PRODUCT SPECIFICATION

CRT-310-（004）

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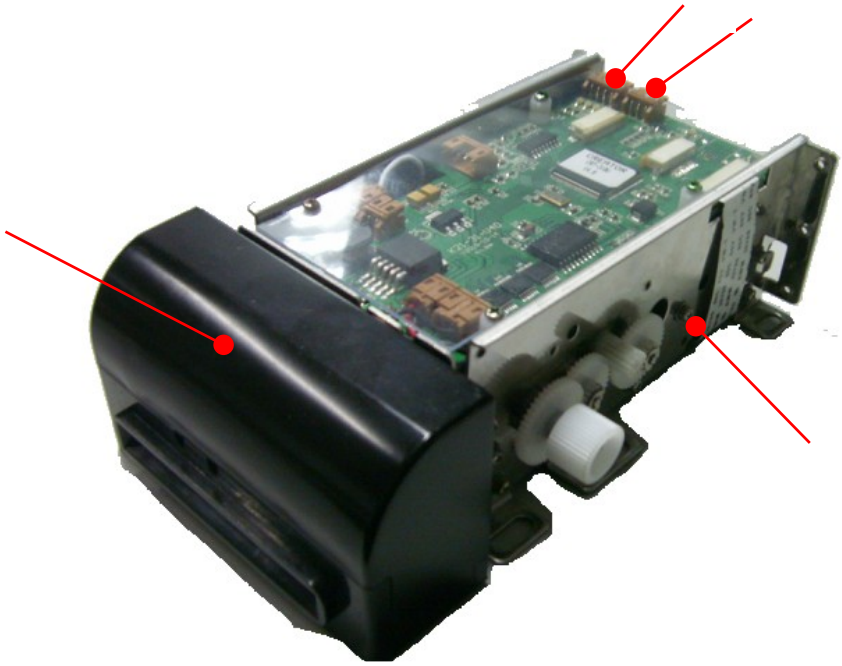
Fundamental Construct：



1----------Bezel

2----------Transportation components

3----------RS-232 communication interface

4----------4 PIN Power interface

Warning：Forbidden to access to power up to 15V, otherwise reader will burn down

Contents

1. Overview 4

2. Functions.....4

3. Technical Index 4

4. Model Number Specification……..……..6

5. Interface Specification……7

6. Optical Sensor Position……..……...8

7. Stop Position……...9

8. Operation Description……..……9

9. Power Connection……10

10. DEMO Handling Instruction……..…12

11. Maintenance……15

12. Caution for Use……..……16

13. Relevant Documents……..……17

14. Structure Dimensions……..……..18

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1. Overview

CRT-310-(004) is 3 in 1 motorized card reader with the following features:

Main Feature：

1）3 in 1: Magnetic Card (Read only), IC card and RF card

2）Card automatic capture and ejection

3）Various card transportation stop position

4）Shutter option: Electronics and mechanism bezel is available for a choice

5）Selective accessories: DC24V/DC12V converter plate，PSAM Board

6）Fault-Tolerance processing

7）Custom service

2. Functions

1) Magnetic Only read, IC card Read/Write and RF card Read/Write

2) Card Automatic capture, ejection and recycling

3) Clearance of abnormal card

4) RS232 Interface

5) Non-standard card processing, power-fail protection

3. Technical Index

1) Input voltage	DC 12V±5%
2) Power Consumption	Static Current: 110mA Peak Current: <1.5A
3) Card Transportation velocity	Approx. 70cm/s
4) Communication Interface	RS232
5) Card Physical Specification	Width:53.92～54.18 mm Length：85.47～85.90 mm Thickness: 0.4mm～1.2mm（Ex-work:0.8mm）
6) Net Wight	Approx. 410g
7) Mounting Dimension	Refer to chapter of dimensions
8) Performance of Reading Magnetic card	TC-JI 15% BB 30%SI，TC-A 30%

9) Reliability

A．Vibration: Frequency: 5～50Hz: Acceleration: 2m/s2（0.2G）; Vibration Direction and time: X, Y, Z Direction 15min: Amplitude：2mm: Function is not affected when vibrate.

B．Shock： 294m/s2（30G），11ms， X，Y，Z Direction Function is not effected during vibration （Rare machine without packaged）

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10) Life Time

Transportation: 500,000 times Min（Cycle: Round trip back and forth）

Magnetic Head: 500,000 times Min

IC Card pressure and IC Contact: 300,000 times Min

11) Power dump condition Power supply lower than 10V, more than 50 MS

12) Error Rate

Magnetic card: In normal environment (15～25℃，35～60%RH),Error rate lower than 1/1000 (Test with Perfect card) Notes: Standard magnetic card, exclusive of manual error

IC Card: Lower than 1/1000 Notes: standard IC card

RF card：Lower than 1/1000. Notes: standard RF card

13) Warp Card the mean height of warp is lower than 2mm

14) MTBF > 100,000 hours（Only electric components）

Notes: 250times/day，25days/month，300hours/month

15)Environment Operation: 0℃50℃， 0～90% RH （Non-condensing）

Storage: -25℃～80℃， 0～95% RH(Non-condensing ，please air dry if moisture)

Normal enviorment:15～25℃，35～60%RH

16）On-line downloading: Support IAP Download

17) RoHS Standard Conform to RoHS standard

18）Supported IC Card Standard Conform to ISO7816

E.g.（AT24C01, 24C02, … …, 24C256; SLE4447, SLE4428CPU T=0/T=1）

19）Supported RF Card Standard Conform to ISO14443-3(TYPE A：E.g. S50、S70、UL)

