

F18

**IP-Based Standalone
Fingerprint Reader
Controller**

Installation Guide

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Safety Precautions

● The following precautions are to keep user's safe and prevent any damage. Please read carefully before installation.



Do not install the device in an area subject to direct sunlight, humidity or dust



Do not place a magnet near the product. Magnetic field from magnets, CRT, TV, monitor or speaker may damage the device.



Do not place the device next to heating equipment.



Be careful not to let liquid like water, drinks or chemicals leak inside the device.



Clean the device often to remove dust on it



Do not let children touch the device without supervision.

Safety Precautions

The following precautions are to keep user's safe and prevent any damage. Please read carefully before installation.



Do not drop the device.



Do not disassemble, repair or alter the device.



Do not use the device for any other purpose than specified.



Do not damage the device



In cleaning, do not splash water on the device but wipe it out with smooth cloth or towel.



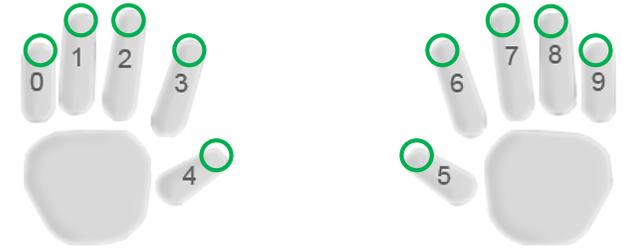
Contact your nearest dealer in case of a trouble or problem.

How to Place a Finger

ZkTeco's fingerprint readers will give optimal results for fingerprint matching if the following recommendations and suggestions are followed.

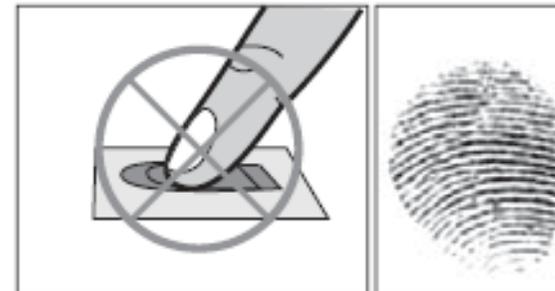
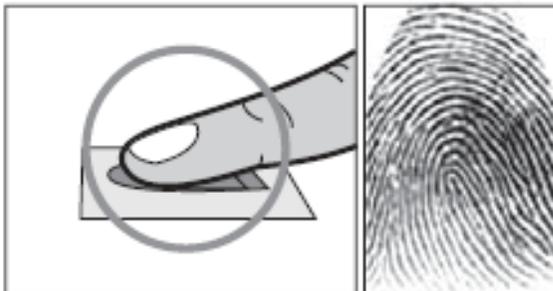
Select a finger to enroll

- It is recommended to use an index finger or a middle finger.
- Thumb, ring or little finger are relatively difficult to place in the correct position



How to place a finger on a sensor

- Place a finger such that it completely covers the sensor area with maximum contact.
- Place core of the fingerprint at the center of the sensor. The core of a fingerprint is a center where the spiral of ridges is dense.
 - Usually core of fingerprint is the opposite side of the lower part of a nail.
 - Place a finger such that the bottom end of a nail is located at the center of a sensor.
- If a finger is placed as shown in the right, only a small area of a finger is captured. So it is recommended to place a finger as shown on the left.



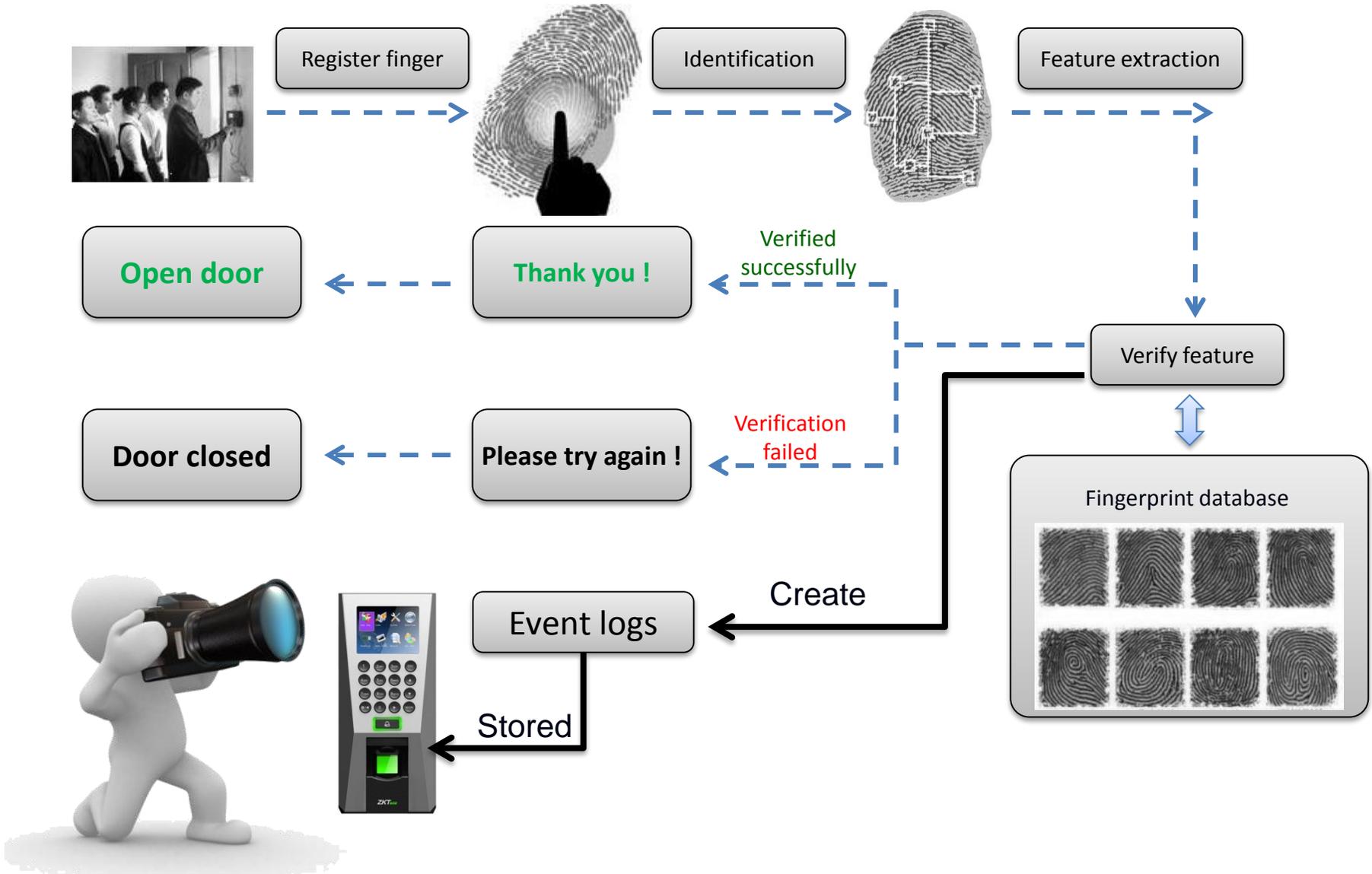
■ Tips for different fingerprint conditions

