GMGA MEASURING
No. 33 Alley 99/120 Dinh Cong Ha, Dinh Cong Ward, Hoang Mai District, 10000 Hanoi City, Vietnam
Telephone: **+84 845 969 336**
Email: **info@gmga.vn**
Website: **https://gmga.vn/**

PIPE INSPECTION CAMERA SYSTEM

Please read the manual carefully before operating the system.Please charge the battery before use.

C

MANUAL

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Safety and Notice

To Avoid electrical shock put the item indoor when Charging

Warning

Use only input 110~240V AC output DC 12.6V, 3000mA charger. machine can only use the original charger and lithium battery, remindingthe charging time is 5 hours. Please charge the battery before use!

Warning
Please check the appearance and functionality of the goods upon receipt. In the event of damagedor missing goods, please forward images to us within 3 working days, as we will otherwise be unable to rectify.

1Please check the appearance and functionality of the goods upon receipt. In the event of damaged or missing goods, please forward images to us within 3 working days, as we will otherwise be unab le to rectify.
2The camera system operating temperature is between -10ºC ~ 50ºC (14ºF ~ 122ºF).
3The warranty becomes void if any physical damage is present by user or force majeure factors orif the system is disassembled or connect non-factory parts by the user
4Do not disconnect the SD card while recording or playing as this may damage the system and/orthe SD card
5Remember to always back up the data on your SD card
6Before initial use of a memory card, it is recommended to use the inspection system to format thecard first.
7Remember to slide the write-protect tab to the unlock position. Otherwise, all data on the memorycard is protected and the card cannot be edited or formatted.
8Use only the original accessories to avoid possible risks to health and property, and thus meet allrelated legal regulations.
9Keep controller dry.
10Do not drop, knock, or shake the inspection system. Inappropriate behavior when using thecamera system may damage the internal electronic circuit board or deform the lens shape.

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1. Parts list

1.1 Accessories

Item	Image	Description	Optional
Camera Head & Skids		• ø50*160MM Camera Head • ø110mm, 150mm, 220mm skid	√
		• ø50mmX107mm(L) Camera Head • ø110mm, 150mm, 220mm skid	
		• Universal skid ● range：140~330MM ● weight ： 1.24KG	√
Control Box		• 9 inch digital Color • Monitoring & Video recording & text writing • Storage: 8G SD card & card reader **(max 256G)** • keyboard • 460(L)X370X180(H)mm ABS case • 12.6V 4400MAH battery & 12.6V/1A charger	√
		• 15 inch digital Color • Monitoring & Video recording & text writing • Storage: 8G SD card & card reader **(max 256G)** • keyboard • 460(L)X370X180(H)mm ABS case • 12.6V 13200MAH battery & 12.6V/3A charger • 4400MAH/6600MAH optional	
Cable Wheel		• Cable Wheel: 770(L)X371(W)X810(H) • Wire Material: Fiberglass rod • Wheel Material: Stainless steel • Cable Diameter: ø9.5mm • Cable Counter: Metric & imperial counter	√
Transmitter		• Transmitter: built-in512Hz • Effective distance: 4.5M	√
Spring connector		• Spring	√
Control Handle		• Size :32*83*166mm • Work current:20MA • power supply:DC 12V	√
Microphone		• Frequency response: 20-20KHz • Sensitivity: -47dB±2dB • Output impedance: ≤2.2KΩ • Line Length:1m	√

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Connect line		• 3m connect line	√
Test line		• test line	√
SD card and card reader		• 8G SD card & card reader	√
Screw Driver		• 2.5mm	√
Waterproof Ring			√
Manual			√

