



EMMC Duplicator

EMMC210







Table of Content

Table of Content	3
Disclaimer of Warranties	4
Notice & Reminder	4
Important Notice	4
Safety Precautions	4
⌘ Preparation Tips	5
⌘ Notice Symbols	5
Product Overview	6
※Overview	6
※Features	6
※Package Contents	7
※Front View	7
Function Overview	11
1 Copy	11
*Setup before Duplication	12
2 Compare	14
3 Copy&Compare	15
4 Information	15
How to Use eMMC Cards	24
Function Table	26
Specification	28



Disclaimer of Warranties

eMMC duplicators are made specifically for data backup with legal authorities from copyright owners. Any unauthorized action of copyright is strictly prohibited, and the manufacturer disclaims all warranties or representations of illegal actions by users.

The manufacturer also disclaims any liability for any loss or damage due to not being able to perform its undertakings or provide any of the services attributable to any events or circumstances beyond our control. Users agree and accept all statements above as soon as purchasing our products.

This manual contains materials that should be intended for personal use, all right reserved. No part of this manual may be reproduced, transmitted or transcribed without the expressed written permission of the manufacturer. The information present in this manual is subject to change without prior notice.

Notice & Reminder

Important Notice

- > Before operating the eMMC duplicator, please read carefully all the instructions and safety notes to ensure proper use of the equipment.
- > Make sure the source device is in working order
- > To guarantee data consistency, we highly recommend the capacity of source and targets should be the same.
- > It is strongly suggested to use "Copy&Compare" to achieve a perfect 1:1 duplication.

Safety Precautions

- > The warranty will expire if damage is incurred resulting from non-compliance with these operating instructions.
- > Store the equipment safely when not in used and keep out of the reach of children and infants.
- > Please turn off the power before replace the socket.
- > Never turn off the power while updating the firmware on the device
- > Use only approved power sources.
- > The product is only suitable for operation in dry, dust free, clean environment.
- > Do not allow liquids or foreign objects to enter. Failure to do so may severely damage your duplicator.



⌘ Preparation Tips

- > Make sure to use stable power supply.
- > Please use at clean & dry environment.
- > Please keep the environment well ventilated.
- > When the duplicator operates, it is normal for the machine to heat up.
- > Please do not move the duplicator during operation to ensure better operation.
- > Please do not remove memory cards during operation to avoid damage.
- > Please use power supply of its original manufacturer to ensure working normal.

⌘ Safety for Static Electricity

© Eliminate Static Electricity:

Static electricity may cause duplication error. Please pay attention to the duplicator environment and operators' equipment. It is recommended to purchase static electricity elimination equipments to avoid static electricity shock when stay in high static electricity.

⌘ Notice Symbols

Special items, procedures, or notes should be noticed by users before operation.

© Note :

Note: It refers to related operations on the duplicator, special details, tips to know, suggestions or more effective operation.

© Caution :

Caution: To avoid mistakes, please follow operations instructions carefully.



Product Overview

※ Overview

High speed industrial series, eMMC flash duplicator is designed for eMMC memory cards. With exchangeable module and easy operating interface, professional features, it will significantly increase production efficiency.

High speed eMMC duplicators provide copy, compare function. Real testing for transmission speed is up to 6.2GB per minute and does not degrade even when all ports are fully populated. It supports Boot partition, RPMB partition, and user area copy. With special professional log function, the duplicator allows to record tasks processing for each port, including tasks time, results, eMMC card number and other info. Also, provide the best management reports for shipment tracking, analysis capacity, yield, etc.

※ Features

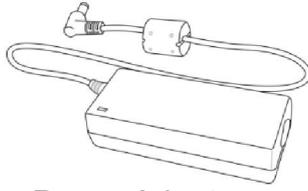
- ⊙ Super high copying speed
 - Support transmission speed up to 6.2GB/min for each port.
- ⊙ High compatibility
 - Support to copy Boot partition, RPMB partition, Enhanced Partition and User data area.
 - High compatible with eMMC up to version 5 and above.
- ⊙ Quick copy mode:
 - Support format of FAT16/32/64, Linux ext2/3/4, NTFS, and etc.
- ⊙ Log management
 - Log report records all tasks and details for source control and other management.
- ⊙ Two copy modes selection:
 - Support to select Quick Copy, Whole Area.
- ⊙ Three profession Erase modes:
 - Quick Erase, Full Erase, DoD Erase.
- ⊙ Support advanced function
 - Individual changeable socket: easy to switch to different size of eMMC socket.
 - Exclusive event log report management records all tasks and details for better production control.
 - Smart LED indicator shows clear working status and result.
 - High speed bit-by-bit hardware comparison.



