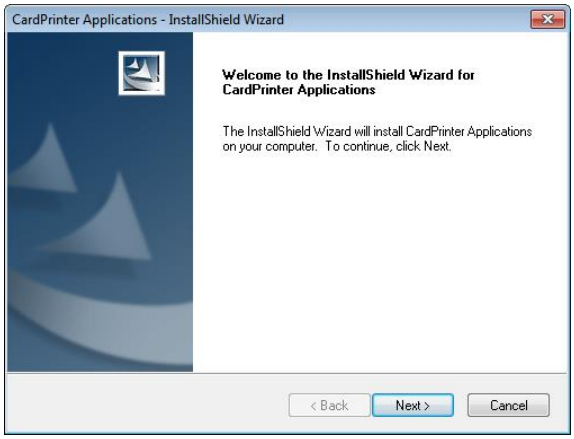


Figure 71 Application installation 2

2.2.16 Application installation 2

When "Smart Application Install ShieldWizard" window is opened, please click "Next".

Figure 72 Application installation 3

2.2.17 Application installation 3

Please choose "I accept the terms of the license agreement" and click "Next".

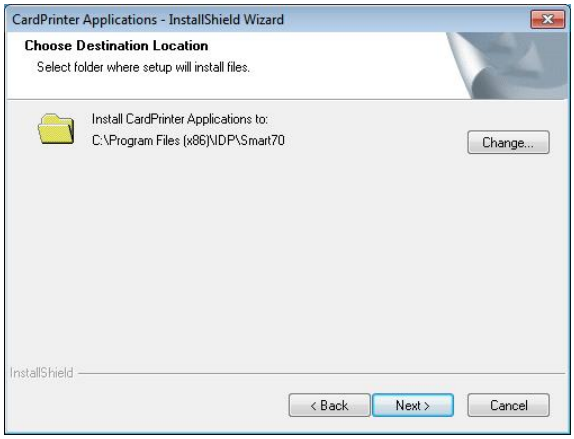


Figure 73 Application installation 4

2.2.18 Application installation 4

Please select destination location for application installation and click "Next".

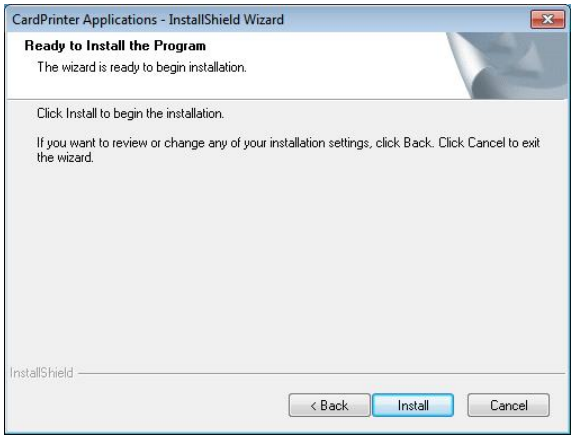


Figure 74 Application installation 5

2.2.19 Application installation 5

Please click "Install".

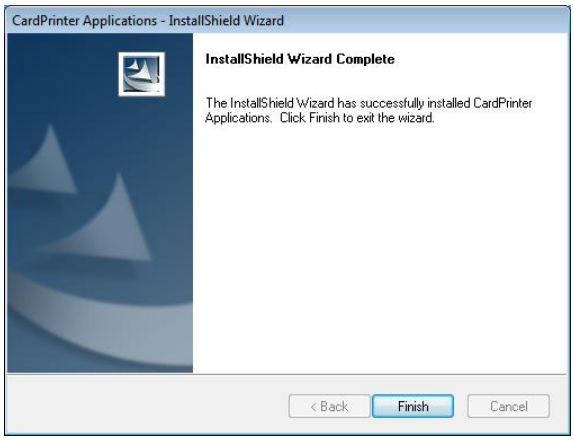


Figure 75 Application installation 6

2.2.20 Application installation 6

After the application installation is completed, please click "Finish" and use the installed application.

3. Driver configuration

SMART-70 Printer can print cards by selecting various required properties. To adjust printer properties, please open the Devices and Printers window and right click on "IDP SMART-70 Card Printer" and select "Printer Properties".

3.1 Printing preferences

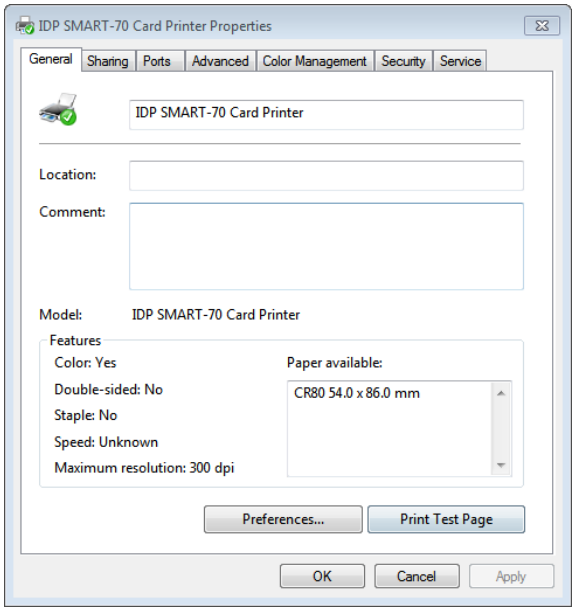


Figure 76 Printer properties window

3.1.1 Printing Preferences

Please click "Printing Preferences" on the "General" tab of Printer Properties window.

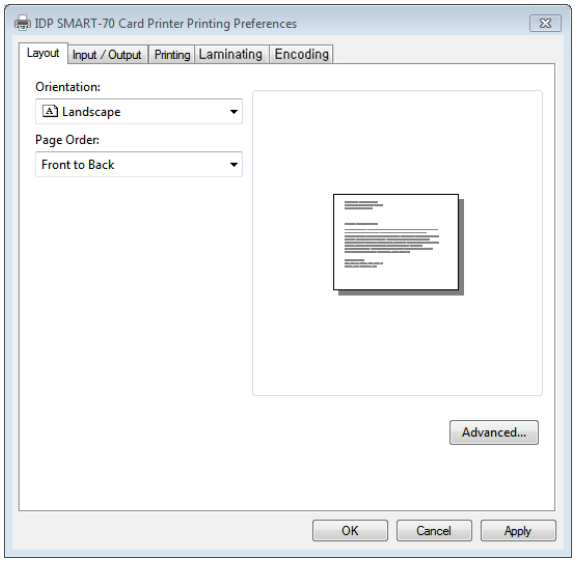


Figure 77 Layout

3.1.2 Layout

The print orientation (Landscape or Portrait) can be selected.

To apply your selection, please click "OK".

3.1.3 Advanced setup

For Advanced setup, please click the "Advanced" button on "Printing Preferences" window and you can adjust the advanced setting.

- **Reset Default Values**: Advanced setting is reset to the default values.
- **Color Correction**: Adjusting gamma value of each color panel can change color sense. The higher gamma value is the darker color. The absolute printing density can be adjusted by using "**CardPrinter70Setup**" utility.
  - **Main [-100:100]:** To adjust the gamma values of all panels.
  - **Yellow [-100:100]:** To adjust the gamma value of the yellow panel.
  - **Magenta [-100:100]:** To adjust the gamma value of the magenta panel.
  - **Cyan [-100:100]:** To adjust the gamma value of the cyan panel.
  - **Black [-100:100]:** To adjust the gamma value of the resin black panel.
  - **Overlay [-100:100]: To** adjust the gamma value of the overlay panel.
- **Position Processing**: The printing position between panels can be adjusted. If the value is higher, the positions are more accurate but the color sense may be a little lower.
  - **Color [-32:32]:** To adjust the printing position of the color panels (yellow, magenta and cyan).
  - **Mono [-32:32]:** To adjust the printing position of the resin black panel.
  - **Overlay [-32:32]:** To adjust the printing position of the overlay panel.
- **Resin Black (K) Processing**: The method to extract the data to be printed by the resin black is specified.
  - **Text [0:100]**: To set the density criteria for extracting the text to be printed by the resin black.
  - **Dot [0:100]**: To set density criteria for extracting the pixels to be printed by the resin black.
  - **Threshold [0:100]**: To set density criteria for printing by the resin black when the dithering is performed by using the Threshold.
  - **Dithering Degree [0:100]**: To set sharpness when the dithering is performed by using the Random.
  - **Resin Extraction**: Method to extract the data for the resin black.

    > **Black object**: Text, line, etc. Black objects are extracted.

    > **Black Text**: Text is only extracted.

> **Black Dots**: All black dots are extracted.

> **Not Use**: No extraction.

- **Rewritable Controls**: This property is only for rewritable printer.

  - **Erase Density [0:100]**: To set the temperature to erase the contents on rewritable card.

- **Wait Option**: This option can set the card's waiting time at each encoding position when the smart card is encoded without using SDK. One contactless smart card encoder can be installed into SMART-70 Printer. One contactless and one contact smart card encoder can be installed into SMART-70 Encoding Station.
  When this option is set and the SDK is not used for encoding, the program which the smart card is recognized and encoded within the specified waiting time must be developed by yourself because the card is only waiting for a specified time at the encoding position.

  - **Wait at Internal Module Contactless Encoding Position [On/Off]:** To set that the contactless smart card is waiting at the contactless smart card encoding position in Printer.

  - **Wait at External Module Contactless Encoding Position [On/Off]:** To set that the contactless smart card is waiting at the contactless smart card encoding position in Encoding Station.

  - **Wait at External Module Contact Encoding Position [On/Off]:** To set that the contact smart card is waiting at the contact smart card encoding position in Encoding Station.

    > **Card Side [Front/Back]**: To set the direction of card when the card is waiting.

    > **Wait Position [-100:100]**: To adjust the card position from the previous waiting position of card to the left or the right (unit is 0.1mm).

    > **Wait Time [0:1000]**: To set the waiting time of card (unit is a second).