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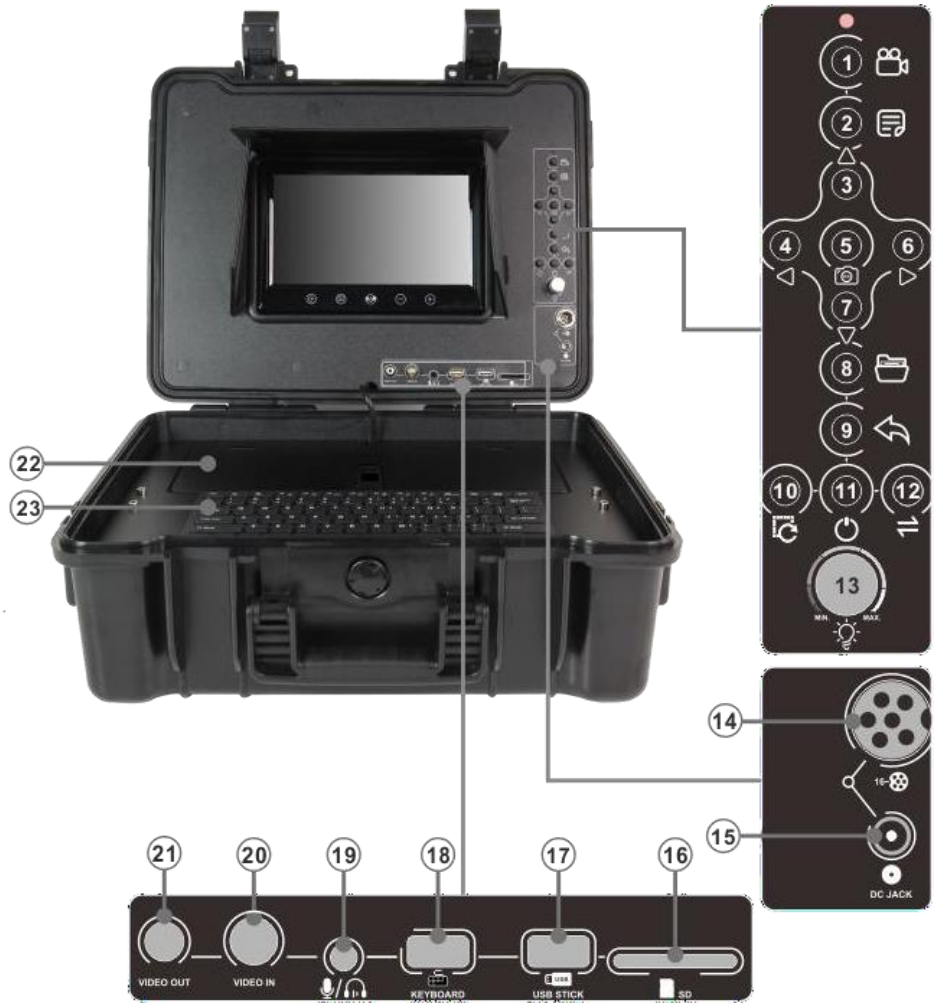
1.2 Control Box



1	Record/stop recording	13	LED brightness controller
2	Menu	14	Camera cable socket
3	Up	15	12.6V DC Input
4	Left	16	SD Card Slot
5	Photo/OK	17	USB stick port
6	Right	18	Keyboard USB port
7	Down	19	Headphone/microphone jack
8	Quick playback	20	Video input
9	Back	21	Video output
10	Counter reset	22	ABS carry case
11	Power control	23	Keyboard
12	Meter/Feet switch	24	

1.3 Control Handle

1	Connector	7	Tilt-up
2	Pan-right	8	Pan-left
3	Tilt-down	9	Power lights
4	Speed	10	Auto
5	Near focus	11	Far focus
6	Light brightness down	12	Light brightness up