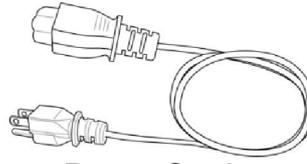
※ Package Contents



EMMC210
Duplicator



Power Adapter



Power Cord



User Guide

※ Front View

SD socket

LCD monitor

Input 4
Keys

Power
Supply

Power
Switch

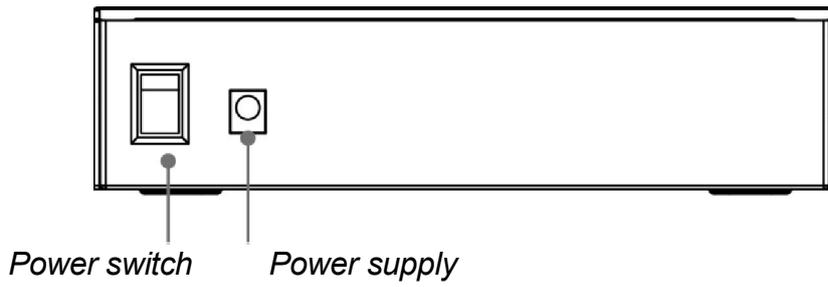
OK/Confirm
Shortcut/Fast Key



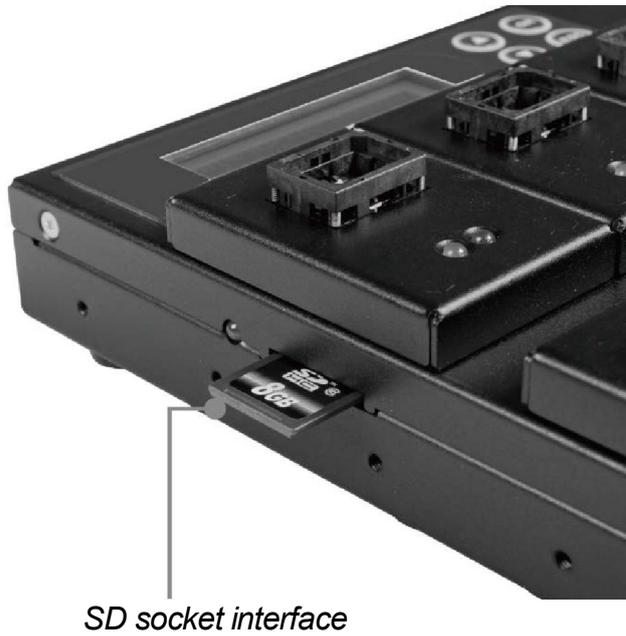
Red/Green
LED light

Individual
removable module

※Back View



※Side View



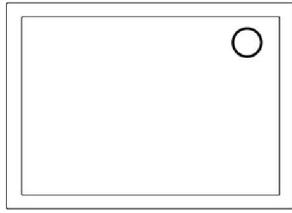
※LCD Configuration

Function/ Task	Number of target eMMC	Total size	UP/ Backward	OK/ Confirm
Time elapsed/ Task progress	Slowest target	Copied Size	Next/ Forward	ESC/ Exit

※Media

Media compatible for the series include eMMC and SD cards.

- > eMMC card: Source and targets for copy and comparison.
- > SD card: Save firmware and insert into SD socket via SD socket to SD card.



eMMC card



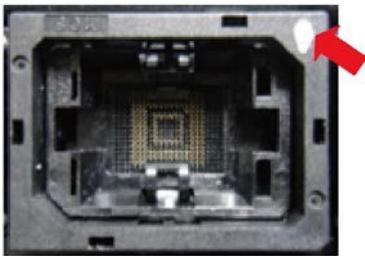
SD card

※eMMC cards installation

- > Find the Pin1 of the eMMC. (Most of eMMC has the mark on the Pin 1)



- > Identify the Pin1 of the eMMC card socket. (with the white mark)



- > Align the Pin 1 of the eMMC to the Pin 1 of the socket.
- > Slope and insert one side of eMMC card and press the whole card into the socket.
- > After placing the card properly, press the whole set of holder down to fix the eMMC card to the set of module.



※Optional device

Optional Fixture:

- > Place the fixture into of the duplicator. Fasten all screws, and pull the handle to the top.



- > Use the vacuum sucking pen to hold one eMMC card. Insert the card into the port. Insert all eMMC cards for tasks one by one.



- > After insert all cards into the duplicator. Pull and press the silver handle from top side to down and make sure the module fixed well.



Function Overview

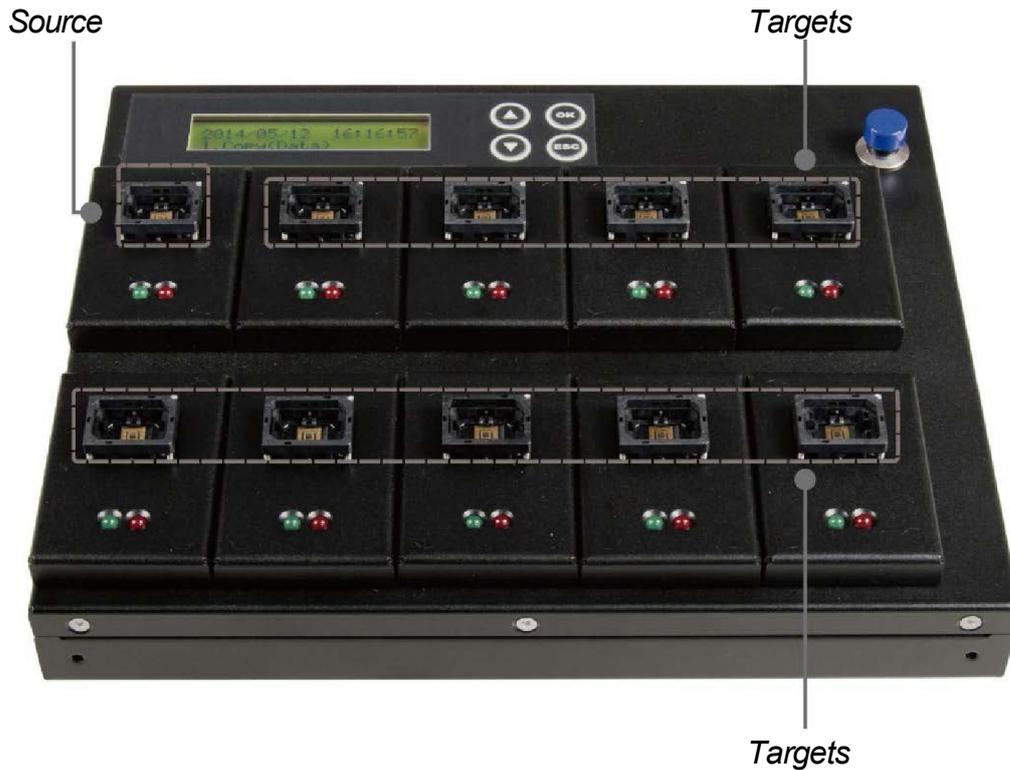
1 Copy

※Start to Copy

Step 1: Prepare source and target eMMC cards.

