

SMART-81

Retransfer Card Printer

User Manual



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1. Basic Information

1.1. Printer external features

For the user's convenience, the SMART-81 status is displayed on the LCD. The printer can be controlled by four buttons under the LCD display. Communication with the computer (Windows or MAC) can be done using the USB or Ethernet ports.

The following shows the external functional features found on the printer.



- ① Air vent
- ② Air vent
- ③ Physical lock (*optional)
- 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

The SMART-81 Printer comes as single-sided/simplex (SMART-81S) or dual-sided/duplex (SMART-81D). An optional laminator can be added as a field upgrade to add durability and security to printed cards.

(Figure. 3) shows the standard SMART-81 card printer. It features single-sided printing with optional upgrades to dual-sided printing, and magnetic or smart card encoding.



Figure 3 SMART-81

(Figure. 4) shows the SMART-81 with optional laminator module(81L). SMART-81 printer and Laminator can printer and laminate both sides of a card



Figure 4 SMART-81 with Laminator

1.2. Printer internal features

In the SMART-81 printer, ribbon and transfer film are installed with a re-loadable cartridge. The following shows the internal features of your SMART-81 printer.



Figure 5 SMART-81 internal features

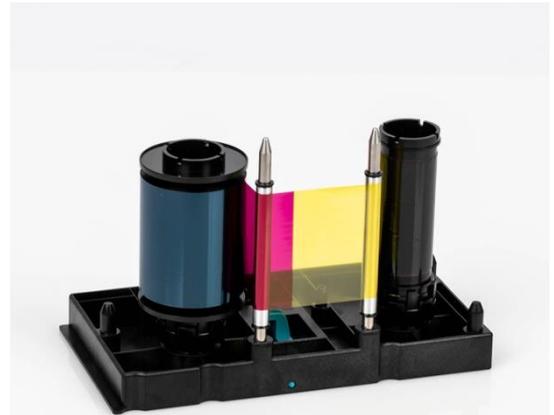
① Retransfer Film cartridge

Shown is the cartridge to which the retransfer film is mounted. The unit can be removed by holding and pulling the “Film” handle. This re-loadable cartridge is a component of printer. Do not discard with spent film. The printer will not operate correctly if it is broken or damaged.



② Ribbon cartridge

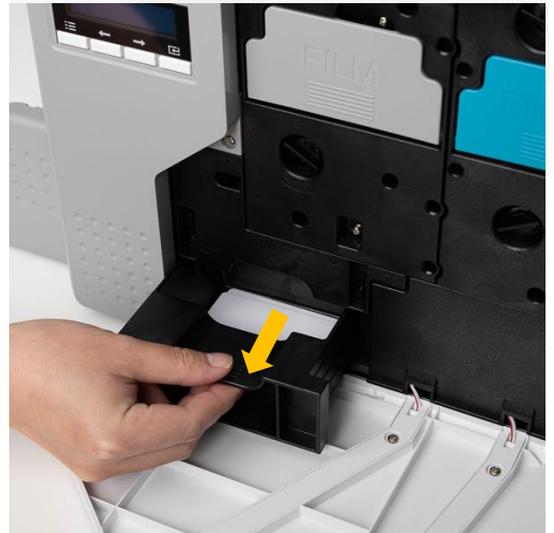
Shown is the cartridge to which the printer ribbon is mounted. The unit can be removed by holding and pulling the “Ribbon” handle. This re-loadable cartridge is a component of printer. Do not discard with spent film. The printer will not operate correctly if it is broken or damaged.



③ Inside Stacker (Error card eject bin)

The error card eject bin collects cards that have errored during the printing or encoding process.

The functionality of the bin can be modified using the printer’s utility tools. It can hold up to 25 cards. If the card quantity exceeds bins capacity, the PC and LCD will indicate such. The printer will not resume printing until the bin has been emptied. Pull the stacker forward to remove it from the printer.



④ Thermal Print Head

The thermal print head uses heat and pressure to transfer the ink ribbon colors to the retransfer film.

(Caution: This can be very hot. To avoid injury and damage to the print head, do not contact the surface with fingers or metal objects).

⑤ Thermal Retransfer Roller

This thermal roller uses heat to transfer the printed image from the retransfer film to the card.

(Caution: This can be very hot. To avoid injury and damage to the roller, do not contact the surface with fingers or metal objects).

⑥ Cleaning roller cartridge

Shown is the cartridge to which the cleaning roller is mounted. It can be removed from the printer by holding and pulling the handle. With the cleaning roller installed into the cartridge, the cleaning roller will remove dust from the surface of the card before printing. This will improve print quality. A cleaning roller is included with every ribbon, be sure to replace it regularly. This re-loadable cartridge is a component of printer. Do not discard it once the cleaning roller is spent. The printer does not operate if it is broken or damaged.



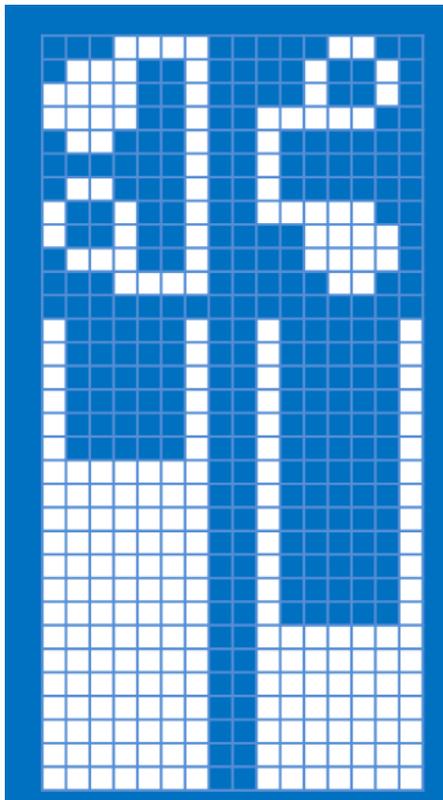
1.3. Display & Buttons

The SMART-81's control panel consists of a 2-line LCD and 4 buttons. The LCD displays the status of the printer and guides you through settings changes.



Figure 6 SMART-81 Display and Buttons

During printer boot-up, the status of the SMART-81 will display '**Initializing**'. Once complete, the status will change to '**System Ready**'. The status then changes to '**Printing**' when the unit is operating. If the printer is in an error state, the display will show '**Error**', then detail the type of error. The display also shows the status of Ribbon and Retransfer Film balance.



The left side shows the remaining balance of the re-transfer film, and the right side shows the remaining balance of the ink ribbon. If an 'X' is displayed, it designates that no ribbon was found, or it was installed incorrectly.

Figure 7 Film & Ribbon residual volume icon

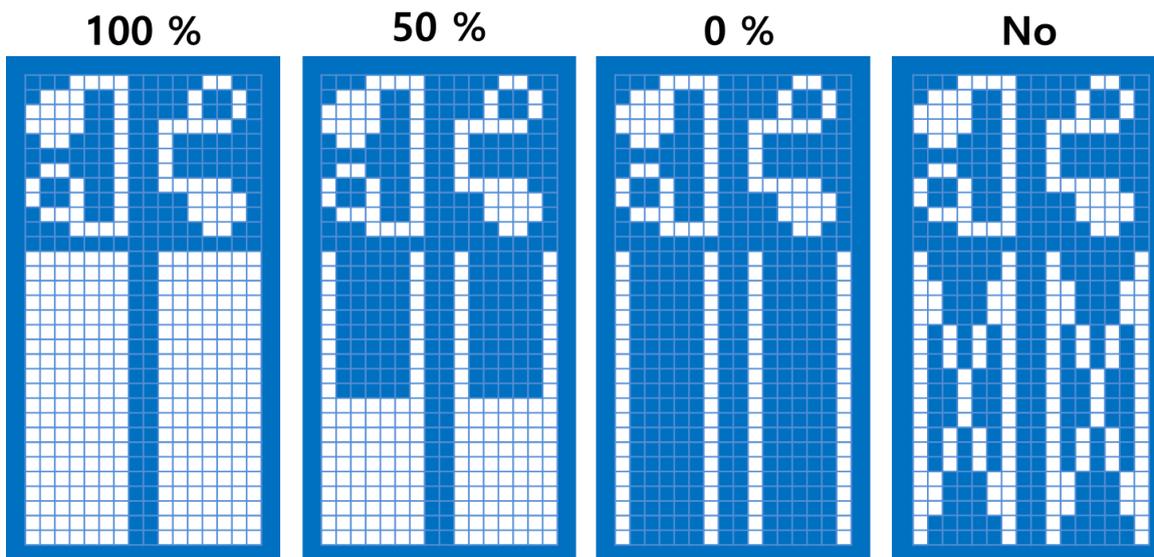


Figure 8 Example of Icons

- Laminator LED status by color

When using the optional laminator with the SMART-81(Figure 7), you can see the status of laminator indicated by the LED's color.



※ Laminator LED Location

LED Status	Description
■ Blue (on)	Normal standby
■ Green (on)	Executing Printer's command.
■ Sky Blue (on)	Executing Lamination
■ Yellow Flashing	Case open
■ Pink Flashing	Laminator Film zero
■ Red Flashing	Laminator Film TAG error
■ Red Flashing	Laminator Film search error
■ Red Flashing	Heating temperature error
■ Red (steady on)	Other errors (ex. Card in, Card out, Move error etc.)

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

Messages	KEY0	KEY1	KEY2	KEY3	State	Description
	Menu/Cancel	Left/Down	Right/Up	Select/OK		
Initializing [x.xx.xx][xx][xx]	x	x	x	x	Initialization	Initialization when booting, or Case Open and Close. Display Printer Firmware Version, Vendor, Region Code.
Init Error+ <-Retry->	Retry initialization	Retry initialization	Retry initialization	Retry initialization	Initialization error	Error occurs during initialization. Press the Key and check the error is clear and retry initialization. '+' is displayed at the end of first line if there are more than two errors.
SMART-81x Unlock Please.	x	x	x	x	Password authentication	Use Authentication option on Smart-81 Config utility, and printer is Lock with Root Password/User Password.
SMART-81x Verify Your PC	x	x	x	x	PC authentication	Use Authentication option on Smart-81 Config utility and use SMART printer independent of Authentication Windows.
SMART-81x DCL System Ready	MENU	Information Menu -	Information Menu +	x	Standby mode	The system is ready to print. You can check the ribbon information by pressing the left button, and power is off by pressing the right button. With the power off, pressing the right key again will power on again (DCL Mode)
SMART-81xx System Ready	MENU	Information Menu -	Information Menu +	x	Standby mode	The system is ready to print. You can check the ribbon information by pressing the left button, and power off by pressing the right button. With the power off, pressing the right key again will power on again. (Normal Mode)
TPH Not Found 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 Check Heater	x	x	x	x	Retransfer head connect check	Retransfer head is not installed, cable is not connected, or abnormal temperature. Power off and check Retransfer head status and temperature.
BHeater Not Found 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! 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! 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! Check Heater	x	x	x	x	Retransfer head Safety Error	Retransfer head has safety error. Power off and check retransfer head status and temperature.
BHeater Error! 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 Temperature xxx	X	x	x	x	Standby for TPH temp rising.	SMART's temperature drops below 1°C. The normal temperature is 15°C~35°C.
Spool Error <Cancel Reset>	Delete spool and cancel	x	x	System reset	Spool error	Error occurs while receiving spooled print data. KEY0 is delete and cancel, KEY3 is System Reset
xxxxxxxxxxxxxxxxx + <Retry Cancel>	Retry	x	x	Cancel and Initialization	Error occurs while printing	An error occurs while printing. KEY0 is retry, KEY3 is cancel printing (Refer to Printer LCD Error Table) '+' is displayed at the end of first line if there are more than two errors

xxxxxxxxxxxxxxxxx + Open Front Cov	Retry	x	x	Cancel and Initialization	Initial error after closing case	Fail to search Ribbon or detect card out while initialization after Case Closed. (Refer to Printer LCD Error Table) '+' is displayed at the end of first line if there are more than two errors
Card Out Error <Retry Cancel>	Retry	x	x	Cancel and Initialization	Card out fails after printing error	Card out fails after printing error. Left button is Retry, Right is Cancel
Front Cov Open Menu <- -> Flip	Cover Open Menu	Card transfer to left	Card transfer to right	Front Flip	Cover open	Front Cover open. KEY0: Cover Open Menu, KEY1: Transfer card to left KEY2: Transfer card to right, KEY4: Flipper Flip
Flip Cov Open Menu <- -> Flip	Cover Open Menu	Card transfers to left	Card transfers to right	Flipper Flip	Cover open	Flipper Cover is open Flipper Cover must be closed to release. Note: error is not displayed when the Flipper Cover Open Ignore mode KEY0: Cover Open Menu, KEY1: Transfer card to left, KEY2: Transfer for card to right KEY4: Flipper Flip
Lami. Cov Open Close Cover	Cover Open Menu	Card transfers to left	Card transfers to right	Flipper Flip	Cover open	Laminator Cover is open Laminator Cover must be closed to release. Note: error is not displayed when the Laminator Cover Open Ignore mode and not applicable during printing KEY0: Cover Open Menu, KEY1: Transfer card to left, KEY2: Transfer for card to right KEY4: Flipper Flip
Hopper Cov Open Close Cover	x	x	x	x	Cover open	Hopper Cover is open Hopper Cover must be closed to release. Note: error 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 Plz Supply Card	x	x	x	x	No card in hopper.	There are no cards in the input hopper. Hopper Cartridge Open takes priority if error occurs at the same time.
>> *Cover Open Menu Press Enter Key	Cancel	Cover Open Menu -	Cover Open Menu +	Cover Open Head Motion menu	Cover open	Use the left and right arrows to choose a submenu and press enter to select. Cover Open Menu. *Case open Menu: HeadMotion, RibbonMotor, FilmMove FlipperMove
Ext Hdn Pdn Hup *Head Status Message	Cancel	Heater Down	Print Head Down 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 --- Move[xxxxx] mm	Cancel	Film Forward Move	Film Backward Move	x	Cover open	Case Open Menu - FilmMove motion Menu KEY0: Cancel, KEY1: Film Forward Move, KEY2: Film Backward Move Display Film distance is indicated by value of mm.
Ext Top Bot Flp *Flipper Status Message	Cancel	Flipper Top	Flipper Bottom	Flipper Flip	Cover open	Case Open Menu - Flipper Move motion Menu KEY0: Cancel, KEY1: Flipper Top, KEY2: Flipper Bottom, KEY 3: Flipper

						Flip * Flipper state message: Top Side: Flipper Top state Bottom Side: Flipper Bottom state Top Side Err: error occurs while Flipper Top motion Bottom Side Err: error occurs while Flipper Bottom motion.
MENU System Config	Cancel	Menu -	Menu +	Select	Select MENU	Menu System Config (category menu)
>>UserCnt Clear UserCount xxxxx	Cancel	Information Menu -	Information Menu +	User Count Clear	System Config	User Print Count Reset
MENU Network Config	Cancel	Menu -	Menu +	Select	Select MENU	Menu Network Config (category menu)
>> DHCP Press Enter Key!	Cancel	Network Config Menu -	Network Config Menu +	DHCP ON/OFF	Network Config	DHCP ON/OFF
>> IP ADDRESS xxx.xxx.xxx.xxx	Cancel	Network Config Menu -	Network Config Menu +	IP ADDRESS setting	Network Config	IP address information entry/check/setting
>> NET MASK xxx.xxx.xxx.xxx	Cancel	Network Config Menu -	Network Config Menu +	NET MASK Setting	Network Config	Subnet Mask information entry/check/Setting.
>> GATEWAY xxx.xxx.xxx.xxx	Cancel	Network Config Menu -	Network Config Menu +	GATEWAY Setting	Network Config	Gateway information entry/check/Setting.
>> MAC Address xxxx-xxxx-xxxx	Cancel	Network Config Menu -	Network Config Menu +	x	Network Config	MacAddress information display
>> NET FS VER x.xx.xxx	Cancel	Network Config Menu -	Network Config Menu +	x	Network Config	Network Firmware (FS) information display
MENU Print Config	Cancel	Menu -	Menu +	Select	Select MENU	Print Config (category menu)
>> X Print Pos xxx	Cancel	Print Config Menu -	Print Config Menu +	Setting	Print Config	X Print Position Setting.
>> Y Print Pos xxx	Cancel	Print Config Menu -	Print Config Menu +	Setting	Print Config	Y Print Position Setting.
>> Y Print Scale xxx	Cancel	Print Config Menu -	Print Config Menu +	Setting	Print Config	Y Print Scale Setting.
>> Y RT Pos xxx	Cancel	Print Config Menu -	Print Config Menu +	Setting	Print Config	Y Retransfer Position Setting.
>> Y F RT	Cancel	Print	Print Config	Setting	Print Config	Y Top Retransfer Length

