

SmartCopier User Manual (Firmware Download)

V3.2

RealSYS

NOTE

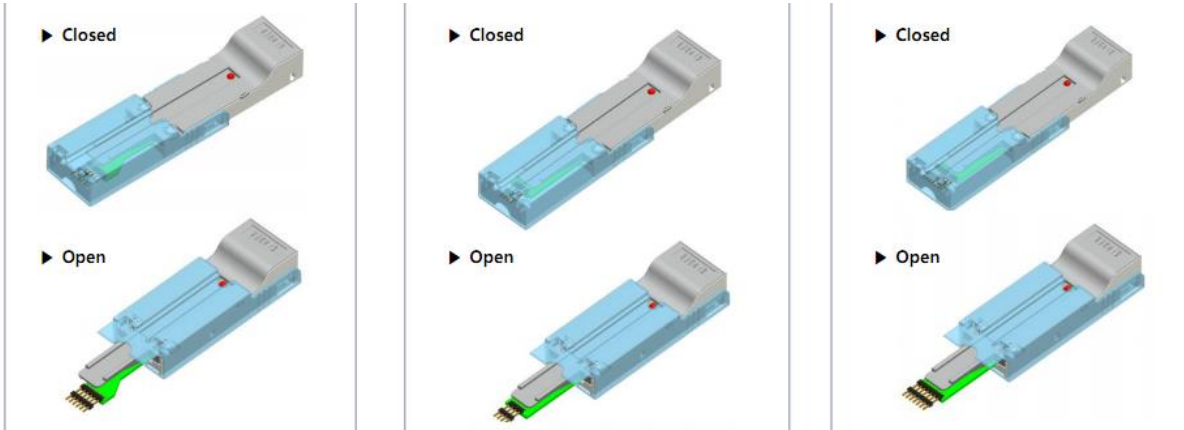
- The specifications and contents of this product are subject to change for performance improvement.
- Prohibit replication without permission, change, and the use in other applications of software and related documentations.
- Free A/S is possible within the warranty period and if the failure is due to carelessness of user handling, the repair costs may be paid by user.
- The person who actually use the products is responsible for damage, if it is caused by the user's carelessness or the safety precautions are not taken into account.
- Except what is described in this book,
- When the product is damaged due to the improper use or approaches which is not described in this manual, repair requests can be rejected.
- **Connect the board to the required firmware must be purchased separately.**

❖ Gender board required

6pin type
[S100/H100 Main]

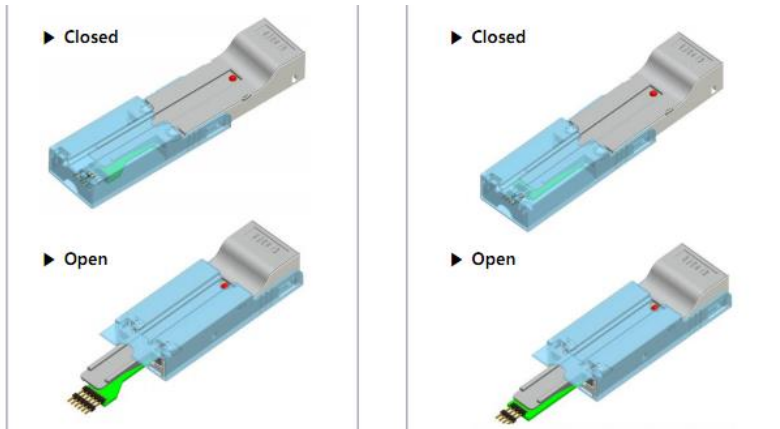
4pin type
[S100/G100/H100 I/O]

7pin type
[iS7 Main]



6pin type
[M100/G100 Main]

6pin type
[M100 I/O]





OPERATING PRECAUTIONS

◆ Power Supply

- Use provided insulated DC 5V, above 2A product for external adapter.
- Use four reliable AA-type batteries for internal power source.
(Since the power consumption by inverter model is different, it is recommended to use a lithium-ion battery.)

◆ SD Card and USB

- When inserting or removing SD card, check that the product is in non-operating state or the power is turned off in advance.
(SD card supports up to SDHC 64GB, but this takes a long time to initialize, so it is recommended that no more than 8GB.)
- Do not turn off the power or separate the cable from the device before the USB is disconnected in the user PC application program or PC is turned off during USB communication.

◆ Inverter Connector and Gender

- Be careful not to pinch the conductive material in the gap of the connector terminal or gender.
- Be careful with the direction of polarity when connecting the gender to the inverter.

◆ Firmware Download

- Do not turn off the power during functional operations before success or failure screen is displayed.
- Do not remove the SD card from the device during functional operations.
- Do not apply power to an inverter during functional operations.
- Do not disconnect the download gender or cable during functional operations.

◆ Parameter Read/Write

- Do not connect/disconnect RJ-45 cable terminal during functional operations.
- Do not remove the SD card from the device during functional operations.

