Smart
Smart Dual

Card Printer

User Manual

I&A SYSTEM
Intelligent & Advanced System Co.,Ltd

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

TABLE OF CONTENTS

1. Introduction

1.1 Printer Outside Features ---------- 6

1.2 Printer Inside Features ---------- 7

1.3 Ribbon Cartridge Features ---------- 8

1.4 LCD Panel Display and Button Operation ---------- 9

2. Installing the Printer

2.1 Loading a Ribbon ---------- 10

2.2 Loading Cards ---------- 12

2.3 Installation the Printer Driver ---------- 14

2.4 Test Printing ---------- 17

2.5 Changing a Ribbon and Cleaning Roller ---------- 18

3. Checking and changing the Printer Properties

3.1 Checking the Printer Properties ---------- 19

3.2 Changing the Printing Setting ---------- 20

3.3 Changing the Printer Properties ---------- 21

4. Troubleshooting

4.1 Card Transfer ---------- 23

4.2 Printing Quality ---------- 24

4.3 Magnetic Stripe Encoder ---------- 25

4.4 General Operation ---------- 27

5. Printer Specification ---------- 27

TABLE OF FIGURES

<Figure 1> Printer Front/Side Features ---------- 6
<Figure 2> Printer Rear Feature ---------- 6
<Figure 3> Printer Inside ---------- 7
<Figure 4> Ribbon Cartridge ---------- 8
<Figure 5> Open Top Cover ---------- 10
<Figure 6> Take out the cartridge ---------- 10
<Figure 7> Preparation the ribbon ---------- 10
<Figure 8> Install the ribbon ---------- 11
<Figure 9> Install the cleaning roller ---------- 11
<Figure 10> Peel the protective rapper ---------- 11
<Figure 11> Install the ribbon cartridge ---------- 12
<Figure 12> Close Top Cover ---------- 12
<Figure 13> Adjust Card Thickness ---------- 12
<Figure 14> Holding the Cards ---------- 13
<Figure 15> Push the stack back and forth ---------- 13
<Figure 16> Restore the card stack ---------- 13
<Figure 17> Placing the cards and close the hopper cover ---------- 13
<Figure 18> Connect the Power Cord ---------- 14
<Figure 19> CD Loading ---------- 14
<Figure 20> Driver Install Guide ---------- 14
<Figure 21> Driver Installation ---------- 15
<Figure 22> Printer Turn ON ---------- 15
<Figure 23> No, not this time ---------- 15
<Figure 24> Install the software automatically ---------- 15
<Figure 25> Continue Anyway ---------- 16
<Figure 26> Finish ---------- 16
<Figure 27> I&A SMART Card Printer ---------- 16
<Figure 28> Printer Properties ---------- 17
<Figure 29> Printer Test Page ---------- 17

---------- 17

<Figure 30> Test Print O.K
<Figure 31> Ribbon Separation ---------- 18
<Figure 32> Checking the Printer Properties ---------- 19
<Figure 33> Printing Setting ---------- 20
<Figure 34> Layout ---------- 20
<Figure 35> Paper/Ribbon/Quality ---------- 20
<Figure 36> Side/Media ---------- 21
<Figure 37> Sharing Printer ---------- 21
<Figure 38> Port ---------- 22
<Figure 39> Advanced ---------- 22
<Figure 40> Color ---------- 22
<Figure 41> Print Quality Trouble Example 1 ---------- 24
<Figure 42> Print Quality Trouble Example 2 ---------- 24
<Figure 43> Print Quality Trouble Example 3 ---------- 24
<Figure 44> Print Quality Trouble Example 4 ---------- 24
<Figure 45> Print Quality Trouble Example 5 ---------- 25

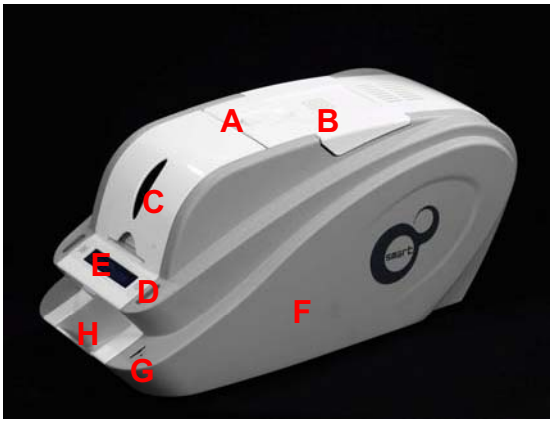
1. Introduction

Thank you for choosing the I&A System Smart Card Printer. This manual helps you effectively and professionally for the start-up and operation of your new Card Printer.

1.1 Printer Outside Features

This Smart Card Printer takes a power via the adaptor provided with the printer. Using USB port, it communicates with user's PC. For the user's convenience, the printer process status can be seen through LCD and most of the operations can be controlled by two LED buttons.

The following shows the external functional features found on your Smart Printer.



<Figure 1> Printer Front/Side Features

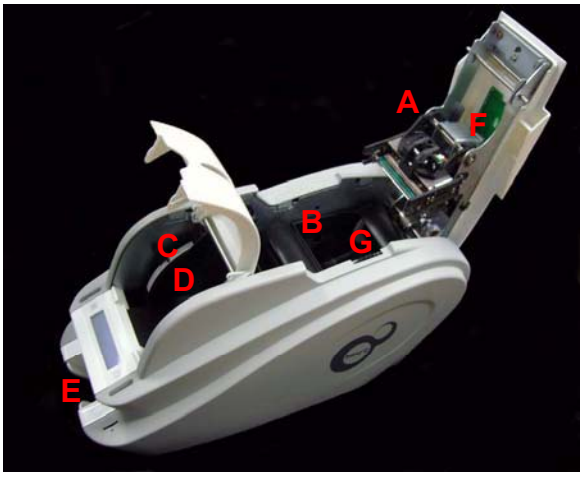
A	Top Cover Open Button
B	External Contactless IC Encoding Position
C	Hopper (Input Hopper)
D	LED buttons
E	LCD (Show the process status)
F	Magnetic/Contact IC/Contactless IC Encoder are installed inside
G	External Contact IC Encoder (SIM Type)
H	Stacker (Output Hopper)

<Figure 2> Printer Rear Feature

I	Power Switch
J	Power Connector
K	USB Port
L	Rear Card Outlet (If necessary)

1.2 Printer Inside Features

Smart Printer adopts a semi-permanent Ribbon cartridge.
The following shows the internal functional features found on your Smart Printer.