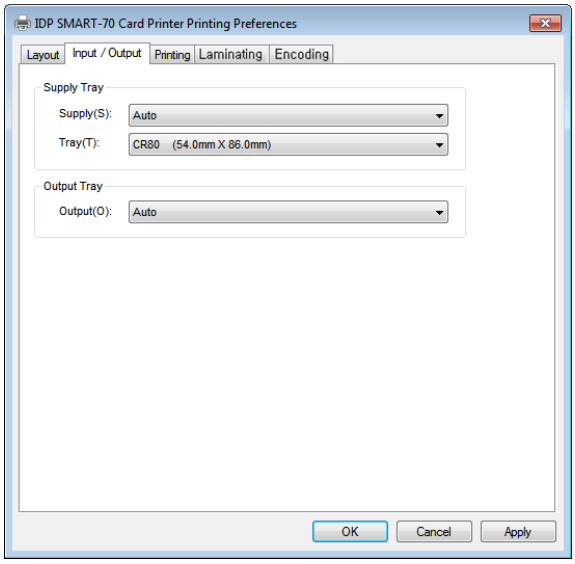


Figure 78 Input / Output settings

3.1.4 Input / Output settings

Supply Tray

Supply: If there is one Input Hopper, please select "Auto". If there are multiple Input Hoppers, please select the Hopper which will be used.

Tray: Please select "CR80" because SMART-70 only supports CR80 cards.

Output Tray

Output: If there is one Output Hopper select "Auto". If there are multiple Output Hoppers, please select the Hopper which will be used.

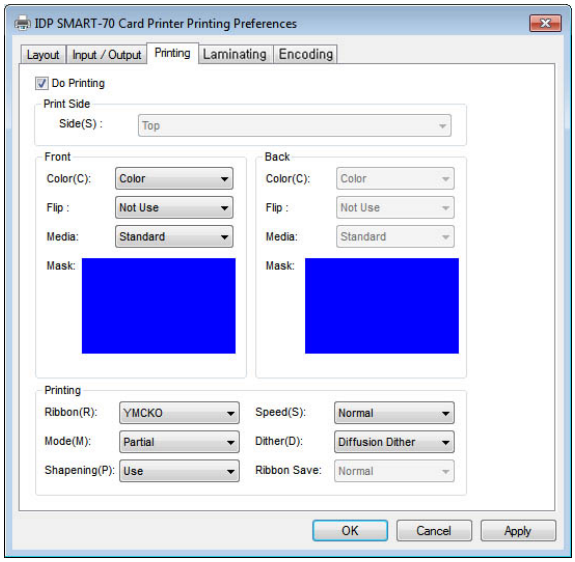


Figure 79 Printing settings

User defined mask uses BITMAP file (1012 x 636 pixels).

Blue(RGB(0,0,255)) : Print and Overlay

Light blue(RGB(0,255,255)) : Overlay only

Pink(RGB(255,0,255)) : Print only

Yellow(RGB(255,255,0)) : Florescent only

3.1.5 Printing settings

Do Printing: To set whether print or not.

Print Side: To set the single sided or dual sided printing when Flipper is installed.

Front / Back

Color: To set the color or mono printing.

Flip: To turn the printed image on card.

Mask: To set the printing area on card. The predefined masks (normal card, smartcard, magnetic stripe card, etc.) or user defined mask cab be used.

Printing

Ribbon: The print ribbon type is used for printing and can be automatically recognized.

Speed: To set the printing speed.

Mode: To set the all or partial printing.

Dither: Set the dithering types.

Sharpening: To calibrate the printed image sharpness.

Ribbon Save: To set that the card is printed by using the split function when the mono ribbon is used.

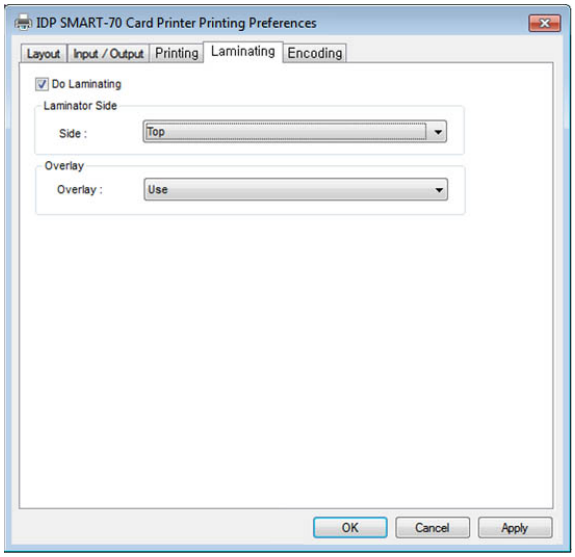


Figure 80 Laminating settings

3.1.6 Laminating settings

This tab will be created only when SMART-70 Laminator module is connected.

Do Laminating: To set whether laminate or not.

Laminator Side: To set the laminating side of card (top, bottom and both sides).

Overlay: To set whether overlay panel is printed or not. Default is no overlay when the card is laminated. We recommend no overlay when the card is laminated.

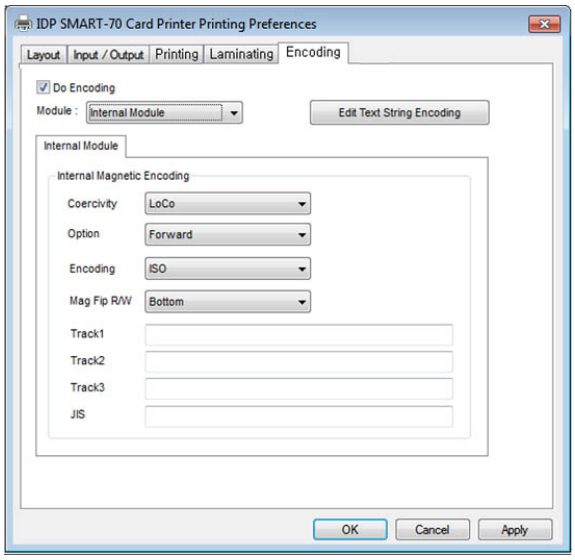


Figure 81 Encoding settings

3.1.7 Encoding settings

This tab will be created only when SMART-70 Magnetic Encoding option is installed.

Do Encoding: To set whether encoding or not.

Module: To set whether the internal module (Printer) or the external module (Encoding Station) is used.

Coercivity: To set the type of the magnetic stripe cards for encoding.

LoCo: 300, 600 Oe.

HiCo: 2760 Oe.

SpCo: 4000 Oe.

Auto: Automatic encoding depending on a used magnetic stripe card type.

Option: To set the encoding direction (Forward / Backward / Bitmode).

Encoding: To set the encoding protocol (ISO / Bally's).

Mag Flip R/W: To set the encoding side of magnetic stripe card.

3.2 Other settings

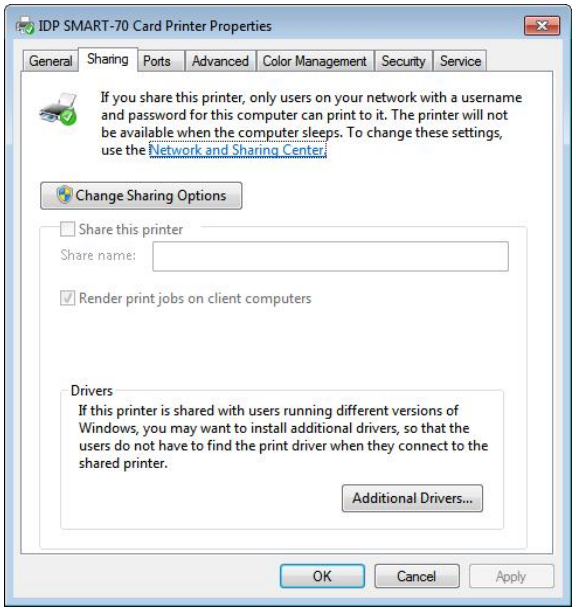


Figure 82 Printer sharing settings

3.2.1 Sharing

Printer can be shared via network by setting the option of printer sharing on the Sharing tab.

Default is “Not sharing”.

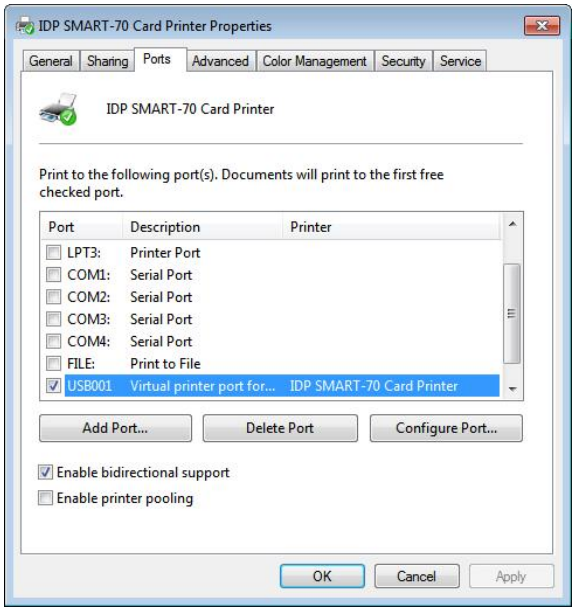


Figure 83 Ports setting

3.2.2 Ports

The Port tab shows which port is connected to SMART-70 Printer. On Figure, USB001 Virtual printer port is connected because SMART-70 Printer was connected via USB.

(Caution! The adjustment on the ports setting by user is not recommended because the port is automatically set.)

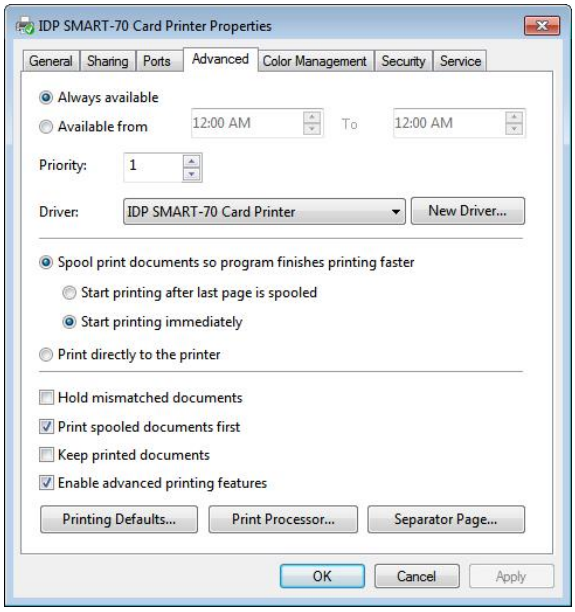


Figure 84 Advanced settings

3.2.3 Advanced

The working time, priority order, spool and etc. can be set in "Advanced" tab. The Advanced setting follows MS Windows standard. If you want to change the setting, please refer to the MS Windows manual.

(No adjustment on the Advanced setting is recommended.)

