

ZT588

**Metal Encryption Keypad
User manual**

V2.11



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1 in general

it's a multi-purpose encryption device .the user is required to go through it carefully before use..

no need to set the parameter with the hardware switch ,various parameters can be set for one time . while power on ,that is ok . for the security of master keys ,the keypad need to be initialized with special commands , and adopt the section management of working keys to avoid tough attacks from outside.

The manual is suitable for the hardware version no.Axx/Bxx and firmware version Bxx .

1.1 outer appearance



Figure 1 panel

1.2 installation size

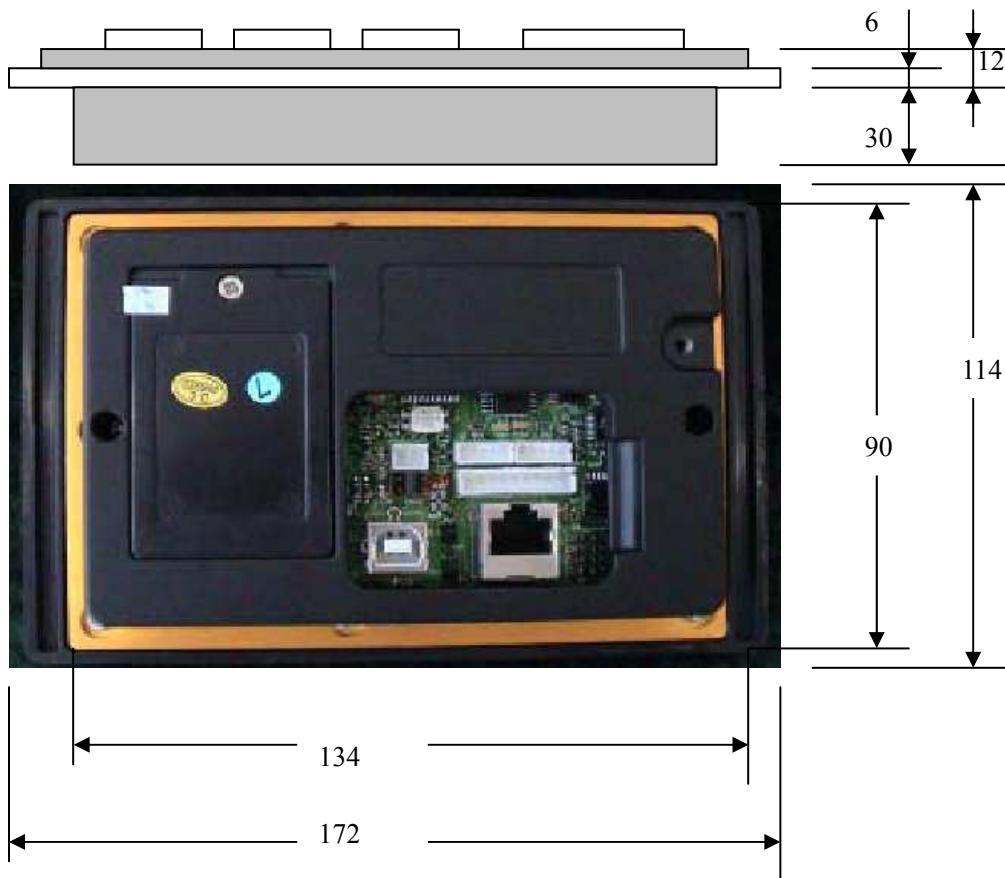


Figure 2 master keypad assembly drawing

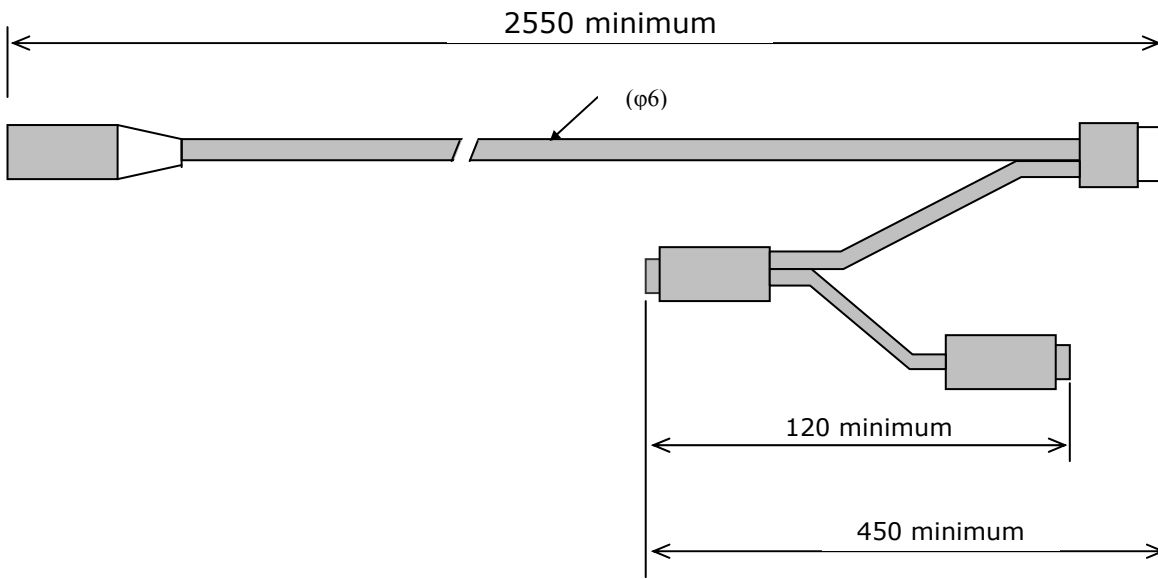


Figure 3 cable with keyboard edge

1.3 accessories

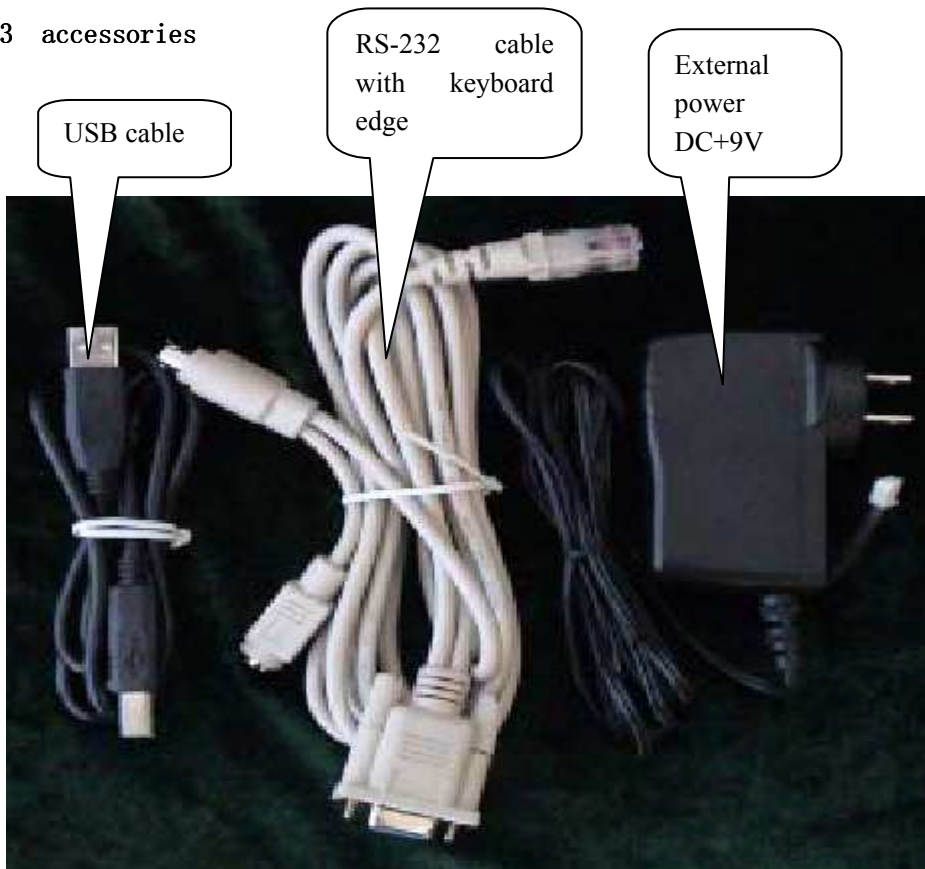
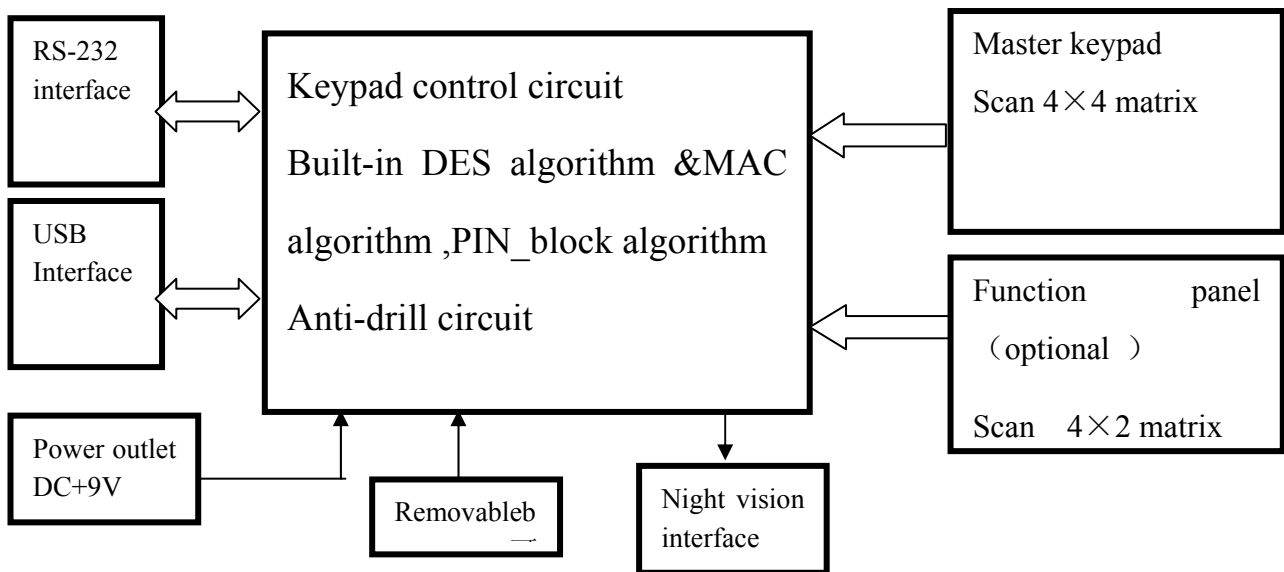
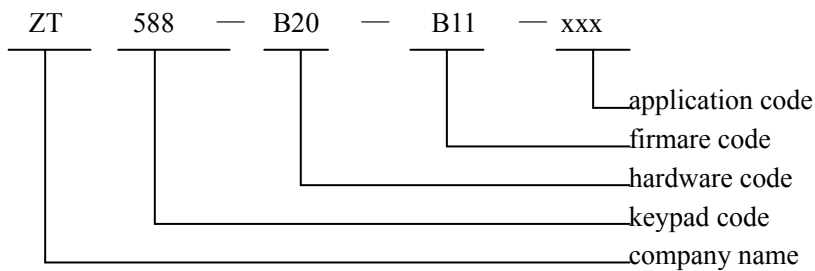


Figure 4 accessories

1.5 working principle



2 products classification



ZT symbol for the company name.

588 for the commercial keypad code.

B20 for hardware code.

B11 for firmware code.

xxx for application code.

3 performance index

3.1 communication parameter

Standard RS232 serial interface: 1 start bit, 1 stop bit.

Communication velocity : 9600 ; (optional)4800,2400,1200 bps.

Data format (optional): N, 8, 1

Standard USB: USB V1.1.

3.2 key pinpad

16-key keypad: 0,1,2,3,4,5,6,7,8,9,更正,确认,取消, and 3 stand-by keys “*#.”, scan at 4×4.

In accordance with CAS & ISO 9564-1 E.