A	Thermal Printer Head
B	Ribbon Cartridge
C	Card Thickness Control lever
D	Hopper
E	Stacker(Output Hopper)
F	External Contactless IC Antenna
G	Manual Card Output Wheel

<Figure 3> Printer Inside Features

1.2.1 Thermal Printer Head

This enables the cards to be printed.
(Caution!
Do not contact the surface of the printer head with fingers or a sharp metal object to avoid degrading print quality or damaging printer head permanently.)

1.2.2 Hopper(Card Input Hopper)

Load the cards for printing.

1.2.3 Stacker(Card Output Hopper)

Collect the printed and/or encoded cards.

1.2.4 Card Thickness Control lever

Adjust the cards thickness.

1.2.5 Manual Card Output Wheel

When a card is jammed, the card can be out using this wheel by manually.
(Information!
Most of the card jam error can be solved by controlling the front LED buttons. So use this wheel when the problem is not solved by using the front LED buttons.)

1.3 Ribbon Cartridge Features

A	Ribbon Cartridge
B	Ribbon
C	Disposable Cleaning Roller

<Figure 4> Ribbon Cartridge

1.3.1 Ribbon Cartridge

Install a Ribbon and a disposable cleaning roller provided with the Ribbon.
(Important!
This semi-permanent ribbon cartridge is a component of the printer. Printer does not operate if it is broken or damaged. In this case, please contact printer reseller.)

1.3.2 Ribbon

Ribbon for printing.

1.3.3 Disposable Cleaning Roller

It removes dust in the surface of card to improve print quality before the card is printed.
It should be changed together with the Ribbon.
(Caution! This disposable cleaning roller is provided with the Ribbon. If this is not changed, print quality mighty be degraded.)

1.4 LCD Panel Display and Button Operation

Smart Printer shows the real-time process status to user. Please refer to the below LCD panel display and button operation.

No	LCD Message	LED Buttons		Printer Status
		Left Press	Right Press	
1	S M A R T System Ready	Printer Setting Information (only for A/S)	Software Power ON/OFF	System Stand By
2	Ver X.XX… Initialize…			Initializing
3	S M A R T Printing!			Printing
4	S M A R T Mag R/W			Magnetic Read/Write
5	S M A R T Out of Ribbon			No Ribbon
6	S M A R T Out of Card			No Card
7	S M A R T Top Cover Open	Move transportation roller to left	Move transportation roller to right	Top Cover open
8	Ribbon Not Found <Replay Cancel>	Replay	Cancel & initialize	Fail to find a proper color
9	Card In Error <Replay Cancel>	Replay	Cancel & initialize	Fail to the card loading
10	Reposition Error <Replay Cancel>	Replay	Cancel & initialize	Fail to the card transporting
11	Head U/D Error <Replay Cancel>	Replay	Cancel & initialize	Fail to the print head up and down
12	Card Out Error <Replay Cancel>	Replay	Cancel & initialize	Fail to the card out
13	Mag R/W Error <Replay Cancel>	Replay	Cancel & initialize	Fail to the magnetic Read/Write

*** LED ON / LED BLINKING**

- SMART System Ready : System is ready to print. Press left button to see the printer setting information and press right button or Power ON/OFF by software.
- Ver X.XX… Initialize… : Under checking the printer's version and initializing.
- SMART Printing! : Printing.
- SMART Mag R/W : Reading or writing the data on Magnetic Stripe.
- SMART Out of Ribbon : No Ribbon in the printer or Ribbon is used all. Check the Ribbon!
- SMART Out of Card : No Cards in the hopper. Check the Cards on the hopper!
- SMART Case Open : Top Cover is open. Please close the Top Cover.
- Ribbon Not found : Ribbon search is failed. Press left button to replay or press right button to cancel.
- Card In Error : Card insertion is failed. Check the card on the hopper! Press left button to replay or press right button to cancel.
- Reposition Error : Card is not moved to the proper position. Press left button to replay or press right button to cancel.
- Head U/D Error : Printer head is not moved to the proper position. Press left button to replay or press right button to cancel.
- Card Out Error : Card is not outputted. Press left button to replay or press right button to cancel.
- Mag R/W Error : Reading or writing the data is failed. Press left button to replay or press right button to cancel.

2. Installing the Printer

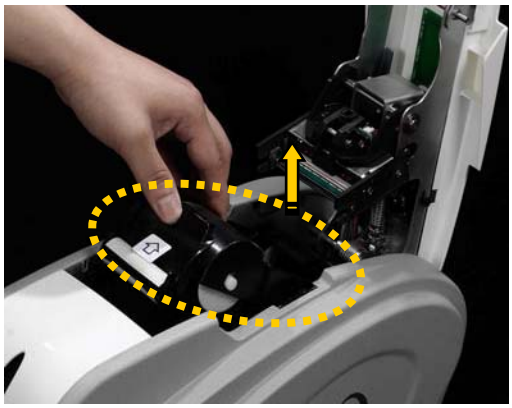
2.1 Loading a Ribbon

Before print, prepare the related items such as a card, a ribbon and a cleaning roller. In this section, we invite you to know the proper method to install the Ribbon and cleaning roller to the printer.

2.1.1 Make the printer power OFF.

2.1.2 Open the printer top cover by pressing the top cover open button.

<Figure 5> Open Top Cover



<Figure 6> Take out the cartridge

2.1.3 Take out the ribbon cartridge.

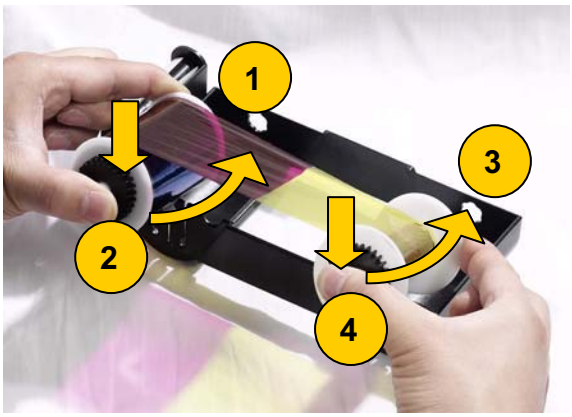
2.1.4. Prepare the ribbon before inserting it into the cartridge.

Refer to the illustration on the inside of the cartridge.