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SMART COPIER

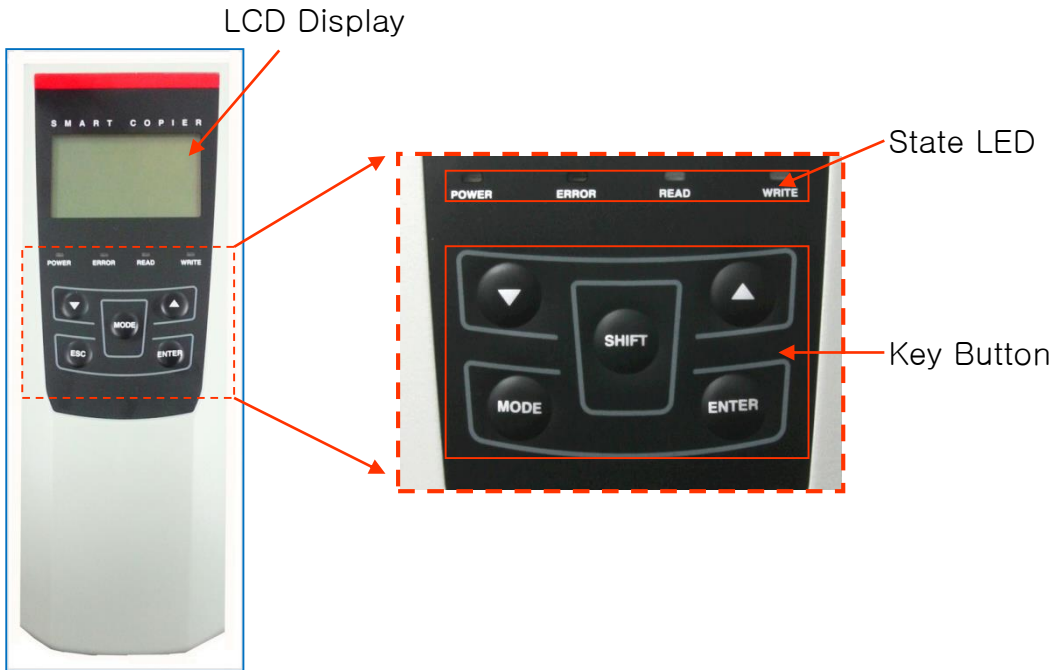
1. Specifications

Item	Description	Note
Product	<ul style="list-style-type: none"> • SmartCopier Firmware/Parameter combined • SmartCopier Parameter only 	
Display	<ul style="list-style-type: none"> • Black and white graphic LCD 128 x 64 (green backlight available) • Power / Error / Read / Write State LED 	
Input Device	<ul style="list-style-type: none"> • Main body power ON / OFF switch • Up / Down / Mode / Enter / Shift button key • USB 2.0 Communication Terminal 	
Output Device	<ul style="list-style-type: none"> • RJ45 Communication Terminal (for Parameter Comm.) • Connector / Cable / Gender Firmware for Download 	
Memory Card	<ul style="list-style-type: none"> • SD Card SDHC (Up to 64GB, recommend 8GB) • FAT32 	
Power Standard	<ul style="list-style-type: none"> • Battery for internal power (four general AA-type batteries) (In the case of providing the battery, and enables firmware features more than 150 times. If alkaline batteries can not be used in only about 50 times. Please use the battery provided with the same battery.) • Adapter for external power (insulated DC 5V, above 2A) 	Refer to 16page
Software	<ul style="list-style-type: none"> • Support window file conversion and management program • Support window device driver • Windows XP, Windows Vista, Windows 7, 8,10 compatible. 	
Main Function	<ul style="list-style-type: none"> • Firmware Download / Parameter Read / Parameter Write • Target power supply • USB insulation function 	
Supporting Model & CPU Type	<ul style="list-style-type: none"> • S100 / H100 / iS7 Inverter Model • Freescale Coldfire MCF51JM32 • Freescale Coldfire MCF51JM128 • TI-DSP TMS320F2809 • TI-DSP TMS320F2811 	
Size & Weight	<ul style="list-style-type: none"> • 70 x 190 x 30 (Width x Length x Height) • Weight 250g (except battery weight) 	mm
Package	<ul style="list-style-type: none"> • Main Body 1Set / User Manual / Software CD / USB2.0 Cable / SD Card 8GB / DC Power Adapter (절연형) / AA Lithium-ion Battery Set / RJ-45 Cable 	6
Certification	<ul style="list-style-type: none"> • MIC Certification 	KOREA

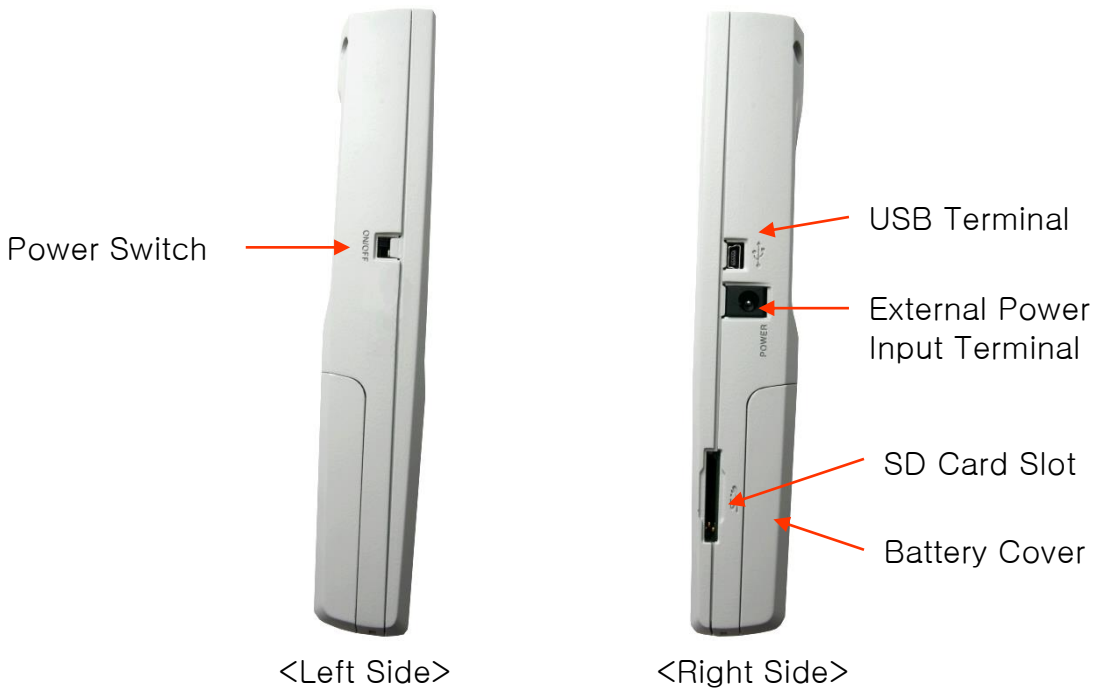
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2. Exterior

2.1 Front



2.1 Side



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2.2 Top

Parameter
Communication
Terminal (RJ-45)



Firmware
Download Terminal

2.3 Back

Battery Cover



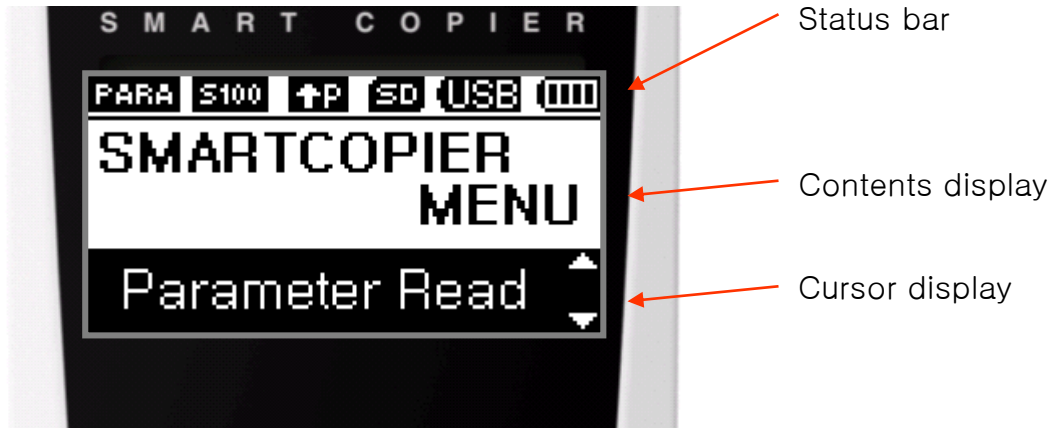
Battery Case
(AA-Size x4)



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3. Monitor Functions

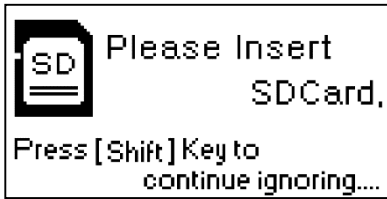
3.1 LCD Monitor Display



– Type of state Icon

- FIRM** : Firmware Download Mode Display
- PARA** : Parameter Read/Write Mode Display
- S100** / **H100** / **iS7** : Inverter Model Display
- ↑P** : Parameter Write Mode Display
- ↓P** : Parameter Read Mode Display
- ↑E** : BDM Write Mode Display
- ↑U** : Real DSP-UT Write Mode Display
- SD** : SD Card Insertion Status Display
- USB** : USB Connection Status Display
- |||||** / **□** : Battery Status Display

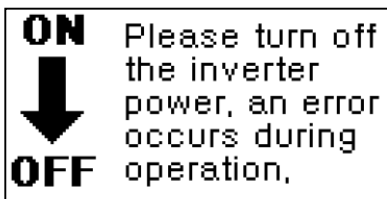
- Information message type



This screen is displayed when SD Card is empty in the SD Card slot terminal of the product. If you press the Shift key, you can ignore the message.



This screen is displayed in the process of recognizing the Card when you insert the SD card to slot terminal. Do not remove the SD Card at this time.