Conform to ISO14443-4（TYPE A CPU: E.g. Mifare plus, Mifare defire）

（TYPE B CPU）

20）Supported Magnetic Standard: Physical Properties: Conform to ISO7810 and 7811

Card Dimension: Conform to ISO7810ID-1

Embossing: Conform to ISO7811-1 ISO7811-3

Record Standard: Conform to ISO7811-2、ISO7811-4、ISO7811-5 -6

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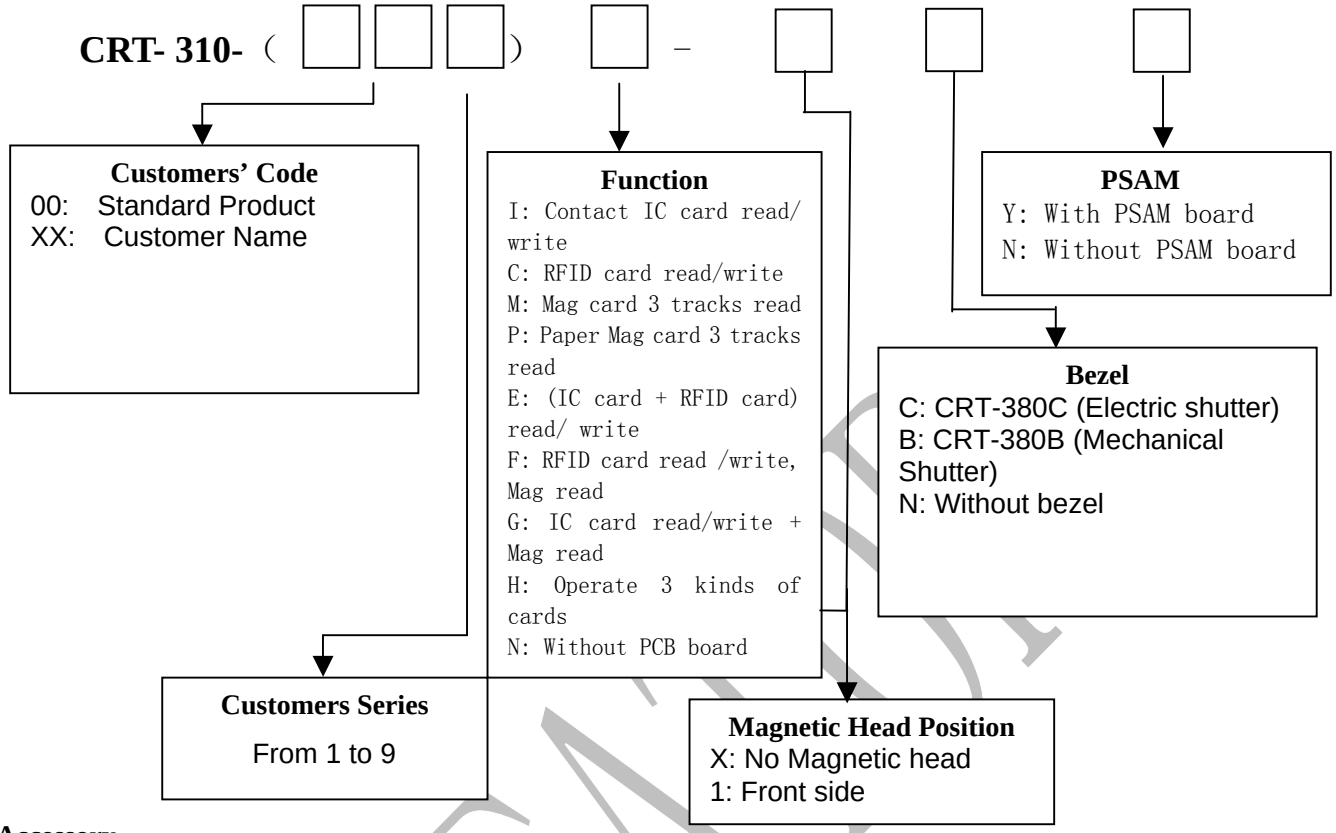
4. Model Number Specification



1) Accessory

Name	Model Number	Qty	Notes
4 PIN Power	L14-333-153	1	4PIN, 1.5m (Yellow, red, two black cable)
RS232 Cable	L16-301-253	1	3PIN, 2.5m，DB-9pin