- ZKTeco's fingerprint products are designed to verify fingerprints with highest security irrespective of the conditions of the skin of the finger. However, in case a fingerprint is not read on the sensor, please refer to the followings tips.
 - If a finger is stained with sweat or water, scan after wiping moisture off.
 - If a finger is covered with dust or impurities, scan after wiping them off.
 - If a finger is way too dry, please blow some warm air from your mouth on the finger tip.

■ Tips for fingerprint enrollment

- In fingerprint recognition, enrollment process is very important. When enrolling a fingerprint, please try to place the finger correctly with utmost care.
- In case of low acceptance ratio, the following actions are recommended.
 - Delete the enrolled fingerprint and re-enroll the finger.
 - Enroll the same fingerprint again.
 - Try another finger if a finger is not easy to enroll due to scar or cuts.
- In case of an enrolled fingerprint cannot be used due to injury or if the hand is full, it is recommended to enroll more than two fingers per user.

How Does F18 work



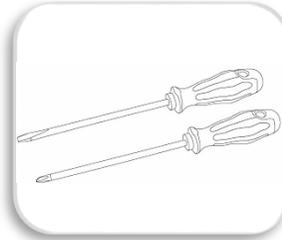
Basic Contents



F18



Metallic Back Plate



Screw Driver – 2 pcs.



Wall Mounting Screws – 4 pcs.



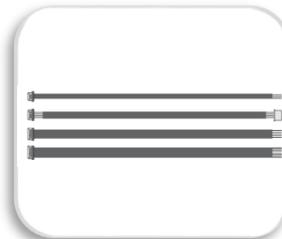
Wall Plugs – 4 pcs



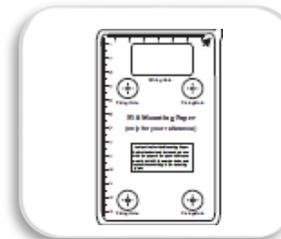
Star-shape Screw for Mounting Plate -2 pcs