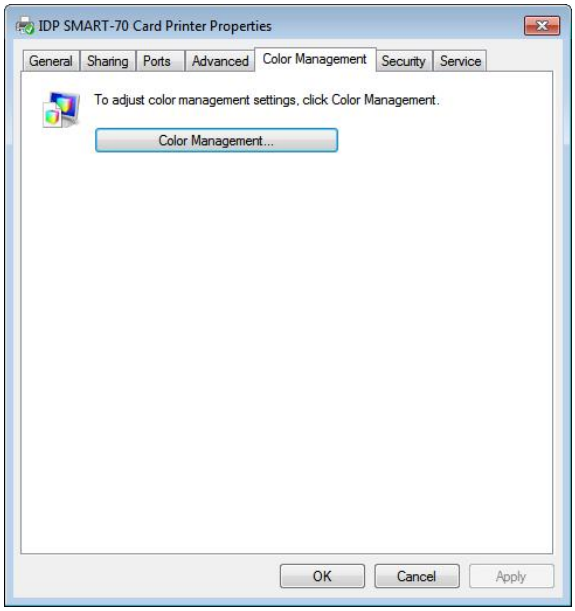


Figure 85 Color Management settings

3.2.4 Color Management

The proper color profile for Printer can be set on the Color Management tab. For supporting the optimized color printing, SMART-70 Printer can automatically set the color profile depending on the ribbon type loaded in Printer because the ribbon type is automatically recognized.

(No adjustment on the Color Management setting is recommended.)

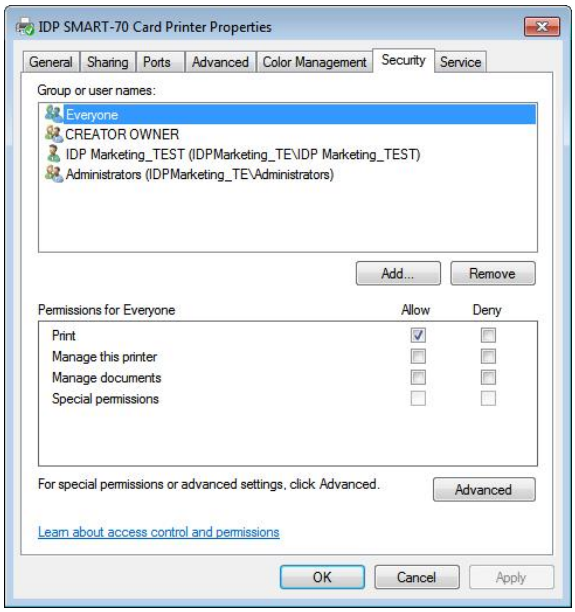


Figure 86 Security setting

3.2.5 Security

The access control and permissions for Printer can be set. According to the authority, the printing, management and special authority can be permitted.

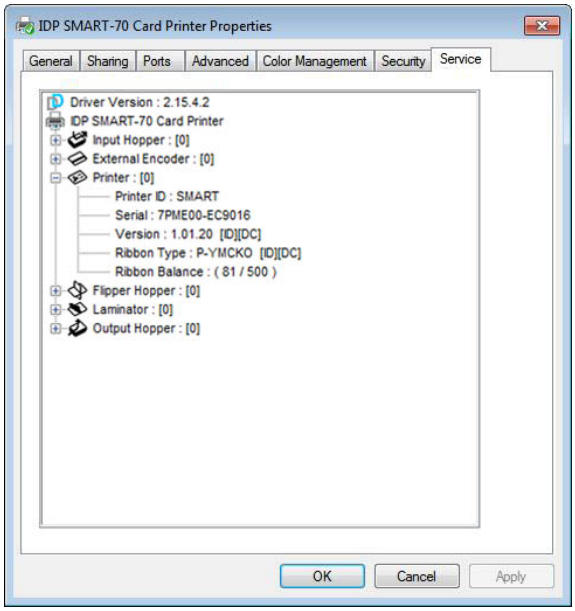


Figure 87 Printer status check

3.2.6 Printer status check

The serial number, ID, driver version, firmware version, ribbon type and balance of all connected modules can be checked on the Service tab.

4. SMART-70 Utilities

The installation CD of SMART-70 Printer includes utilities for printer setting, test and firmware upgrade. This chapter explains the SMART-70 utilities.

4.1 Printer setting

SMART-70 Printer is manufactured and shipped with optimized setting on each one. By the way, printer setting can be adjusted by using CardPrinter70Setup utility included in the Installation CD after disassemble and assemble of printer, replacement of some parts or when the adjustment of printer setting is needed. Printer setting can be adjusted by using CardPrinter70Setup as below.

4.1.1 CardPrinter70Setup

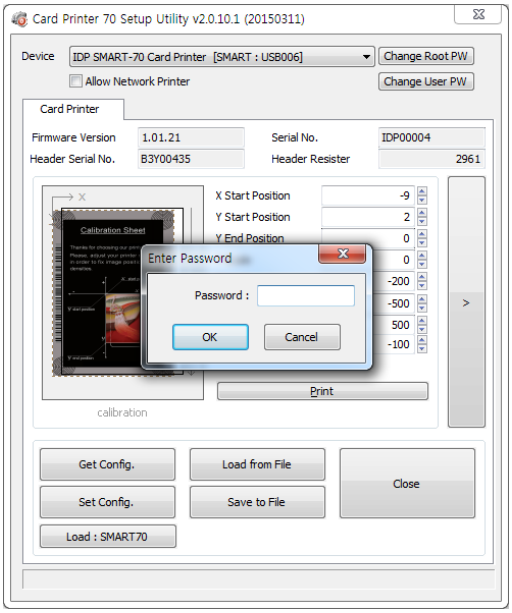


Figure 88 CardPrinter70Setup Log-in

Password input window is displayed when you run this program. If the correct password is inputted, the recorded setup values in SMART-70 Printer are shown and the setup values can be adjusted. The password for SMART-70 Printer is saved to the SMART-70 Printer. When the SMART-70 Printer is connected to another PC, the saved password in the SMART-70 Printer is required to run this utility and adjust the Printer setting.

(Since there is no default password in SMART-70 Printer, please click "OK" if password have never been set.)

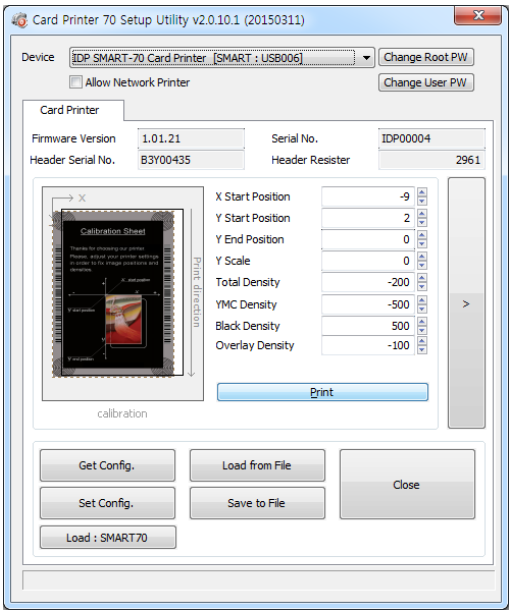


Figure 89 CardPrinter70Setup Start

When you are successful to login, the basic setup of Printer is shown as Figure 89.

4.1.2 Basic Setup

The basic setup of CardPrinter70Setup shows the firmware version, serial number and etc. of the connected SMART-70 Printer, frequently used setting values (printing position, density and etc.) can be adjusted.

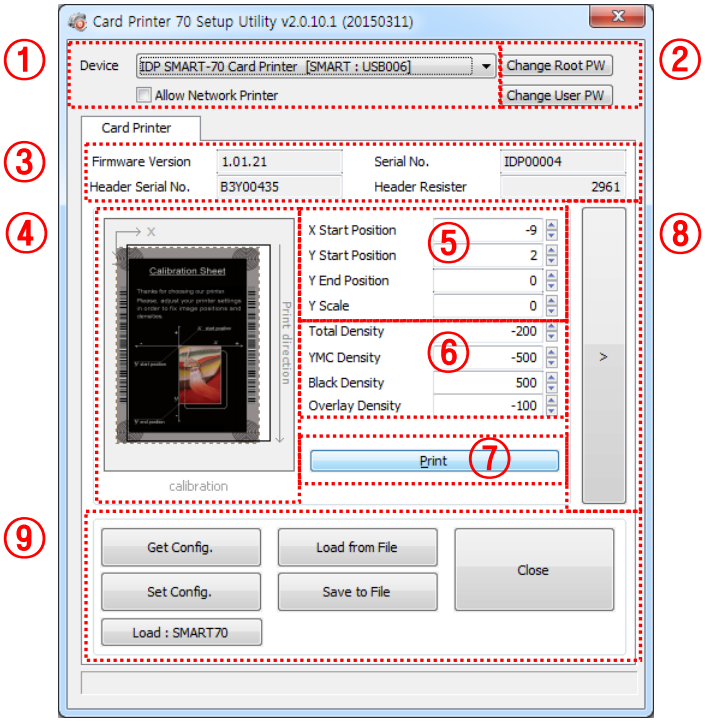


Figure 90 Basic Setup of CardPrinter70Setup

① To show connected Printer.
Device: The Printer that the adjustment is needed can be selected by using the pull-down menu. "IDP SMART-70 Card Printer" is the connected Printer's name. "SMART" is the connected Printer's ID, "USB006" is the connected port.
Allow Network Printer: If the Allow Network Card Printer is selected, Printers connected via network also appear in the "Device" list.

② To set administrator password and user password.
Change Root PW: To set administrator (root) password. This password is used to verify user authority for CardPrinter70Setup and is also required as administrator password when the User Authentication option on Security is set on advanced setup.

(When Printer is installed at the place where security is required, please set password at the same time with the installation of Printer.)

Change User PW: To set user password for user authentication. This password is required as user password when the User Authentication option on Security is set on advanced setup.

③ The firmware version, serial number of Printer, serial number of TPH, resistance value of TPH, type of TPH is shown.

④ The printing area on card is shown. It shows exaggeratingly for user convenience and is not real position.

⑤ To set the printing area on card. Please set it properly to print on an entire card because SMART-70 is a direct thermal card printer. When you click "⑦ Print", a card is printed as like "④ example". Please set values properly that all circles of each corner are printed and

blank spaces are narrower than 0.5mm on the top and the bottom of a card. Please set values by following order.

X Start Position: Please set the right and the left of printing position on card properly by adjusting X position.

Y Start Position: Please set the start position of printed example image and blank space in the top is 0.4mm ~ 0.5mm.