Length xxx		Config Menu -	Menu +			Setting.
>> Y B RT Length xxx	Cancel	Print Config Menu -	Print Config Menu +	Setting	Print Config	Y Bottom Retransfer Length Setting.
>>Total Density xxx	Cancel	Print Config Menu -	Print Config Menu +	Setting	Print Config	Total Density Setting.
>>Color Density xxx	Cancel	Print Config Menu -	Print Config Menu +	Setting	Print Config	Color Density Setting.
>>Black Density xxx	Cancel	Print Config Menu -	Print Config Menu +	Setting	Print Config	Black Density Setting.
>>Resin Density xxx	Cancel	Print Config Menu -	Print Config Menu +	Setting	Print Config	Resin Density Setting.
MENU Information	Cancel	Menu -	Menu +	Menu select	Select MENU	Menu Information (category menu)
>>Ribbon Balance *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 *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 *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 (displayed if Anti- Bend remedy is installed), Thermal Head temperature displayed. 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 Print 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 xxxx	Cancel	Information Menu -	Information Menu +	x	Check Information	Displays Total Print Count
>>User Count xxxx	Cancel	Information Menu -	Information Menu +	x	Check Information	Displays User Count
>>Print Sample Press Enter Key!	Cancel	Information Menu -	Information Menu +	Sample Image print	Check Information	Print test card
>>LCom RCom xxxxxxxx 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 xxxxx xxxxx xxxx	Cancel	Information Menu -	Information Menu +	Recovery count Clear	Check Information	FBlk: movement retry count during jam Flipper->Printer transfer Mrev: retry count during Laminator to print transfer. Lcin: count of movement recovery that move from Laminator (receive data from Laminator)
SMART-81x Mag R/W	x	x	x	x	MagRead/Write	Magnetic Encoder Read/Write operation
SMART-81x Printing	x	x	x	x	Printing	Printing a card
SMART-81x Heating	x	x	x	x	Printing	Retransfer heating.
SMART-81x Retransferring	x	x	x	x	Printing	Retransferring image to card
SMART-81x Laminating	x	x	x	x	Laminating	Laminating
Board Test Mode Wait	x	x	x	x	Test mode	Entering Diagnostic Mode.
RibbonNotFoun	Retry Ribbon	Retry	Retry	Retry	Ribbon	Ribbon not detected, not

d Check Ribbon	recognize	Ribbon recognize	Ribbon recognize	Ribbon recognize	recognize error	present, or installed incorrectly. Press key to retry or check ribbon
Ribbon Not Found 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 or check ribbon
Ribbon Not Found 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 or check ribbon
Ribbon Not Found 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 or check ribbon
Ribbon Not Found Unsupported Rib	Retry Ribbon recognize	Retry Ribbon recognize	Retry Ribbon recognize	Retry Ribbon recognize	Ribbon recognize error	If installed ribbon not supported ribbon. Press key to retry or check ribbon
Film Not Found Check Film	Retry film recognize	Retry film recognize	Retry film recognize	Retry film recognize	Film recognize error	Film recognizes error, film is not installed or mis-recognize. Press key to retry or check film
Film Not Found 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 or check film
Film Not Found 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 or check film
Film Not Found 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 or check film
Film Not Found 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 or check film
Data Option Err Plz. PressAnyKey	Delete spool and Exit	Data option error	This error can occur for many reasons, including but not limited to a mismatch between the print job and the configured state of the printer (e.g., the print job calls for a YMCKK ribbon, but the printer has a YMCK ribbon, or the print job calls for a laminate to be applied, but the system does not have a laminator.) In this case, delete spooled print job and check card template vs printer configuration.			

Check Please. Ribbon Zero	Ribbon & Film research	Ribbon & Film research	Ribbon & Film research	Ribbon & Film research	Ribbon zero	Replace the ribbon
Check Please. Film Zero	Ribbon & Film research	Ribbon & Film research	Ribbon & Film research	Ribbon & Film research	Film Zero	Replace the film
Check Please. Rib & Film Zero	Ribbon & Film research	Ribbon & Film research	Ribbon & Film research	Ribbon & Film research	Ribbon & Film zero	Replace the ribbon and film
SMART-81x Printer xxx%	x	x	x	x	Firmware update	Printer Firmware Update is in progress. Warning: DO NOT turn off the unit until this process is finished. The system may re-boot on its own.
SMART-81x Laminator xxx%	x	x	x	x	Firmware update	Laminator Firmware Update is in progress. Warning: DO NOT turn off the unit until this process is finished. The system may re-boot on its own.
Update Fail PushAnykey Reset	System Reset	System Reset	System Reset	System Reset	Firmware update	Error occurred during Printer Firmware Update. Press the key to reset the unit.
Do Prt Clean! System Ready	MENU	Information Menu -	Information Menu +	x	Cleaning warning (Ready)	This status is displayed when Cleaning Count is 5000 or higher and the Card Printer Config Utility is set to "Notice". Message disappears Cleaning Count is over 5200.
Do Prt Clean!! System Ready	MENU	Information Menu -	Information Menu +	x	Cleaning warning (Ready)	This status is displayed when Cleaning Count is 5000 or higher and the Card Printer Config Utility is set to "Permanent". Message continues to be displayed until the cleaning is performed.
Cleaning Mode Initializing	x	x	x	x	Cleaning mode	Cleaning mode initializing.
Cleaning Mode Open Front Cover	x	x	x	x	Cleaning mode	Cleaning mode start, open front cove
Remove CartRdg Push Any Key !!	x	x	x	x	Cleaning mode	Cleaning mode starts. Remove Film & Ribbon. Press any key to proceed.
-----	x	x	x	x	Cleaning	Waiting for the printer's

Waiting HeatOff					mode	temperature to reduce. (Display only Line1)
Cleaning Mode	x	x	x	x	Cleaning mode	Insert Long Cleaning Card
Insert Cleaner						
Cleaning Mode	x	x	x	x	Cleaning mode	Cleaning
Cleaning Mode	x	x	x	x	Cleaning mode	Remove cleaning card
Remove Cleaner						

The table below details LCD messages based on the laminator's status and functions.

Messages	KEY0	KEY1	KEY2	KEY3	State	Description
	Menu/Cancel	Left/Down	Right/Up	Select/OK		
L Film Zero+ Plz Error Clear	x	x	x	x	Laminator error	Laminator Film supply is empty. Install new Laminator film. A '+' is displayed at the end of first line if there are more than two errors
L Film Empty+ Plz Error Clear	x	x	x	x	Laminator error	Laminator Film is not installed. A '+' is displayed at the end of first line if there are more than two errors
L xxxxxxxxxxxxx + Plz Error Clear	x	x	x	x	Laminator error	Laminator initialization error: Head Overheat, temperature Setting error. (Refer to Laminator LCD Error Table)
DeviceCon Error Plz Error Clear	x	x	x	x	Devices connect error	Connected device (e.g., Laminator, Flipper) is not recognized.
DeviceCon Error AnyKet Retry	Retry device connect	Retry device connect	Retry device connect	Retry device connect	Device connect error	The 81 Laminator connected is not recognized. Turn off IRDA communication and retry.
Ribbon Count 0 Open a Case!	x	x	x	x		Ribbon is count zero after front side print during both-side print. Install a new ribbon
Ribbon Count 0 Change a Ribbon	x	x	x	x	Ribbon change	Ribbon is count zero after front side print during both-side print. Install a new ribbon
Ribbon Count 0 RibType Mismatch	x	x	x	x	Ribbon change	Ribbon is count zero after front side print during both-side print. Install a new ribbon. Be sure to use a ribbon that is encoded for your printer's region.

2. Printer Installation

2.1. Connect power and 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 USB cable

2.2. Install Retransfer Film, Ribbon, Cleaning roller

Before you can print, you must install the printer's consumables. Before you get started, prepare the related items such as cards, ribbon, retransfer film, and a cleaning roller.

(Caution! Please turn off the printer)

- (1) Open the printer's front cover



Figure 8 Open front cover

- (2) Hold the Retransfer film cartridge handle and pull it out.



Figure 9 Remove film cartridge

- (3) Hold the Ribbon cartridge handle and pull it out.



Figure 10 Take out Ribbon Cartridge

- (4) Hold the disposable cleaning roller cartridge handle and pull it out.



Figure 11 Take out cleaning roller Cartridge

- (5) Insert the film into the film cartridge. 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. 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
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 cards

- (1) Open the Input hopper cover in the direction of the arrow.



Figure 20 Remove hopper cover

- (2) If necessary, loosen the card gate screw to adjust height of gate to match thickness of the card. Gate is optimized for standard 30mil/0.86mm cards.

(Note: If the adjustment is not correct, it will cause errors. Use the type of cards in the specification of this manual. Always keep the card surface clean)



Figure 21 Adjusting card thickness lever

(3) Break the cards loose before loading. Do so, push a stack of cards back and forth to an angle about 45 degrees vertically.

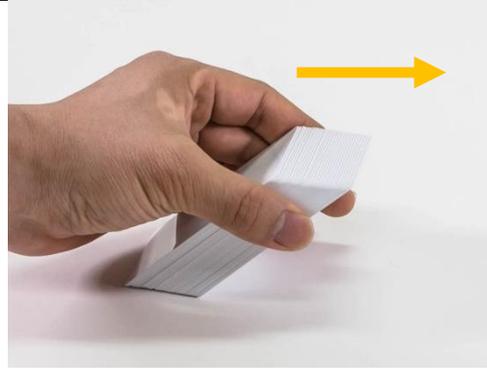


Figure 22 Preparing the cards 1

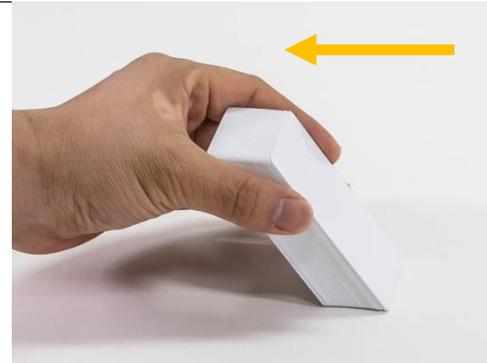


Figure 23 Preparing the cards 2

(4) Stand the stack of cards vertically after separating.

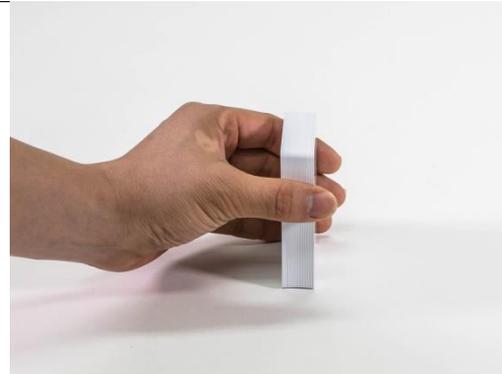


Figure 24 Loading the cards 1

(5) Load the cards on the hopper properly and install the hopper cover.



Figure 25 Loading the cards 2

2.4. Exit tacker Installation

The exit stacker holds up to 100 printed cards. To install, simply align the hooks.



Figure 26 Installation SMART-81 card stacker

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

Note: Do NOT connect the printer to your computer until prompted by the driver.

- (1) Scan the QR Code or Go to 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.

Note: Administrative rights are required to install drivers.

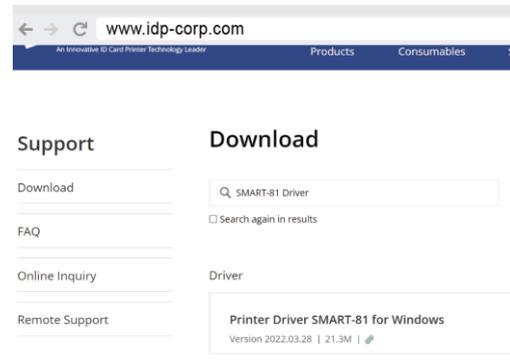


Figure 27 Install printer driver 1

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

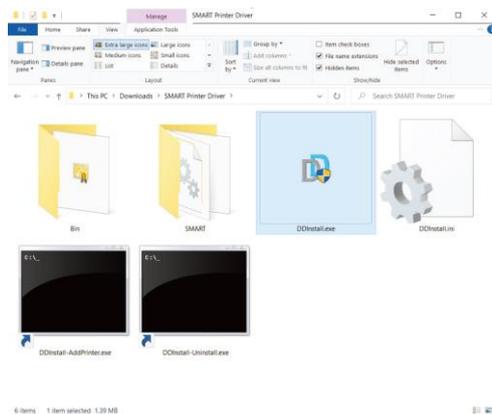


Figure 28 Install printer driver 2

- (3) If 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.

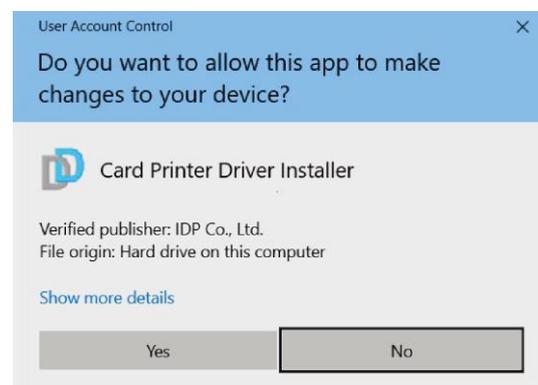


Figure 29 Install printer driver 3

(4) STEP 1:

Please turn off the printer if it is connected to a PC.

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

This process will take several minutes to remove any older SMART-81 drivers.

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

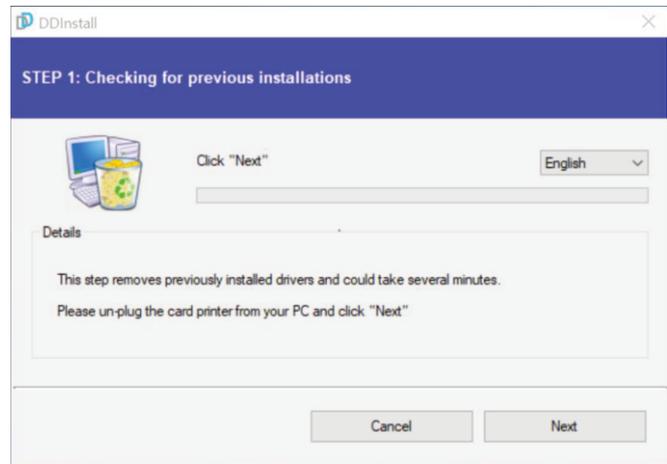


Figure 30 Install printer driver 4

(5) STEP 2:

Click “Next” to install the driver on your Windows computer.

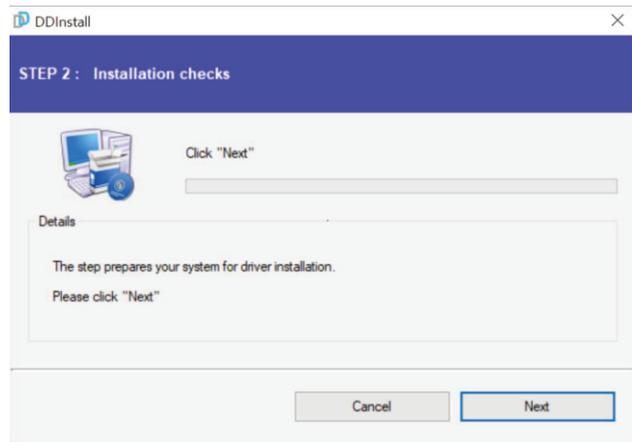


Figure 31 Install printer driver 5

(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).

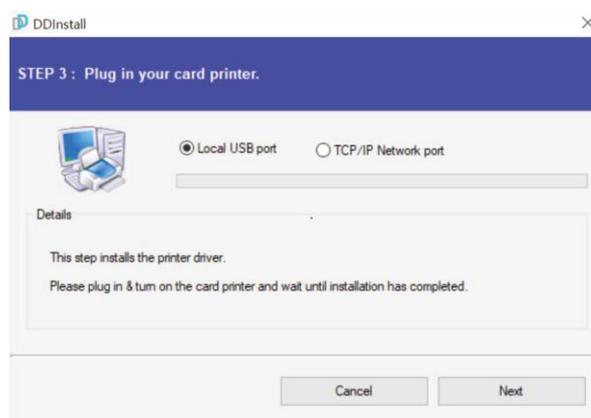


Figure 33 Install printer driver 7

(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.)

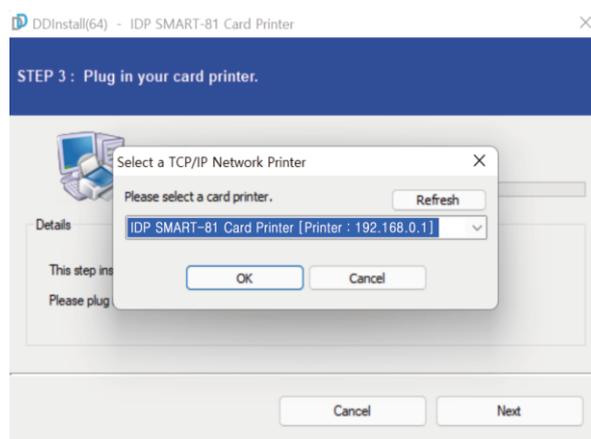


Figure 34 Install printer driver 8

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

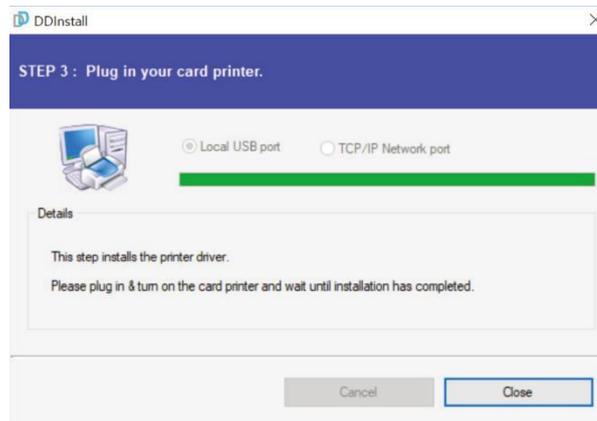


Figure 35 Install printer driver 9

- (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”.)