This screen is displayed when the inverter is turned on and in the operating state. To continue the operation, turn off the power of the inverter or disconnect the connector from the inverter.



This screen is displayed when the application installed on the user's PC and the main body of product are communicating. Until it is disconnected from the PC program, the user can not execute any operation.

3.2 Display Functions



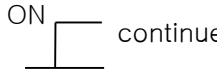


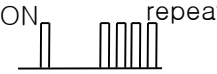
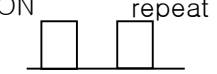
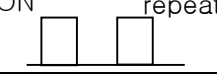
① Power Status LED

② Error Status LED

③ Read Status LED

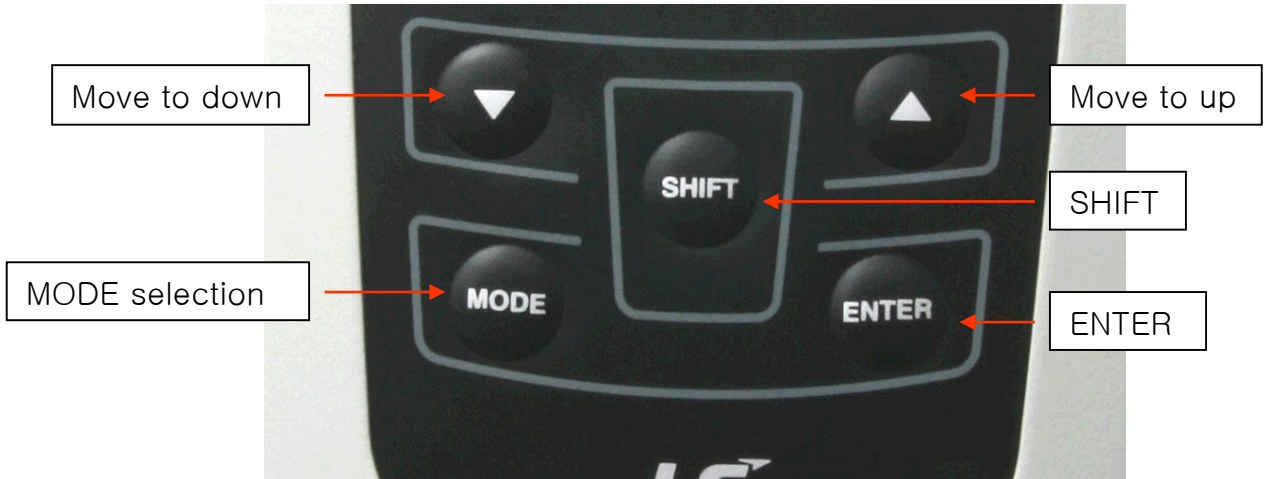
④ Write Status LED

– LED Display State

LED	Color	Waveform	State	Description
Power Status LED	Green	ON  continue	ON	Steady power input state
	Green	ON  repeat	Toggle (1s intervals)	Low battery state
Error Status LED	Red	ON  repeat	Toggle (1s intervals)	Operation error or failure state
	Red	ON  repeat	Toggle (1s intervals)	Not under functional operating condition
Read Status LED	Green	ON  repeat	Toggle (1s intervals)	State of reading data from the target
Write Status LED	Green	ON  repeat	Toggle (1s intervals)	State of writing data to the target

4. Input Devices

4.1 Button Key



– Button Description

UP key : Move the cursor to up.

DOWN key : Move the cursor to down.

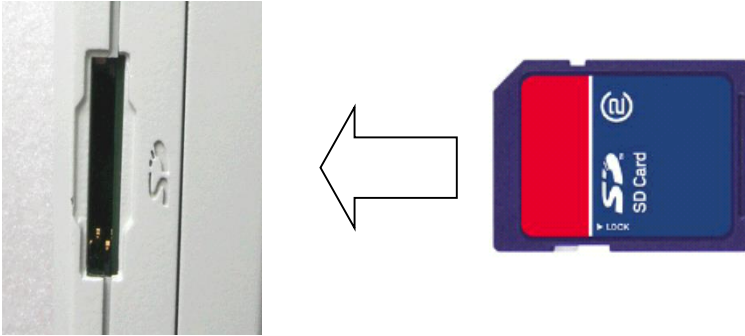
SHIFT key : Move the screen to its previous state.

ENTER key : Execute the function indicated by cursor / Select item

MODE key : Move to the initial screen or call the special command

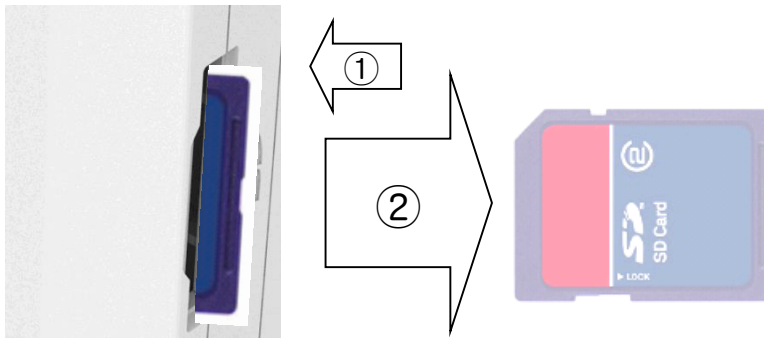
4.2 SD CARD Insertion / Removal

- When the card is inserted



When the card is inserted, put the card deep into the SD Card slot of the main body along with the sound “click”. The card must be fixed not come out of the body.

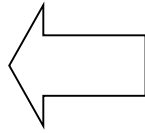
- When the card is removed



When the card is removed, put the card deep into the SD Card slot of the main body once again along with the sound “click”. Then the card will be separated out of the main body. At this time, pull the card and remove it from the main body.

4.3 USB Connection / Disconnection

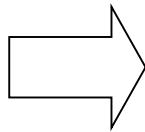
– Connection



USB 2.0 Mini-B Cable

Connect the cable to the USB terminal of the main body.

– Disconnection



USB 2.0 Mini-B Cable

Exit the application provided to user PC, and then remove the cable from the USB terminal of the main body.

5. Output Port and Gender Structure



RJ-45 connected to the inverter and 10 pin connector connected to the gender use 1:1 direct cable with the target board.

5.1 Hardware connections using a gender board

- A. Before connecting, check the type and direction of the gender.
(If the gender board inserted incorrectly, it may cause a malfunction.)
- B. Inverter power off until the update is complete.

5.1.1 In case S100,H100 Main Downloader – using 6pin gender

- 1) Connect the cable 10P gender and smart copier.
- 2) 5.5KW or more model links so that when viewed from the front, gender GND pin board can be attached to the bottom.
- 3) If the models below 5.5KW, the GND pin of gender so that can be attached to the top.