2. Quick Start Guide

2.1 Get accessories and charge the Battery

1. Get accessories from tool box

2. Charge the Battery

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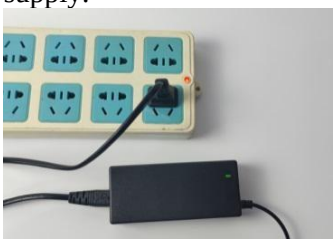
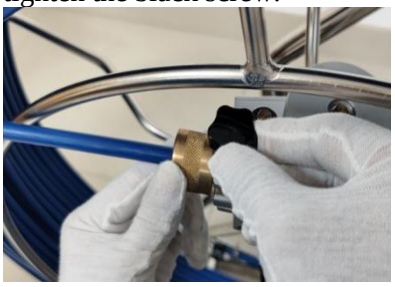
1.Connect the adapter to a power supply. 	2.Connect the plug to the port ofthe control box. 	3.The indicator will change from red to green when finished charging.

2.2 Connection

1. Open the ABS case and install sunshade. 	2. Connect control handle. 	3. Install camera, spring and transmitter.
4. Put cable into the clamp. 	5. Rotate copper nut and tighten the black screw. 	6. Loose the break.
7. Connect one end of connect line. 	8. Connect the other end of the connect line. 	9. Switch to C-PT/BF

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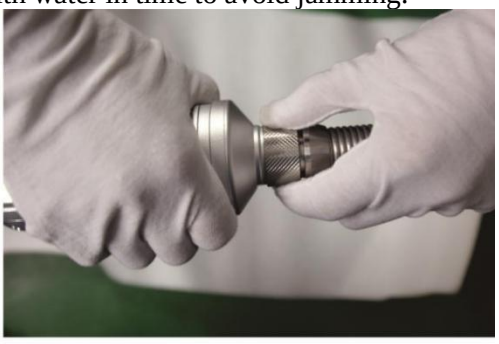
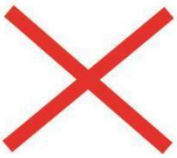
WARNING:

Check the waterproof ring between all connections.

Do not turn the camera rotating part by hand to avoid damaging the motor.
Pan tilt camera can't be used in severe blockage and sludge pipeline, otherwise the camera may bedamaged.
After use, please clean the sediment on the camera with water in time to avoid jamming.





2.3 Assemble skid

1. Install 110mm & 150mm & 220mm skids

4 PM3X10 screws

PM3X14 screws

PM3X16 screws

2. Install universal skid

Loose the ring in the middle of skid, put into camera and tighten three screws to fix.

2.4 Starting up

1. Insert SD Card Insert SD card or card reader &SD card 	2. Plug in microphone. 	**3. Staring up** Long press the power buttonfor 3 seconds to turn on.
4. Record video Press this button to record, press again to stop recording. 	**5. Take photo & playback** Press this button to take photo.Long press button to playback. 	**6. Audio and text record** Support to record audio by microphone and input text by keyboard when recording video

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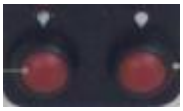
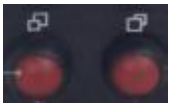
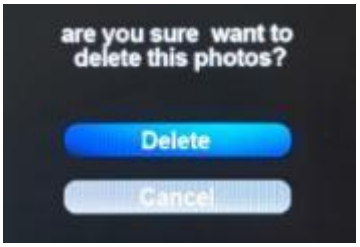
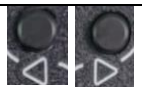
7. Meter counter Press button to reset the counter. Press button to switch meter/ feet.	**8. Zoom in and out** Press these two buttons to zoom in and zoom out image when recording.(max 8 levels) When play video or photo, also use these two buttons to choose video or photo.	**9. Adjust volume** Press these two buttons to adjust volume when recordingor play video.
10.Adjust lights of camera Press these two buttons on control handle to adjust lights. 	**11.Adjust pan tilt** Adjust the joystick on control handle to control pan and tilt 	**12.Adjust manual focus** Press these two buttons on control handle to adjust focusof camera. （Only for 50mm manual focus camera） 
13.Play video Press these two buttons to play video. 	**14.Delete video** Press these two buttons to delete video. 	**15.CVBS Video output** Long press the menu button for3 seconds switch to connect other RCA jack screen. operate in same way back to close video output

When play back video, press button to pause the video, and press  buttons to fast forward and backward the video.