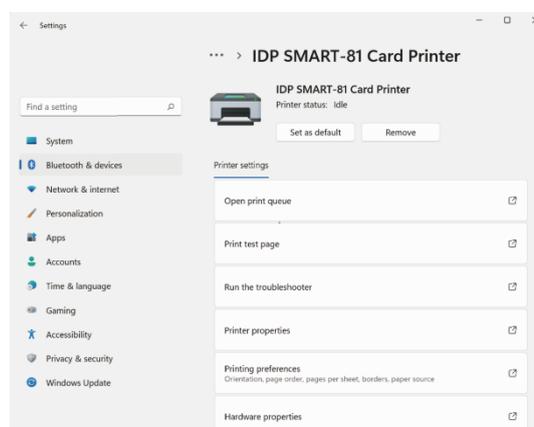


Figure 36 Install printer driver 10

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

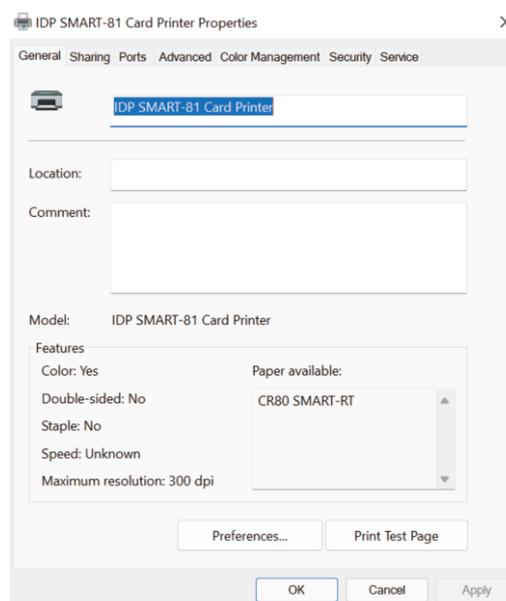


Figure 37 Install printer driver 11

(12) Please check the test card to see if it is printed properly. If so, click “Close”.

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

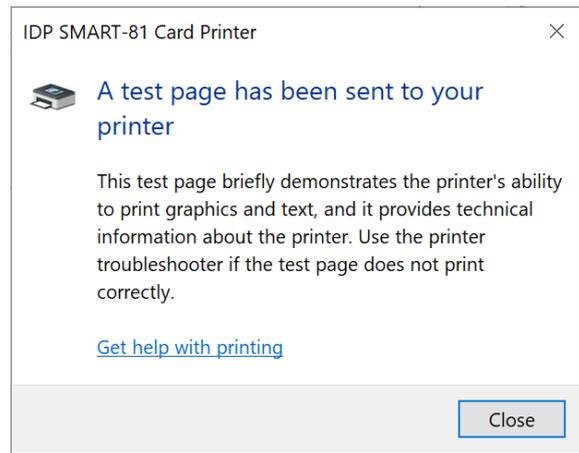


Figure 38 Install printer driver 12

2.6. Option installation (IC, RF)

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

- (1) Turn off Printer, open front cover, remove Film cartridge and reject card stacker, as shown in Figure 39.
- (2) Remove the two screws, then pull out encoder module mount them from the main body, as shown in Figure 39.



Figure 39 Remove module (IC, RF)

Step 2: Insert Module (IC, RF)

- (1) Insert Module (IC, RF) and tighten the two screws.
- (2) Insert Film cartridge and card stacker and close the cover.



Figure 40 Remove module (IC, RF) 2

(3) Install the Film cartridge, error card stacker and close the cover.



Figure 41 Install module (IC, RF) 3

2.7. Option Installation (Laminator)

Step 1: Mount module binding bracket to the bottom of the printer

- (1) Turn off Printer, open top cover, remove card stacker, and install the binding bracket under the printer as shown in Figure 42.



Figure 42 Install Laminator Module 1

Step 2: Fitting module (Laminator)

- (1) Place the module to be installed (Laminator) to the binding bracket as shown in Figure 42. Then the plug in the Laminator.



Figure 43 Install Laminator Module 2

- (2) Turn on the module (Laminator) first and then turn on the printer.
- (3) When the Laminator module is installed successfully, and printer will display SMART-81D (if duplex) and L for Laminator.



Figure 44 LCD display (with Laminator)

3. Driver Configuration

To check printer properties, you need to open the 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...”

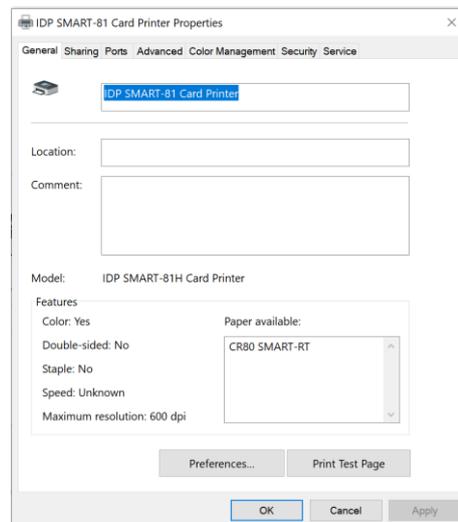


Figure 45 Print Properties

(2) Layout

You can select either Landscape (horizontal) or Portrait (vertical) printing direction. To apply your selection, click “OK”.

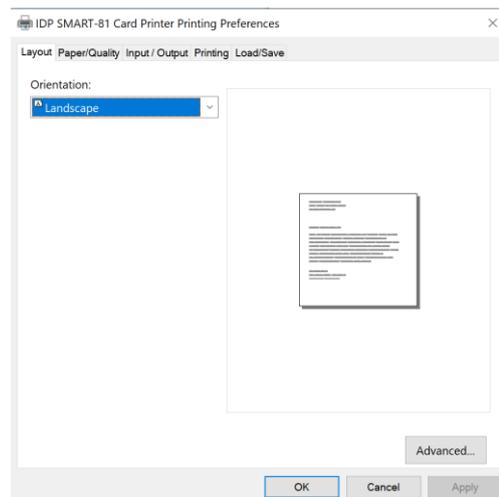


Figure 46 Layout

(3) Input / Output

Supply Tray

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

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

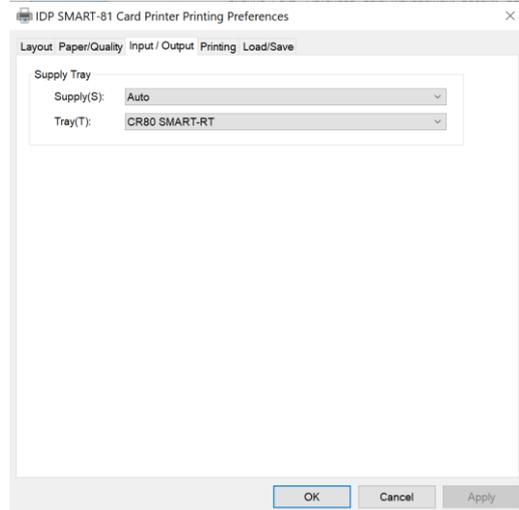


Figure 47 Input / Output Setting

(4) Printing

Do Print: This option should be checked to print a card. If you wish not to print and encode only or laminate only, you can uncheck this box.

Print Side: Select “Top” for simplex or “Both” for duplex printing. Duplex printing is only possible when the 81 has an activated with flipper.

[Front / Back]

Color: You can select color or monochrome printing

Flip: You can flip an image 180 degrees, vertically or horizontally, depending on your cards and software needs.

Media / Mask: You can indicate the area to print or not print by using a predefined mask, a user defined mask (e.g., SMARTMark Security, smartcard chip cutouts, magnetic stripe card, etc.).

[Printing]

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

Card Type: Select a Card Type from Default (normal), Soft, Normal, and Hard.

Area: Select to print an area without images.

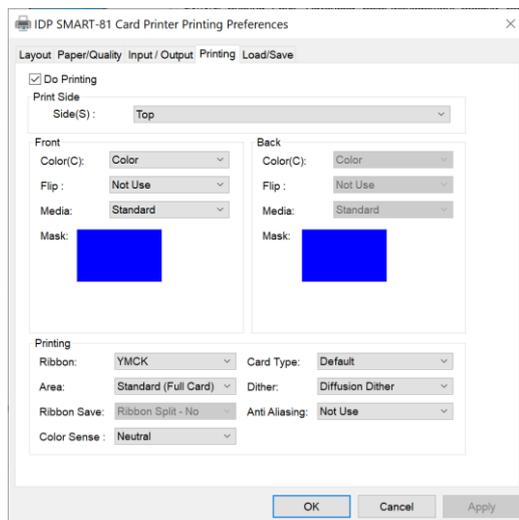


Figure 48 Printing Setting

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

Dither: There are 3 possible selections, Threshold, Random, and Diffusion Dither. It is relevant for K and KO ribbon only. (Select “Diffusion Dither” for high quality)

Ribbon Save: Select split function or not when using Monochrome ribbons.

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

Color Sense: Set print image’s color profile.

(5) Laminating Setting

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

Do Laminating: You can select to laminate or not.

Laminator Side: you can select not laminate, laminate “Top” (front), or “Both” (front and back) side of the card.

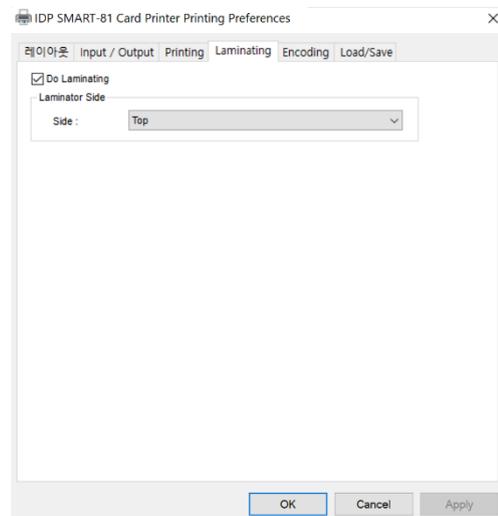


Figure 49 Laminating Setting

(6) Encoding Setting

This tab will be shown only when a Magnetic encoder is installed.

Do Encoding: you can select to encode or not.

[MS Encoding]

Coercivity: you can select the encoding density of your cards:

LoCo: 300, 600 Oe. (oersted)

HiCo: 2760 Oe.

SpCo: 4000 Oe.

Auto: Detect automatically.

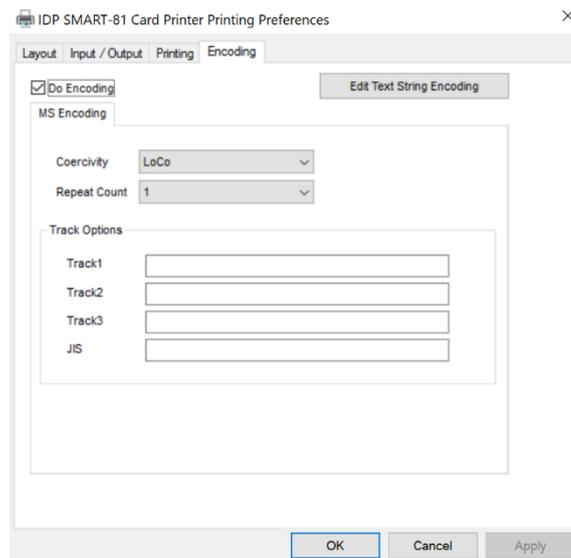


Figure 50 Encoding Setting

Repeat Count: if an encode fails, you can select the number of retries before ejecting the card.

(7) Encoding Advanced Option

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]

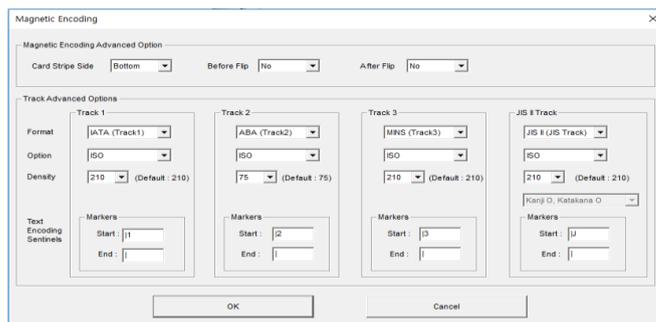


Figure 51 Encoding Advanced Setting

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: You can modify the Start, End, Marker for magnetic encoding to match your existing system/templates.

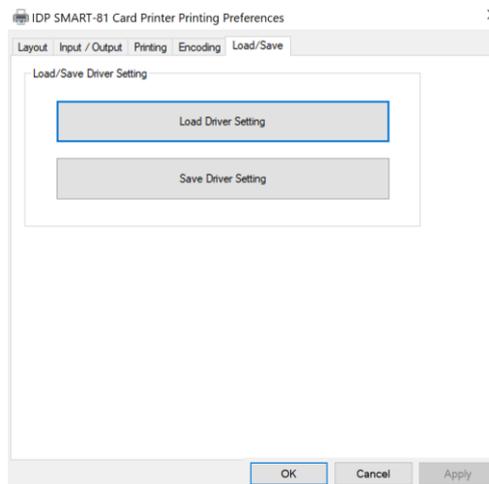
Start: Start Marker.

End: End Marker.

(8) Load/Save Option

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 located 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 adjust color intensity using gamma settings. You will need to use CardPrinterConfig to adjust color densities.
 - **Main [-100:100]:** correct gamma for all ribbon 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. This is a relevant option for Barcode and QRCode printing.
 - > **Not Use:** not to extract resin black.
- **Extra Control:** other options.
 - **Resin Thick Mode:** Compensate for blurry text
- **Wait Option:** Turning on this option offers options to hold a card 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 that recognizes and encodes smart cards 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 the Sharing tab via Network. Please consult your Network Administrator for more details regarding your network settings.

Default is unchecked “Share this printer.”

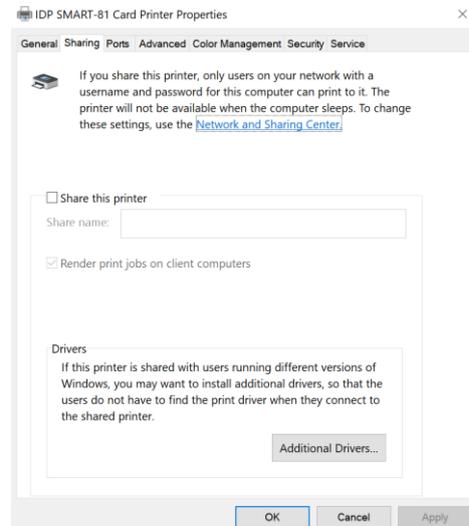


Figure 53 Printer sharing

(2) Ports

Port tab shows which port is connected to the SMART-81. USB ports are assigned dynamically by the printer drivers and should not be changed. Ethernet port addresses may be automatically selected by your network (DHCP) or predefined (Static IP). Check with your Network Administrator before making any changes.

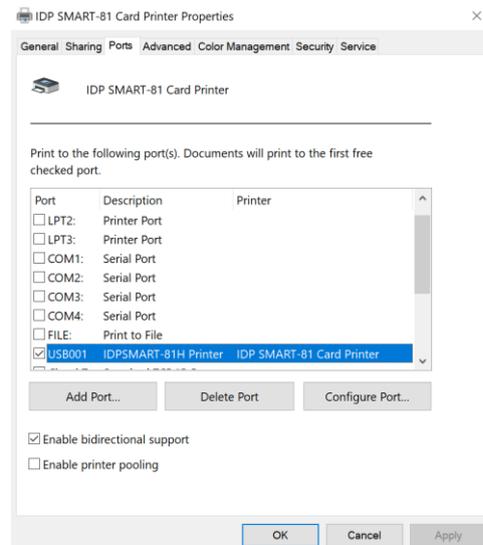


Figure 54 Ports Setting

(3) Advanced

This section manages the availability of the printer's use. Please consult IDP Support and your Network Administrator for more details.

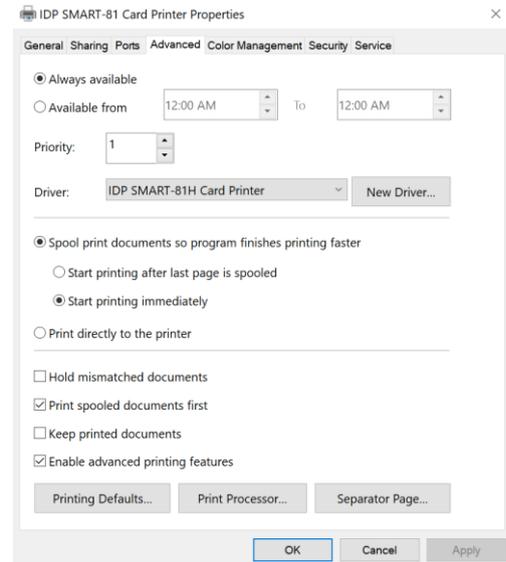


Figure 55 advanced Setting

(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.