Mini-USB Cable -1 pcs



2 pin, 4 pin, 7 pin, 8 pin,
10 pin cables – each 1 pcs



Mounting Paper

■ Optional accessories



Weigand Card Reader



FR1200 Slave Fingerprint Reader



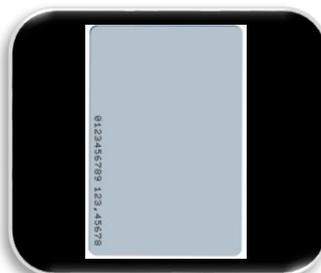
12VDC, 3A Power
Adaptor



K1-1 Exit Button



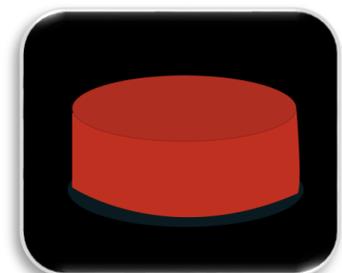
RS485 Converter



Prox Card



USB Memory



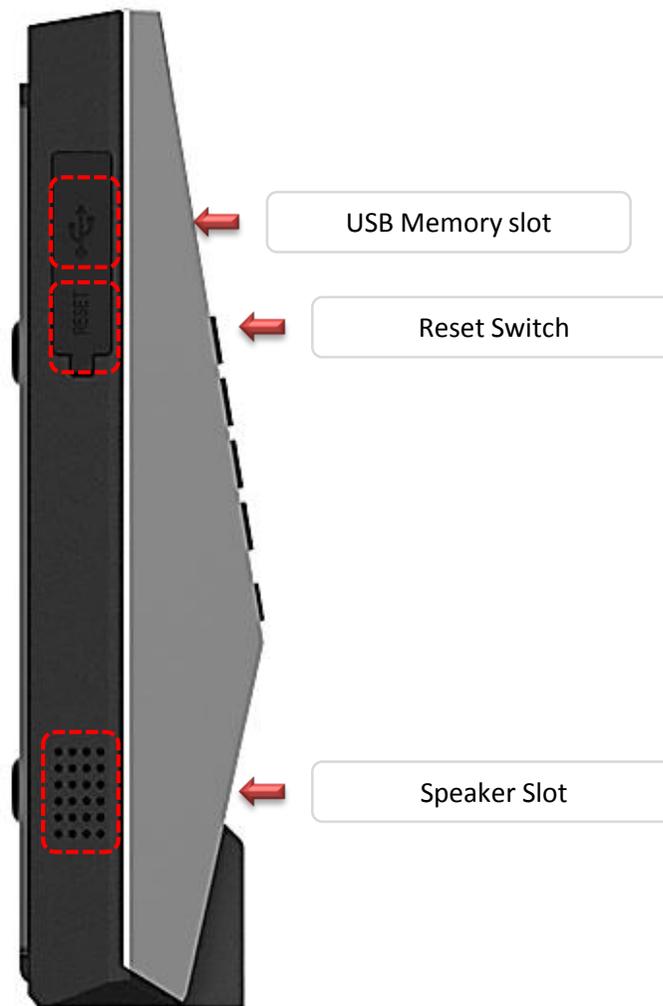
Alarm

Product PIN Diagram

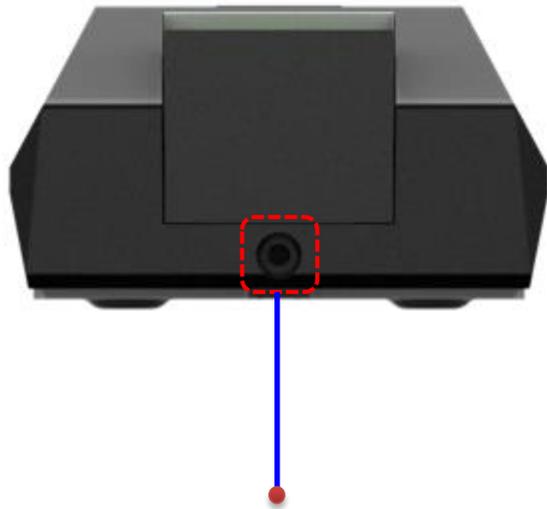
■ Front



■ Side

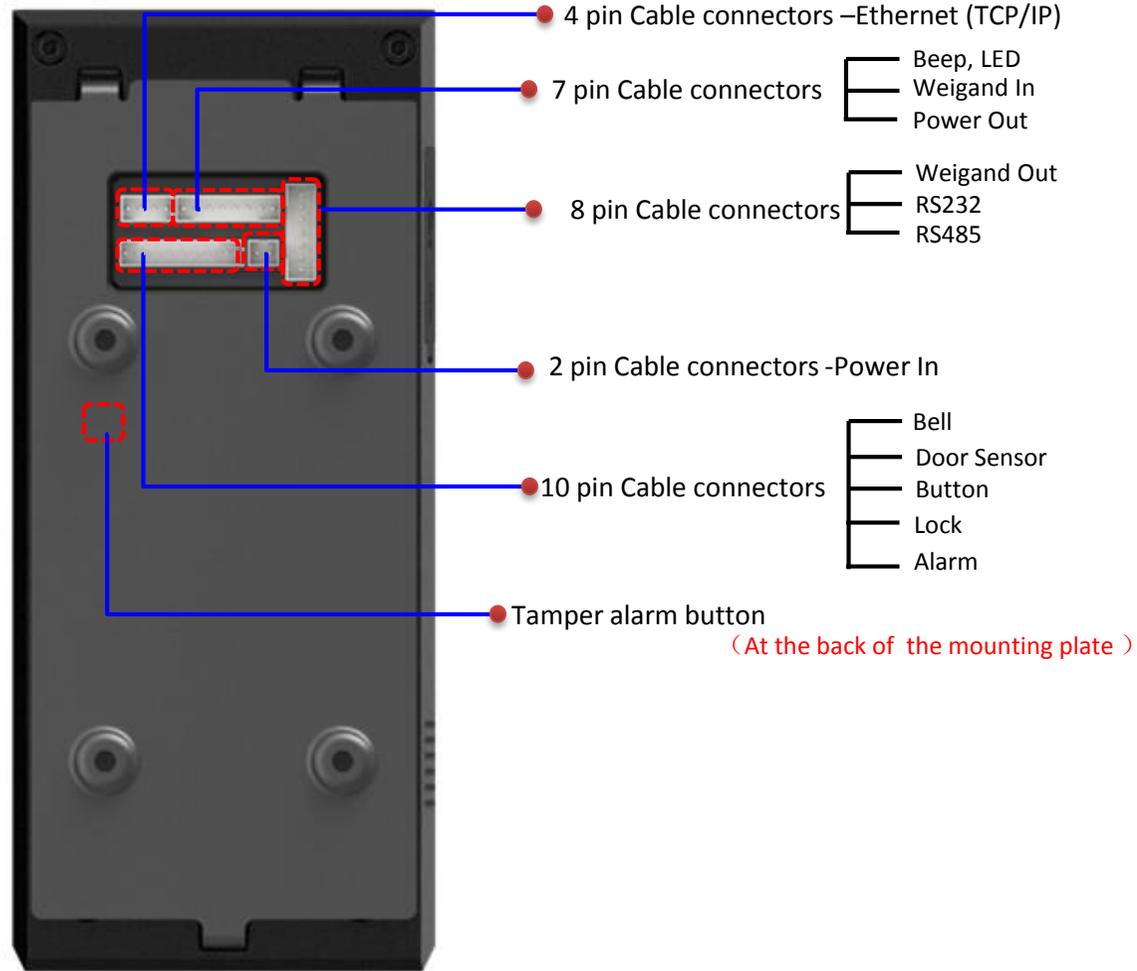


■ Bottom



Star-shaped screw hole for fixing reader to the back plate

■ Back



Product Dimension

80mm
(3.15in.)

