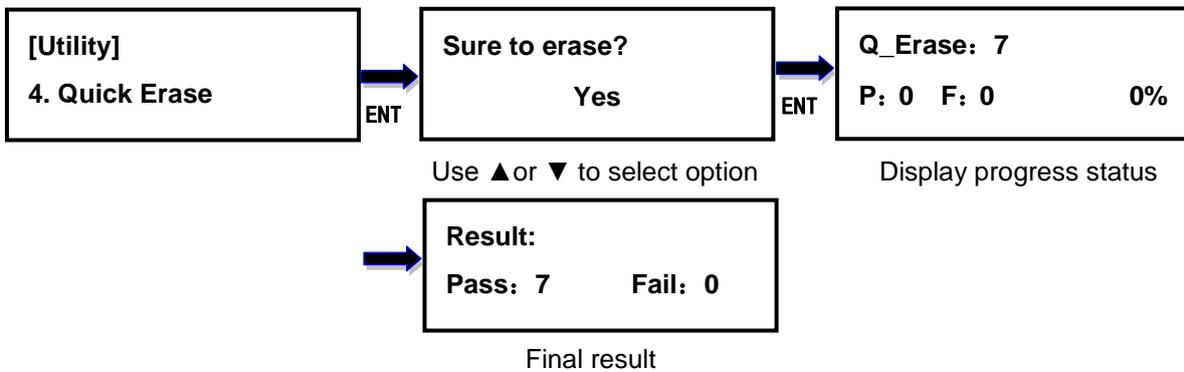
### 5.3. Measure Speed

This option allows to measure the actual Read and Write speed of the target device. This option will NOT alter or erase existing data on the target device.



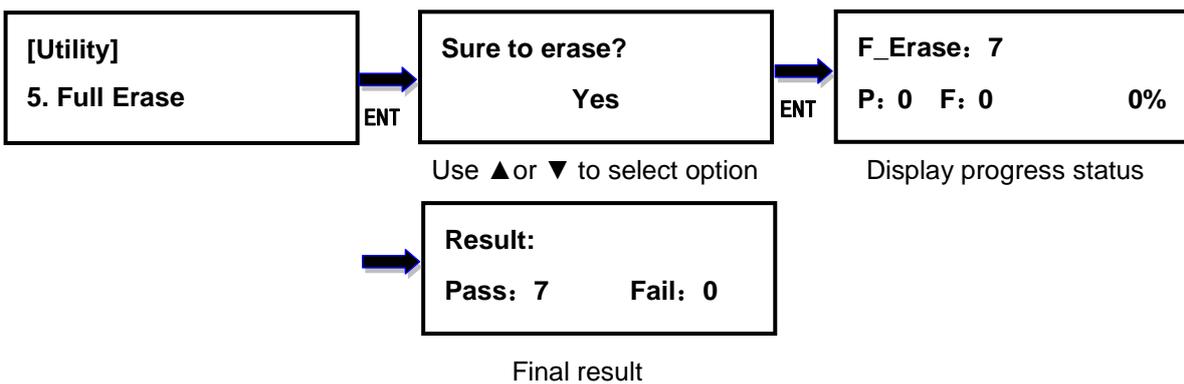
### 5.4. Quick Erase

This option erases the table of content of file system of the target device, so it is fast to do Quick Erase. There is chance that some files can be retrieved by software.



