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CRT-310-NR01 Motorized Card Reader Manual



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Revision record

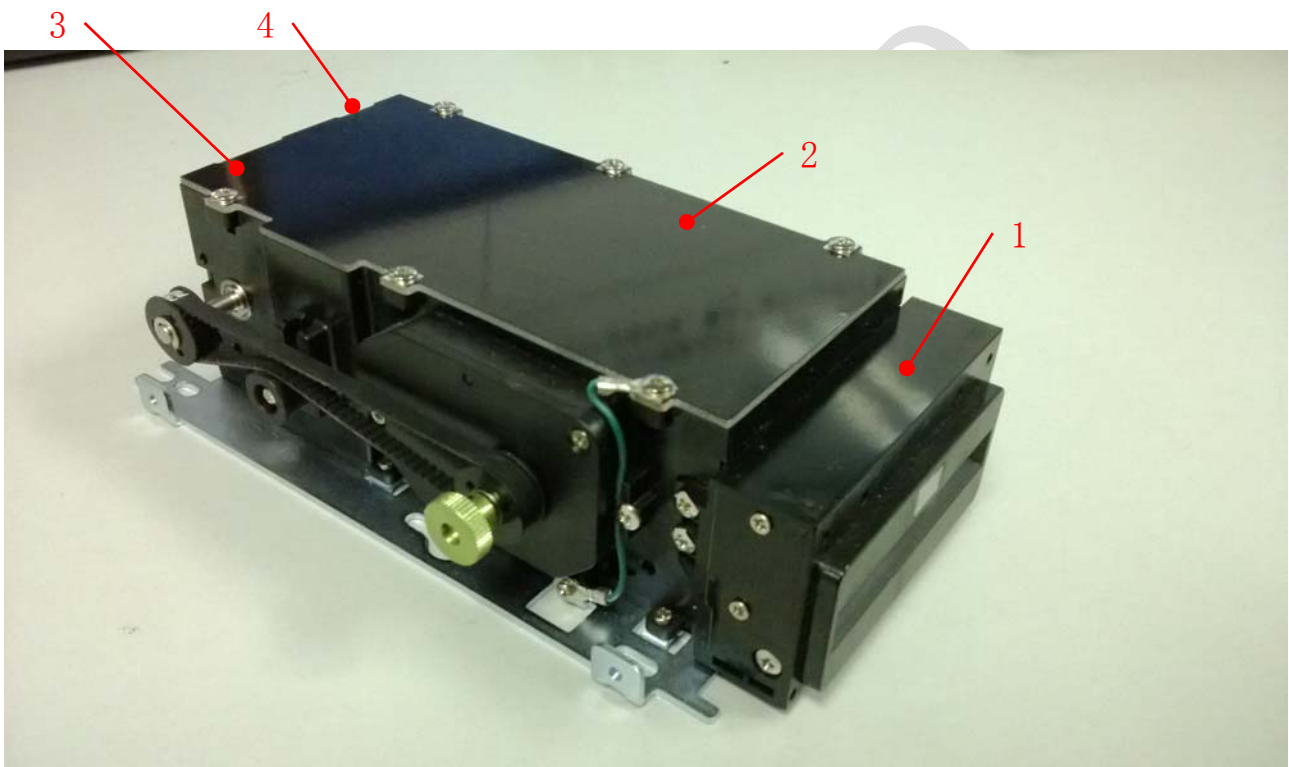
Version	Date	Content
V1	2013. 12. 09	First time release

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- Welcome to use Creator' s product
- Please read the manual carefully before you use our product

Basic component:




- 1-----Bezel (optional)
 2-----Pulley and card read parts
 3-----RS-232 communication interface connector
 4-----4PIN interface connector of power supply

Warn : Morn than 15V is prohibited, it may cause reader damaged! !

