

F4 Vista

Time & Attendance and Access Control Terminal

Installation Instructions



Revised March 2008

About this Guide

This guide provides installation instructions only. For information regarding actual operation and configuration of the F4 Vista Time & Attendance and Access Control Terminal, refer to the user manual.

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Before Installation

Read all instructions prior to installation.

1. Prior to beginning installation, **cut off all power** to prevent personal injury and damage to the F4 VISTA and peripheral equipment.
2. Connect the ground wire first, in order to prevent electro-static damage to the F4 VISTA.
3. Connect power supply to the F4 VISTA **last**. If the F4 VISTA does not operate properly, **always cut off power to it** before examining/dismantling. Be advised that wiring the F4 VISTA while power is on may cause damage to the terminal. Possible resulting damage from not powering off the F4 VISTA prior to wiring is not covered by manufacturer's warranty.
4. Mount the F4 VISTA at a comfortable height, typically between 4 and 5 feet from the ground.
5. After installation, remove protective film from the F4 VISTA display and fingerprint sensor.
6. To prevent being accidentally locked out while testing the exit-door button, keep a person on the inside of the door.
7. Run the auto-test function to confirm that installation is successful.
8. In order to maximize the life of the F4 VISTA, use the auto-sleep and wake up functions.
9. We recommend using a **12V DC 1.5Amp** power supply for proper

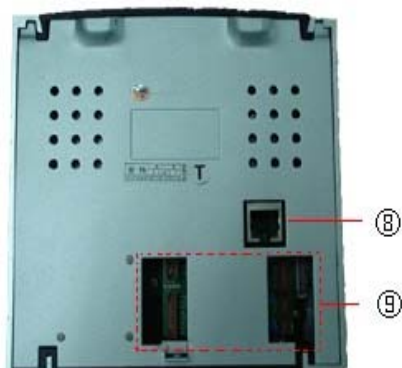
functioning of the F4 VISTA terminal. If the incorrect voltage is used, the F4 VISTA may keep rebooting or may not operate the electric door lock (if attached).

10. Improper wiring may cause the F4 VISTA's main circuit board and fingerprint sensor to burn out. Resulting damage from improper wiring is not covered under manufacturer's warranty.
11. Only use supplied transformer and cord. Do not attempt extending the cord by cutting and splicing.
12. If using RS485 mode of communication, use only a ZK Software-supplied RS485 converters. Using a 3rd party RS485 converter may or may not work. If the RS485 cable length exceeds 200 feet, we recommend using a 120Ω terminator.
13. Refer to the user handbook and operating instructions for further information.








1.2 View of operation panels






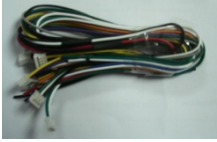
1. Loudspeaker
2. LCD screen - displays menu & operational status.
3. LED light - illuminates green when operation is successful or red when fails.
4. Fingerprint Sensor used to enroll & verify fingerprints
5. Keypad - used for entering user information & making menu selections.
6. Reset button
7. USB mini-port connects USB flash drive for manual data transfer.
8. RJ45 port used for network data communications.
9. Outlets used to connect power and other auxiliary equipment.





1.3 Packing list

| Part | Image | Qty |
|-----------------------|---|-----|
| F4 |  | 1 |
| Back Mounting Plate |  | 1 |
| Plate Mounting Screws |  | 3 |
| Wall Mounting Screws |  | 4 |
| Hex Screwdriver |  | 1 |







F4 Vista Installation Instruction V1.0



| | | |
|-----------------------------------|---|----------|
| <p>Extension Power Cable</p> |  | <p>1</p> |
| <p>Power supply</p> |  | <p>1</p> |
| <p>Power Supply Cable</p> |  | <p>1</p> |
| <p>Wireless Doorbell</p> |  | <p>1</p> |
| <p>Batteries</p> |  | <p>3</p> |
| <p>Extension Wire</p> |  | <p>1</p> |

| | | |
|--------------------|---|---|
| USB Converter |  | 1 |
| USB flash drive |  | 1 |
| Manual | | 1 |

1.4 Optional 3rd party equipment

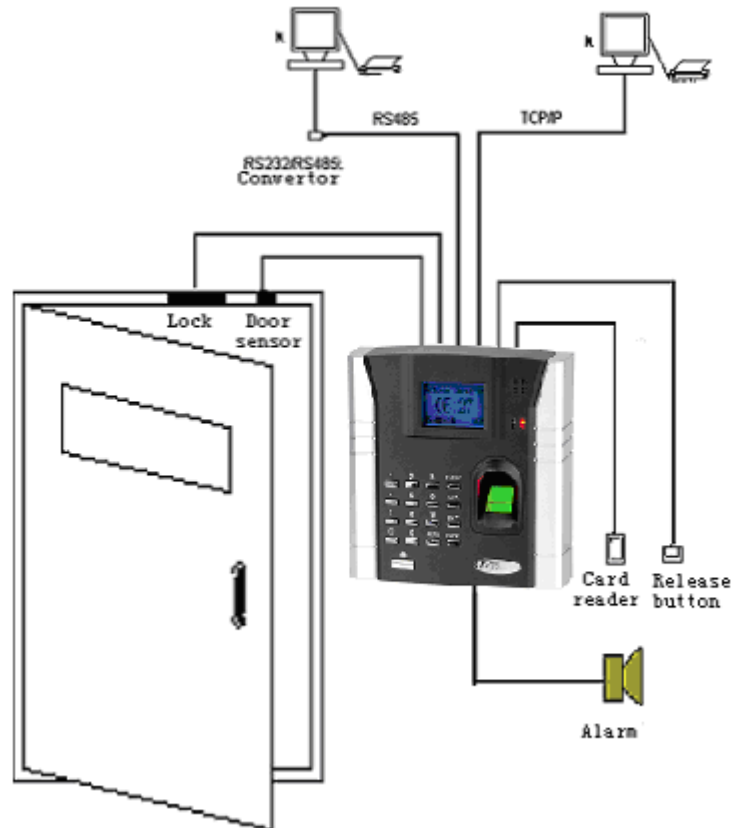
The following equipment is not provided by ZK Software, but often compliments a complete Access Control solution;