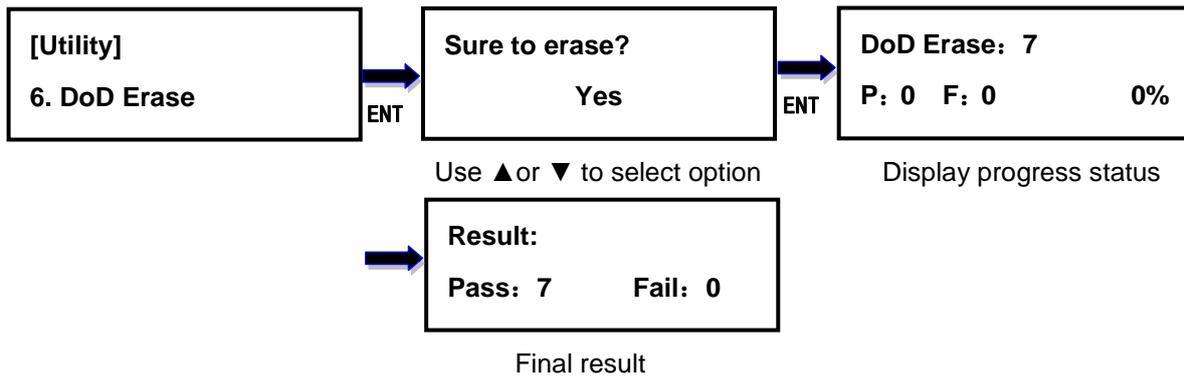
### 5.5. Full Erase

This option completely erases the content of target device. It takes longer time to erase and the content will not be retrieved by software.



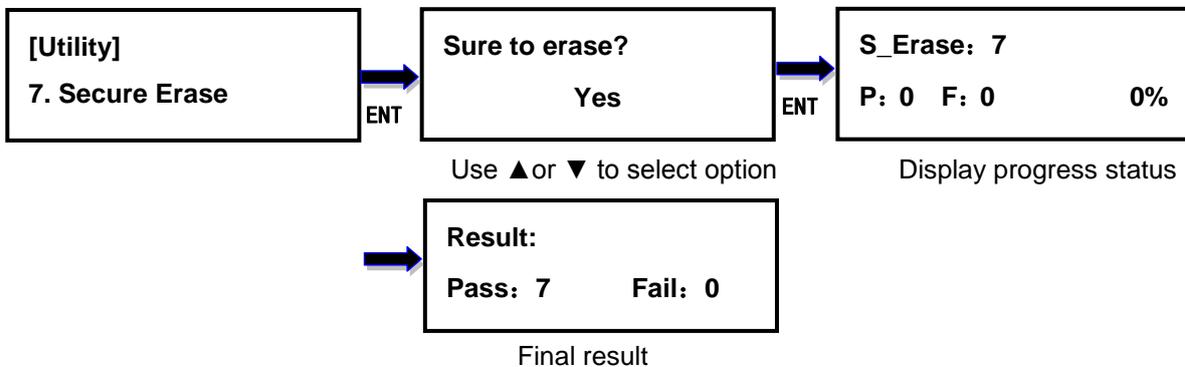
### 5.6. DoD Erase

This is to comply with the U.S.A. Department of Defense (DoD 5220) standard to fully erase the media by rewriting bit by bit three times to guarantee the data to be permanently deleted. It takes the longest time to erase, and the content will not be retrieved by software.



### 5.7. Secure Erase (Available on the SATA 2 version only)

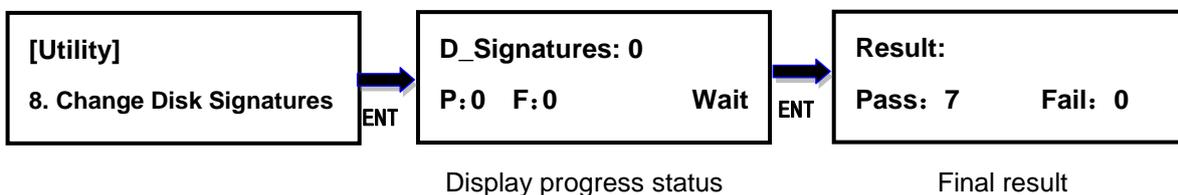
The international authorized high standard Secure Erase function, it complies with standard of secure erase (NIST800-88). It overwrites every single track on the hard drive with "00".



### 5.8. Change Disk Signatures

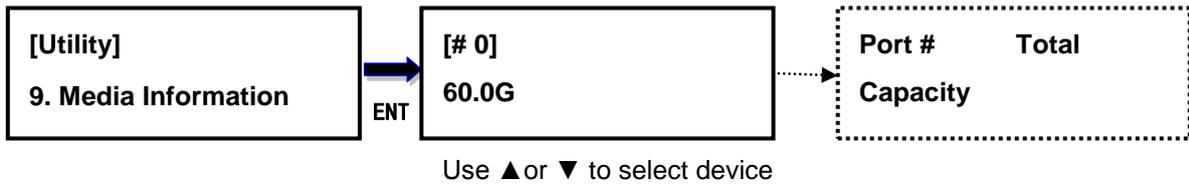
Duplicator generates the same disk signatures after copy which may cause computer unable to read the disk correctly when two disks with identical disk signatures are presented, or shut down the computer. This function allows to change disk signature.