2) Optional

DC24V/DC12V Converter board CRT-301A

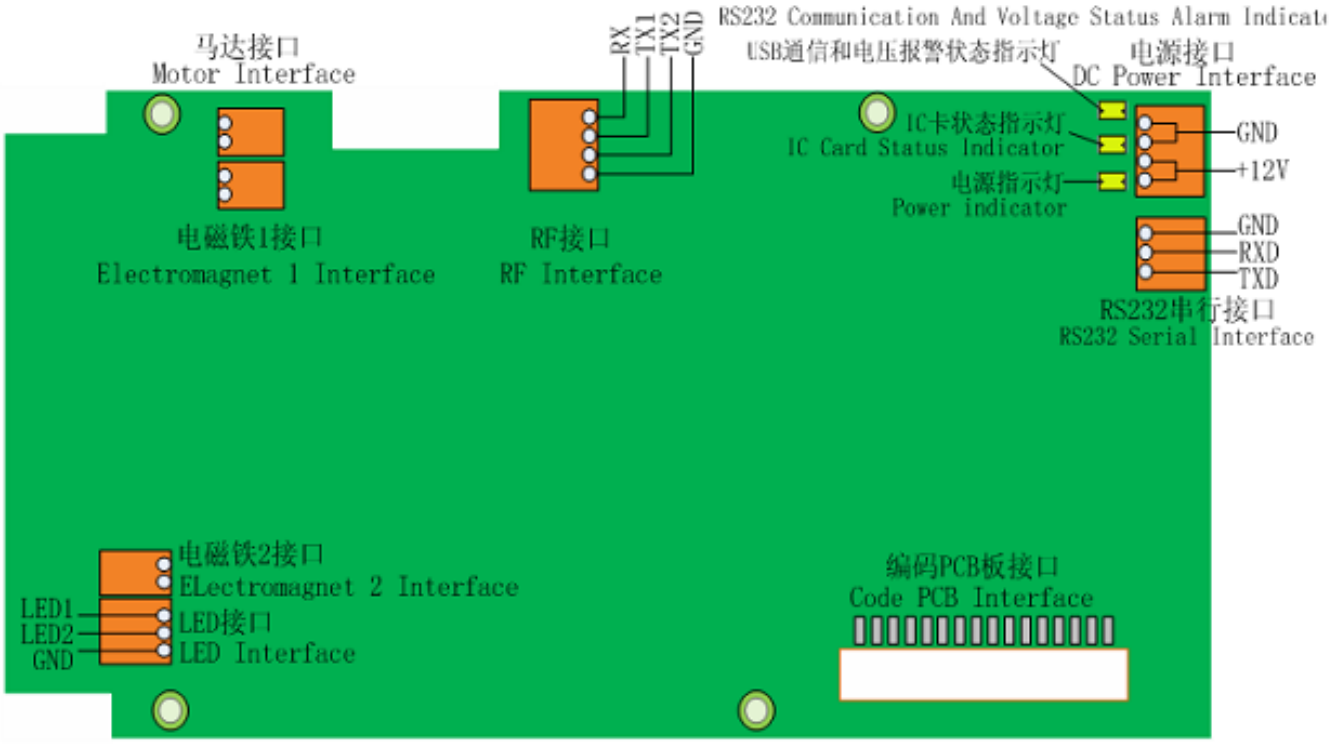
PSAM Board CRT-303B

3) CRT-310 Bezel

CRT-380C

CRT-380B

5. Interface Specification



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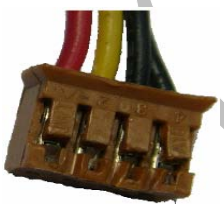
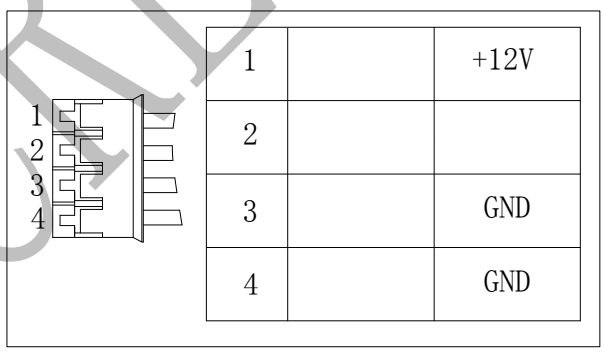
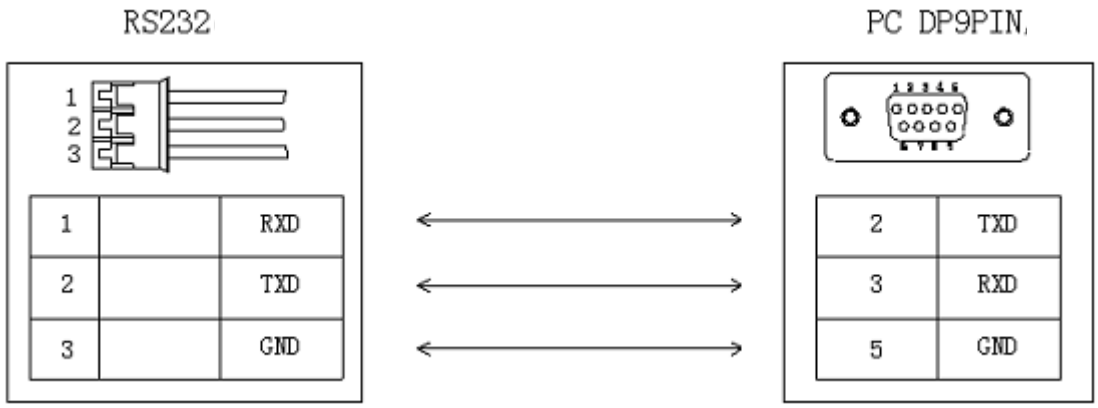
Pic1 CRT-310 Interface



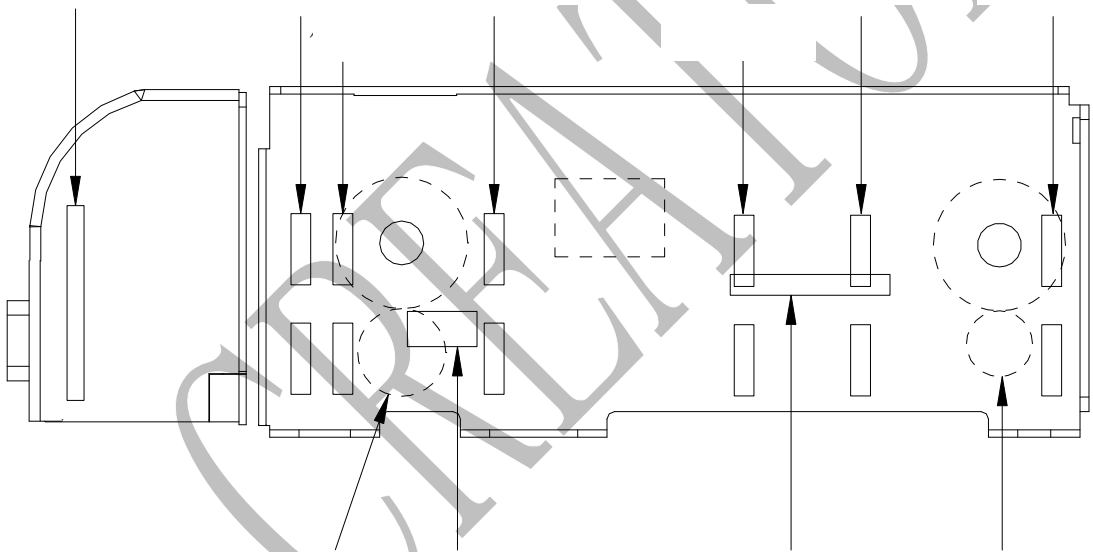


Pic2 4PIN Power Cable



Pic3 3PIN RS232 to DP 9PIN

6. Optical Sensor Position



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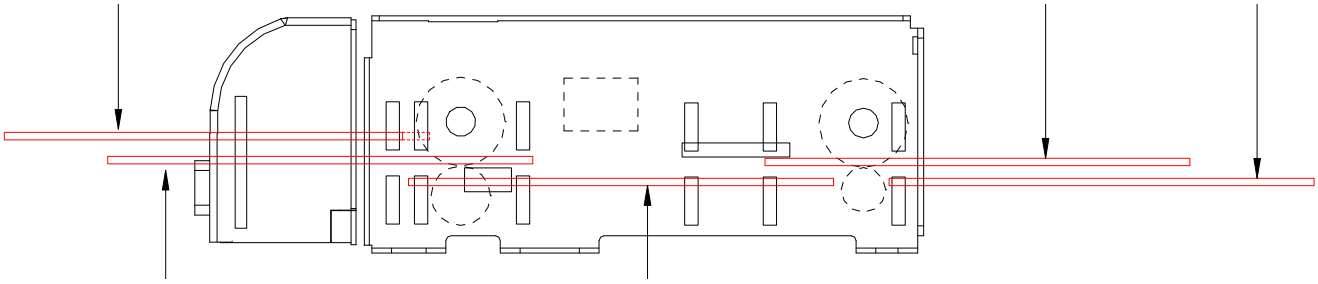
7. Stop Position



8. Operation Description

8.1 Card Capture Operation

1) After front capture of card, the magnetic information is read automatically and card will stop at defined position

2）After inside from rear side, the card will move to defined position

8.2 Magnetic Card Reading

After entrance of magnetic card, the magnetic card data should upload to RAM of reader, the magnetic card data will transfer from RAM to upper system according magnetic card reading command.