Warning: Do not insert two SD cards at the same time. Pay attention to the direction of the SD card.

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3. Menu

Press to enter menu. Press choose the items. Press enter submenu. Press enter upper submenu until to homepage.

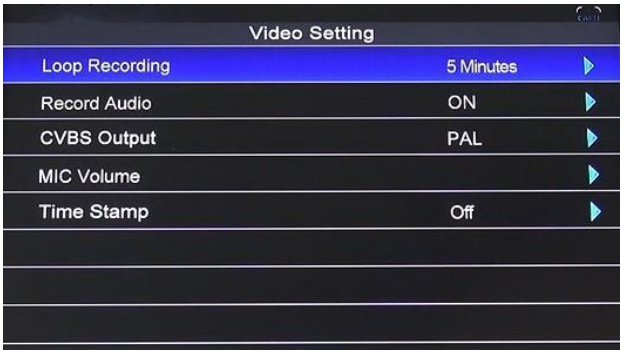
Play Video **Play Photo**

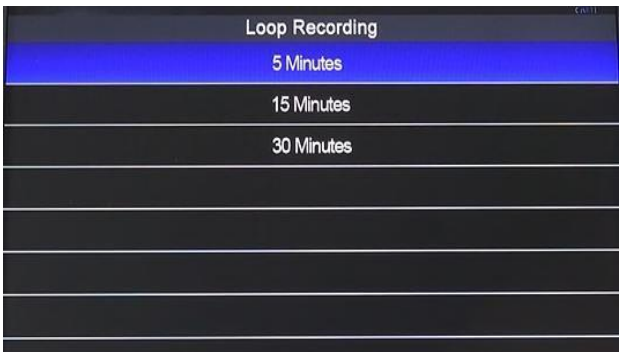
Video settings **System settings**

3.1 Video settings

1. Set the length of time to record video

- 5 minute
- 15 minute
- 30 minute





2. Audio record

- ON
- OFF

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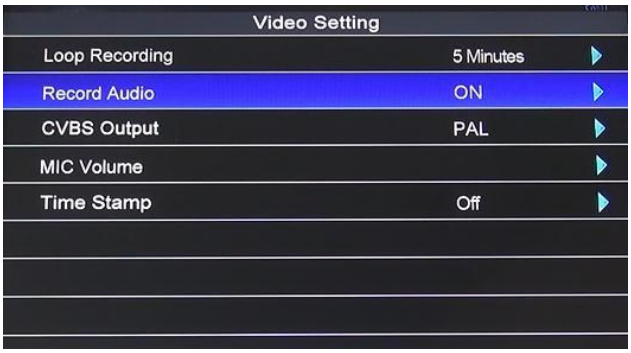
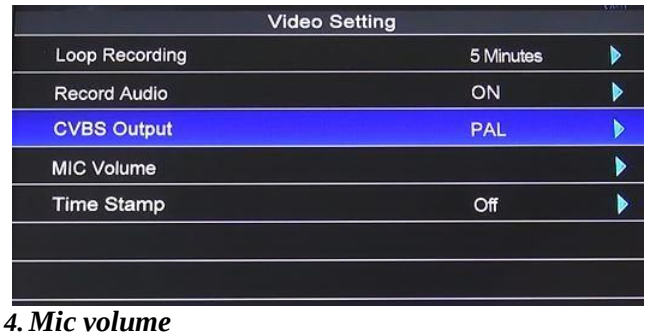
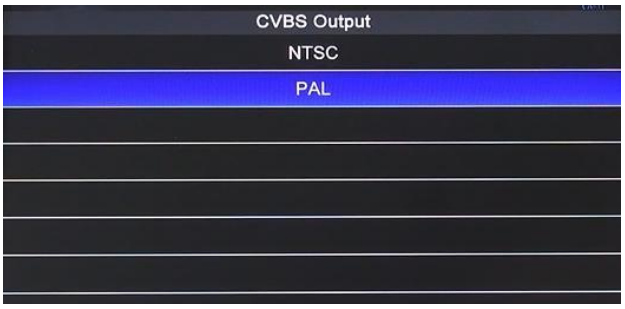