<Figure 7> Prepare the ribbon

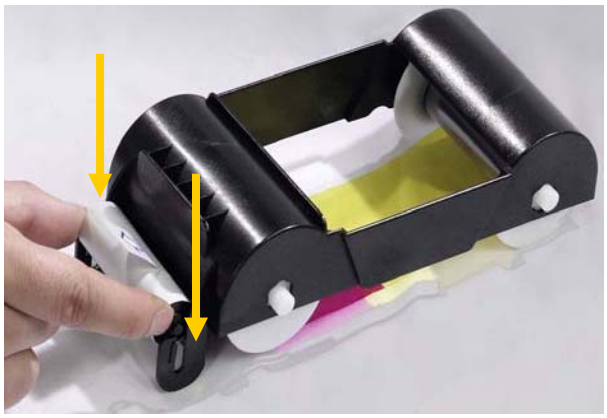
2.1.5. Insert the supply side of the ribbon to no.1 hole and press the opposite (no.2) until it clicks. Insert the take-up side of the ribbon same method to no.3 and no.4. And fasten the ribbon.

(Caution! If the ribbon is not fastened, a rolling up error might happen.)



<Figure 8> Install the ribbon

2.1.6. Install the disposable cleaning roller to the ribbon cartridge.



<Figure 9> Install the cleaning roller

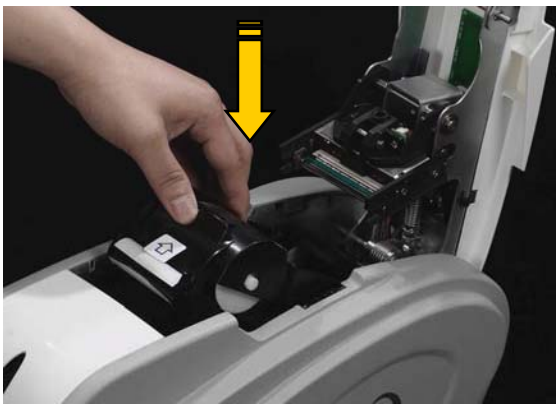
2.1.7. Peel the protective wrapper from the cleaning roller.

To avoid contamination, always hold the cleaning roller. Be careful of touching, dust and contamination because it is adhesive.

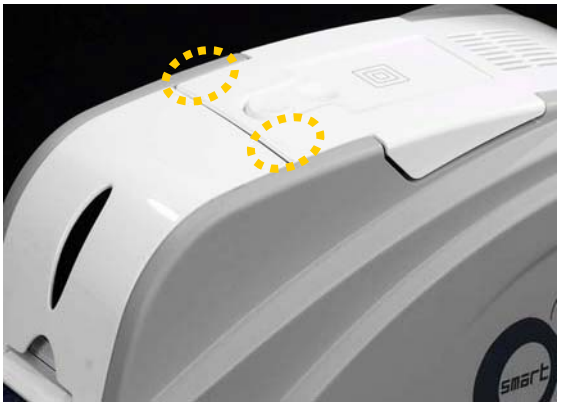
(Caution! Do not use without peeling off the protective wrapper.
The cleaning roller do not perform its function.)

<Figure 10> Peel the protective wrapper

2.1.8. Install the ribbon cartridge to the printer after install the ribbon and cleaning roller to the cartridge.



<Figure 11> Install the ribbon cartridge



<Figure 12> Close Top Cover

2.1.9. Close the top cover until it clicks.
If it is not closed, check the installation state of the ribbon cartridge.

2.2. Loading Cards

This section shows how to load plastic cards into the Smart Printer.

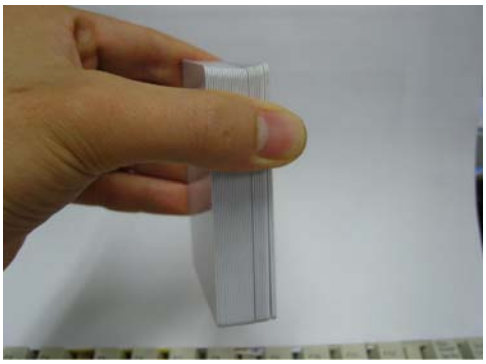
2.2.1. If the card hopper cover is closed, open it.

2.2.2. Adjust the card thickness with control lever.
(Caution! If the adjustment is not correct, it will make some errors. Use the type of cards appearing in the specification in this manual. Always keep cards surface clean.)

<Figure 13> Adjust the card thickness

2.2.3. Hold the cards by sides like picture

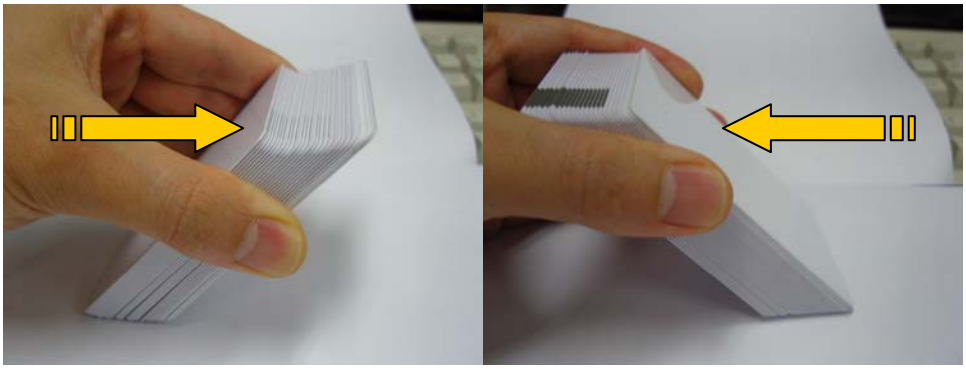
(Caution! Do not bend the cards and do not touch the surface of the cards)



<Figure 14> Holding the cards

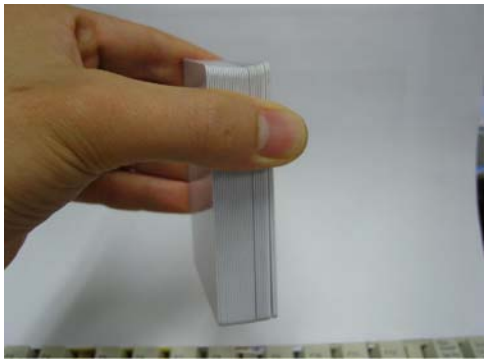
2.2.4. Push the stack back and forth to an angle of about 45° vertically.