183mm
(7.20in.)



Front



183mm
(7.20in.)

42mm
(1.65in.)

Side

80mm
(3.15in.)

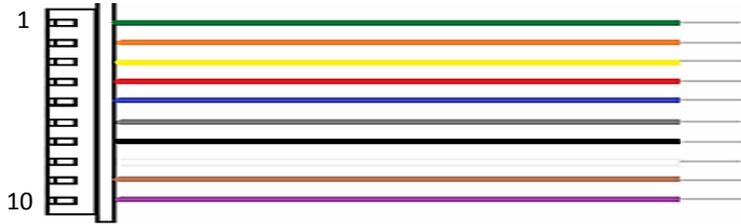
183mm
(7.20in.)



Back Plate

Cables and Connectors

Digital input and Relay output



PIN	PIN DESCRIPTION	WIRE
1	Alarm -	GREEN
2	Alarm +	ORANGE
3	NC	YELLOW
4	COM	RED
5	NO	BLUE
6	Button	GRAY
7	GND	BLACK
8	Sensor	WHITE
9	Bell+	BROWN
10	Bell-	PURPLE

Weigand output and RS485



PIN	PIN DESCRIPTION	WIRE
1	WD0	GREEN
2	WD1	WHITE
3	GND	BLACK
4	232 RX	GRAY
5	232 TX	PURPLE
6	GND	BLACK
7	485 A	BLUE
8	485 B	YELLOW

Weigand input and Power out



PIN	PIN DESCRIPTION	WIRE
1	BEEP	PURPLE
2	GLED	GRAY
3	RLED	BLUE
4	INWD0	GREEN
5	INWD1	WHITE
6	GND	BLACK
7	+12V	RED

Ethernet



PIN	PIN DESCRIPTION	WIRE
1	RJ45-1	YELLOW
2	RJ45-2	GREEN
3	RJ45-3	RED
4	RJ45-6	BLACK

Power In



PIN	PIN DESCRIPTION	WIRE
1	+12V DC	RED
2	GND	BLACK



Installation of Wall-mount

■ Fix back plate to the wall using wall mounting screws

■ Mount F18 terminal on the Back plate

■ Secure F18 and back plate using a star shape screw.



Wall mounting screws

Star-shaped screw driver

Power Connection



■ Without UPS

PIN	PIN DESCRIPTION	WIRE
1	+12V DC	RED
2	GND	BLACK



■ With UPS (Optional)