3. CVBS output

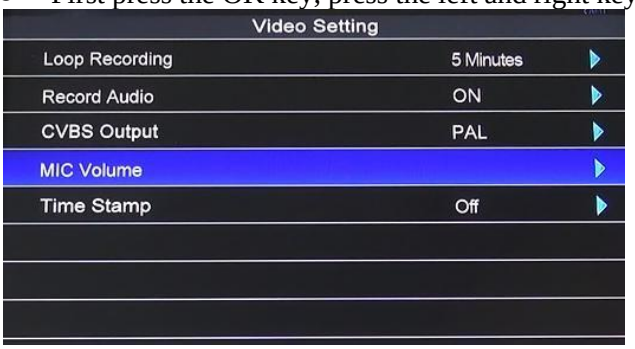
- NTSC
- PAL





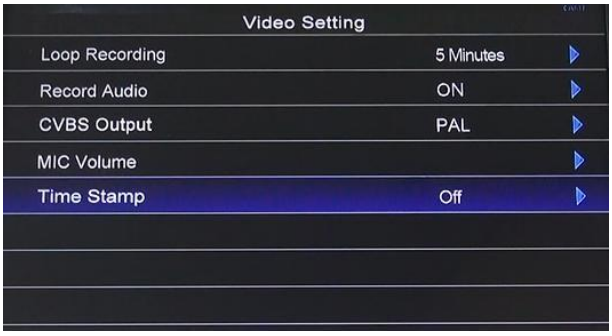
4. Mic volume

- First press the OK key, press the left and right keys to adjust the volume



5. Time watermark

- ON
- OFF



3.2 System settings

1. Image

- Brightness
- Contrast
- Chroma

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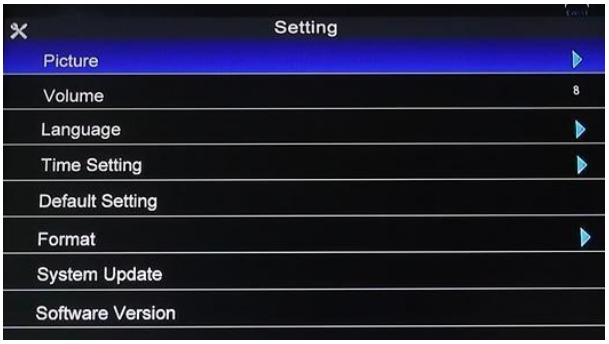
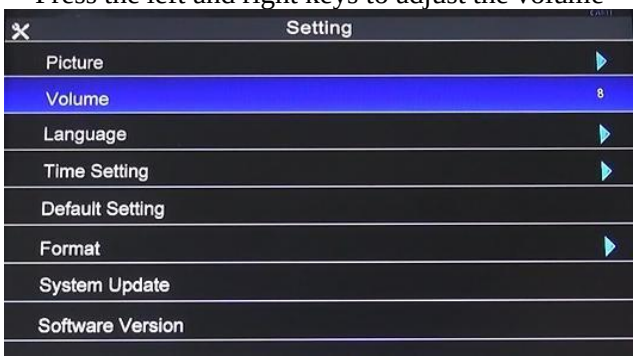
- Reset