(Note : Static charge makes cards stuck with significant adhesive force. These cards must be physically separated from each other before inserted into the feeder. If not separated, feeding or printing problems may occur.)



<Figure 15> Push the stack back and forth

2.2.5. Restore the card stack to its original condition.



<Figure 16> Restore the card stack

2.2.6. Place the card to the input hopper and close the hopper cover.

<Figure 17> Placing the cards and close the hopper cover

2.3. Installing the Printer Driver

2.3.1. Check the printer's power OFF.

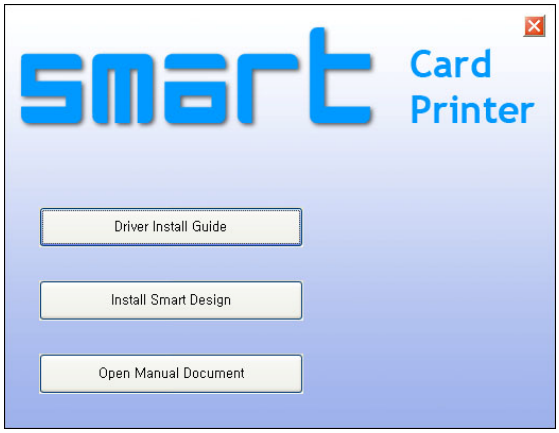
2.3.2. Connect the power cord and USB cable to the printer.

<Figure 18> Connect the power cord

2.3.3. Insert CD provided with the printer.

<Figure 19> CD loading

2.3.4. Click "Driver Install Guide"



<Figure 20> Driver Install Guide

2.3.5. Check and follow the driver installation guide.

<Figure 21> Driver Installation

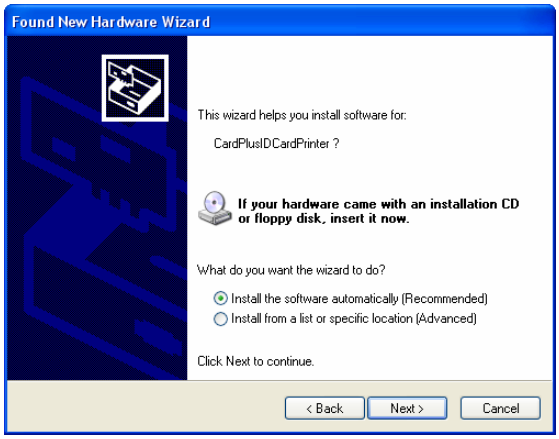
2.3.6. Turn On the printer.

<Figure 22> Printer Turn ON

2.3.7. Select "No, not this time" and click " Next".

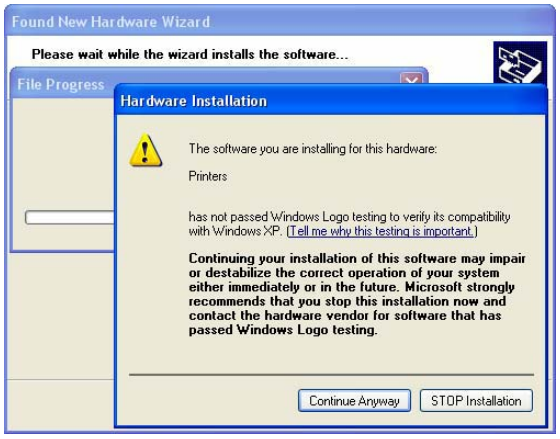
<Figure 23> No, not this time

2.3.8. Select "Install the software automatically" and click "Next".



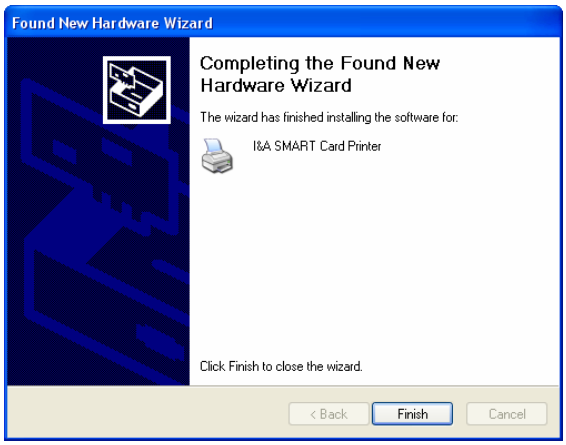
<Figure 24> Install the software automatically

2.3.9. Click “Continue Anyway” in Hardware Installation.



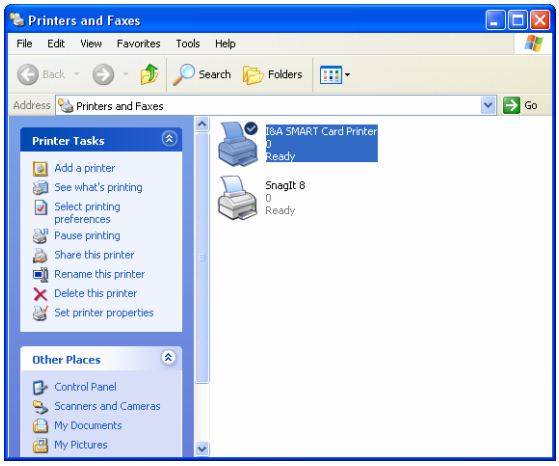
<Figure 25> Continue Anyway

2.3.10. Click “Finish” in Completing the Found New Hardware Wizard.



<Figure 26> Finish

2.3.11. Check “I&A SMART Card Printer´is generated in Printers and Faxes.

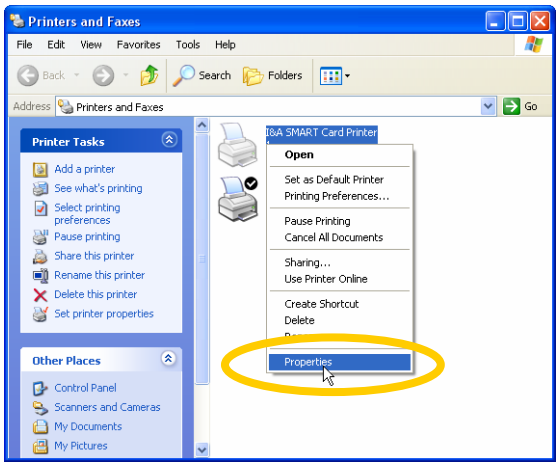


<Figure 27> I&A SMART Card Printer

2.4. Test Printing

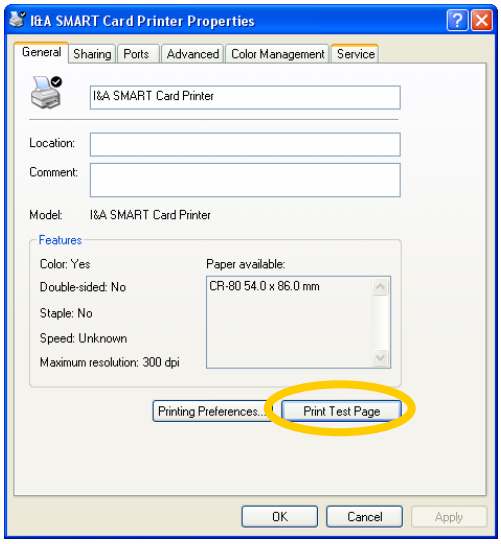
In this step, you can check whether the printer driver installation has been finished successfully.