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8.2 Read magnetic stripe card:	10
ICRW automatically reads the magnetic stripe card after the card enters in, save the data in RAM, waiting to upload the data after receiving the relevant command;	10
8.3 Read IC card: moving to IC card operation position, and begin to operate after successfully move (including auto-test card type)	10
8.4 Read contactless IC card: the card staying in ICRW at IC card operation position, RF operation is allowed at this moment.	10
8.5 Abnormal cards handling:	10
1) Abnormal cards means that the size and shape are different from ISO standard cards;	10
2) ICRW automatically removes the card to the front of entrance if it judges the card is abnormal as the card enters into the machine;	10
3) Recharging of abnormal card, if ICRW checks the abnormal card existed, there are 2 ways to handle as following:	10
① For the long length card, executing reset command, ICRW removes the card to the front;	10
② For the shorter card, nowhere the card is in machine or at front entrance, executing reset command “ejecting the card backwards” , meantime to insert a normal card , ICRW will discharge them together backwards.	10
8.6 Power down handling:	11
1) The power cable is combined with 4- wire (red-yellow-2 black) , 12V-red/yellow, GND-black, the yellow-black in middle set is prepared for backup power supply, connecting to back-up capacitor for card ejecting when power down;	11
2) Once main power down, there is a backup power for preparing work, the ICRW will start to run its power down mode after 1 second, if the card is inside of the ICRW, eject card or not decided by set of PD parameter; ICRW responses negative to any command before the power supply recovered (error word “power down protected state”) ;	11
3) If the main power is recovered ($\geq 11V$), the ICRW returns to previous state (before power down) by executing reset command.	11
8.7 Error handling	11
Once ICRW occupied with the error of blocks, it’ s necessary to clear the error sign by sending the reset command, after that it’ s possible to execute other commands. (The details referred to protocol)	11
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1、Product Overview

CRT-310-NR01 is a motorized card reader with card captured/ ejected and 3-card in one function.

Product main feature:


- 1) 3-card in one: Mag-card read, IC card read & write, contactless IC card read & write.
- 2) Electromagnetic controlled shutter, the commands support Mag/switch controlled open.
- 3) Motorized card captured and ejected with the function of card retrieved at rear end.
- 4) Installed dimension and location of bezel holes are completely compatible with SANKYO ICT-3K7-3R6940 (height is difference);
- 5) Communication protocol, fault tolerant and card processing are same as SANKYO ICT-3K7-3R6940;
- 6) High reliability and durability;
- 7) CE and EMC certification;
- 8) Power traced and power down protected
- 9) PBOC3.0 and EMV4.1 certified (contact IC card);
- 10) ICRW life: at least 600,000 cycles (one cycle is card in and out);
- 11) Optional parts: PSAM board

2、Specification

- 1) With functions of Magnetic stripe card read, contact & contactless card read & write, the cards should be compliant of related standard, refer to technical parameters.
- 2) With the functions of automatically card captured, controlling of in/out/retrieved.
- 3) Both front & rear insertion of card, move and clear broken card in reader.
- 4) RS232 interface
- 5) With multi-function of fault tolerant and special maintenance including process of abnormal cards and power down etc.

3、Technical Parameter

- | | |
|------------------------|---|
| 1) Power supply | DC 12V±5% |
| 2) Current consumption | Idle current: less than 150 mA
Peak current: less than 1500 mA |
| 3) Speed | Around 300mm/s |
| 4) Interface | RS232 |

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IS014443-4 (TYPE A CPU: mifare plus, mifare desfire etc)

(TYPE B CPU)

