Intelligent U3

USB 3.0 Duplicator & Tester
(USB/USB-HDD)

User Manual vA.01

Index

vA.01.3

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U-Reach provides a basic one-year parts and labor warranty for all of its products (excluding cables, adapters, and other consumable items). An optional extended warranty is also available for an added cost. Telephone and email support is available for the life of the product as defined by U-Reach.

All warranties will be restricted and defined by the market region from which customers purchased.

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Before You Start

Important Notice

- Carefully read the entire manual before operating.
- Never turn off the power while the firmware is updating.
- Devices will operate at high temperature during high-speed tasks. Please wear protective gloves to prevent burns when handling devices.
- Devices working in high temperature may cause it to slow down or even shut down. Please make sure the devices are not overheated.
- Ensure machine and operator are properly grounded to prevent ESD.
- 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.
- 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 devices.
- 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

The Intelligent U3 Series duplicator was designed with diversified media compatibility and high-speed performance in mind to not only flawlessly duplicate in high speed demands, but also provides helpful examinations by delivering the most accurate testing functions known today. The user-friendly interface offers stress-free operation with no steep learning curve to climb. The Event Log Report is an essential tool for production quality remote control and yield analysis.

- 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 H2/H5 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 Asynchronous 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.
- Event Log Report records not only duplicator operation details (time and result), but also system and target information details (VID/PID, MID/OID, S/N number).

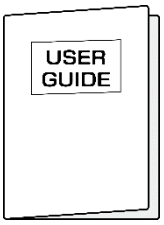
2. Package Contents

Duplicator x1

12V 12.5A DC Adapter x 1

*12V 9A for 8 Ports

Power Cord x 1



User Manual x 1

PC-LINK Cable x 1

1 pair of Gloves*

*Wear protective gloves to prevent burns when handling devices.

3. Power Adapter

Standard contents that include power adapter(s) are sufficient for USB devices. Optional power adapter(s) are required when cloning/erasing USB-HDD. Each model may require a different power adapter per its need. The following reference tables illustrate adapter requirements for each machine.

USB reference table (USB/USB-HDD)

Ports	Adapter	Adapter volume needed when copying USB	Adapter volume needed when copying USB HDD
8 & 16	12V 12.5A	1	1
24 & 32	12V 12.5A	1	2
40 & 48	12V 12.5A	1	4

Function Table

*Below functions and features subject to change without notice.

Function	Description	
1. Copy	Data or whole media duplication only.	
2. Compare	Bit-for-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. Media Check	**4.1 Signal+H2+Format** Precheck the 2.0 / 3.0 signal of the flash's first, then do H2 and Format.	
	4.2 H2+Format Checks the flash's quality by reading and writing H2 files, then format the flash's.	
	4.3 H2 Checks the flash's quality by reading and writing H2 files.	
	4.4 Signal+H5+Format Precheck the 2.0 / 3.0 signal of the flash's first, then do H5.	
	4.5 H5+Format Checks the flash's quality by reading and writing H5 files.	
	4.6 Setup Range % Sets the flash's checking range percentage from 1% to 100%	
	4.7 Setup Range MB Sets the flash's checking range in MB from 1MB to 9000MB.	
	4.8 Set ErrorLimit Sets the error tolerance range when checking the flash.	
	4.9 Minimum Read Speed Sets the minimum read speed from 0~260MB/sec.	
	4.10 Minimum Write Speed Sets the minimum write speed from 0~260MB/sec.	
	4.11 Low Speed Tolerance Time Sets the tolerance time when flash does not reach the minimum speed from 10~99 seconds. The default value is 30 seconds.	
	4.12 Set Capacity Limit	Set Upper Limit
		Set Lower Limit
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9. Write Protect	**9.1 Copy+ Write Protect** Copies data from the source to targets, then sets targets with write protection.
	9.2 Copy+Comp+WriteP. Copies data from the source to targets then compares and set targets with write protection.
	9.3 Set Write Protect Sets targets with write protection.
	9.4 Set Write Enable Reverses the USB write protection.
	9.5 Show USB WP Info Displays basic information for W-Mode USB drives.

Function Description

1. Copy

Step 1: Prepare source and target devices.

Note	Recommendation: Target device(s)' capacity must be equal to or larger than the source device capacity.