2.4.1. In “Printer and Fax” window, click right button on ‘I&A SMART Card Printer’ icon, then select “Properties”.



<Figure 28> Printer Properties

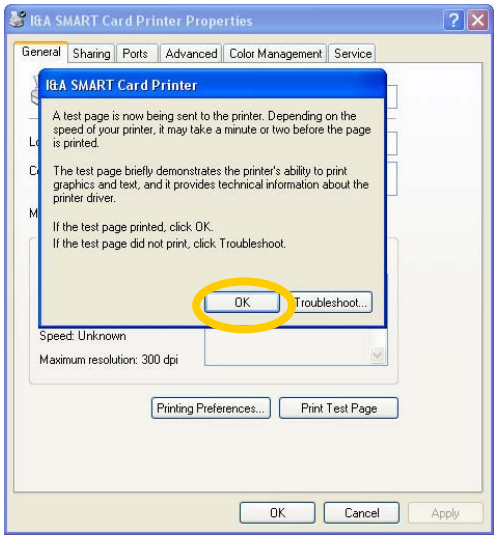
2.4.2. After selecting “General” tab in “I&A SMART Card Printer properties” window, click “Print Test Page” button.



<Figure 29> Print Test Page

2.4.3. Printer will start printing, and on the screen it will be asked whether printing was successful.

(If the printing is abnormal or printer error occurs, you may execute test printing again after resolving the problem with the assistance of “Trouble Shooting” section.)



<Figure 30> Test Print O.K

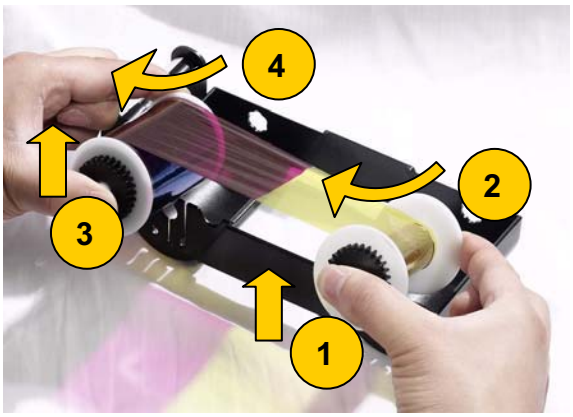
2.5. Changing a Ribbon and a Cleaning Roller

When you change ribbon, you have to change cleaning roller, too.
(Caution! Without changing disposable cleaning roller, the printing quality is not guaranteed.)

2.5.1. Turn off the printer power.

2.5.2. Open the top cover, and then take out the ribbon cartridge.

2.5.3. Separate bar-1 from the cartridge, then bar-2. Lift up the ribbon bars in order of 3 and 4.



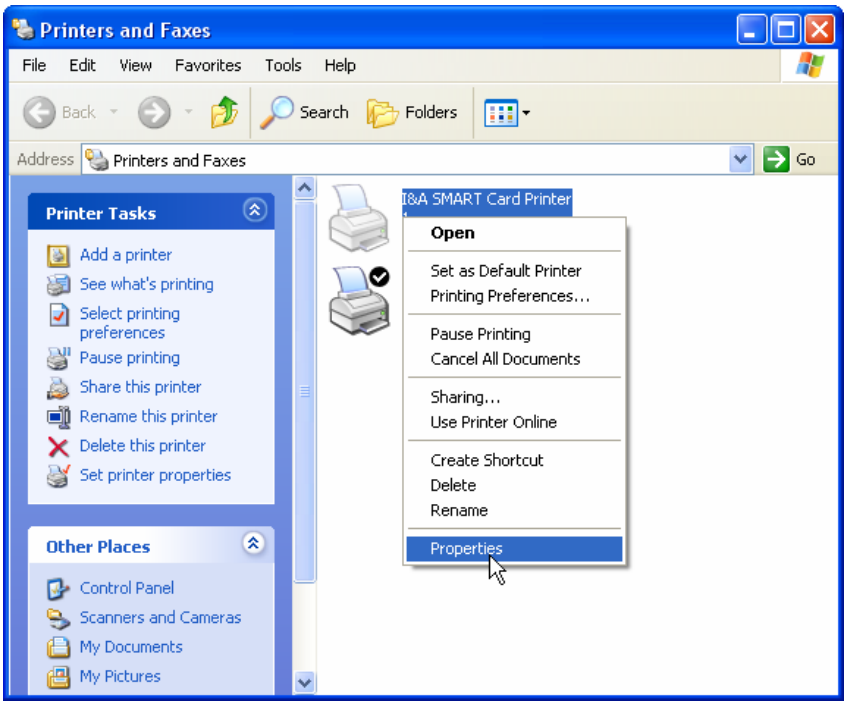
<Figure 31> Ribbon Separation

2.5.4. Remove the used ribbon. Set up the new ribbon and cleaning roller together, with the reference of 2.1 “Ribbon Setting”.

3. Checking and changing the Printer Properties

3.1. Checking the Printer Properties

To check the Smart Printer Properties, go to “Control Panel”, click right button on “I&A SMART Card Printer” in Printers and Faxes. Then select “Properties”.