**Attention: it will cause error (data mismatch) if compare the disks after execution of this function.**



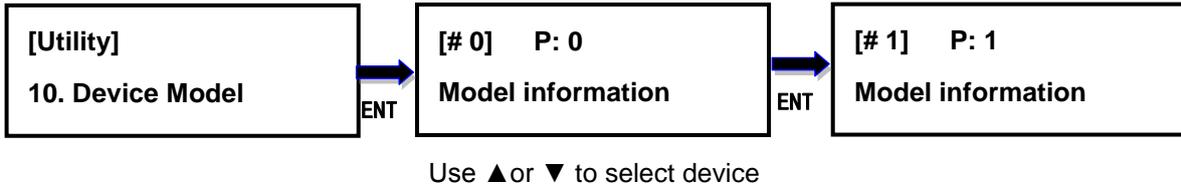
### 5.9. Media Information

This option displays the information of selected device media, such as total capacity, file system and the size of data content.



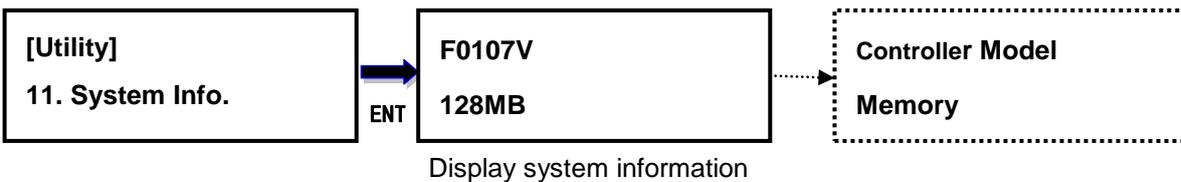
### 5.10. Device Model

This option displays the model information of selected device, such as device model, serial information and firmware version.



### 5.11. System Information

This option displays general information of the duplicator, including controller model, system memory size, firmware version and number of targets.



### 5.12. System Update

This option allows user to update the firmware of duplicator when necessary. Please obtain the proper firmware file from manufacturer, and save the unzipped file under home folder on the hard disk drive (**DO NOT save the file under sub folder**). Insert the hard disk drive containing the firmware into the source port of duplicator and press ENT. It will update the system, reboot the duplicator after update, active and operate under the new firmware. **Only support FAT32 file system.**



## 6. Setup

### 6.1. Copy Area

This option allows to select the area on the source device to copy onto the target devices. You may select either “System and Files” to skip all the unoccupied area on the source

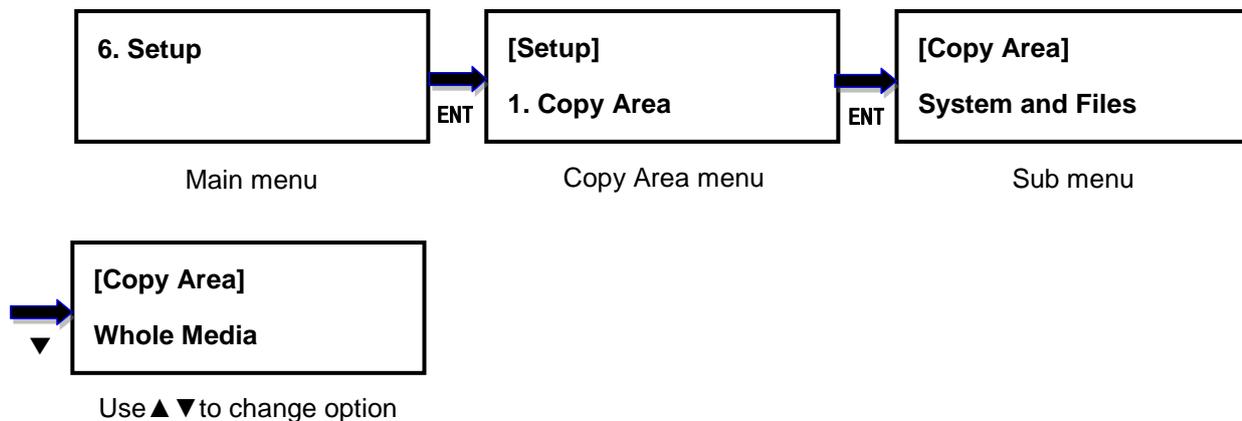
device or “Whole Media”. By default, the copy area is set up as [System and Files](#).

