# SMART-81

## Retransfer Card Printer

# User Manual


iDP

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## Return Materials Authorization

In order to make a warranty claim you must contact an IDP Reseller. You will be responsible for packaging the printer for shipment and the costs of shipping and insurance of the printer from the point of use of the printer to the IDP Reseller. The IDP Reseller will bear the costs of shipping and insuring the printer from the repair location to the address from which the printer was shipped.

Before returning any equipment for in-warranty or out of warranty repair, contact an IDP Reseller or an IDP Service Center for a Return Materials Authorization (RMA) number. Repack the equipment in the original packing material and mark the RMA number clearly on the outside of the box. For more information about RMA or IDP warranty statements, refer to the Warranty booklet on the quick install guide.

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# 1. Basic Information

## 1.1. Printer outside features

For the user's convenience, SMART-81 status can be seen through LCD. and the printer can be controlled by 4 buttons under the LCD. Using USB and Ethernet port, it is communicated with the user's PC

The following shows the outside functional features found on the printer


① **Air vent**

② **Air vent**

③ **Physical lock *option**

④ **Input hopper**

⑤ **LCD and buttons**

⑥ **Front cover**

*Figure 1 SMART-81 front features*


⑦ **Card exit slot**

⑧ **IR Comm. port**

⑨ **Power switch**

⑩ **AC Power Connector**

⑪ **Ethernet & External USB port**

⑫ **USB port**

⑬ **RS232 port**

*Figure 2 SMART-81 rear features*

**SMART-81 Printer has SMART-81S for single-sided printing and SMART-81D for Dual-sided printing. And can fit a laminate device on the left side of the printer depending on the application.**

**SMART-81 (Figure. 3)** is the standard card printer. It can be printed single-sided or dual-sided. And it can be written/read MS, IC, RF card data with option installation.


*Figure 3 SMART-81*

**SMART-81& Laminator (Figure. 4)** is installed Laminator on the SMART-81.

SMART-81& Laminator can be laminated on the printed card.


*Figure 4 SMART-81 & Laminator*

## 1.2. Printer inside feature

In SMART-81 printer, the ribbon and film are installed by each cartridge which can be used semi-permanently. The following shows the inside functional features found on your SMART-81 printer.

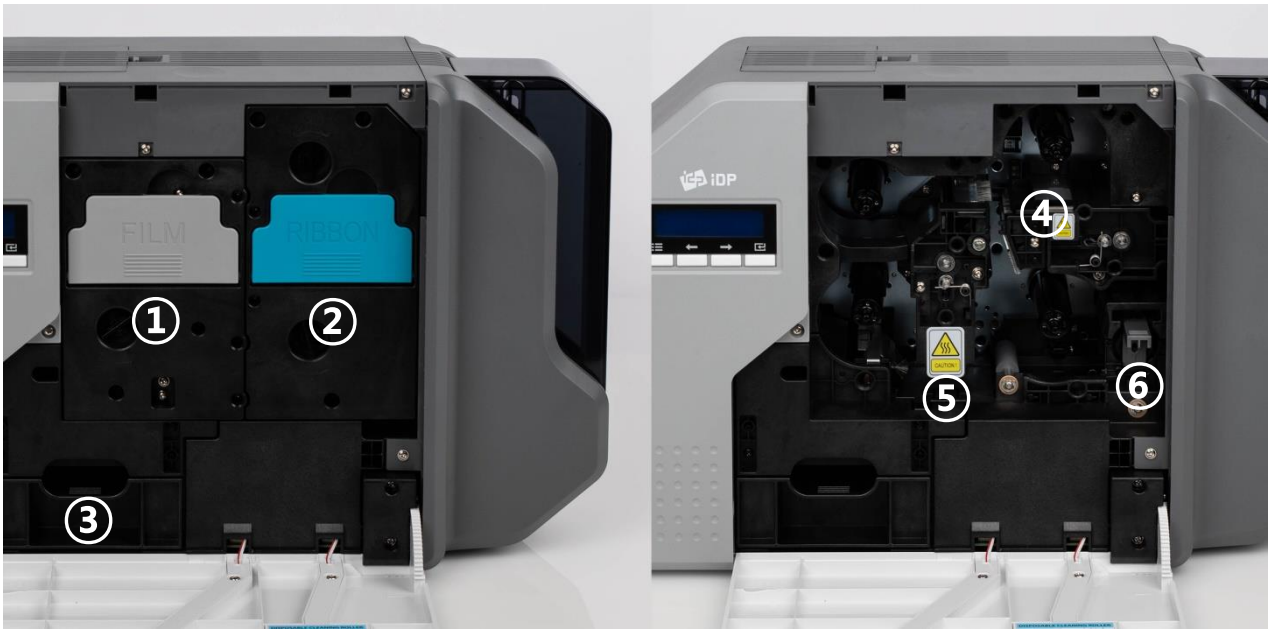
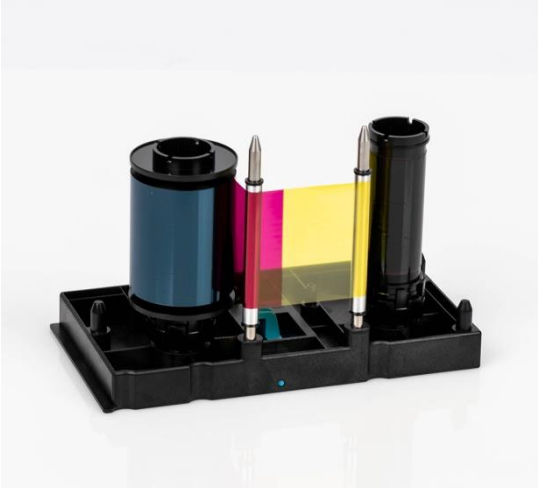



*Figure 5 SMART-81 inside feature*

**① Film cartridge**

Cartridge to which the retransfer film is mounted. It can be separated from the printer by holding and pulling a handle. This semi-permanent film cartridge is a component of printer.
Printer does not operate if it will be broken or damaged. In this case, please contact printer reseller.

## ② Ribbon cartridge



Cartridge to which the printer ribbon is mounted. it can be separated from the printer by holding and pulling a handle. This semi-permanent ribbon cartridge is a component of printer. Printer does not operate if it will be broken or damaged. In this case, please contact printer reseller.

## ③ Inside Stacker (Error card outlet)

Collect card with an error while printing card.

It can be changed the functionality with user settings. If it is loaded up to 25 cards and the card exceeds the stacker load, the PC and LCD will indicate that stacker has been exceeded and will no longer print. Pull the stacker forward to separate it from the printer.

## ④ Thermal Printer head

This enables the film to be image printed.

**(Caution: This is very hot after printing. Do not contact the surface of the Thermal Print Head with fingers or a sharp metal object to avoid degrading print quality or damaging printer head permanently.)**

## ⑤ Retransfer head

This enables retransfer image film to the card.

**(Caution: This is very hot after printing. Do not contact the surface of the Thermal Print Head with fingers or a sharp metal object to avoid degrading print quality or damaging printer head permanently.)**

### ⑥ Cleaning roller cartridge

Cartridge to which the cleaning roller is mounted. it can be separated from the printer by holding and pulling a handle. It removes dust on the surface of card to improve print quality before the card is printed. It should be changed together with the ribbon. This semi-permanent film cartridge is a component of printer. Printer does not operate if it will be broken or damaged.

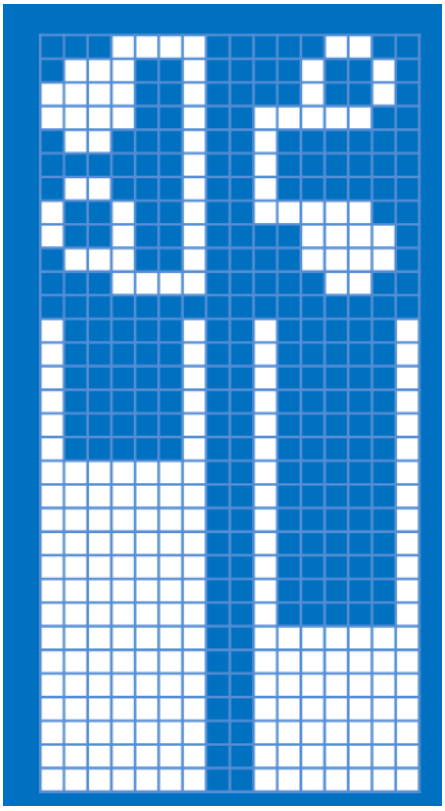
In this case, please contact printer reseller.

## 1.3. Display & buttons

SMART-81's control panel consists of LCD and 4 buttons. LCD shows the status of the printer, and view each status and changes the setting with buttons.


*Figure 6 SMART-81 Display and buttons*

The status of SMART-81 is **'Initializing'** when booting up.
It is changed to **'System Ready'** if the printer is fine. It is change to 'Printing' when the printer is working. In case of sensing an error, it is changed to **'Error'** status. Whenever the top cover is opened, the operation is stopped and the status is 'Top Cover Open'. It also displays remaining status of the current film and ribbon as an icon on the right side of the screen.



The left side shows the residual volume of the re-transfer film, and the right side shows the residual volume of the ribbon. And the icon displays the remaining consumables in percentage.
Mark ‘X’, if the film or ribbon is not fitted.

*Figure 7 Film & Ribbon residual volume icon*

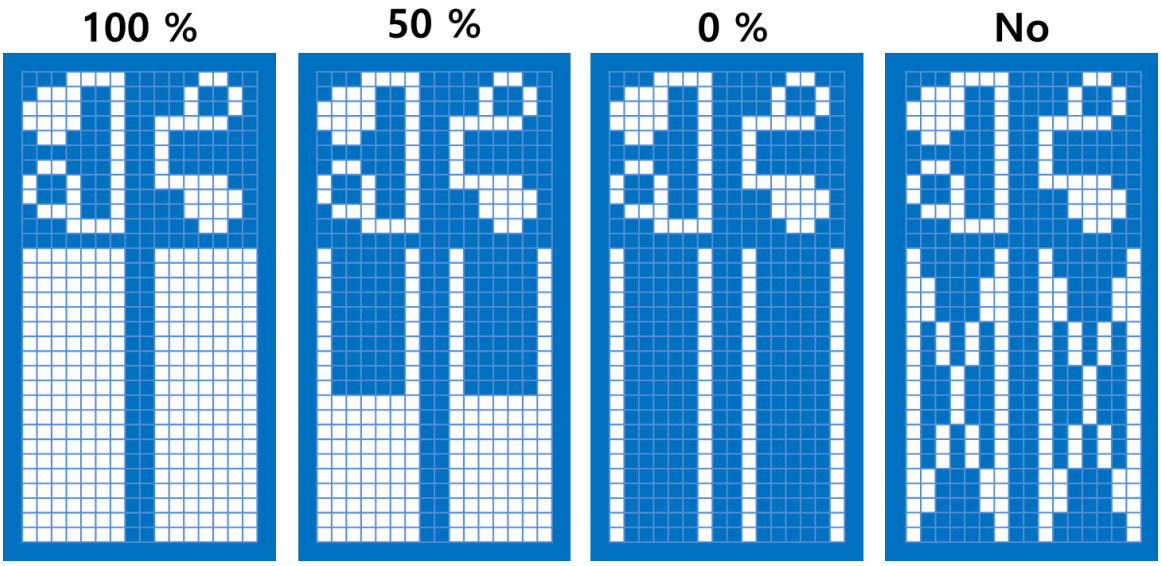



*Figure 8 Example of icons*

**- Laminator LED status by color**

When Install and use Laminator on the SMART-81(Figure 7), You can check status of laminator with indicator(LED)'s color.

***※ Laminator LED Location***

| LED Status | Description |
|---|---|
| Blue (on) | Normal standby |
| Green (on) | Executing Printer's command. |
| Sky (on) | Executing Laminator |
| Yellow (on : 500ms off : 500ms) | Case open |
| Pink (on : 500ms off : 500ms) | Laminator Film zero |
| Red (on : 200ms off : 200ms) | Laminator Film TAG error |
| Red (on : 500ms off : 500ms) | Laminator Film search error |
| Red (on : 200ms off : 500ms) | Heating temperature error |
| Red (on) | Other errors ( ex. Card in, Card out, Move error etc.) |

The below table shows LCD messages based on their status and functions when the button is pressed.

| Messages | | KEY0<br>Menu/Cancel | KEY1<br>Left/Down | KEY2<br>Right/Up | KEY3<br>Select/OK | State | Description |
|---|---|---|---|---|---|---|---|
| **Initializing**<br>**[x.xx.xx][xx][xx]** | | x | x | x | x | Initialization | Initialization when booting, or Case Open and Close<br>Display Printer Firmware Version, Vendor, Region Code. |
| **Init Error+** | **SubMcu Init.** | Retry initialization | Retry initialization | Retry initialization | Retry initialization | Initialization error | Sub-processor initialization or download failed. |
| | **PreHeating** | | | | | | TPH PreHeating TimeOver (5 minutes) |
| | **Ext Device Init.** | | | | | | External device (Laminator) Error. |
| | **Filpper Init.** | | | | | | Flipper Top Operation Error. |
| | **New Film Init.** | | | | | | Error in pre-winding operation of first-use film. |
| | **Film Calib.** | | | | | | Film Calibration (Film outer diameter measurement) Error. |
| | **Ribbon Calib.** | | | | | | Ribbon calibration (measure ribbon color value or input standard color value) Error. |
| | **Ribbon Seek** | | | | | | Ribbon Seek Error. |
| | **Card Out** | | | | | | Card Out Error. |
| | **Film Tag Check** | | | | | | Film count check Error. |
| | **Ribbon Tag Check** | | | | | | Ribbon count check Error. |
| **SMART-81x**<br>**Unlock Please.** | | x | x | x | x | Password authentication | Use Authentication option on Smart81 Config utility, and printer is Lock with Root Password/User Password. |
| **SMART-81x**<br>**Verify Your PC** | | x | x | x | x | PC authentication | Use Authentication option on Smart81 Config utility, and use SMART printer with not Authentication PC. |
| **SMART-81x**<br>**DCL System Ready** | | MENU | Information Menu - | Information Menu + | x | Standby mode | System is ready to print, you can check the ribbon information by pressing left button, and power is off by pressing the right button.<br>With the power off, pressing right key again |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | | | will power on again (DCL Mode) |
| **SMART-81xx**<br><br>**System Ready** | MENU | Information Menu - | Information Menu + | x | Standby mode | System is ready to print, you can check the ribbon information by pressing left button, and power is off by pressing the right button.<br>With the power off, pressing right key again will power on again. (Normal Mode) |
| **TPH Not Found**<br><br>**Check TPH** | x | x | x | x | TPH connect check | TPH is not installed or TPH cable is not connected. Power off the printer and check TPH status. |
| **Heater Not Found**<br><br>**Check Heater** | x | x | x | x | Retransfer head connect check | Retransfer head is not installed, or cable is not connected, or abnormal temperature. Power off and check Retransfer head status and temperature. |
| **BHeater Not Found**<br><br>**Check BHeater** | x | x | x | x | Bend Retransfer head connect check | Bend retransfer head is not installed, or cable is not connected, or abnormal temperature. Power off and check bend retransfer head status and temperature. |
| **Heater Broken!**<br><br>**Check Heater** | x | x | x | x | Retransfer head broken or damaged | Retransfer head is broken or damaged. Power off and check retransfer head status and temperature. |
| **BHeater Broken!**<br><br>**Check BHeater** | x | x | x | x | Bend Retransfer head broken or damaged | Bend retransfer head is broken or damaged. Power off and check bend retransfer head status and temperature. |
| **Heater Error!**<br><br>**Check Heater** | x | x | x | x | Retransfer head Safety Error | Retransfer head has safety error. Power off and check retransfer head status and temperature.<br>. |
| **BHeater Error!**<br><br>**Check BHeater** | x | x | x | x | Bend Retransfer head Safety Error | Bend retransfer head has safety error. Power off and check bend retransfer head status and temperature. |
| **TPH Warming UP**<br><br>**Temperature xxx** | X | x | x | x | Standby for TPH temp | SMART's temperature drops below 1'C. |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | | rising. | The normal temperature is 15'C~35'C. |
| **Spool Error**<br>**<Cancel Reset>** | Delete spool and cancel | x | x | System reset | Spool error | Error occurs while receive spool print data. KEY0 is delete and cancel, KEY3 is System Reset |
| **xxxxxxxxxxxxxxx+**<br>**<Retry Cancel>** | Retry | x | x | Cancel and Initialization | Error occurs while printing | Error occurs while printing. KEY0 is retry, KEY3 is cancel printing (Refer to Printer LCD Error Table)<br>'+' is displayed at the end of first line if there are more than two errors |
| **xxxxxxxxxxxxxxx+**<br>**Open Front Cov** | Retry | x | x | Cancel and Initialization | Initial error after close case | Fail to search Ribbon, or fail card out while initialization after Case Closed. (Refer to Printer LCD Error Table)<br>'+' is displayed at the end of first line if there are more than two errors |
| **Card Out Error**<br>**<Retry Cancel>** | Retry | x | x | Cancel and Initialization | Card out fail after printing error | Card out fail after printing error. Left button is Retry, Right is Cancel |
| **Front Cov Open**<br>**Menu <- -> Flip** | Cover Open Menu | Card transfer to left | Card transfer to right | Front Flip | Cover open | Front Cover open.<br>KEY0 : Cover Open Menu, KEY1 : Transfer card to left<br>KEY2 : Transfer card to right, KEY4 : Flipper Flip |
| **Flip Cov Open**<br>**Menu <- -> Flip** | Cover Open Menu | Card transfer to left | Card transfer to right | Flipper Flip | Cover open | Flipper Cover open<br>Flipper Cover must be close to release, and it is not displayed when the **Flipper Cover Open Ignore mode**<br>KEY0 : Cover Open Menu, KEY1 : Transfer card to left, KEY2 : Transfer for card to right KEY4 : Flipper Flip |
| **Lami. Cov Open**<br>**Close Cover** | Cover Open Menu | Card transfer to left | Card transfer to right | Flipper Flip | Cover open | Laminator Cover open<br>Laminator Cover must be close to release, and it is not displayed when the **Laminator Cover Open Ignore mode** and not applicable during printing<br>KEY0 : Cover Open Menu, KEY1 : Transfer card to left, KEY2 : Transfer for |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | | | card to right KEY4 : Flipper Flip |
| **Hopper Cov Open**<br>**Close Cover** | x | x | x | x | Cover open | Hopper Cover open Hopper Cover must be close to release, and it is not displayed when the **Hopper cover Open Ignore mode.** and not applicable during printing open. And not displayed **Cartridge Open Ignore** Setting also. |
| **Hop Card Empty**<br>**Plz Supply Card** | x | x | x | x | Non card in hopper. | Card empty in Hopper. Hopper Cartridge Open takes precedence when it occurs same time with card empty. |
| **>> *Cover Open Menu**<br>**Press Enter Key** | Cancel | Cover Open Menu - | Cover Open Menu + | Cover Open Head Motion menu | Cover open | Cover Open Menu *Case open Menu : **HeadMotion :** about Head **RibbonMotor :** about ribbon **FilmMove :** about film **FlipperMove :** about flipper |
| **Ext Hdn Pdn Hup**<br>***Head Status Message** | Cancel | Heater Down | Print Head Down<br>Head Reposition | Head Up | Cover open | Case Open Menu HeadMotion Menu KEY0 : Cancel, KEY1 : Heater Down, KEY2 : Print Head Down, KEY3 : Head Up, KEY2+KEY3 : Head Reposition * Head state message : **HeadStartPos** : Start position. Display after Up move, or Reposition **HeaterDown**: Heater down state **PrintHeadDown**: printer head down state |
| **Ext Fwdr Bwd --- Enc[xxxxxxxx]** | Cancel | Ribbon Motor Forward Move | Ribbon Motor Backward Move | x | Cover open | Case Open Menu RibbonMotor motion Menu KEY0 : Cancel, KEY1 : Ribbon Motor Forward Move, KEY2 : Ribbon Motor Backward Move DIsplay Ribbon Motor Encoder value when motor operate. |

| | | | | | | |
|---|---|---|---|---|---|---|
| **Ext Fwdr Bwd ---**<br>**Move[xxxxx] mm** | Cancel | Film Forward Move | Film Backward Move | x | Cover open | Case Open Menu - FilmMove motion Menu<br>KEY0 : Cancel, KEY1 : Film Forward Move, KEY2 : Film Backward Move<br>DIsply Film distance is indicated by value of mm. |
| **Ext Top Bot Flp**<br>***Flipper Status Message** | Cancel | Flipper Top | Flipper Bottom | Flipper Flip | Cover open | Case Open Menu - Flipper Move motion Menu<br>KEY0 : Cancel, KEY1 : Flipper Top, KEY2 : Flipper Bottom, KEY 3: Flipper Flip<br>* Flipper state message :<br>**Top Side** : Flipper Top state<br>**Bottom Side** : Flipper Bottom state<br>**Top Side Err** : error occurs while Flipper Top motion<br>**Bottom Side Err** : error occurs while Flipper Bottom motion. |
| **MENU**<br>**System Config** | Cancel | Menu - | Menu + | **Select** | Select MENU | Menu System Config select |
| **>>UserCnt Clear**<br>**UserCount xxxxx** | Cancel | Information Menu - | Information Menu + | **User Count Clear** | System Config | User Count Clear. |
| **MENU**<br>**Network Config** | Cancel | Menu - | Menu + | **Select** | Select MENU | Menu Network Config select |
| **>> DHCP**<br>**Press Enter Key!** | Cancel | Network Config Menu - | Network Config Menu + | **DHCP ON/OFF** | Network Config | DHCP ON/OFF |
| **>> IP ADDRESS**<br>**xxx.xxx.xxx.xxx** | Cancel | Network Config Menu - | Network Config Menu + | **IP ADDRESS setting** | Network Config | IP address information check/Setting |
| **>> NET MASK**<br>**xxx.xxx.xxx.xxx** | Cancel | Network Config Menu - | Network Config Menu + | **NET MASK Setting** | Network Config | Subnet Mask information check/Setting. |
| **>> GATEWAY**<br>**xxx.xxx.xxx.xxx** | Cancel | Network Config Menu - | Network Config Menu + | **GATEWAY Setting** | Network Config | Gateway information check/Setting. |
| **>> MAC Address**<br>**xxxx-xxxx-xxxx** | Cancel | Network Config Menu - | Network Config Menu + | x | Network Config | MacAddress information check. |
| **>> NET FS VER**<br>**x.xx.xxx** | Cancel | Network Config Menu - | Network Config Menu + | x | Network Config | Network Firmware(FS) information check |
| **MENU**<br>**Print Config** | Cancel | Menu - | Menu + | **Select** | Select MENU | Menu Print Config select |

| | | | | | | |
|---|---|---|---|---|---|---|
| **>> X Print Pos**<br>**xxx** | Cancel | Print Config Menu - | Print Config Menu + | **Setting** | Print Config | X Print Position Setting. |
| **>> Y Print Pos**<br>**xxx** | Cancel | Print Config Menu - | Print Config Menu + | **Setting** | Print Config | Y Print Position Setting. |
| **>> Y Print Scale**<br>**xxx** | Cancel | Print Config Menu - | Print Config Menu + | **Setting** | Print Config | Y Print Scale Setting. |
| **>> Y RT Pos**<br>**xxx** | Cancel | Print Config Menu - | Print Config Menu + | **Setting** | Print Config | Y Retransfer Position Setting. |
| **>> Y F RT Length**<br>**xxx** | Cancel | Print Config Menu - | Print Config Menu + | **Setting** | Print Config | Y Top Retransfer Length Setting. |
| **>> Y B RT Length**<br>**xxx** | Cancel | Print Config Menu - | Print Config Menu + | **Setting** | Print Config | Y Bottom Retransfer Length Setting. |
| **>>Total Density**<br>**xxx** | Cancel | Print Config Menu - | Print Config Menu + | **Setting** | Print Config | Total Density Setting. |
| **>>Color Density**<br>**xxx** | Cancel | Print Config Menu - | Print Config Menu + | **Setting** | Print Config | Color Density Setting. |
| **>>Black Density**<br>**xxx** | Cancel | Print Config Menu - | Print Config Menu + | **Setting** | Print Config | Black Density Setting. |
| **>>Resin Density**<br>**xxx** | Cancel | Print Config Menu - | Print Config Menu + | **Setting** | Print Config | Resin Density Setting. |
| **MENU**<br>**Information** | Cancel | Menu - | Menu + | **Menu select** | Select MENU | Menu Information 선택 |
| **>>Ribbon Balance**<br>***Ribbon type count information** | Cancel | Information Menu - | Information Menu + | x | Check Information | Display the current ribbon type and printable length. You can check it Information Menu **Display "RibType Count / Start Count"**. |
| **>>Film Balance**<br>***Film type count information** | Cancel | Information Menu - | Information Menu + | x | Check Information) | Display the current film type and printable length. You can check it Information Menu. **Display "FilmType Count / Start Count"**. |
| **>>L Film Balance**<br>***L film type count information** | Cancel | Information Menu - | Information Menu + | x | Check Information | If Laminator is installed, Display the current Laminator film type and printable length. You can check it Information Menu. **Display "FilmType Count / Start Count"** . |

| | | | | | | |
|---|---|---|---|---|---|---|
| **>>Temperature** | Cancel | Information Menu - | Information Menu + | x | Check Information | Heater(display if Bending Heater is installed), Thermal Head temp display. You can check it Information Menu. **T : Print Head, H : Retransfer Head , B : Bending Heater** |
| **>>HeadInfo** | Cancel | Information Menu - | Information Menu + | x | Check Information) | Display Printer head type and Serial number. |
| **>>PRN Serial** | Cancel | Information Menu - | Information Menu + | x | Check Information | Display printer serial number. |
| **>>LAM Serial** | Cancel | Information Menu - | Information Menu + | x | Check Information | Display Laminator serial number. |
| **>>PRN Firmware** | Cancel | Information Menu - | Information Menu + | x | Check Information | Display Printer firmware version. |
| **>>LAM Firmware** | Cancel | Information Menu - | Information Menu + | x | Check Information | Display Laminator firmware version. |
| **>>Factory Count**<br>**xxxx** | Cancel | Information Menu - | Information Menu + | x | Check Information | Display Factory Count. |
| **>>User Count**<br>**xxxx** | Cancel | Information Menu - | Information Menu + | x | Check Information | Display User Count. |
| **>>Print Sample**<br>**Press Enter Key!** | Cancel | Information Menu - | Information Menu + | **Sample Image print** | Check Information | Print sample image. |
| **>>LCom RCom**<br>**xxxxxx xxxxxx** | Cancel | Information Menu - | Information Menu + | **Communication recovery count Clear** | Check Information | LCom : Communication with Laminator recovery count clear, RCom : Communication with ext hopper recovery count clear |
| **>FBlk Mrev Lcin**<br>**xxxxx\|xxxxx\|xxxx** | Cancel | Information Menu - | Information Menu + | **Recovery count Clear** | Check Information | FBlk : movement retry count during jam Flipper->Printer transfer<br>Mrev : retry count during Laminator to Command transfer.<br>Lcin : count of movement recovery that move from Laminator(receive data from Laminator) |
| **SMART-81x**<br>**Mag R/W** | x | x | x | x | MagRead/Write | Magnetic Card Reading/Writing. |
| **SMART-81x**<br>**Printing** | x | x | x | x | Printing | Printing |
| **SMART-81x**<br>**Heating** | x | x | x | x | Printing | Retransfer heating. |

| | | | | | | |
|---|---|---|---|---|---|---|
| **SMART-81x**<br>**Retransferring** | x | x | x | x | Printing | Retransferring |
| **SMART-81x**<br>**Laminating** | x | x | x | x | Laminating | Laminating. |
| **Board Test Mode**<br>**Wait** | x | x | x | x | Test mode | Test mode for test function of Smart81's Sensor/Motor. |
| **RibbonNotFound**<br>**Check Ribbon** | Retry Ribbon recognize | Retry Ribbon recognize | Retry Ribbon recognize | Retry Ribbon recognize | Ribbon recognize error | Ribbon recognize error, ribbon is not installed or mis-recognize, press key to retry ribbon recognize |
| **Ribbon Not Found**<br>**Model Mismatch** | Retry Ribbon recognize | Retry Ribbon recognize | Retry Ribbon recognize | Retry Ribbon recognize | Ribbon recognize error | If the ribbon and print model don't match, press key to retry ribbon recognize |
| **Ribbon Not Found**<br>**Region Mismatch** | Retry Ribbon recognize | Retry Ribbon recognize | Retry Ribbon recognize | Retry Ribbon recognize | Ribbon recognize error | If the ribbon and print region don't match, press key to retry ribbon recognize. |
| **Ribbon Not Found**<br>**Vendor Mismatch** | Retry Ribbon recognize | Retry Ribbon recognize | Retry Ribbon recognize | Retry Ribbon recognize | Ribbon recognize error | If the ribbon and print vendor don't match, press key to retry ribbon recognize. |
| **Ribbon Not Found**<br>**Unsupported Rib** | Retry Ribbon recognize | Retry Ribbon recognize | Retry Ribbon recognize | Retry Ribbon recognize | Ribbon recognize error | If install not supported ribbon, press key to retry ribbon recognize |
| **Film Not Found**<br>**Check Film** | Retry film recognize | Retry film recognize | Retry film recognize | Retry film recognize | Film recognize error | film recognize error, film is not installed or mis-recognize, press key to retry film recognize |
| **Film Not Found**<br>**Model Mismatch** | Retry film recognize | Retry film recognize | Retry film recognize | Retry film recognize | Film recognize error | If the film and print model don't match, press key to retry film recognize. |
| **Film Not Found**<br>**Region Mismatch** | Retry film recognize | Retry film recognize | Retry film recognize | Retry film recognize | Film recognize error | If the film and print region don't match, press key to retry film recognize. |
| **Film Not Found**<br>**Vendor Mismatch** | Retry film recognize | Retry film recognize | Retry film recognize | Retry film recognize | Film recognize error | If the film and print vendor don't match, press key to retry film recognize. |
| **Film Not Found**<br>**Unsupported Film** | Retry film recognize | Retry film recognize | Retry film recognize | Retry film recognize | Film recognize error | If install not supported film, press key to retry film recognize. |
| **Data Option Err**<br>**Plz. PressAnyKey** | Delete spool and Exit | Delete spool and Exit | Delete spool and Exit | Delete spool and Exit | Data option error | Mag spool date transfer if there is no Mag Encoder<br>Both side print data transfer if there is no Laminator.<br>Laminator spool data |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | | | transfer when Laminator is not installed, Combination of devices (such as 300dpi transfer when 600dpi / 600dpi transfer when 300dpi) and the spool data option do not match, press key to delete the current spool. |
| **Check Please..**<br>**Ribbon Zero** | Ribbon & Film research | Ribbon & Film research | Ribbon & Film research | Ribbon & Film research | Ribbon zero | There is no ribbon remaining. Ribbon must be replaced. Press the key to start the ribbon rescan. |
| **Check Please..**<br>**Film Zero** | Ribbon & Film research | Ribbon & Film research | Ribbon & Film research | Ribbon & Film research | Film Zero | There is no film remaining. film must be replaced. Press the key to start the film rescan. |
| **Check Please..**<br>**Rib & Film Zero** | Ribbon & Film research | Ribbon & Film research | Ribbon & Film research | Ribbon & Film research | Ribbon & Film zero | There is no Ribbon & film remaining. Ribbon & film must be replaced. Press the key to start the Ribbon & film rescan.. |
| **SMART-81x**<br>**Printer xxx%** | x | x | x | x | Firmware update | Printer Firmware Update is in progress. Display as "%".<br>Power Must Not be turned off until automatically rebooted. |
| **SMART-81x**<br>**Laminator xxx%** | x | x | x | x | Firmware update | Lamintor Firmware Update is in progress. Display as "%".<br>Power Must Not be turned off until automatically rebooted. |
| **Update Fail**<br>**PushAnykey Reset** | System Reset | System Reset | System Reset | System Reset | Firmware update | Error occur while Printer Firmware Update. Press the key to System Reset. |
| **Do Prt Clean!**<br>**System Ready** | MENU | Information Menu - | Information Menu + | x | Cleaning warning (Ready) | It is displayed when Cleaning Count is 5000 or higher, and Card Printer Config Utility program - Cleaning Warning is "Notice".<br>Message disappears Cleaning Count is over 5200.<br>Except message display, it is same as system ready state |
| **Do Prt Clean!!** | MENU | Information | Information | x | Cleaning | It is displayed Cleaning |

| | | | | | | |
|---|---|---|---|---|---|---|
| **System Ready** | | Menu - | Menu + | | warning (Ready) | Count 5000 or higher, and Card Printer Config Utility program - Cleaning Warning is "Permanent" Message continues to be displayed until the cleaning is performed. Except message display, it is same as system ready state |
| **Cleaning Mode**<br>**Initializing** | x | x | x | x | Cleaning mode | Cleaning mode initializing. |
| **Cleaning Mode**<br>**Open Front Cover** | x | x | x | x | Cleaning mode | Cleaning mode start, Top Cover Open. |
| **Remove CartRdg**<br>**Push Any Key !!** | x | x | x | x | Cleaning mode | Cleaning mode start. Remove Film&Ribbon. Press any key to proceed. |
| **----------**<br>**Waiting HeatOff** | x | x | x | x | Cleaning mode | Waiting Heater temperature down. (display only Line1) |
| **Cleaning Mode**<br>**Insert Cleaner** | x | x | x | x | Cleaning mode | Insert cleaner |
| **Cleaning Mode**<br>**Cleaning** | x | x | x | x | Cleaning mode | Cleaning |
| **Cleaning Mode**<br>**Remove Cleaner** | x | x | x | x | Cleaning mode | Remove cleaner. |

The below table shows LCD messages based on Laminator status and functions when the button is pressed. (Laminator is installed)

| Messages | KEY0 | KEY1 | KEY2 | KEY3 | State | Description |
|---|---|---|---|---|---|---|
| | Menu/Cancel | Left/Down | Right/Up | Select/OK | | |
| L Film Zero+<br>Plz Error Clear | x | x | x | x | Laminator error | Laminator Film all use '+' is displayed at the end of first line if there are more than two errors |
| L Film Empty+<br>Plz Error Clear | x | x | x | x | Laminator error | Laminator Film is not installed.<br>'+' is displayed at the end of first line if there are more than two errors |
| L xxxxxxxxxxxxx+<br>Plz Error Clear | x | x | x | x | Laminator error | Laminator initialization error, Head Over Heat, temperature Setting error. (**Refer to Laminator LCD Error Table**) '+' is displayed at the end of first line if there are more than two errors. |
| DeviceCon Error<br>Plz Error Clear | x | x | x | x | Device connect error | Connected device (Laminator, Flipper) is not recognized. If it is recognized normally, it returns to the ready state. |
| DeviceCon Error<br>AnyKet Retry | Retry device connect | Retry device connect | Retry device connect | Retry device connect | Device connect error | 81 Laminator connect is not recognized, and there is no change even if retry 20timies, Turn off IRDA communication and wait for key input after action. |
| Ribbon Count 0<br>Open a Case! | x | x | x | x | | Ribbon count zero after front side print during both-side print. wait Case Open |
| Ribbon Count 0<br>Change a Ribbon | x | x | x | x | Ribbon change | Ribbon count zero after front side print during both-side print. wait ribbon change. After change without any problem, proceed printing. |
| Ribbon Count 0<br>RibType Mismatch | x | x | x | x | Ribbon change | Ribbon count zero after front side print during both-side print. if replaced ribbon is different in type from the ribbon used, you need to replace it with same type. |

# 2. Printer installation

## 2.1. Connection a power and a USB cable

Connect the power and USB cable as the below picture and install the communication cable protection cover. Please refer to the ‘Network configuration’ if you use the LAN connection.

*Figure 7 SMART-81 Connection of power and communication cable*

## 2.2. Fitting the Film, Ribbon, Cleaning roller

Before printing, prepare the related items such as a card, a ribbon and a cleaning roller. In this section, we invite you to know the proper method of installing the retransfer film, ribbon and the cleaning roller into the printer.

**(Caution! Please turn off the printer)**

**(1) Open the front side of the printer cover.**

*Figure 8 Front cover open*

**(2) Hold the Retransfer film cartridge handle and pull it out as Figure 9.**

*Figure 9 Take out film cartridge*

**(3) Hold the Ribbon cartridge handle and pull it out as figure 10.**

*Figure 10 Take out Ribbon Cartridge*

(4) **Hold the disposable cleaning roller cartridge handle and take it out as figure 11.**

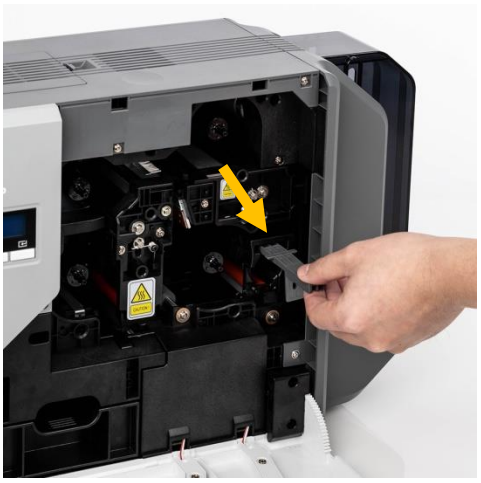


*Figure 11 Take out Cleaning roller Cartridge*

**(5) Insert the film into the film cartridge as figure.12.**
**After inserting, tighten the film.**
**(Caution! If the film is not tightened, a rolling up error might be happened)**

*Figure 12 Loading film*

(6) **Insert the ribbon into the film cartridge as figure 13.**
**After inserting, tighten the ribbon.**
**(Caution! If the ribbon is not tightened, a rolling up error might be happened)**

*Figure 13 Loading the ribbon*

(7) **Insert the disposable cleaning roller into the cartridge as figure 14.**
**Peel the protective wrapper from the cleaning roller. After removing the protective wrapper, the cleaning roller should be kept clean from fingerprints, dust and foreign substances to avoid contamination because it is adhesive.**
**(Caution! Do not use without peeling off the protective wrapper because the cleaning roller cannot perform its function)**

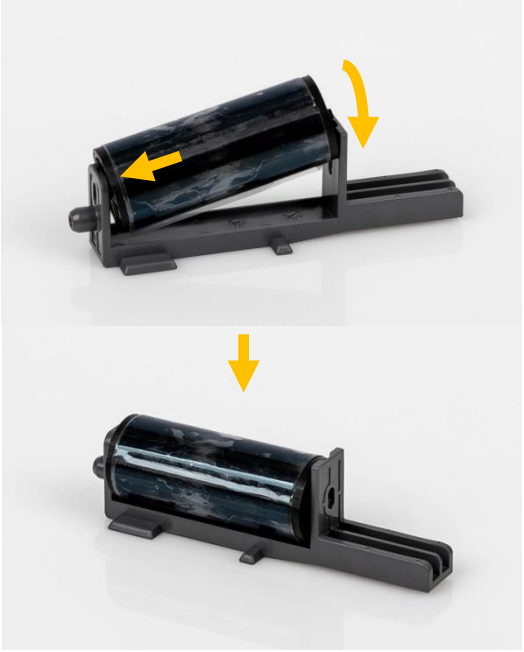


*Figure 14 Installing the cleaning roller*

(8) **Install cleaning roller cartridge into the printer.**

*Figure 15 Installing the cleaning roller cartridge*

(9) **Install film cartridge into printer.**

**At this point, Do not fully mount the cartridge to the printer as figure 16.**


*Figure 16 Installing film cartridge*

(10) **Install Ribbon cartridge into printer. At this point, press below the handle to fully mount and adhere the ribbon cartridge to printer.**


*Figure 17 Installing Ribbon cartridge*

**(11) Press below the handle to fully mount and adhere the Film cartridge to printer.**


*Figure 18 Installing Film cartridge*

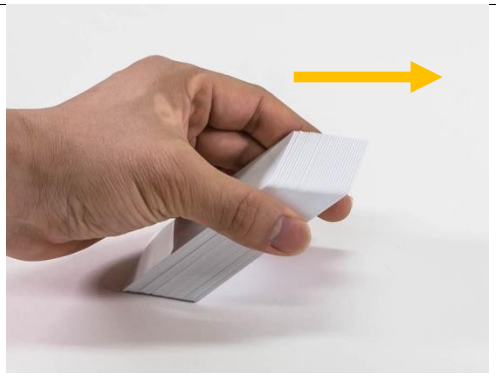
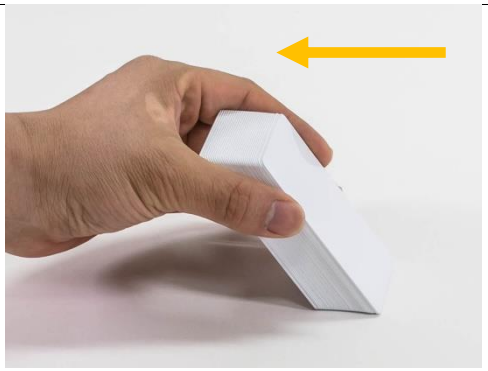
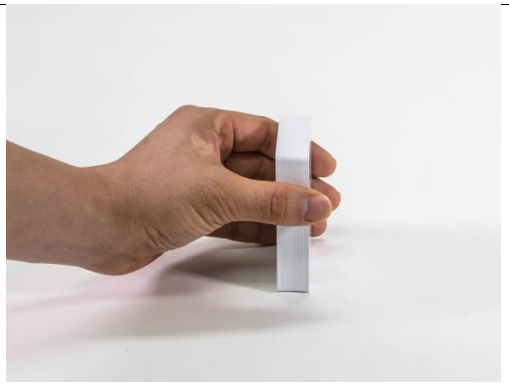
**(12) Close the front cover.**


*Figure 19 Close cover*

## 2.3. Loading the cards

This section shows how to load plastic card.

| | |
|---|---|
| **(1) Open the Input hopper cover in the direction of the arrow.** |  <br>*Figure 20 Take out hopper cover* |
| **(2) If necessary, release card gate screw to adjust height of gate to match thickness of the card.**<br>**Gate is optimized for 0.86mm cards.**<br>**(Caution! If the adjustment is not correct, it will make some error. Use the type of cards in the specification of this manual. Always keep the card surface clean state.)** |  <br>*Figure 21 Adjusting card thickness lever* |

| | | |
|---|---|---|
| **(3)** | **To separate cards from each other, push a stack of cards back and forth to an angle about 45 degrees vertically.** |  <br>*Figure 22 Preparing the card 1*<br>  <br>*Figure 23 Preparing the card 2* |
| **(4)** | **Stand the stack of cards vertically after separating.** |  <br>*Figure 24 Loading the card 1* |
| **(5)** | **Load the cards on the hopper properly and install the hopper cover.** |  <br>*Figure 25* **Loading the card** *2* |

## 2.4. Stacker Installation

Install the card stacker.


*Figure 26 Installation SMART-81 card stacker*

## 2.5. Driver installation (Windows 7/8/10/11)

**(1)** Scan the QR Code or Go to [www.idp-corp.com](http://www.idp-corp.com) and search for “Driver” in the “Support” “Download” menu.

Download the “SMART-81 Printer Driver”. Extract the driver and all tis components from the ZIP file and save it on your PC.


*Figure 27 Install printer driver 1*

**(2)** Navigate to the extracted files and Double click on the “DDinstall.exe” file to start the installation.

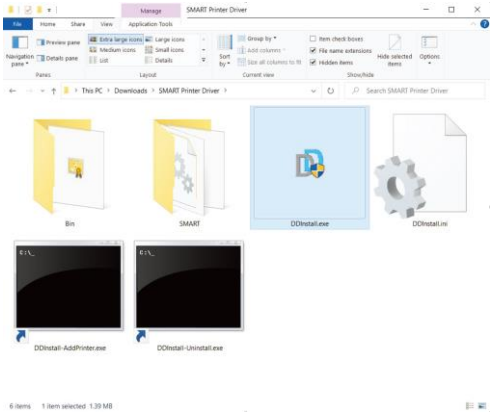


*Figure 28 Install printer driver 2*

**(3)** When the “User Account Control” pop-up window opens, Click “YES”.

※ Depending on your computer’s settings, you may be prompted to supply local admin credentials to authorize the installation of the driver.

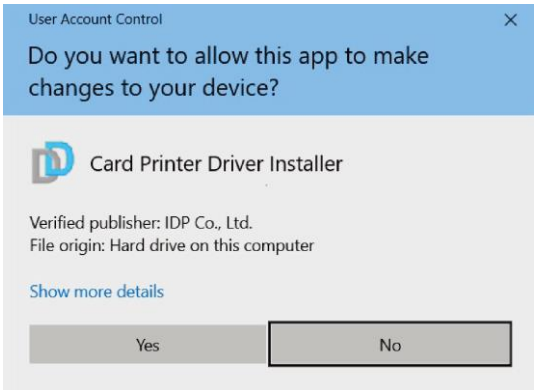



*Figure 29 Install printer driver 3*

### (4) STEP 1:

Please turn off printer if it is connected to PC.

Please click “Next”, when you click “Next”, older driver will be removed automatically.

This process will take several minutes to remove older driver.

You can select the languages by selecting the combo box as shown on the left picture.

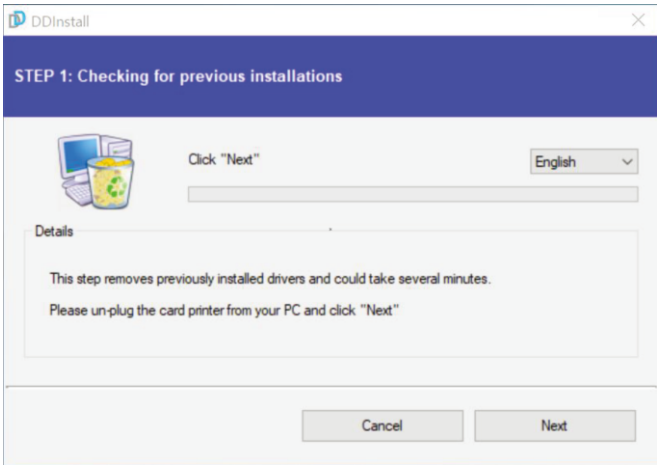



*Figure 30 Install printer driver 4*

### (5) STEP 2:

When you click “Next”, the driver installation will be ready.

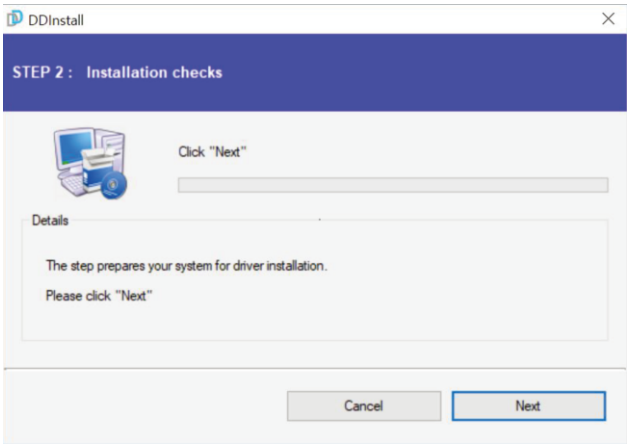



*Figure 31 Install printer driver 5*

### (6) Please turn on the printer

Please click “Next” if printer is connected to USB only.

If you want to install the driver for a printer connected to network, please select the “TCP/IP Network port” and select the proper printer as step (7).


*Figure 32 Install printer driver 6*

### (7) STEP 3: USB Connection

(In case of USB connection, click “Next” and move to step (9).

If you are planning on setting up the SMART-81 as a network device, Please proceed to Step 3: Network (8).

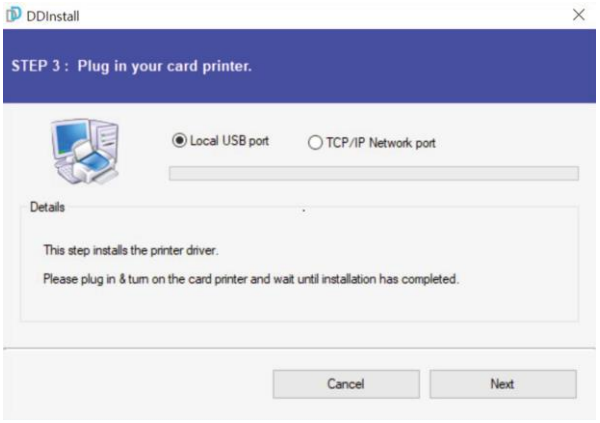



*Figure 33 Install printer driver 7*

### (8) STEP 3: Network

Please select the printer that you want to install in the list and click “OK”.

(If no printer comes out on the window, please check the connection.)

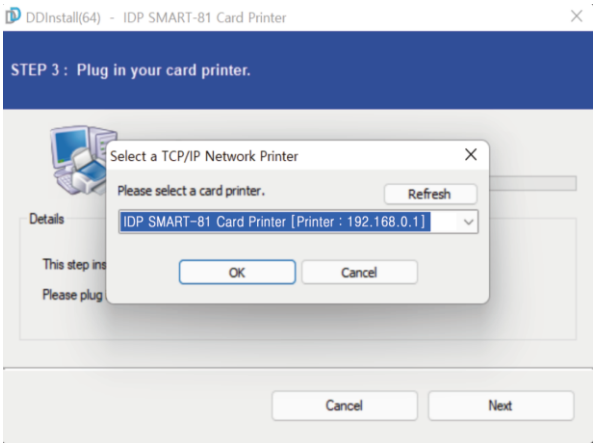



*Figure 34 Install printer driver 8*

**(9)** When driver installation is completed, please click “Close”.

.

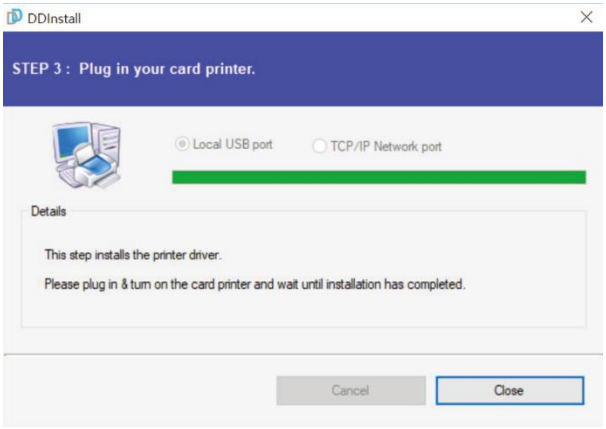



*Figure 35 Install printer driver 9*

**(10)** Please open “Printers and Scanners” from “Bluetooth & Devices” (or “Devices”) on the Windows “Settings”.

(For Windows 7/8, access Windows control panel and select device and printers. Right click “SMART-81 Card Printer” and select “Print Properties”.)

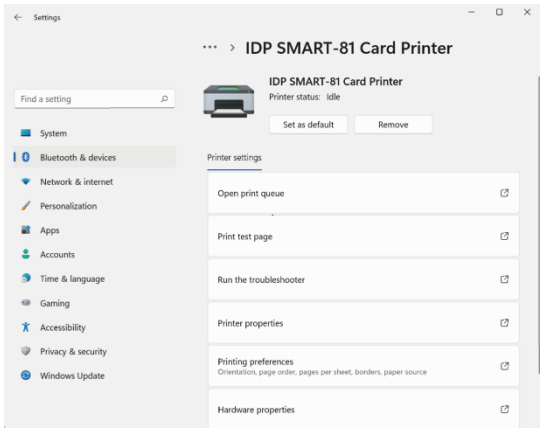



*Figure 36 Install printer driver 10*

**(11)** Please select General” tab and click “Print Test page” in “IDP SMART-81 Card Printer Properties” window.

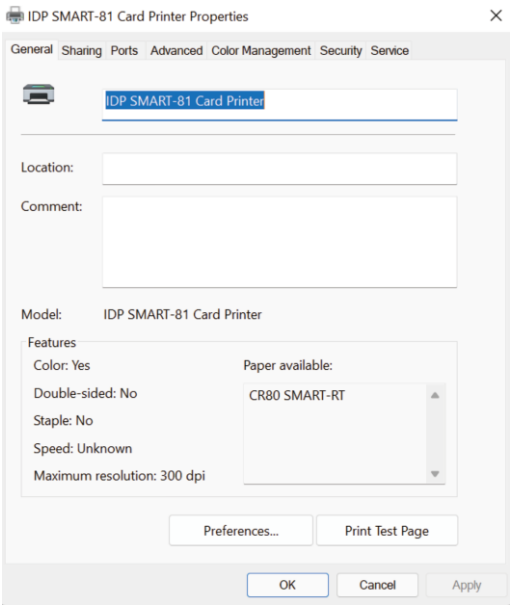



*Figure 37 Install printer driver 11*

**(12)** Please check test card if it is printed properly and click “Close” if a card is printed properly.

(If card is not printed or error comes out, please refer to “Trouble Shooting”.)

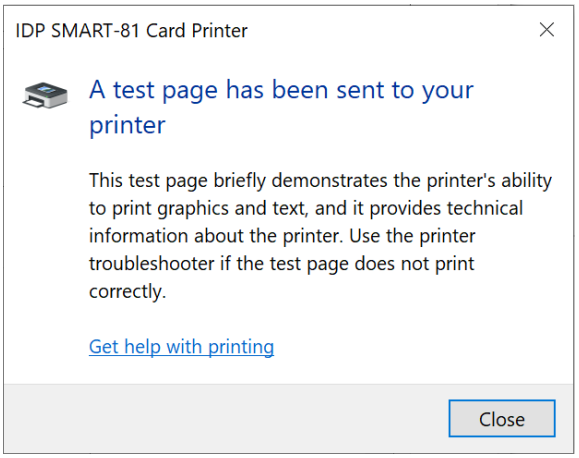



*Figure 38 Install printer driver 12*

## 2.6. Option installation (IC, RF)

**Step 1: Detach each module form main body's top cover**

(1) Turn off Printer, Open top cover, Separate Ribbon film cartridge and stacker under the module.

(2) Release the two screws shown and remove them from main body as shown the below picture.


*Figure 39* Take out module *(IC, RF)*

**Step 2: Insert Module (IC, RF)**

(1) Insert Module (IC, RF) and tighten two screws.

(2) Insert Film cartridge and card stacker and close the cover.

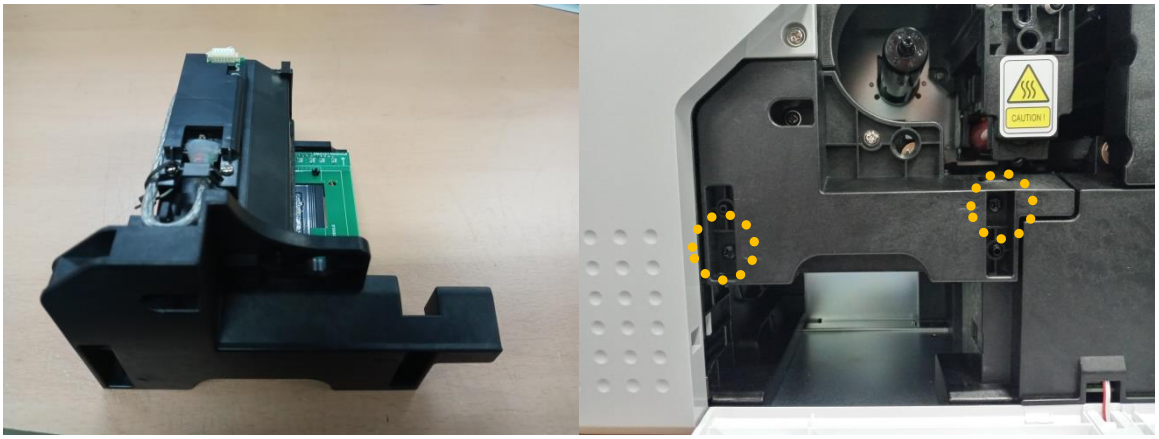


*Figure 40* Take out module *(IC, RF) 2*

(3) Install the ribbon film cartridge and the error card stacker and close the cover.


*Figure 41 Install module (IC, RF) 3*

## 2.7. Option Installation (Laminator)

**Step 1: Fitting Binding Clamp on the printer bottom**

(1) Turn off Printer, Open top cover, take off card stacker, and fit and fix Binding Clamp on printer bottom as shown picture.

*Figure 42 Install Laminator Module 1*

**Step 2**: **Fitting module (Laminator)**

(1) Fit the module to be installed (Laminator) to the Binding Clamp mounted on the printer as shown picture and connect the power cord of the laminator.

*Figure 43 Install Laminator Module 2*

(2) Turn on the module (Laminator) first and turn on the printer.

(3) If the module is installed successfully and printer is completely booted, ‘L’ I will be added to the LCD as shown picture to confirm that the laminator installation is complete.


*Figure 44 LCD display (with Laminator)*

# 3. Driver Configuration

To check printer properties, you need to open printer driver. Please open “Devices and Printers” and right-click “IDP SMART-81 Card Printer”.

Click “Printer Properties”.

## 3.1. Printer Properties

### (1) Printing Preferences

Please click “Preferences…” shown on the left picture.

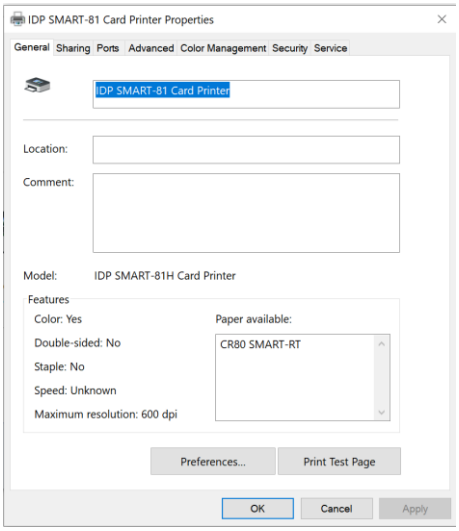



*Figure 45 Print properties*

### (2) Layout

You can select either horizontal or vertical printing direction. To apply your selection, Click “OK”.

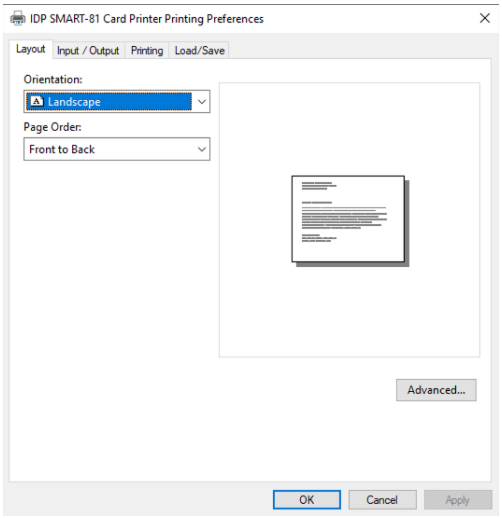



*Figure 46 Layout*

## (3) Input / Output

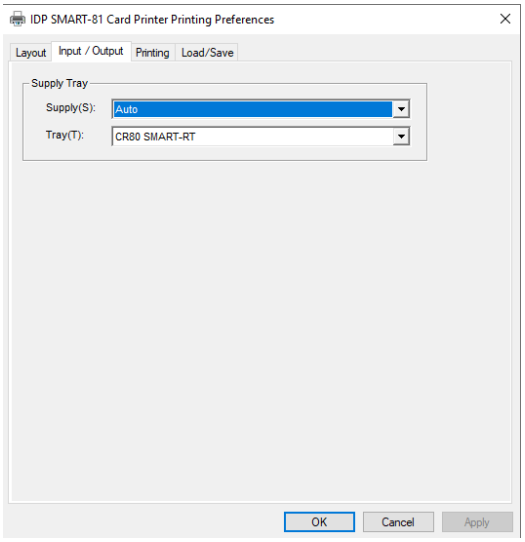



*Figure 47 Input / Output Setting*

### Supply Tray

**Supply:** You can select “Auto” if SMART-81 has 1 input hopper. Please select the hopper if it has a multi hopper.

**Tray:** SMART-81 supports CR-80 card only.

## (4) Printing

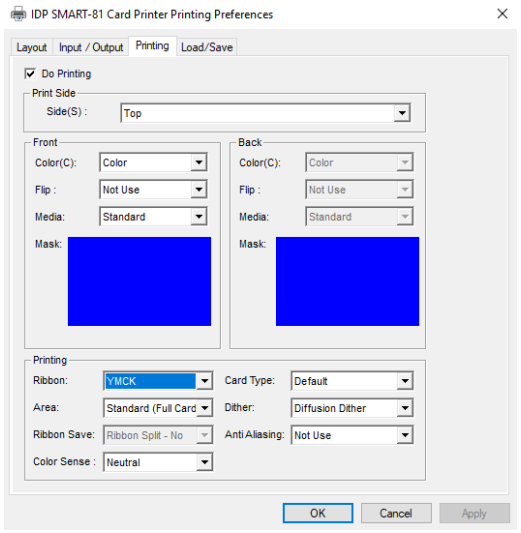



*Figure 48 Printing Setting*

**Do Print**: you can select printing or not.

**Print Side**: Please select one side printing or both sides printing. (It is possible only when you have a flipper)

**[ Front / Back ]**

**Color**: You can select color or mono print.

**Flip:** You can flip an image.

**Media / Mask**: You can indicate the area to print by using a predefined mask or user defined mask (white card, smartcard, Magnetic stripe card, etc.) on front or back side.

**[ Printing ]**

**Ribbon**: It shows the type of installed ribbon. You don’t need to select this option as SMART-81 recognizes ribbon automatically with RF tag.

**Card Type:** Set printing mode.

**Area:** Set whether to print an area without images.

**Dither:** There are 3 possible selections, Threshold, Random, and Diffusion Dither. It is performed with K and KO ribbon only. (Please select “Diffusion Dither” for high quality)

You can define a mask.

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

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

Sky Blue (RGB(0,255,255)): Overlay only

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

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

**Ribbon Save**: Select split function or not when use Mono ribbon.

**Anti-Aliasing**: Set Anti-Aliasing level of printer image.

**Color Sense:** Set print image's color sense.

## (5) Laminating Setting

This tap will be shown only when SMART-81 printer is connected to Laminator.

**Do Laminating:** You can select laminating or not.

**Laminator Side:** you can select not use, top side, bottom side and both sides printing.

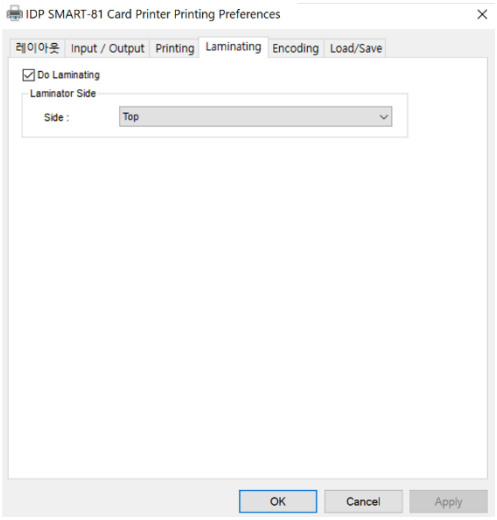



*Figure 49 Laminating Setting*

## (6) Encoding Setting

This tap will be shown only when Magnetic encoder is installed.

**Do Encoding:** you can select encoding or not.

**[ MS Encoding ]**

**Coercivity**: you can select the encoding types.

**LoCo**: 300, 600 Oe.

**HiCo**: 2760 Oe.

**SpCo**: 4000 Oe.

**Auto**: Defined automatically.

**Repeat Count**: you can select the retry count to encoding when encoding is failed.

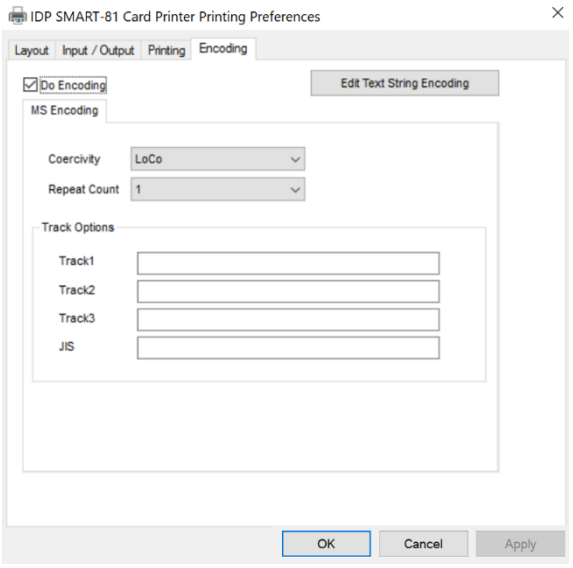



*Figure 50 Encoding Setting*

## (7) Encoding Advanced Option

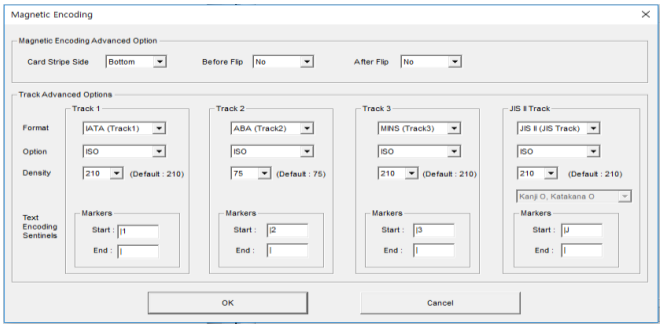



*Figure 51 Encoding advanced Setting*

**Card Stripe Side:** the location of magnetic stripe [Bottom / Top]

**Before Flip:** Do flipping before encoding [No / Yes]

**After Flip:** Do flipping after encoding [No / Yes]

**Track Advanced Options:**

**Format:** Encoding format (IATA, ABA, MINS, JISII, Bits Mode)

**Track 1:** (default) IATA

**Track 2:** (default) ABA

**Track 3:** (default) MINS

**JIS II Track:** (default) JIS II

**Density:** MS encoding density (210, 75)

Only Track 2's default is 75 and the rest are 210.

**Text Encoding Sentinels:** Start, End, Marker for text magnetic encoding.

**Start:** Start Marker.

**End:** End Marker.

## (8) Load/Save Option

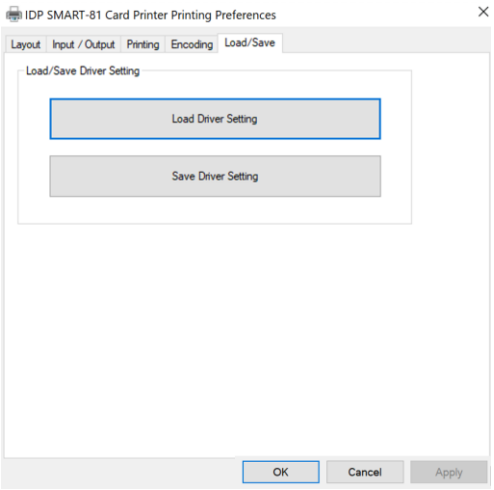



*Figure 52 Load/Save Setting*

**Load Driver Setting:** Load the saved driver configuration file.

**Save Driver Setting:** Save the current driver configuration to the file.

## 3.2. Advanced Options

To change the detailed configuration, In the ‘Layout’ tab shown, Please click “Advanced…” shown on the bottom of the ‘Layout’ tab of the ‘Preferences’.

**[ Graphic ]**

- **Print Quality** : You can select the print quality (DPI).

**[ Document option ]**

- **Reset Default Values**: Reset to default.
- **Color Correction**: You can correct gamma for colors. You need to use CardPrinterConfig to adjust color densities.
  - **Main [-100:100]:** correct gamma for all panels.
  - **Yellow [-100:100]:** correct gamma for Yellow panel.
  - **Magenta [-100:100]:** correct gamma for Magenta panel.
  - **Cyan [-100:100]:** correct gamma for Cyan panel.
  - **Black [-100:100]:** correct gamma for Resin panel.
  - **Overlay [-100:100]:** correct gamma for Overlay panel.
- **Position Processing**: Set criteria for resin black processing.
  - **Color [-32:32]:** to set the position of color panels.
  - **Mono [-32:32]:** to set position of resin or mono panel.
  - **Overlay [-32:32]:** to set position of overlay panel.
- **Resin Black(K) Processing**: Set criteria for Resin Black processing.
  - **Text [0:100]**: to set density criteria for extracting black objects.
  - **Dot [0:100]:** to set density criteria for extracting black dots.
  - **Threshold [0:100]**: to set density criteria on dithering.
  - **Dithering Degree [0:100]**: to set sharpness on dithering.
  - **Resin Extraction**: You can set the method to extract resin black when you use design programs. (If you use the Smart IDesigner, you don’t need to select this option.) It will be set automatically.

    **> Black object**: to extract resin black automatically for text, line, box, circle, binary images, etc.

**> Black Text**: to extract resin black for text only.

**> Black Dots**: to extract resin black for all of black.

**> Black Dots Only**: to extract resin black for all of black and not to print on color panels.

**> Not Use**: not to extract resin black.

- **Extra Control:** other options.

  - **Resin Thick Mode:** Compensate for blurry text

- **Wait Option**: Turning on this option allows the card to wait for a specified amount of time in each location when encoding to a smart card without using the SDK.

  If not using the SDK, only wait for the specified amount of time, so you must write a program the recognizes and encodes smart card within the specified amount of time.

  - **Wait at Contactless Encoding Position [On/Off]:** to set whether to wait at the internal RF encoder or not.

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

    **> Wait Position [-100:100]**: to set the position of card to wait from the criteria position. Unit is 0.1mm.

    **> Wait Time [0:1000]**: to set time to wait. Unit is second.

  - **> Wait at Contact Encoding Position [On/Off] :** to set whether to wait at the internal IC encoder or not.

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

    **> Wait Position [-100:100]**: to set the position of card to wait from the criteria position. Unit is 0.1mm.

    **> Wait Time [0:1000]**: to set time to wait. Unit is second.

## 3.3. Other settings

### (1) Sharing

You can share a printer with Sharing tab via Network.

Default is unchecked “Share this printer.”

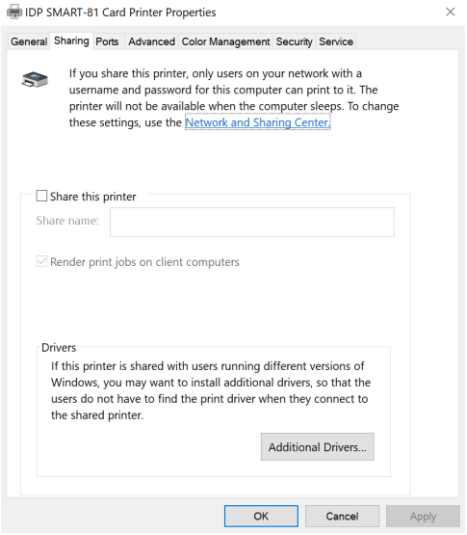



*Figure 53 Printer sharing*

### (2) Ports

Port tab shows which port is connected with SMART-81. SMART-81 has connection with USB Virtual printer port as left picture because SMART-81 uses USB connected to PC.

**(Caution! This port is selected automatically. It is recommended to maintain default.)**

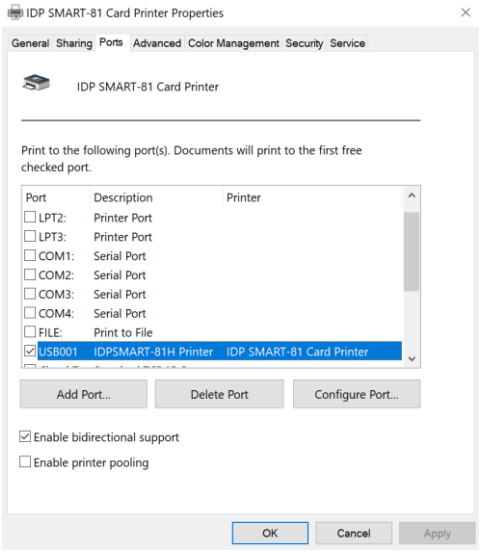



*Figure 54 Ports Setting*

## (3) Advanced

It is available for Working Time setting, Priority order, Spool print etc. in “Advanced” tab. “Advanced” setting follows MS Windows standard. If you want to change the setting, please refer to the Window manual.

(It is recommended to maintain default.)

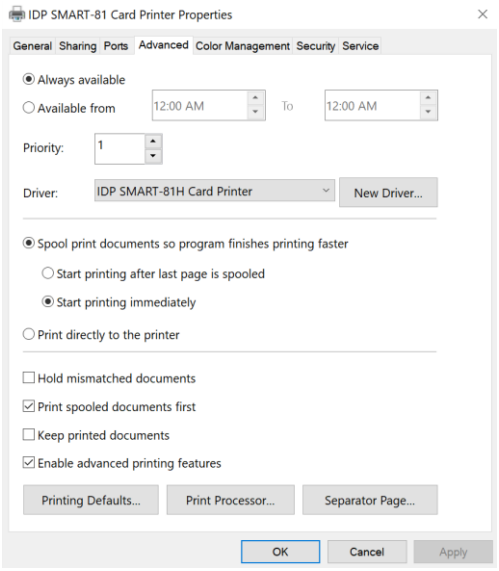



*Figure 55 advanced Setting*

## (4) Color Management

In “Color management” tab, you can select color management profile fit to the printer.

SMART-81 uses color profile to express optimal color. The driver selects color profile automatically to fit each ribbon.

(It is recommended to maintain default.)

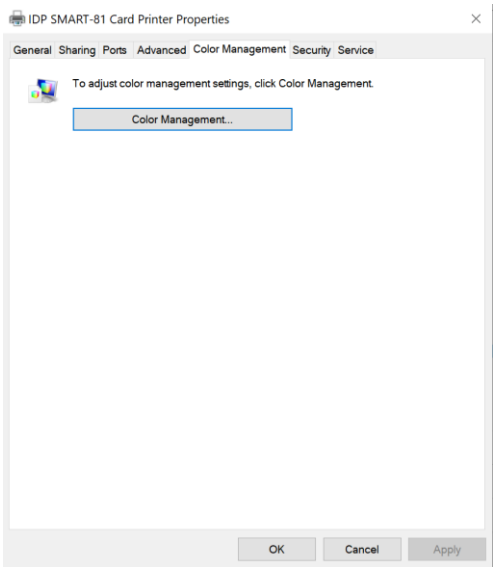



*Figure 56 color management*

## (5) Security

You can set the permission to use a printer. Depend on the permission, the certain group or user can print, manage the printer/documents or not.

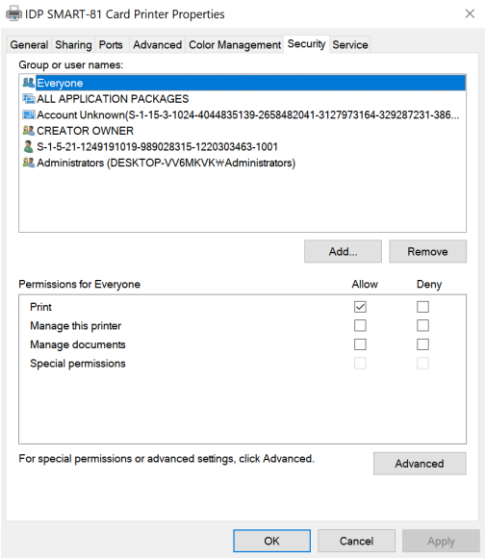



*Figure 57 security*

## (6) Service

You can recognize the modules to connect, printer serial, printer ID, driver version, firmware version, type of ribbon & balance and printer's status.

You can print the "technical support sheet" on a card to check printer's setup value.

You can print the "technical support sheet" on a card to check printer's setup value.

Please click "Config Printer" to change the printer settings. For further details, please refer to "4. Utilities"

Click the "Upgrade Firmware" to popped up the firmware upgrade window. For further details, please refer to "4.4 Firmware update"

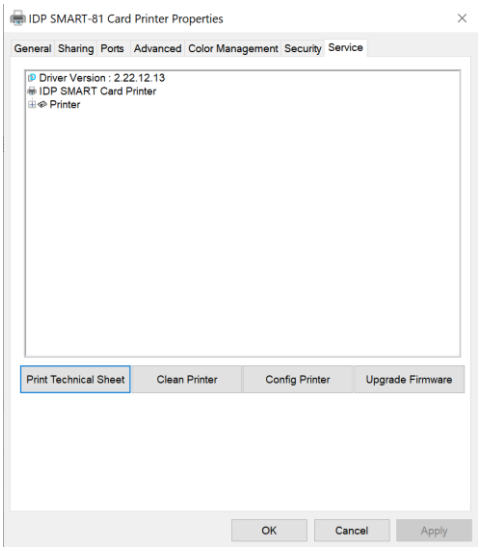



*Figure 58 service*

# 4. Utilities

## 4.1. Card printer config

SMART is produced with optimized setting.

You need to adjust setting value if required or spare parts are replaced, using Cardprinterconfig.exe in the printer driver package - Utilities folder.

You can adjust following settings with Cardprinterconfig

### (1) Run CardPrinterConfig

Password input window is displayed when you run this program. If you input the correct password, the recorded setup value will be shown and you can change values. The password is saved to SMART-81 printer. So if you use another PC with same printer, previous password is required to run this program.

(Default password is none. Please press OK if you have not set password.)

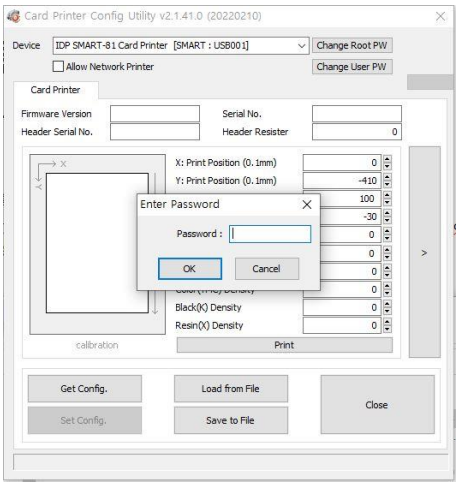



*Figure 59 CardPrinterConfig Log-in*

When you are successful to log-in, you can set values shown as left picture.

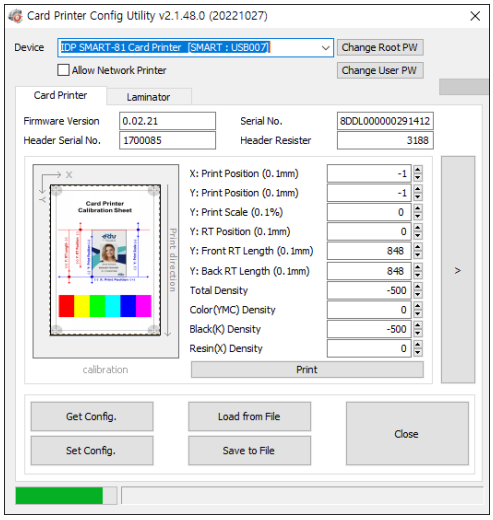



*Figure 60 CardPrinterConfig start*

## (2) Card Printer Basic Setup

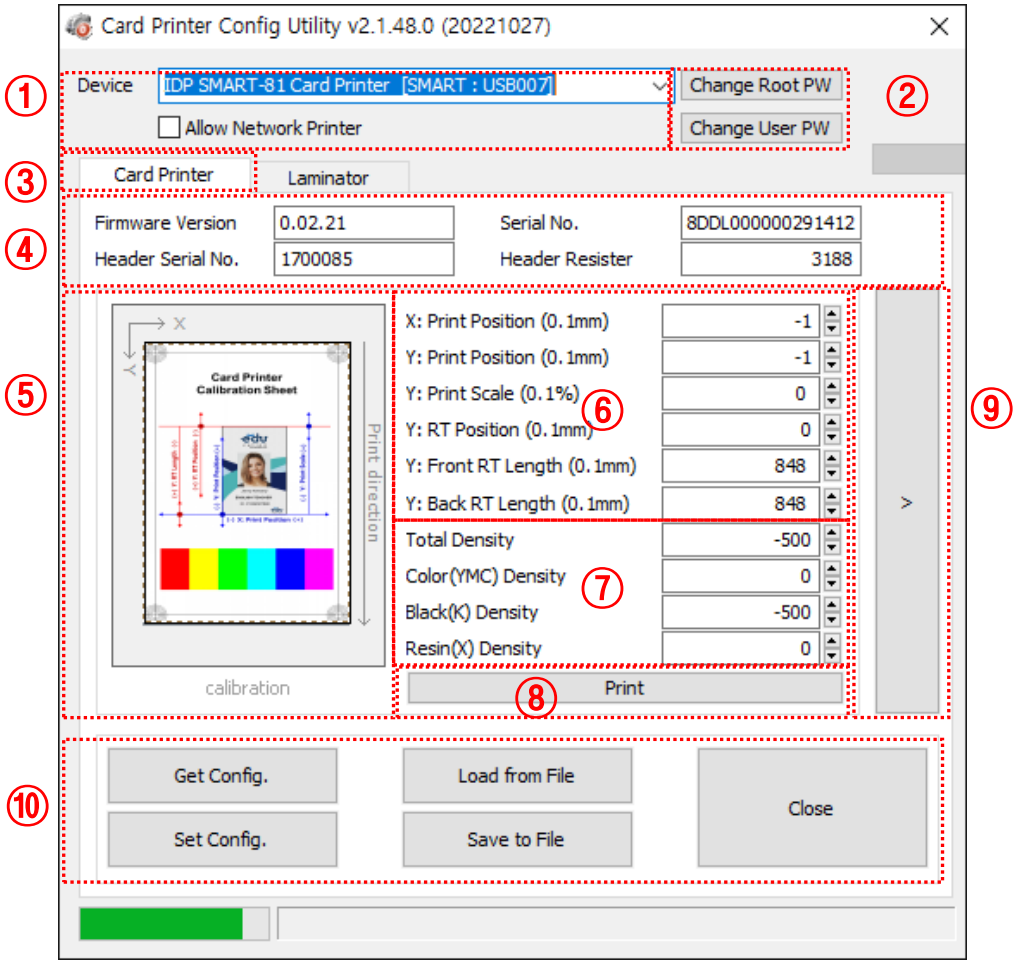



*Figure 61 Cardprinterconfig Basic setup*

**① To show connected printers.**

**Device:** You can select a printer using pull-down menu. “IDP SMART-51 Card Printer” is a name of printer. “SMART1” is printer ID, “USB005” is connected port. If you connect the Network printer, please check the “Allow Network Printer” and select in the pull-down menu.

**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 CardPrinterConfig and User Authentication. Also it is required for User password management.

(Please set password for security use.)

**Change User PW:** To set user password for User Authentication.

**③ Click “Card printer” tab.**

If laminator or flipper is installed, you can setup laminator or flipper setting value by “Laminator” tab or “Flipper” tab.

**④ To show Printer information.**

Firmware version, serial number of printer and serial number, resister & type of print head.

**⑤ To show print area**

It shows exaggeratingly for user convenience.

**⑥ To set print area.**

Please set it properly to print on an entire card because SMART – 81 is retransfer type card printer. When you check **“⑧ Print”**, a card is printed as like “**⑤ example”**. Please set values properly that all circles of each corner are printed and black spaces are 0.4mm ~ 0.5mm in the top and the bottom of a card. Please set values by following order.

**X: Print Position:** Please set right and left properly by adjusting X position.

**Y: Print Position:** Please set the start position of printed with adjust value.

**Y: Print Scale:** Please set to show circles in the bottom

**Y: RT Position:** Please set the top and bottom position with adjust value

**Y: Front RT Length:** Ensure the end of image is printed and film does not leave a mark on film when retransferring with adjust value. (adjustment value when printing one side)

**Y: Back RT Length:** Ensure the end of image is printed and film does not leave a mark on film when retransferring with adjust value. (adjustment value of back side when printing both side)

**⑦ To set density.**

SMART-81 enables to set different density for each color, resin black and overlay. Please set each density for high quality and optimize the quality by adjusting each value. Insert the color ribbon(YMCK) and click **“⑧ Print”** to print the card to optimize each setting.

**Total Density:** To set all the density (Color, Black, Resin) at one time.

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

**Black(K) Density:** To set resin black density. In the picture, barcode is printed to express density.

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 express clear barcode. Please refer to the following pictures.

**Resin(X) Density:** To set the printing density for the resin (such as holograms) panel. If the density is too strong, the resin panel looks a little blurry, as shown on the Figure, and the ribbon folds and stripes appear. Also, if density is too weak, the resin panel will not print as on the red line in right figure. In order to check the untranscribed part, it's easy to see it if you look at it obliquely in the light. Therefore, set the print density to be evenly printed throughout the card by adjusting the print density

⑧ **To print calibration card.**

⑨ **To show advanced set up.**

(it is recommended not to set advanced setup.)

⑩ To load or save values.

**Get Config.:** to get values from current printer.

**Set Config.:** to set values to current printer.

**Load from File:** to load values from file.

**Save to File:** to save values to file.

**Close:** to close CardPrinterConfig.

## (3) Card Printer Advanced Setup

- Advanced settings allow you to set advanced features for the SMART-81 printer. If you are not sure about the function, Please contact the local supplier

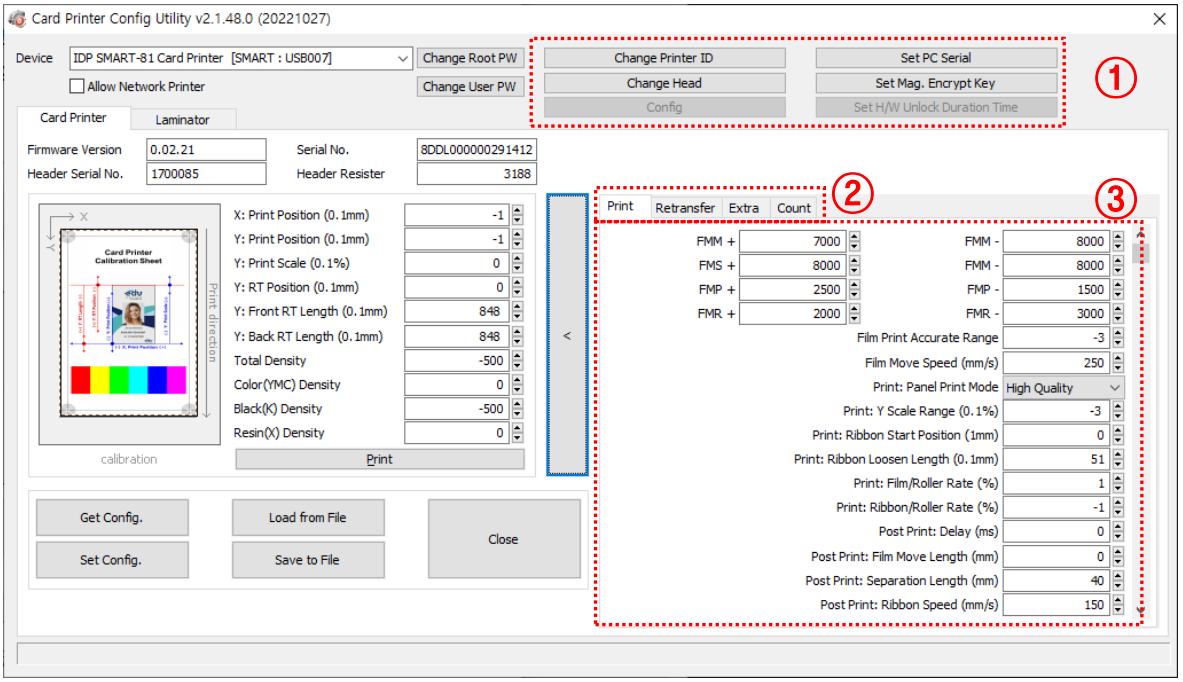



*Figure 62 Cardprinterconfig – Advanced setup*

### ① To set the printer's information

**Change Printer ID:** When using SDK, you can set a unique ID for SMART-81 printer regardless of whether it is connected by USB or what IP address is. It is useful to connect and use several printers. Default ID is "SMART

**Set PC Serial:** One of security function. You can use a printer only with USB connected specific PC. Enabling "Security"-"PC Authentication" will only make the printer available when connected specific PC. "Set PC Serial" records the unique information of the PC to be used on the printer and is used as the PC credential the next time the printer is turned on.

**Change Head:** When you replace thermal print head, you must change head information for optimal quality. Please change head serial number, resistor and type of head in the Change Head Dialog window after click "Change Head

**Set Mag. Encrypt Key:** One of security function. When you use SDK, you can encrypt magnetic stripe encoding data transmitted by USB. You can define and save the encryption key to SMART-81 using “Set Mag. Encrypt Key”

② **Adjust printer’s detailed setting value. (Function tabs)**

**Print:** Tab showing the printer setting value. Adjust the below value.

| | |
|---|---|
| FMM+ | Motor torque when film moving (initial) |
| FMM- | Motor torque when film moving (end) |
| FMS+ | Motor torque when film search (initial) |
| FMS- | Motor torque when film search (end) |
| FMP- | Motor torque when print film (initial) |
| FMP+ | Motor torque when print film (end) |
| FMR+ | Motor torque when retransfer (initial) |
| FMR- | Motor torque when retransfer (end) |
| Film Move Speed | Film move speed |
| Print: Panel Print Mode | Panel print mode (adjust speed) |
| Print: Y Scale Range | Y scale range |
| Print: Ribbon Start Position | Ribbon start position |
| Print: Ribbon loosen Length | Ribbon motor start position when printing panel |
| Print: Film/Roller Rate | Film-Roller speed rate when printing panel |
| Print: Ribbon/Roller Rate | Ribbon-Roller speed rate when printing panel |
| Post Print: Delay | Standby time after head up when printing panel |
| Post Print: Film Move Length | Film move length after printing panel |
| Post Print: Separation Length | Film ribbon separate length after printing panel |
| Post Print: Ribbon Speed | Film ribbon separate speed after printing panel |

**Retransfer:** tab showing the retransfer setting value.

| | |
|---|---|
| Retransfer: Front Card Position | card position when start retransfer (Front) |
| Retransfer: Back Card Position | card position when start retransfer (back) |
| Retransfer: Operation Temperature | Retransfer temperature |
| Retransfer: Standby Temperature | Retransfer heater Standby temperature |
| Retransfer: Heating Trigger Temperature | Heating trigger temperature when printing panel |
| Retransfer: Former Heating Control | Heater operation cycle when retransfer (former) |
| Retransfer: Latter Heating Control | Heater operation cycle when retransfer (latter) |
| Retransfer: Total Length | Retransfer operating Total length |
| Retransfer: Start Delay | Retransfer head down standby time when retrnasfer |
| Retransfer: Pre Film Loosen Length | Wrinkle value when retransfer (head up) |
| Retransfer: Pre Film Retraction Length | Wrinkle value when retransfer (head down) |
| Retransfer: Speed | Retransfer speed (Head Down) |
| Retransfer: Film/Roller Rate | Film ribbon separate length when retransfer |
| Post Retransfer: Speed | Retransfer speed (Head Up) |
| Post Retransfer: Film/Roller Rate | Film-motor speed rate when retransfer (Head Up) |
| Final Retransfer: Length | Film lint protection c overage |
| Final Retransfer: Speed | Retransfer speed (film lint protection) |
| Bend Remedy: Operation Temperature | Bend remedy heater operation temperature |
| Bend Remedy: Standby Temperature | Bend remedy heater standby temperature |

**Extra:** Tab showing other setting values

| | |
|---|---|
| **Card In Speed** | Card in speed |
| **Card Out Speed** | Card out speed |
| **Card Move Speed** | Card move speed(inside printer) |
| **DCL Mode** | DCL mode |
| **SBS Only** | Only SBS commend mode |
| **Dump Mode** | Dump mode |
| **Card Out** | Card out direction |
| **Error Card Out** | Error card out direction |
| **Auto Front Card In** | Auto card in with sensor detection (machine front) |
| **Auto Rear Card In** | Auto card in with sensor detection (machine rear) |
| **Cleaning Warning** | Machine Cleaning warning |
| **Fan PWM Control** | Fan PWM control Setting |
| **Flipper Cover Open** | Ignore machine left cover open Setting |
| **Mag. Write Speed** | MS write speed Setting |
| **Separation Mode** | Method of Separate ribbon and film Setting |
| **Print Heat** | Retransfer heater heating during printing setting |
| **PrintHeat Condition** | Temperature check when Print Heat Setting |
| **Heat after Boot** | Whether to operate the heater immediately after booting Setting |
| **Heat Bend in BOTH** | Whether to operate both side Bend remedy heater Setting |
| **Display TYPE** | LCD type Setting |
| **Display Language** | LCD display language Setting |
| **LCD Backlight** | LCD backlight Setting |
| **Cartridge Open** | Check card-in stacker cartridge installation is installed |
| **Card In Walt Heating** | Whether to heating when card in |
| **Security. PC Auth.** | Whether PC Authentication mode setting |
| **Security. User Auth.** | Whether to use user password Setting |
| **Security. Root Auth.** | Root password Setting |
| **User MS W. Current** | MS write output Setting |
| **MS Write Mode** | MS write use mode Setting |
| **MS Write Start** | MS write start position Setting |
| **Card In Delay** | DC motor operate time after card in |
| **Use USB Serial** | Whether to use the printer's serial number as the USBdevice serial number |
| **Cooling Temperature** | Cooling fan operating reference temperature |
| **Builtin Hopper** | Whether to use builtin hopper |
| **External Hopper** | Select external hopper |
| **Retransfer Heater Standby Time** | Retransfer heater standby time for next print |
| **Color Sensor Calibration** | Color sensor calibration |

**Count:** Tab showing about printer operate history.

“Total issue Count” is number of card print since the factory shipped, “User Issue Count” is number of card print after head has been replaced. “User Issue Count” is initialized by checking “Reset User Issue Count” when replacing the printer head.

## 4.2. Network Configuration

### (1) Preparing Use Network

**For use SMART printer network, Connect power as the figure 63, and network cable (RJ45) to printer.**

(Network cable is not supplied. Please ask network administrator for more questions.)

*Figure 63 Rear view of SMART-81*

SMART printers support the ability to print in a variety of ways over the network. Network settings require network expertise, so when you change settings, you should get help from a network specialist engineer.

Please use NetAdmin.exe in the printer driver package - Utilities folder to set or change network configuration.

### (2) NetAdmin

NetAdmin is run as Figure 63 after turning on SMART-81 Network printer.

① Printer connection status search local network, finds and shows available network printer.

② Network Module Management searches connected encoder on network module. Reboots, resets network module. Firmware upgrade available.

③ Printer configuration sets detailed system configuration. (System Management), (Service Configuration), (Service Configuration)

④ Network information shows firmware version of network module.

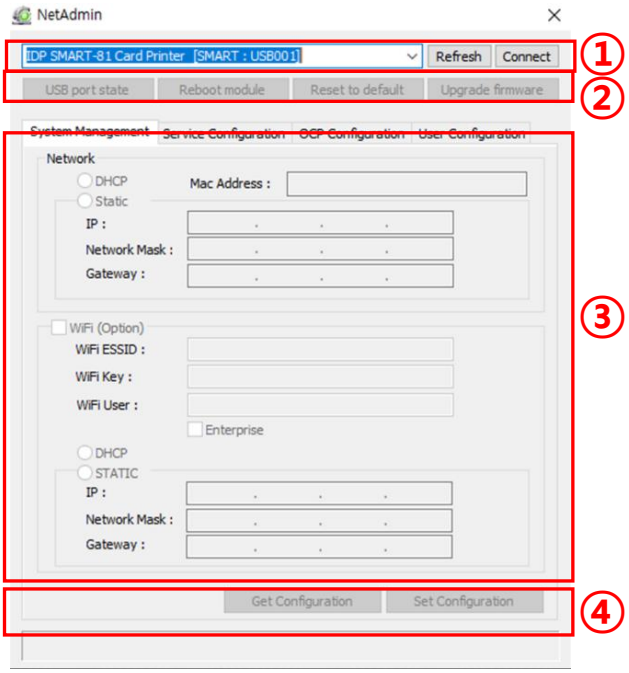



*Figure 64 Running NetAdmin*

### (3) Select network printer

When no printer is connected to network, there is no printer shown on the box.

Please click “Refresh”.

If no printer shown, please check as below.

- Please check the printer is turned on.
- Please check network cable is connected to network hub and works properly. (LED lamp blinking)
- Please check if there is DHCP server in the local network. When DHCP server is not in your local network, you need to set static IP.
- If static IP is used, Please check the IP configuration. If another device uses same IP address, it doesn’t work.

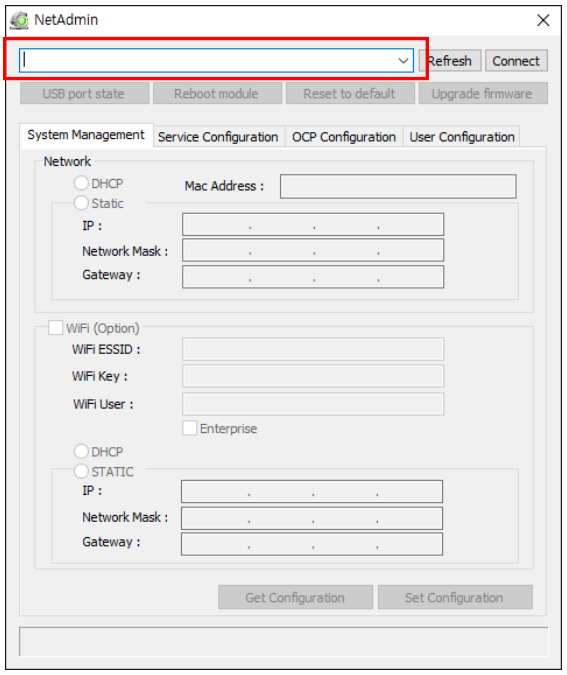



*Figure 65 Network printer is no found*

### (4) Select USB printer

If you are unable to find printer in local network, please connect printer by USB. You can setup network by USB.

When you click Refresh, you can find a printer connected by USB as shown in the left picture.

- You don’t need to install device driver for network configuration by USB. Please ignore messages related to device installation.
- You can change values of “System Management” only when you connect a printer by USB. Please connect a printer by network to use all of the functions of Netadmin.exe.

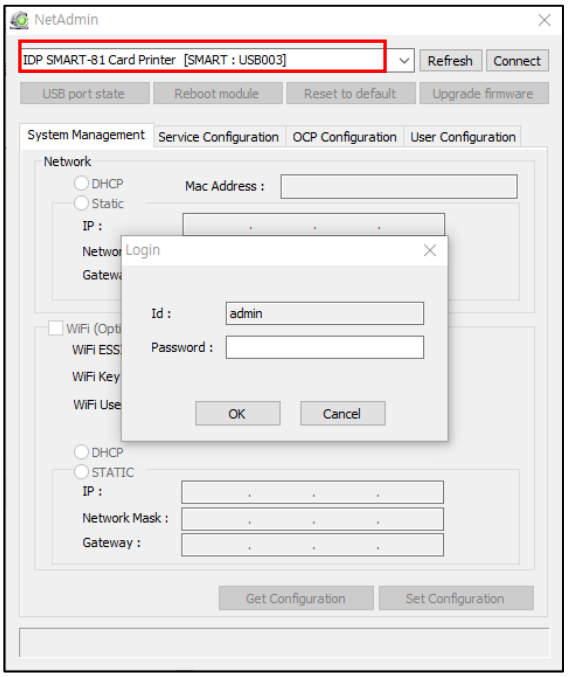



*Figure 66 Connecting to USB Port*

## (5) NetAdmin log-in

- Please select a proper printer and click “connect”. Please enter password and click “OK”.

  Default password is **“admin”.**

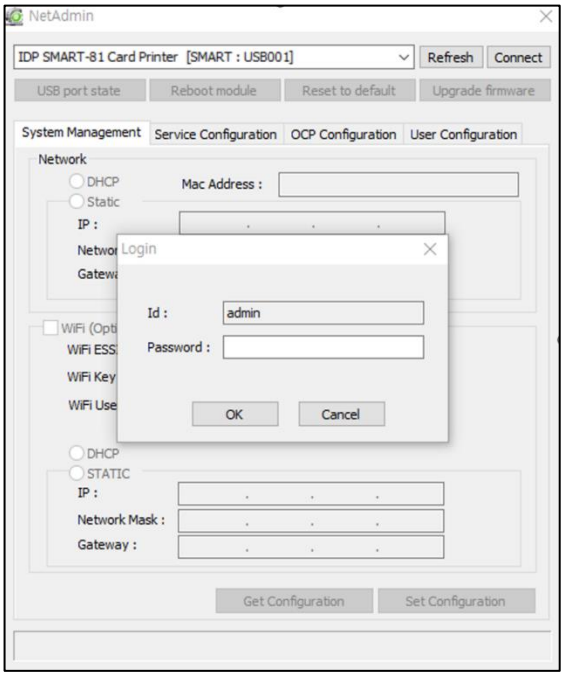



*Figure 67 NetAdmin Log-in*

## (6) USB port state

- Click “Use Port State” to show device s connected to USB hub of network module.
- Network module has 4 USB port.
- Network module supports PC/SC. When you install the encoders that support PC/SC on network module, you can recognize the status of encoders.

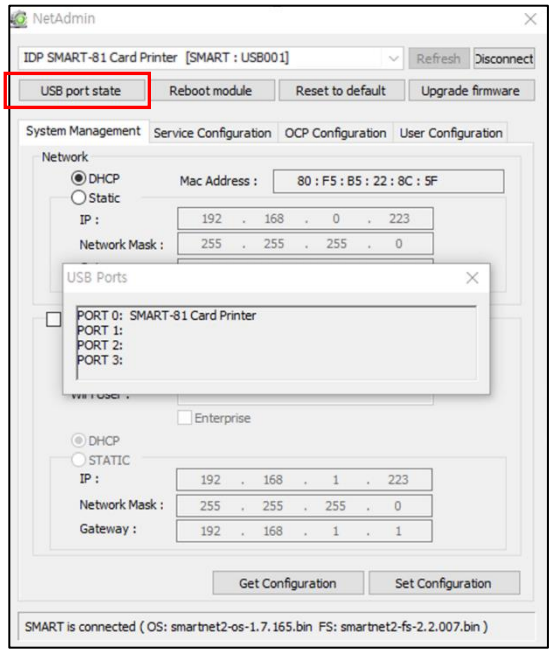



*Figure 68 USB port state*

## (7) Reboot network module

- Please click “yes” when pop-up window comes out for reboot.
- It takes 1 minute to reboot.
- Please click “Refresh” after reboot. When proper printer shown, please connect printer by clicking “connect”.

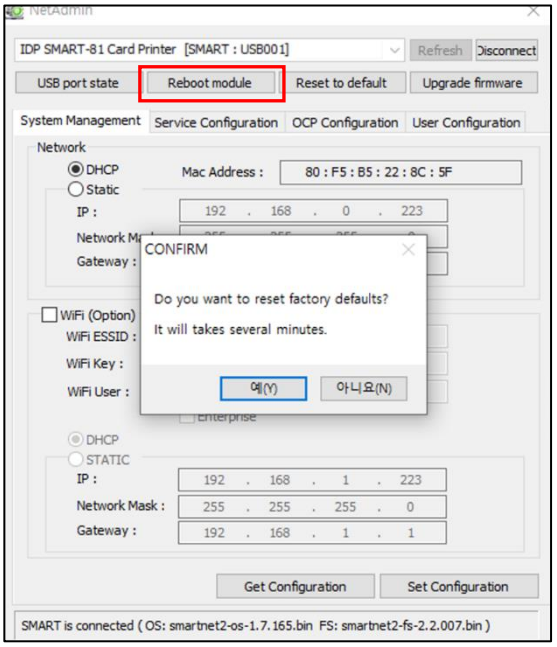



*Figure 69 Rebooting network module*

## (8) “Reset to default” resets to default and reboot network module.

- Please click “Yes” when pop-up window comes out for Reset.
- It takes 1 minute to reboot.
- Please click “Refresh” after reboot. When proper printer shown, please connect printer by clicking “Connect”.

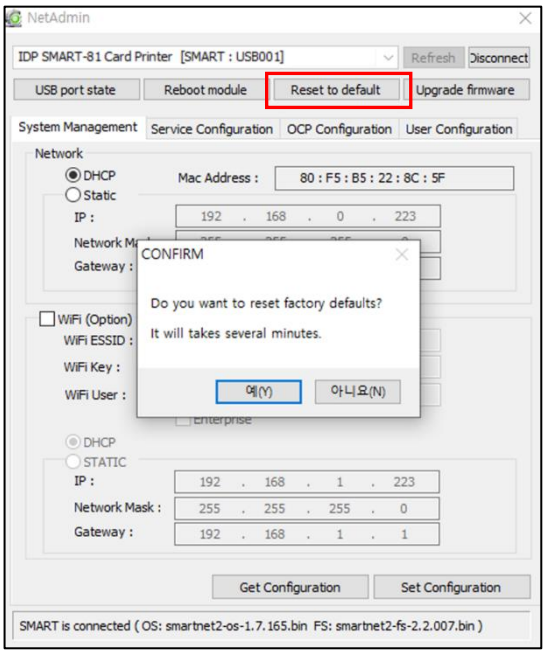



*Figure 70 Reset to default*

## (9) Upgrade network module firmware

- You can choose a firmware file.
- Select and save firmware file that need to upgrade.

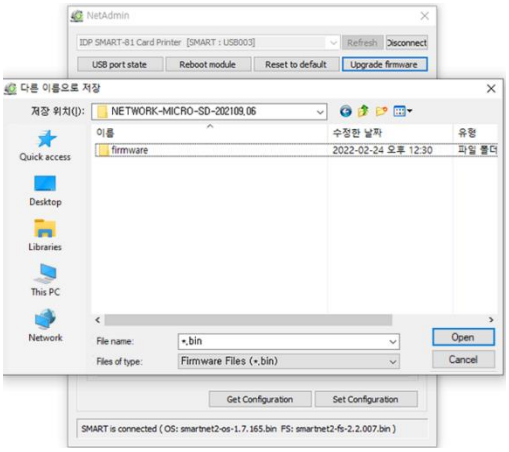



*Figure 71 Upgrade the firmware 1*

- Warning box will be shown during firmware upgrade for network module.
- It is recommended not to do other work during firmware upgrade for system reliability.

  Please do not turn off a printer until the upgrade is completed.

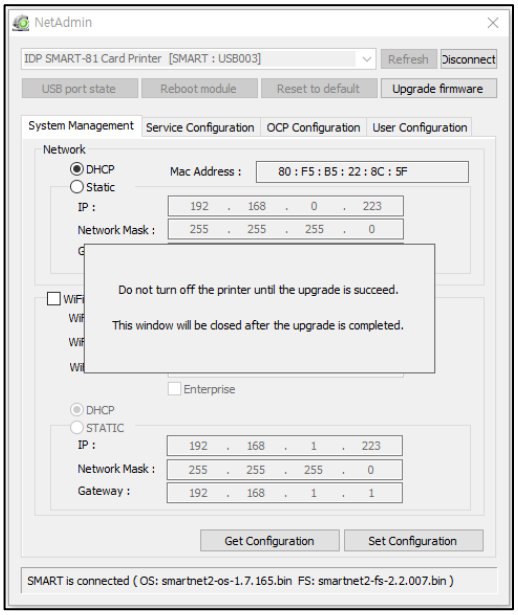



*Figure 72 Upgrade the firmware 2*

- When firmware upgrade is completed, pop-up comes out for reboot.

  Please click “yes”.

- It takes 1 minute to reboot.
- Please click “refresh” after reboot. When proper printer shown, please connect printer by clicking “Connect”.

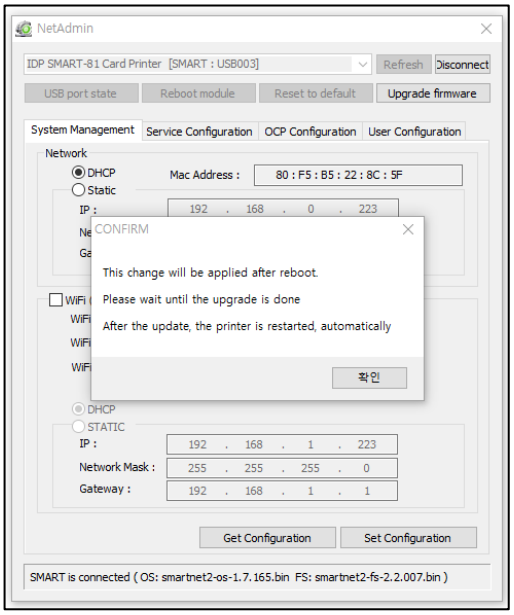



*Figure 73 Upgrade the firmware 3*

## (10) Wired network configuration

- Please select DHCP or static.
- **“DHCP”** is default for SMART-81 printer.
- Please enter values for “IP”, Nework mask”, and “Gateway”. Click “Set configuration”.
- If you are not aware of Static IP, Please ask network administrator for static IP.
- Please click “Set Configuration” and save. And please reboot printer.
- We recommend using static IP because it is more stable for using SMART-81 network printer.