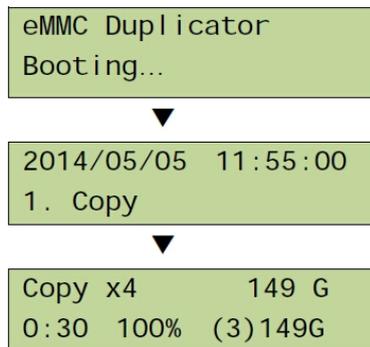
(★It's strongly recommended the source and target are the same capacity)

Step 2: Place one source eMMC card to source port and target cards to target ports.



Step 3: Enter Copy Function, 1 Copy, or 3 Copy&Compare

Use ▲▼keys to select copy function. Enter the function and press <OK>. The duplicator will start to copy.



Step 4: Completion!

Quality of copy OK/Fail and duplication time will show on LCD at the end of tasks.

- During process of duplication, every port captures in real-time and message shown on LCD and calculates CRC64 code.

- Once copy operation is completed, the system will immediately show comparison results between source and targets. The red light will flash when error occurs.
- It is able to record real-time checksum code output to Log report.
- CRC64 code: During duplication, each port will simultaneously record written message and calculate checksum code between source and targets. The result will show light in red(fail) or green(pass).

▼

Pass:3 Fail:1 0:30
CRC: F5F0D0611A4B79A0

NOTE: The first port is source port, the rest are target ports.
Press ▲▼ keys together for 5 seconds to stop operation on the slowest target port.

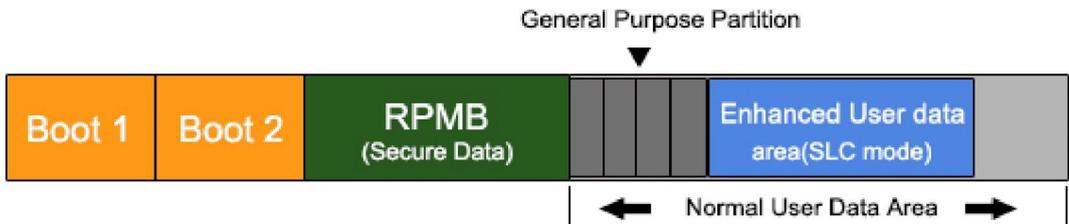
*Setup before Duplication

Please pay attention to the following setting before copy

- [1] Copy area
- [2] if need to copy boot partition, RPMB partition.

Function 6.7 eMMC Setting

The setting is to select whether copy or skip certain protection area, system booting area or user-defined area.

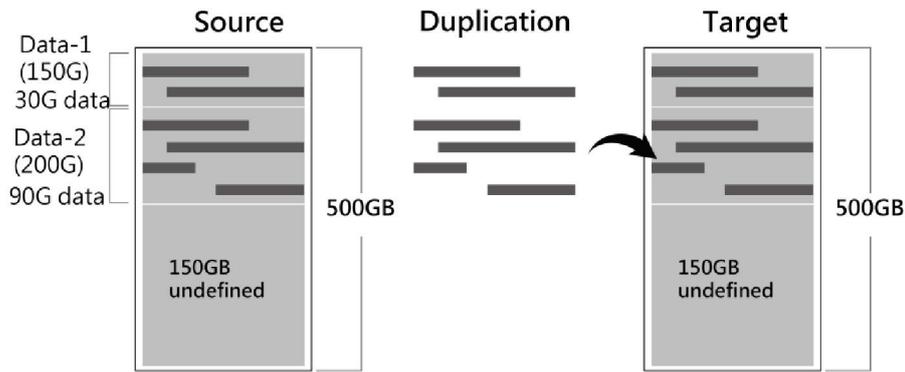


User Area

Set to copy data area or whole media. This setting is to select “Data” or “Whole” as your copy area. While setting to copy data only, the system will only copy data area. While setting to copy whole area, the system will copy the whole flash media.

> Copy data only area: Quick Copy/Compare

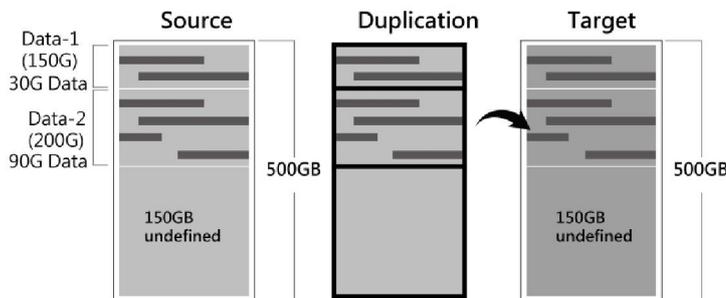
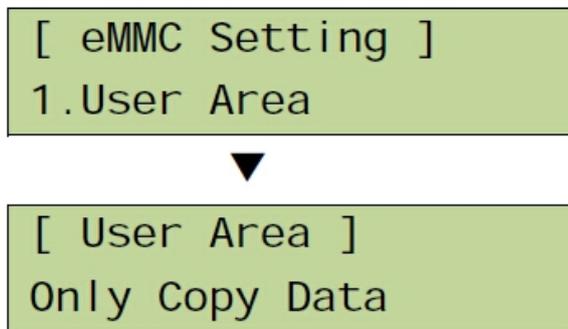
Set to copy source card’s data area instead of the whole media. It takes shorter time. The system will analyze the source and identify the data area to copy. As long as the source data within the target space, the copy will be processed. FAT16/32/64, NTFS, ext2/3/4, HFS/HFS+/HFX are supported for this copy mode.



Only 120GB data will be copied.

> Copy Whole area: support all formats

Copy the whole source media, no matter of the content, format, partition or empty space. This mode does not analyze the data. It takes much longer than Data Area Copy.



Entire 500GB will be copied. It takes much longer time suitable for special format cards or unloadable area.

Note If the source format is NTFS or Linux, to make sure the target could be operated normally, the target capacity must be equal or bigger than the source device. When doing whole media copy, the duplicator will not care the capacity difference between source and targets. Hence, you should be careful about the data in the target devices after copying.