<Figure 32> Checking the Printer Properties

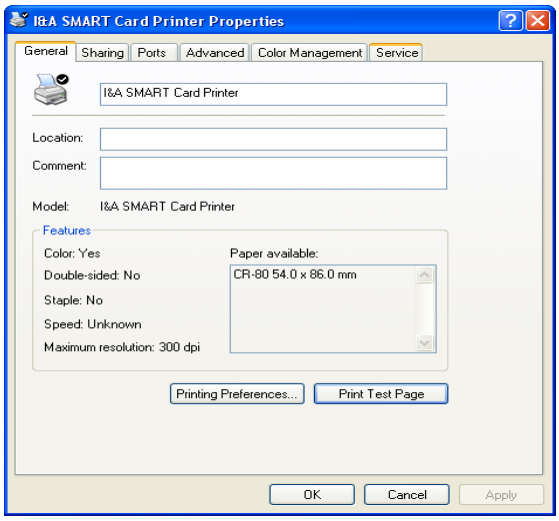
When you select “Properties” in “I&A SMART Card Printer”, a window, you can check and change the properties, will be created as <Figure 32>.

3.2. Changing the Printer Setting

In “General” tab of <Figure 33>, you can see the printer model and specification.

3.2.1 Basic Printing Setting

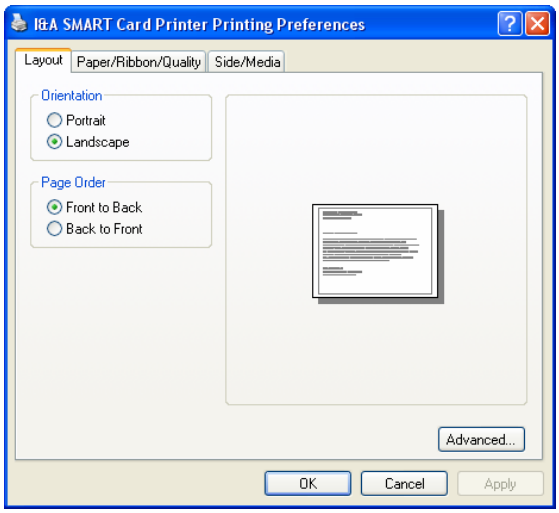
There are 3 tabs of Layout, Paper/Ribbon/Quality, and Side/Media.
(You can set the options for printing in the window of <Figure 33>.)



<Figure 33> Printing Setting

.2.1.1 Layout tab

- You can select either horizontal or vertical printing direction. To apply your selection, click “OK” button.
  (Caution! Default value is recommended in advanced option. If you want to change the value, please contact I&A System Reseller.)



<Figure 34> Layout

3.2.1.2 Paper / Ribbon / Quality tab

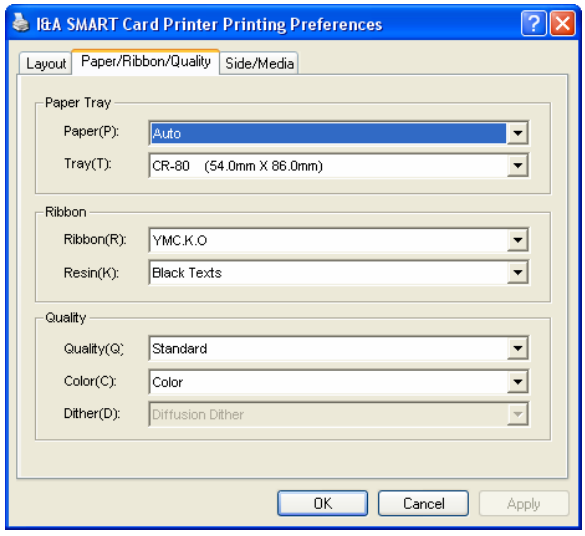
You can set the type of paper, ribbon, and quality as <Figure 35>.

- Paper Tray

Select tray and card type option.
SMART has only one hopper and supports only CR-80 type card. You need not to change default value in this option.

- Ribbon

You can see the type of ribbon. SMART identifies ribbon type automatically with RF Tag. You do not need select the ribbon type.



<Figure 35> Paper/Ribbon/Quality

- Resin

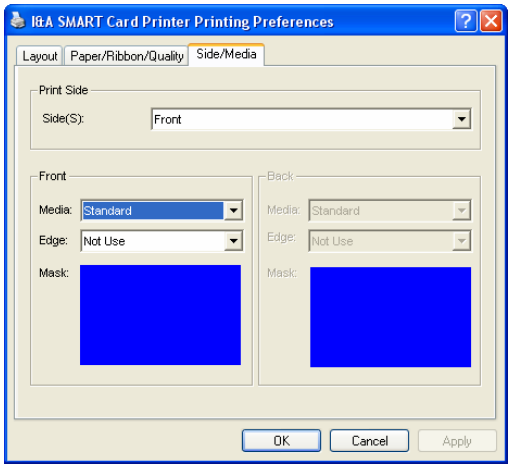
You can set the method to extract resin black when the printing is executed by other design programs. If you use Smart Design, you don't need to select this option. It will be set automatically.

- Quality

Print quality setting - There are 2 modes, Standard and High.
High: Printing speed will be slow down.
Color: You can select color or black & white print.
Caution! "Color" option is available only with color ribbon.
Dither: There are 3 possible selections, Threshold, Random, and Diffusion Dither.
(Select "Diffusion Dither" for high quality.)

3.2.1.3 Side/Media tab

You can set the printing side and printing mask.



<Figure 36> Side/Media

Print Side

You can select one side printing or both Sides printing.

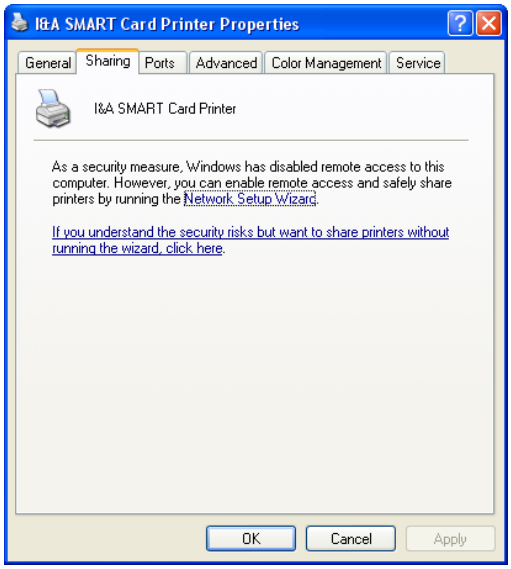
Front / Back

The previously defined mask (standard, smartcard, magnetic, etc) can be applied to front or back side.