| Part | Image | Part | Image |
|-------------|---|------------------------------|---|
| PC |  | Door Lock |  |
| Door sensor |  | Exit Button |  |
| Alarm |  | RS485/ RS232 converter |  |

| | | | |
|--------------------|---|------------------|--|
| Door Controller |  | Network Cable |  |
|--------------------|---|------------------|--|

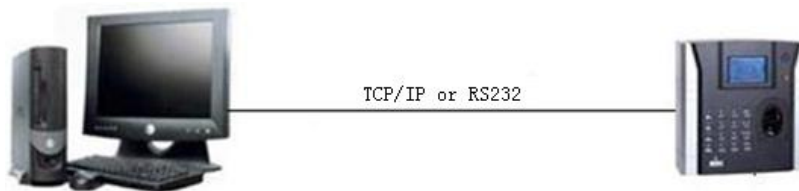
1. System Configuration

1.1 Illustration of system configuration

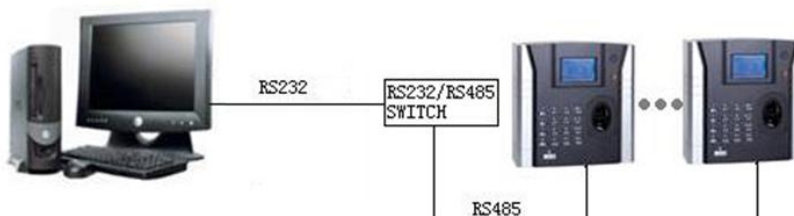


1.2 Communication Options

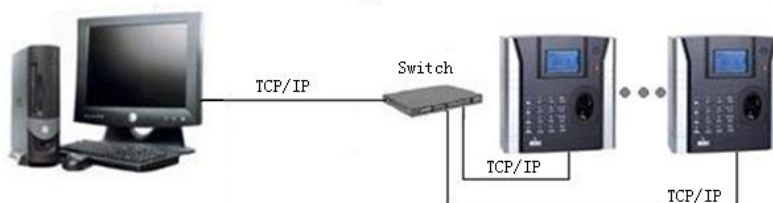
The F4 VISTA can directly connect with a PC through RS232 or Ethernet:



The F4 VISTA can connect with a PC through RS485 network:



The F4 VISTA can connect with a PC through Ethernet network:



2.3. Installation

3.1 Attach Mounting Plate

- ✓ Take out the F4 VISTA fingerprint terminal and remove the screw which secures the F4 VISTA to its mounting plate. See figure (1).
- ✓ Remove mounting plate by grasping the bottom edge and lifting it inward and upward.
- ✓ Determine the position of mounting plate on the wall. We recommend about 5 feet from the ground so it is comfortably within reach of most of your users. After its position is determined, cut-out a square-opening in the wall about $\frac{3}{4}$ " x $\frac{3}{4}$ " that corresponds to the cut-out in the F4 VISTA's mounting plate for wires to pass through.
- ✓ Match up the new wall cut-out with the square-shaped cut-out in the F4 VISTA's mounting plate. Use 4 screws provided to affix the F4 VISTA mounting plate on the wall (See figures a, b, c and d).
- ✓ Then secure the F4 VISTA to the mounting plate.



Figure 1

2.2 Connecting optional 3rd party equipment

Caution: Always be certain power is off before connecting peripheral devices.

Please follow 3rd party manufacturers' instructions;

- Door sensor connection
- Exit-button connection
- Alarm connection
- Door lock connection
- Ethernet connection
- RS232 connection
- RS485 connection
- Wiegand output connection
- Power connection

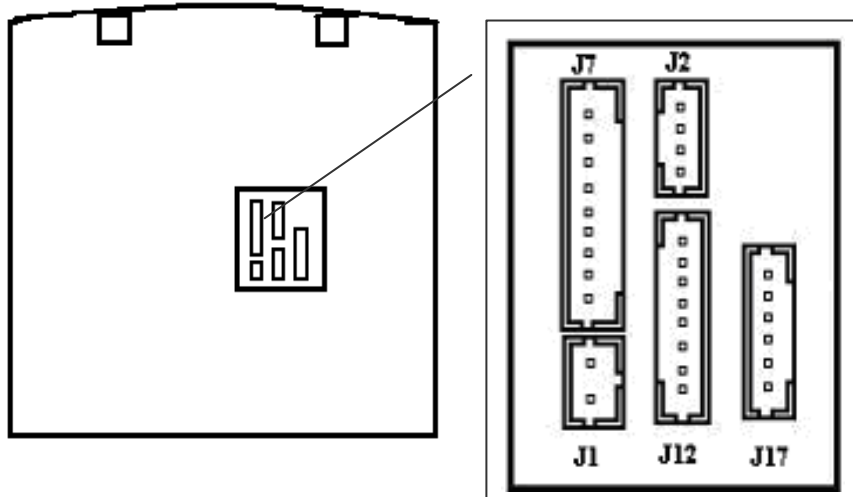


Table 1 F4 VISTA Pin connectors

| J 7, 9pin connector on left side above of the rear panel (from the top) | | | |
|---|--------|------------------------------------|--------------|
| 1st | NC2 | Connect to Alarm NC terminal | Tie together |
| 2nd | COM2 | Connect to Alarm COM terminal | |
| 3rd | NO2 | Connect to Alarm NO terminal | |
| 4th | NC1 | Connect to Lock NC terminal | Tie together |
| 5th | COM1 | Connect to Lock COM terminal | |
| 6th | NO1 | Connect to Lock NO terminal | |
| 7th | Button | Connect to Release button | Tie together |
| 8th | GND | For Door sensor and release button | |
| 9th | Sensor | Connect to Door sensor | |