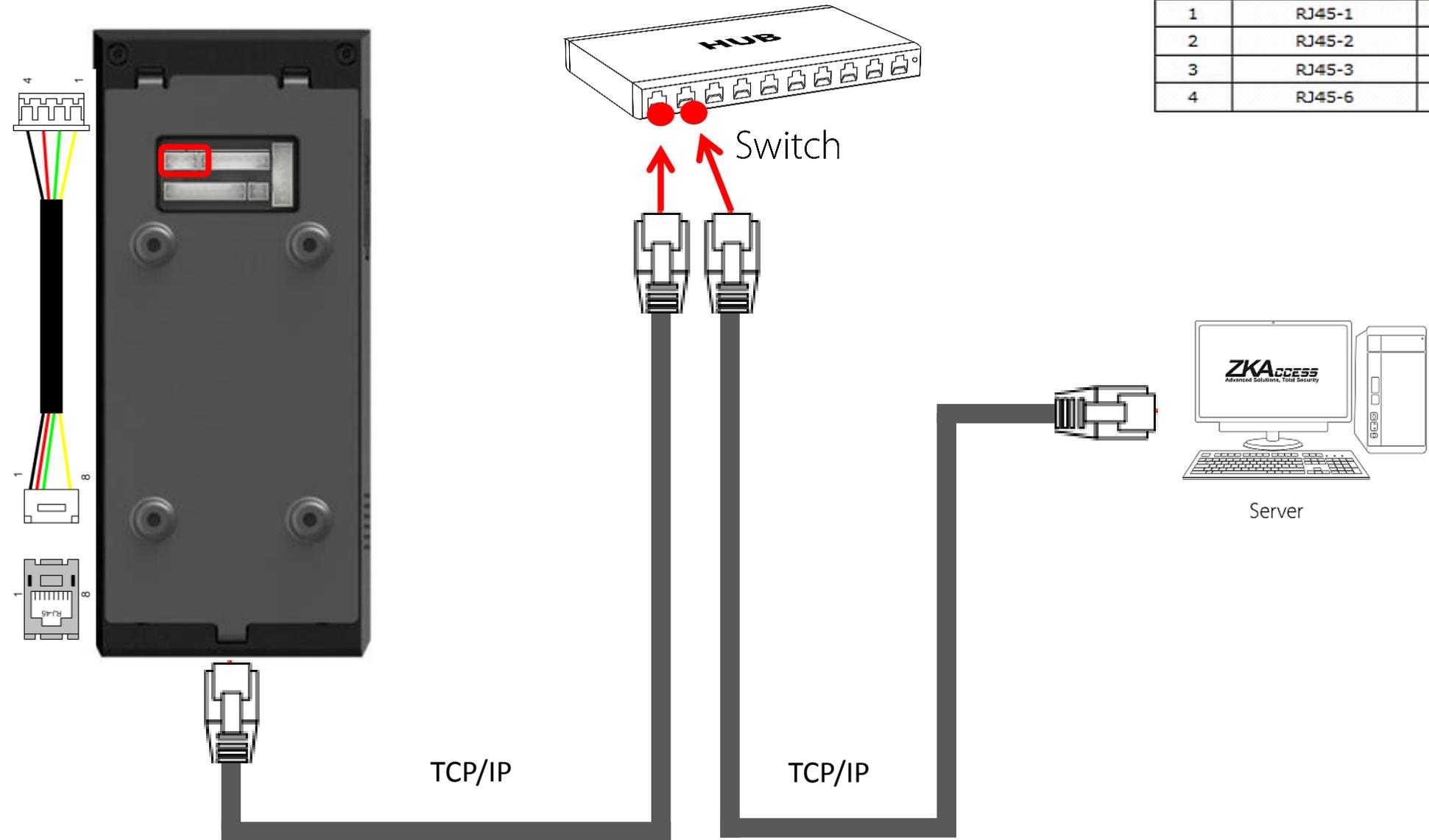


- Recommended power supply
- 12V \pm 10%, at least 500mA.
- Comply with standard IEC/EN 60950-1.
- To share the power with other devices, use a power supply with higher current ratings

Ethernet Connection

Ethernet Connection

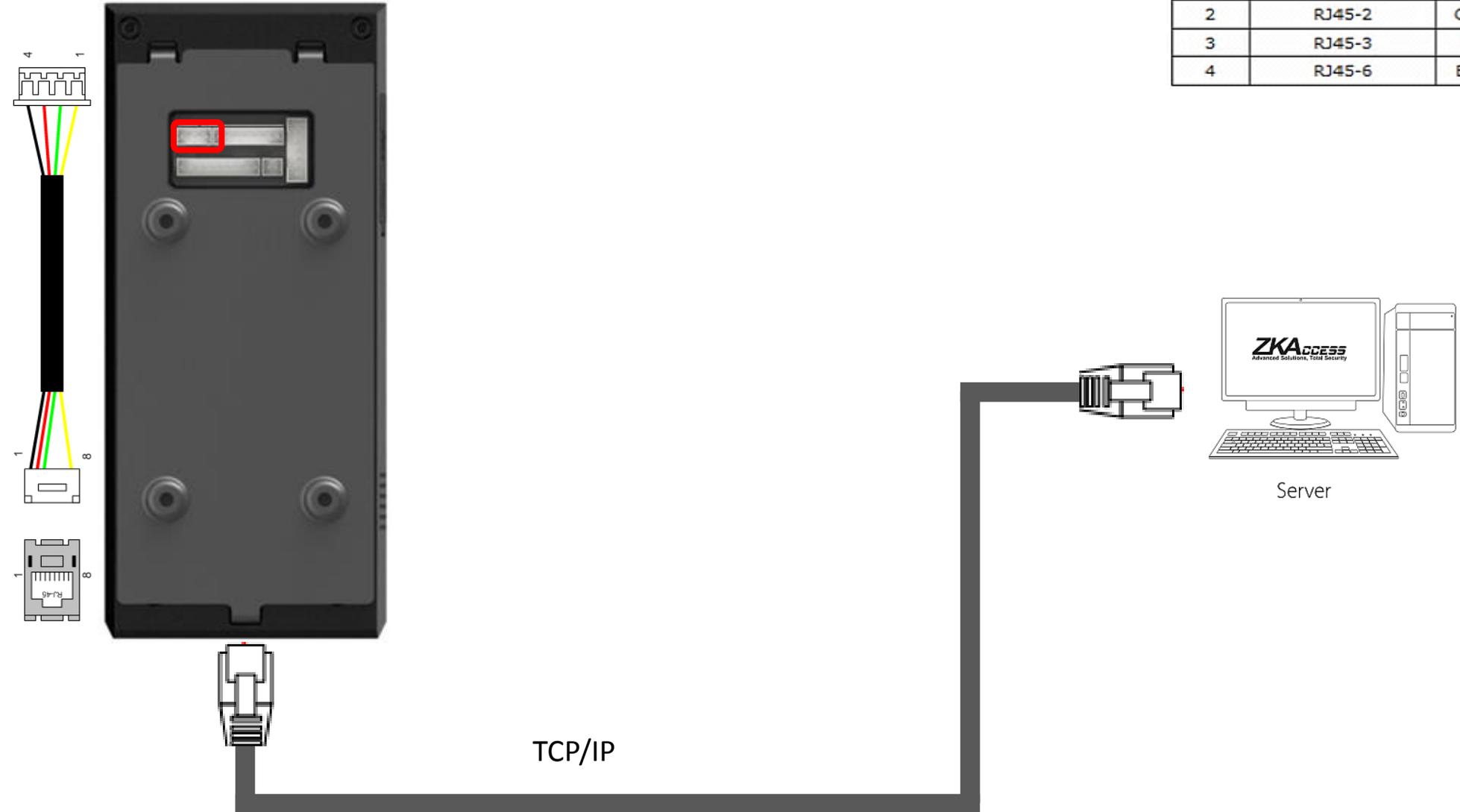
PIN	PIN DESCRIPTION	WIRE
1	RJ45-1	YELLOW
2	RJ45-2	GREEN
3	RJ45-3	RED
4	RJ45-6	BLACK