8.3 IC card Reading

IC card should transport to IC card operation position and commands of operation IC card will be available (Including auto detect card type command)

8.4 RF Card Reading

RF card should move to IC card operation position and commands of operation RF card command will be available.

8.5 Abnormal Card Processing

1）Abnormal card is defined as card differ from ISO standard (ISO 7810/7811)

2）Abnormal card processing in the case of card entering

Move the abnormal card out to bezel

3） Abnormal card processing in the case of that the card is within the reader

① For non-standard over-length card, the abnormal card will move to front couple with reset command

② For non-standard over-short card, the abnormal card will withdraw from the rear side couple with reset command.

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8.6 Power-Fail Processing

1）Four wires power cord（Red - Yellow - 2Black: 12V-Red/Yellow cable，GND-Black）with back up option is provided. The couple of yellow and black wire could use to connect back up power or any UPS/Capacitor group for reserve

2）Once power is dump in case of backup power enable. After 1 second, the reader will enter into status of power protection mode. If there is a card inside reader in this mode, the card will be eject out and the error code of power failure will uploading all the while until the power is recovered.

3）If power recover(Above 11V) Reset command is needed.

8.7 Error Processing

If any error is encountered, reset command is needed to eliminate the error code.

9. Power Connection

CRT-310-(004) has two ways of power connection

1）Sole power（Pic 1）

2）Main Power + Backup Power（Pic 2）

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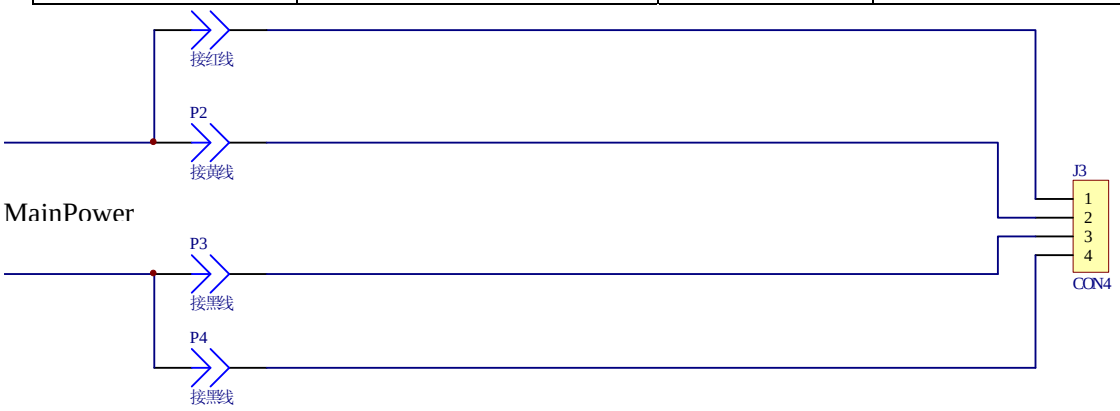
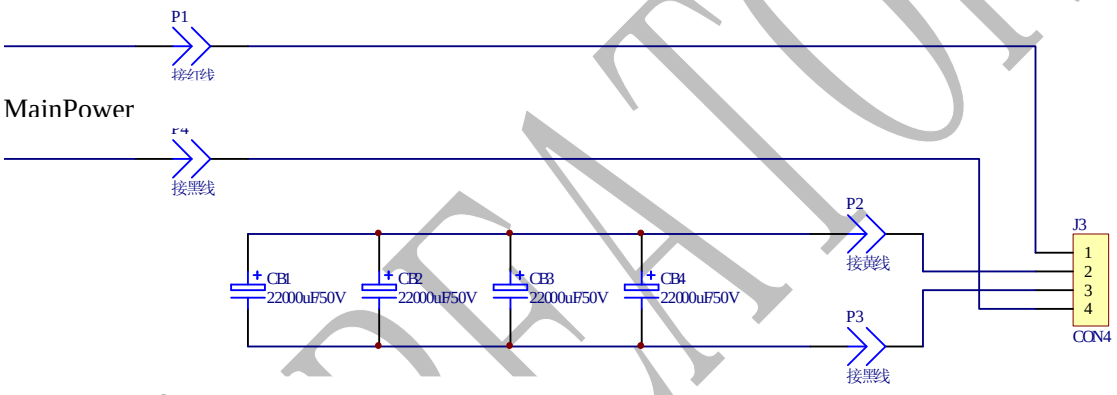


Pic 1



Pic 2

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10. DEMO Handling Instruction

1）Wiring Procedure

Insert 3 Pin communication cord first, and then plug in 4 Pin power cord.