Boot Partition

System booting/starting area (Boot Partition): support all formats

Set to copy or skip booting area. Boot partition refers to the OS booting system files. You can select "Do not copy" to escape the area.

[eMMC Setting]
2. Boot Partition



[Boot Partition]
Do Not Copy

RPMB Partition

Protected area, replay-protected memory-block partition, (RPMB Partition): support all formats

Set to copy or skip secure data area. RPMB partition refers to code protection area, RPMB (replay protect memory block). You can select “Do not copy” to escape the area.

[eMMC Setting]
3. RPMB Partition



[RPMB Partition]
Copy

2 Compare

※Ensure Data Accuracy

Step 1: Prepare source and target cards to compare after duplication finished.

Step 2: Enter the function, 2 Compare.

Use ▲ ▼ keys to select this function. Enter the function and press <OK>. The duplicator will start to compare.

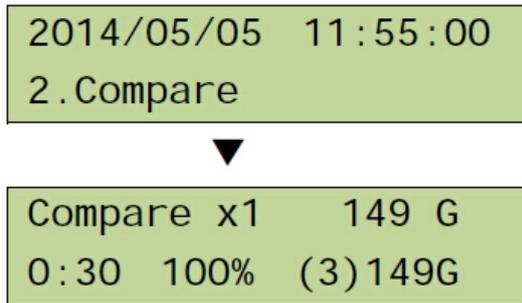
Step 3: Completion!

Quality of comparing results OK/Fail and spending time will show on LCD at the end of tasks.

Note The first port is source port, the rest are target ports.
Press ▲▼ keys together for 5 seconds to stop operation on the slowest target port.
When all the target ports are plugged, the machine will start duplication automatically. If not all ports are plugged, the number of working targets shows on LCE. Press <OK> to start the tasks.
It is highly recommended to execute Copy&Compare to confirm accuracy and save time.



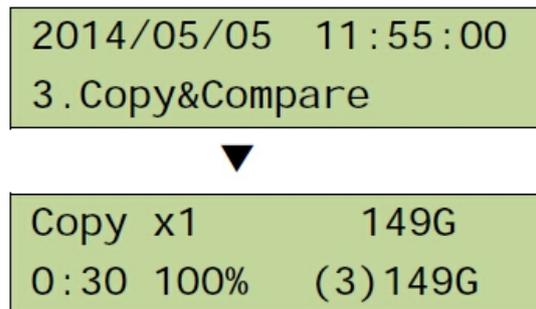
Compare function is to check the correctness of copying result bit for bit. After finishing copying, go to function, 2 Compare, and press <OK> to start executing comparing process.



Note It is highly recommended to execute Copy&Compare to confirm accuracy and save time.

3 Copy&Compare

This function provides a more convenient selection. Instead of going to the function, 2.Compare, and pressing <OK> again after finishing duplication, this function, 3.Copy&Compare, will automatically run the comparing task after finishing copying to ensure accuracy of copied result.

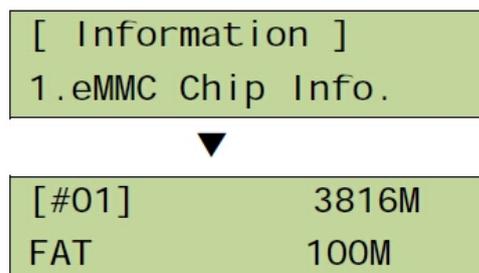


Note It is highly recommended to execute Copy&Compare to confirm accuracy and save time.

4 Information

4.1 eMMC Chip Info.

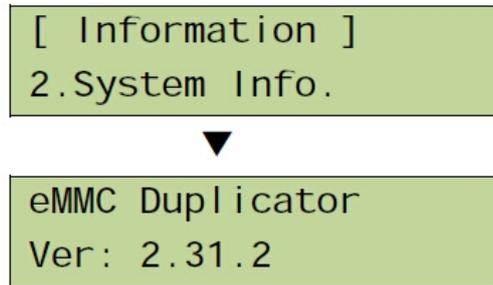
This function will show the eMMC cards' basic information such as file format, content size, and total capacity. Press ▲ ▼ buttons to check the information of each flash media including the source.



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

4.2 System Info.

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



5 Utility

※Data Sanitization

Step 1: Prepare disposal eMMC cards.

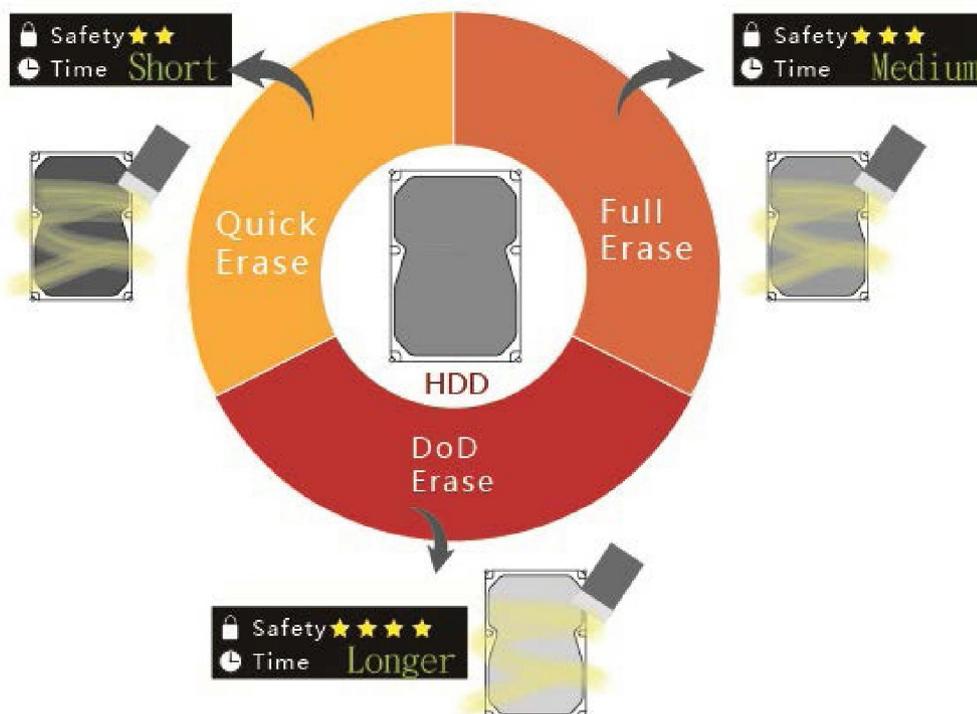
Step 2: Insert all disposal eMMC cards into targets.