PCB Back Silk

More than
5.5kW

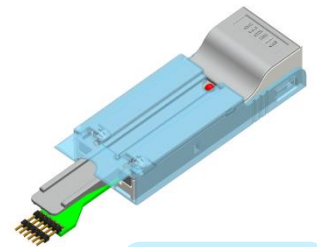


Back
gender

Below
4.0kW



Front
gender



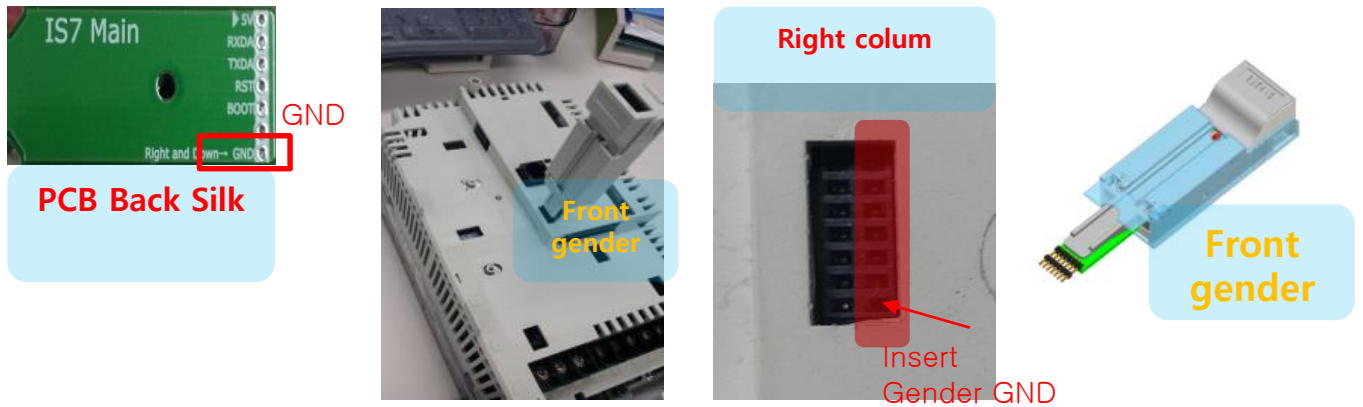
Front
gender

*. Please check inverter power off and gender direction.

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5.1.2 In case iS7 Main Downloader – using 7pin gender

- 1) Connect the cable 10P gender and smart copier.
- 2) When viewed from the front of the inverter, gender GND pins to attach to the bottom of the right column.



*. Please check inverter power off and gender direction.

5.1.3 M100, G100 Main Downloader– using 6pin gender

- 1) Connect the cable 10P gender and smart copier.
- 2) A. In case M100 Model – When viewed from the front of the inverter, Gender GND pins attach to the bottom.
B. In case G100 Model – When viewed from the front of the inverter, Gender GND pins attach to the top.

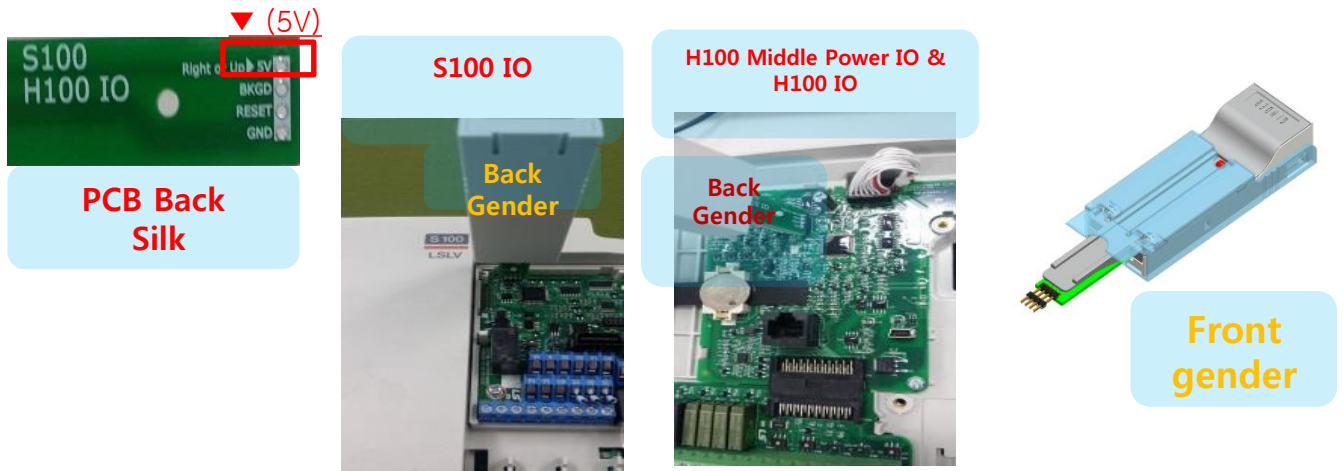


*. Please check inverter power off and gender direction.

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5.1.4 In case S100/H100/G100 IO Downloader – using 4pin gender

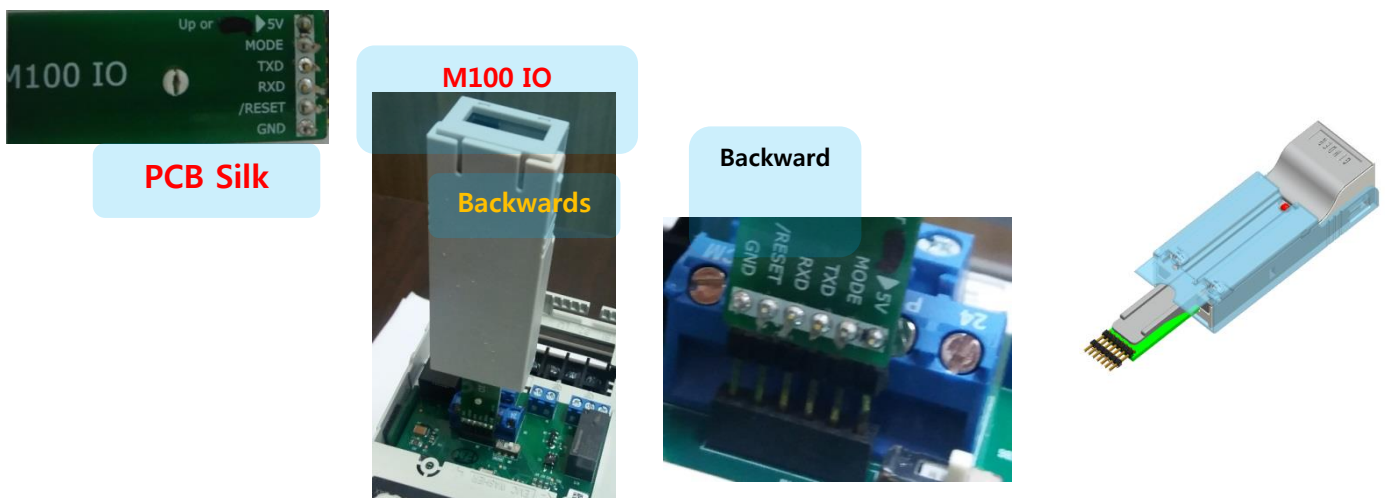
- 1) Connect the cable 10P gender and smart copier.
- 2) A. In case S100 Model – When viewed from the front of the inverter, gender ▼ (5V) pins attach to the right.
B. In case S100 middle power & H100 Model – When viewed from the front of the inverter, gender ▼ (5V) pins attach to the top.



*. Please check inverter power off and gender direction.

5.1.5 In case M100 IO Downloader – using 6pin gender

- 1) Connect the cable 10P gender and smart copier.
- 2) When viewed from the backwards of the inverter, gender ▼ (5V) pins attach to the right.



*. Please check inverter power off and gender direction.

► Cautions ◀

☆ Before the Smart Copier operation, please turn off the inverter power☆

When using the internal battery, smart copier reset if the cause, please check the batteries or use an external adapter.

☆ Please check the wiring☆

- 1) If the connection of the inverter board and gender wrong, the smart copier may be the cause of the failure.
- 2) During the firmware update, if the power is turned on, the inverter may cause a update failure.