| J1, 2Pin connector on left side below of the rear panel (from the top) | | | |
|--|------|-----------------------|--------------|
| 1st | GND | Connect to Power GND | Tie together |
| 2nd | +12V | Connect to Power +12v | |

| J2, 4Pin connector on middle above of the rear panel (from the top) | | | |
|---|--------|-------------------------------|--------------|
| 1st | RJ45-1 | Connect to RJ45 plug wiring 1 | Tie together |
| 2nd | RJ45-2 | Connect to RJ45 plug wiring 2 | |
| 3rd | RJ45-3 | Connect to RJ45 plug wiring 3 | |
| 4th | RJ45-6 | Connect to RJ45 plug wiring 6 | |

| J12, Pin connector on middle below of the rear panel (from the top) | | | |
|---|------|----------------------------|--------------|
| 1st | WD0 | Connect to Weigand out WD0 | Tie together |
| 2nd | WD1 | Connect to Weigand out WD1 | |
| 3rd | GND | Connect to Weigand out GND | |
| 4th | RXD | Connect to RS232 RXD | Tie together |
| 5th | TXD | Connect to RS232 TXD | |
| 6th | GND | Connect to RS232 GND | |
| 7th | 485A | Connect to RS485A | Tie together |
| 8th | 485B | Connect to RS485B | |

| J17, 7Pin connector on right side below of the rear panel (from the top) | | | |
|--|-------|--------------------------|--------------|
| 1st | Bell+ | Connect to Cable Bell+ | Tie together |
| 2nd | Bell- | Connect to Cable Bell- | |
| 3rd | BEEP | Spare | |
| 4th | GLED | Spare | |
| 5th | RLED | Spare | |
| 6th | INWD0 | Connect to Weigand input | Tie together |
| 7th | INWD1 | Connect to Weigand input | |

2.2.1 Door sensor connection (optional)

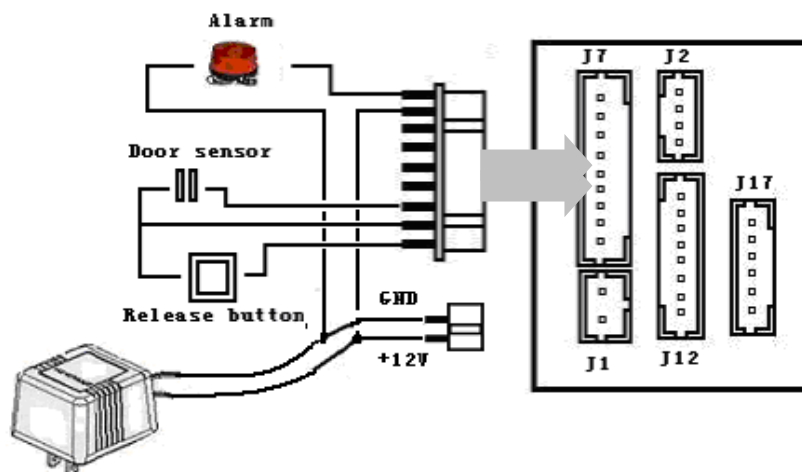
The door sensor is used to detect the door status (open or closed). The F4 VISTA can monitor unauthorized entry and transmit an alarm signal if the door has been opened by an unauthorized user or if the door remains open too long.

2.2.2 Exit-button connection (optional)

Install exit button approximately 4 to 5 feet from the ground. Make sure that the exit-button is properly connected to the corresponding terminals on the back of the F4 VISTA. (Unused exposed end of cable should be cut off and wrapped with insulating tape.) Be sure no electro-magnetic disturbance occurs as a result of the installation.

2.2.3 Alarm connection

The F4 VISTA can trigger alarms and monitoring systems (only supports 12V DC buzzers).



2. 2.4 Door lock connection

Door lock connections depend upon the type of lock used (i.e. electric door strike or mag lock) and surrounding mounting surface (i.e. wood, sheetrock, cement, glass, etc.).

Be sure to distinguish between the positive and negative terminals on both the F4 VISTA and the door lock. The unused bare end of the wire should be cut off and wrapped in insulating tape. Note that the time-delay of the door locks is usually adjustable.

Selecting door lock

For glass doors which swing both in and out, we recommend the use of electro-magnetic door strikes (aka “mag locks”).

For 1-way opening non-glass doors we recommend the use of electric door strikes, instead.

While both locks are equally secure, the mag lock is considered safer than the electric strike, especially during power interruptions. During a power failure caused by fire or other safety threats, the mag lock will “fail open” and allow people to exit a room/building unhampered.