Step 3: Enter Erase Function such as 5.1 Quick Erase

Select one Erase mode from 5.1/5.2/5.3. Enter the function and press <OK>. The duplicator will start to process sanitization.

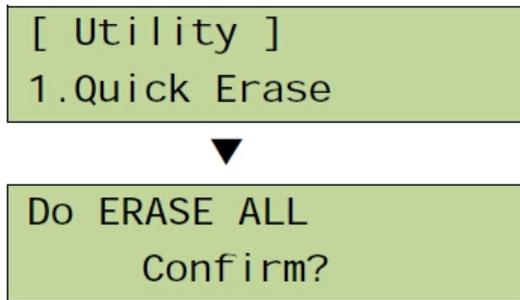
Note | The source port will not execute erasing function.
When all the target ports are plugged, the machine will start tasks automatically. If not all ports are plugged, the number of working targets shows on LCD. Press <OK> to start the tasks.

※Analysis of Erase Methods



5.1 Quick Erase

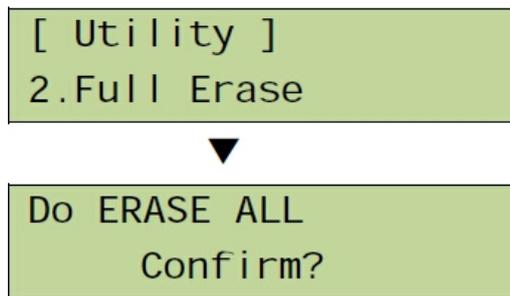
This function will erase flash's data, and it will keep the format if the original format of flash is FAT16/32. User can use ▲ ▼ button to check each flash media's erasing status, progress and information.



Caution Quick erase function can only erase the flash which is FAT 16/32 format. It will damage the data in flash, please make sure you have backup all important data before using this function.

5.2 Full Erase

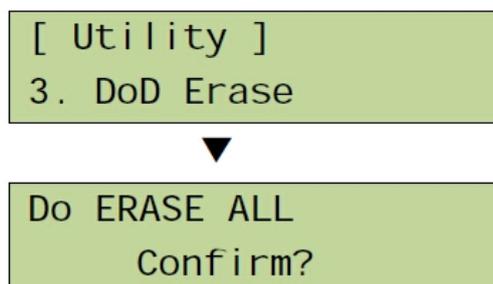
It will completely erase the whole flash media, including format and content. Therefore full erase will take more time. During the process, you can use <ESC> to stop the erasing process, but the original format and content can't be read any more.

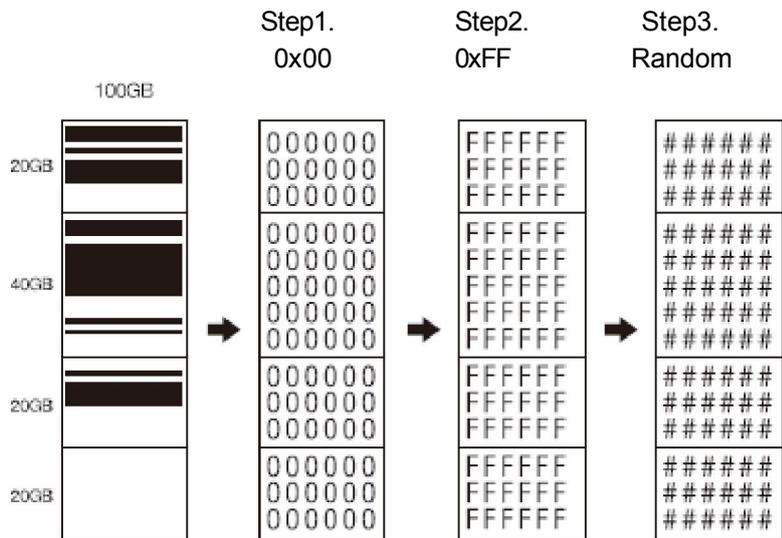


Caution It will damage the data in flash and not recoverable, please make sure you have backup all important data before using this function.

5.3 DoD Erase

This is to comply with the USA Department of Defense (DoD 5220.22-M) standard to fully erase the media three times bit-by-bit to overwrite data and guarantees data not recoverable. This DoD erase method will erase methods over each sector three times: the first time with zeros (0x00), second time with 0xFF(0xFF) and the third time with random characters.



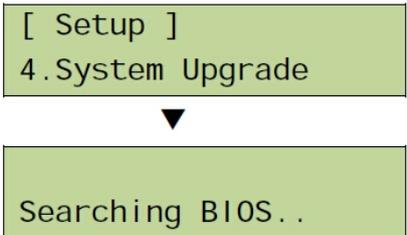


Caution Spending time: the erasing duration of DoD Erase mode is 3 times longer than full erase mode.
It will damage the data in flash and not recoverable, please make sure you have backup all important data before using this function.

5.4 System Upgrade

Update the system's firmware version via SD socket to SD card. Please save the un-zipped latest BIOS to your SD card. Do not put it under any folder; put it on root directory.

- 1-Select function, 5.4 System Update, and press <OK>, it will automatically start system updating.
- 2-When finished, please turn off the system for 5 seconds.
- 3-Restart the system, and the new version of firmware will finish uploading process.