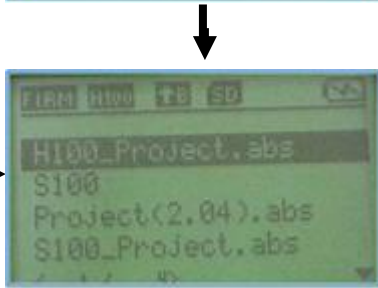
✓ Operating current of the inverter is about 800mA, related to the internal battery discharge efficiency.
Therefore, we recommend that you use a high-rate discharge(more than 800mAh) rate of the battery.

6. Operation and Use Description

6.1 Firmware Download

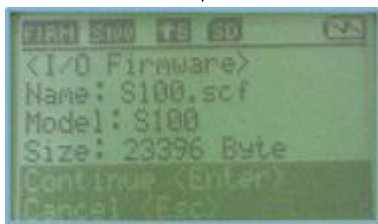


- Enter the [Firmware Download] on the menu screen.



- Select the file using the Up/Down keys on the file List.
- To return to the previous screen, enter the Shift / Mode key.

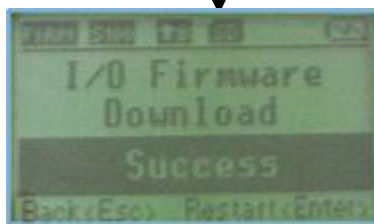
※ From the following steps, <Enter> and <Shift> key can only be used.



- To make sure that the displayed information is consistent with the target inverter information.
- If the both information match, press the Enter key to proceed the download, if not press the Shift key to cancel.



- Download is carried out and the key operations and screen movement are impossible before the success / failure result is displayed.
- State of progress is displayed at the bottom of the screen.



- When the progress results are displayed, you can go back to the previous screen or re-execute the work which just has handled.

Enter key

Press key?

Shift key

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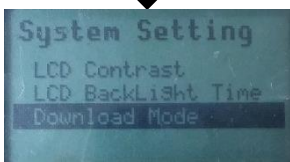
*. When S100 / H100 IO Download failure, to do.

- . For S100 / H100 IO, the downloading depending on CPU version may fail. In contrast, by changing the download mode(BDM+Serial), please try again. (By default, Smart Copier is set to BDM mode.)

1) Change to [BDM+Serial] Mode



- Enter the [System Setting] on the menu screen.



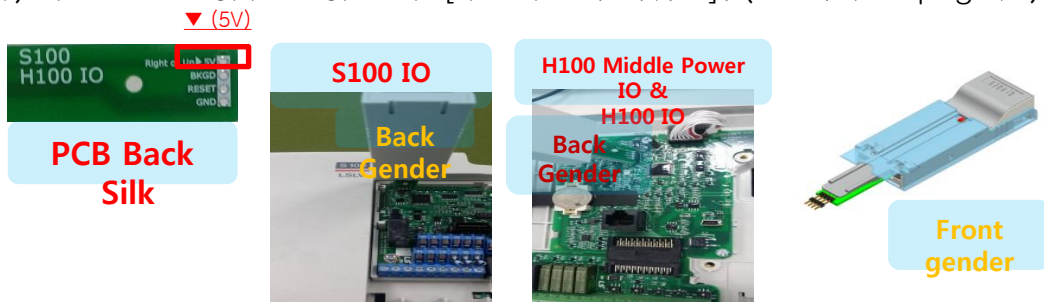
- Enter the [Download Mode] on the menu screen.



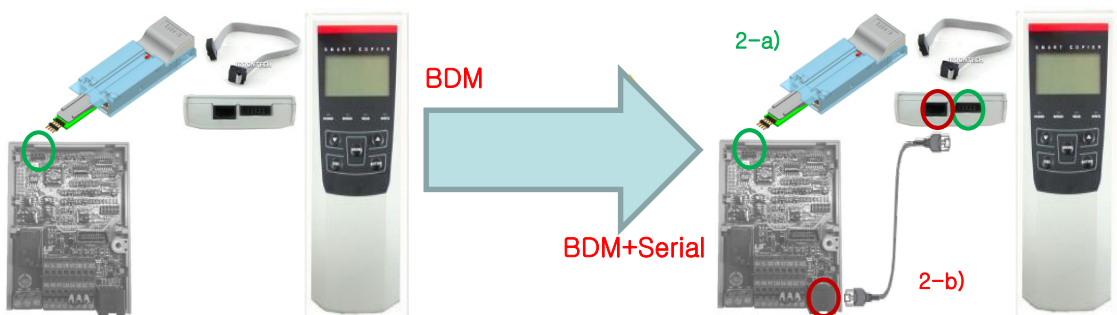
- Enter the [Download Mode] on the menu screen.
- [▲] , [▼] key entry using the [BDM+Serial] mode.
- Press to the [ENTER] key
- After the hardware connection, proceed 6.1 Firmware download. (Reference page16)

2) Hardware connection to [BDM+Serial] Mode.

2-1) The same connection with [the chater 5.1.3]. (Reference page15)

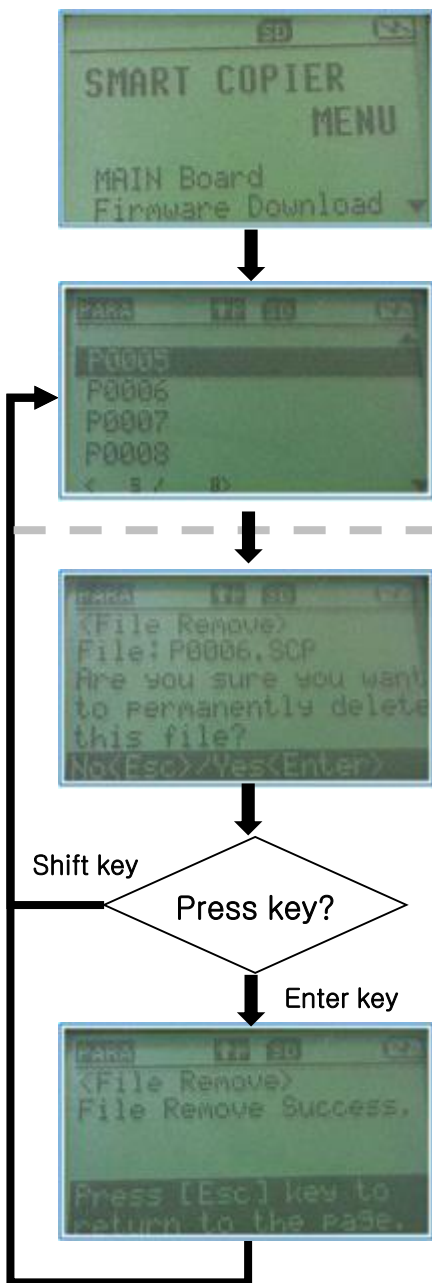


2-2) Using the direct cable, connect the Copier RJ45 and RJ45 for I/O Board.



*. Please check inverter power off and gender direction.

6.2 File Remove



- Enter the [Firmware Download] or [Parameter Read] on the menu screen.

- When the file list screen is displayed, Press and hold the Mode key for 3 seconds.

※ From the following steps, <Enter> and <Shift> key can only be used.

- Guide screen of file deletion is displayed. Press the Enter key to delete file or press the Shift key to cancel.

- Result screen of file deletion

7. PC Software and Driver Use Description



LSIS_SmartCopier v1.00.exe
LSIS SmartCopier Program
LSIS, Co., Ltd.