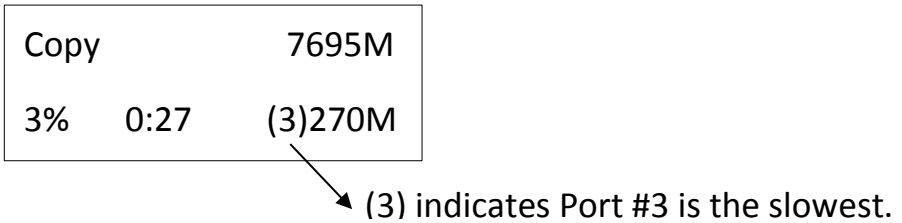
Step 2: Connect source and target devices.

Step 3: Proceed to copy.

Scroll to select "1. Copy", then press "OK" to start the duplication process.

Note	The number of working/connected targets will be displayed on LCD. Press "OK" to start.

The information below states what is displayed on the LCD during duplication.



Note	• Before duplication, select the data area at "6.1 Copy area" • Press ▲▼ together for 5 seconds to stop operation on the slowest device. • Press "ESC" for 5 seconds to stop all the copy jobs.

Step 4: Copy Completed!

The quantity of passed or failed target device(s) and the copied duration will be displayed on the LCD after duplication completes.

Note	• If flash card is removed during copy process, the system will stop immediately, and 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. Scroll to select "2. Compare", then press "OK" to start the verification process.

3. Copy+Compare

Sequentially automates from Function 1, Copy to Function 2, then Compare.

Scroll to select "3. Copy+Compare", then press "OK" to start the automated duplication and verification process.

4. Media Check

Note	• You can set the checking range in [4. Media Check >> Setup Range]. • To protect source data, the system default setting will not execute this function on the master device. • The source port will not perform any formatting because this function will delete the flash media's data.

4.1 Signal+H2+Format

This function can precheck the 2.0 / 3.0 signal of the flash's first, then performs a read and write test to determine the flash's quality. After H2 (Keep Format) test, the device will be formatted back to its original format (Supports FAT16, FAT32, exFAT)..

4.2 H2+Format

This function performs a read and write test to determine the flash's quality. After H2 (Keep Format) test, the device will be formatted back to its original format (Supports FAT16, FAT32, exFAT).

4.3 H2

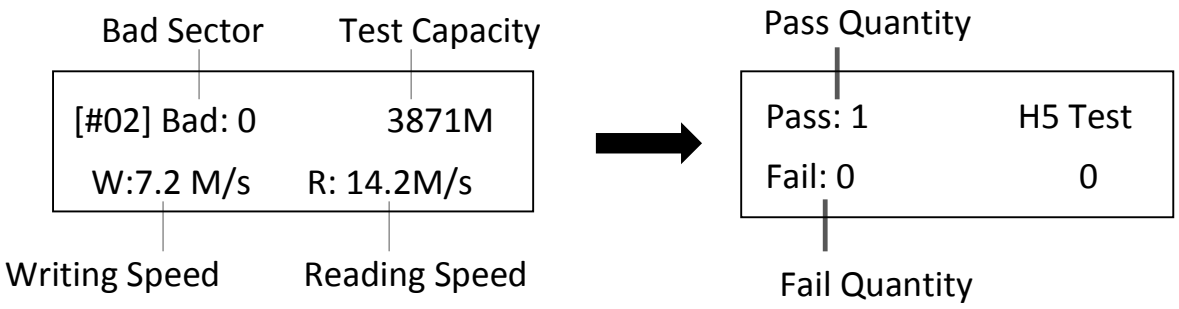
This function performs a read and write test to determine the flash's quality. After H2 (Overwrite) test, the device will contain H2 files which can be verify again through computer's software if necessary.

4.4 Signal+H5+Format

This function can precheck the 2.0 / 3.0 signal of the flash's first, then performs a read and write test to determine the flash's quality. The flash's original data will be erased during this test. The USB will be formatted into FAT32..

4.5 H5+Format

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. The USB will be formatted into FAT32.



Note	The flash device will be formatted at FAT 16/32 once testing is complete.

4.6 Setup Range %

This function sets the quality check capacity range. Use the ▲▼buttons to set the range from 1 to 100%. The higher the percentage, the longer it takes.