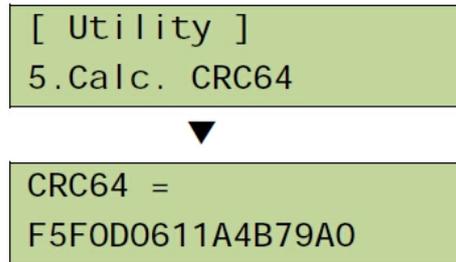


SD card for System Update



5.5 Calc. CRC64

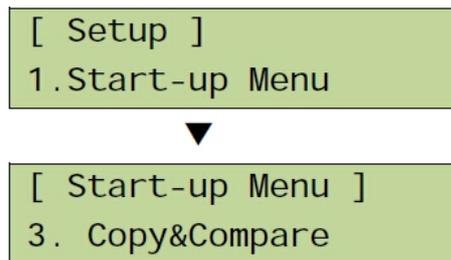
This function will calculate the CRC64 value of the flash media plugged in the source port. The CRC64 calculating area will base on the "copy area" you set. If you set "Data only", this function will calculate data area only; if you set "Whole media", the CRC64 value will be calculated based on the whole size of flash media. Be aware that even two flash cards have the same data, if the capacity has any difference, their CRC64 value will be different.



6 Setup

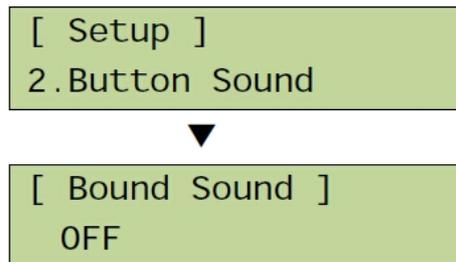
6.1 Start-up Menu

Reset any function shown first, when the eraser is turned on.



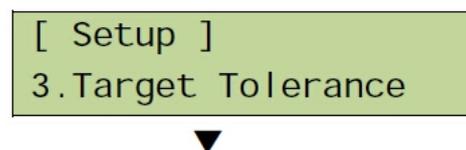
6.2 Button Sound

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



6.3 Target Tolerance

Set the tolerance % of capacity difference between the source and target. There are three models of settings as below, and the default setting is "No limit".



[Target Tolerance]
No Limit

☉ Allow Tolerance

Under this model, users can set the up and low limit of tolerance % of capacity difference separately between the source and target. The duplicator will view the setting as capacity limit of target flash media, and filter out the target with incorrect capacity.

For example:

If the flash media is marked capacity as 2GB, when user allows the up and low tolerance to be 1 %, then the workable capacity of target flash media will be : $(99\% \times 2\text{GB} \sim 101\% \times 2\text{GB}) \Rightarrow 1.98\text{GB} \sim 2.02\text{GB}$.



☉ No Limit (Default)

There is not any limit of capacity between the source and target.

Note For this eMMC model, if the data size in the source is larger than the capacity of target, it might lead to incomplete copy.

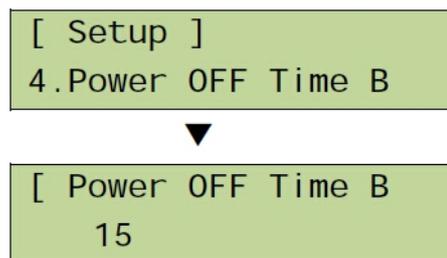
☉ 100% Same

The capacity of targets has to be exactly the same as the source, or it will not be able to execute any function.

6.4 Power Off Time Between Copy&Compare

This setting is to prevent from any data loss because of unstable flash, we strongly recommend you to enter this function to set the time gap of power supply between copy and compare.

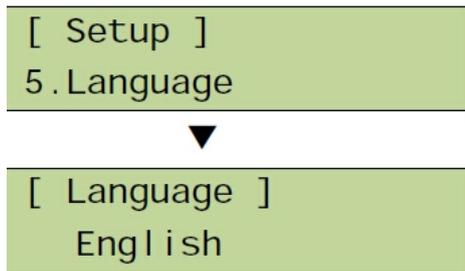
The time gap can be set from 0 to 15 seconds. The default setting is "3".





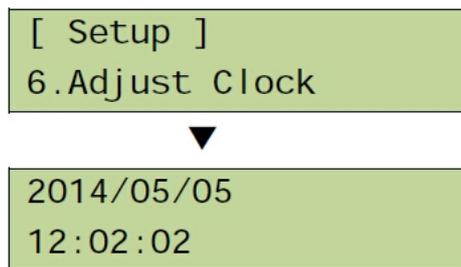
6.5 Language

Set the system's language interface, i.e. English, Japanese.



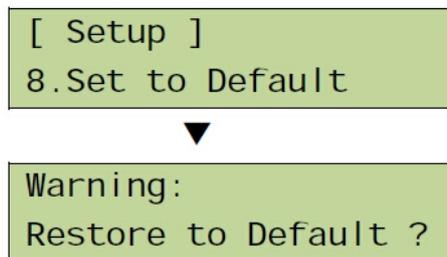
6.6 Adjust Clock

Adjust the clock of duplicator showed on the LCD monitor. Enter default password to use this function.



6.7 Set to Default

Restore all parameters to the factory default settings.

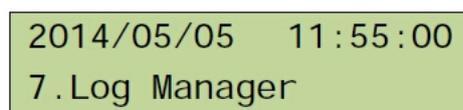


7. Log Manager

Log report management is a very important management tool to assist users in monitoring, recording working status of each port and managing the whole erasing/duplication process and the result.

After finishing all the task of the erase, enter function “7. Log Manager”, and then choose among range options, to export log report of day, to recent log report or to select a period of time.

Export log via SD socket to SD memory card.





[Log #1-#39]
1.Out Today Report

7.1 Out Today Report

Export log report of today via SD socket.

Select “7.1 Out Today Report” and press <OK> key to output all logs of today to SD card and read it on computer.

[Log #1-#39]
1.Out Today Report



Output Log...

7.2 Out Recent Report

Export log report of today via SD socket.