(IDP recommends not do change default values)

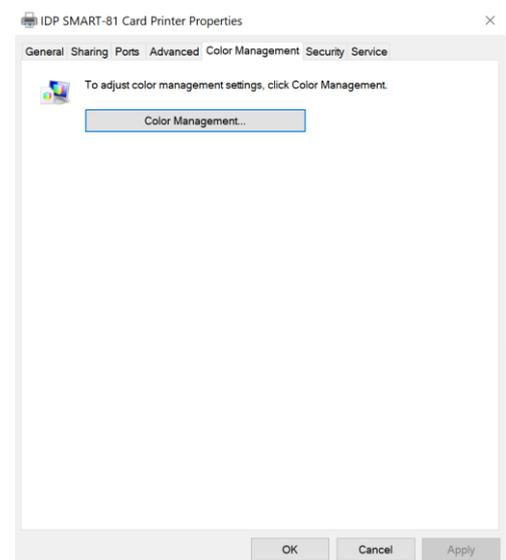


Figure 56 color management

(5) Security

You can set the permission to use a printer. Depending on the permission, the certain group or user can print, manage the printer/documents or not. Contact your Network Administrator for more information.

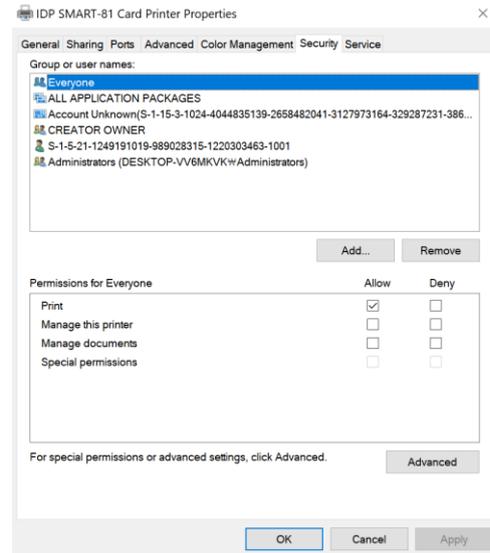


Figure 57 security

(6) Service

This tab gives you a view of the printer, its vital information such as its serial number, driver, firmware versions, and more. In addition, this tab also displays live status of sub-systems within and attached to the printer.

You can print a card called the “Print Technical Sheet” that shows relevant printer set up data.

Click “Config Printer” to change the printer settings. For further details, please refer to “4. Utilities”

Click the “Upgrade Firmware” to pop up the firmware upgrade window. For further details, please refer to “4.4 Firmware update.”

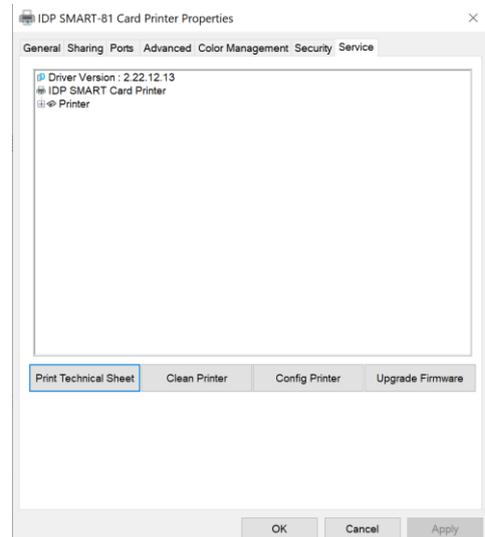


Figure 58 service

4. Utilities

4.1. Card Printer Config

This utility is used to optimize your printer settings. They are pre-set at the factory for optimal generic setting and typically these settings will not need to be changed. Please contact IDP or your Authorized IDP Service Center before making any changes.

Changes can be made within the driver's Printer Properties / Service tab, or by opening the cardprinterconfig.exe application in the Utilities folder of your driver's CD.

(1) Run CardPrinterConfig

There is no default password, so please just leave the box blank and click OK. If you wish to enter a password, you can do as detailed in section 2 below "To set administrator password and user password".

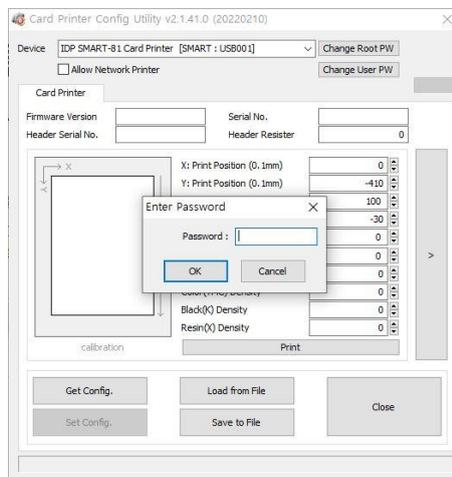


Figure 59 CardPrinterConfig Log-in

After password authentication, you can change many values as shown. As a reminder, settings should typically only be changed under the direction of IDP or an Authorized IDP Service Center.

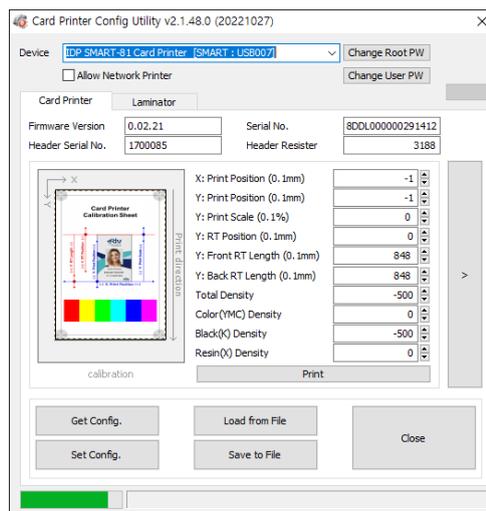


Figure 60 CardPrinterConfig start

(2) Card Printer Basic Setup

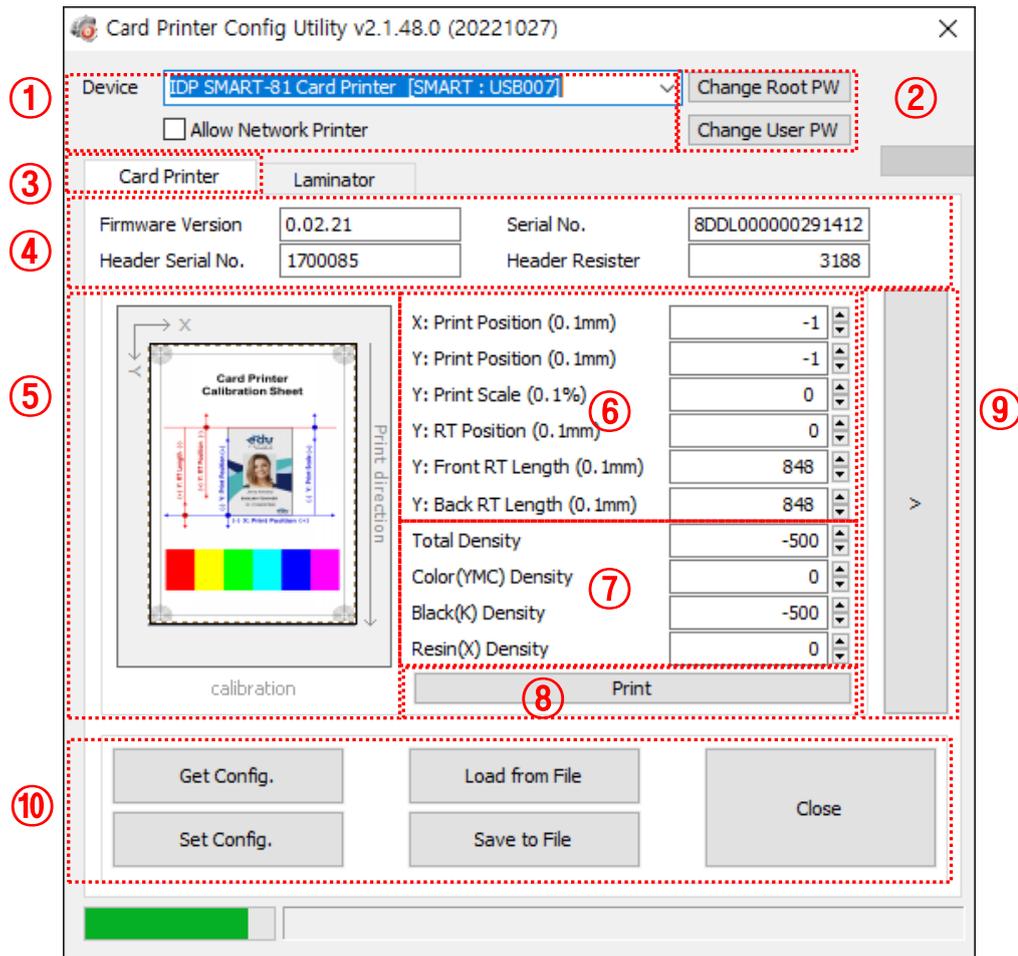


Figure 61 Cardprinterconfig Basic setup

① To show connected printers.

Device: You can select a printer using the pull-down menu. In Figure 61, the printer is “IDP SMART-81 Card Printer”. “SMART-81” is printer ID, “USB007” 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.

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

③ Click Card Printer / Laminator tab.

If laminator or flipper are installed, you can set up laminator or flipper setting value by “Laminator” tab or “Flipper” tab.

④ **Printer information.**

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

⑤ **Print area display**

Displays the positioning of the image/ink on the card. Units of movement are increased proportionally to demonstrate the image/ink changes on the card area.

⑥ **Adjust print area.**

Use these settings to adjust the image/ink position on the card. Set values so that all circles are printed, and black spaces are 0.4mm ~ 0.5mm on the top and bottom of the card. Click the “**Print**” button to print a test card. Adjust and reprint as needed.

X: Print Position: Set right and left position by adjusting value

Y: Print Position: Set the top position by adjusting value

Y: Print Scale: Set to show circles on the in the bottom of the card

Y: RT Position: 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 adjusted value (adjustment value when printing simplex)

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

⑦ **Color density adjustments**

The SMART-81 allows the user to set different density for each color, resin black and overlay. Set each density for high quality and optimize the quality by adjusting each value. Click the “**Print**” button or print a card from your application to view color-adjusted cards. Adjust as needed.

Total Density: Adjusts all the density (Color and Black/Resin) at one time.

Color (YMC) Density: Adjusts the density of all color elements (YMC). Increase or decrease as desired, but note if the density is high, you may see green or red marks on the card. If the density is too weak, the image may be dull or washed out.

Black(K) Density: Adjusts the black or other monochrome ink density. Adjustments may be needed to optimize barcode printing.

If the density is too high, a barcode's elements may be too thick and unreadable. If the density is too weak, the barcode may be too thin and also unreadable with a barcode scanner.

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 in 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. To check the transcribed 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 **Print calibration card.**

⑨ **Advanced setup.**

(These options should NOT be changed unless directed by IDP Support)

⑩ **Save and Load Configuration**

Get Config.: Retrieve values from current printer.

Set Config.: Set values to current printer.

Load from File: Load values from file.

Save to File: Save values to file.

Close: Close CardPrinterConfig.

(3) Card Printer Advanced Setup

- Advanced settings allow access to advanced features for the SMART-81 printer. Changes to these settings should only be made under the direction of IDP Support.

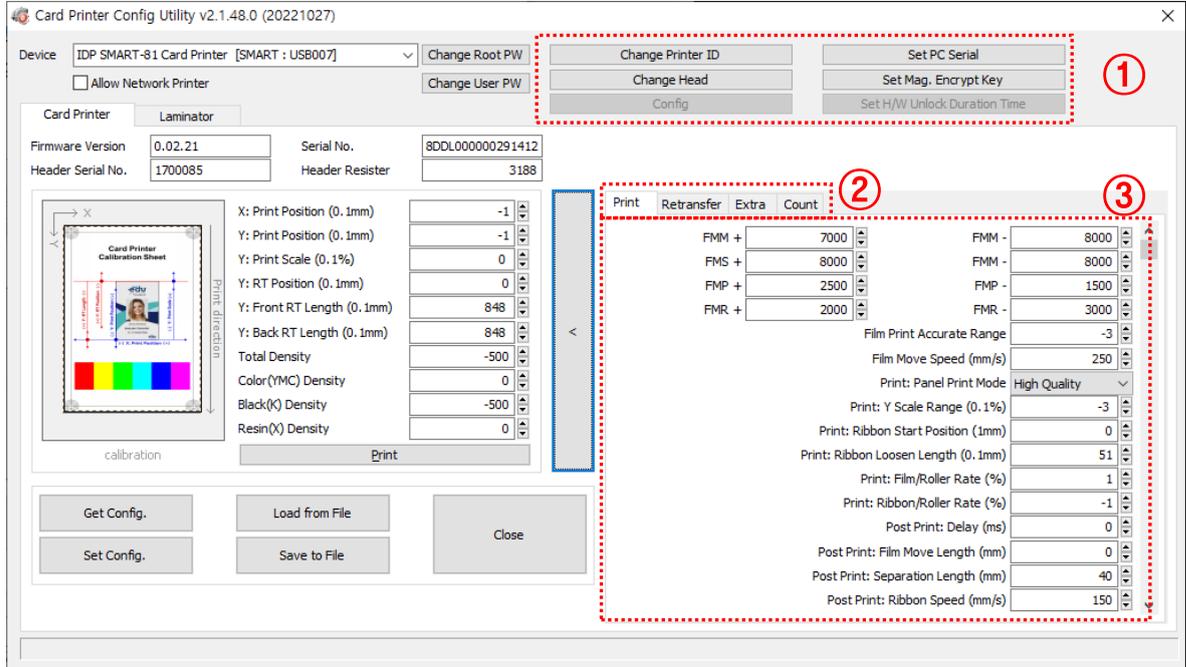


Figure 62 Cardprinterconfig – Advanced setup

① To set the printer's information

Change Printer ID: When using the SDK, you can set a unique ID for the SMART-81 printer regardless of whether it is connected by USB or the IP address. This is useful to connect and use several printers at once. Default ID is “SMART”

Set PC Serial: This is a security feature that works in conjunction with “Security” – “PC Authentication”. PC Authentication locks the printer to a specific PC. In the event that a printer is stolen or lost, it will not be operable with a different PC. By clicking on “Set PC Serial”, that specific PC’s unique information will be stored on the printer.

Change Head: When you replace a thermal print head, you must change the head information for optimal quality. Please change the head serial number, resistor, and type of head in the Change Head Dialog box.

Set Mag. Encrypt Key: This is a security feature available in conjunction with the 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 specific printer setting values. These values should only be changed when directed by IDP Support.

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. These values should only be changed when directed by IDP Support.

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 retransfer
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 coverage
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	Control operating the heater immediately after booting setting
Heat Bend in BOTH	Control operating 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 Wait Heating	Control heating when card in
Security. PC Auth.	Control PC Authentication mode setting
Security. User Auth.	Control 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	Control using the printer's serial number as the USB device serial number
Cooling Temperature	Cooling fan operating reference temperature
Built-in Hopper	Control using built-in hopper
External Hopper	Select external hopper
Retransfer Heater Standby Time	Retransfer heater standby time for next print
Color Sensor Calibration	Color sensor calibration control

Count: Tab showing printer count history.

“Total issue Count” is the number of cards printed in the printers life cycle, “User Issue Count” is number of cards printed 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) Network Printing



For network printing, connect the power and network cable (RJ45) to printer, as shown in Figure 63.

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

Figure 63 Rear view of SMART-81

The SMART printers support the ability to print in a variety of ways over the network. These settings require network expertise, any changes require the guidance of your Network Administrator.

To set or change your printer's network configuration, use NetAdmin.exe tool provided in the printer driver package's Utilities folder.

(2) NetAdmin

Using the NetAdmin tool, Figure 63. Be sure your printer is powered on.

- ① Printer connection status is displayed showing USB or Network connection.
- ② This window addresses printer network management options in various tabs
- ③ Printer configuration options are set in this area. The most common sets would be IP Address, Network Mask, and Gateway.
- ④ Network information shows firmware version of network module.

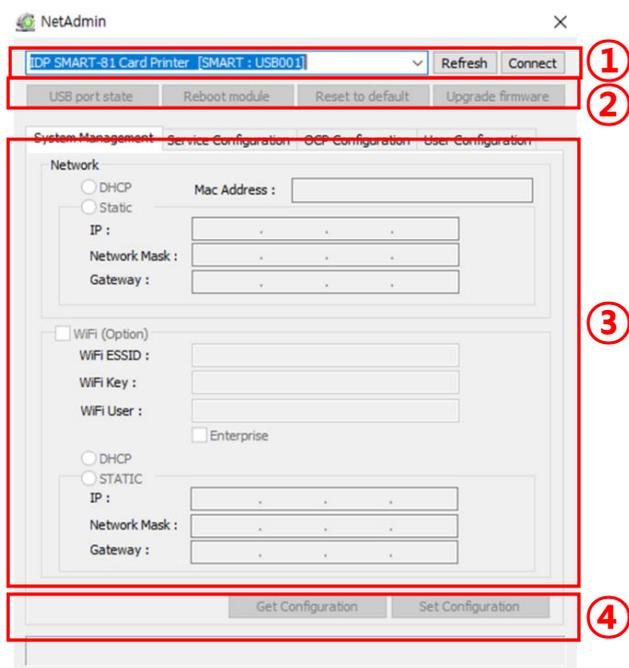


Figure 64 Running NetAdmin

(3) Select network printer

If there is no printer connected to the network, there will be no printer shown on the box. Please click “Refresh”.