### System and Files

The duplicator first analyzes the file system of source device. You may copy only the system and files area to save overall copy time if the file system is FAT16/32, exFAT, NTFS (Windows), ext2/3/4 (Linux), and HFS, HFS+, HFSX (macOS). Otherwise, the duplicator will copy the entire source device content to the target devices including unoccupied space. For instance, the source device has 1TB capacity but with only 20GB of data in FAT32 file system. The duplicator will copy only the 20GB of data area to the target device, hence shortening overall copy time.

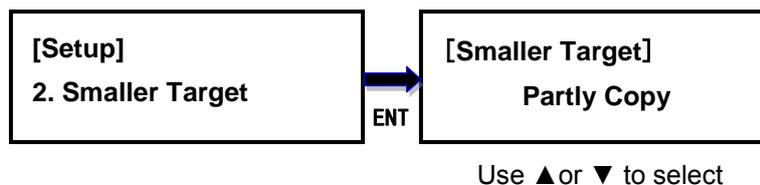
### Whole Media

When selected, the duplicator copies the entire content on the source device, including both the data and empty spaces. This option is used when you have a source device with unknown file system. For instance a source device has 1TB capacity and 20GB of data with unknown file system, the duplicator will copy the whole 1TB of content to target device.



### 6.2. Smaller Target

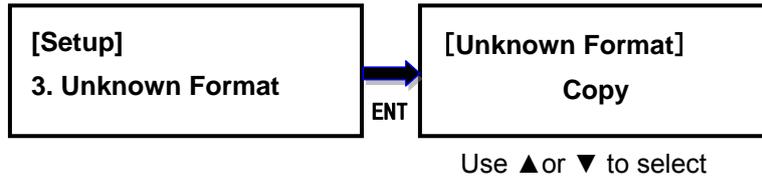
If the capacity of the target device is smaller than the source device, the duplicator will partly copy or cannot copy. [Cannot Copy](#) is the default setting.



### 6.3. Unknown Format

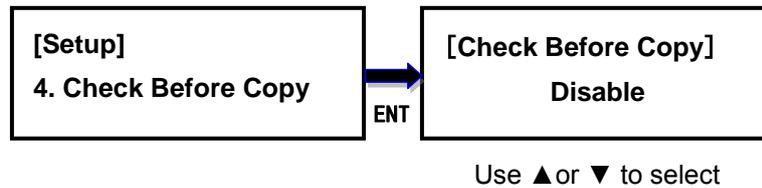
This option allows you to Copy or Skip unknown format. If option Skip is selected here, the

unknown format from source will not be copied during copy process. **Copy** unknown format is the default setting.



#### 6.4. Check Before Copy

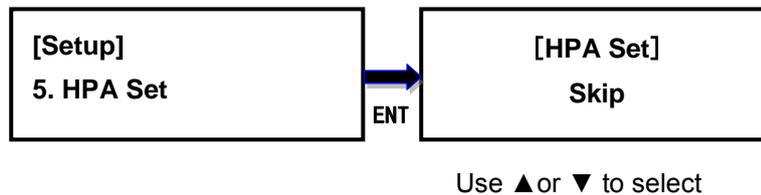
This option allows to check device real capacity before copying. By default this option is **disabled**.



#### 6.5. HPA Set (Available on the SATA 2 version only)

HPA, Host Protected Area or Hidden Protected Area, is kept invisible space for booting area, recovery data or blocked bad-sector, etc. By creating HPA, it resets max sectors and keeps some space for HPA. It reduces the reported size of HDD.