Select “7.2 Out Recent Report” and press <OK> key to output all logs of recent 28 days to SD card and read it on computer.

[Log #1-#39]
2.Out Recent Report



Output Log...

7.3 Out Period Date

Export log report of today via SD socket.

Select “7.3 Out Period Date” and press <OK> key to output all logs of selected date range to SD card and read it on computer.

[Log #1-#39]
3.Out Period Date

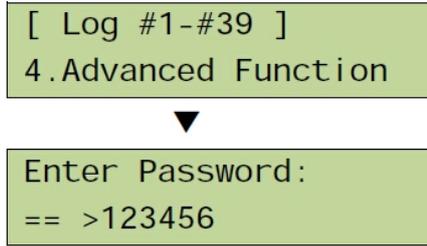


Output Log...



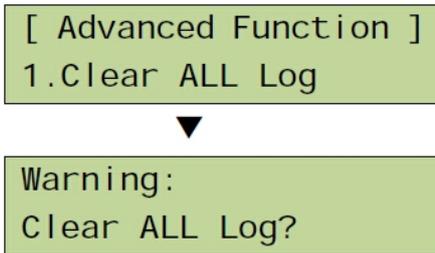
7.4 Advanced Function

Use advanced function of log manager to clear all logs, and to reset password. For first time using the system, enter the factory default password to enter. The default password is “123456”.



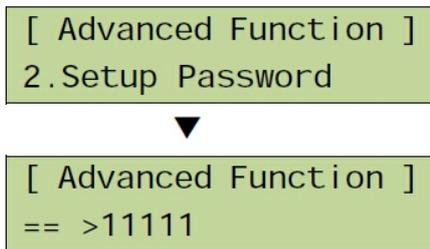
7.4.1 Clear ALL Log

After users entering password, the log report saved in the duplicator can be wiped out.



7.4.2 Setup Password

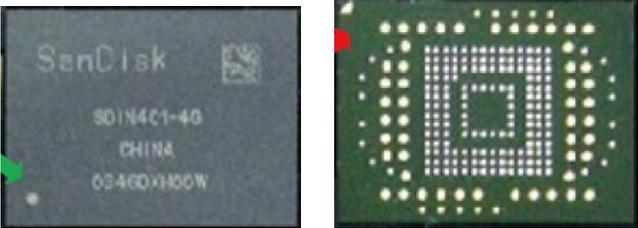
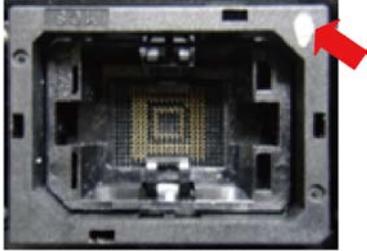
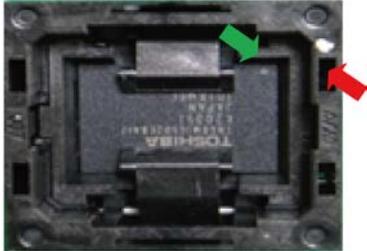
Users can reset password to protect log records. The factory default password is “123456”.

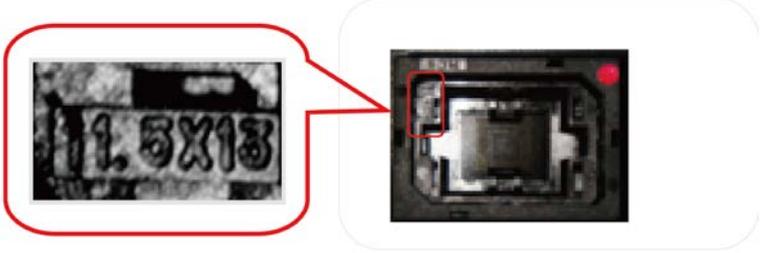


Note | Up to 130,000 logs at one time can be saved. (English machine) One record is equal to one recorded log.
| Highly recommend to reset “log password” for security of log data.

How to Use eMMC Cards

※FAQ

Operate eMMC	Question	Reasons / Answers
Install eMMC	Why it failed to perform any function after putting eMMC to socket?	The direction may be put in wrong direction. eMMC card is one type of SD card of IC pattern. The shape is either square or rectangular; it fails to perform when put in wrong direction.
	How to place eMMC card into the socket correctly?	Use the Pin 1 as the identification position. After finding the Pin 1 position of eMMC, then apply to the first corner of the socket holder.
IC-Port 1	How to identify the Pin1 of eMMC card (Port 1)?	<p>The Pin 1 of eMMC card normally has one dot in the front (green arrow). On the back it has one triangle point (red arrow)</p> 
	How to identify the first port of the eMMC socket?	<p>On Pin 1 of the socket, there is one whit dot as the identification mark.</p> 
	How to place eMMC card into the socket? To which position?	<p>Put the Pin1 of eMMC card to the dot location.</p> 

IC Socket Holder	Why is IC failed to load into the holder?	There are 4 kinds of size for eMMC IC socket. (BGA153-11.5x13, BGA169-12x16, 12x18, 14x18) It can perform only when the size of IC is correct to match socket holder.
	How to recognize the size of the holder?	The left side of the holder shows size marks. The font is very small. Please check carefully. 
	How to replace wrong size holder? How to replace bad socket holder?	The holder cannot be replaced alone, only to replace the whole set with the removable socket. After removing the whole set, replace a new correct size of socket together with the holder.
Notice	Before copy, what else need to setup? (6.7 eMMC Setting about copy settings)	Setting suggestions before copy tasks as following: 6.7.1 User Area: select to copy data area only. 6.7.2 Boot Partition: select to Copy. 6.7.3 RPMB Partition: select to Copy.