If, again, no printer is shown, please check as below.

- Please ensure the printer is turned on.
- Please ensure the network cable is connected to the network hub and works properly. (LED lamp blinking)
- Please check if there is a 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.

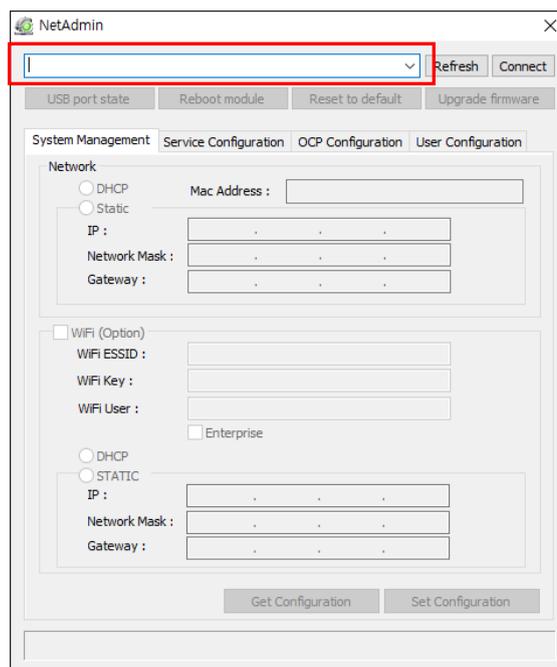


Figure 65 Network printer is not found

(4) Select USB printer

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

When you click Refresh, you can find a printer connected by USB as shown.

- You don't need to install device driver for network configuration by USB. Please ignore messages related to device installation.
- You can change the 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.

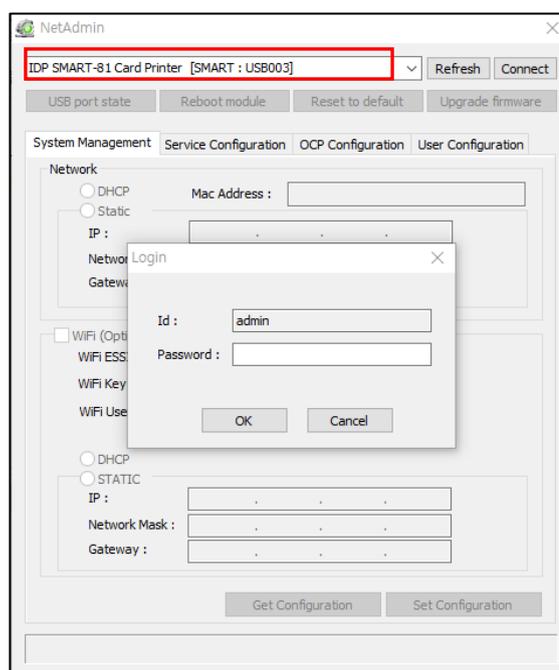


Figure 66 Connecting to USB Port

(5) NetAdmin log-in

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

Default password is **admin**.

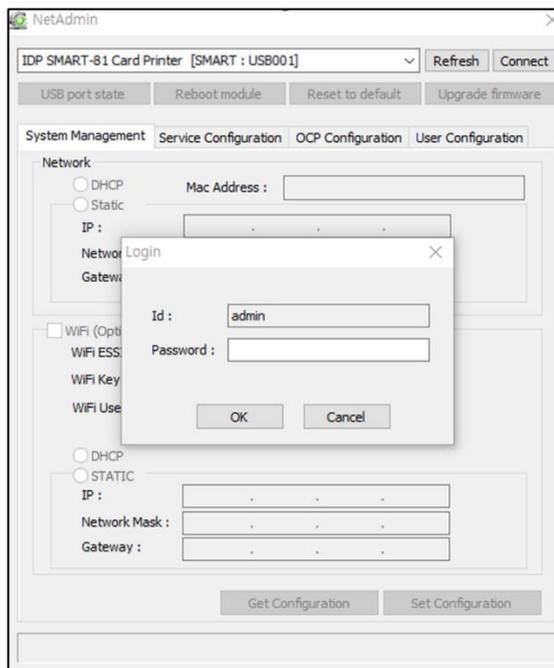


Figure 67 NetAdmin Log-in

(6) USB port state

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

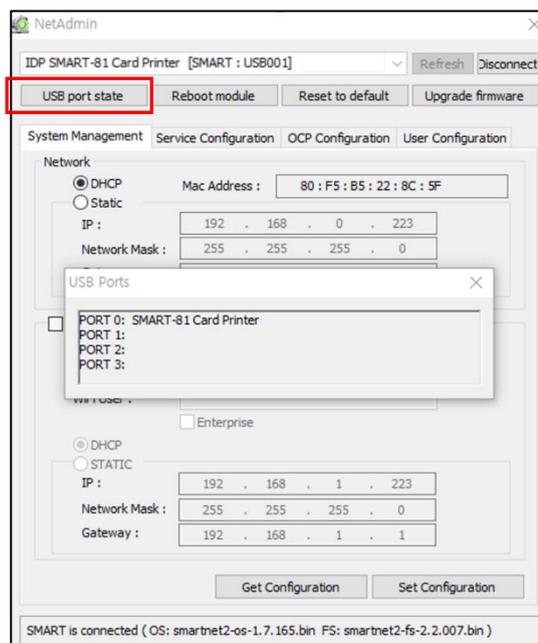


Figure 68 USB port state

(7) Reboot network module

- Click Reboot Module, if desired
- Click “yes” when a pop-up window appears.
- It takes 1 minute to reboot.
- Please click “Refresh” after reboot. When proper printer appears, please connect printer by clicking “connect”.

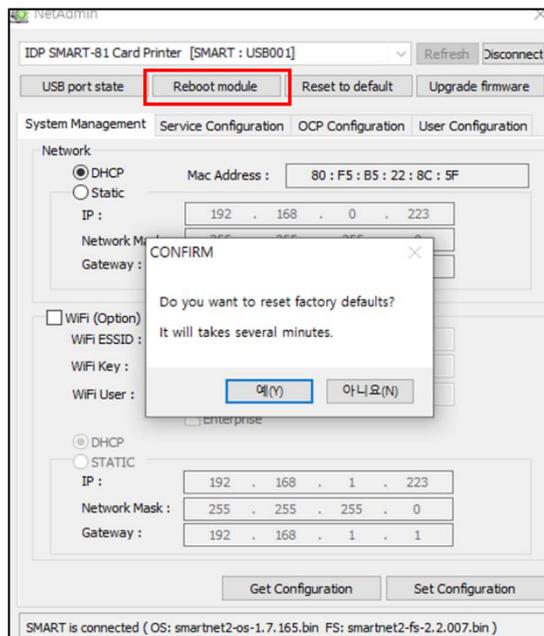


Figure 69 Rebooting network module

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

- Click Reset to default, if desired
- 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 appears, please connect printer by clicking “Connect”.

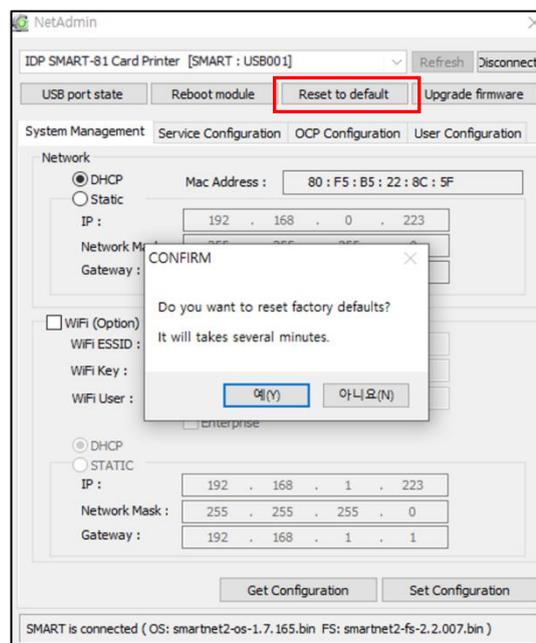


Figure 70 Reset to default

(9) Upgrade network module firmware

- Click Upgrade Firmware, if desired
- A dialog box opens where you can direct to the location of the firmware file (.bin). Note: Please be sure you are using netadmin firmware.
- Select and save firmware file that need to upgrade.

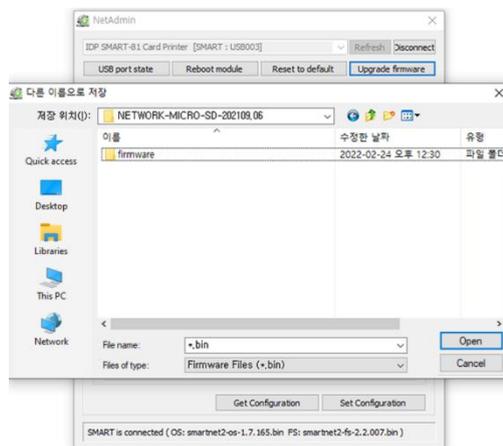


Figure 71 Upgrading the firmware 1

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

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

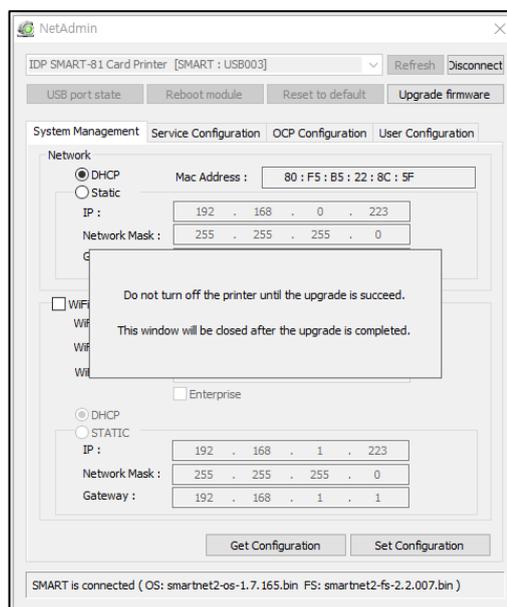


Figure 72 Upgrading the firmware 2

- When the firmware upgrade is completed, a dialog box appears to prompt a reboot.
Please click “yes”.
- The reboot takes 1 minute
- Click “refresh” after reboot. When proper printer is shown, please connect printer by clicking “Connect”.

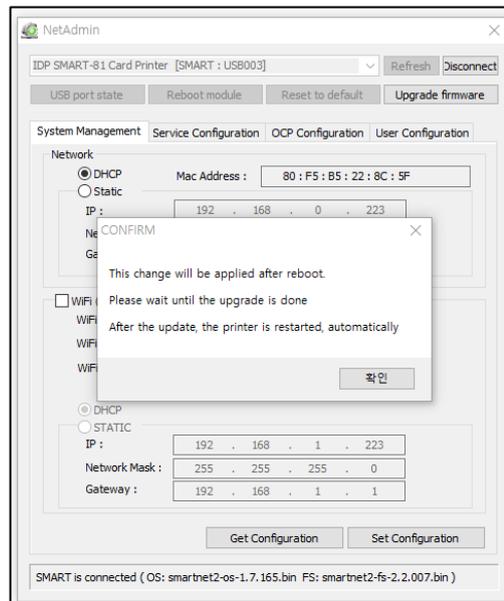


Figure 73 Upgrade the firmware 3

(10) Wired network configuration

- Select DHCP or static.
- **“DHCP”** is the default setting for the SMART-81 printer.
- When entering Static IP information, enter values for “IP”, Network Mask”, and “Gateway”.
- Contact your Network Administrator for more information on your facilities IP address.
- Click “Set Configuration”, Save, and reboot the printer.
- We recommend using static IP because it is more stable for use with the SMART-81 network printer.

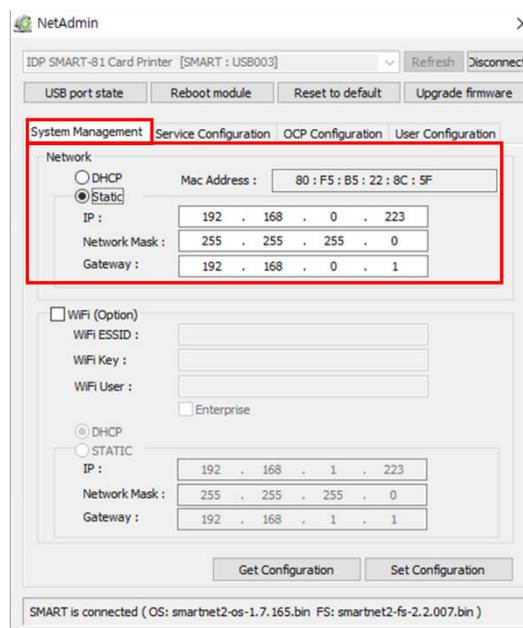


Figure 74 DHCP / Static IP configuration

(11) Wireless network configuration

- WiFi option must be installed in conjunction with a 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 network address in the same way detailed in Section 10.
- Click “Set Configuration” to save the configuration and reboot the printer.

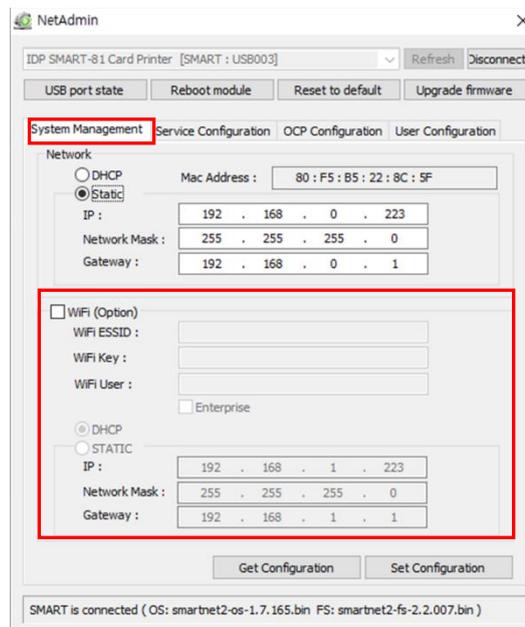


Figure 75 WiFi configuration

(12) Change network service configuration

- “Use USB Spool” is a service for using the print spooler with a USB connection
- “Use Network Spool” is service for using the print spooler with a network connection
- “Use Network SDK” is service for printing with SDK. Controls include SSL (Secure Sockets Layer) a User Authentication for security.
- “Log Level” determines the level of logging that is added to a log file
- Click “Set Configuration” to save the configuration value and reboot the printer.

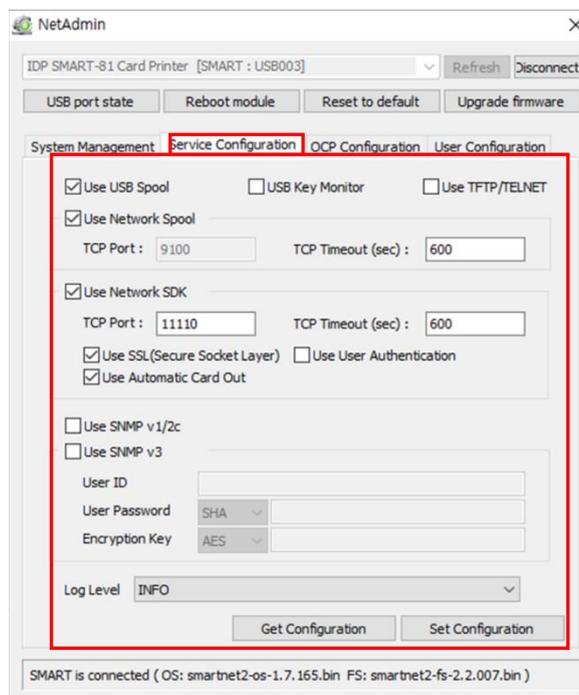


Figure 76 Network service configuration

(13) OCP (Open Card Printer) Function

- This function is for sending print, encode and other commands through a network without the use of a local driver or other OS.
- “Use Terminal Emulation” is communication between the printer and computing device. For security, it supports SSL and User Authentication.
- "Use Format" prints the transferred data specified as "OCP Format". Refer to the OCP manual for additional information.
- Click “Set Configuration” to save the configuration value and reboot the printer.