Y End Position: Please set the end position of printed example image and blank space in the bottom is 0.4mm ~ 0.5mm. It is recommended to set bigger value for "Y scale" than default.

Y Scale: Please set to print all circles in the bottom of card.

⑥ To set printed density. SMART-70 enables to set different density for each color, resin black and overlay. So, proper setting on each density is needed for high quality. Please optimize the quality by adjusting each value. To optimize, you repeatedly adjust the density and print a Calibration card by using color ribbon and clicking "⑦ Print", and please check the printed state until you get the optimum.

Total Density: To set all of the density (Color, Black and Overlay) at one time.

YMC Density: To set color density. Please maximize YMC density as you can, which enables to extend range of color and to print vivid images. If it is too strong, green or red marks are appeared as Figure 91. If it is too weak, the print quality will be dull.

Figure 91 Color density

Black Density: To Set resin black density. In the picture, barcode is printed by resin black. When density is too strong, barcode is printed too thick. When density is too weak, barcode is too thin. Please adjust resin black density to print clear barcode. Please refer following pictures.

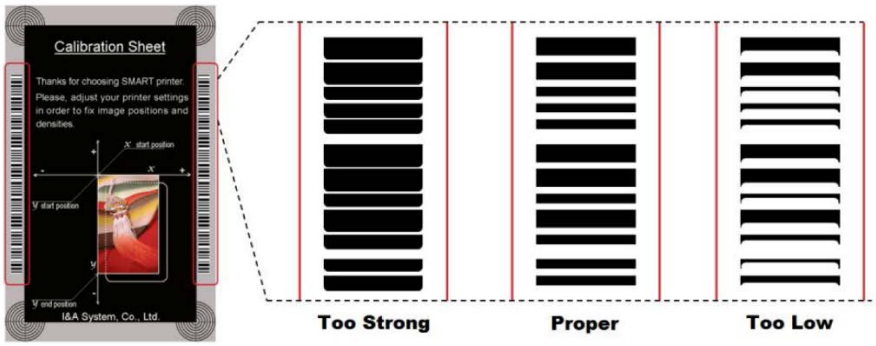


Figure 92 Resin Black density

Overlay Density: To set overlay density. Please adjust it until overlay is printed on surface regularly. If it is too strong, it is hazy and marks are appeared. If it is too weak, overlay panel is not printed edge areas. You can check it with printed card under the light.

Figure 93 Overlay density

⑦ To print calibration card for adjusting the printing position and density.

⑧ To show advanced setup.
(The advanced setup for expert options is not recommended to adjust.)

⑨ To load or save the setup values.
Get Config.: To get values from current connected Printer.

Set Config.: To set values to current connected Printer.

Load from File: To load setup values from file.

Save to File: To save setup values to file.

Load Default: To reset setup values to default. After loading default, all setup values must be adjusted again. Load Default is not recommended.

Close: To close CardPrinter70Setup.

4.1.2 Advanced Setup

Expert setup of SMART-70 Printer can be adjusted on advance setup. If you are unsure, please contact your dealer.

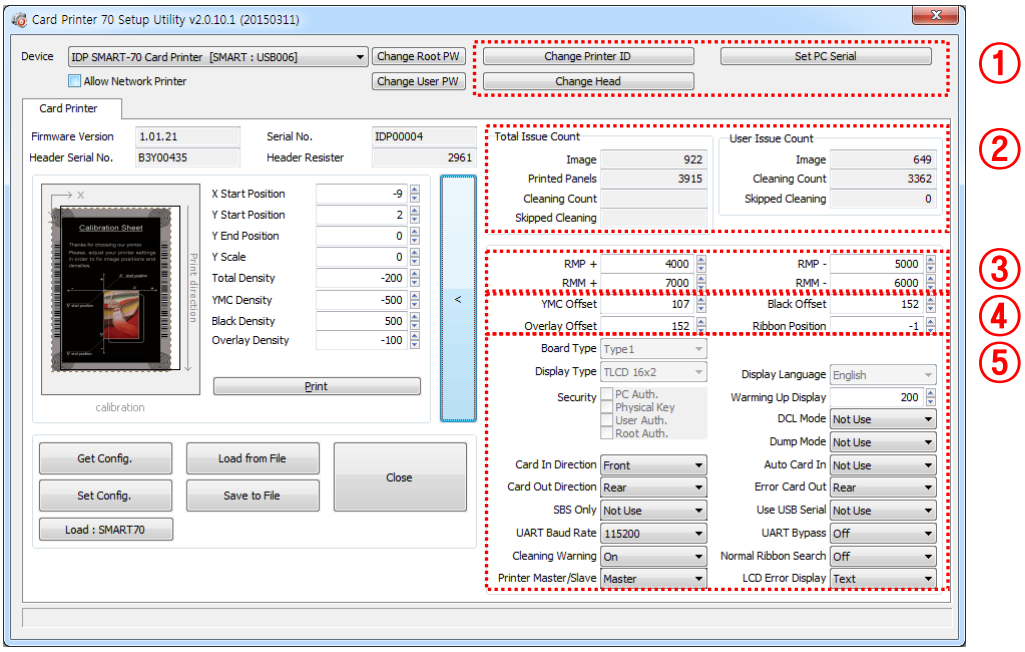


Figure 94 Advanced Setup

① To set Printer ID, PC Serial and Print Head register after replacing.
Change Printer ID: When SMART-70 is used by SDK, unique ID for SMART-70 Printer is set regardless of whether it is connected via USB or what IP address is. It is useful to connect and use several Printers. Factory default is "SMART".

Set PC Serial: One of security functions. This function can be only used when Printer is connected via USB and the Printer can be used with a specific PC. It is activated when "Set PC Serial" is clicked after "**PC Authentication**" of ⑤ Security is set and rebooted. At that time, the specific information of connected PC is saved to SMART-70 Printer and the saved information is used to authenticate the connected PC.

Change Header: When thermal print head is replaced, the print head information must be registered for optimal printing quality. Please change print head's serial number, resistance value and type in the Change Head Dialog window after click "Change Head".

To show how many cards are issued with SMART-70 Printer. "Total Issue Count" is the number of issued cards after factory shipment. "User Issue Count" is the number of issued cards after replacing print head. When the print head is replaced, please initialize the number by setting "Reset User Issue Count" in the Change Head Dialog window after clicking "Change Head" of ①.

② SMART-70 Printer controls motor for the best printing quality. "RMP+", "RMP-", "RMM+" and "RMM-" is necessary variables to control ribbon motor. Please do not adjust the variables because the printing quality is affected.
When the normal printing speed is set, "YMC Offset", "Black Offset" and "Overlay Offset" is added to the YMC Density, Black Density and Overlay Density and printed on card. "Ribbon Position" is to align the panel of ribbon on the card. Please use the default setting.

③ Please refer as below for other values.
Board Type: To set the mainboard type of SMART-70 Printer. Please do not change.

Display Type: To set the LCD type of SMART-70 Printer. Please do not change.

Display Language: To select the display language on the LCD of SMART-70 Printer. Please do not change.

Security: SMART-70 Printer provides several ways to set a security function for authentication and access control.

PC Auth.: Printer can only be used with specific PC. To activate this option, "Set PC Serial" is clicked to save the specific PC's information into Printer.

Physical Key: When physical key is installed into SMART-70, this option can set to activate Printer by using the key.

User/Root Authentication: This option can set to activate Printer by using User and

Administrator (Root) password.

DCL Mode: When SDK is used to print cards with DCL mode, printer driver doesn't need to be installed. If the DCL mode is set to "Use", printer driver is not installed on Windows.

Dump Mode: Log data can be recorded into Printer.

Card In Direction: To set the direction that card is fed.

Auto Card In: When the card is detected at card gate, the card is automatically moved into Printer.

Card Out Direction: To set the direction that card is ejected.

Error Card Out: To set the direction which error card (encoding failed card) is ejected.

SBS Only: This option is only activated when SDK is used to print card. Printer driver can't be used when this option is set.

Use USB Serial: When SMART-70 Printer is connected to USB, Printer transmits the USB serial number to PC. Default is the same number used by all SMART-70. To connect multiple SMART-70 Printers to only one PC via USB, Please set this option to "USE" for using unique serial numbers for each Printer.

UART Baud Rate: To set the communication speed (Baud rate) of the external device connected to Printer by serial.

UART Bypass: When Printer is communicated with an external device by serial interface, the commands are passed without any processing.

Cleaning Warning: After a certain number of printings, Printer is contaminated and needed to clean for keeping the Printer in the best condition. If cleaning is required, please set how to display the warning message.

Normal Ribbon Search: To set that SMART-70 can search the panel of ribbon more accurately in ribbon searching.

Printer Master/Slave: SMART-70 Printer can variously be configured according to your needs and two Printers can be connected and used. In this case, this option is used to set the Printer connected to PC via USB to "MASTER" and set the other Printer to "SLAVE".

LCD Error Display: To set the displayed message type on the LCD of Printer when error occurs in Printer.

4.2 Printer test

Since card printer basically use standard printer device driver, card can be printed by the same method as a general paper printer. By the way, if encoding options are installed into card printer, appropriate device driver for each encoding option must be installed and each encoding option must be properly operated. In this case, encoding options can be controlled by "Card Printer SDK". CardPrinter70Test utility is to test the functions of SMART-70 Printer and is developed by "SMART-70 Printer SDK".