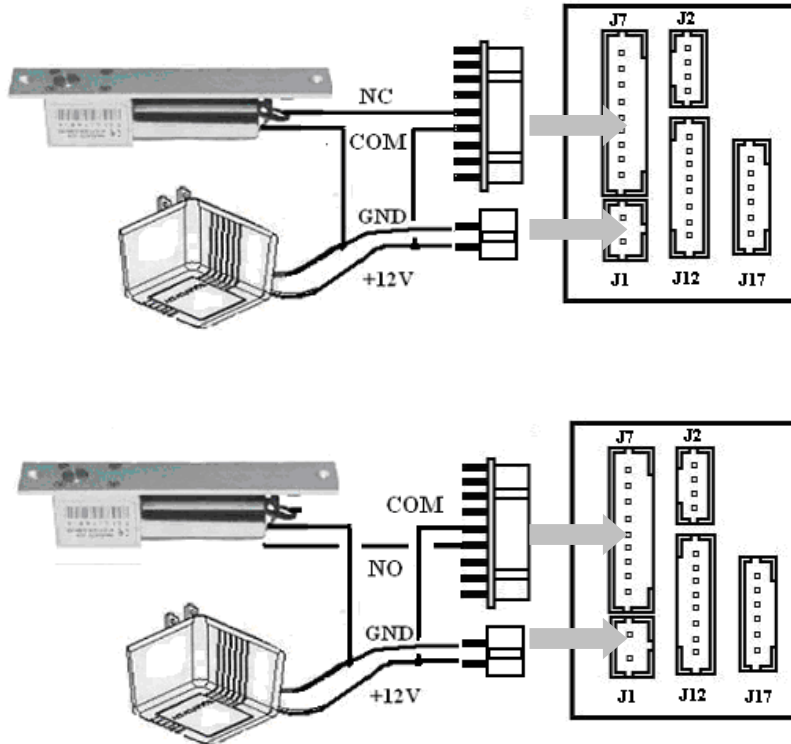
Conversely, the electric strike “fails closed”. With loss of power you can still exit a door secured by an electric door strike. But you’ll need a mechanical device (i.e. door handle or exit bar) to free the door during power interruptions. ZK Software is not responsible for any personal injury or damage caused by power failure.

Connecting Door Lock

The F4 VISTA can supply power directly to a door lock.

However, in the following three scenarios, it is recommended that the door lock has an independent power source, and is NOT powered by the F4 VISTA;

- If the door lock voltage is not 12V DC then provide separate power to the door lock.
- If the door lock runs on 12V DC, but requires more than 1A (amp), then provide separate power to the door lock.
- If the distance between the F4 VISTA and door lock is greater than 15 feet, then provide separate power to the door lock.



Test and examine after installation

With power on, test for the following:

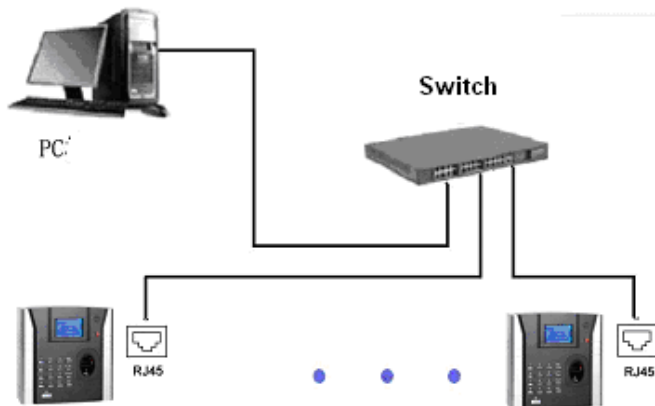
- ✓ the green LED lights up after power up.
- ✓ enter menu→Option→ Auto-test.
- ✓ enter menu→User manage→User Enroll→Fingerprint Enroll
Enroll a fingerprint, and use that same fingerprint to test access control system and door strike.

2.2.5 Ethernet connection

- 1) F4 VISTA connects directly with PC through cross cable;

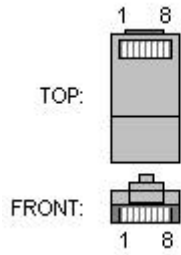


- 2) F4 VISTA connects directly to network switch/router



3) RJ45 plug wiring diagrams for Ethernet

3a) RJ45 plug standard



3b) Ethernet 10/100Base—T Crossover Cable

Applies to HUBs and routers or 2 connected Ethernet terminals.

| <i>Plug 1</i> | <i>Pin</i> | | <i>Pin</i> | <i>Plug 2</i> |
|---------------|------------|-----|------------|---------------|
| TX+ | 1 | <—> | 3 | RX+ |
| TX- | 2 | <—> | 6 | RX- |
| RX+ | 3 | <—> | 1 | TX+ |
| RX- | 6 | <—> | 2 | TX- |

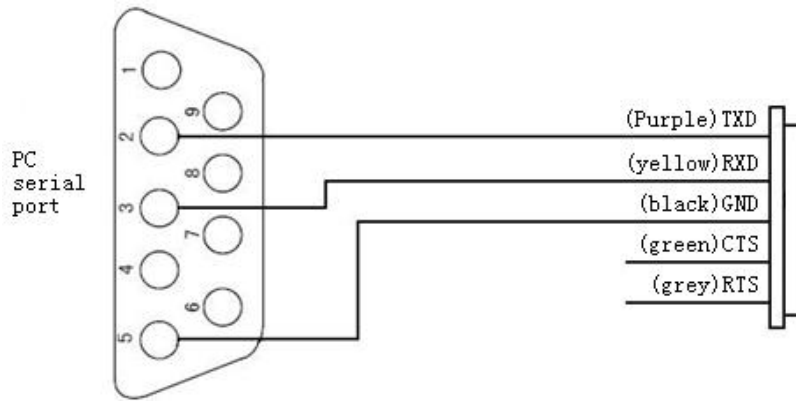
3c) Ethernet 10/100Base-T Straight Thru Cable

Supports 10Base-T. Connects a network card and a router.