4.7 Setup Range MB

This function sets the quality check capacity range in MB. Use the ▲▼buttons to set the range from 1MB to 9000MB.

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

4.8 Set Error Limit

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

4.9 Minimum Read Speed

This function can be used to select the flash media whose reading speed is too slow. Users can set an expected minimum reading speed for media check, so the flash media that doesn't reach the minimum speed value will be identified.

[Minimum Read Speed]

10.0MB/Second

4.10 Minimum Write Speed

This function can be used to select the flash media whose writing speed is too slow. Users can set an expected minimum writing speed for media check, so the flash media that doesn't reach the minimum speed value will be identified.

[Minimum Write Speed]

10.0MB/Second

Note	When the red-light illuminates to indicate that an error has occurred, use the ▲▼buttons to view the error information.

4.11 Low Speed Tolerance Time

Sets the tolerance time when flash does not reach the minimum speed from 10~99 seconds. The default value is 30 seconds.

4.12 Set Capacity Limit

This function is used to set the flash device testing capacity limit. Users can set an upper and lower limit of the flash capacity. To reset, select "clear limit".

[Set Capacity Limit]

1. Set Upper Limit

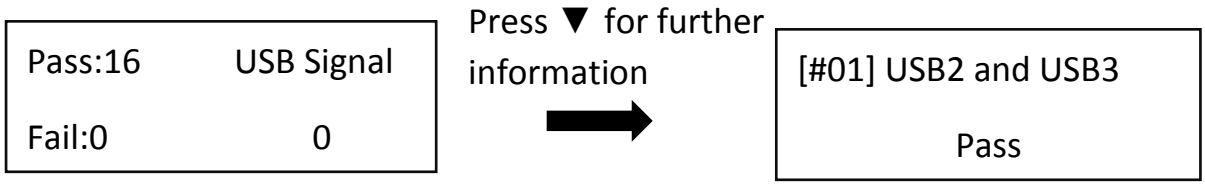
[Set Capacity Limit]

2. Set Lower Limit

5. Signal Detection

5.1. USB2 and USB3

This function detects both USB2.0 and USB3.0 signal of the device. If any signal can't be recognized, it will show red light.



5.2. Only USB3

This function detects USB3.0 signal of the device.

5.3. Only USB2

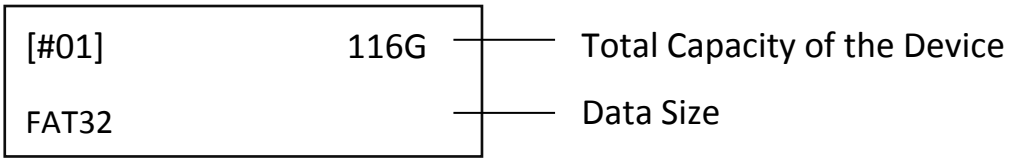
This function detects USB2.0 signal of the device.

6. Utilities

6.1 Information

❶ USB Info.

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



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

❷ System Info.

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

6.2 Erase

Note	The device(s) will not have any format after erasing.

❶ Quick Erase

This function will erase the index table from the connected device(s).

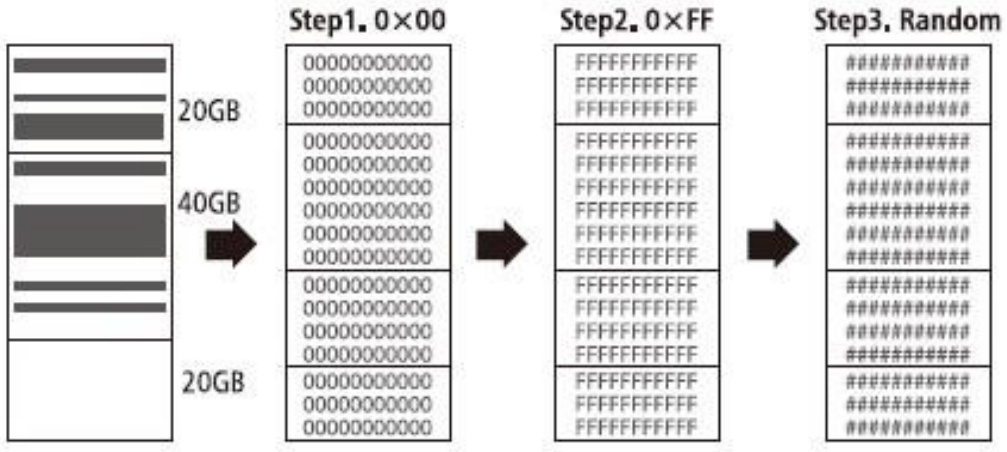
Note	Quick erase function will erase only FAT 16/32 formatted flashes.