2）Installation of DEMO software

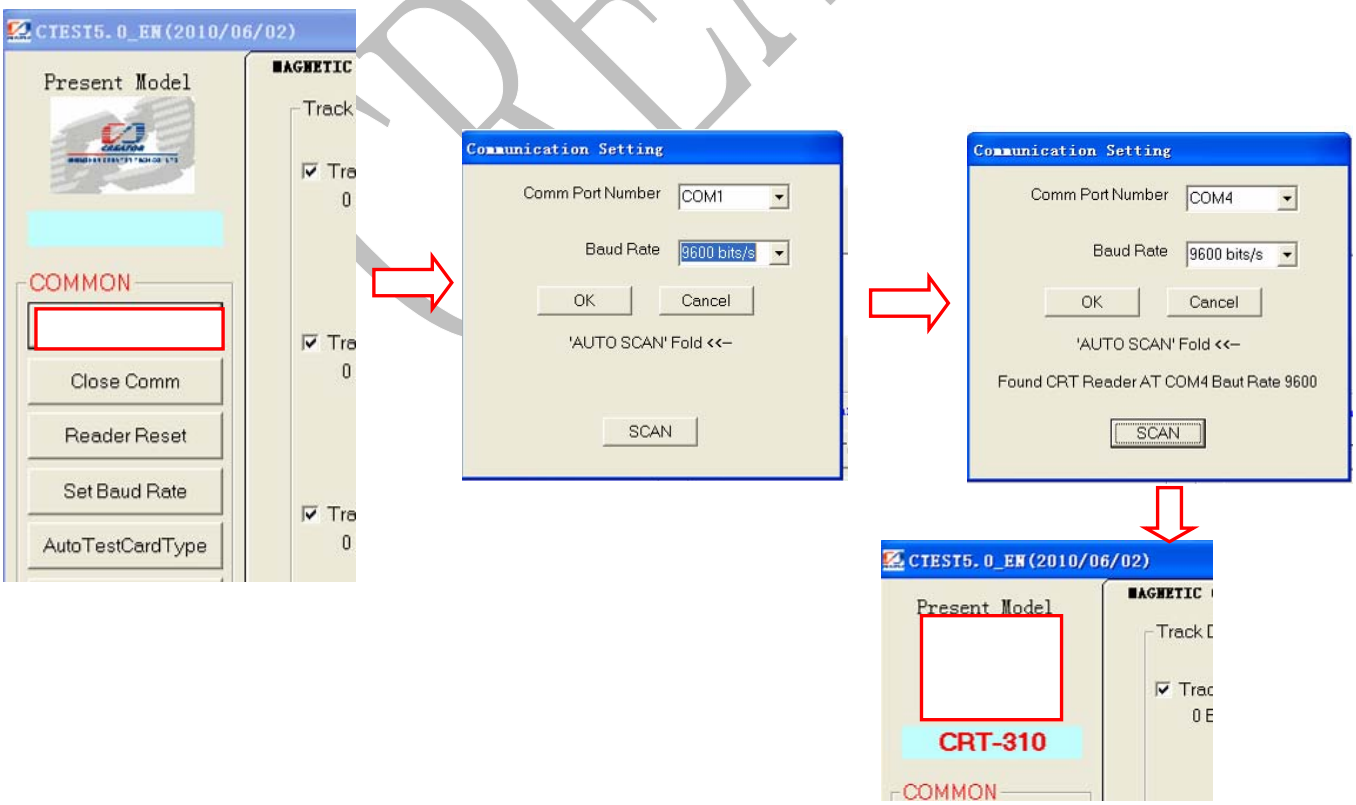
Double click CTEST5.0_EN_SETUP.EXE

3）Load DEMO Software

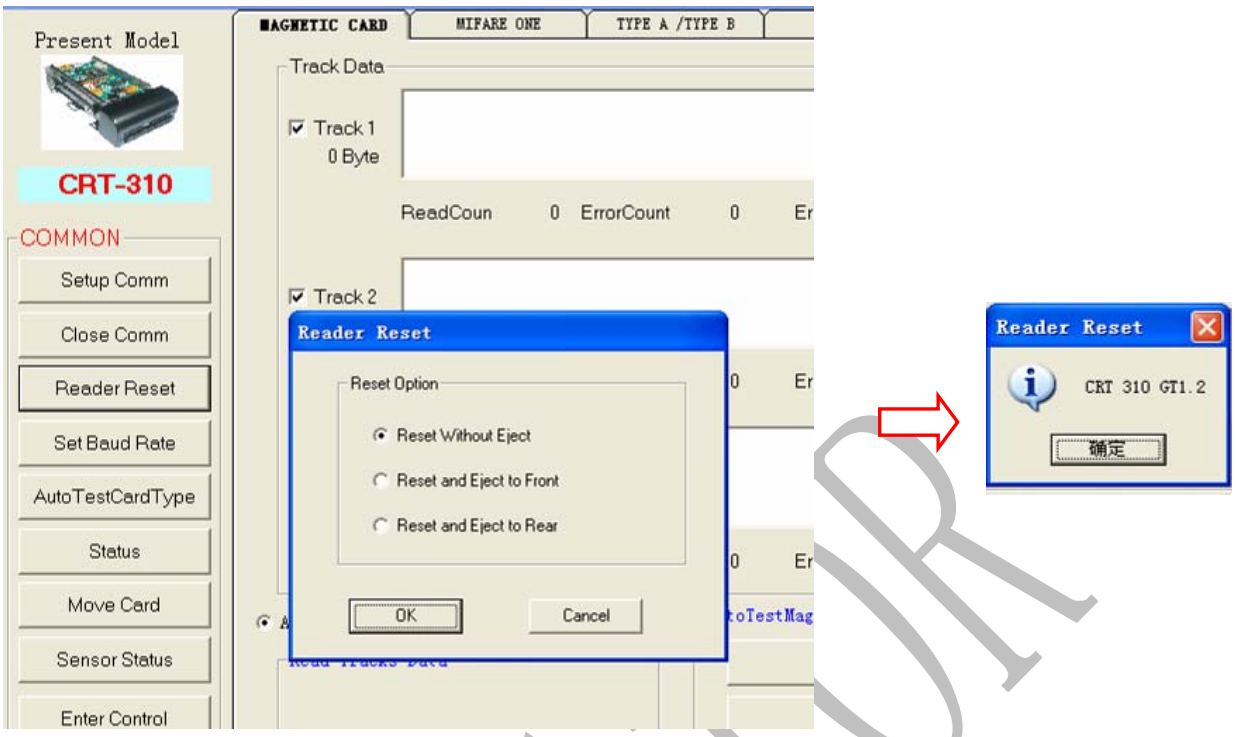
① Double click DEMO icon