| <i>Wiring standard</i> | <i>Pin</i> | <i>Color</i> | <i>Pin</i> | <i>Wiring standard</i> |
|------------------------|------------|-----------------|------------|------------------------|
| TX+ | 1 | <— white orange | —> 1 | TX+ |
| TX- | 2 | <— Orange | —> 2 | TX- |
| RX+ | 3 | <— white green | —> 3 | RX+ |
| | 4 | <— Blue | —> 4 | |
| | 5 | <— Blue white | —> 5 | |
| RX- | 6 | <— Green | —> 6 | RX- |
| | 7 | <— White brown | —> 7 | |
| | 8 | <— Brown | —> 8 | |

3.2.6 RS232 connection

| PC Serial Port | F4 VISTA serial port (J06) |
|----------------|----------------------------|
| Pin2-Rxd | Pin1-Txd (Purple) |
| Pin3-Txd | Pin2-Txd (Yellow) |
| Pin5-Gnd | Pin3-Gnd (Black) |



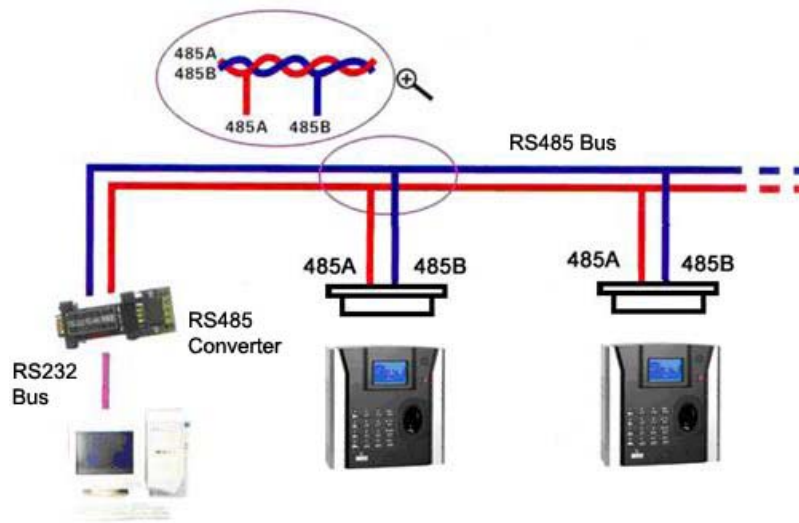
RS232 Connection

3.2.7

RS485 connection

RS-485 systems using a bus structure configuration connect the driver to the receiver. The transmission line is made by a group of twisted-pair cables. Each cable has a pair of conductors consisting of inverted and non-inverted signal lines. The inverted line is generally designated by the letter "A" or "-", with the non-inverted line designated as "B" or "+". In order to eliminate or reduce “noise”, traditional RS485 networks require a 12Ω terminal resistor to be installed at the end of the bus cables based on the physical layout of the twisted-pair cables. In the normal condition the resistor is not installed, only if the bus is extended over 125 feet, the termination must be connected with a terminal resistor.

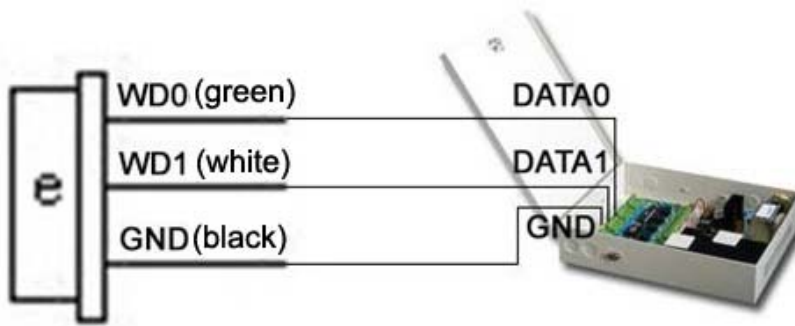
| F4 VISTA Terminal | Function |
|-------------------|------------------------|
| Pin1-485A (Green) | RS-485 communication + |
| Pin2-485B (White) | RS-485 communication - |



3.2.8 Wiegand output connection

The F4 VISTA provides standard Wiegand 26-bit output, which can be connected to most 3rd party access control panels. The F4 VISTA connects to the panel just like any card-reader or keypad. The distance from the controller to the F4 VISTA cannot be more than 16 feet. If the Wiegand signal must be transferred much further, or if electro-magnetic interference exists, utilize a Wiegand signal amplifier.

| F4 | Function |
|------------------|------------------------------|
| Pin1-WD0 (Green) | Output wiegand data 0 signal |
| Pin2-WD1 (White) | Output wiegand data 1 signal |
| Pin3-GND (Black) | Ground |

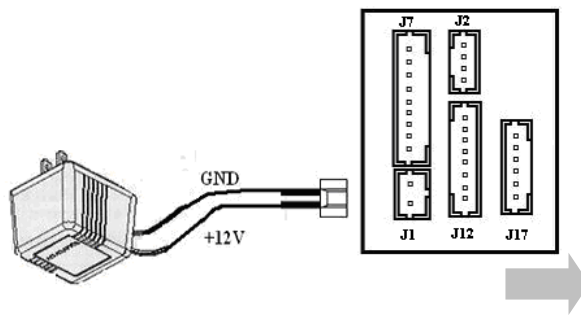


3.2.9 Power connection

The F4 VISTA is powered by 12V DC. Its current is approximately 50mA when idle and 400mA when powering a peripheral device.

| F4 VISTA | Function |
|------------------|----------------|
| Pin1-PWR (Red) | Power positive |
| Pin2-GND (Black) | Power negative |

Connecting Power Adapter to F4 VISTA:

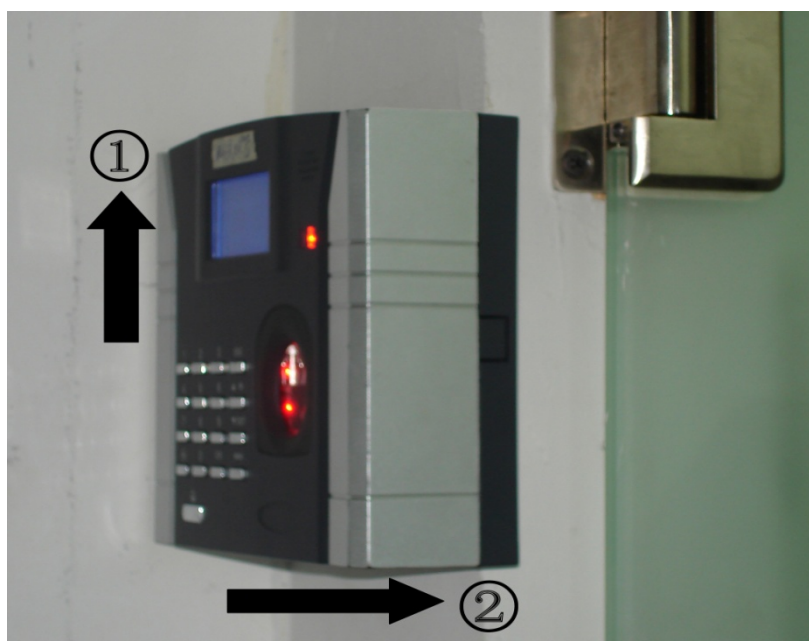


Images of F4 VISTA and power accessories:



2.3 Fastening F4 Vista to mounting plate/wall

- ✓ Confirm all connecting wires are correct and securely fastened.
- ✓ Properly align the rear metal-plate of the F4 VISTA to the mounting plate and then push up on it (figure 1). Then push the F4 VISTA backwards. (figure 2). The F4 VISTA is now securely affixed to the mounting plate and wall
- ✓ Tighten screw on underside of F4 VISTA.



3. Test and examine after installation

After installation is completed, perform the following;

- ✓ Confirm green LED begins to flash after power up.
- ✓ Run Auto-Test
Enter menu- > Option- > Auto-test.
- ✓ Test User Enrollment
Enter menu- > User manage- > User Enroll- >
Fingerprint Enroll
- ✓ Enroll a fingerprint
- ✓ Test if Verification works

If all is on order, delete newly enrolled fingerprint if appropriate.

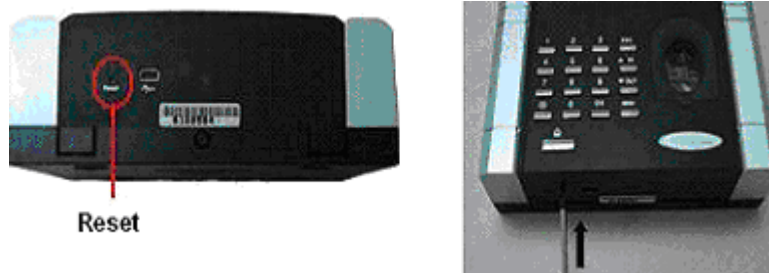
5. Miscellaneous

5.1 Reset

IMPORTANT NOTE

Resetting the F4 VISTA does NOT erase any stored data (i.e. templates, transactions, settings). This information will be available as soon as power is restored.

To reset the F4 VISTA use a small tool (e.g., pin or paperclip) to push in the reset button (labelled “reset”) located on the underside of the F4 VISTA (see figure below).



5.2 Tamper-proof button

When the F4 VISTA detects it is being “tampered” with, it will send an alarm signal.

5.3 Wireless doorbell

Install doorbell. Then press the doorbell key on the F4 VISTA (see diagram below).



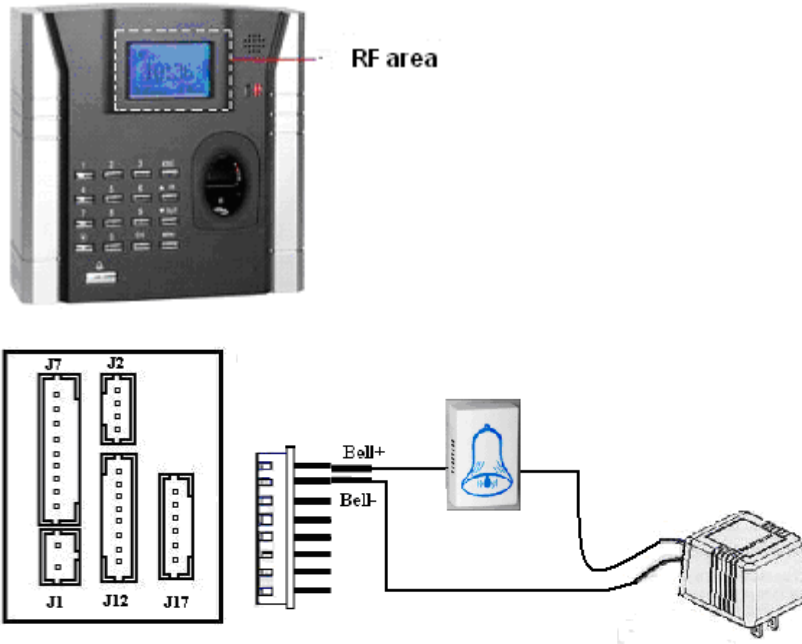
Note: The doorbell is a wireless. Therefore, the distance and possible physical obstructions may affect the strength of the wireless doorbell signal. Test the signal strength before installing the door bell.