3.3 algorithm velocity and the standard

in accordance with the provision of the People 's Bank of China.

DES---- SO8731-1 (equal to ANSI X3.92)

3DES----ANSI X9.52

PIN-----ISO9564-1/2 (equal to ANSI X9.8) and IBM3624.

MAC----ISO8732 (equal to ANSI X9.9,ANSI X9.19)

Security----- ISO13492-1.

Decryption and encryption velocity <0.1 second (8 byte DES).

3.4 electrical performance

3.4.1 power supply

DC+5V DC.

3.4.1 Power consumption

working status : below the 1W, non-working status : below the 200mW.

3.4.2 key kept while power off

memory data, key and program will be kept for 5 years beyond while power off for a long time .

3.5 mechanical performance

3.5.1 key lifespan

above 2,000,000 .

3.5.2 key pressure

2~3N.

3.5.3 contact trip

1.5mm.

3.5.4 key materials

stainless.

3.5.5 panel materials

stainless.

3.5.6 characters /symbols in the surface

laser lettering with strong paint .

3.6 environment adaptability

- Watertight when mounted correctly the ATM
- IP 64
- Keypad temperature range: 0 ~ 40 deg. C (work)

3.7 reliability

MTBF >20000h, MTTR<30min.

3.8 outer measurement

172 mm×114mm×46mm. Or
157 mm×112mm×46mm.

3.9 weight

about 1.8kg.

4 explanation for installation

under installation by SZZT professional technicians .

4.1 installation

first shut down the computer or terminal , and then connect the keypad to the computer or terminal.Plug the RS-232 cable into the RS-232 serial port in the computer .and re-power on the computer. If the 300mA(+5V DC) can't be available in the keyboard interface in the computer or terminal, please use the external DC+8~10V instead .

Plug the USB interface directly into the USB socket .if the voltage in the USB interface is below the +5V DV, or below the 300mA, please use the external DC+8~10V instead .

RS-232 and USB can' be used at the same time ..if at the same time ,USB is prior to the RS-232.

4.2 DRIVER PROGRAM INSTALLATION

RS-232 need the matched driver program. And it depends on the different operation system

For the 588drv.lib ,see the zt588 dynamic function .if use USB simulation RS-232 interface , you also need the drive program (see the files in the R9052151) .

4.4 device initialization

the keypad can download the master key and the working keys anytime .for better security ,it is recommended that all the master keys will be downloaded into the keypad at one time ,it is called initialization .the keys will be required to be downloaded directly from the security authorization server with exclusive download control software..

4.5 TEST program

ZT588tst program only for testing purpose .

5 maintenance

in most case ,no need special maintenance. If something wrong comes up ,the keypad is required to be handled by professional technicians. for the user we have signed the NDA with each other ,we can offer the necessary software for downloading the customized control program..

6 cautions

- the keypad is forbidden to be used for illegal purpose and won't be used before it has been registered with national relevant authorities.
 - the manufacturer is entitled to record the user's use purpose.
 - after the test ,the command of set/read keypad parameter must be used to carry out the “delete key reset” before downloading the formal keys at bank to make sure that the internal keys in the keypad is downloaded by bank.
- low battery for 7 days could have the keys and program lost.
- without prior permission ,nobody is allowed to dismantle it for any purpose
 - the keypad which won't be in use again will be destroyed under supervision

7 Appendix

Appendix A: Key Value

Key Value Table

| Key location | TABLE 1 | |
|--------------|----------|----------|
| | ASC code | HEX code |
| 1 | 1 | 31H |
| 2(ABC) | 2 | 32H |
| 3(DEF) | 3 | 33H |
| 4(GHI) | 4 | 34H |
| 5(JKL) | 5 | 35H |
| 6(MNO) | 6 | 36H |
| 7(PQRS) | 7 | 37H |
| 8(TUV) | 8 | 38H |
| 9(WXYZ) | 9 | 39H |
| 0 | 0 | 30H |
| CANCEL (X) | - | 1BH |
| CLEAR () | - | 08H |
| ENTER (O) | - | 0DH |
| 00 | 00 | 30H,30H |
| . | . | 2EH |
| Reverse | | 20h |