There are 4 settings in this function. The HPA setting and data stored in HPA of source HDD will not be modified.



##### **Skip (default)**

Copy data from source to target except data stored in HPA and keep the target HPA setting during Copy.

##### **Clear Target HPA without Copy**

Copy data from source to target and remove the target HPA setting during Copy

##### **Set Target HPA without Copy**

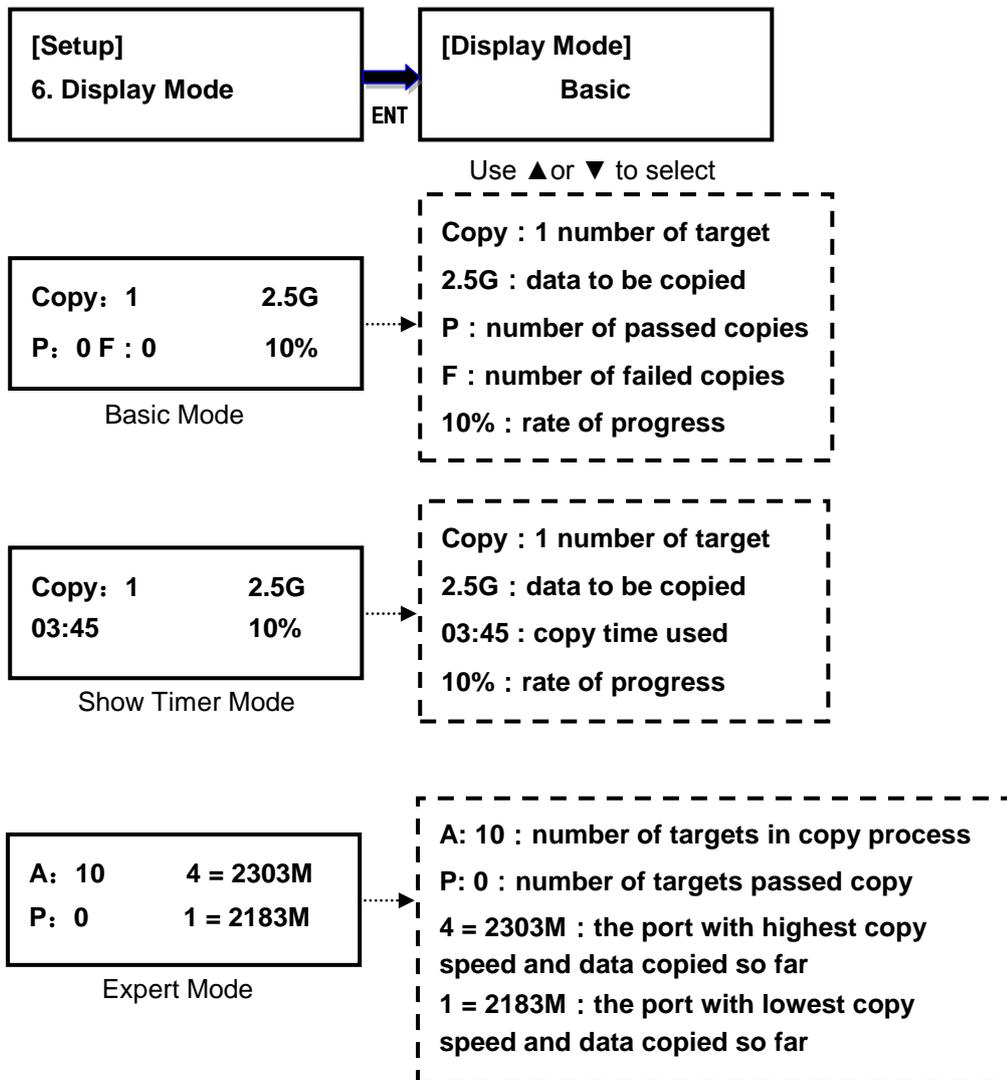
Copy data from source to target and set the target HDD the same HPA setting as the source HDD during Copy.