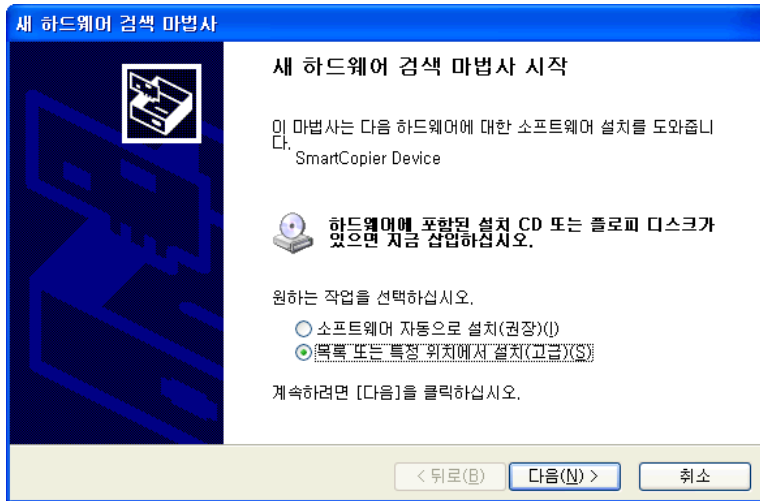


lsis_smcp_driver.inf
설치 정보
4KB

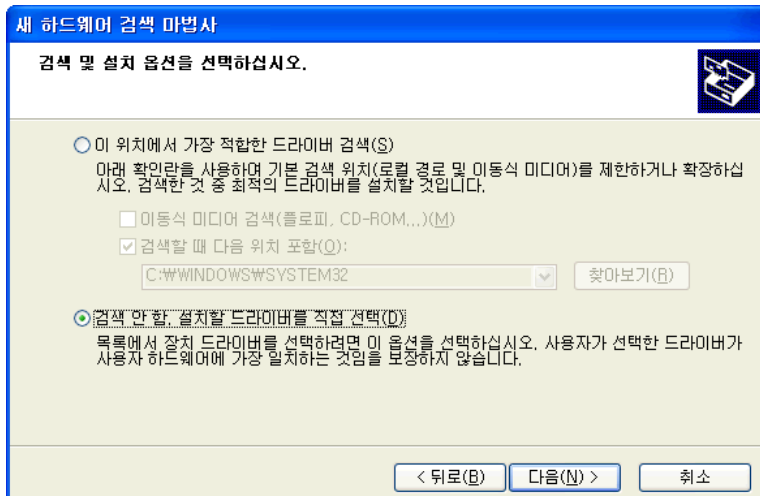
SmartCopier offers applications files and device driver information files for use on the user's PC.

7.1 Device Driver Installation

① When you connect SmartCopier product for the first time, [Add New Hardware Wizard] runs. If [Add New Hardware Wizard] does not run, execute [Add New Hardware Wizard] through the Control Panel Device Manager.

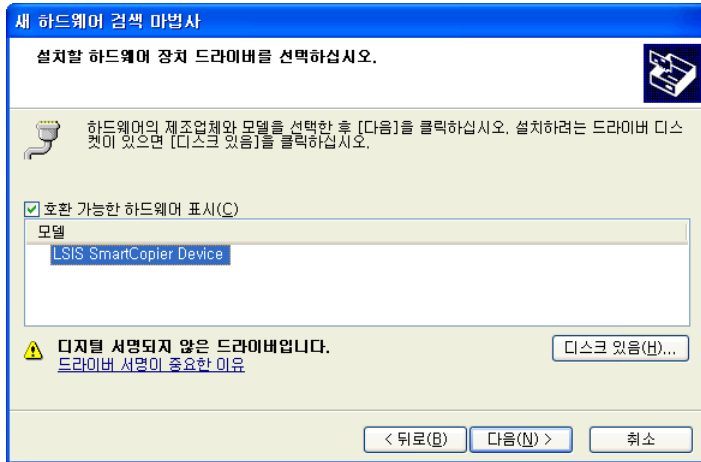


② Select the [Manually Select the Driver] option and click [Next] button, and then specify the path to the given device driver information file.

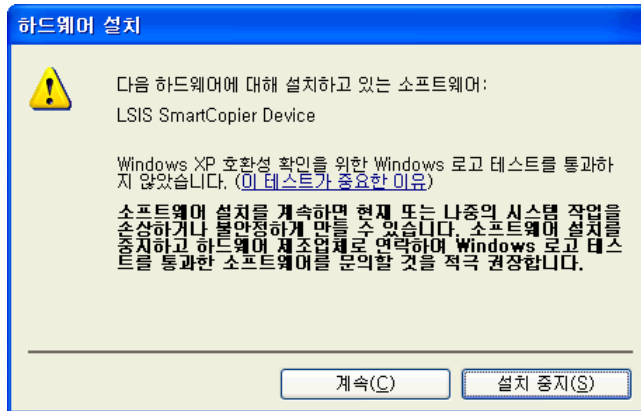


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③ If you specify the path to the provided device driver files, compatible hardware is displayed. After selecting an item which is displayed as "LSIS SmartCopier Device", click [Next] button.



④ Hardware Installation is carried out. If compatibility information message occurs, click the [Continue] button, and then continue with the installation.



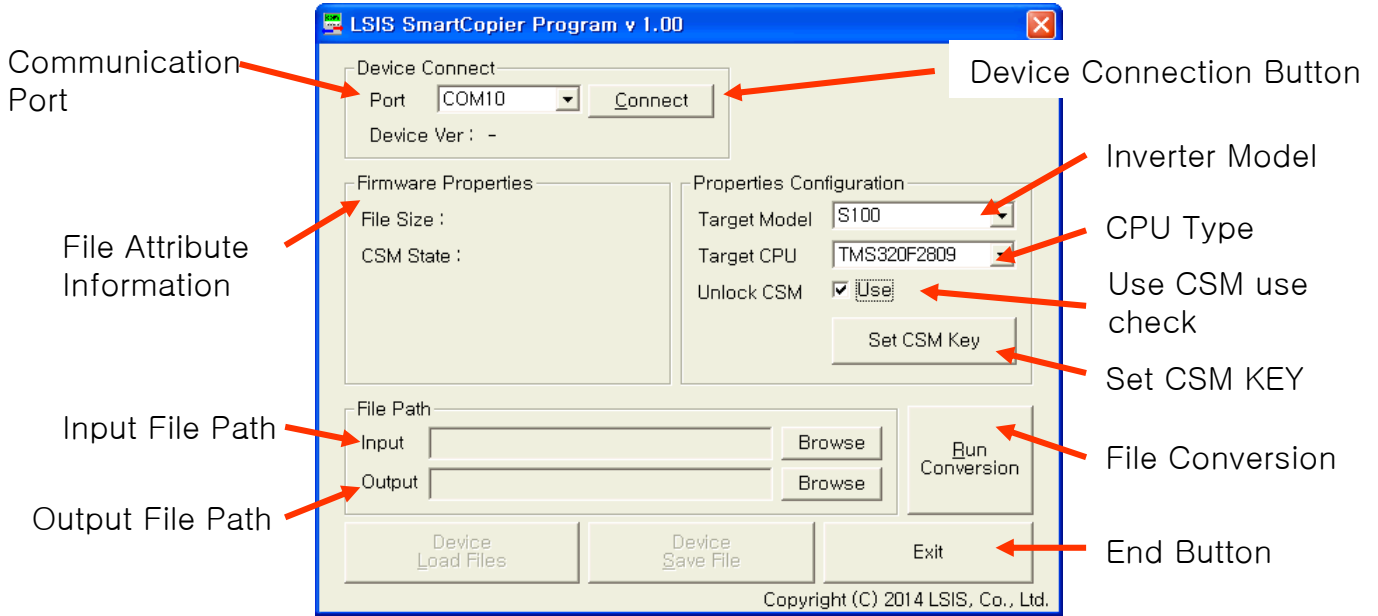
⑤ When the driver is installed normally, SmartCopier device is added to the Device Manager in Control Panel.