Ethernet Connection

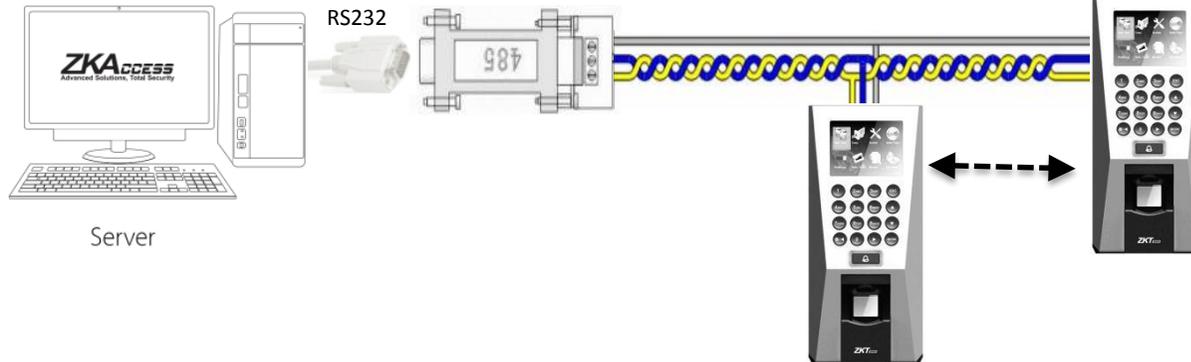
Direct Connection to PC

PIN	PIN DESCRIPTION	WIRE
1	RJ45-1	YELLOW
2	RJ45-2	GREEN
3	RJ45-3	RED
4	RJ45-6	BLACK



PC RS485 Connection

PC RS485 Connection



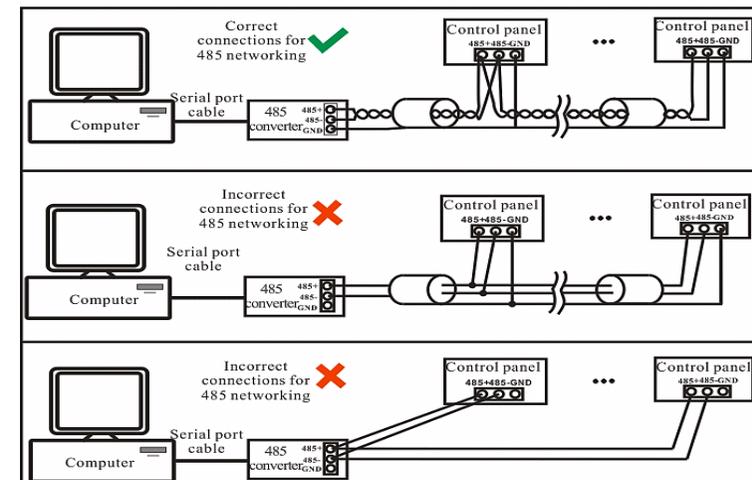
PIN	PIN DESCRIPTION	WIRE
1	WD0	GREEN
2	WD1	WHITE
3	GND	BLACK
4	232 RX	GRAY
5	232 TX	PURPLE
6	GND	BLACK
7	485 A	BLUE
8	485 B	YELLOW



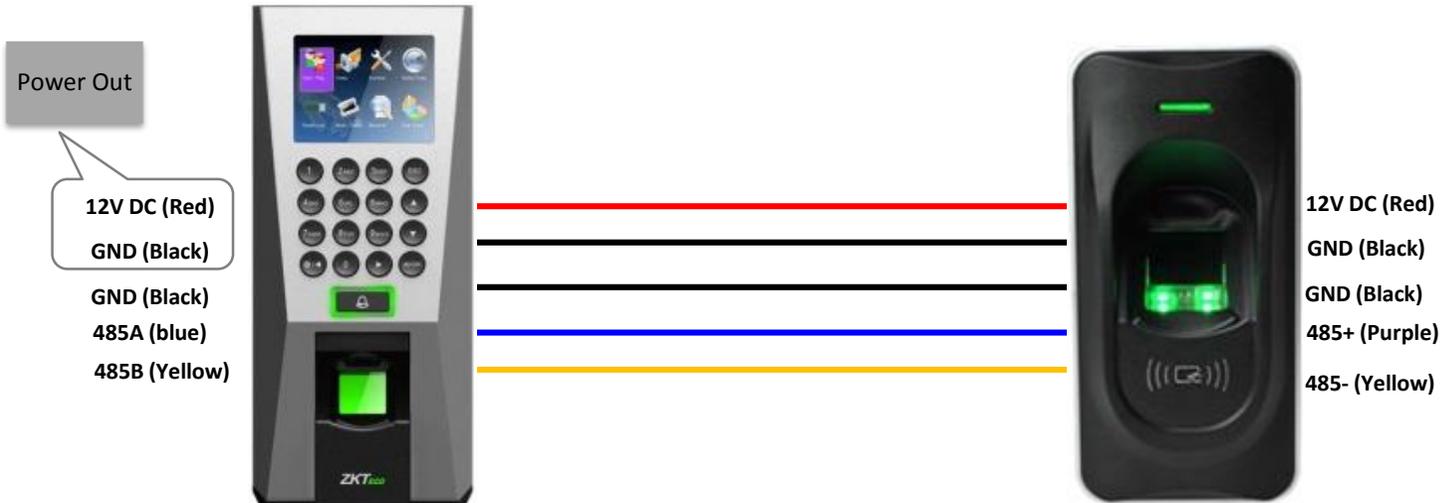
Important Notes

1. RS485 communication wires should be a shielded or twisted pair cable. RS485 communication wires should be connected in a bus cascade instead of a star form, to achieve a better shielding effect by reducing signal reflection during communications.
3. Adjust the communication speed as needed, the signal quality varies depending on wiring conditions, and it may be necessary to lower the baud rates.
4. The GND Signal may be omitted ***if and only if*** the GND potential difference is less than $\pm 5V$