##### **Copy**

Copy data from source to target including data stored in HPA

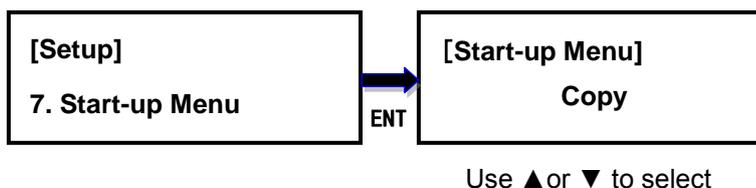
## 6.6. Display Mode

There are three display modes: Basic, Show Timer, and Expert. Basic Mode shows the copy progress in general; Show Timer Mode displays the time used for the task; Expert Mode shows the devices with highest copy speed and lowest copy speed and their copy progress respectively. By default it is [Basic Mode](#).



## 6.7. Start-up Menu

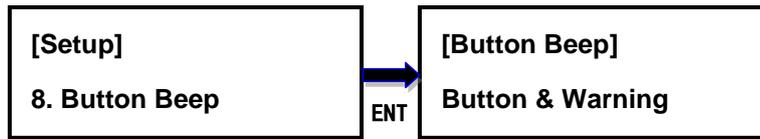
Choose one of the following as the default start-up function: Copy, Compare, Copy+Compare, Capacity Check, Utility and Setup. The default start-up function is [Copy](#).



## 6.8. Button Beep

This option allows to set up button sound from the following options: Button & Warning, OFF,

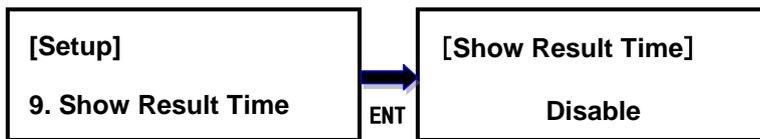
Warning only. The default setting is [Button & Warning](#).



Use ▲ or ▼ to select

### 6.9. Show Result Time

This option allows to enable or disable the display of copy time after finishing the copy process. The default setting is [disable](#).



Use ▲ or ▼ to select

### 6.10. Boot Password

This option allows to set up password for system boot up to prevent from the unauthorized use of the duplicator. The password must be 6 characters.



Use ▲ or ▼ to select

Use ▲ or ▼ to select,  
Press ENT to confirm

### 6.11. Setup Password

This option allows to set up password for Setup function to prevent from the change of system settings on the duplicator. The password must be 6 characters.

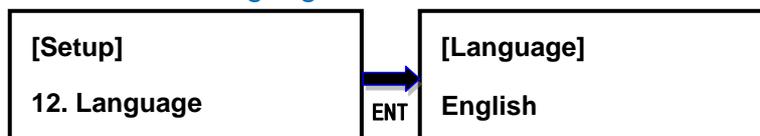


Use ▲ or ▼ to select

Use ▲ or ▼ to select,  
Press ENT to confirm

### 6.12. Language

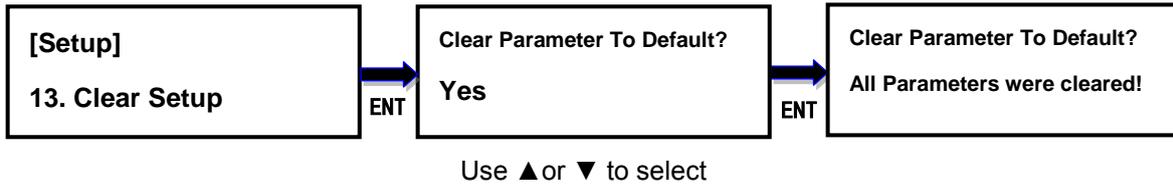
This option allows to choose the language for display: English, Spanish, Portuguese, and Japanese. English is the default [language](#).



Use ▲ or ▼ to select

### 6.13. Clear Setup

This option resets the duplicator back to factory default settings.



### 6.14. Performance

This option allows to set up the performance for Copy function based on the following modes: Speed, Balance, and Compatibility. Speed mode is to execute the Copy function at the fastest speed, but may have compatibility issue with certain brands hard disk drive. Balance mode is to execute the Copy function at stable speed, and have less compatibility issue with certain brands hard disk drive. Compatibility mode is to execute the Copy function at the most stable speed, and almost have no compatible issue with hard disk drive. The default mode is [Speed](#).