2. Volume

- Press the left and right keys to adjust the volume

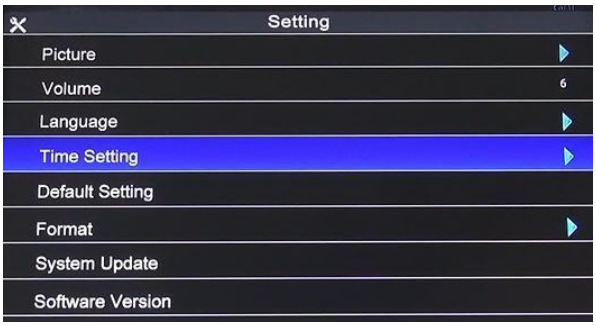


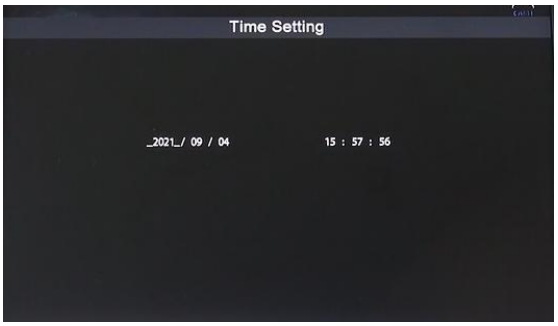
3. Language

4. Time

Date and time

Press the up and down keys to set the date and time, and press the left and right keys to select thetime and date





5. Restore default

- No: Cancel
- Yes: Confirm

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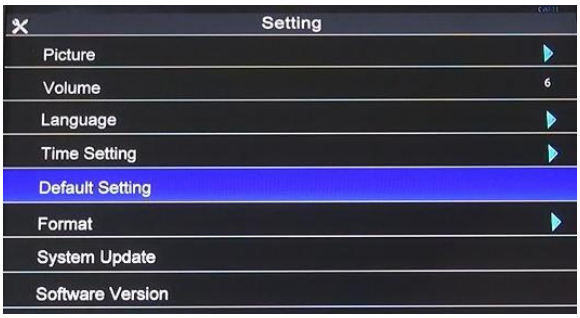
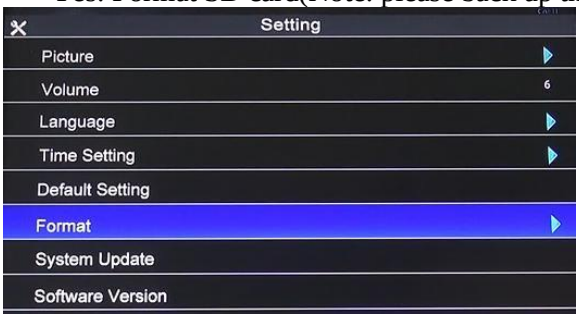
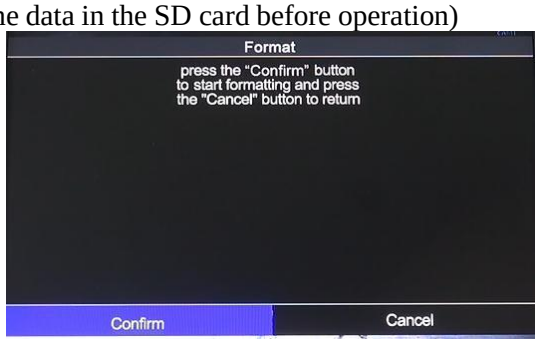


6. Format

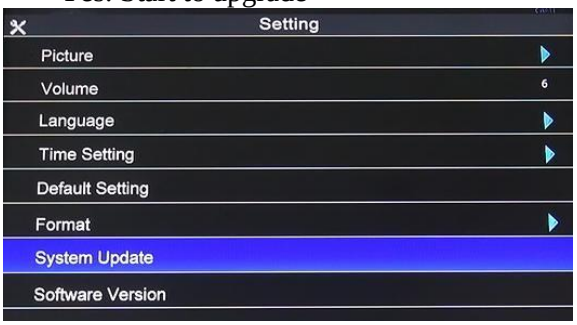
- No: Cancel
- Yes: Format SD card(Note: please back up the data in the SD card before operation)