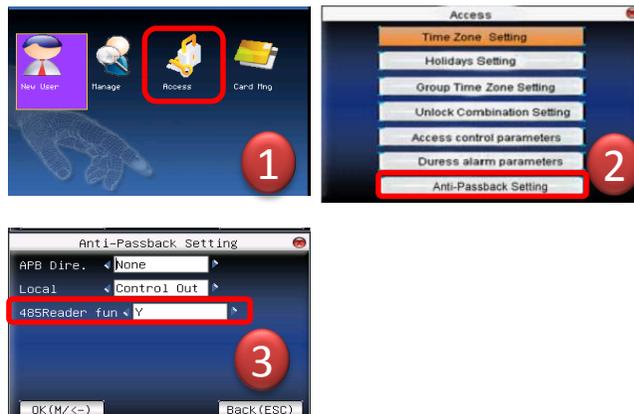
Do's and Don't's for RS485 connection



FR1200 RS485 Connection



Important Notes



Menu -> User Management -> Access Setting
-> Anti-Passback setting -> 485Reader Fun(Y)

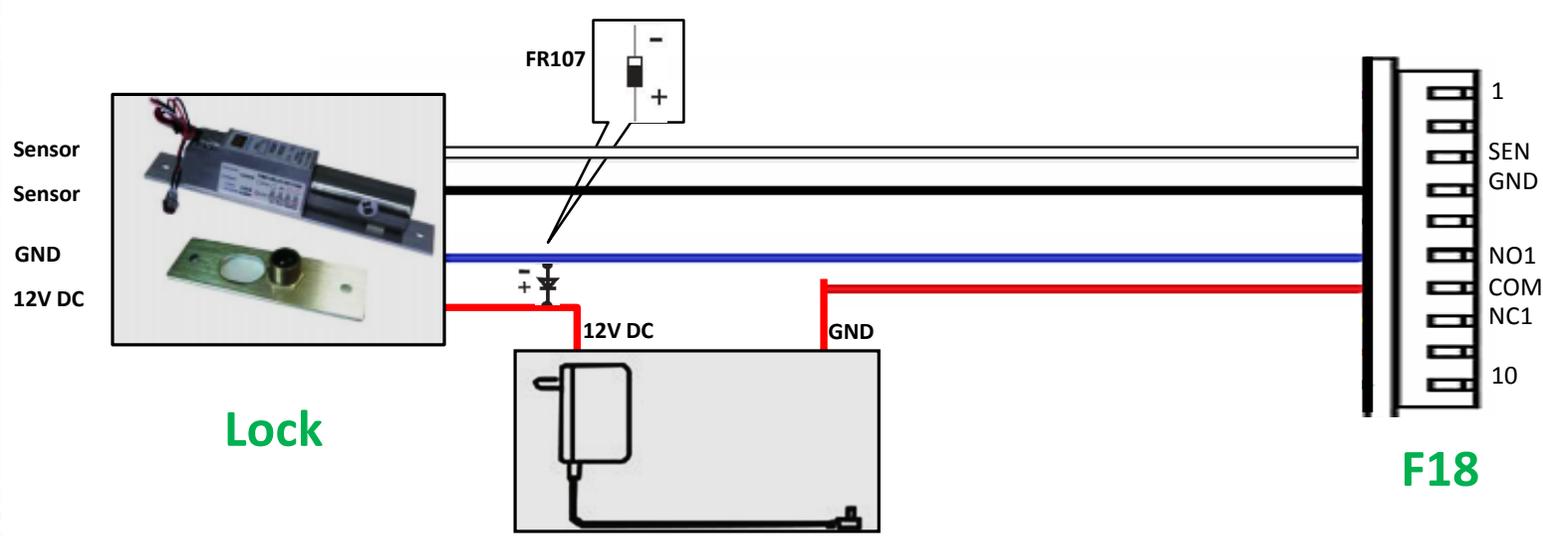
- Steps to activate the master and slave functionality between F18 and FR1200 is shown in the diagram on the left.
- There are six DIP switches on the back of FR1200, Switches 1-4 is for RS485 address, switch 5 is reserved, switch 6 is for reducing noise on long RS485 cable.
- If FR1200 is powered from F18 terminal, the length of wire should be less than 100 meters or 330 ft.
- If the cable length is more than 200 meters or 600 ft., the number 6 switch should be ON as below



Lock Relay Connection

For Normally Open -Lock

PIN	PIN DESCRIPTION	WIRE
1	Alarm -	GREEN
2	Alarm +	ORANGE
3	NC	YELLOW
4	COM	RED
5	NO	BLUE
6	Button	GRAY
7	GND	BLACK
8	Sensor	WHITE
9	Bell+	BROWN
10	Bell-	PURPLE