② Click Reader option

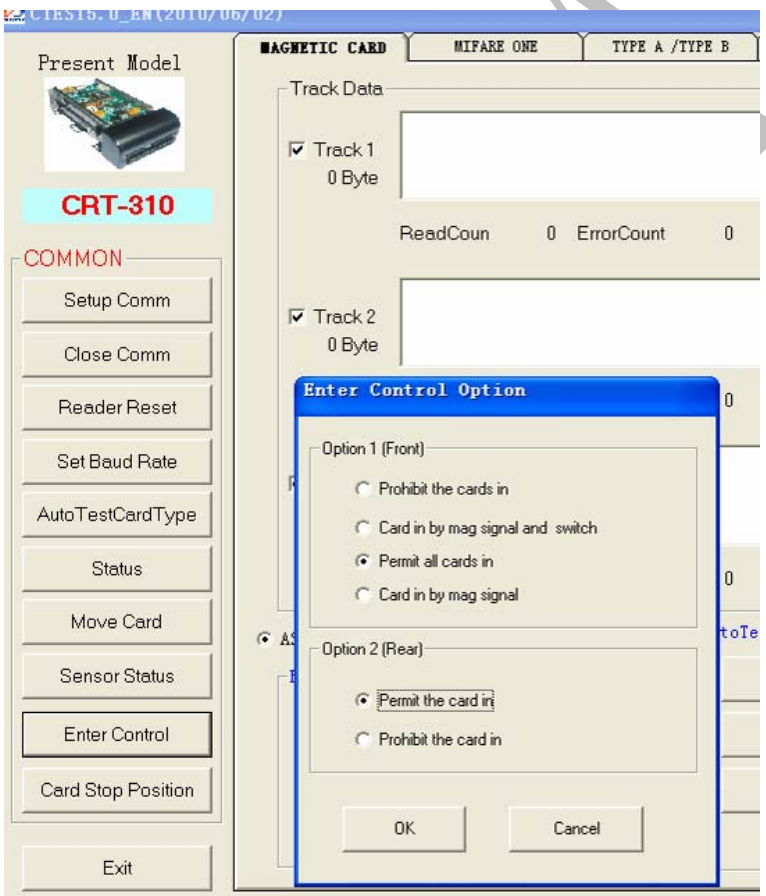
③ Configure serial ports: Step by step



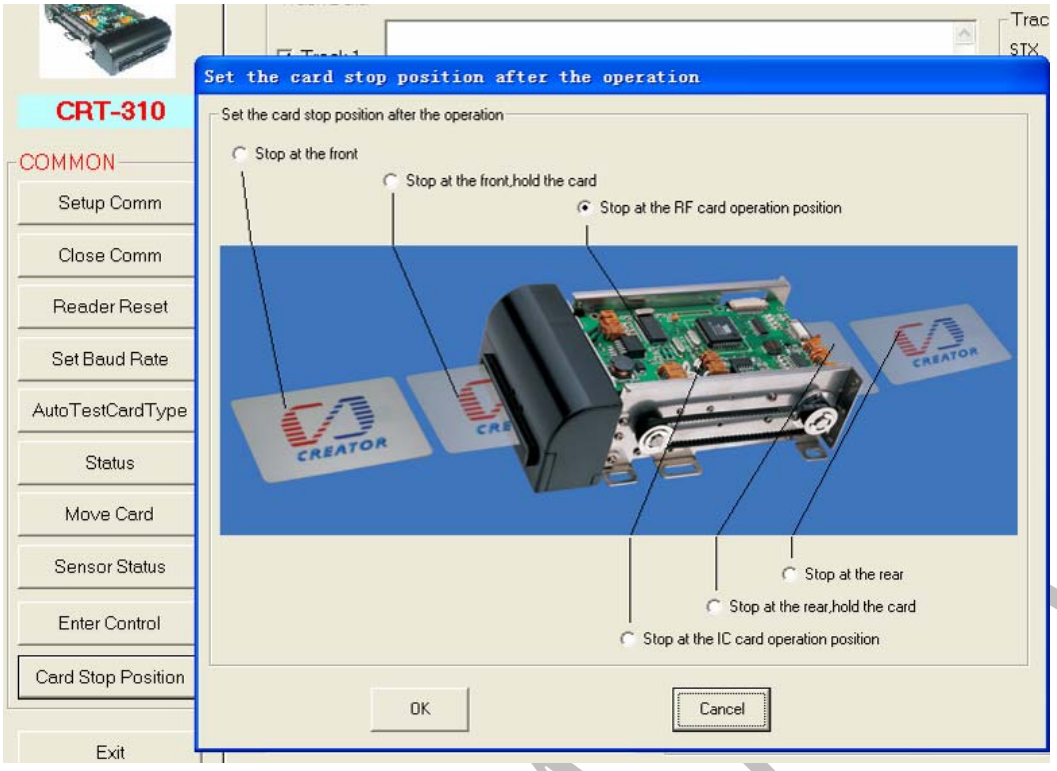
④ Initialization: Initialization is must（See the following pictures）