7. Firmware update

- No: Don't upgrade system
- Yes: Start to upgrade



8. View software version

- View software version, date

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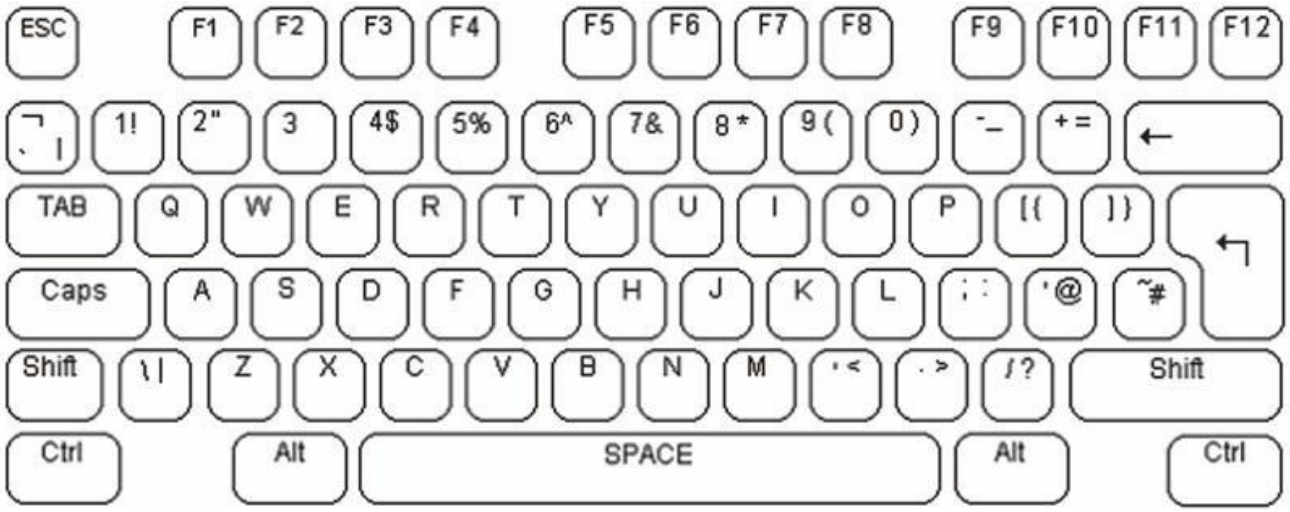
4.Keyboard



1. The font and character size have been set and cannot be changed.
2. The basic operation of characters is to automatically push back, covering the input characterson the image.
3. The cursor flashing indicates the current position of the character to be input on the screen. Thecursor position can be controlled by the direction key on the keyboard. The cursor will move from left to right, from top to bottom and back. After typing a character, the cursor flashes quickly at the position of the next character, and then disappears. Press F6 to switch between cursor flashing and cursor clearing.
4. Video character overlay input uses a standard American keyboard. The alphabetic characters in the QWERTY area and the numeric characters of the keypad can be directly input to the screen.Normally, lowercase letters are entered. When you press and hold the shift key or press caps lock, you can enter uppercase letters. When exiting uppercase input, press caps lock again.
   Use the backspace key to move the characters on the screen, which will quickly replace the characters to the left of the cursor with blank characters, and the cursor will move to the left. The delete key on the keyboard does not give any function. Press enter to move the cursor tothe start of the next line.

F6	The switch cursor flashes
F9	Clear screen
↑↓←→	Move cursor position
CTRL+1~8	Quick jump page

5. The video text superimposing unit displays it in the current screen page. The text written to these pages will be saved in the local nonvolatile memory until it is overwritten. To move between screen pages, use the page up and page down keys. To quickly jump to page 1 ~ 8, press Ctrl + X (x stands for 1 ~ 8). Supports up to 64 page editing. To clear the screen page ofthe text, press F9.