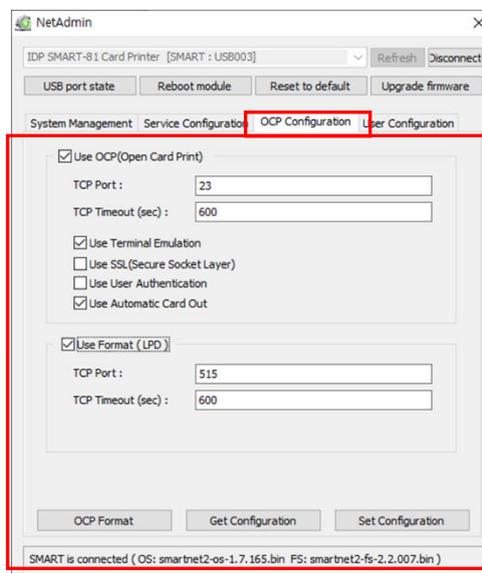


Figure 77 OCP configuration

(14) User configuration

- “Admin” is administrator that manages the printer. This is a permanent user and cannot be deleted, and you can’t delete this account. It is important that you don’t forget the “admin” password.
- “Get User”: shows available users.
- “Add User”: makes new user.
- “Del User”: deletes selected user.
- “Change Password”: changes password.

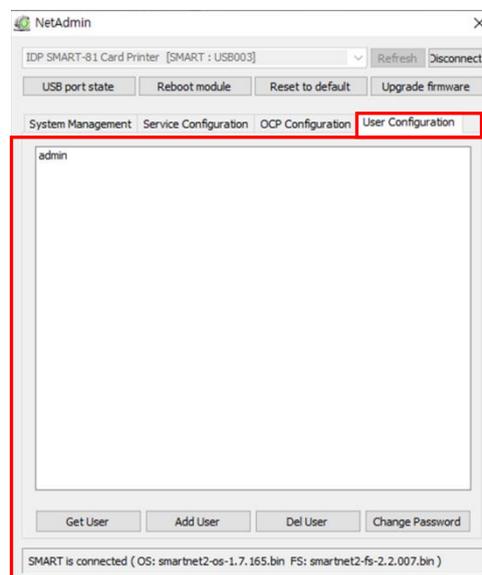


Figure 78 Network service configuration

4.3. Card Printer Test

Basically, card printers are standard printer devices, so they can be used similarly to a 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 features of printer by Card printer Test. Card Printer Test program is developed by using “SMART Printer SDK”.

(1) CardPrinterTest

CardPrinterTest is a diagnostic tool used to primarily test the encoding features in a printer.

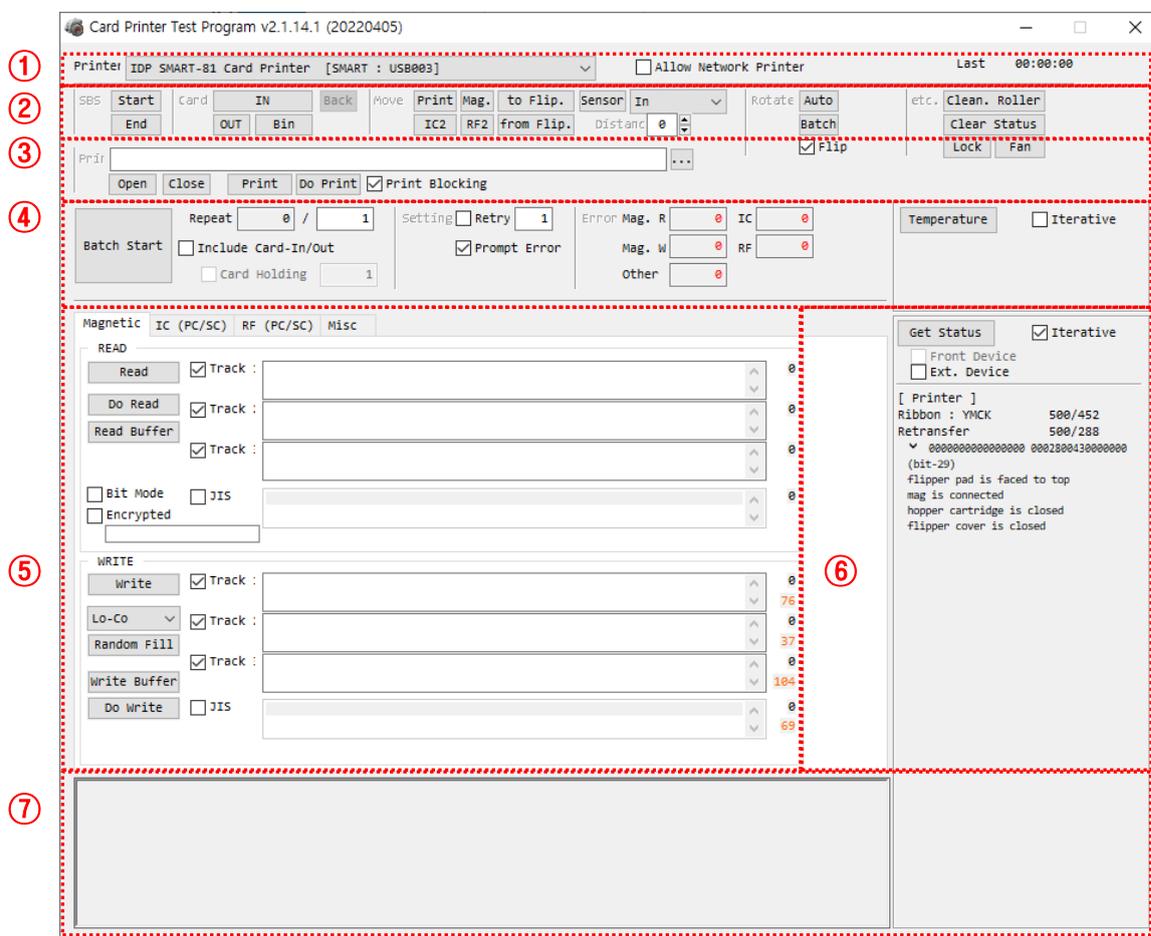


Figure 79 CardPrinterTest

- ① **Select Printer:** select a printer to test. In the example, “IDP SMART-81 Card Printer” is the printer’s name, SMART is the printer ID, and USB003 is the connected port.

- ② **Control:** Controls the movement of cards to specific areas of the printer for testing.
- ③ **Print:** Print test with the template or CSD file which is created by Smart IDesigner program.
- ④ **Batch Start:** Control multiple passes of encoding test parameters defined below in
 - 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 consists of SBS (Step by Step), Move, Rotate, Etc. section and you can control printer by each step.

- **SBS**

SBS (Step by Step) allows you to operate SMART 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**

The "In" button is to pull the card into the printer. The "Out" moves the card from the printer to the output hopper. "Back" ejects a card to the rear exit of the printer.

- **Move**

The "Move" command moves a card to a specific position in the inside of printer. "Print" moves a card to the printing position. "Mag" moves a card to the magnetic encoding position. "IC" moves the card to the contact smartcard encoding position, and "RF" moves the card to the contactless smartcard encoding position. "To Rotator" moves the card to the flipper and "From Rotator" is to moves a card from the flipper to printer. Other options should only be used when directed by IDP Support.

(3) Print test

This test the printer capabilities using a CSD file which is created Smart IDesigner program. Following the steps in this section.

1. Click the “...” button and select the CSD file of the Smart Idesigner project.
2. Click “**Open**” button to select the CSD file to print.
3. If you are in “Normal” mode and not SBS mode, click the “**Print**” button to print a card
4. If you are in SBS mode, click “**Do Print**” to print the card. Reminder: click SBS End when you are finished testing.
5. Click “**Close**” button to close CSD file.

(4) Batch

Batch allows repetition of encoding/reading testing. In the Repeat option, input the number of cycles you wish to perform and click "**Batch Start**". If you select "Include Card In/Out", the printer loads from the input hopper, performs an encoding test, and then ejects the card. If "**Card Holding**" is selected, and the repeat number is set, the printer repeats the encoding test as many times as the number set without ejecting. When it is completed, the printer ejects the card and brings a new card into the printer and starts testing.

In the Setting, "**Retry**" specifies the number of repeat encode attempts that will be made to a card that has failed to encode/read.

"**Prompt on Error**" displays a message if an error occurs. If this option is not selected, error totals are tabulated in the Error section.

(5) Encoding tests

Magnetic: Magnetic Stripe Encoding

"**Read**" will read and display the data from magnetic stripe card. This consists of "Do Read" and "Read All Buffer" commands

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

"**Read All Buffer**" will display the data stored in the buffer. If a specific track number is selected, then only that data will be displayed.

"**Write**" will write data to the magnetic stripe. This consists of "Write All Buffer", "Do Write", "Write All Buffer", and "Do Write".

"**Write All Buffer**" will write the data in the program to the buffer.

"**Do Write**" will write the data stored in the buffer to the magnetic stripe. You can choose the magnetic card type (LoCo or HiCo) and the track number. "**Random Fill**" creates sample data to be used for testing.

An example batch process to repeat a magnetic encode test: **Card “IN” → Move “Mag” → “Random Fill” → “Write” → “Read” → Card “OUT”**

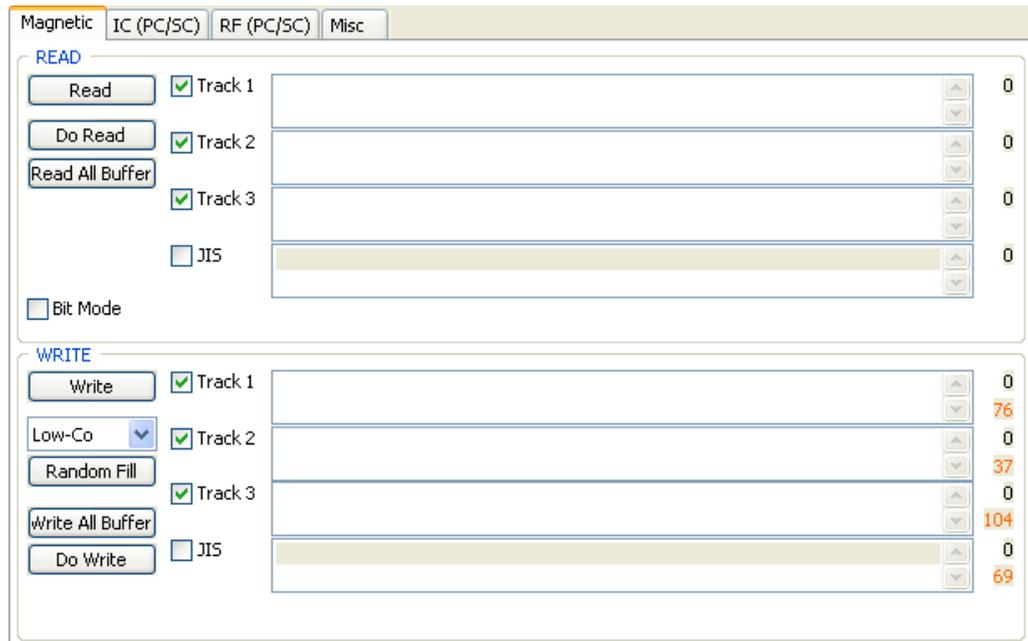


Figure 80 Magnetic stripe encoding

IC(PC/SC): Contact Smartcard Encoding

“**ICH Contact**” will bring the encoder head into contact with the IC chip contact smartcard

“**ICH Disconnect**” disconnects the encoder head from the IC chip

“**Init**” will recognize and display the installed contact smartcard reader. The encoder will be displayed in the pull-down display

“**Contact**” connects with the smartcard electrically and initializes the reader.

“**Get ATR**” will read the ATR data stored in the card’s IC chip.

“**Read**” and “**Write**” functions will read and write the stored data

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

“**Reset**” will finish the function electrically.

In cases where data is stored using APDU, Read/Write functions can only be done by using APDU commands.

“**Load APDU**” will read the stored APDU commands.

“**Save APDU**” will save the displayed APDU commands.

“**Clear APDU**” will clear the APDU section.

“Send APDU” will run the APDU commands.

An example batch process to repeat the following steps, Card “IN” → Move “IC” → “ICH Contact” → “Init” → “Contact” → “Reset” → “ICH Dis-contact” → Card “OUT”.

APDU Command	APDU Data	Send APDU	Bytes
Load APDU	APDU-01	Send APDU	0 Bytes
Save APDU	APDU-02	Send APDU	0 Bytes
APDU Clear	APDU-03	Send APDU	0 Bytes
	APDU-04	Send APDU	0 Bytes
	APDU-05	Send APDU	0 Bytes
	APDU-06	Send APDU	0 Bytes
	APDU-07	Send APDU	0 Bytes
	APDU-08	Send APDU	0 Bytes
	APDU-09	Send APDU	0 Bytes
	APDU-10	Send APDU	0 Bytes

Figure 81 Contact smartcard encoding

RF(PC/SC): Contactless Smartcard Encoding

“Contact” connects the contactless smartcard electronically and initializes the reader.

“Get UID” will read the card’s Chip Serial Number (CSN).

“Read” and “Write” functions will read and write stored to the card

“Clear” will clear the displayed stored data (ATR, Name, Address and Phone).

“Reset” finishes the functions.

In cases where data is stored using APDU, Read/Write functions can be done by APDU commands.

“Load APDU” will read the stored APDU commands.

“Save APDU” will save the displayed APDU commands.

“Clear APDU” will clear the APDU section.

“Send APDU” will run the APDU commands.

An example batch process to repeat the following steps, **Card “IN” → Move “RF” → “Connect” → Get UID → “Disconnect” → Card “OUT”**

The screenshot shows a software interface for smartcard encoding. At the top, there are tabs for 'Magnetic', 'IC (PC/SC)', 'RF (PC/SC)', and 'Misc'. The 'RF (PC/SC)' tab is selected. Below the tabs, there is a checkbox labeled 'Internal (Batch)' which is checked. The interface is divided into several sections:

- Control Buttons:** 'Init', 'Contact', 'Reset', 'Get UID', 'Read', 'Write', and 'Clear'.
- Fields:** 'ATR', 'Name', 'Address', and 'Phone', each with a corresponding text input field.
- APDU Queue:** A table with 10 rows, each representing an APDU. Each row has a 'Load APDU' button on the left, a 'Send APDU' button on the right, and a '0 Bytes' status on the far right. The APDU IDs are APDU-01 through APDU-10.

APDU ID	Load APDU	Send APDU	Status
APDU-01	[Load APDU]	[Send APDU]	0 Bytes
APDU-02	[Load APDU]	[Send APDU]	0 Bytes
APDU-03	[Load APDU]	[Send APDU]	0 Bytes
APDU-04	[Load APDU]	[Send APDU]	0 Bytes
APDU-05	[Load APDU]	[Send APDU]	0 Bytes
APDU-06	[Load APDU]	[Send APDU]	0 Bytes
APDU-07	[Load APDU]	[Send APDU]	0 Bytes
APDU-08	[Load APDU]	[Send APDU]	0 Bytes
APDU-09	[Load APDU]	[Send APDU]	0 Bytes
APDU-10	[Load APDU]	[Send APDU]	0 Bytes

Figure 82 Contactless smartcard encoding

(6) Printer and Laminator status

“**Get Temperature**” displays the temperature of the thermal print head. When the “Realtime Check” is selected, it displays the current temperature of the thermal print head in real time.

“**Get Status**” gives printers current status.

Please refer to the ‘SMART SDK manual’ for the status code or contact IDP Support.

4.4. Firmware update

The CardPrinterFirmware utility found on the Driver CD or in the Printer Properties > Service tab is used to update your printer or laminator's firmware. To update your Ethernet option's firmware, please use the NetAdmin utility tool.

(1) CardPrinterFirmware Menu

Devices: Select the printer that you want to upgrade.

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

Device Version: Displays the current firmware version.

Binary File: Click "Browse" button and select new firmware file.

Manual Update: Used when you want to update manually.

Update: Automatically updates the firmware (recommended).

Close: Closes application.

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

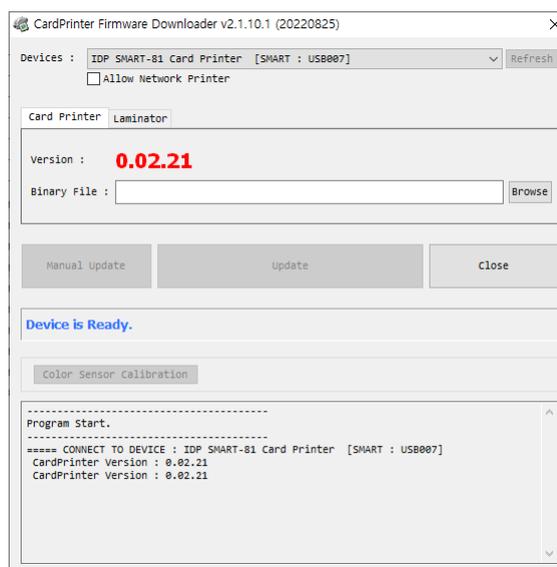


Figure 83 CardPrinterFirmware

(2) Update process

- Select the printer to update the firmware on the 'Device' list.
- Select the device to update from the Printer/ Laminator tab. The Laminator tab is shown if that option is installed.
- Click "Browse" and select the new firmware file.
- Click "open".