20) Magnetic stripe card standard


Physical feather: IS07810 and 7811

Card dimension: IS07810ID-1-magnetic stripe card standard

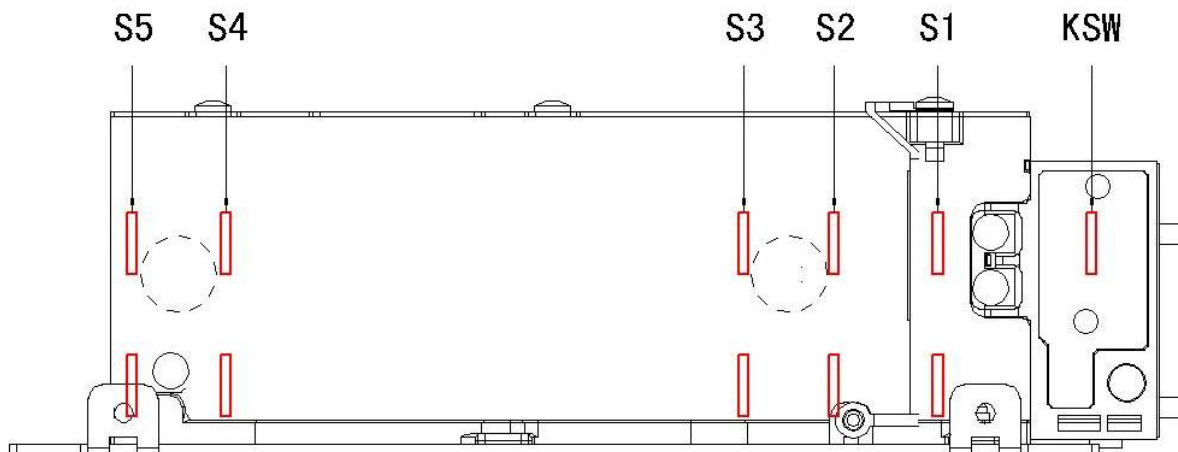
Embossed card: IS07811-1 and IS07811-3

Record format: IS07811-2、IS07811-4、IS07811-5 and IS07811-6 standard


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4、Sensor location instruction:

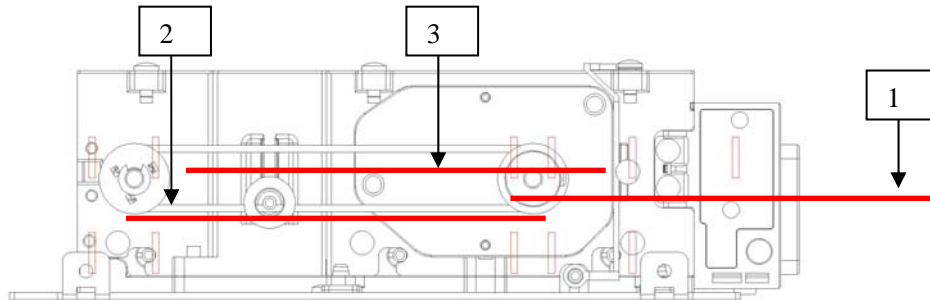


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7、Card moving status:

1. The card holding position at front side
2. Inner position
3. IC card operation position



8、Operation mode

8.1 Card insertion of activities:

- 1) ICRW automatically reads the magnetic stripe card after the card enters in, then moves the card to the inner specific position;
- 2) ICRW moves the card to the inner specific position after the card entries from rear terminal.

8.2 Read magnetic stripe card:


ICRW automatically reads the magnetic stripe card after the card enters in, save the data in RAM, waiting to upload the data after receiving the relevant command;

8.3 Read IC card: moving to IC card operation position, and begin to operate after successfully move (including auto-test card type) .

8.4 Read contactless IC card: the card staying in ICRW at IC card operation position, RF operation is allowed at this moment.

8.5 Abnormal cards handling:

- 1) Abnormal cards means that the size and shape are different from ISO standard cards;
- 2) ICRW automatically removes the card to the front of entrance if it judges the card is abnormal as the card enters into the machine;
- 3) Recharging of abnormal card, if ICRW checks the abnormal card existed, there are 2 ways to handle as following:
 - ① For the long length card, executing reset command, ICRW removes the card to the front;
 - ② For the shorter card, nowhere the card is in machine or at front entrance, executing reset command “ejecting the card backwards” , meantime to insert a normal card , ICRW will discharge them together backwards.

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8.6 Power down handling:

- 1) The power cable is combined with 4-wire (red-yellow-2 black) , 12V-red/yellow, GND-black, the yellow-black in middle set is prepared for backup power supply, connecting to back-up capacitor for card ejecting when power down;
- 2) Once main power down, there is a backup power for preparing work, the ICRW will start to run its power down mode after 1 second, if the card is inside of the ICRW, eject card or not decided by set of PD parameter; ICRW responses negative to any command before the power supply recovered (error word “power down protected state”) ;
- 3) If the main power is recovered ($\geq 11V$), the ICRW returns to previous state (before power down) by executing reset command.

8.7 Error handling

Once ICRW occupied with the error of blocks, it' s necessary to clear the error sign by sending the reset command, after that it' s possible to execute other commands. (The details referred to protocol)

9、power supply connection illustrating

CRT-310-NR01 with two methods:


- 1) Single main power connection (shown as following picture 1)

Red & yellow mixed wire connected to +12V, black wire connected to -12V

- 2) Main power + back-up capacitor (for card ejected after power down) connection method (shown as following picture 2)

Red connected to +12V, black connected to -12V,

Yellow wire connected to back-up capacitor + terminal, black wire connected to back-up capacitor - terminal.