⑤ Entry control setting（See the following pictures）



⑥ Set stop position of card（See the following picture）



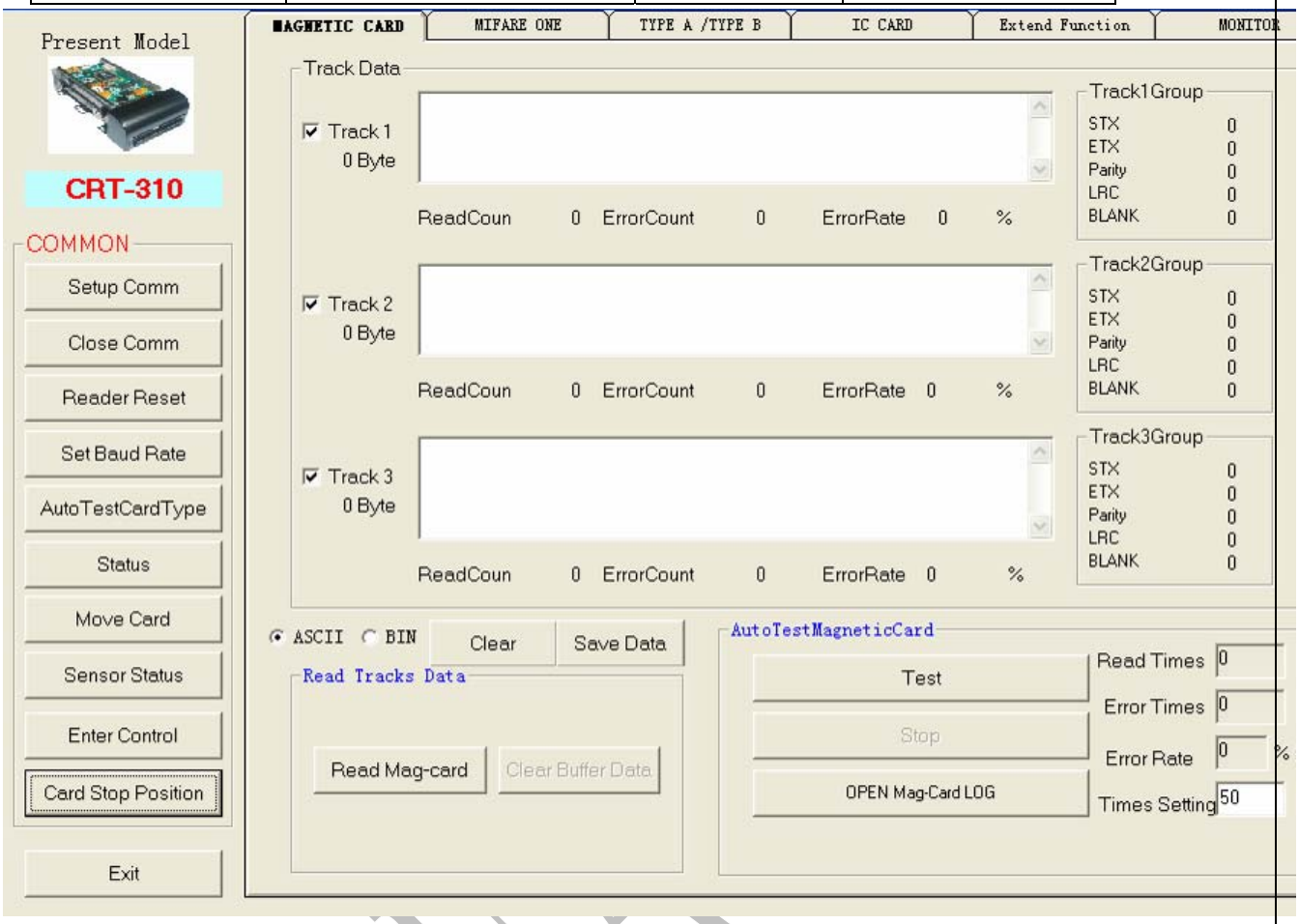
⑦ Functions（See the following picture）

Status: Inquiry card entry setting parameters and inner status of reader

Sensor status: Inquiry sensor status

Move Card: Setup the position of card

Under bar of reading magnetic card, two method of testing is provided, single testing and continuous testing.



11. 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

12. Cautions for Use

1）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

6）Insertion direction for IC card: See the following picture

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

9）LED Indicator Specification

① After power on，POWER INDICATOR light on

② Under normal condition, RS232 COMMUNICATION AND VOTAGE STATUS ALARM INDICATIONS will blinking. When power is lower than 10.8 or upper than 14.5V, this LED will keep lighting and the reader will enter protection mode (The command is available)

③ when operate IC card，IC CARD STATUS INDICATOR will light on, if any error, the light will light off

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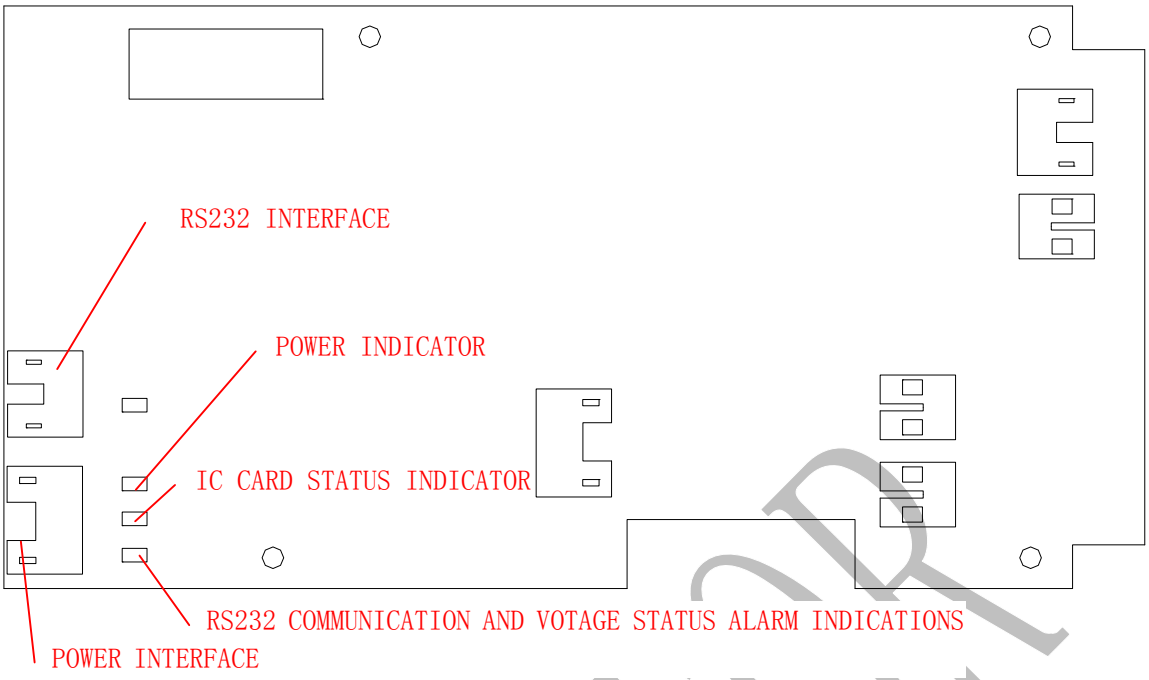