Function Table

Function	Sub-function & Description	
1. Copy	Copy data from source to targets. (There are copy modes and partitions selection at function 6.7 eMMC setting.)	
2. Compare	Compare data between the source and targets to make sure copy accuracy	
3. Copy&Compare	Compare data automatic immediately after completing copy task.	
4. Information	4.1 eMMC Chip Info Show eMMC information of data, file format, content size and capacity.	
	4.2 System Info Show information of the duplicator system, including machine model number and software version.	
5. Utility	5.1 Quick Erase Erase Index of eMMC cards, taking very short time.	
	5.2 Full Erase Erase data bit-by-bit for the whole eMMC cards, including format and content, taking longer time than Quick Erase.	
	5.3 DoD Erase Erase eMMC cards three times complying with USA Department of Defense's standard.	
	5.4 System Upgrade Update system firmware via SD socket to SD card.	
	5.5 Calc. CRC64 Calculate the CRC64 value of eMMC in the source port and compare with targets.	
6. Setup	6.1 Start-up Menu Select which function is shown firstly when turn on the system.	6.1.1 Copy
		6.1.2 Compare
		6.1.3 Copy&Compare
		6.1.4 Information
		6.1.5 Utility
		6.1.6 Setup
		6.1.7 Log Manager
	6.2 Button Sound Select to turn button sound on or off.	6.2.1 OFF
		6.2.2 ON
	6.3 Target Tolerance Set the tolerance % of capacity gap between the source and targets. The default is no limit.	6.3.1 No Limit
		6.3.2 100% Same
		6.3.3 Allow Tolerance
	6.4 Power Off Time Between Copy&Compare Set the power-off time between Copy and Compare when execute function, Copy&Compare, capable of setting 0/1/2/3/.../15.	
6.5 Language Set system language interface.	6.5.1 English	
	6.5.2 Japanese	



	6.6 Adjust Clock Reset displayed time on LCD.		
	6.7 eMMC Setting	6.7.1 User Area Set copy area of the source card.	Only Copy Data
			Copy Whole Area
		6.7.2 Boot Partition Set whether copy booting area of the source.	Do Not Copy
			Copy
		6.7.3 RPMB Partition Set whether copy Secure data area of the source.	Do Not Copy
			Copy
	6.8 Set to Default Back to original manufacturer setting.		
7.Log Manager	7.1 Out Today Report Export today's log records.		
	7.2 Out Recent Report Export the log records in recent 1day to 28 days.		
	7.3 Out Period Date Export the log records in a specific date.		
	7.4 Advanced Function Enter password to enter the function.	7.4.1 Clear ALL Log Clean out the log records after entering the password.	
		7.4.2 Setup Password Set up the password for cleaning log records.	



Specification

Name	eMMC Flash Duplicator
Model	EMMC210
Target	1:9 (10-port)
Copy Speed	6.2GB/min (104MB/sec)
Flash media	eMMC 4.3/4.4/4.41/4.5/5.0 and above
Module	Individual socket, removable module
Device Compatible	12x16x1.4 mm (169 ball) 11.5x13x1.3mm (153 ball) 12x18x1.4 mm (169 ball, via required socket)
Buffer	On board memory
Operation Type	Stand-alone operation SD-port output log
Operating System	All (Windows, Linux, Other stand-alone systems)
Support Format	Fast Copy: FAT16/32, NTFS, Linux (Ext2/Ext3/Ext4) Whole Copy: All formats
Copy Function	User area copy: Quick copy, Whole area Boot partition, RPMB partition
Compare Function	High speed bit-by-bit comparison
Erase Function	Quick Erase, DoD Erase
Language	English, Japanese
Display	2x16 LCD display
Input Key	4 push buttons: ▲(UP), ▼(DOWN), OK(Enter), ESC(Exit)
LED Indicator	LED (Red/Green) on each slot
DoD Erase	Yes
Power	Switching P/S
Temperature range	Working temperature: 5°C~45°C Storage temperature: -20°C~85°C
Humidity range	Working humidity: 20%~80% Storage humidity: 5%~95%
Safety & Certification	CE, FCC, RoHS



Customer Support

***Registration**

Complete the registration card and return it to Weilei to become eligible for the following:
Customer support: one-year warranty, and technical assistance.

You can register by phoning, faxing or E-mail: wellon@weilei.com

Address: B4-1-402 Hi-tech innovation base, No.16,the 5th Haitai Development Street Huayuan Industrial Park, Hi-tech Industrial Zone, Tianjin ,P.R.C,300384

***Technical Support**

WELLON software comes with a comprehensive User's Guide. If you cannot find the answer in the manual, you can turn to your dealer, or distributor.

Software updates are available free from our web site.

If you're having difficulty understanding the program, have you studied the User's Guide? The manual explains the program operation in some depth.

If there seems to be a problem with the software, can you reproduce it?

If the program has displayed an error message, please write down the message.

When E-mailing for technical assistance, please mention your Invoice No, Invoice Date & serial number, as we cannot answer your questions without it. To help us serve you better, please review your E-mail details properly.

Be familiar with the hardware configuration that you are using. We may need to know the brand/model of your computer, CPU, the total amount of memory available when starting up the software, and a version of operating system.

***Software updates**

New features and enhancements to the existing programs may be added and verified program faults or necessary amendments will be rectified thought the issue of periodic software revisions.

For updated software, you may visit our home page.

Internet: <http://www.weilei.com> <http://www.weilei.com.cn>

***Limited Warranty**

WEILEI warrants that its products will be free from defects in workmanship and materials, and shall conform to specifications current at the time of shipment, for a period of one year from the date of shipment. During a year period, any defective software or hardware products will be repaired or replaced, at seller's option, on a return to factory basis.

This warranty applies only to products properly installed and operated within specified environmental conditions.

WEILEI responsibility under this warranty does not apply to:



- 1 Any product that has been repaired, worked upon, or altered by any person not duly authorized in writing by WEILEI.
- 2 Any product which has been subject to misuse, negligence or accident, or whose serial number has been altered, defaced, or removed.
- 3 Any fault induced into the program by physical damage to the CD or to the corruption of the program by electronic, electrical or magnetic interference.

WEILEI may revise this manual from time to time without notice.