5.4 USB Flash Drive

The USB port can be used to upload and download data when using a ZK Software-supplied USB flash drive (needs to be ordered separately).

5.5 Built-in proximity card reader (Optional)

When using the optional built-in card reader, flash the card 2 to 3 inches from the card reader. The optional card reader supports both thick (1.88mm) and thin (.08mm) cards, whose operating frequency is 125KHZ;



5.6 Built-in MIFARE card reader (Optional)

When using the optional MIFARE card reader, flash the card 2 to 4 inches from the card reader. The MIFARE card reader supports MIFARE cards that operate at a frequency of 13.56MHZ, and a communication speed of 106KBPS.

5.7 Built-in HID Card reader (Optional)

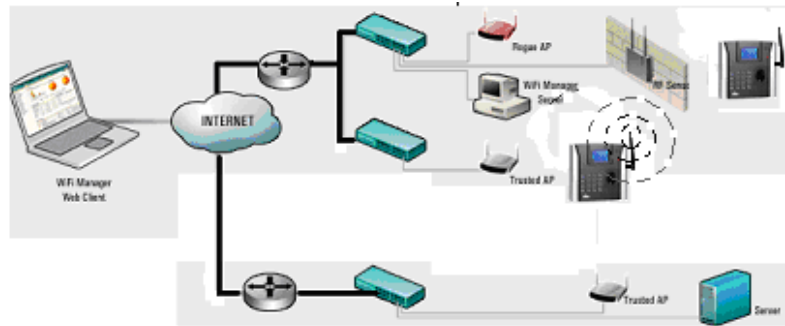
When using the optional HID card reader, flash the card 2 to 3 inches from the card reader. The HID card reader supports HID cards that operate at a frequency of 125KHZ.

Connecting with Wi-Fi (optional)

The F4 VISTA has a Wi-Fi (*wireless fidelity*) option which allows the F4 VISTA to communicate with 802.11 local area networks (802.11b and 802.11g, dual-band, etc.).

- IEEE802.11b Standard Data Rates: 1, 2, 5.5 and 11Mbps.
- Support IEEE 802.11g compliant DSSS, CCK, OFDM modulation
- IEEE802.11g Standard Data Rates: 6, 9, 12, 18, 24, 36, 48, 54Mbps .

Illustration of F4 VISTA in a Wi-Fi environment



Connecting with GSM/GPRS (Optional)

The F4 VISTA has an optional Quad-band module which allows the F4 VISTA to communicate with global GSM/GPRS networks.

5. Trouble shooting

| Trouble | Cause & Fix |
|--|--|
| Power LED is off | <p>Cause : No power or lack of voltage</p> <p>Fix: Check and examine power and ground connections. Also ensure 12V DC power.</p> |
| F4 VISTA is unable to connect with PC | <p>Cause: Connection may be loose.</p> <p>Fix: Check that the RS232/RS485 or Ethernet connections are secure. Also make sure network/firewall settings are not blocking communication to the F4 VISTA</p> |
| LCD displays “Please try again”. | <p>Cause: The F4 VISTA’s fingerprint sensor may have accumulated excess dirt or scratches over a period of time. This message indicates the sensor is unable to obtain a clear image of the fingerprint. Other possible cause may be fingerprint sensor cable has loosened from circuit board.</p> <p>Fix: Try using cellophane tape to remove dirt. Sensor may also need to be repaired/replaced.</p> |
| F4 VISTA starts up, but cannot enter menu system | <p>Cause: Fingerprint sensor cable is loose. Fingerprint sensor is broken. Circuit board is broken.</p> <p>Fix: Remove and plug back in Fingerprint sensor cable.</p> |

| | |
|--|--|
| <p>Time continually displays “00:00” after restarting</p> | <p>Cause: The clock battery is drained. Fix: Replace battery.</p> |
| <p>The fingerprint sensor light is off</p> | <p>Cause: Fingerprint sensor or flat connection cable is loose or broken. Fix: Unplug the cable from the fingerprint sensor and plug it back in again.</p> |
| <p>Pressing buttons no longer makes sound.</p> | <p>Cause: Trouble in the buzzer, loudspeaker or circuit. Fix: Need to replace the buzzer and loudspeaker.</p> |
| <p>Some users’ fingerprints sometimes can’t be verified.</p> | <p>Cause: The fingerprint quality is poor. Fix: If repeated attempts with the same finger fail, try using a different finger when enrolling. Also reduce fingerprint “threshold” setting. If user’s fingerprints completely unreadable, assign them a PIN number, instead.</p> |

Appendix

How to configure the Wi-Fi function for the F4 VISTA

Before configuration

The F4 VISTA acts as a node in a wireless network. Before the F4 VISTA can communicate with the network, a wireless Access Point must first exist.

You must know the ESSID of the local network (network name) you wish to connect to.