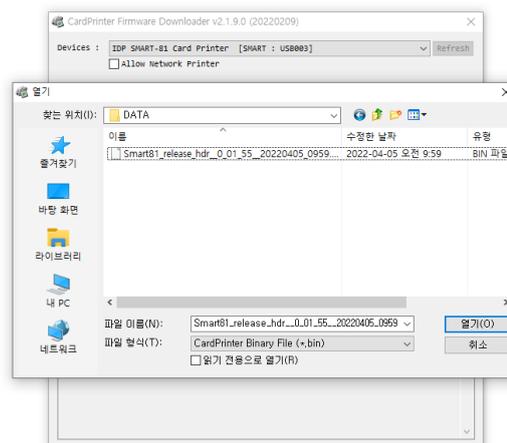


Figure 84 Select Firmware

(3) Execute firmware update

- Click the “Update” button to upgrade the firmware automatically. Then the printer will show the status and reboot.
- In some instances, some conditions may prevent the automatic upgrade function. In those cases, use the Manual Update option and follow the on-screen steps
- Please reboot the printer after the update.

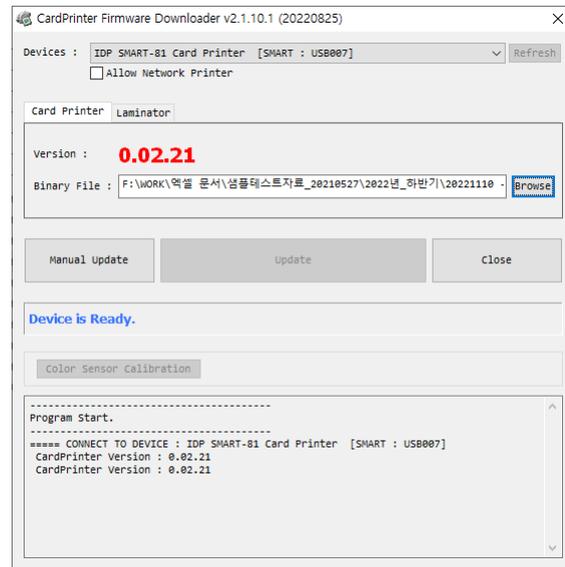


Figure 85 Update Firmware

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

5. Troubleshooting

5.1. Error Message

The SMART-81 printer shows error messages on the LCD display if they occur. You can press the Menu button to retry the print job, press the 'select' button to cancel the operator, or follow error specific instructions.

The following shows the error message and their descriptions. To check the status of a printer, please use the CardPrinterTest or CardPrinterDiagnostics utilities.

LCD Status	Description
Init Err	Error occurs while initializing (printer bootup) -. Check the error Flag bit on the driver service tab or test program to release the error. -. Check to make sure ribbon / film are installed correctly -. If you have a laminator, be sure to turn it on first, wait for a green light, then turn on your printer
Card In Err	Failure to move a card from the hopper into the printer. -. Check the card thickness and adjust the card thickness control lever -. Check cards and make sure to fan them to break static electricity. -. Clean the Hopper roller and cleaning roller
CardMoveInr Err	Failure to move a card inside the printer. -. Check the retransfer film and be sure a card is not stuck to it. -. Check the input and card path rollers. They may be due for a cleaning. -. Check the operating state of the card position sensors.
CardMoveExt Err	Failure to exit a card from the printer and into another module (flipper/laminator). -. Check the exit and card path rollers. They may be due for a cleaning. -. Check the operating state of the card position and exit sensors.
CardOut Err	Failure to exit a card after printing, encoding, or laminating. -. Check the retransfer film and be sure a card is not stuck to it. -. Check the input and card path rollers. They may be due for a cleaning. -. Check the operating state of the card position sensors.
FlipTrayMove Err	Error occurs in the card flipper module. -. Check and remove a card(s) from flipper. Open flipper cover and activate card movement by pressing the LCD Menu buttons. -. Check the flipper and card path rollers. They may be due for a cleaning. -. Check the operating state of the flipper position sensors.
InsideOutHp Err	Error occurs while ejecting card to the to inside out hopper -. Check and remove a card(s) from flipper. Open flipper cover and activate card movement by pressing the LCD Menu buttons. -. Check the flipper and card path rollers. They may be due for a cleaning. -. Check the operating state of the flipper position sensors.
Printing Err	Error occurs while printing -. Check to see if a card is jammed, if so use LCD Menu buttons to remove it. -. Be sure the ribbon is Genuine IDP product -. Check the input and card path rollers. They may be due for a cleaning.
Ribbon Seek Err	The printer cannot locate the ribbon panel during printing or boot up -. Check to be sure the ribbon and film are correctly installed. -. Check and clean the Color In/Out Sensor -. Check the operating state of the color In/Out Sensor -. Check the operating state of the Ribbon Motor -. Check the operating state of the ribbon RFID tag reader and gears

Ribbon Move Err	<p>The printer cannot wind the ribbon during printing or boot up.</p> <ul style="list-style-type: none"> - Check to be sure the ribbon and film are correctly installed. - Check and clean the Color In/Out Sensor - Check the operating state of the color In/Out Sensor - Check the operating state of the Ribbon Motor - Check the operating state of the ribbon RFID tag reader and gears
Film Search Err	<p>Error occurs while recognizing film location</p> <ul style="list-style-type: none"> - Check to be sure the retransfer film is correctly installed. - Check and clean the film sensor - Check the operating state of the film motor - Check the operating state of the film RFID tag reader and gears
Film Move Err	<p>Error occurs while recognizing film location</p> <ul style="list-style-type: none"> - Check to be sure the retransfer film is correctly installed. - Check and clean the film sensor - Check the operating state of the film motor - Check the operating state of the film RFID tag reader and gears
Head UpDown Err	<p>Error occurs while head module (thermal head, retransfer head) moves up/down</p> <ul style="list-style-type: none"> - Check Head Up/down sensor. - Check the operating state of head motor.
Heater Error	<p>Retransfer heater is overheating</p> <ul style="list-style-type: none"> - Check that the thermistor is properly attached to the heater - Pause printing for 10 minutes and print again. - Lower the transfer temperature - If error continues, contact IDP Support
Bheater Error	<p>Bend Remedy heater is overheated.</p> <ul style="list-style-type: none"> - Check that the thermistor is properly attached to the heater - Pause printing for 10 minutes and print again. - Lower the transfer temperature - If error continues, contact IDP Support
TPH Overheat	<p>Thermal Print Head is overheated</p> <ul style="list-style-type: none"> - Pause printing for 10 minutes and print again. - Lower the transfer temperature - If error continues, contact IDP Support
IC UpDown Err	<p>The IC Head Up/Down Motor or Sensor errored during printing, encoding or boot up.</p> <ul style="list-style-type: none"> - Check the cable connection between a module and a mainboard - Check IC Up/Down sensor - Check the operating state of the IC Motor
Solenoid Err	<p>Error occurs while the printer lock solenoid is operating</p> <ul style="list-style-type: none"> - Check the wire of solenoid module - Check the operating state of solenoid. - Check printer lock sensor.
MAG R/W Err	<p>Failure to read/write a magnetic striped card</p> <ul style="list-style-type: none"> - Be sure the cards are loaded in the input hopper in the correct orientation - Make sure the coercivity of magnetic cards matches the encoding configuration - Check the printer rollers, encoder head and cards for dust and debris and clean if necessary.
MAG T1 Err	<p>Failure to read magnetic track 1</p> <ul style="list-style-type: none"> - Be sure the cards are loaded in the input hopper in the correct orientation - Make sure the coercivity of magnetic cards matches the encoding configuration - Check the printer rollers, encoder head and cards for dust and debris and clean if necessary.

MAG T2 Err	<p>Failure to read magnetic track 2</p> <ul style="list-style-type: none"> - Be sure the cards are loaded in the input hopper in the correct orientation - Make sure the coercivity of magnetic cards matches the encoding configuration - Check the printer rollers, encoder head and cards for dust and debris and clean if necessary.
MAG T3 Err	<p>Failure to read magnetic track 3</p> <ul style="list-style-type: none"> - Be sure the cards are loaded in the input hopper in the correct orientation - Make sure the coercivity of magnetic cards matches the encoding configuration - Check the printer rollers, encoder head and cards for dust and debris and clean if necessary.
ConExtDeviceErr	<p>Communication error between Printer and Laminator</p> <ul style="list-style-type: none"> - Be sure the laminator is plugged in, turn on and laminate film is installed correctly. - Check the communication status between the printer and the laminator.
Ribbon None	<p>Ribbon is not detected</p> <ul style="list-style-type: none"> - Be sure a ribbon is installed correctly. If spent, install a new ribbon - Be sure to use only Genuine IDP Ribbons
Ribbon Zero	<p>Ribbon is spent / used.</p> <ul style="list-style-type: none"> - Be sure a ribbon is installed correctly. If spent, install a new ribbon - Be sure to use only Genuine IDP Ribbons
Film None	<p>Retransfer Film is not detected</p> <ul style="list-style-type: none"> - Be sure a film is installed correctly. If spent, install a new film - Be sure to use only Genuine IDP Products
Film Zero	<p>Retransfer Film is not detected</p> <ul style="list-style-type: none"> - Be sure a film is installed correctly. If spent, install a new film - Be sure to use only Genuine IDP Products
TPH None	<p>Thermal Print Head is not installed or not recognized</p> <ul style="list-style-type: none"> - Check the print head installation - Contact IDP Support
Heater None	<p>Retransfer heater is not installed or not recognized</p> <ul style="list-style-type: none"> - Check the Retransfer installation - Contact IDP Support
Bheater None	<p>Bend Remedy heater is not installed or not recognized</p> <ul style="list-style-type: none"> - Check the Bend Remedy Heater installation - Contact IDP Support
Heater Broken	<p>Retransfer's control circuit or heater is not operating correctly</p> <ul style="list-style-type: none"> - Check the retransfer film installation - Contact IDP Support
Bheater Broken	<p>Bend Remedy heater control circuit or heater is not operating correctly</p> <ul style="list-style-type: none"> - Check the installation - Contact IDP Support
PrintData Fail	<p>An error during printing occurred</p> <ul style="list-style-type: none"> - Verify that the card template configuration matches the printer's configuration and consumables. - Ensure you are using a Genuine IDP USB cable. - Change the USB port in the PC - Reinstall the printer driver.
Spool Full	<p>The printing data have filled the Windows Spooler.</p> <ul style="list-style-type: none"> - This message may disappear after printing all data has been sent to the printer - Reboot the printer - Reboot the PC
Invalid Password	<p>The password is not correct.</p> <ul style="list-style-type: none"> - Input the correct password. - Contact IDP Support if you have forgotten or misplaced your password

Set Fail	Failed to execute a command set of the printer - Verify that the card template configuration matches the printer's configuration and consumables. - Ensure you are using a Genuine IDP USB cable. - Change the USB port in the PC - Reinstall the printer driver.
Lcd Con Error	Error occurs during LCD operation - Please reboot the Printer - If error continues, contact IDP Support

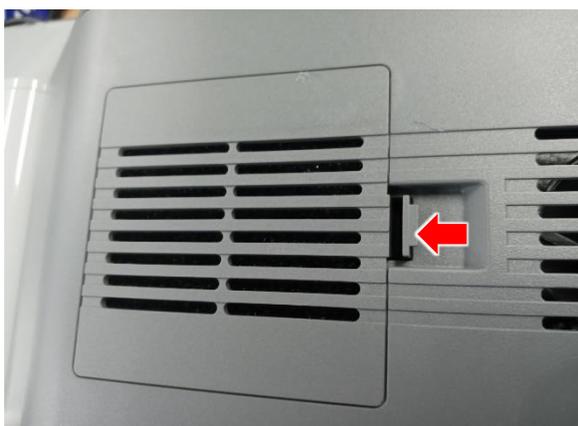
The following details potential error messages from your Laminator. For checking the status of Laminator, please use a CardPrinterTest or CardPrinterDiagnostics in the Utilities folder.

Message	Description
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 occurs while laminating
L Command Err	Error occurs while execute command
L Init Err	Initialization error
L Film Seek Err	Film seek error
L Film Zero	Laminate film is spent/used
L Film Empty	Film is not installed
L HT Over/Cnt	Laminating head is overheating
L HT Fet Err	Head FET error
L HT Temp Err	Failure setting head temp
L BootDown Err	Error downloading Laminator firmware

5.2. Cleaning and Replacement of the Printer’s air filter

To print optimal cards, the SMART-81’s air filter must be cleaned regularly and more so if your printer is in a dusty environment.

1. As shown in the picture, you can remove the protect cover by pressing the locking snap in the direction shown and pulling up.



2. Remove the air filter, wash it with warm water thoroughly, dry it completely, and replace. If the filter begins to deteriorate during washing, it is advised you purchase a new one from an Authorized IDP Dealer.



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 operation of your SMART printer, you must clean the printer periodically. The SMART-81 will prompt you to do a cleaning cycle every 5000 prints. This is a general setting. If your printer is in a dusty environment and you see debris on your printed cards, you will need to clean your printer more frequently. Use only Genuine IDP Long Sleeve Cleaning Cards for the process.



Figure 86 IDP Genuine Long Sleeve Cleaning Card

Ready your Long Sleeve Clean Card and click the "Clean Printer" button in the service tab of SMART printer driver. After clicking, "CleanPrinter" the program will walk you through the steps.

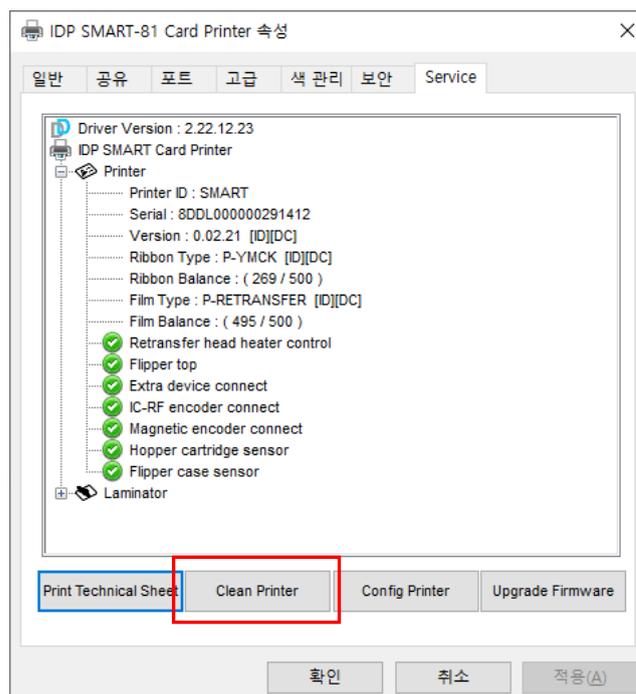


Figure 87 Printer cleaning start

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

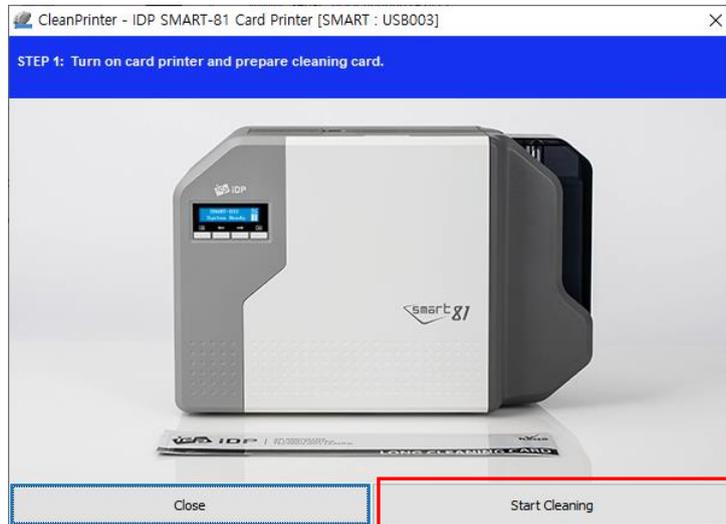


Figure 88 Printer cleaning step 1

Step 2: Check to be sure the printer is entering cleaning mode on the LCD. Open the cover, and remove the card cartridge, ribbon cartridge, and cleaning roller. Click "Next" to move on to step 3.

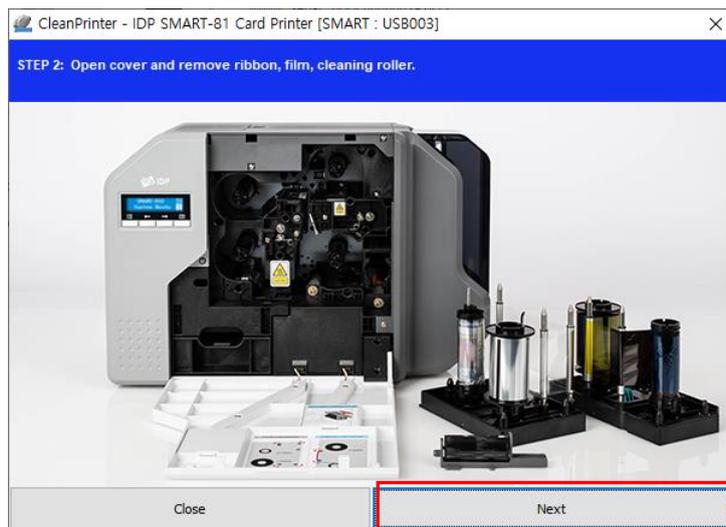


Figure 89 Printer cleaning step 2

Step 3: Insert the leading edge of the cleaning card about 2' to 3" into the card exit slot as shown. Press any LCD button to display the printer's temperature. When the temperature of printer heater drops below 50degrees, the cleaning card will automatically be pulled inside the printer and will move back and forth to clean.



Figure 90 Printer cleaning step 3

Step 4: When the cleaning process is completed, the cleaning card will be ejected automatically.



Figure 91 Printer cleaning step 4

Step 5: Remove cleaning card and install cleaning roller, ribbon cartridge, film cartridge, and close the cover. Click “finish” to exit.

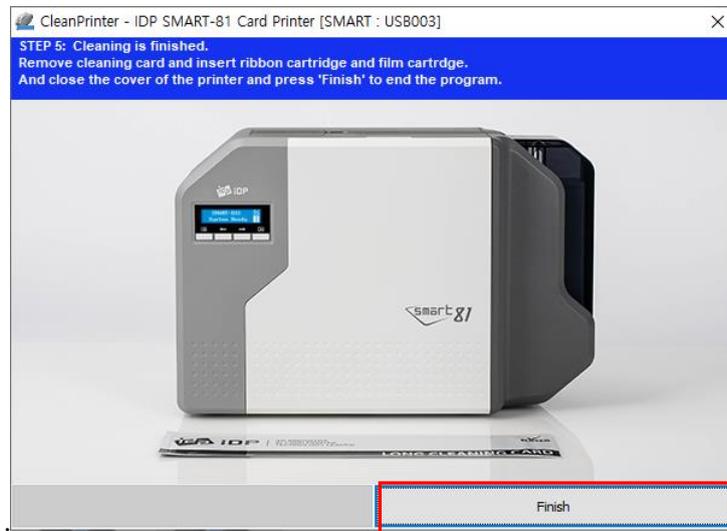


Figure 92 Printer cleaning step 5

5.4. TPH (Thermal Print Head) replacement

1. Check the serial number and the resistance of new TPH as figure 93.

Serial number
Head resistance

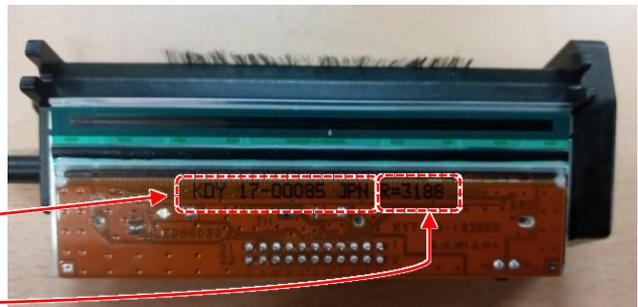


Figure 93 Printer head

2. Set up the new print head's configuration using the 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 number, resistance value and click "OK".

Step 4: Click "Set Config" to save the new print head's configuration.

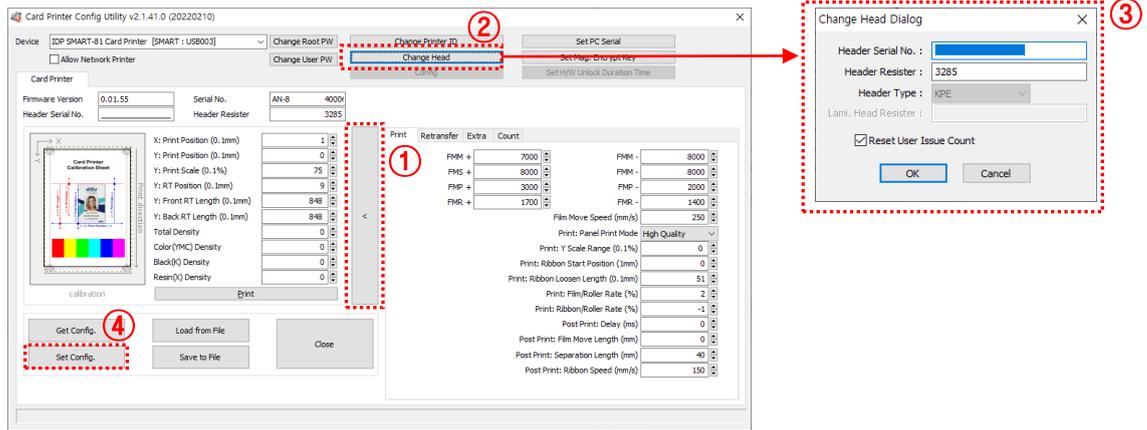


Figure 94 Printer head setup

3. Replacing a print head

Step 1: Remove the old print head.

- (1) Turn off the printer and open the front cover.
- (2) Remove the ribbon cartridge, remove the retaining screws, hold the print head with one hand, and pull it out.

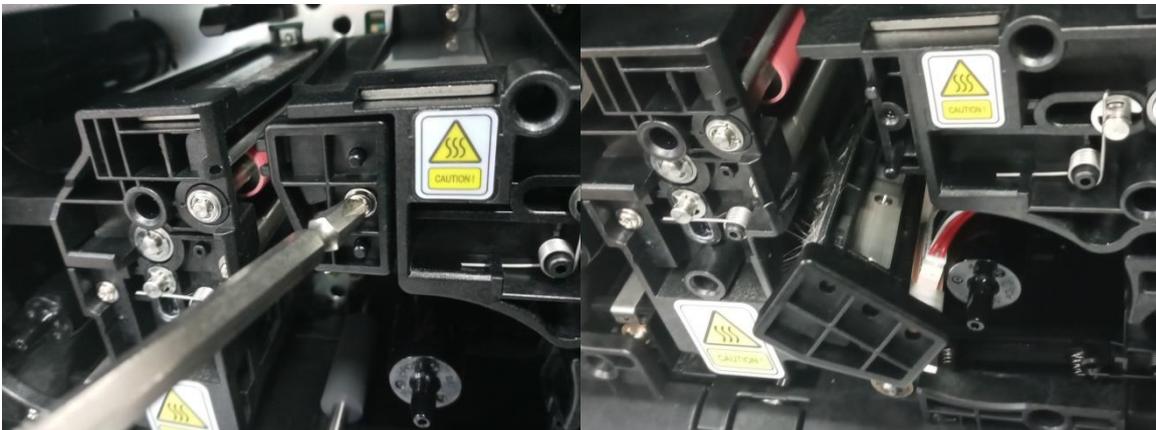


Figure 95 Printer head disassemble

- (3) After removing the head, disconnect print head wire carefully, minding the wiring harness.

(Caution: Print head may be HOT)

Step 2: Installing the new print head.

- (1) Connect the new print head to the wiring harness.
- (2) Install the head and tighten the screws.

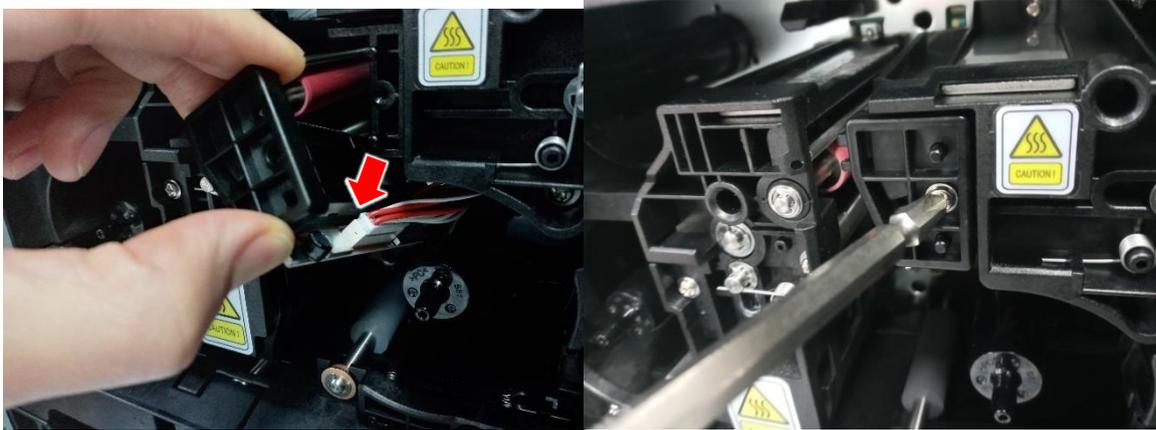


Figure 96 Printer head assemble

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 issues remediation

(1) Card in errors from input hopper

if card fails enter the printer, please review the causes below.

- **Non-standard cards or bad cards.**
Replace the cards with ISO CR-80 card (54mm x 86mm). IDP recommends 80/20 composite cards for optimal performance.
- **Card thickness control lever is set improperly.**
Adjust the card thickness control gate to fit the current card thickness.
- **Bad card array (improper card stacking)**
Remove the cards, fan them, and reinstall. More information can be found in Section 2.2.
- **Cards are bound by static or moisture.**
Remove the cards, fan them, and reinstall. More information can be found in Section 2.2.

(2) Card Transfer Errors occur when the ribbon is wrapped around the transfer roller or printing roller.

Open the front cover and remove card(s) and unwrap any ribbon from the SMART-81

printer using the front LCD left and right buttons. If this problem occurs frequently, check the following.

- **Non-standard cards or bad cards.**
Replace the cards with ISO CR-80 card (54mm x 86mm).
- **The transfer roller or the printing roller is dirty.**
Run a cleaning cycle from the driver noted in section 5.3
- **Wrong printing position setting.**
Please contact IDP Support
- **When the operating temperature, static and humidity is out of the acceptable operating limit.**
Adjust the operating environment of the printer.

(3) Card is wound around the feeding roller and/or bent while retransferring image.

Open the front cover, remove Film and Ribbon cartridge, and remove the bent card by using the LCD buttons or by hand. If this problem occurs frequently, check the following.

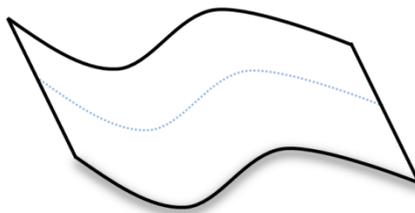


Figure 97 Printing quality trouble 1

- **Non-standard cards or bad cards.**
Replace the cards with ISO CR-80 card (54mm x 86mm). IDP recommends 80/20 composite cards for optimal performance.
- **Retransfer temperature setting does not match the card.**
Adjust the retransfer temperature using the CardPrinterConfig tool.
- **Wrong printing position setting.**
Contact IDP Support.
- **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 image is being transferred to the card.

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

- **Non-standard cards or bad cards.**
Replace the cards with an ISO CR-80 card (54mm x 86mm). IDP recommends 80/20 composite cards for optimal performance.
- **Printer setting is changed or is not proper.**
Please contact the local supplier.
- **The transfer roller or the printing roller is dirty.**
Run a cleaning cycle from the driver noted in section 5.3.
- **The card surface is contaminated with dust and dirt.**
Check the card supply and make sure it is clean. Also, make sure to always replace the cleaning roller on every ribbon change.

5.6. Printing quality

(1) Unprinted areas or spots.

- **The card surface is contaminated with the dust and dirt.**
Check the card supply and make sure it is clean. Also, make sure to always replace the cleaning roller on every ribbon change.

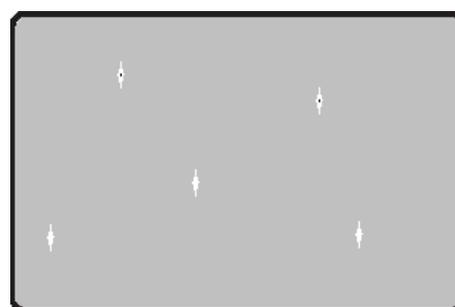


Figure 98 Printing quality trouble 2

- **The retransfer head is dirty.**
Check the retransfer head. If it is dirty, remove the head and clean it. For details, please contact IDP Support.
- **The cleaning roller is contaminated with the dust and dirt.**
Check the cleaning roller. Be sure to always replace the cleaning roller on every ribbon change.
- **Dust/debris inside the printer.**
Clean the inside of the printer with the cleaning kit.

(2) Not printed horizontal line.

- **The ribbon cartridge is installed improperly.**
Check the ribbon cartridge and the ribbon to be sure it is not wrinkled.
- **The print head is contaminated with the dust and dirt.**
Clean the printer head with cleaning kit.
- **The print head is damaged.**
Please replace the print head.



Figure 99 Printing quality trouble 3

(3) The printed image is partially transferred to the card. (card area)

- **The card surface is uneven or contaminated with the dust and dirt.**

Replace the cards with ISO CR-80 card (54mm x 86mm). IDP recommends 80/20 composite cards for optimal performance.

- **Retransfer temperature setting doesn't match the card.**

Raise the retransfer temperature to use CardPrinterConfig.

- **The print head is contaminated with the dust and dirt.**

Clean the printer head with cleaning kit.

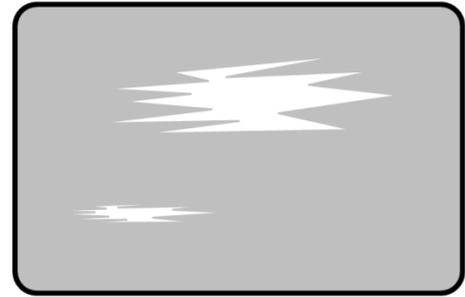


Figure 100 Printing quality trouble 4

(4) The printed image is not transferred to the card. (leading edge of card)

- **The card surface is uneven or contaminated with the dust and dirt.**

Replace the cards with ISO CR-80 card (54mm x 86mm). IDP recommends 80/20 composite cards for optimal performance.

- **Retransfer temperature setting doesn't match the card.**

Raise the retransfer temperature to use CardPrinterConfig.



Figure 101 Printing quality trouble 5

- **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 or debris from the retransfer film is on the sides of cards (side of the card)

- **Nonstandard card**

Replace the cards with ISO CR-80 card (54mm x 86mm). IDP recommends 80/20 composite cards for optimal performance.

- **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.

- **Printer is in need of maintenance**

Contact IDP Support.



Figure 102 Printing quality trouble 6

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

- **Nonstandard card.**

Replace the cards with ISO CR-80 card (54mm x 86mm). IDP recommends 80/20 composite cards for optimal performance.

- **Retransfer setting doesn't match the card.**

Change retransfer condition setting to use CardPrinterConfig.

- **Feeding and print roller contaminated with dust and dirt.**

Perform a cleaning cycle noted in section 5.3

- **Printer is in need of maintenance.**

Contact IDP Support.



Figure 103 Printing quality trouble 7

(7) Complete image failed to retransfer on the edges of the card

- **Nonstandard card.**

Replace the cards with ISO CR-80 card (54mm x 86mm). IDP recommends 80/20 composite cards for optimal performance.



Figure 104 Printing quality trouble 8

- **The card side surface is uneven or contaminated with the dust and dirt.**
Replace the cards with ISO CR-80 card (54mm x 86mm). IDP recommends 80/20 composite cards for optimal performance.
- **Retransfer temperature setting doesn't match the card.**
Raise the retransfer temperature to use CardPrinterConfig.

(8) Colors out of registration.

- **Non-standard cards or bad cards.**
Replace the cards with an ISO CR-80 card (54mm x 86mm). IDP recommends 80/20 composite cards for optimal performance.
- **The transfer roller or printing roller is contaminated with dust and dirt.**
Clean the rollers with the cleaning kit.
- **Printer is in need of maintenance.**
Contact IDP Support

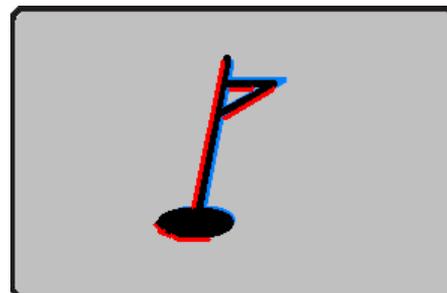


Figure 105 Printing quality trouble 9

(9) Abnormal colors printing

- **Film is not aligned**
Check the film cartridge's align
- **The transfer roller or printing roller is contaminated with the dust and dirt**
Clean the rollers with the cleaning kit
- **Printer is in need of maintenance**
Contact IDP Support



Figure 106 Printing quality trouble 10

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 card alignment in the input hopper.

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

Change the card.

5.8. General operation

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

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

- **Non-standard cards or bad cards:**

Change the cards.

- **Color density may be too high or too low:**

Review section 4 to adjust color density.

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

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

- **Not genuine ribbon:**

Change to the genuine ribbon.

- **Ribbon is spend/used:**

Change the ribbon.

- **Snapped ribbon:**

Open the front cover and take out the cartridge. Tape the ribbon together and reinstall the ribbon.

**(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 a replacement for 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	Over the Edge	
	Resolution	300dpi / 600dpi	
	Dual Side Printing	-	Yes
Card	Card Feeding	Automatic	
	Card Size	ISO CR80	
	Card Thickness	0.8mm ~ 1.6mm	
	Card Type	PVC, PET, Composite PVC	
	YMCK	Max. 25 sec./card (144 cards/hour)	
	YMCKK	-	Max. 43 sec./card (84 cards/hour)
Capacity	Input Hopper	200 Cards	
	Output Hopper	100 Cards	
	Error Card Bin	25 Cards	
System	Memory	64MB 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°C / 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 MHz
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