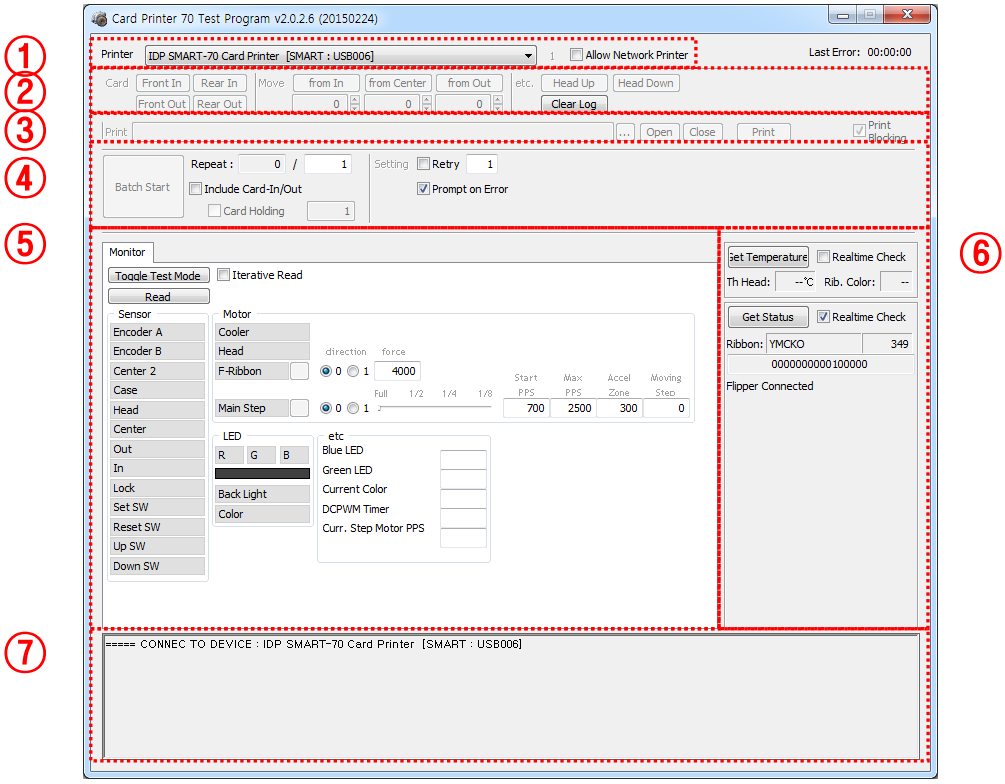


Figure 95 CardPrinter70Test

① **Select Printer:** To select a Printer for test. In the picture. "IDP SMART-70 Card Printer" is the connected Printer's name, "SMART" is the connected Printer's ID and "USB006" is the connected port.

② **Basic Control:** To execute basic functions of Printer (Card In/Out, Print Head Up/Down, etc.).

③ **Print:** To print a CSD file which is designed by SMART Design.

④ **Batch Job:** To execute the job of ⑤ repeatedly.

⑤ **Monitor:** To check the working status of sensors and motors.

⑥ **Printer Status:** To check the status of Printer.

⑦ **Message:** To display messages when this utility is run.

4.2.1 Printer selection and basic control

When CardPrinter70Test is run, Printers connected via USB are automatically searched and can be selected by priority. After setting "Allow Network Printer", all Printers connected via USB and network can be selected. Other Printer can be selected by using pull-down menu. When a printer is connected to this utility, the basic control, print and monitor can be tested.

The basic control functions will be provided later.

4.2.2 Print Test

Print is to print a CSD file designed by SMART Design. This function will be provided later.

4.2.3 Batch Job

Batch job is to test the status of encoding and decoding continuously. This function will be provided later.

4.2.4 Monitor

Monitor is to check the status of Printer in the "Monitor" tab.

Toggle Test Mode: To switch between normal mode and board test mode.

Read: To read the status of sensors and motors from Printer.

Iterative Read: When the "Iterative Read" is set, the status of sensors and motors is periodically read from Printer.

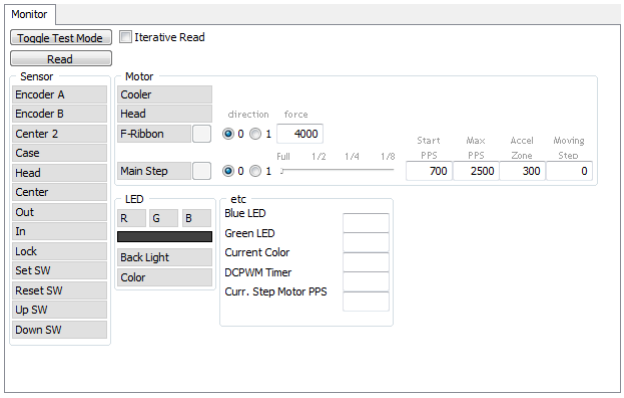


Figure 96 Monitor

4.2.5 Printer status

"Get Temperature" is to get and display the temperature of Thermal Print Head. When the "Realtime Check" is set, the temperature of Thermal Print Head is got and displayed in real time.

"Get Status" is to get and display the status of Printer.

Status Codes are as below.

```
#define   S7PS_M_SBSRUNNING          0x0000000000000001// SBS (Step by Step) command execution
```

```
#define   S7PS_M_CARDMOVE            0x0000000000000002// Move to print
#define   S7PS_M_CARDIN              0x0000000000000004// Card In
#define   S7PS_M_CARDOUT             0x0000000000000008// Card Out
#define   S7PS_M_THEAD               0x0000000000000010// Thermal Head Up/Down
#define   S7PS_M_SEEKRIBBON          0x0000000000000020// Ribbon Search
#define   S7PS_M_MOVERIBBON          0x0000000000000040// Ribbon Move
#define   S7PS_M_PRINT               0x0000000000000080// Printing
#define   S7PS_M_MAGRW               0x0000000000000100// Magnetic Read/Write
#define   S7PS_M_RECVPRINTDATA       0x0000000000000200// Printing data Receiving
#define   S7PS_M_INIT                0x0000000000000400// Initializing
#define   S7PS_S_INSTALLINTENCODER   0x0000000000008000// Internal Encoder Installed
#define   S7PS_S_INSTALLEXTHOPPER    0x0000000000010000// External Input Hopper Installed
#define   S7PS_S_INSTALLEXTSTACKER   0x0000000000020000// External Output Hopper Installed
#define   S7PS_S_INSTALLEXTENCODER   0x0000000000040000// External Encoder Installed
#define   S7PS_S_INSTALLEXTLAMINATOR 0x0000000000080000 // External Laminator Installed
#define   S7PS_S_INSTALLEXTFLIPPER   0x0000000000100000// External Flipper Installed
#define   S7PS_S_INSTALLEXTETC       0x0000000000200000// External Other Device Installed
#define   S7PS_S_CASEOPEN            0x0000000000400000// Case Open
#define   S7PS_S_SOFTLOCKED          0x0000000000800000// Soft Locked
#define   S7PS_S_KEYLOCKED           0x0000000001000000// Key Locked
#define   S7PS_S_DETECTCARD          0x0000000002000000// Card Detected Internal Sensor
#define   S7PS_S_DETECTFRONTDEVICE   0x0000000004000000// Front Device Detected
#define   S7PS_S_DETECTREARDEVICE    0x0000000008000000// Rear Device Detected
#define   S7PS_S_CLEANWARNING        0x0000000010000000// Printer Cleaning Warning
#define   S7PS_S_HAVEPRINTDATA       0x0000000020000000// Have Printing Data
#define   S7PS_S_SBSMODE             0x0000000040000000// SBS Mode
#define   S7PS_S_TESTMODE            0x0000000080000000// Test Mode
```

Error Codes are as below.

```
#define S7PS_E_CARDIN                0x0000000100000000// Card In Error
#define S7PS_E_CARDMOVE              0x0000000200000000// Card Move Error
```

```
#define S7PS_E_CARDOUT                  0x0000000400000000// Card Out Error
#define S7PS_E_THEADLIFT                0x0000000800000000// Thermal Head Up/Down Error
#define S7PS_E_PRINT                    0x0000004000000000// Printing Error
#define S7PS_E_MAGRW                    0x0000008000000000// (Internal) Magnetic Read/Write Error
#define S7PS_E_MAGREADT1                0x0000010000000000// (Internal) Mag. Track 1 Read Error
#define S7PS_E_MAGREADT2                0x0000020000000000// (Internal) Mag. Track 2 Read Error
#define S7PS_E_MAGREADT3                0x0000040000000000// (Internal) Mag. Track 3 Read Error
#define S7PS_E_CONNECTEXTHOPPER         0x0000080000000000// External Hopper Connection Error
#define S7PS_E_CONNECTEXTSTACKER        0x0000100000000000// External Stacker Connection Error
#define S7PS_E_CONNECTEXTENCODER        0x0000200000000000// External Encoder Connection Error
#define S7PS_E_CONNECTEXTLAMINATOR      0x0000400000000000// External Laminator Connection Error
#define S7PS_E_CONNECTEXTFLIPPER        0x0000800000000000// External Flipper Connection Error
#define S7PS_E_CONNECTEXTETC            0x0001000000000000// External Other Device Connection Error
#define S7PS_E_EXTPRESETMATCH           0x0002000000000000// External Preset Device Connection Error
#define S7PS_E_RIBBONSEEK               0x0080000000000000// Ribbon Search Error
#define S7PS_E_RIBBONMOVE               0x0100000000000000// Ribbon Move Error
#define S7PS_F_THEADABSENT              0x0200000000000000// Uninstalled Thermal Head
#define S7PS_F_THEADOVERHEAT            0x0400000000000000// Overheat Thermal Head
#define S7PS_F_RIBBONABSENT             0x0800000000000000// No Ribbon
#define S7PS_F_PRINTDATA                0x1000000000000000// Printing Data Error
#define S7PS_F_INCORRECTPASSWORRD       0x2000000000000000// Incorrect Password
#define S7PS_F_CONFIG                   0x4000000000000000// Configuration Fail
```

4.3 Firmware upgrade

SMART-70 Modules' firmware can be updated by using CardPrinter70Firmware. Since SMART-70 is operated by combined several modules, firmware of each module can be individually upgraded as necessary.

When CardPrinter70Firmware is run, the window as below is shown.

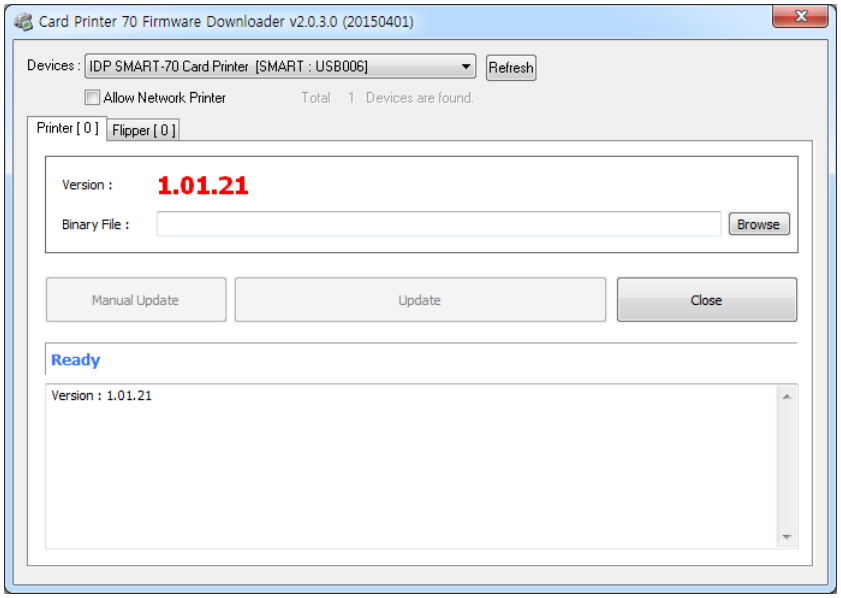


Figure 97 CardPrinter70Firmware

Devices: To select the Printer that firmware will be upgraded.