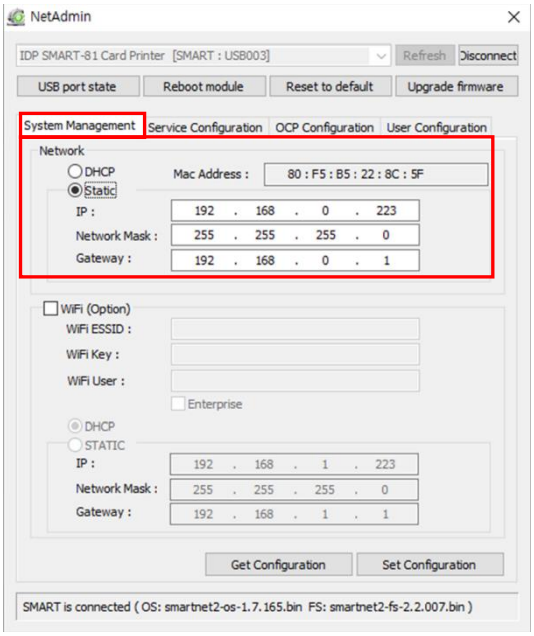



*Figure 74 Dynamic IP configuration*

## (11) Wireless network configuration

- For wireless network, the WIFI option should be installed in the network module.
- Check “WiFi(option)” button to activate it.
- Enter the ESSID value in “WiFi ESSID” to access.
- Enter the Key value in “WiFi Key”.
- Set the IP address as the same way of LAN network.
- Click “Set Configuration” to save the configuration value and reboot the printer.

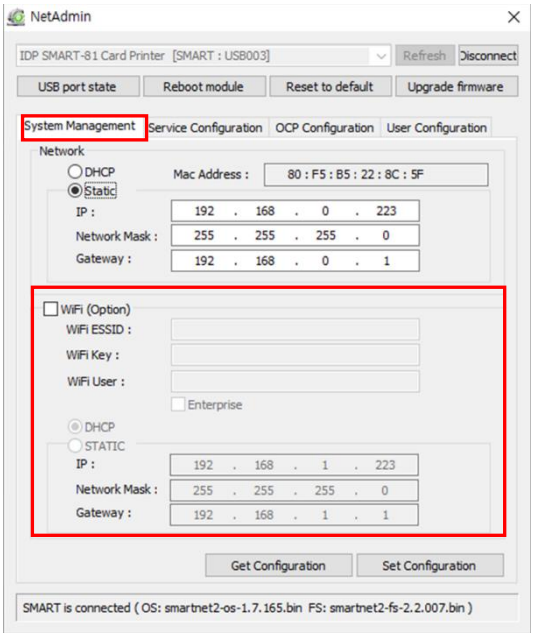



*Figure 75 Static IP configuration*

## (12) Change network service configuration

- “Use USB Spool” is service for print with USB.
- “Use Network Spool” is service for print with network.
- “Use Network SDK” is service for print with SDK. You can control printer and printer card well, and printer supports SSL(Secure Sockets Layer) an User Authentication for security.
- “Log Level” determines the level of logging that is logged to the network module.
- Click “Set Configuration” to save the configuration value and reboot the printer.

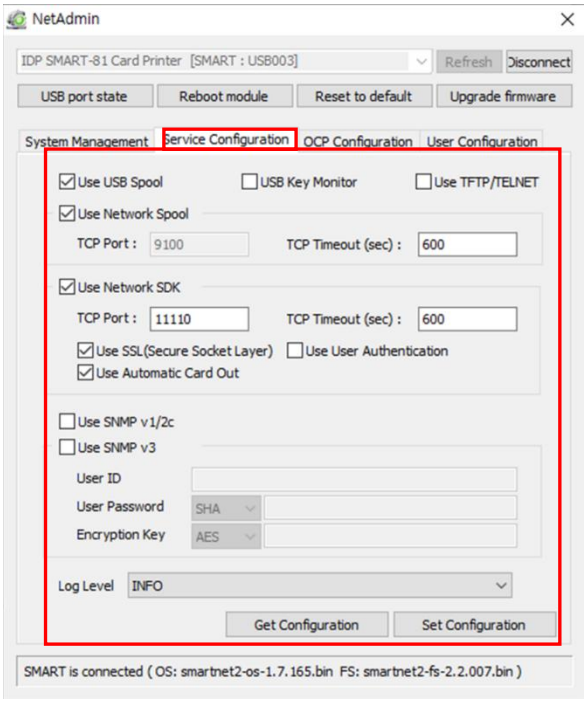



*Figure 76 Network service configuration*

## (13) OCP (Open Card Printer) Function

- This function is for send commands and print through network card regardless of OS.
- “Use Terminal Emulation” is value for getting echo according to the commands through terminal. For security, it supports SSL and User Authentication.
- "Use Format" prints the transferred data in the form specified as "OCP Format". Refer to the OCP manual for more information.
- Click “Set Configuration” to save the configuration value and reboot the printer.

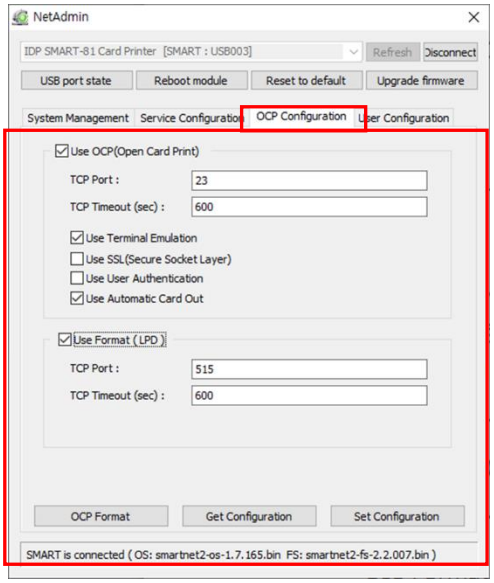



*Figure 77 OCP configuration*

## (14) User configuration

- “Admin” is administrator and you can’t delete this account. Please don’t forget password for “admin”.
- “Get User”: shows available users.
- “Add User”: makes new user.
- “Del User”: deletes selected user.
- “Change Password”: changes password.

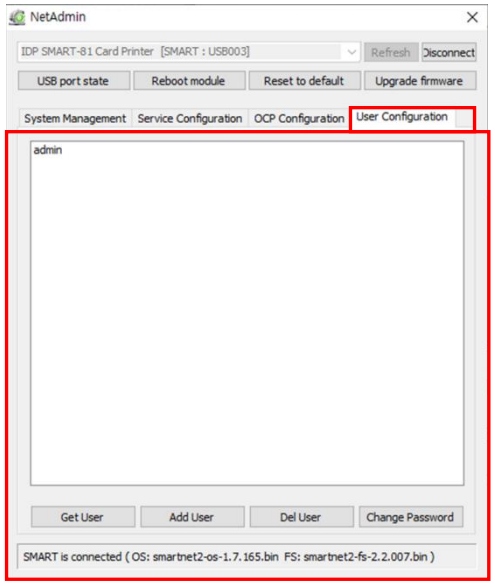



*Figure 78 Network service configuration*

## 4.3. Card Printer Test

Basically, card Printer use standard printer device so you can be used same as general paper printer. In the case of magnetic stripe, contact, contactless encoder option, you will need to install appropriate driver and operate individually. Encoding operation will be controlled by “CARD PRINTER SDK”. You can test all feature of printer by Card printer Test. Card Printer Test program is developed by using “SMART Printer SDK”.

### (1) CardPrinterTest

When CardPrinterTest is run, all function can be tested individually.

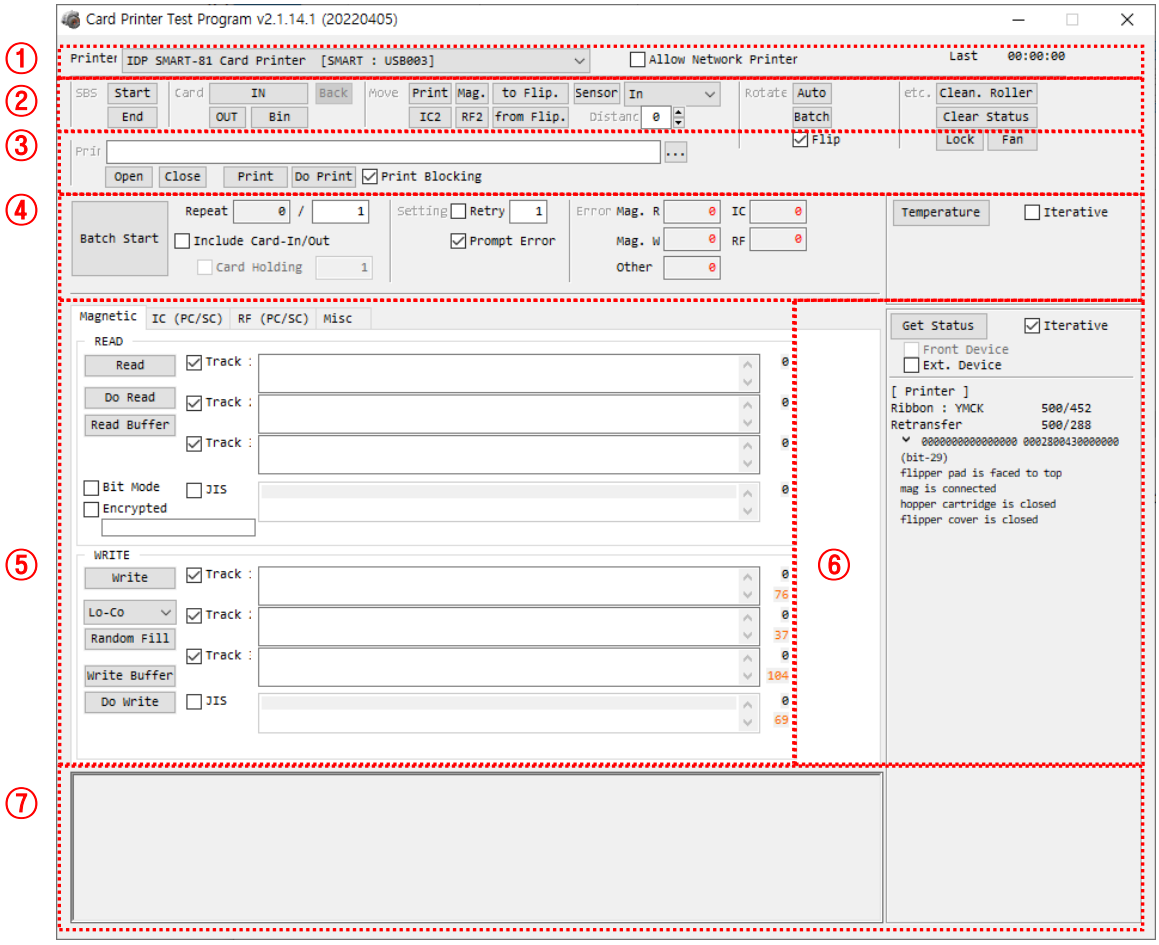



*Figure 79 CardPrinterTest*

① **Select Printer:** select printer to test. In the picture, “IDP SMART-81 Card Printer” is the Printer name, SMART1 is the Printer ID, and USB005 is the connected port.

② **Control:** To execute each step to test.

③ **Print:** Print test with CSD file which is designed by Smart ID program.

④ **Batch Start:** Repeat selected encoding test by "⑤ Encoding".

⑤ **Encoding:** Encode Magnetic Stripe, Contact Card, Contactless Card.

⑥ **Printer Status:** Check printer status.

⑦ **Message:** Description of status by log.

## (2) Select Printer and Control

Control is consisted by SBS (Step by Step), Move, Rotate, Etc. section and you can control printer by each step.

- **SBS**

  SBS is to operate SMART printer in SBS(Step-By-Step) mode which you can control the printer using commands. In SBS mode, after printing data transmission, printing a card will be run only by clicking "DoPrint". It is the main difference between NORMAL mode and SBS mode. When you click "Start", SMART-81 is operated in SBS mode, and existing spooled data will be eliminated. To exit SBS mode, click "End".

  .

- **Card**

  Card is to bring a card into printer and eject a card. "In" is to move a card from input hopper to printer and "Out" is to move a card from printer to output hopper. In case the flipper is installed, "Back" ejects a card to the back side.

- **Move**

  Move is to move a card to specific position in the inside of printer. "Print" is to move a card to the printing position, and "Mag." is to the magnetic encoding position, and "IC" is to the contact smartcard encoding position, and "RF" is to the contactless smartcard encoding position. "To Rotator" is to move a card from printer to flipper and "From Rotator" is to move a card from flipper to printer. "from In" is to move a card from the card in sensor to where you define position, and "from Out" is to move a card from the card out sensor to where you define position.

- **Rotate**

  Rotator is to flip over a card in the printer installed flipper. “Auto” is to move a card from printer to flipper and flip over a card and move a card to the printing position automatically. “Batch” is to repeat “Auto” as many times as the number of set. “To Bottom” is to turn to the backside of card and “To Top” is to turn to the front side of card.

- **Etc**

  “Cleaning Roller” is to clean the roller by cleaning card automatically. “Use Log” is to display log in message space.

### (3) Print test

Print can be done through the CSD file which is designed by SMART IDesigner program. Following the steps in this section.

1. Click **“…”** button and select the CSD file. CSD is design file made with SMART IDesigner program. Please refer to the SMART IDesigner manual for detail information.

2. Click **“Open”** button to prepare CSD file to print.

3. Click **“Print”** Button to move print data to spool. In the NORMAL mode, Click “Print” button to print a card, but in the SBS mode, “Print” button to transmit a printing data from PC to printer and wait for printing. Therefore, you must click “DoPrint” to print in SBS mode. This function is for detail control of printer.

4. **“Do Print”** causes the printer to print the data sent to the printer when printer is in SBS state.

5. Click **“Close”** button to close CSD file.

## (4) Batch

Batch is to repeat encoding/decoding test continuously. In the Repeat, you input the number of repeats and click **"Batch Start"**, then the test is run as many times as the number of sets. When you check "Include Card In/Out", each time the printer brings a card from the input hopper and performs an encoding test and ejects the card. But if not, the encoding test will be done only by one card. At that time, if there is no card in the printer, the printer brings a card into the printer from input hopper and repeats the encoding test on the card, and if there is a card in the printer, the encoding test is performed on the card repeatedly. **"Card Holding"** is activated when "Include Card In/Out" is ticked. When "Card Holding" is ticked and the repeat number is set, the printer repeats the encoding test as many times as the number set in the "Card Holding" without ejection. When it is completed, the printer ejects the card and brings a new card into the printer and starts testing.

In the Setting, **"Retry"** is to retry the encoding test when the error occurred.

**"Prompt on Error"** is to display Pop up Message when the error occurred. If not, the Error number will be counted without a message. The number of errors is displayed in the Error section.

## (5) Encoding test

### Magnetic: Magnet Stripe Encoding

**"Read"** is to read and display the data from magnetic stripe card. It is composed of "Do Read" and "Read All Buffer" and runs "Do Read" and "Read All Buffer" sequentially.

**"Do Read"** is to read the data from magnetic stripe card and store the data in the buffer.

**"Read All Buffer"** is to transmit the date stored in the buffer to PC. If the track number is ticked, the data of the ticked track is only transmitted to PC.

**"Write"** is to write the data to the magnetic stripe. It is composed of "Write All Buffer" and "Do Write" and runs "Write All Buffer" and "Do Write" sequentially.

**"Write All Buffer"** is to transmit the data to the buffer.

**"Do Write"** is to write the data stored in the buffer to the magnetic stripe of card. You can choose the magnetic foil type (LoCo or HiCo) and the track of magnetic stripe.
**"Random Fill"** is to create a random magnetic encoding data for testing.

Batch process repeats the following steps sequentially, **Card "IN" → Move "Mag" → Magnetic "Random Fill" → Magnetic "Write" → Magnetic "Read" → Card "OUT"**

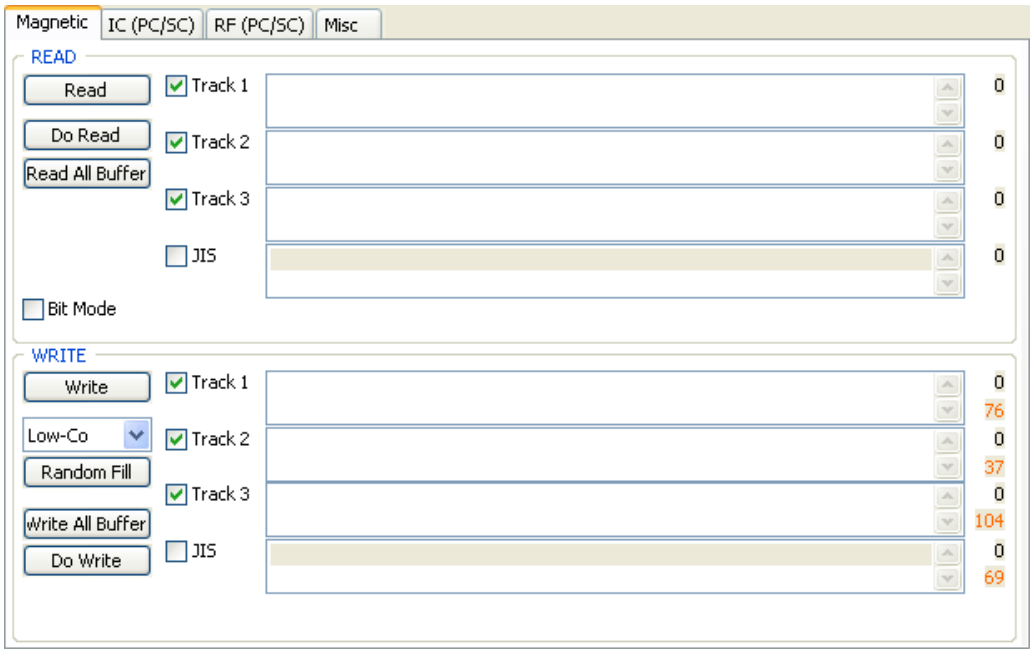



*Figure 80 Magnetic stripe encoding*

## IC(PC/SC) : Contact Smartcard Encoding

In SMART-81 printer, a contact smartcard encoder can be installed and SMART-81 printer supports the contact smartcard encoder in the printer inside. "IC(PC/SC)" is to test a contact smartcard encoding.

**"ICH Contact"** is to bring the encoder head into contact with the IC chip of smartcard physically.

**"ICH Discontact"** is to separate the encoder head from the IC chip of smartcard physically**.**

**"Init"** is to recognize and display the installed contact smartcard reader**.** The recognized encoder will be displayed at the pull down control.

**"Contact"** is to contact with the smartcard electrically and initialize.

**"Reset"** is to finish the function electrically. After "Contact", you can run "Get ATR", "Read", "Write" and "Clear".

**"Get ATR"** is to read the ATR data.

**"Read"** and **"Write"** are to read and write the defined data (Name, Address and Phone). These could not be applied to all cards.

**"Clear"** is to clear the displayed data (ATR, Name, Address and Phone).

In case the data is read and written using APDU, Read/Write can be done by APDU commands.

**"Load APDU"** is to read the stored APDU commands.

**"Save APDU"** is to save the displayed APDU commands.

**"Clear APDU"** is to clear the APDU section.

**"Send APDU"** is to run the APDU commands.

Batch process repeats the following steps sequentially, **Card "IN" → Move "IC" → IC "ICH Contact" → IC "Init" → IC "Contact" → IC "Reset" → IC "ICH Dis-contact" → Card "OUT".**

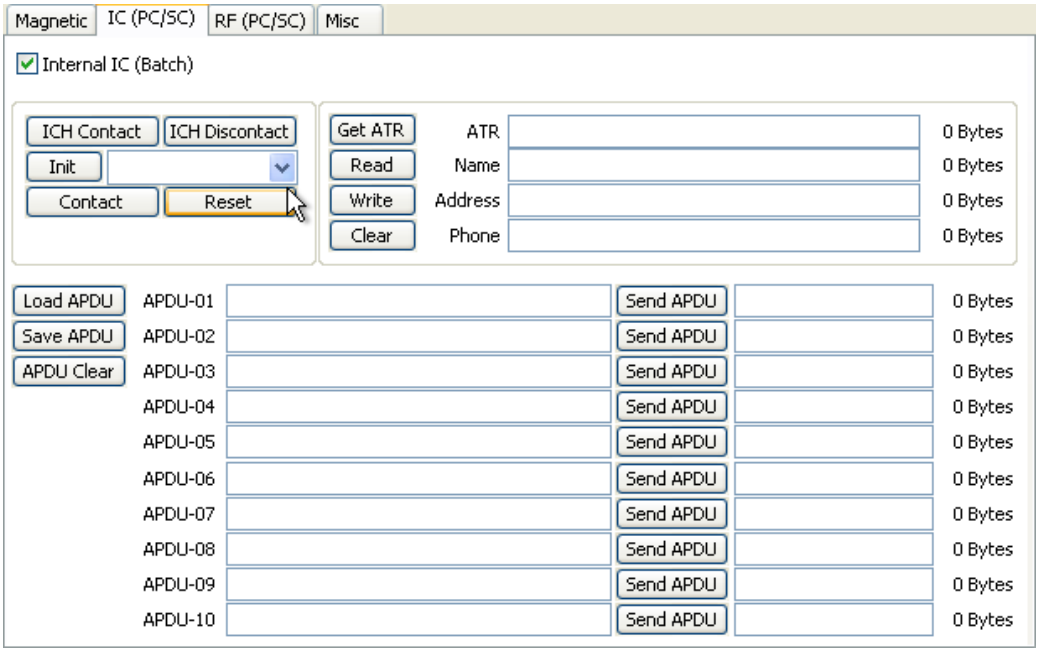



*Figure 81 Contact smartcard encoding*

## RF(PC/SC) : Contactless Smartcard Encoding

In SMART-81 printer, a contactless smartcard encoder can be installed and SMART-81 printer has the internal and external contactless smartcard encoder. RF(PC/SC) is to read and write the contactless smartcard. Using internal encoder, the printer brings a card into the printer from input hopper and encodes a smartcard. Using external encoder, after putting a card on the top cover, you can encode because the antenna installed under the top cover is used. Therefore, "Batch" is applied only to the internal contactless smartcard encoding.

**"Contact"** is to contact with the contactless smartcard electrically and initialize.

**“Reset”** is to finish the function electrically. After “Contact”, you can run “Read”, “Write” and “Clear”.

**“Get UID”** is for getting Chip Serial Number(CSN).

**“Read”** and **“Write”** are to read and write the defined data (Name, Address and Phone). These could not be applied to all cards.

**“Clear”** is to clear the displayed data (ATR, Name, Address and Phone).

In case the data is read and written using APDU, Read/Write can be done by APDU commands.

**“Load APDU”** is to read the stored APDU commands.

**“Save APDU”** is to save the displayed APDU commands.

**“Clear APDU”** is to clear the APDU section.

**“Send APDU”** is to run the APDU commands.

Batch process repeats the following steps sequentially, **Card “IN” → Move “RF” → RF “Connect” → Get UID→ RF “Discontact” → Card “OUT”**

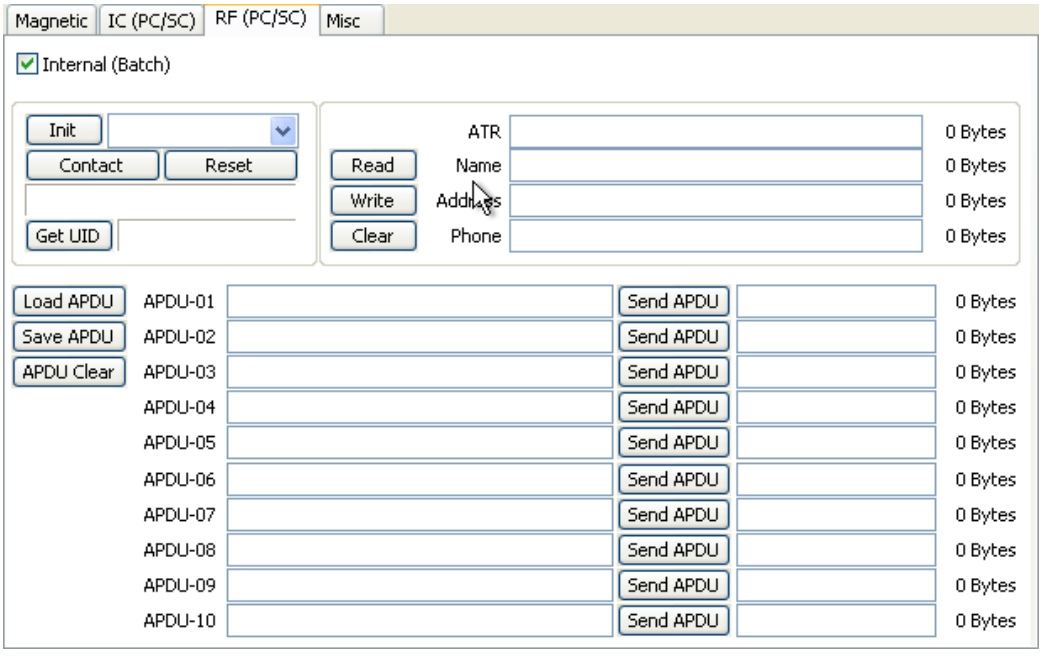



*Figure 82 Contactless smartcard encoding*

## (6) Printer and Laminator status

**“Get Temperature**” is to get and display the temperature of Thermal Print Head. When the “Realtime Check” is ticked, it displays the current temperature of Thermal Print Head in real time.

**“Get Status”** is to get and display the printer status.

Please refer to the ‘SMART SDK manual’ for the status code.

# 4.4. Firmware update

When you run the CardPrinterFirmware, you can see the pop-up window.

### (1) CardPrinterFirmware Menu

**Device:** Select the local printer that you want to upgrade.

**Card Printer / Laminator:** Select the device you want upgrade.

**Device Version:** Displays the current firmware version of selected printer.

**Binary File:** Click “Browse” button and select new firmware fir to update.

**Manual Update:** it is used when you want to update manually.

**Update:** Updates automatically. In generally, we recommend updating automatically.

**Close:** exit.

**Color Sensor Calibration:** To re-adjust the measured value of the color sensor.

**Message:** It is displays information of updating.

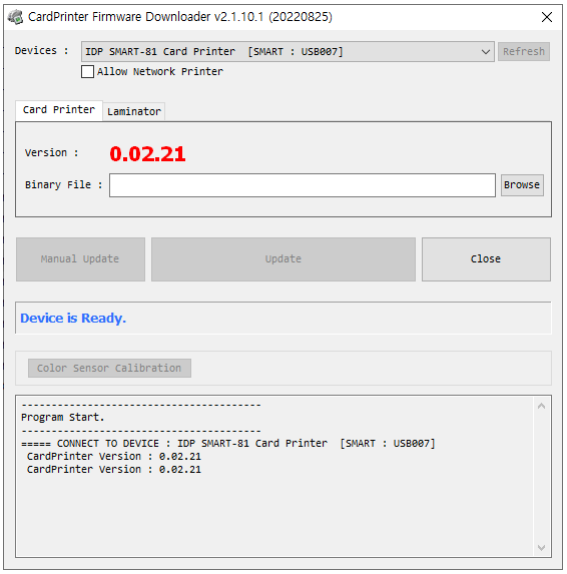



*Figure 83 CardPrinterFirmware*

### (2) Ready for firmware update

- Select the printer to update the firmware on the ‘Device’ list.
- Select the device to update the firmware among Printer/ Laminator tab. The Laminator tab is shown if that option is installed only.
- Click “Browse” and select the new firmware.
- Clock “open”.

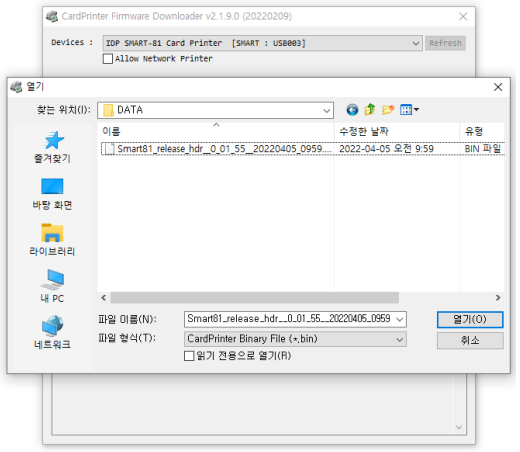



*Figure 84 Select Firmware*

### (3) Firmware update

- Click “Update” button to upgrade automatically, then the printer is upgraded after rebooting.
- In case there are some problems in the automatic upgrade, you click “Manual Update” and can see the pop-up widow as below picture. It shows procedure of manual upgrade. You can upgrade manually according to this procedure.
- Please rebooting printer after update.

(Caution: Please do not close upgrade dialog box until it is completed successfully and do not turn off the printer.)

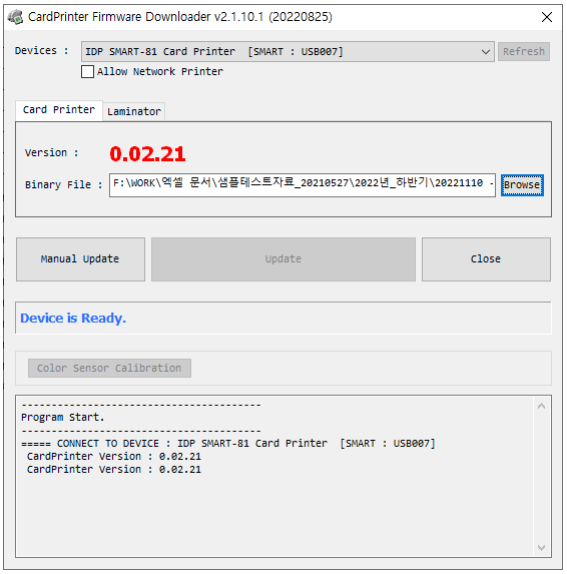



*Figure 85 Update Firmware*

# 5. Troubleshooting

## 5.1. Error Message

SMART-81 printer shows the error message in the LCD display when it occurs. Click the Menu button to retry, and 'select' button to cancel an operation.

The following shows the error message on your Smart Printer. For checking a status of printer, please use a CardPrinterTest or CardPrinterDiagnostics in the Utilities folder.

| LCD Status | Description |
|---|---|
| **Init Err** | Error occurs while initializing<br>-. Check the errorFlag bit on the driver service tab or test program to release the error.<br>-. Check the status of installation of film and ribbon<br>-. Check the laminator turning on if the laminator is installed. |
| **Card In Err** | Fail to move a card from the hopper to the printer inside.<br>-. Check the card thickness and adjust the card thickness control lever<br>-. Check cards are stuck because of static electricity<br>-. Clean Hopper roller and cleaning roller |
| **CardMoveInr Err** | Fail to move a card in the printer.<br>-. Remove a card if the ribbon is attached<br>-. Check the rollers and cards, and clean them if they are polluted<br>-. Check the operating state of the card feeding rollers and sensors. |
| **CardMoveExt Err** | Fail to move a card between printer and other module(flipper/laminator)<br>-. Check the rollers and cards, and clean them if they are polluted<br>-. Check the operating state of the card feeding rollers and sensors |
| **CardOut Err** | Fail to discharge a card after printing, encoding or laminating.<br>-. Remove a card if the ribbon is attached<br>-. Check the rollers and cards, and clean them if they are polluted<br>-. Check the operating state of the card feeding rollers and sensors. |
| **FlipTrayMove Err** | Error occurs while operating a flipper module<br>-. Check and Remove a card after opening a flipper cover<br>-. Check the rollers and cards, and clean them if they are polluted.<br>-. Check the card recognition sensor. |
| **InsideOutHp Err** | Error occurs while ejecting card to inside out hopper<br>-. Check and Remove a card after opening a flipper cover.<br>-. Check the rollers and cards, and clean them if they are polluted.<br>-. Check the card recognition sensor.. |

| | |
|---|---|
| **Printing Err** | Error occurs while printing<br><br>-. Check a card is jammed<br><br>-. Check usage of a genuine ribbon and cards<br><br>-. Check the rollers, encoders and cards, and clean them if they are polluted |
| **Ribbon Seek Err** | The printer can't search the ribbon panel in printing or booting up<br><br>-. Check the operating state of the Ribbon Motor<br><br>-. Check the operating state of the ribbon encoder sensor and gears<br><br>-. Check and clean the Color In/Out Sensor<br><br>-. Check the operating state of the color in/out Sensor<br>-. Check the ribbon is tightly installed inside the printer |
| **Ribbon Move Err** | The printer can't wind the ribbon in printing or booting up.<br><br>-. Check the operating state of the Ribbon Motor<br><br>-. Check the operating state of the ribbon encoder sensor and gears.<br>-. Check the ribbon is tightly installed inside the printer |
| **Film Search Err** | Error occurred while recognizing film location<br>-. Check the operating state of step motor and DC motor<br>-. Check the film position sensor.<br>-. Check the ribbon is tightly installed inside the printer. |
| **Film Move Err** | Error occurs while driving the film motor.<br>-. Check the operating state of step motor and DC motor<br>-. Check the ribbon is tightly installed inside the printer. |
| **Head UpDown Err** | Error occurs while head module(Thermal head, retransfer head) move up/dwon<br>-. Check Head Up/down sensor.<br>-. Check the operating state of head motor. |
| **Heater Error** | Retransfer Heater is overheated.<br><br>-. Check the thermistor is properly attached to the heater<br><br>-. Lower the temperature when the temperature of circumstance is too high<br><br>-. Take a stop for 10 minutes and print again.<br><br>-. Contact the place of purchase if this message is shown regularly. |
| **Bheater Error** | BandHeater is overheated.<br><br>-. Check the thermistor is properly attached to the heater<br><br>-. Lower the temperature when the temperature of circumstance is too high<br><br>-. Take a stop for 10 minutes and print again.<br><br>-. Contact the place of purchase if this message is shown regularly. |
| **TPH Overheat** | Thermal Print Head is overheated<br><br>-. Lower the temperature when the temperature of circumstance is too high<br><br>-. Take a stop for 10 minutes and print again.<br><br>-. Contact the place of purchase if this message is shown regularly |

| | |
|---|---|
| **IC UpDown Err** | The IC Head Up/Down Motor or Sensor don't work correctly in printing, encoding or booting up.<br>-. Check the state of the Cable between a module and a main board<br>-. Check the operating state of the IC Motor<br>-. Check IC Up/Down sensor |
| **Solenoid Err** | Error occurs while printer Lock solenoid operating<br>-. Check the wire of solenoid module<br>-. Check the operating state of Solenoid.<br>-. Check Printer Lock sensor. |
| **MAG R/W Err** | Fail to read or write the magnetic strip.<br>-. Check the surface and direction of magnetic card<br>-. Check the coercivity of magnetic card and encoding configuration<br>-. Check the rollers, encoder and cards, and clean them if they are polluted<br>-. Check the magnetic head and clean if it is polluted. |
| **MAG T1 Err** | Fail to read a track 1 of the magnetic strip.<br>-. Check the surface and direction of magnetic card.<br>-. Check the coercivity of magnetic card and encoding configuration.<br>-. Check the rollers, encoder and cards, and clean them if they are polluted.<br>-. Check the magnetic head and clean if it is polluted |
| **MAG T2 Err** | Fail to read a track 2 of the magnetic strip.<br>-. Check the surface and direction of magnetic card.<br>-. Check the coercivity of magnetic card and encoding configuration.<br>-. Check the rollers, encoder and cards, and clean them if they are polluted.<br>-. Check the magnetic head and clean if it is polluted |
| **MAG T3 Err** | Fail to read a track 3 of the magnetic strip.<br>-. Check the surface and direction of magnetic card.<br>-. Check the coercivity of magnetic card and encoding configuration.<br>-. Check the rollers, encoder and cards, and clean them if they are polluted.<br>-. Check the magnetic head and clean if it is polluted |
| **ConExtDeviceErr** | Error occurs while the printer is communicating with the laminator<br>-. If the laminator is installed, please check laminator is powered.<br>-. Check the communication status between the printer and the laminator. |
| **Ribbon None** | ribbons are not installed<br>-. Install the new ribbon after purchasing it in the place of purchase.<br>-. Check usage of a genuine ribbon if ribbon is already installed. |
| **Ribbon Zero** | All ribbons are used<br>-. Install the new ribbon after purchasing it in the place of purchase. |
| **Film None** | Film is not installed<br>-. Install the new Film after purchasing it in the place of purchase.<br>-. Check usage of a genuine film if it is already installed |
| **Film Zero** | All films are used<br>-. Install the new film after purchasing it in the place of purchase.. |

| | |
|---|---|
| **TPH None** | Thermal Print Head is not installed or not recognized<br><br>-. Check the print head installation<br><br>-. Contact the place of purchase. |
| **Heater None** | Retransfer heater is not installed or not recognized<br><br>-. Check the Retransfer installation<br><br>-. Contact the place of purchase. |
| **Bheater None** | Band heater is not installed or not recognized<br><br>-. Check the Band Heater installation<br><br>-. Contact the place of purchase. |
| **Heater Broken** | Retransfer's control circuit or heater not operate<br><br>-. Check the Retransfer installation<br><br>-. Contact the place of purchase. |
| **Bheater Broken** | Bheater's control circuit or heater not operate<br><br>-. Check the Bheater installation<br><br>-. Contact the place of purchase |
| **PrintData Fail** | Error in print data<br>-. Replace the USB cable USB<br><br>-. Change the USB port in the PC<br><br>-. Reinstall the printer driver.<br><br>-. Check the options for the print data are correct |
| **Spool Full** | The printing data is full in the spooler.<br>-. This message disappear after printing all data to send<br>-. Turn off/on the printer if the spool data is full without printing. |
| **Invalid Password** | The password is not correct.<br>-. Input the correct password.<br>-. Contact the place of purchase if you forget the password. |
| **Set Fail** | Failed to execute a command of the printer<br><br>-. Replace the USB cable USB<br><br>-. Change the USB port in the PC<br><br>-. Turn off/on the printer |
| **Lcd Con Error** | Error occurs while control Lcd<br>-. Please reboot computer. |

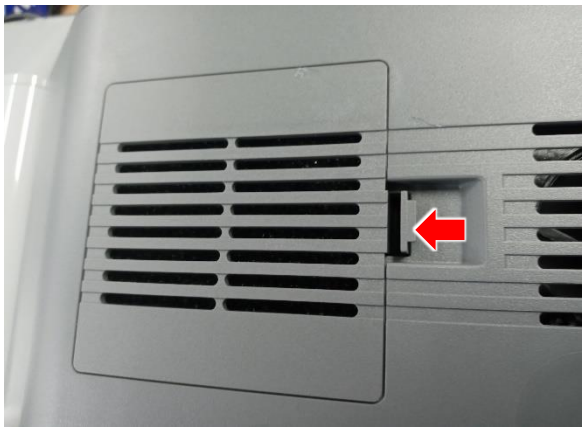
The following shows the error message on your Laminator. For checking a status of Laminator, please use a CardPrinterTest or CardPrinterDiagnostics in the Utilities folder.

| Message | Discription |
|---|---|
| L CardIn Err | Card in error |
| L CardFeed Err | Card feeding error |
| L CardOut Err | Card out error |
| L HT UpDown Err | Head up/down error |
| L LaminatingErr | Error occur while Laminating |
| L Command Err | Error occur while execute command |
| L Init Err | Initial error |
| L Film Seek Err | Film seek error |
| L Film Zero | All firms are used |
| L Film Empty | Film is not installed |
| L HT Over/Cnt | Thermal Head is overheated or fail control temp. |
| L HT Fet Err | Head FET error |
| L HT Temp Err | Fail setting head temp |
| L BootDown Err | Error while bootloader F/W download |

## 5.2. Cleaning and Replacement Printer air filter

If printer air filter is much dust, need to cleaning and replacement it for prevent dust.

1. As shown in the below picture, you can remove the protect cover by pressing the locking part in the direction of the arrow and pulling it up.



2. Remove the filter, wash it in running water, and completely dry it.


3. After installing the filter, press the protective cover in the direction of the arrow to close it.

## 5.3. Cleaning the printer

To maintain the best condition of SMART printer, you must clean the printer periodically. If you use the exclusive cleaning card as the picture, you can clean the printer easily. For purchase the exclusive cleaning card, ask to SMART printer provider.


*Figure 86 Exclusive cleaning card*

If the exclusive cleaning card is ready, click the "Clean Printer" in the service tab of SMART printer driver. After click, "CleanPrinter" program is run to clean the printer.

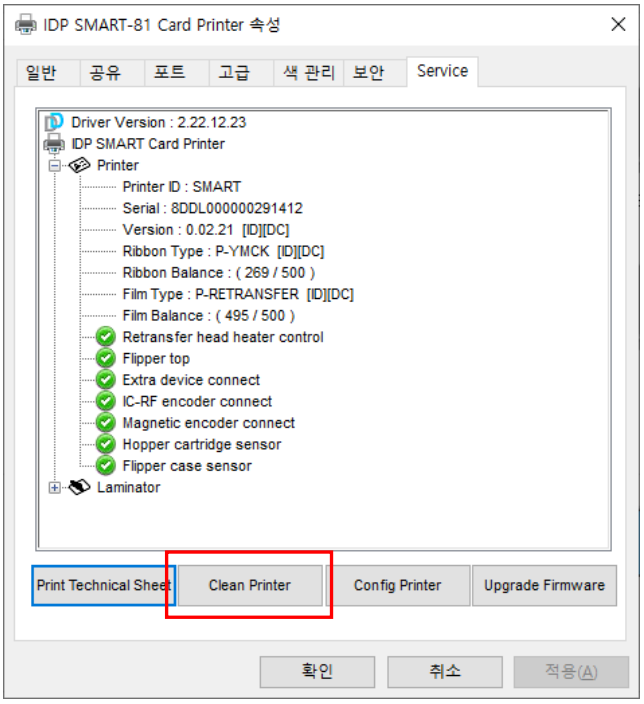



*Figure 87 Printer cleaning start*

**Step 1**: Connect the SMART printer to PC and turn it on, and prepare the exclusive cleaning card. Click "Start cleaning" to move on to step 2.

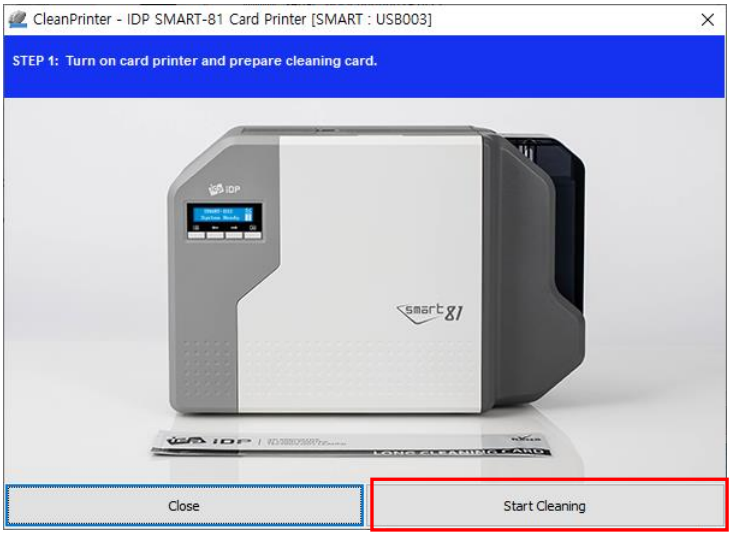



*Figure 88 Printer cleaning step 1*

**Step 2**: Check the printer entering cleaning mode with LCD window. Open the Cover, and remove card cartridge, ribbon cartridge, and cleaning roller. Click "Next" to move on to step 3.

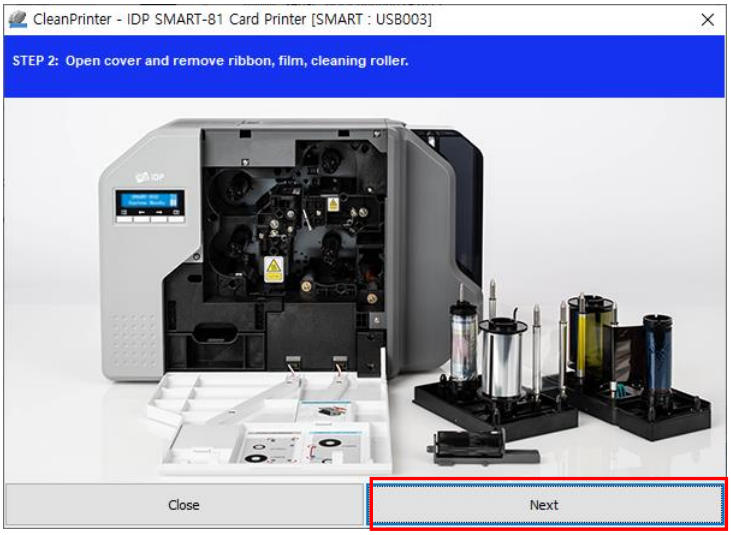



*Figure 89 Printer cleaning step 2*

**Step 3**: Insert the cleaning card moderately(5-10cm) as shown in the figure 101 and press LCD key to display temperature of the printer heater. When temperature of printer

heater drops below 50degrees, cleaning card will insert to printer and moving back and forth to clean.


*Figure 90 Printer cleaning step 3*

**Step 4:** Wait until the cleaning is completed. When the cleaning is completed, exclusive cleaning card will be ejected automatically.


*Figure 91 Printer cleaning step 4*

**Step 5:** Remove exclusive cleaning card and install cleaning roller, ribbon cartridge, film cartridge. And close the cover. Click "finish" to exit.


*Figure 92 Printer cleaning step 5*

## 5.4. TPH (Thermal Print Head) replacement

TPH (Thermal Print Head)'s life is over or damaged, replace it in the follow.

1. **Check the serial number and the resistance of new TPH as figure 94.**

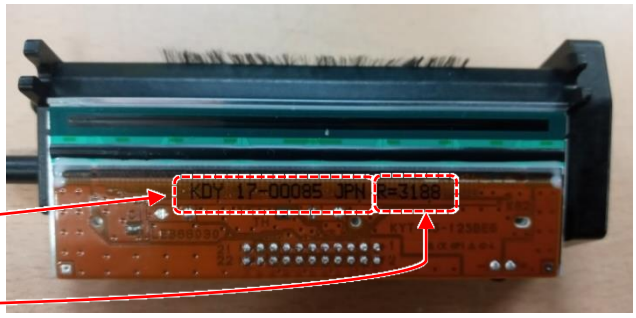



*Figure 93 Printer head*

2. **Set up the new Print Head's configuration using CardPrinterConfig program.**

**Step 1:** Run 'CardPrinterConfig' in Utilities folder and click the expansion button.

**Step 2:** Click "Change Head" in the extended setup.

**Step 3:** Input the Print Head's Serial No., Resistance and click "OK".

**Step 4:** Click "Set Config" to set the new Print Head's configuration.

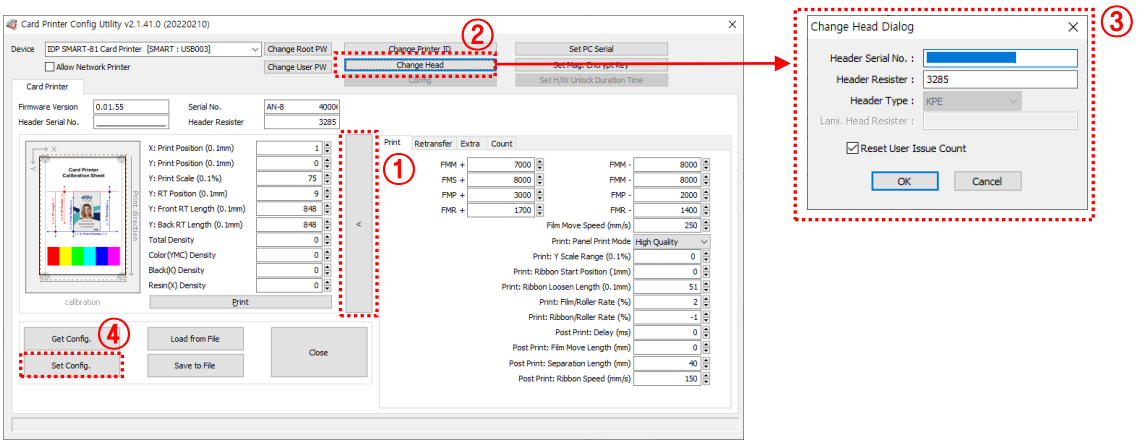



*Figure 94 Printer head setup*

## 3. Replacing the new Print Head

### Step 1: Remove the old printer head from the top cover.

(1) Turn off the print and open the top cover.

(2) Remove the ribbon cartridge first, and release the screw, hold the head with one hand, and remove it.

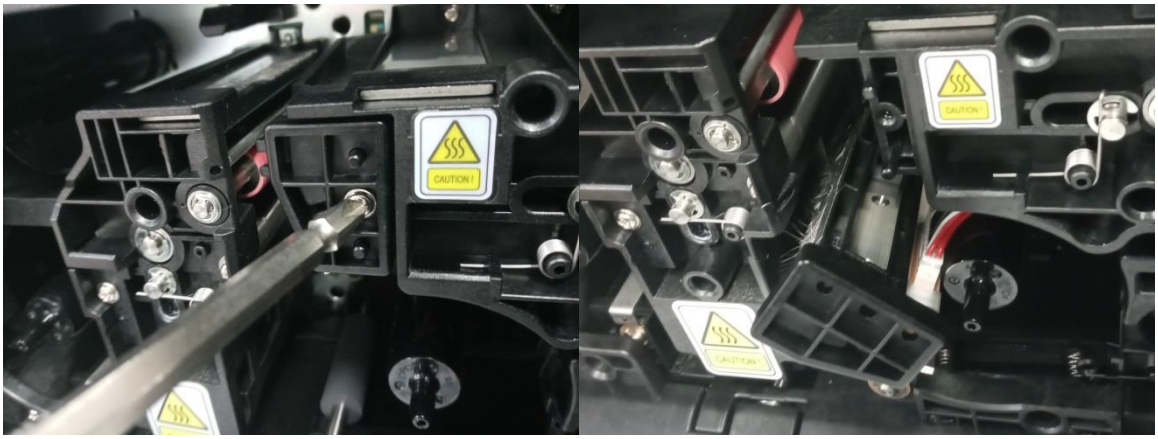


*Figure 95 Printer head disassemble*

(3) After separate head, disconnect print head wire carefully.

**(Caution : Print Head is possible to HOT)**

### Step 2: Installing the new printer head.

(1) Connect new printer head to the Print Head Wire.

(2) hang the Head and tighten the screws.

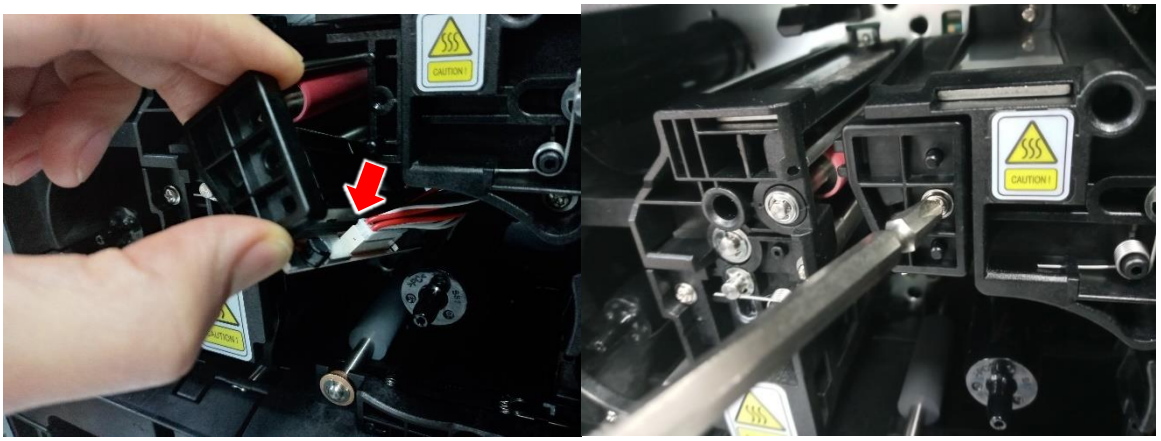


*Figure 96 Printer head assemble*

**4. Setup the print position and the color density**

After installing the new Print Head, you must reset the print position and the color density using CardPrinterConfig utility. Refer to “4.1.2 Default setting”.

## 5.5. Card movement

**(1) Cards can’t enter into the printer from input hopper**

if card fails enter at all, or if the problem occurs frequently, please review the causes below.

- **Non-standard cards or bad cards.**
  Change the cards. You can use only ISO CR-80 card (54mm x 86mm).
- **Card thickness control lever is set improperly.**
  Regulate the card thickness control lever to fit the current card thickness.
- **Bad card array.**
  Array the cards again and put them on input hopper as section 2.3 in this manual.
- **Cards have static and moisture.**
  Remove the moisture or static.

**(2) Card Transfer Error occurs when the ribbon is coiled around the transfer roller or the printing roller.**

Open the top cover and remove the card and the coiled ribbon from SMART-81 printer using front buttons. If this problem occurred frequently, check the below things.

- **Non-standard cards or bad cards.**
  Change the cards. You can use only ISO CR-80 card (54mm x 86mm).
- **The transfer roller or the printing roller is contaminated with the dust and dirt.**

  Remove the dust and dirt with the cleaning kit as section 5.3
- **Wrong printing position setting.**
  Please contact the local supplier
- **When operating temperature, static and humidity is out of the acceptable operating limit of the printer.**
  Adjust the operating environment of the printer.

### (3) Card is wound around feeding roller and bent while retransfer.

Open the top cover, remove Film and Ribbon cartridge, and remove the bent card. If this problem occurred frequently, check the below things.

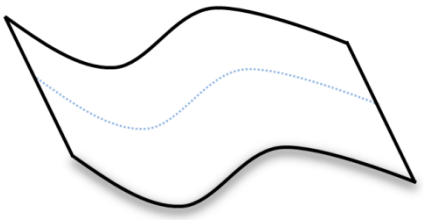


*Figure 97 Printing quality trouble 1*

- **Non-standard cards or bad cards.**
  Change the cards. You can use only ISO CR-80 card (54mm x 86mm)
- **Retransfer temperature setting does not match the card**.

  Adjust retransfer temperature use CardPrinterConfig.
- **Wrong printing position setting.**
  Please contact the local supplier.
- **When operating temperature and humidity is out of the acceptable operating limit of the printer.**
  Adjust the operating environment of the printer.

### (4) An Error occurs while the card is being transferred.

Check the error message at LCD display and open the top cover and remove the card by front buttons. If this problem occurs frequently, check the followings.

- **Non-standard cards or bad cards.**
  Change the cards. You can use only ISO CR-80 card (54mm x 86mm).

- **Printer setting is changed or is not proper.**
  Please contact the local supplier.
- **The transfer roller or the printing roller is contaminated with the dust and dirt.**

  Remove the dust and dirt with the cleaning kit as section 5.3.
- **The card surface is contaminated with the dust and dirt.**

  Check the card surface and remove the dust and dirt and try again. If this problem occurs again, retry with new card.

## 5.6. Printing quality

### (1) Not printed or wrong colors printed spot.

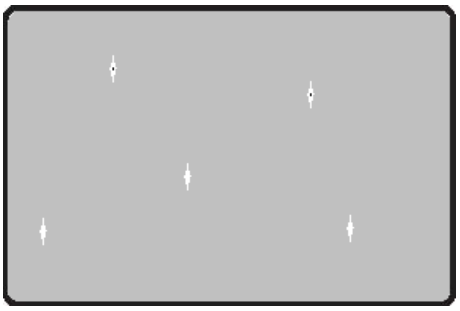


*Figure 98 Printing quality trouble 2*

- **The card surface is contaminated with the dust and dirt.**
  After checking the card, change it to another card.
- **The retransfer head is contaminated with the dust and dirt.**
  Check the retransfer head. If there is much dust, sperate head and need cleaning. For detail, please contact the place of purchase.
- **The cleaning roller is contaminated with the dust and dirt.**
  Check the cleaning roller. If there is much dust, change the cleaning roller to the new one.
- **Much dust in the printer.**

  Clean the inside of the printer with the cleaning kit.

### (2) Not printed horizontal line.

*Figure 99 Printing quality trouble 3*

- **The ribbon cartridge is installed improperly.**
  Check the ribbon cartridge installation state and whether the ribbon has wrinkles.
- **The printer head is contaminated with the dust and dirt.**

  Clean the printer head with cleaning kit.
- **The printer head is damaged.**
  Please contact the local supplier to replace the printer head.

### (3) The print image is not partially transferred to the card. (Card area)

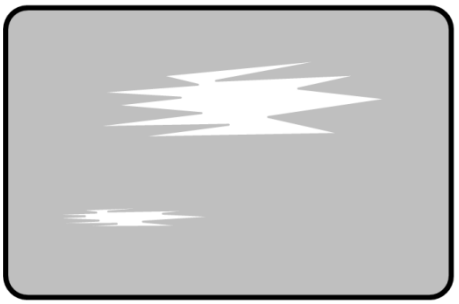


*Figure 100 Printing quality trouble 4*

- **The card surface is uneven or contaminated with the dust and dirt.**
  After checking the card, change it to another card.
- **Retransfer temperature setting doesn't match the card.**
  Raise the retransfer temperature to use CardPrinterConfig.
- **The printer head is contaminated with the dust and dirt.**
  Clean the printer head with cleaning kit.

### (4) The print image is not partially transferred to the card. (Front end of card)

*Figure 101 Printing quality trouble 5*

- **The card surface is uneven or contaminated with the dust and dirt.**
  After checking the card, change it to another card.
- **Retransfer temperature setting doesn't match the card.**
  Raise the retransfer temperature to use CardPrinterConfig.
- **Retransfer start condition setting doesn't match the card.**
  Change Retransfer start condition setting to use CardPrinterConfig.
- **Retransfer start position setting doesn't match the card.**
  Change Retransfer start position setting to use CardPrinterConfig.

### (5) Retransfer film is stuck and does not fall off properly (side of the card)

*Figure 102 Printing quality trouble 6*

- **Non standard card**
  change the card.
- **The card surface is uneven or contaminated with the dust and dirt.**
  After checking the card, change it to another card.
- **Retransfer temperature setting doesn't match the card.**
  Raise the retransfer temperature to use CardPrinterConfig.
- **Worn-out printer.**
  Please contact the local supplier.

### (6) Retransfer film is stuck and does not fall off properly. (end of the card)

*Figure 103 Printing quality trouble 7*

- **Non standard card.**
  change the card.
- **Retransfer setting doesn't match the card.**
  Change Retransfer condition setting to use CardPrinterConfig.
- **Feeding & printer roller contaminated with the dust and dirt.**

  Clean roller with Cleaning kit as section 5.3
- **Worn-out printer.**
  Please contact the local supplier.

### (7) Fail side retransfer due to insufficient Overcoat while retransfer.

*Figure 104 Printing quality trouble 8*

- **Non standard card.**
  change the card.
- **The card side surface is uneven or contaminated with the dust and dirt.**
  After checking the card, change it to another card.
- **Retransfer temperature setting doesn't match the card.**

Raise the retransfer temperature to use CardPrinterConfig.

### (8) Not aligned color print.

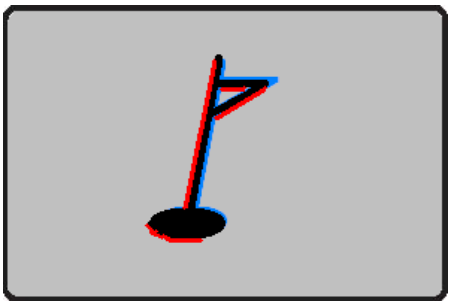


*Figure 105 Printing quality trouble 9*

- **Non-standard cards or bad cards.**

  Change the cards. You can use only ISO CR-80 card (54mm x 86mm).

- **The transfer roller or printing roller is contaminated with the dust and dirt.**

  Clean the rollers with the cleaning kit.

- **Worn-out printer.**

  Please contact the local supplier.

### (9) Unplanned color print.

*Figure 106 Printing quality trouble 10*

- **Film is not aligned**

  Check the film cartridge's algin.

- **The transfer roller or printing roller is contaminated with the dust and dirt**

  Clean the rollers with the cleaning kit.

- **Worn-out printer.**

  Please contact the local supplier.

## 5.7. Magnetic stripe encoding

**(1) Magnetic encoding error.**

Please press front-left button to retry.

- **The magnetic head is contaminated with the dust and dirt:**

  Clean the magnetic head with the cleaning kit.

- **The magnetic encoding data is not transmitted or the wrong data is transmitted:**
  Check the setting of the program and the driver and the magnetic encoding data you transmitted.

- **The card is not magnetic card, or inserting direction is wrong:**
  Change the card or the direction.

- **Bad magnetic stripes on the card:**
  Change the card.

## 5.8. General operation

**(2) Ribbon snapped during printing.**

Open the printer top cover, remove the ribbon cartridge, reconnect the snapped ribbon, and install it to the printer. Please review the following cause.

- **Non-standard cards or bad cards:**
  Change the cards.

- **Too high or low setting of the color density:**
  Please contact the local supplier. The color density default of your printer needs to be changed.

**(2) LCD display “Ribbon Not Found”**

Press the front-left button to retry. If it occurs frequently, check the followings.

- **Not genuine ribbon:**
  Change to the genuine ribbon.

- **Ribbon is consumed:**
  Printing is not possible if ribbon is used up. Change the ribbon.

- **Snapped ribbon:**
  Open the top cover and take out the cartridge. After putting the snapped pieces on together, install the cartridge again.

### (3) Printer doesn't operate even if the printing data has been transmitted. Check the following.

- **Printer power off:**
  Check the power. Turn on the printer power.
  Check the printer adaptor whether it is connected with a socket and the printer.

- **Bad power adaptor:**

  Please contact the local supplier for replacement of the adaptor.

- **The printer driver is "Offline":**

  Change the printer driver to "Online"

- **The printer's USB cable is disconnected or the connection is bad:**
  Check the cable's connection between PC and the printer.
  If not good, make the USB cable connection again.

- **Bad USB cable:**
  Change the USB cable.

- **The printing is operated with another printer driver:**
  Select the correct SMART printer driver again.

- **Wrong USB port setting of the printer driver:**
  Check the port setting of the printer driver and change the port setting.

- **No ribbon in the printer or error occurred:**
  Install ribbon in the printer or resolve the error.

- **Too long power or USB cable (more than 1.5M):**
  Use the cable provided with the printer.

- **PC's USB port is down**:

  Reboot your PC.

# 6. Specification

| Model | | SMART-81S | SMART-81D |
|---|---|---|---|
| Printing | Print Type | Dye-Sublimation & Retransfer | |
| | Print Area | Edge to Edge | |
| | Resolution | 300dpi | |
| | Dual Side Printing | Option | Yes |
| Card | Card Feeding | Automatic | |
| | Card Size | ISO CR80 | |
| | Card Thickness | 0.8mm ~ 1.6mm | |
| | Card Type | PVC, PC, PET, Composite PVC | |
| Printing Speed | Monochrome | 20sec./card (180 cards/hour) | |
| | YMCK | Max. 30 sec./card (120 cards/hour) | |
| | YMCKK | _ | Max. 50 sec./card (72 cards/hour) |
| Capacity | Input Hopper | 200 Cards | |
| | Output Hopper | 100 Cards | |
| | Error Card Bin | 25 Cards | |
| System | Memory | 128MB RAM | |
| | Display | LCD | |
| | Control Panel | 4 Buttons | |
| | Supported Platforms | MS Windows 7/ 8/ 10/ 11, Mac OS, Linux | |
| | Communication | USB, Ethernet | |
| | Power Supply | 100-240V~ 50/60Hz 2.5A | |
| | Temp. / Humidity | 15~35℃ / 35~70% | |
| Dimensions | Millimeter (WxLxH) | 165 x 390 x 210 | 165 x 498 x 210 |
| | Inch (WxLxH) | 6.5 x 15.4 x 8.3 | 6.5 x 19.6 x 8.3 |
| Weight | Kg / Lbs | 4.5 / 10 | 5.2 / 11.5 |
| Encoding Options | Magnetic | ISO 7811 (Track I, II, III Read/ Write, HiCo/ LoCo), JIS II | |
| | Contact | ISO 7816 (ID-1) | |
| | Contactless | MIFARE, ISO 14443 (Type A/ B), ISO 15693, DESFIRE, iCLASS | |
| Certifications | | CB, CE, FCC, KC, CCC | |

Specifications and availability may change without notice.

# <제품 사양 및 인증>

| 항목 | 내용 |
|---|---|
| 주파수범위 | 13.56 ㎒ |
| 변조방식 | ASK |
| 전파형식 | A1D |
| | |

기자재 명칭(모델명): RFID용 무선기기(13.56MHz 주파수 대역) (SMART-81)
인증번호: R-R-IAS-SMART-81
인증 받은 자의 상호: 아이디피(주)
제조년월일:
제조자/제조국가: 아이디피(주) / 한국