❷ 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.

❸ 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.



Note	Use the▲▼buttons to view the status progress, and information of each port during erase.

6.3 Do Format

❶ Auto 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

❷ FAT16 Format

Sets the FAT16 format.

❸ FAT32 Format

Sets the FAT32 format.

6.4 System Update

Step 1: Prepare a USB drive for update.

Connect a USB drive to PC. Download the latest firmware, unzip the BIOS firmware, then save it to the root directory in the USB drive.

Note	The USB's format must be: FAT16 or FAT32. Please place the unzipped file ".bin" into the USB for update.

Step 2: Proceed to update firmware.

Connect USB drive. Scroll to select "6.3 System Update", then press "OK" to start the firmware update process.

Caution	The firmware update process may take longer than 5 minutes. Please do not disrupt power or process during BIOS update. If interrupted, the system will become useless. U-Reach will not be held responsible for any damages.

7. Setup

7.1 Copy Area

❶ 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.

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 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.

7.2 Button Sound

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

7.3 Active USB Revision

Sets the operating protocol for the duplicator.

❶ Both USB 2.0/3.0 :

The duplicator will detect USB3.0 first. If the device does not support USB3.0 protocol, the machine will detect USB2.0 instead.

❷ Only USB 2.0 :

The duplicator will detect USB2.0 only.

❸ Only USB 3.0 :

The duplicator will detect USB3.0 only. If the device does not support USB3.0 protocol, it will show “Fail.”

7.4 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.

❶100% Same

❷ No Limit

❸ Allow Tolerance

Set UP Limit: The target capacity can be bigger than the source capacity.
Set UP Limit: The target capacity can be smaller than the source capacity.

[Target Tolerance]	➡	[Set UP Limit]	➡	[Set LOW Limit]
Allow Tolerance		2 %		0 %

7.5 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.

7.6 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".

7.7 Skip Source Bad sectors

Skips Source bad sectors during Copy/ Compare/ Erase.
Scroll to select "Skip Source Bad Sectors", then press "OK" to scroll through the available values for skipping source bad sectors. If the data of source is critical and needs to be a full clone, it is recommended to set "0."

7.8 Delete Disk Signature After Copy

Allow user to delete Disk Signature after copy or not.

7.9 Language

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

7.10 Select Speed

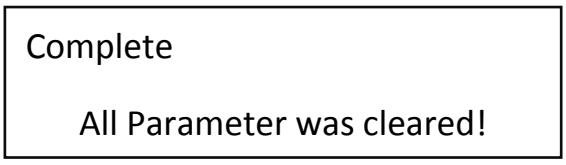
There are 3 transmission speed options:

- Slower Mode
- Normal Mode (Default)
- Faster Mode

Use a good quality flash media that supports a faster mode. If unsure about the flash quality or notice a high copy/compare failure rate, use a slower transmission speed. The default setting is "Normal Mode".

7.11 Set to Default

Restores all settings back to manufacturer defaults.



8. Log Manager *(Available in G Series)*

The log manager is an excellent management tool for operation control purposes. It can record duplication operation, system and targets information details.

8.1 Out Today Report

❶ Insert flash media into Port 1.

❷ Go to "Out Today Report" and press “OK” to output today’s log records.

❸ Remove flash media and read the log report on PC.

8.2 Out Recent Report

❶ Insert flash media into Port 1.

❷ Go to "Out Recent Report" and press “OK” to output the log records from the last 28 days.

❸ Remove flash media and read the log report on PC.

8.3 Out Period Date

❶ Insert flash media into Port 1.