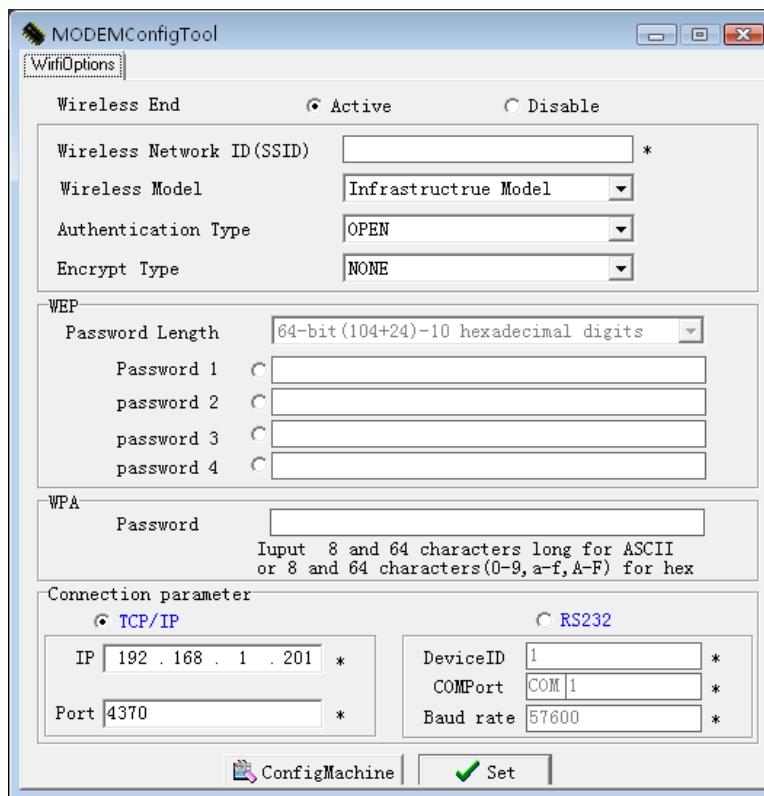
Operational steps

Step 1. Copy the file **WiFiConfigure** that is provided by the manufacturer of the PC.

Step 2. Connect the F4 VISTA with the PC over Ethernet or RS 232

Step 3. Double-click ZKMACUdata to open the file.

The following window will appear.



Step 4. Activate the software

There are two options Active or Disable

For wireless End (station) the two options must to be set down.

If you select the Active item, this wireless-end will be activated, you can configure the AP (Access Point) of 802.11 networks.

If you select the Disable, this wireless-end will be invalid; you can set the connection way of the F4 Vista and its IP address.

Step5 Confirm Network ID

Full the blank of local wireless Network ID you want to connect with any character or figure (capital letter and small letter is different)

Note: must fulfill the blank that is marked with “*”

Step6 Determine Network model

there are two option , Infrastructure Model, and Ad-hoc Model, shown as following figure



Hub-and-spoke
wireless network




Ad-hoc (peer-to-peer)
wireless network

click the draw -down box to select the wireless network model, depending on the different topology of network, this Infrastructure Model will apply to Hub and Spoke wireless network, the Ad-hoc Model is used in the peer to peer wireless network..

Step 7. Select the Authentication Type,


The Infrastructure Model include five Authentication Type that are OPEN 、 SHARED、 WPAUTO、 WPAPSK、 WPA2PS.

the Ad-hoc Model include OPEN 、 SHARED、 WPAUTO WPANONE four type of Authentication Type.

Click the draw-down box  to select the Authentication Type

Step 8. Select Encrypt Type

When the item NONE of encrypt Type is selected, then the password in WEP (Wired equivalent privacy) and WPA (WiFi protected access) item is not permitted to modify it, it is not need to input password too.

According to Authentication Type, and Encrypt Type ,Click draw down box  to input the password, password comply with the criterion set down by the software.

Note: there are four group passwords in the WEP column, till the all password have been set up is correct, the current password is valid

Step 9 Set Connection Parameter

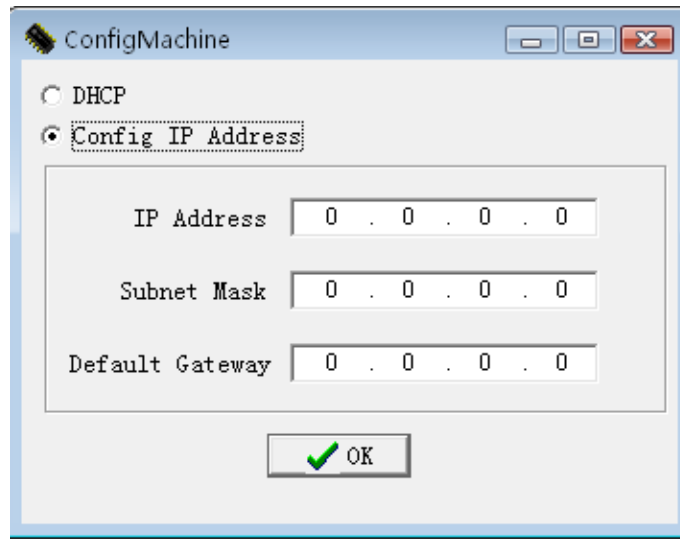
The fingerprint machine fully support two connection ways, one TCP/IP, another one is RS 232,.

If you select TCP/IP, here the IP and Port value must to be assigned, its value is same with one in the communication option of the fingerprint machine. Set the option Ethernet in the fingerprint machine to “Yes”.

If you select RS232, must configure these parameter ,DeviceID、COMPort、 Baud rate same with one in the communication option of the fingerprint machine.

Step10. Configure the wireless Network IP address

Click configMchine this button, the following menu will pop-up



If there is the DHCP function in the 802.11 network Distribution system , you may choose DHCP, press OK to exit.

Otherwise, full the IP Address, Subnet Mask blank with the correct figure, press OK to exit to main interface.

After all setting for wireless network is completed, single –click SETbutton on the MODEMConfigTool interface, the prompt “ in working” will appear on the fingerprint machine.

After configure successfully, the corresponding message will inform you, click OK to close the message.

Be sure to shut down and restart the machine, so the configuration change take effect.

View the fingerprint machine Wireless Setting

You can view the fingerprint machine Wireless Setting to get the information of the wireless network communication

Power on the Fingerprint Machine, press menu → System Info→
Dev Info →wirlesscard→rausb0: