



THERMAL REWRITE CARD READER / WRITER TCP100/2000 series Installation Guide & Specifications

Thank you for choosing the TCP100/2000 Thermal rewrite card system. This "Installation Guide & Specifications" includes very important instructions for safety.

Please read this manual before you start the system, and follow the instructions.

Star Micronics Co., Ltd.
Special Products Operating Division

C · O · N · T · E · N · T · S

| | |
|---|----|
| 1. HANDLING NOTES | 1 |
| 2. OUTLINE | 4 |
| 3. UNPACKING | 5 |
| 4. APPEARANCE AND NOMENCLATURE | 6 |
| 5. CONNECTION TO EXTERNAL UNITS AND SETTING | 7 |
| 6. CLEANING | 8 |
| 7. TROUBLE SHOOTING | 9 |
| 8. GENERAL SPECIFICATIONS | 10 |

1

HANDLING NOTES

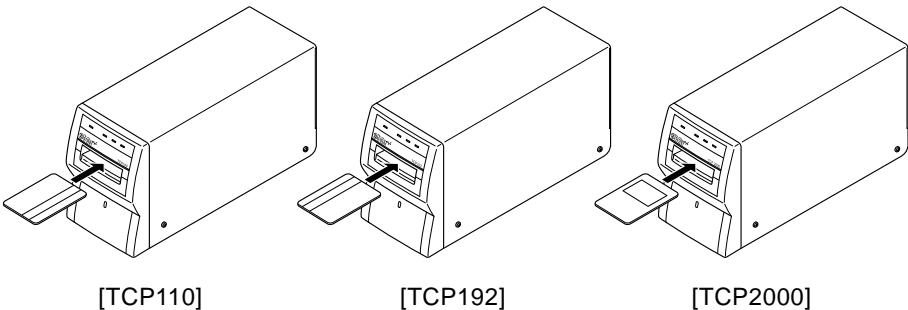
At the installation:

- 1) Install the TCP100/2000 reader/writer on a flat surface. Minimize any shock or vibration to the reader/writer, as shock or vibration may cause injury and/or failure.
- 2) Keep the TCP100/2000 reader/writer away from hands of the children.
- 3) Do not use or leave the TCP100/2000 reader/writer in direct sunshine or near a source of heat such as fire or stove. It may cause generation of heat which can bring failure, malfunction, skin burn, etc.
- 4) Keep the TCP100/2000 reader/writer away from liquids such as water, oil, etc. Do not use or leave TCP100/2000 reader/writer in high humidity.
- 5) Keep the TCP100/2000 reader/writer away from dust, metal powder, etc.
- 6) Keep the TCP100/2000 reader/writer away from corrosive gases, flammable gas, chemicals or steams. Exposure may cause generation of heat, electric shock, malfunction, etc.
- 7) Keep the TCP100/2000 reader/writer away from magnetic sources to avoid erasing or damaging data stored on card.
- 8) Do not use the power supply in the unspecified range. This may cause generation of heat, electric shock, malfunction, etc.
- 9) Make sure that the power cable is plugged close enough to disconnect immediately when the unusual is found.
- 10) Do not connect the AC power plug to the same outlet used for other electrical noise generation devises, such as an electrical motor, etc. This may cause malfunction, failure, etc.
- 11) Make sure that the power cable is plugged into the outlet certainly. The earth terminal should be grounded to avoid electric shock, failure, etc.
- 12) Provide enough room around the TCP100/2000 reader/writer. If not, it may cause generation of heat, malfunction, failure, etc.
- 13) Do not leave the cleaning liquid in direct sunshine or near a source of heat such as fire or stove. It may cause generation of heat which can bring skin burn, etc.
- 14) Do not drink or drop in your eyes the cleaning liquid. It may cause damage to your body.
- 15) Keep the cleaning liquid away from hands of the children.

During the operation:

- 1) Do not use any other card but specified by Star Micronics Co., Ltd. It may cause malfunction, failure, etc.
- 2) Do not use wet or oily stained card. Do not touch card with wet or stained hand. It may cause malfunction, failure, etc. If the card gets stained, please perform cleaning of the card and the unit. (For the cleaning of the unit, refer to Chapter 6. CLEANING.)
- 3) Keep the card away from magnetic source, such as magnet, speaker, TV, etc. The data on the card may be damaged or erased.
- 4) Do not leave the card in high temperatures, such as inside of the car. It may cause the bend of card, or erase the printed data on the card.
- 5) Do not insert bent card into the TCP100/2000 reader/writer. It may cause the card jamming.
- 6) Do not insert the card in the unspecified direction. It may cause malfunction.

<Specified Direction>



- 7) Do not insert any other object into the TCP100/2000 reader/writer but the specified card. It may cause failure, electric shock, etc.
- 8) Do not interrupt the card feeding procedure (inserting, discharging). It may cause malfunction, or injury.
- 9) Do not turn off the power during the card processing. It may cause the damage, or erase the data on the card.

- 10) When the unusual (such as noise, stench, smoke, fire, etc.) is found, turn off the power immediately. Then disconnect the plug. If the TCP100/2000 reader/writer being kept using, it may cause failure, skin burn, etc. Contact our sales/tech support team for repair.
- 11) Connect and disconnect the power cable only with power turned off and while holding the plug. Do not put any heavy objects on the power cable. Stop using the cable immediately if any damage or deformation is found on it. Contact our sales/tech support team for repair.
- 12) Disconnect the power cable from socket, if the TCP100/2000 reader/writer is not used for long time.
- 13) Do not use the TCP100/2000 reader/writer when the environment (such as temperature, humidity) changes drastically. It may cause dew condensation which can bring malfunction, etc. Leave the TCP100/2000 reader/writer in the new environment at least for one hour, before re-start.
- 14) Do not use the TCP100/2000 reader/writer under dew condensation. It may cause malfunction, failure, electric shock, etc.
- 15) Clean the TCP100/2000 reader/writer everyday in order to maintain the reliability. No cleaning may cause error operation. (Refer to Chapter 6 CLEANING.)
- 16) Do not disassemble, modify and repair the TCP100/2000 reader/writer by yourself. It may cause malfunction, failure, injury, etc. Contact our sales/tech support team for repair.
- 17) Do not leave the card in direct sunshine or a fluorescent light for long time, as the card surface may get discolored.
- 18) In case the printed context is erased: It can be reprinted, if the data in the magnetic stripe remains.
- 19) If the card gets stained: Unclean or oily card lowers the read/write and print quality. In such a case, please clean the card and the unit. (For the cleaning of the unit, refer to Chapter 6 CLEANING.)
- 20) If you use continuously the same card, please leave at least 3-minute intervals. It is not necessary in the general operation; using different cards one after another.

2

OUTLINE

The TCP100/2000 series is a reading/writing device for specified IC card or reading device for ISO magnetic stripe type card.

It also has print/erase capability to human readable area on the surface of the card. This series is compatible with most host computers and various P.O.S. systems.

(TCP2000 series does not support for IC card.)

The main features of the TCP100/2000 series are as follows:

1. Reads/writes data from/to a magnetic stripe on the card (depends on the model type).
2. Reads/writes data from/to IC chip on the card (TCP100 series only: depends on the model type).
3. Prints/erases characters/graphics to/from a human readable area.
4. Serial interface of RS-232C(housed unit), or CMOS(mechanism unit).
5. The human readable area of the card may be re-used up to approx. 500 times under the proper condition.

| Model Name | |
|------------|---|
| TCP110ZD | Magnetic stripe read/write 3 lines human readable printing (upper part of a card) Housed unit |
| TCP192TD | Specified IC card read/write 3 lines human readable printing (lower part of a card) Housed unit |
| TCP2000ZD | Magnetic stripe read/write Human readable wide printing on PET card Housed unit |

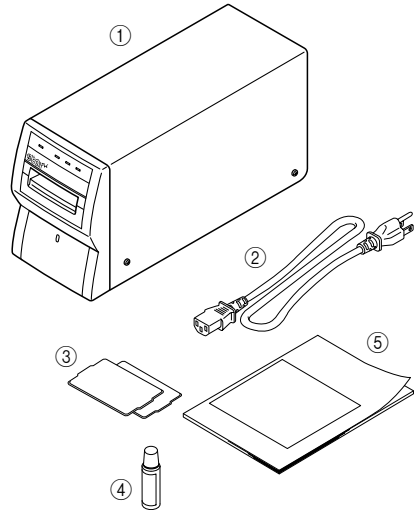
3

UNPACKING

After unpacking the unit, check that all the accessories are included in the individual box.

Housed unit (TCP100/2000 series)

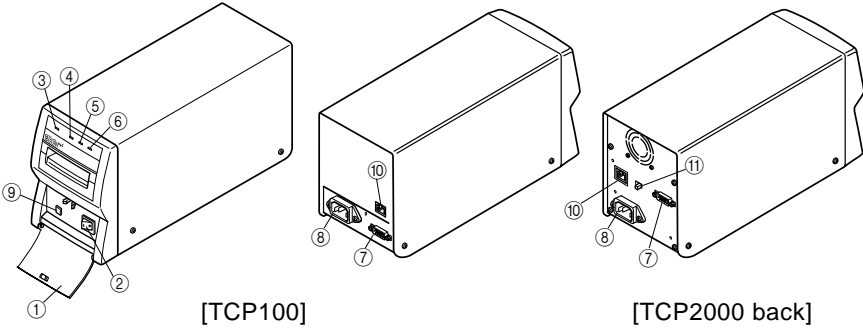
- ① TCP100/2000 unit
- ② Power cable
- ③ Cleaning cards (2 pcs)
- ④ Cleaning liquid
- ⑤ Installation Guide & Specifications
(this manual)



4

APPEARANCE AND NOMENCLATURE

Housed unit TCP100/2000 series



- ① Switch Cover This cover protects the power switch of the system. Push to open and close.
- ② Power Switch This switch turns the power of the system ON/OFF.
- ③ POWER LED This LED indicates that the power of the system is on.
- ④ READY LED This LED indicates that the card processing is ready.
- ⑤ OK LED This LED indicates that the card has been processed without error.
- ⑥ ERROR LED This LED indicates that the card has not been read due to an error e.g. jamming of the card in the reader/writer.
- ⑦ RS232C Serial Connector This connector interfaces the connection between host computers and the reader/writer.
- ⑧ AC Power Inlet Connect this inlet to the power source with the attached AC power cable.
- ⑨ Cleaning Button Push this button under the power ON condition, then insert the cleaning card which is soaked with the cleaning liquid.
- ⑩ Modular Connector This interfaces the connection between MCD2000 (Star original numerical key pad).
- ⑪ Interface convert switch This switch changes the available interface : RS232C (right side) or modular connector (left side).

IMPORTANT!

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A three terminal earth grounded power supply cable is attached to TCP100/2000 housed unit. For safety, do not remove the ground pin.

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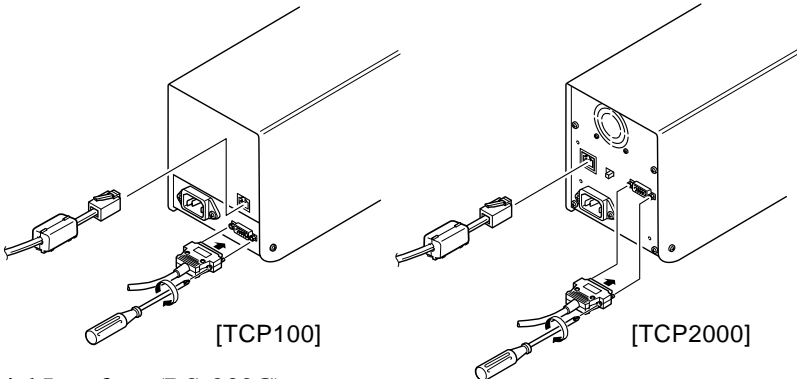
5

CONNECTION TO EXTERNAL UNITS AND SETTING

(Housed unit TCP100/2000 series)

<Connecting the interface cable>

- ① Turn OFF the power of the host computer and the reader/writer.
- ② Plug in an end of the interface cable to the reader/writer connector and the other end to the serial port of the host computer.
- ③ Fasten two screws located at both the shoulders of the interface cable connectors.
- ④ Modular connector: Connects to Star original stand-alone terminal MCD2000 by specified cable.
Please set the interface convert switch to the left side.
(Note) Do not connect to any external devices other than MCD2000.



<Serial Interface (RS-232C)>

- ① Applicable connector : D-sub 9 pin (female)
- ② Mating connector : D-sub 9 pin (male)
- ③ Connector terminals : See the table below
- ④ I/O circuit : See the table below
- ⑤ Level : RS232C
- ⑥ Cable : Cross (reverse) cable

| Pin No. | Signal name | Direction | Function |
|---------|-------------|-----------|---|
| 2 | RXD | IN | Received data |
| 3 | TXD | OUT | Transmitted data |
| 4 | DTR | OUT | Data-terminal-ready (always ON after reset) |
| 5 | S-GND | - | Signal ground |
| 6 | *CTS/DSR | IN | Clear-to-send / Data-set-ready (no detection) |
| 7 | RTS | OUT | Request-to-send (always ON after reset) |

* CTS is assigned to pin #8 at TCP2000.(no detection)

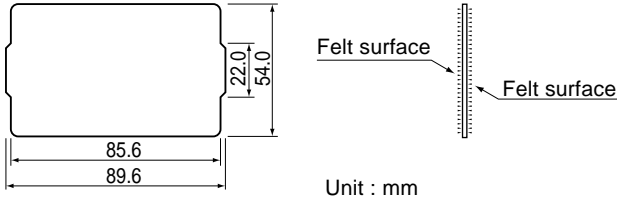
6

CLEANING

6-1 Using the cleaning card

Two cleaning cards and one bottle of cleaning liquid for cleaning the magnetic head, rollers, etc. are supplied in the enclosed plastic bag.

(1) Dimensions of cleaning card



(2) Frequency of cleaning

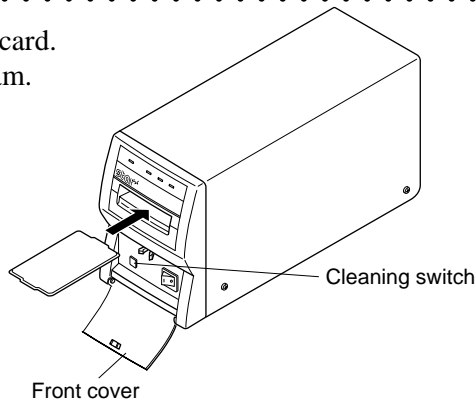
1. Daily or every 300 times of printing.
2. When read/write errors occur continuously, or print quality gets low.

(3) How to use

1. Open the Front Cover and push the Cleaning Switch.
2. Apply penetration of the cleaning liquid to the felt surfaces (both sides) of the cleaning card.
3. Insert the cleaning card from the card slot.
4. Allow the system approximately 1 minute for drying.
5. Ethel alcohol solvent may also be applied for cleaning.

IMPORTANT!

Do not use the bent cleaning card.
Bent card will cause a card jam.



7

TROUBLE SHOOTING

Difficulties when the power is turned ON.

| Symptom | | Possible cause | Remedy |
|-----------------------------------|--|---|------------------------------------|
| Power LED lamp does not light up. | Card is not accepted | Power cable is not properly plugged in. | Properly plug in power cable. |
| | | Power cable is broken. | Consult technical support. |
| | | Power fuse is blown. | |
| | Card is accepted | LED indicators are broken. | Consult technical support. |
| Card is not accepted | Trouble with the main unit. | | |
| Power LED lamp light up. | Card is accepted, but main unit does not properly run. | Card failure | Use applicable card. |
| | | Flaw or bend of card, loss of card data, using other user's card. | Clean the head with cleaning card. |
| | | Head is stained. | |
| | | System does not properly run. | Consult technical support. |
| | | Trouble with the main unit. | Consult technical support. |

Difficulties during the operation

| Symptom | Possible cause | Remedy |
|----------------------|---|----------------------|
| Card is not ejected. | Card jamming | Reset the power. |
| Read/write error | Card is not applicable. | Use applicable card. |
| | Using other user's card | |
| | Card data is erased by a magnetized source. | Issue new card. |
| | Card is bent. | |
| | Card has flaws. | |
| | | Head is stained. |

8

GENERAL SPECIFICATIONS

| | | TCP100 | TCP2000 |
|-------------------------|------------------------------------|---|---|
| Card type | | PVC (thick card) | PET (thin card) |
| Card feeding part | Driving method | Feed roller | |
| | Card inserting direction | Face up in one direction | |
| | Card feed speed | 350mm/s (high speed) 40mm/s (low speed) | 350mm/s (high speed) 30mm/s (low speed) |
| Magnetic recording part | | ISO Track 1,2 : read Track 3 : read/write | ISO Track1, Track2, Track 3 : read/write |
| IC recording part | Physical Characteristics | ISO7816/1 compatible | |
| | Size | ISO7816/2 compatible | |
| | Signal/protocol | Consult your supplier to check the applicable IC chip manufacturer and model name | |
| Printing part | Printed characters | 24 characters×3 lines | 20 characters×13 lines (480×320 dots) |
| | Character font | Alpha-numeric (standard), Chinese characters (option), Graphics | |
| | Font configuration (dots) | 12×24, 24×24, 48×24, 24×48, 48×24 | 12×24, 24×24, 48×24 24×48, 48×48, 8×16 16×16, 32×16, 16×32 32×32 |
| | Dot pitch | 0.1mm Vertically 0.1mm Horizontally | 0.125mm Vertically 0.121mm Horizontally |
| Environment condition | Installation place | Indoor | |
| | Operating temperature and humidity | 5 to 35°C, 20 to 80%RH (no condensation) | |
| | Storage temperature and humidity | -30 to 65°C, 20 to 90%RH (no condensation) | |
| | Vibration resistance | 1.5G, 7 to 100Hz, XYZ direction each 1hr (when packed) | |
| Reliability | Unit service life | 300,000 times under proper condition | |
| Applicable card | | Specified thermal rewrite card | |
| Power supply | | AC100V, 120V, 230V 50/60Hz (depends on the destination) | |
| Interface | | RS232C D-sub 9 pin | |
| Weight | | Approx. 3.3Kg | Approx. 3.5Kg |
| Dimension | | 110(W)×143(H)×308(D) mm | 110(W)×143(H)×326(D) mm |



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