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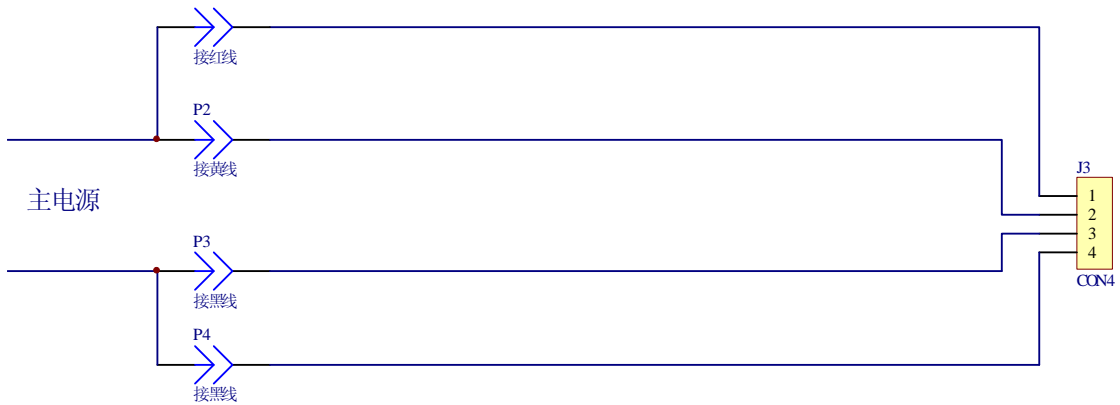


图1：无掉电弹卡功能接线

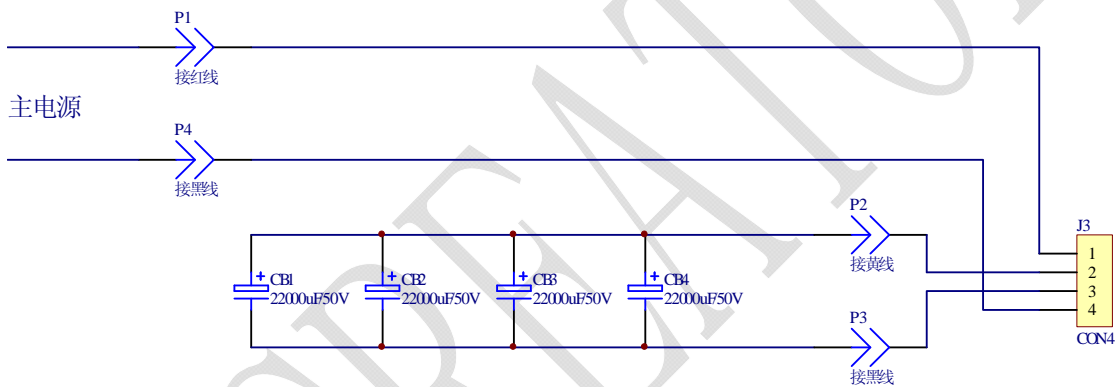



图2：后备电容组掉电弹卡功能接线

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10、Preventive and Maintenance

The reader should be maintained after the appropriate interval of use:


- 1) When the transportation roller is dirt, please use cleaning card with alcohol
- 2) Dip the cleaning card into alcohol and execute card transportation command to clean the internal area.
- 3) Periodic maintenance:

For sensor, magnetic head and IC contact, suggest a maintenance every 2,000 times