- means invisible character

Function Key Description:

| Press-key location (from top to bottom) | TABLE 1 | |
|--|----------|----------|
| | ASC CODE | HEX CODE |
| Left 1 | G | 47H |
| Left 2 | E | 45H |
| Left 3 | C | 43H |

| | | |
|---------|---|-----|
| Left 4 | A | 41H |
| Right 1 | H | 48H |
| Right 2 | F | 46H |
| Right 3 | D | 44H |
| Right 4 | B | 42H |

Remarks: Usually, all the key value and location can be re-set by manufacture. Specially stipulate "00h" is without key value, but "7Fh" is double "0" value. The others can be any ASCII code (01~7Eh) .

Appendix B: The split rules of sending and receiving characters.

While terminal and device do the data exchanges, the 1st byte 0 x 02h and last byte 0 x 03h of the command character string and response character string will be transmitted by HEX, but all the other bytes will be transmitted by transforming to ASCII code, the transforming method can be set by commands.

transforming 1:

When sending characters, transform 1 byte to 2 byte: split 1 byte to 2 parts with how-low 4 bits, then transmit how-low 2 parts by combining ASCII via plus prefix 30h before 0~9 and A~F.

When receiving characters, transform 2 byte to 1 byte: Minus 30h from 1st ASCII character as high-half byte, minus 30h from 2nd ASCII character as low-half byte, then combine the high-half byte and low-half byte into one Hex byte.

transforming 2

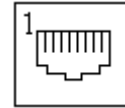
When sending characters, transform 1 byte to 2 byte: split 1 byte to 2 parts with how-low 4 bits, then transmit how-low 2 parts by combining ASCII via plus prefix 30h before 0~9 and prefix 37h before A~F.

When receiving characters, transform 2 byte to 1 byte: Minus 30h (or 37h) from 1st ASCII character as high-half byte, minus 30h (or 37h) from 2nd ASCII character as low-half byte, then combine the high-half byte and low-half byte into one Hex byte.

Appendix C: Interface specification.

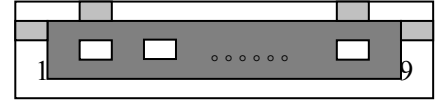
8 PIN RJ45 standard RS-232 interface

| | | | | | | | | |
|---------------|----|-----|-----|----|-----|-----|----|--------|
| PIN | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| SPECIFICATION | NC | DTR | RXD | NC | TXD | GND | NC | +5V DC |



USB interface

| | | | | |
|---------------|-------|----|----|-----|
| PIN | 1 | 2 | 3 | 4 |
| SPECIFICATION | DC+5V | DM | DP | GND |

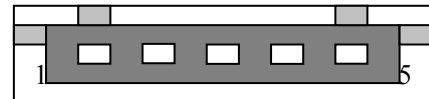


Expand function interface

| | | | | | | | | | |
|---------------|----|------|--------|----|----|------|----|------|----|
| PIN | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| SPECIFICATION | NC | BEEP | +8V DC | NC | NC | OUT1 | NC | OUT2 | NC |

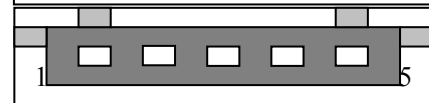
5 PIN LEFT function key socket

| | | | | | |
|---------------|---|---|-----|---|---|
| PIN | 1 | 2 | 3 | 4 | 5 |
| SPECIFICATION | G | E | GND | C | A |



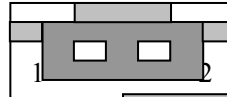
5 PIN RIGHT function key socket

| | | | | | |
|---------------|---|---|-----|---|---|
| PIN | 1 | 2 | 3 | 4 | 5 |
| SPECIFICATION | H | F | GND | D | B |



Power socket

| | | |
|---------------|-----|-----------|
| PIN | 1 | 2 |
| SPECIFICATION | GND | +8~10V DC |



Jumper (Option)

| | | | |
|---------------|-------|---------|----------|
| PIN | 1&2 | 3&4 | 5&6 |
| SPECIFICATION | Spare | Natural | Download |