Allow Network Printer: To set that Printers connected via network are displayed in Devices.

Printer [0] / ... : To select the modules of SMART-70 system that firmware is upgraded.

Version: To displays the current firmware version of selected Printer.

Binary File: To select the new firmware file. Please click "Browse" button to search and select the new firmware file.

Manual Update: To upgrade the firmware manually.

Update: To upgrade the firmware automatically. Update for automatic upgrading is generally recommended.

Close: To close this utility.

Message: Necessary information is displayed when the firmware is being upgraded.

4.3.1 Printer connection

After SMART-70 Printer is connected to PC and the connected Printer is selected on Devices of CardPrinter70Firmware, all modules of SMART-70 System are displayed as tabs.
SMART-70 System is combined by "Printer module 0" and "Flipper module 0" as Figure.

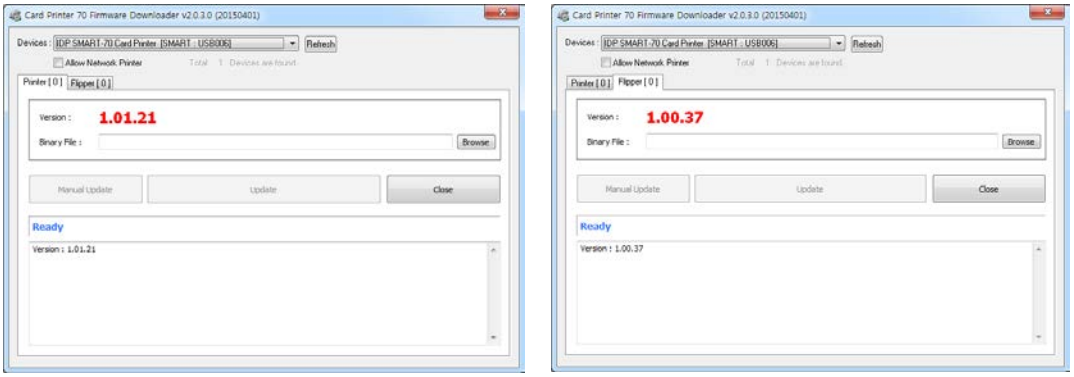


Figure 98 Modules of SMART-70 System (Printer, Flipper)

4.3.2 Module Firmware Upgrade

After clicking the tab of the combined modules of SMART-70 System such as "Printer [0]" or Flipper [0]", please click "Browse" and search and select the new firmware for the module. After selecting the new firmware, "Manual Update" and "Update" is activated. Please click "Update" for automatic firmware upgrade, and the Printer is automatically rebooted after firmware upgrade.

(Caution. Please do not do another job until the firmware upgrade is successfully completed and do not turn off the Printer.)

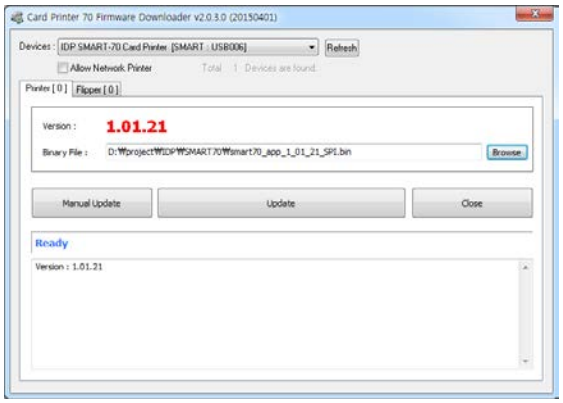


Figure 99 Ready for firmware upgrade

In case there is some problems in automatic firmware upgrade, please click "Manual Update" to manually upgrade firmware. According to the pop-up window as below figure, firmware can manually be upgraded by clicking "Transfer" after the Printer is manually turned on and off.

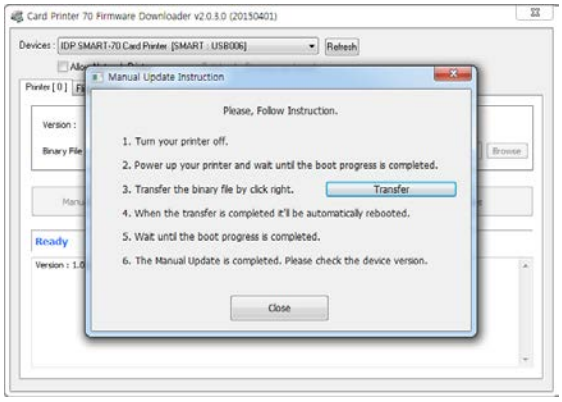


Figure 100 Manual firmware upgrade

5. Troubleshooting

5.1 Printing quality

5.1.1 Unprinted or wrong colors printed spot

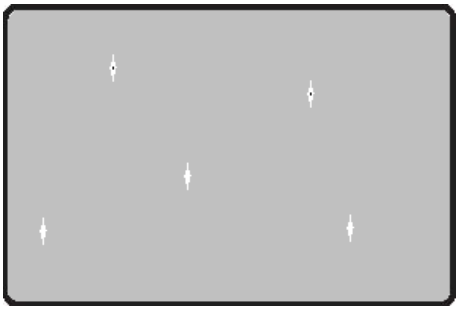


Figure 101 Printing quality trouble 1

- **The card surface is contaminated by foreign substance.**
  After checking the status of card, please change it to another clean card.
- **The cleaning roller is contaminated.**
  After checking the cleaning roller. If the cleaning roller is contaminated too much, please change a disposable cleaning roller.
- **Dust is too much in printer.**
  Please clean the inside of printer by using cleaning kit.

5.1.2 Unprinted horizontal line

Figure 102 Printing quality trouble 2

- **The print head is contaminated by foreign substance.**
  Please clean the print head by using cleaning kit.
- **The print head is damaged.**
  Please contact the local supplier to replace the print head.
- **The ribbon cartridge is improperly installed.**
  Please check the installation status of ribbon cartridge and whether the print ribbon has wrinkles.

5.1.3 Blurry or unstable print

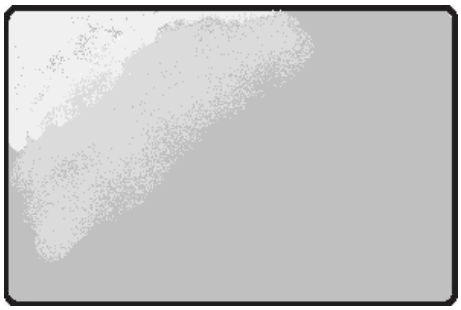
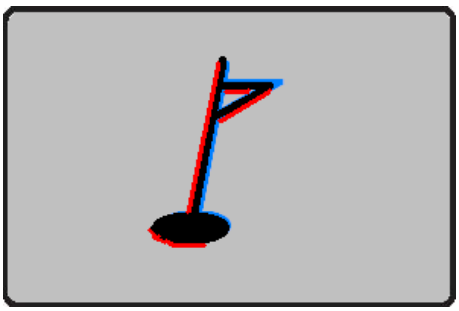


Figure 103 Printing quality trouble 3

- **Uneven or bad surface of card.**
  Please change cards.
- **Too high or too low setting of color density.**
  The printing density of your printer must be adjusted. Please contact the local supplier.
- **The print head is contaminated by foreign substance.**
  Please clean the print head by using cleaning kit.

5.1.4 Not aligned color print

- **Non-standard or bad cards.**
  Please change cards
  (ISO CR80 card (54mm x 86mm) must be used).



- **Uneven or bad surface of card.**
  Please change cards.
- **Card feeding or printing roller is contaminated.**
  Please clean the rollers by using cleaning kit.
- **Outdated printer.**
  Please contact the local supplier.

Figure 104 Printing quality trouble 4

5.1.5 Unplanned color print

Figure 105 Printing quality trouble 5

- **Non-standard or bad cards.**
  Please change cards
  (ISO CR80 card (54mm x 86mm) must be used).
- **Card feeding or printing roller is contaminated.**
  Please clean the rollers by using cleaning kit.
- **Malfunctioned ribbon sensors.**
  Please contact the local supplier to replace the sensors.
- **Outdated printer.**
  Please contact the local supplier.

5.2 Card supply

5.2.1 Card is not supplied or 2 cards are supplied from Input Hopper

Figure 106 Card supply problem 1

- **Non-standard or bad cards.**
  Please change cards
  (ISO CR80 card (54mm x 86mm) must be used).
- **Card cartridge is improperly loaded.**
  Please properly load the card cartridge into
  Input Hopper again.
- **Card thickness of card cartridge is improperly set.**
  Please properly adjust the card thickness control lever depending on the thickness of card. In case card is not supplied, please adjust the lever to the right.
  In case 2 cards are supplied, please adjust the lever to the left.

5.3 Card jam

5.3.1 Card jam in Input Hopper

Figure 107 Card jam in Input Hopper 1

A. Card jam in Input Hopper 1

Please separate Input Hopper as Figure after disconnecting power adaptor and communication cable at rear side.

Figure 108 Card jam in Input Hopper 2

B. Card jam in Input Hopper 2

If card is jammed on the card gate of Input Hopper as Figure, please remove the jammed card by pulling out.

Figure 109 Card jam in Input Hopper 3

C. Card jam in Input Hopper 3

If card is not on the card gate of Input Hopper but card cartridge can't be pulled up, please push in and pull out a new card as Figure.

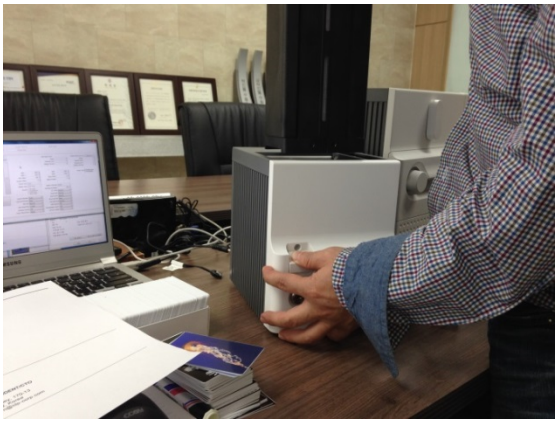


Figure 110 Card jam in Input Hopper 4

D. Card jam in Input Hopper 4

Please pull up card cartridge while pushing the cartridge release button as Figure.