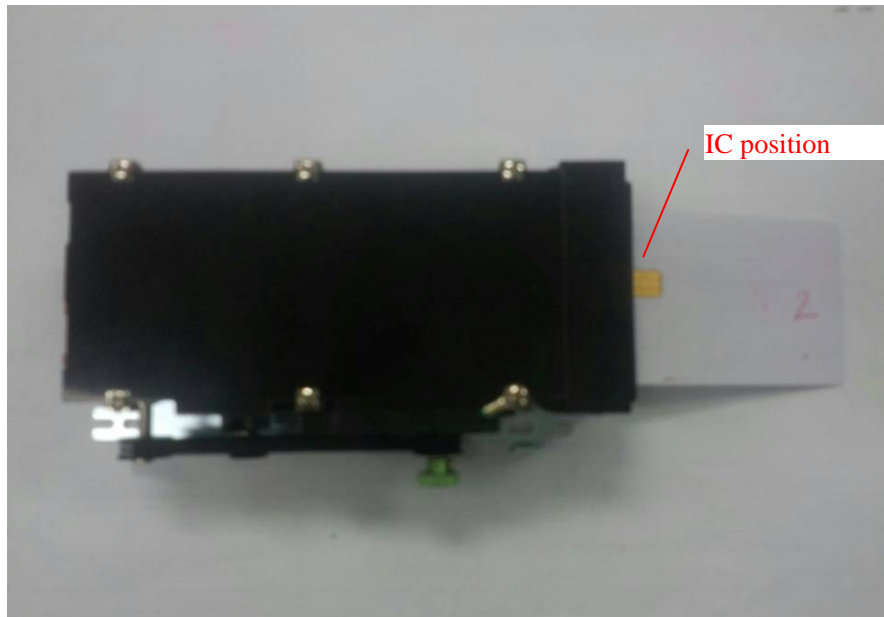
- ① Sensor maintenance: Connect reader first and operate DEMO to query & check sensor status. In the initial status (No card inside), the all status of sensor are "OFF", and if there is a sensor status show as "ON", the maintenance of this sensor group is needed.
- ② IC contact maintenance: If any dirt is founded on the IC contact, please use cleaning card with alcohol to clean. Use method: After insert cleaning card, please execute auto test card type function to clean the IC contact.
- ③ Roller maintenance: Use card transportation command and cleaning card.
- ④ Magnetic head maintenance: Use card transportation command and cleaning card

11、Cautions for use

- 1) Cut the power for ICRW before start to repair
- 2) Prohibit to plug out serial port in electrified condition.
- 3) Grease contamination is prohibited
- 4) Suggest DC12V/3A power supply. Prohibit to access to power surpass 15V
- 5) Plug out power first than serial port

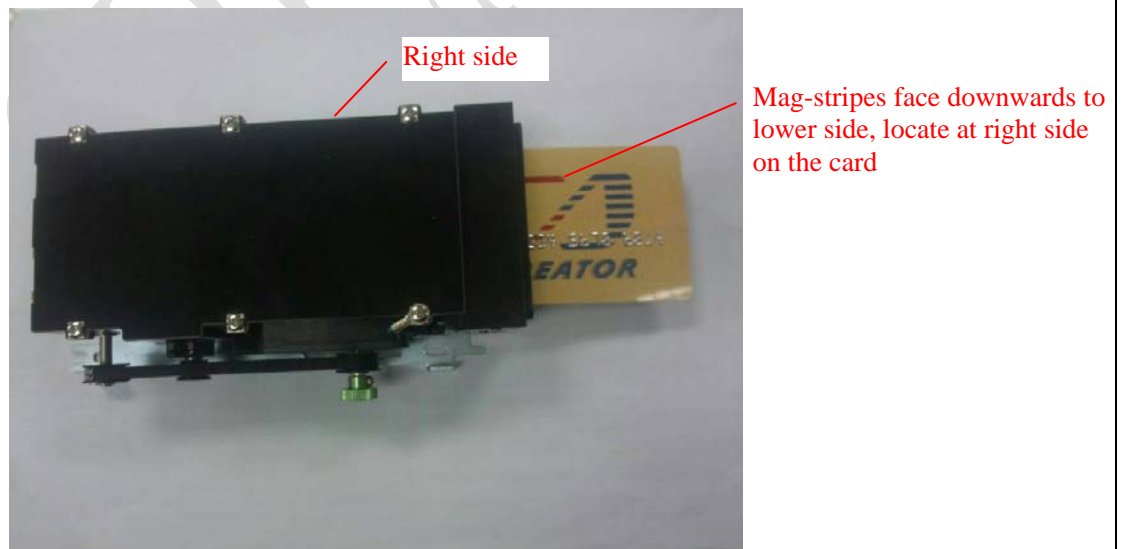
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6) Insertion direction for IC card: See the following picture. Shown as following (Picture 3)




Picture 3 IC card entry direction

7) Insertion direction for Magnetic card: Magnetic strip is on the right side of reader; please refer to the following picture 4



Picture 4 Magnetic stripe card entry direction

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12、 Other relevant documents

- 1) DLL: CRT-310-NR01 DLL Specification .PDF
- 2) DLL SOURCE CODE: DLL sample source code
- 3) Communication Protocol: CRT-310-NR01 Protocol .PDF

13、 Structure dimensions

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