3.3. Changing the Printer Properties

3.3.1 Share tab

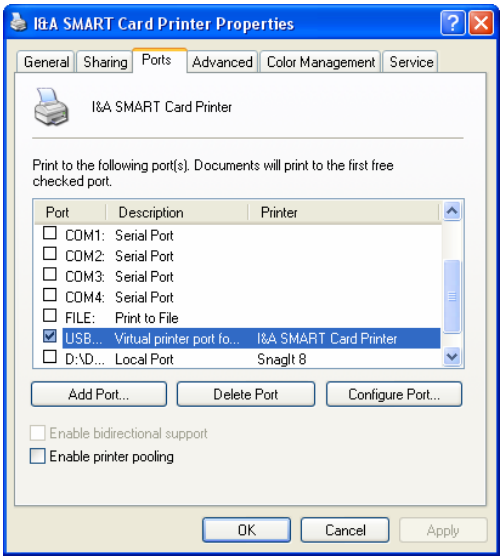
"Share" option allows printer to share through network as <Figure 37>.
Default value is "Not Share".



<Figure 37> Sharing Printer

3.3.2 Port tab

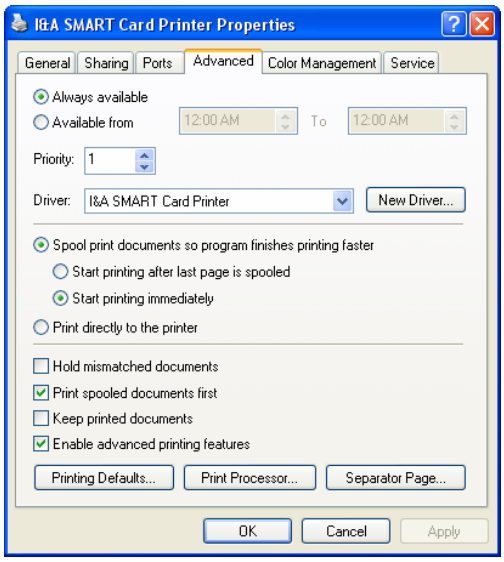
Port tab shows the port connecting with SMART. SMART has connection with USB Virtual printer port as <Figure 38> because SMART uses USB to connect with PC.
(Caution! This port is selected automatically. It is recommended to maintain default value.)



<Figure 38> Ports

3.3.3 Advanced tab

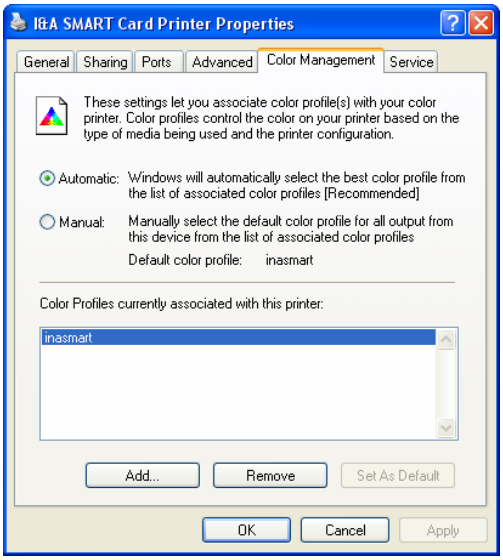
It is for “Time option” setting, “Priority order”, “Spool”, and etc are available in “Advanced” tab. “Advanced” setting follows MS Windows standard.
If you want to change the setting, refer to the Window manual.
(It is recommended to maintain default value.)



<Figure 39> Advanced

3.3.4 Color Management tab

In “Color management” tab, you can select color management profile fit to the printer.
SMART uses color profile to express optimal color. The default profile is ‘inasmart’.
(It is recommended to maintain default value.)



<Figure 40> Color

4. Troubleshooting

In this section, you would get useful solutions about some possible problems while using printer.

4.1. Card Transfer

4.1.1. Card can't enter into the printer from card hopper.

If the card can't get into the printer at all or insert problems occur frequently, check the followings.

- **Non-standard cards or bad cards:**
  Change the cards.
- **When the card thickness control lever is set not for current card but for other card in different size:**
  Move the lever to fit the current card.
- **Bad card array:**
  Array the cards again and put them in the hopper as section 2.4 in this manual.
- **Wet cards or cards having static:**
  Remove the moisture or static.

4.1.2. Transfer error occurs when ribbon is stuck to the transfer roller or to the printing roller.

Open the top cover and remove the card with front switch or manual transfer wheel. Check the followings, if transfer related problems occur frequently.

- **Non-standard cards or bad cards:**
  Change the cards.
- **When the transfer roller or printing roller is stained with dirt**
  Remove the dirt with the cleaning kit.
- **Wrong printing position setting:**
  Please contact I&A System Reseller.
- **When operating temperature and humidity is out of the acceptable operating limit of the printer:**
  Adjust the condition to the printer.

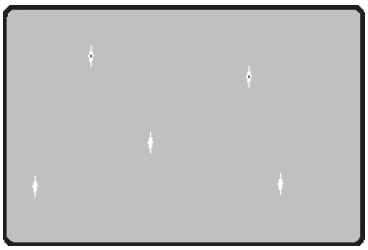
4.1.3. An error occurs during card transfer.

Open the top cover and remove the card with front switch or manual transfer wheel. Check the followings, if transfer related problems occur frequently. First of all, check the error message on the LCD screen.

- **Non-standard cards or bad cards:**
  Change the cards.
- **Inappropriate printer setting:**
  Please contact I&A System Reseller.
- **When the printer roller is stained with dirt:**
  Remove the dirt with the cleaning kit.
- **When the surface of the card is stained with dirt:**
  After checking the card, change it to another card.

4.2. Print quality

4.2.1. Small dots appear: Some parts of the card are not printed or are printed with wrong colors.



<Figure 41> Print Quality Trouble Example1

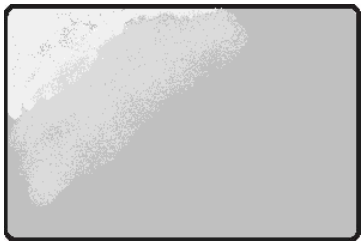
- **When the surface of the card is stained with dirt:**
  After checking the card, change it to another card.
- **When the cleaning roller is stained with dirt:**
  Check the cleaning roller. If there is much dust, change the roller to the new one.
- **Much dust in the printer:**
  Clean the inside of the printer with the cleaning kit.