Figure 111 Card jam in Input Hopper 5

E. Card jam in Input Hopper 5

If card is jammed at the gate of card cartridge as Figure, please remove the jammed card by pulling out.

5.3.2 Card jam in Printer

Figure 112 Card jam in Printer 1

A. Card jam in Printer 1

Please turn the ribbon cartridge lock lever to the clockwise 90 degrees as Figure.

Figure 113 Card jam in Printer 2

B. Card jam in Printer 2

Please pull out the ribbon cartridge as Figure.

Figure 114 Card jam in Printer 3

C. Card jam in Printer 3

If print ribbon is stuck to card or coiled on rollers as Figure, the ribbon cartridge may not be pulled out easily. In this case, please cut the ribbon or slowly pull out the ribbon cartridge while pressing the "←" or "→" button on the control panel of Printer little by little.

Figure 115 Card jam in Printer 4

D. Card jam in Printer 4

To remove a jammed card in Printer, please press the "→" button on the control panel of Printer until the jammed card is completely ejected.

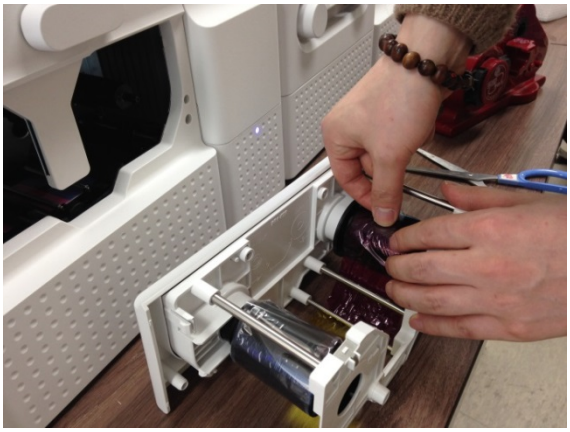


Figure 116 Card jam in Printer 5

E. Card jam in Printer 5

If print ribbon is cut, please stick the cut ribbon together by using a sticky tape and then turn the dial on ribbon cartridge until unused panel of ribbon is on take-up core.

5.3.3 Card jam in Flipper

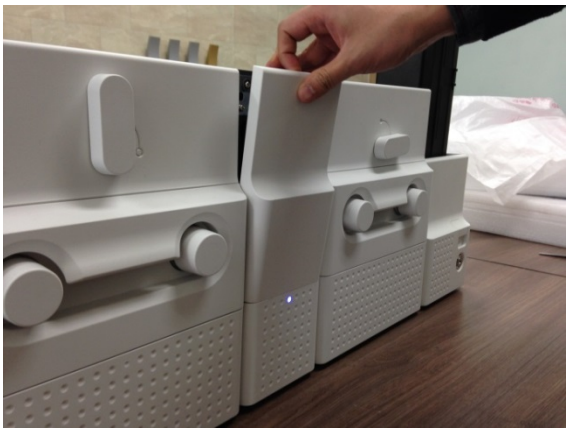


Figure 117 Card jam in Flipper 1

A. Card jam in Flipper 1

Please open the cover of Flipper by pulling as Figure.

Figure 118 Card jam in Flipper 2

B. Card jam in Flipper 2

Please pull out the error card bin in Flipper as Figure.

Figure 119 Card jam in Flipper 3

C. Card jam in Flipper 3

To remove a jammed card, please turn the rotating tray of Flipper until the vertical by hand as Figure.

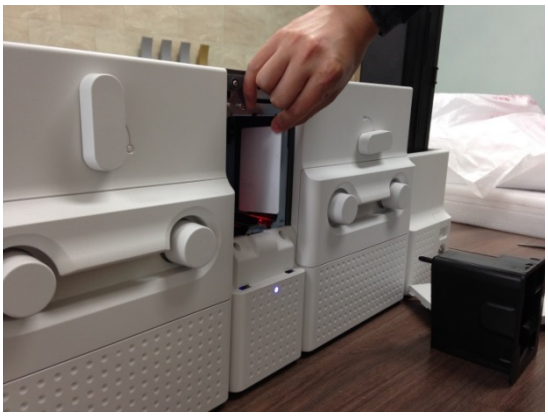


Figure 120 Card jam in Flipper 4

D. Card jam in Flipper 4

Please pull out a jammed card as Figure.

5.3.4 Card jam in Laminator

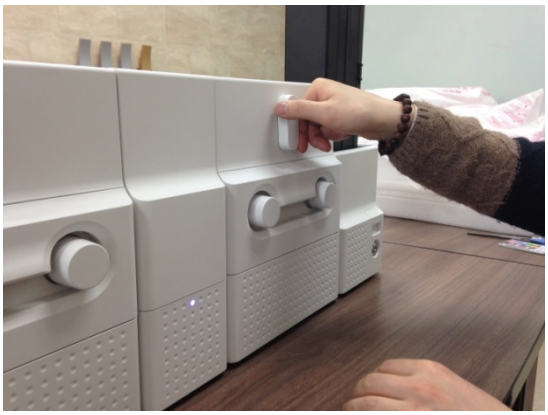


Figure 121 Card jam in Laminator 1

A. Card jam in Laminator 1

Please turn the film cartridge lock lever to the clockwise 90 degrees as Figure.

Figure 122 Card jam in Laminator 2

B. Card jam in Laminator 2

Please pull out the film cartridge as Figure.

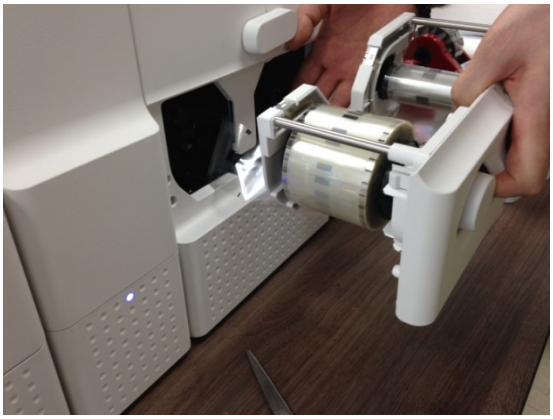


Figure 123 Card jam in Laminator 3

C. Card jam in the Laminator 3

If laminating film is stuck to card or coiled on rollers as Figure, the film cartridge may not be pulled out easily. In this case, please cut the laminating film or slowly pull out the film cartridge while pressing the "←" or "→" button on the control panel of Laminator little by little.

Figure 124 Card jam in Laminator 4

D. Card jam in Laminator 4

To remove a jammed card in laminator, please press the "→" button on the control panel of Laminator until the jammed card is completely ejected.

Figure 125 Card jam in Laminator 5

E. Card jam in Laminator 5

If laminating film is cut, please stick the cut laminating film together by using a sticky tape and then turn the dial on film cartridge until unused laminating film is on take-up core.

5.3.5 Card jam in Output Hopper

Figure 126 Card jam in Output Hopper 1

A. Card jam in Output Hopper 1

Please separate Output Hopper as Figure after disconnecting power adaptor and communication cable at rear side.

Figure 127 Card jam in Output Hopper 2

B. Card jam in Output Hopper 2

If card is jammed on the card gate of Output Hopper as Figure, please remove the jammed card by pulling out.

Figure 128 Card jam in Output Hopper 3

C. Card jam in Output Hopper 3

If card is not on the card gate of Output Hopper but card cartridge can't be pulled up, please push in and pull out a new card as Figure.

Figure 129 Card jam in Output Hopper 4

D. Card jam in Output Hopper 4

Please pull up card cartridge while pushing the cartridge release button as Figure.

Figure 130 Card jam in Output Hopper 5

E. Card jam in Output Hopper 5

If card is jammed at the gate of card cartridge as Figure, please remove the jammed card by pulling out.

5.4 Cleaning

5.4.1 Input Hopper cleaning

Figure 131 Input Hopper cleaning 1

A. Input Hopper cleaning 1

Please separate Input Hopper as Figure after disconnecting power adaptor and communication cable at rear side.

Figure 132 Input Hopper cleaning 2

B. Input Hopper cleaning 2

Please remove the disposable cleaning roller holder in Input Hopper as Figure.

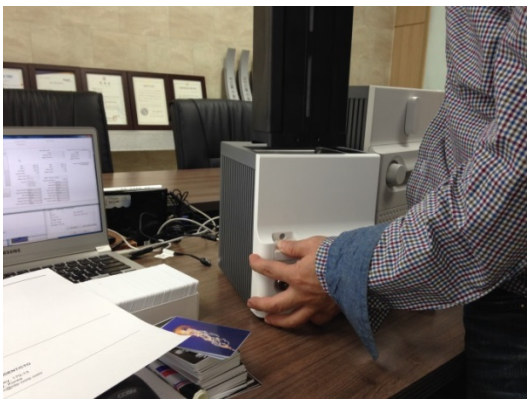


Figure 133 Input Hopper cleaning 3

C. Input Hopper cleaning 3

Please pull up the card cartridge while pushing the cartridge release button as Figure.

Figure 134 Input Hopper cleaning 4

D. Input Hopper cleaning 4

Please push a cleaning card into the card gate of Input Hopper as Figure and clean rollers by pushing in and pulling out the cleaning card slowly and repeatedly.

5.4.2 Printer cleaning

Figure 135 Printer cleaning 1

A. Printer cleaning 1

Please turn the ribbon cartridge lock lever to the clockwise 90 degrees as Figure.

Figure 136 Printer cleaning 2

B. Printer cleaning 2

Please pull out the ribbon cartridge as Figure.

Figure 137 Printer cleaning 3

C. Printer cleaning 3

Please push a cleaning card in Printer while pressing the "→" button on the control panel of Printer for 30 seconds as Figure.
After cleaning, please press the "←" button to remove the cleaning card.

5.4.3 Flipper cleaning

Figure 138 Flipper cleaning 1

A. Flipper cleaning 1

Please separate Flipper as Figure after disconnecting power adaptor and communication cable at rear side.

Figure 139 Flipper cleaning 2

B. Flipper cleaning 2

Please push a cleaning card into the card gate of Flipper until the cleaning card is shown at the other side as Figure and clean rollers by pushing in and pulling out the cleaning card slowly and repeatedly

5.4.4 Laminator cleaning

Figure 140 Laminator cleaning 1

A. Laminator cleaning 1

Please turn the film cartridge lock lever to the clockwise 90 degrees as Figure.

Figure 141 Laminator cleaning 2

B. Laminator cleaning 2

Please pull out the film cartridge as Figure.

Figure 142 Laminator cleaning 3

C. Laminator cleaning 3

Please push a cleaning card in Laminator while pressing the "→" button on the control panel of Laminator for 30 seconds as Figure.
After cleaning, please press the "←" button to remove the cleaning card.

5.4.5 Output Hopper cleaning

Figure 143 Output Hopper cleaning 1

A. Output Hopper cleaning 1

Please separate Output Hopper as Figure after disconnecting power adaptor and communication cable at rear side.

Figure 144 Output Hopper cleaning 2

B. Output Hopper cleaning 2

Please pull up the card cartridge while pushing the cartridge release button as Figure.

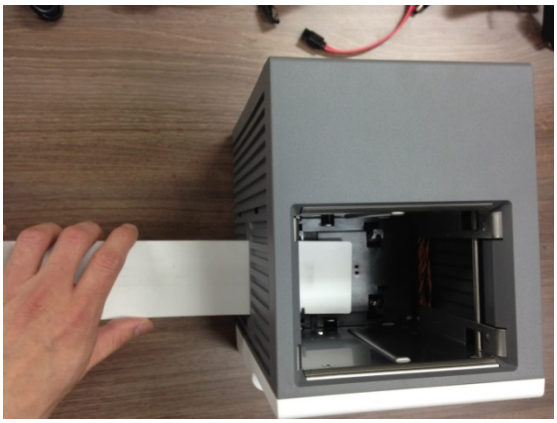


Figure 145 Output Hopper cleaning 3

C. Output Hopper cleaning 3

Please push a cleaning card into the card gate of Output Hopper as Figure and clean rollers by pushing in and pulling out the cleaning card slowly and repeatedly.

5.5 TPH (Thermal Print Head) replacement

Figure 146 TPH replacement 1

A. TPH replacement 1

Please turn the ribbon cartridge lock lever of Printer to the clockwise 90 degrees as Figure.

Figure 147 TPH replacement 2

B. TPH replacement 2

Please pull out the ribbon cartridge as Figure.

Figure 148 TPH replacement 3

C. TPH replacement 3

Please detach the print head while pressing the print head detaching button as Figure.

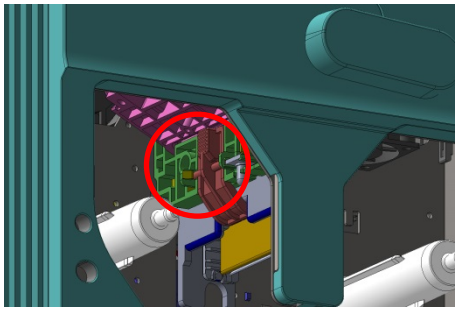


Figure 149 TPH replacement 4

D. TPH replacement 4

Please pull the detached print head out of Printer while turning the ribbon cartridge lock lever to the counterclockwise 90 degrees as Figure.

Figure 150 TPH replacement 5

E. TPH replacement 5

Please disconnect the print head cable from the detached print head as Figure and then connect the print head cable to a new print head.

Figure 151 TPH replacement 6

F. TPH replacement 6

Please install the new print head into Printer while turning the ribbon cartridge lock lever to the clockwise 90 degrees as Figure.

5.6 Laminator Head replacement

Figure 152 Laminator Head replacement 1

A. Laminator Head replacement 1

Please turn the film cartridge lock lever to the clockwise 90 degrees as Figure.

Figure 153 Laminator Head replacement 2

B. Laminator Head replacement 2

Please pull out the film cartridge as figure.

Figure 154 Laminator Head replacement 3

C. Laminator Head replacement 3

Please detach the laminate head while pressing the laminate head detaching button as Figure.

Figure 155 Laminator Head replacement 4

D. Laminator Head replacement 4

Please pull the detached laminate head out of Laminator while turning the film cartridge lock lever to the counterclockwise 90 degrees as Figure.

Figure 156 Laminator Head replacement 5

E. Laminator Head replacement 5

Please disconnect 2 head cables from the detached laminate head as Figure and then connect the laminate head cables to a new laminate head.

Figure 157 Laminator Head replacement 6

F. Laminator Head replacement 6

Please install the new laminate head into Laminator while turning the film cartridge lock lever to the clockwise 90 degrees as Figure.

6. SMART-70 Specifications

6.1 SMART-70 Input Hopper

Capacity	Card	Max. 500 cards
	Feeding	Automatic
Card	Size	ISO CR80 (54mm x 86mm / 2.12" x 3.38")
	Thickness	0.38mm (15mil), 1.2mm (47mil)
	Type	PVC, Composite PVC, PET
Sensor	Residual Q'ty Sensor	Near Empty & Empty
	Detection Sensor	Cartridge Mount Status Detectable
System	Communication	RS-485, RS-232C
	Power Supply(Adapter)	DC 24V, 2A
	Temp. / Humidity	15~35℃ / 35~70%
Security	Physical Lock	Cartridge
	Station Itself	Kensington Lock
Dimensions	Millimeter	170 (W) x 204 (L) x 548 (H)
	Inch	6.7 (W) x 8.0 (L) x 21.6 (H)
Weight	Kg/lbs.	Approx. 3.7 kg / 8.2 lbs.

6.2 SMART-70 Encoding Station

Encoding Sensor	Magnetic	ISO 7811 (Track I, II, III Read/Write, HiCo/LoCo), JIS II
	Contact	ISO 7816 (ID-1)
	Contactless	MIFARE, ISO 1443(Type A/B), ISO 15693, DEFIRE, iCLASS
	Barcode Reader	1D & 2D Barcode Reader (Front/Back)
System	Communication	USB, RS-232C
	Power Supply	Free Voltage (AC100 / 220V, 50~60Hz)
	Power Supply(Adapter)	DC 24V, 2A
	Temp. / Humidity	15~35℃ / 35~70%
Security	Physical Lock	Encoding Station
	Station Itself	Kensington Lock
Dimensions	Millimeter	240 (W) x 214 (L) x 305 (H)
	Inch	9.5 (W) x 8.4 (L) x 12 (H)
Weight	Kg/lbs.	TBD

6.3 SMART-70 Printer

Printing	Print Type	Direct Dye-Sublimation
	Print Area	Edge to Edge
	Resolution	300dpi
Card	Card Feeding	Automatic
	Card Size	ISO CR80 (54mm x 86mm / 2.12" x 3.38")
	Card Thickness	0.38mm (15mil), 1.2mm (47mil)
	Card Type	PVC, Composite PVC, PET
Print Speed	Monochrome	3.6 sec./card (1,000 cards/hour)
	YMCKO	18 sec./card (200 cards/hour), Max. 16 sec./card (225 card/hour)
	YMCKOK	24 sec./card (150 cards/hour), Max. 22 sec./card (164 cards/hour)
Capacity	Input Hopper: Card	500 cards
	Output Hopper: Card	Stacker: 100 cards/ *Optional Output Hopper: 500 cards
System	Memory	64MB RAM
	Interface	2 Line LCD / 4 Buttons / 1 LED Indicator
	Supported Platforms	Microsoft Windows 2000/ 2003/ XP/ Vista/ 7/ 8, Max OS, Linux
	Communication	USB(Device, Host), Ethernet, RS-485
	Power Supply(Adapter)	DC 24V, 2A
	Temp. / Humidity	15~35℃ / 35~70%
Security	Physical Lock	Print ribbon
	S/W	PC authentication, Password authentication
	Station Itself	Kensington Lock
Dimensions	Millimeter	240 (W) x 214 (L) x 305 (H)
	Inch	9.5 (W) x 8.4 (L) x 12 (H)
Weight	Kg/lbs.	Approx. 6.3 kg / 13.9 lbs.

6.4 SMART-70 Flipper

System	Communication	RS-485
	Power Supply(Adapter)	DC 24V, 2A
	Temp. / Humidity	15~35℃ / 35~70%
Security	Physical Lock	Cards
	Station Itself	Kensington Lock
Dimensions	Millimeter	110 (W) x 204 (L) x 305 (H)
	Inch	4.3 (W) x 8.0 (L) x 12 (H)
Weight	Kg/lbs.	Approx. 2.8 kg / 6.2 lbs.
Error Card Bin		Ejection device for faulty card is equipped inside Flipper (Max. 30 card.)

6.5 SMART-70 Laminator

Laminating	Type	Direct Heating Lamination
	Speed	14 sec./card (Single-sided Laminating)
Laminating Film	Type	Clear, Holographic
	Thickness	0.6mil, 1.0mil
	Capacity	500 cards/Roll
System	Interface	2 Line LCD / 4 Buttons / 1 LED Indicator
	Communication	RS-485, RS-232C, USB(디버그용)
	Power Supply(Adapter)	DC 24V, 2A
	Temp. / Humidity	15~35℃ / 35~70%
Security	Physical Lock	Laminating Film
	Station Itself	Kensington Lock
Dimensions	Millimeter	240 (W) x 214 (L) x 305 (H)
	Inch	9.5 (W) x 8.4 (L) x 12 (H)
Weight	Kg/lbs.	Approx. 6.1 kg / 13.4 lbs.

6.6 SMART-70 Output Hopper

Capacity	Card	Max. 500 cards
	Feeding	Automatic
Card	Size	ISO CR80 (54mm x 86mm / 2.12" x 3.38")
	Thickness	0.38mm (15mil), 1.2mm (47mil)
	Type	PVC, Composite PVC, PET
Sensor	Residual Q'ty Sensor	Full Space
	Detection Sensor	Cartridge Mount Status Detectable
System	Communication	RS-485, RS-232C
	Power Supply(Adapter)	DC 24V, 2A
	Temp. / Humidity	15~35℃ / 35~70%
Security	Physical Lock	Cartridge
	Station Itself	Kensington Lock
Dimensions	Millimeter	149 (W) x 204 (L) x 548 (H)
	Inch	5.9 (W) x 8.0 (L) x 21.6 (H)
Weight	Kg/lbs.	Approx. 3.5 kg / 7.6 lbs.

Specifications and availability may change without notice.

: This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:
(1) This device may not cause harmful interference, and
(2) This device must accept any interference received, including interference that may cause undesired operation.
Caution: Any changes or modifications to the equipment not expressly approved by the party responsible for compliance could void user's authority to operate the equipment.

This appliance and its antenna must not be co-located or operation in conjunction with any other antenna or transmitter.
A minimum separation distance of 20 ㎝ must be maintained between the antenna and the person for this appliance to satisfy the RF exposure requirements.

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