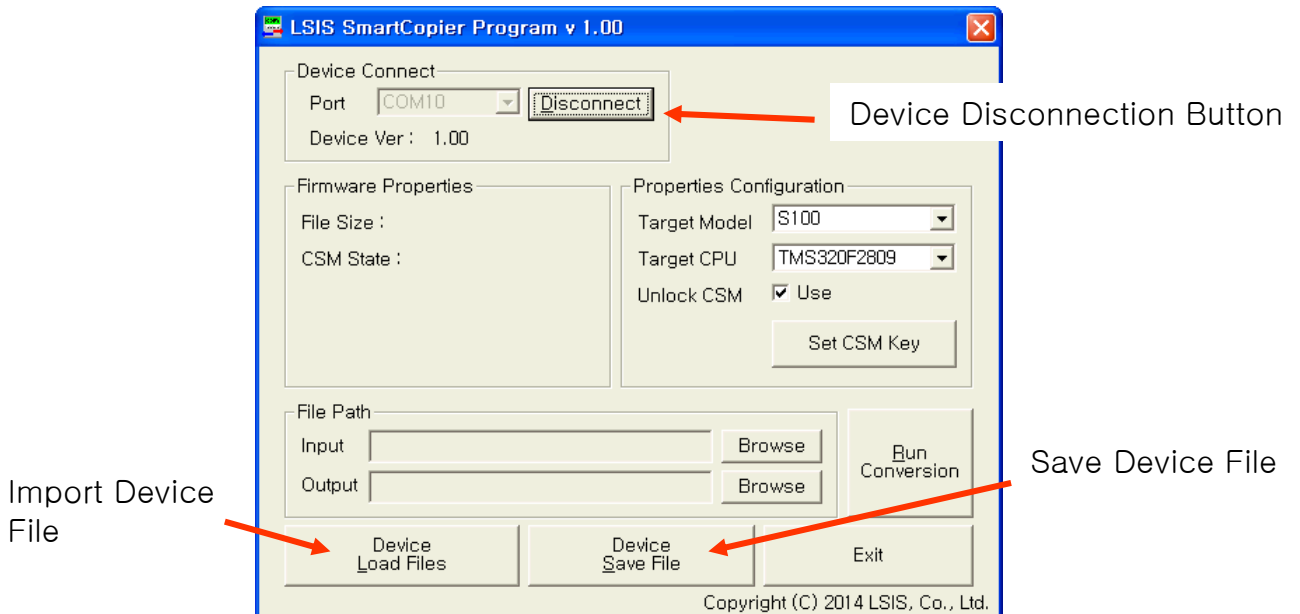
SMART COPIER

7.2 Application Program Display Composition

- Before the device is connected

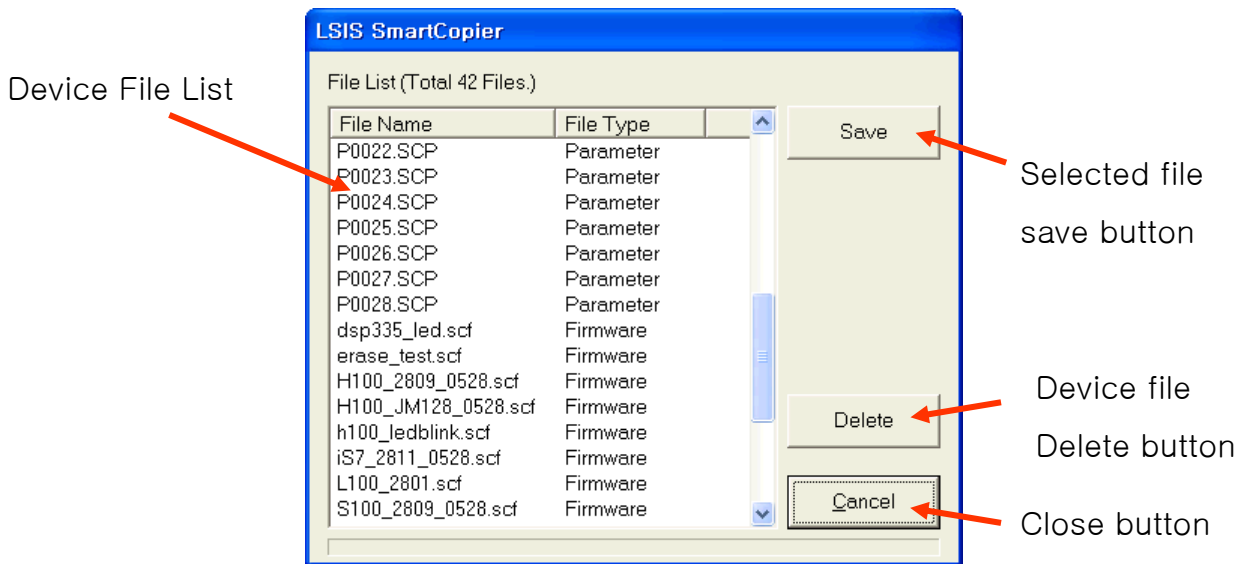


- After the device is connected



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- Import Device File

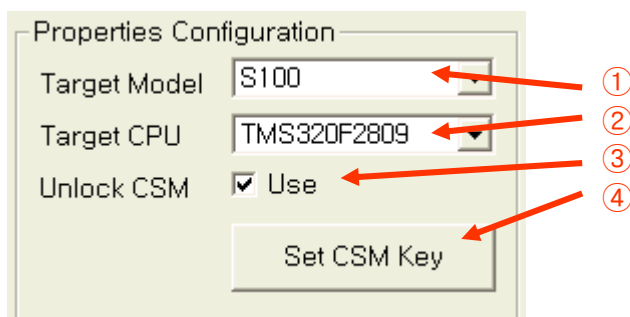


7.3 Application Program Firmware File Conversion

7.3.1 Preparing Firmware File

Prepare the firmware Output file generated by compiling in accordance with the compiler build options. Freescale Coldfire supports srec (S19) file by Motorola and TI DSP system supports Coff (out) file.

7.3.2 Setting Firmware Conversion File Attributes



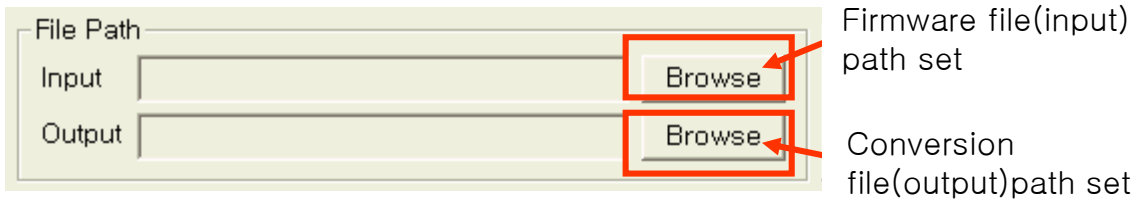
Set the properties of file conversion firmware before converting the firmware file

- ① Target Model : Set the target inverter model to use
- ② Target CPU : Set the detail CPU type of inverter to use

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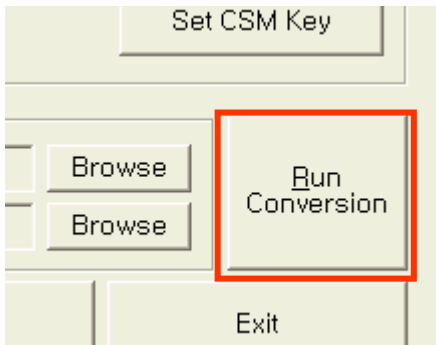
- ③ Unlock CSM : Unlock CSM use check (Only use in TI DSP)
- ④ Set CSM Key : CSM set button

7.3.3 Input and Output file path set



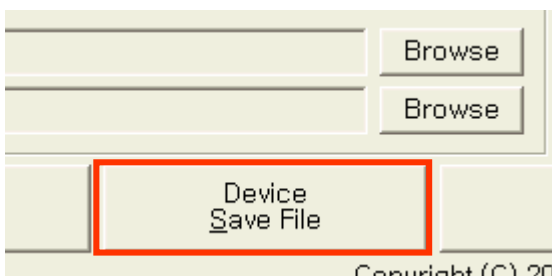
file in [Input] and specify the path to the converted file to save in [Output].

7.3.4 File Conversion



Click the Conversion button, you can convert the firmware file to the SCF file.

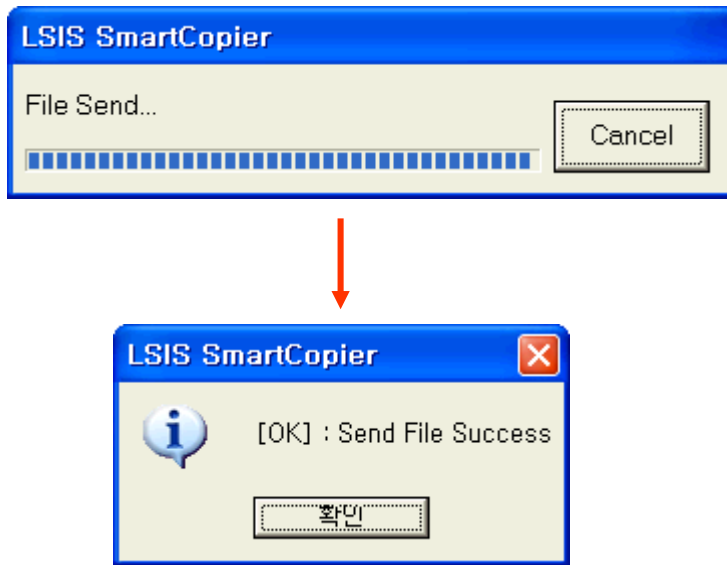
7.3.5 Save File in device



In a state in which the communication connected with the device, and then specify the [Device Save File] Run the button, conversion file paths that are saved by converting.

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7.3.6 Save and Complete Device File



Transmission window and complete message are displayed when transfer is complete. Type of displayed message are as follows.

- Send File Success : File transfer success
- Device Filename already exists : Duplicate name exists on the device file
- Send Timeout : No device response

7.4 Firmware Update (Smart Copier)

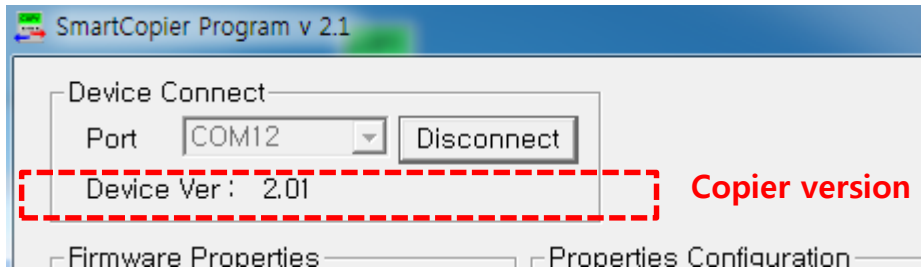
Using the provided programs, you can automatically update the smart copier

- ① Smart copier and connect the PC with the USB cable.
- ② Check the connection port. (SYSTEM – Device manage - COM&LPT)

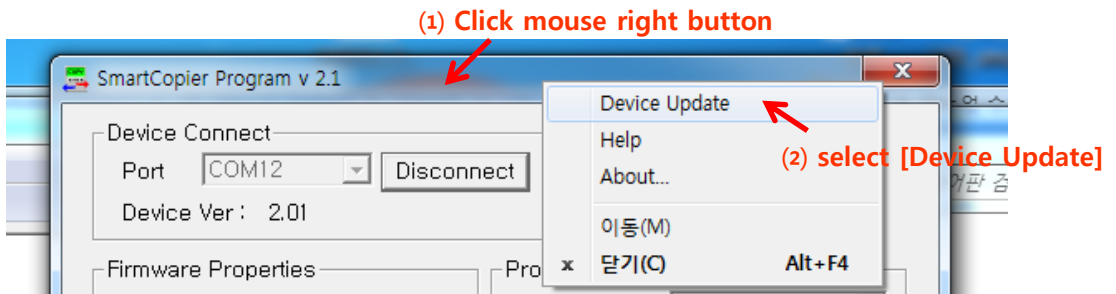


- ③ After providing program(smcp.exe) execution, to connect the port.
(If not in the port list, reconnect the USB cable and run the program again.)

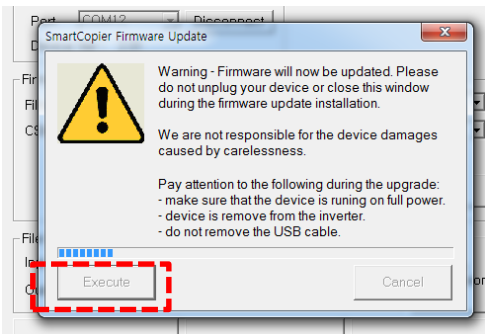
SMART COPIER



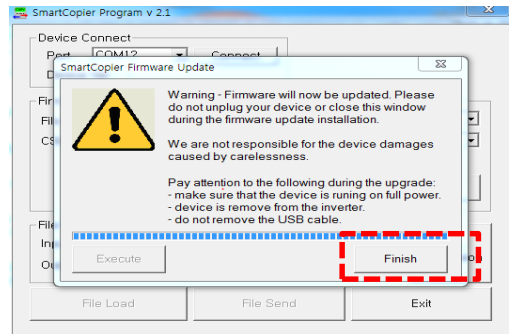
④ After checking the version, please mouse right button in the top bar of the program.



⑤ [Device update] execution, [Execute] is active after 5 seconds.



(1) Run [Execute]



(2) Complete update, copier will be re-run.
After run the [Finish]

⑥ After the update, you must re-connect from ③ to communicate with the program.

SMART COPIER

Manual Corrections

Version	Date	Description
V2.02	14.July 2015	<ul style="list-style-type: none">Initial Manual
V2.02a	22.Dec 2015	<ul style="list-style-type: none">How to connect using the gender board
V2.1	12.April,2016	<ul style="list-style-type: none">Description BDM+Serail
V2.21	22.June,2016	<ul style="list-style-type: none">Additional internal battery Description
V3.0	26.April,2017	<ul style="list-style-type: none">Support to M100 Model
V3.2	29.May,2019	<ul style="list-style-type: none">Support to G100 Model