4.2.2. Horizontal lines appear, because the areas are not printed.

<Figure 42> Print Quality Trouble Example2

- **Inaccurate ribbon cartridge installation:**
  Check the ribbon cartridge installation whether the ribbon has wrinkles.
- **When the printer head is stained with dirt:**
  Clean the printer head.
- **Damaged printer head surface:**
  Please contact I&A System Reseller for replacement.

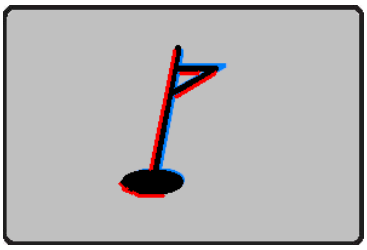
4.2.3. The print is not clear, or is uneven.



<Figure 43> Print Quality Trouble Example3

- **Uneven or bad card surface:**
  Change the card.
- **Too high or low value of the depth of color:**
  Please contact I&A System Reseller. The default value of the depth of color for your printer needs to be changed.
- **When the printer head is stained with dirt:**
  Clean the printer head.

4.2.4. The color of the printed image strays from its place slightly.



<Figure 44> Print Quality Trouble Example4

- **Non-standard card:**
  Change to the standard card.
- **Uneven or bad card surface:**
  Change the card.
- **When the transfer roller or printing roller is stained with dirt:**
  Remove the dirt with the cleaning kit.
- **Worn-out printer:**
  Please contact I&A System Reseller.

4.2.5. The printer prints unplanned color at the edge, or the printed color is quite different from the original image.

<Figure 45> Print Quality Trouble Example5

- **Non-standard card:**
  Change to the standard card.
- **Uneven or bad card surface:**
  Change the card.
- **When the transfer roller or printing roller is stained with dirt:**
  Remove the dirt with the cleaning kit.
- **Worn-out printer:**
  Please contact I&A System Reseller.

4.3. Magnetic Stripe Encoder

4.3.1. An error occurs in magnetic stripe encoder.

To replay, press the left LED button.

- **When the magnetic head is stained with dirt:**
  Remove the dirt with the cleaning kit.
- **When magnetic data is not transferred or transfer error occurs:**
  Check the setting of the program and the driver whether the data fits the standard of the track.
- **When inserted card is not magnetic card, or inserting direction is wrong:**
  Change the card or the direction.
- **Bad magnetic stripes on the card:**
  Change the card.

4.4. General Operation

4.4.1. Ribbon is torn while printing.

Open the top cover and take out the cartridge. After putting the broken pieces on together, install the cartridge again. Check the followings if this kind of problem occurs frequently.

- **Non-standard card, Uneven card surface, etc:**
  Change the card.
- **Too high value of the depth of color:**
  Please contact I&A System Reseller. The default value of the depth of color for your printer needs to be changed.

4.4.2. LCD screen displays the error message “Ribbon Not Found”.

To replay, press the left LED button. Check the followings if this kind of problem occurs frequently.

- **Non-standard ribbon:**
  Change to the standard ribbon.
- **Ribbon is consumed.**
  Printing is not possible if ribbon is used up. Change the ribbon.
- **Broken ribbon:**
  Refer to 4.4.1.

4.4.3. Printer does not operate though the printing data has been transferred.

Check the followings.

- **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 I&A System Reseller for replacement of the adaptor.
- **When the value of the printer driver is not “Online” but “Offline”:**
  Change the setting to “Online”.
- **When the USB cable for printer transfer is off or the connection is bad:**
  Check the connection of the cable between PC and the printer.
  Make the USB cable connection again.
- **Bad USB cable for printer transfer:**
  Change the USB cable.
- **If the selected printer is different model rather than SMART:**
  Select SMART to print.
- **Wrong port setting of the printer driver:**
  Check the port setting of the printer driver whether it is USB port or not.
- **No ribbon in the printer or printer in error mode:**
  Install ribbon in the printer or resolve the error.
- **Too long power or transfer cable (more than 1.5M):**
  Use the cable provided with the printer.
- **When USB transfer port of PC is down:**
  Restart your PC.

5. Printer Specification

Product Specification	Smart	Smart Dual
Card Type	PVC, Polyester Cards with polished PVC finish	
Printing Method	Dye-Sublimation / Resin Thermal Transfers / Edge - to - Edge	
Card Format	ISO CR-80 (54mm x 86mm / 2.12" x 3.38")	
Card Thickness	0.38mm (15mil) ~ 1.0mm (40mil)	
Resolution	300 dpi	
Memory	32MB	
Printing Speed	Color (YMCKO) : max 144 cards / hour	
	-	Color (YMCKOK) : max 120 cards / hour
	Black Overlay (KO) : max 360 cards / hour	
	Mono (Black) : max 720 cards / hour	
Ribbon Capacity	Color (YMCKO) : 250 cards / roll	
	-	Color (YMCKOK) : 200 cards / roll
	Black Overlay (KO) : 600 cards / roll	
	Mono : 1,200 cards / roll (Black, Gold, Silver)	
Hopper & Stacker	Hopper : 90 cards, Stacker : 40 cards	
Interface	USB	
Display	2 Lines LCD & LED	
Power	Free Voltage (110/240V AC), 50 ~ 60 Hz	
Dimension	170mm(W) x 195mm(H) x 420mm(D)	170mm(W) x 195mm(H) x 510mm(D)
Operating Environment	Temperature : - 20 ~ 55℃, Humidity : 20 ~ 95%	
Weight	4.5 Kg	5.5 Kg
Agency Listing	MIC, CE, UL, FCC	
Printer Driver	Windows 2000 / 2003 / XP	

Option		
Magnetic Stripe Encoding Module	ISO7811 (Track Ⅰ, Ⅱ, Ⅲ Read / Write), JIS Ⅱ, HiCo / LoCo	
IC (Contact) Encoding	ISO7816 (ID-1) SIM Type - ISO7816 (ID-000)	
Two Contactless Encoding (Internal & External)	ISO14443 (Type A / B), ISO15693, MIFARE	
Rotator	Option	Default

* Specifications are subject to change with or without notice.

FCC warning

This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.
If this equipment does cause harmful interference to radio or television reception which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures.

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio, TV technical for help.
- Only shielded interface cable should be used.

Finally, any changes or modifications to the equipment by the user not expressly approved by the grantee or manufacturer could void the users' authority to operate such equipment.

CE warning

! Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

EN Test Regulation Version.

1) EN 300 330-1 V1.5.1:2006.04
2) EN 301 489-1 V1.6.1:2005.09
3) EN 301 489-3 V1.4.1:2002.08