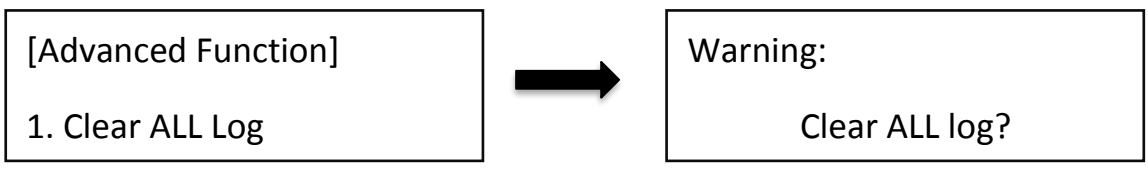
❷ Go to "Out Period Date" and press “OK” to output the log records from a specific date.

8.4 Advanced Function

Enter protective password to access advanced functions. The default password is "123456".

❶ Clear ALL Log

After entering the password, all the log records can be cleared from the duplicator.



Caution	Before using function “Clear ALL Log” during PC connection, please observe the following steps:

	1. Close the PC-Link software (LV07B) or 2. Disconnect the duplicator from PC *The PC-Link software (LV07B) is designed to continuously record log reports. If user executes “clear log records” on the duplicator while LV07 is still running, the conflict between LV07 and duplicator might lead a serious system error.

❷ Setup Password

Setting a password ensures the duplicator’s log records are protected.

Note	• During your first linkage, please wait for a few minutes on PC to complete create the log database from duplicator. • The log manager can store up to 60,000 records. If the storage limit is exceeded, the system will automatically remove the oldest record and replace it with the newest. • Changing the default password is highly advised as to ensure record protection.

9. Write Protect

Note	W-mode USB drives are required.

Caution	Interrupting write protect process may damage your USB drive.

A USB with write protection cannot be erased, formatted, or deleted.

Step1: Prepare a source USB and some W-mode equipped USB targets.
Step2: Plug in USBs.
Step3: Scroll to [9. Write Protect] and press “OK.” Select the 3 sub-functions.

9.1 Copy+WriteProtect

Copies data from the source to targets and then set write protection on targets.

Caution	If the sticks were originally protected, the system will automatically release protection, then copy.

9.2 Copy+Comp+WriteP.

Copies data from the source to targets, compares, then set the write protection on targets.

Caution	If the sticks were originally protected, the system will automatically release protection, then copy+compare.

9.3 Set Write Protect

Sets write protection on targets.

Note	• This function is not executable on the source port. • It takes a few seconds to set write protection on all targets.

9.4 Set Write Enable

This functions release write protected USB drives. Insert flash device in any port, select [Set Write Enable], then press "OK". Within 5-10 seconds, the system will release write protected USB drive(s).

Note	• Requires W-mode USB drive(s). • This function is not executable on the source port. • Data will be deleted after releasing write protection. • If it is not supported USB, it will show error message “USB chip Not Support!”

9.5 Show USB WP Info

Displays basic information for W-Mode USB drives.

Specification

Intelligent U3 USB 3.0 Duplicator & Tester		
Specifications	Capacity	Designed support capability over 18TB+
	Operation Type	Stand-alone, FPGA-based operation (Non-PC based)
	Supported Languages	English or Japanese
	LCD Display	Backlit Monochrome LCD Display
	LEDs	2 LED Indicators per Port (1 Red/ 1 Green)
	Control Panel	4 Push Buttons (▲, ▼, OK, ESC)
Features	Copy Modes	Quick Copy (Systems & Files Copy)
		Whole Media Copy
	Compare Function	Bit-by-bit data comparison
	Diagnostic Modes	H2(Signal+H2+Format/H2+Format/H2)
		H5(Signal+H5+Format/H5+Format/H5)
	Sanitization Modes	Quick Erase, Full Erase, and DoD Erase
	Format Functions	Formats device to FAT16 or FAT32
Compatibility	Supported Formats	Quick Copy: FAT16/32/64, Windows (NTFS), and Linux (Ext2/Ext3/Ext4/LVM)
		Whole Media Copy: All Formats, including proprietary formats
	Supported O/S	All (Windows, Mac, Linux, and other stand-alone systems)
Hardware Specifications	Power Supply	12V DC Adapter
	Working Temperature	5°C ~ 45°C (41°F ~ 113°F)
	Storage Temperature	-20°C ~85°C (-4°F ~ 185°F)
	Working Humidity	20% ~ 80%
	Storage Humidity	5% ~ 95%
	Certifications	FCC, CE, RoHS

**Specifications subject to change without notice.*