13. Relevant Documents

1) DLL: CRT-310-V30 DLL Specification

2) DLL relevant: DLL sample source code

3) Communication Protocol: CRT-310-V40 Communication protocol

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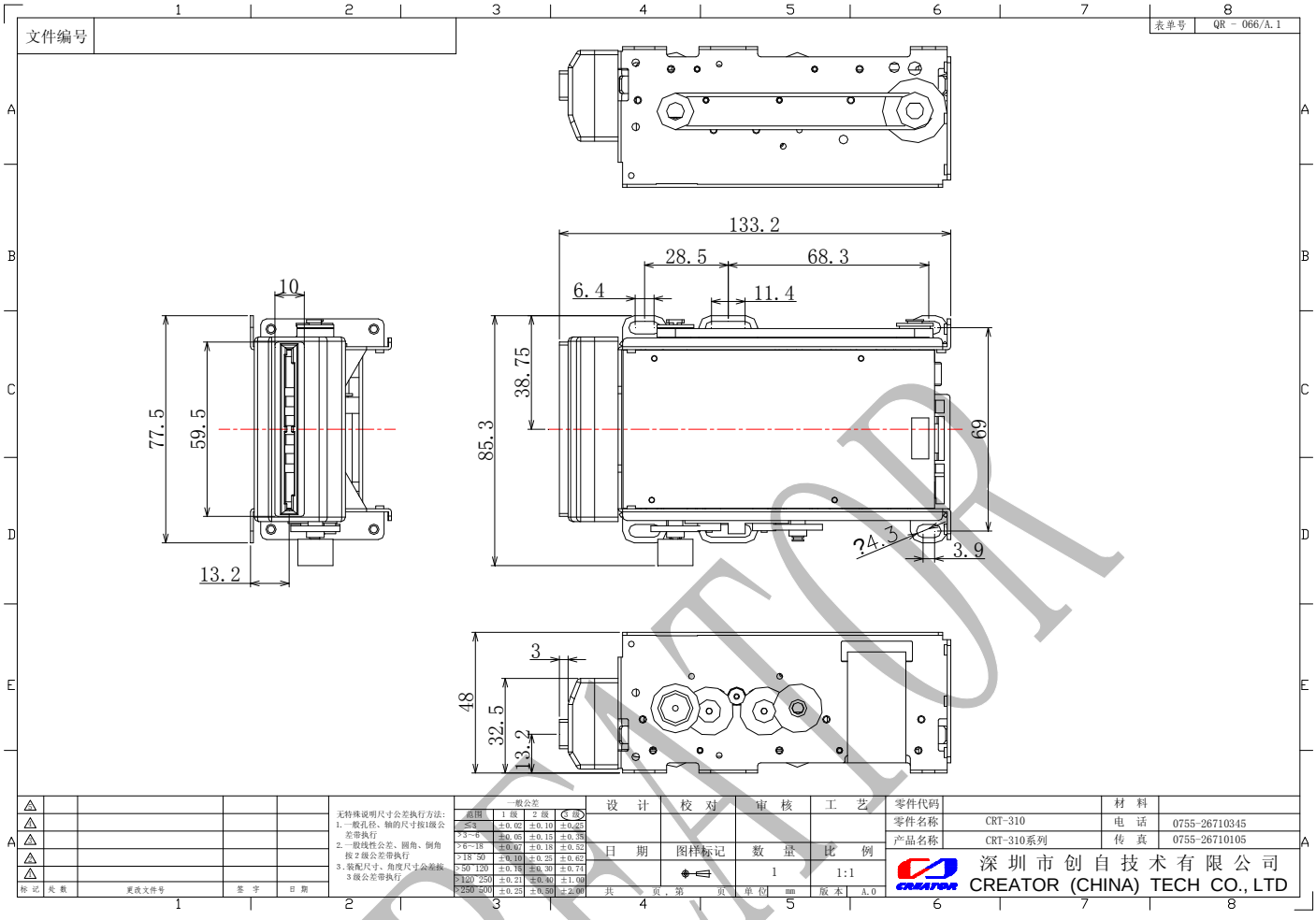
14. Structure Dimensions



CRT-380B

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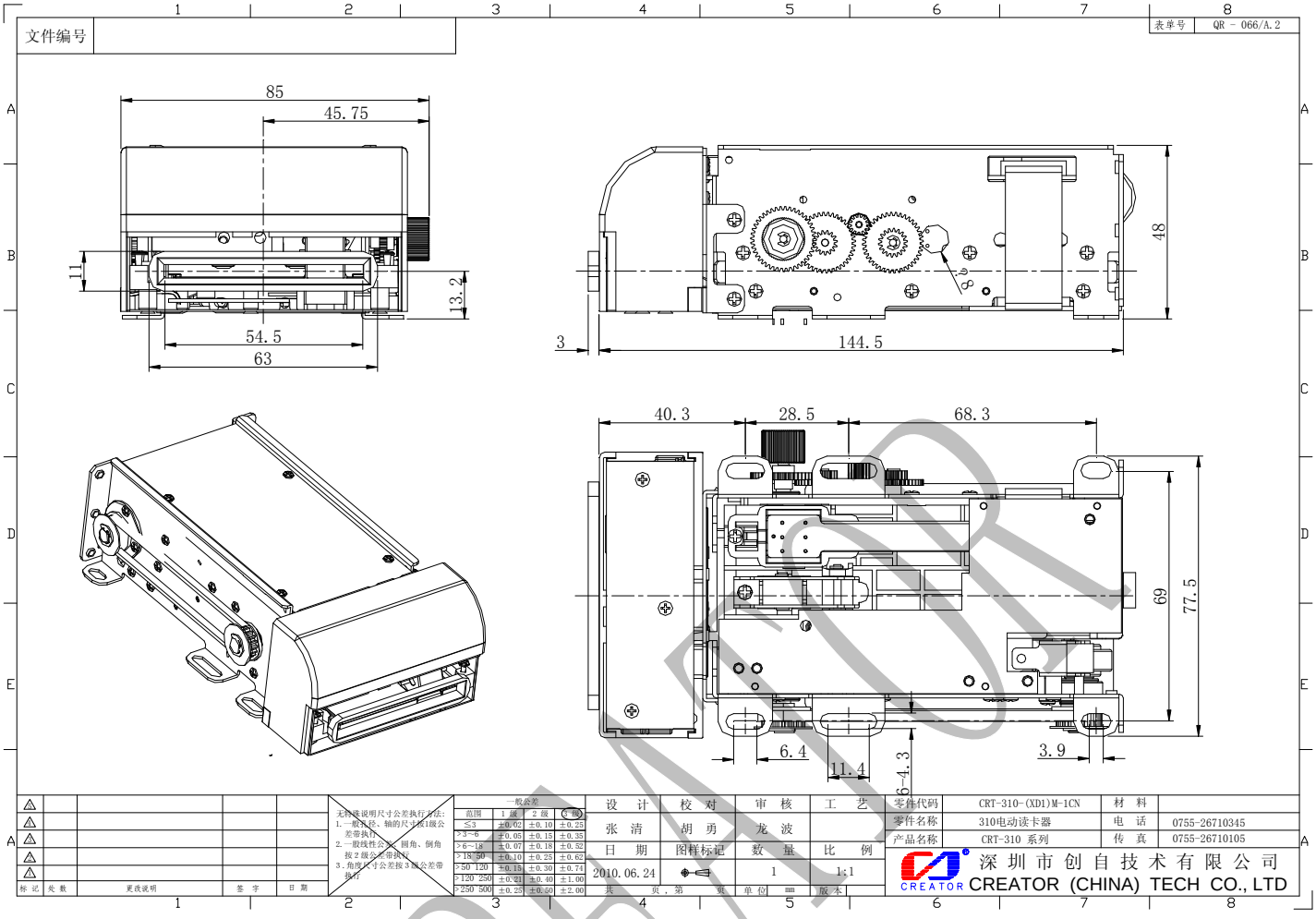
	SPECIFICATION	Model No.	CRT-310
		Date	2010/7/9
	Motorized Card Reader	Ver.	1. 0
		Page	19/19



CRT-380C

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