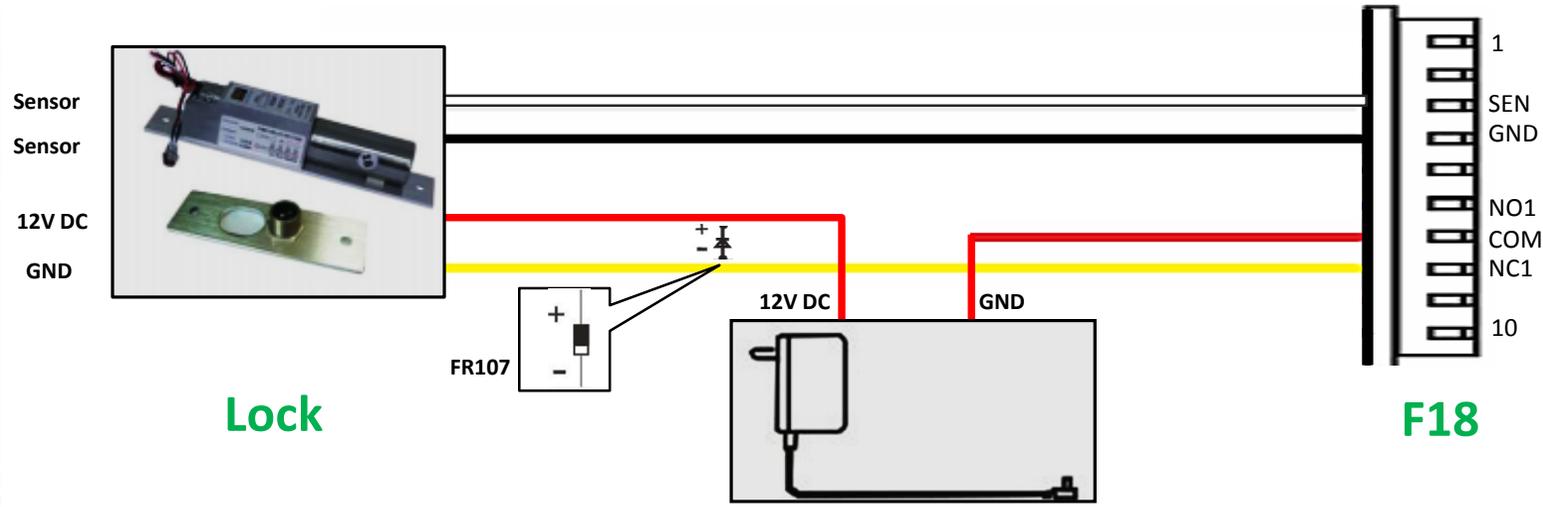
Lock

F18

Lock Relay Connection

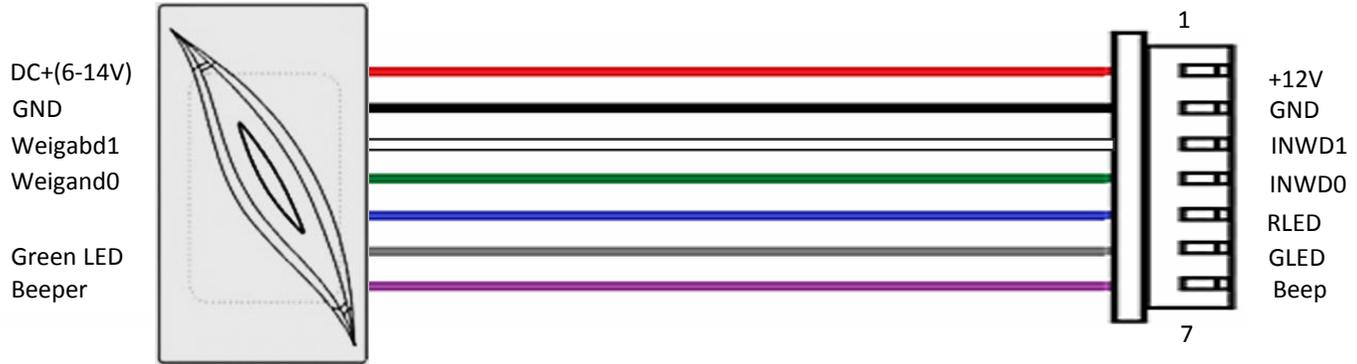
For Normally Close-Lock

PIN	PIN DESCRIPTION	WIRE
1	Alarm -	GREEN
2	Alarm +	ORANGE
3	NC	YELLOW
4	COM	RED
5	NO	BLUE
6	Button	GRAY
7	GND	BLACK
8	Sensor	WHITE
9	Bell+	BROWN
10	Bell-	PURPLE



Weigand Input Connection

PIN	PIN DESCRIPTION	WIRE
1	BEEP	PURPLE
2	GLED	GRAY
3	RLED	BLUE
4	INWD0	GREEN
5	INWD1	WHITE
6	GND	BLACK
7	+12V	RED

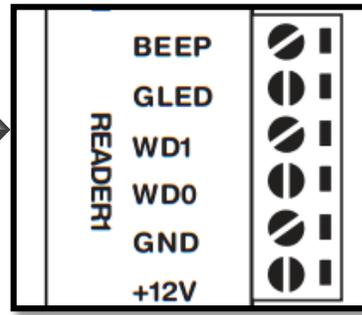
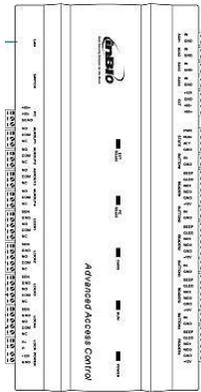


Weigand Card Reader

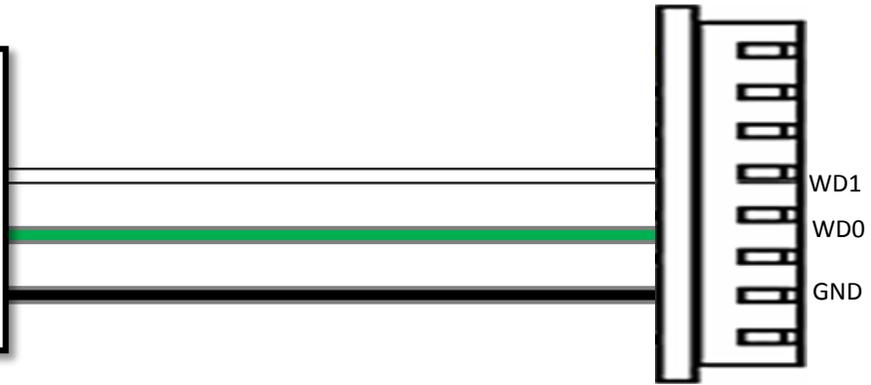
F18

Weigand Output Connection

PIN	PIN DESCRIPTION	WIRE
1	WD0	GREEN
2	WD1	WHITE
3	GND	BLACK
4	232 RX	GRAY
5	232 TX	PURPLE
6	GND	BLACK
7	485 A	BLUE
8	485 B	YELLOW



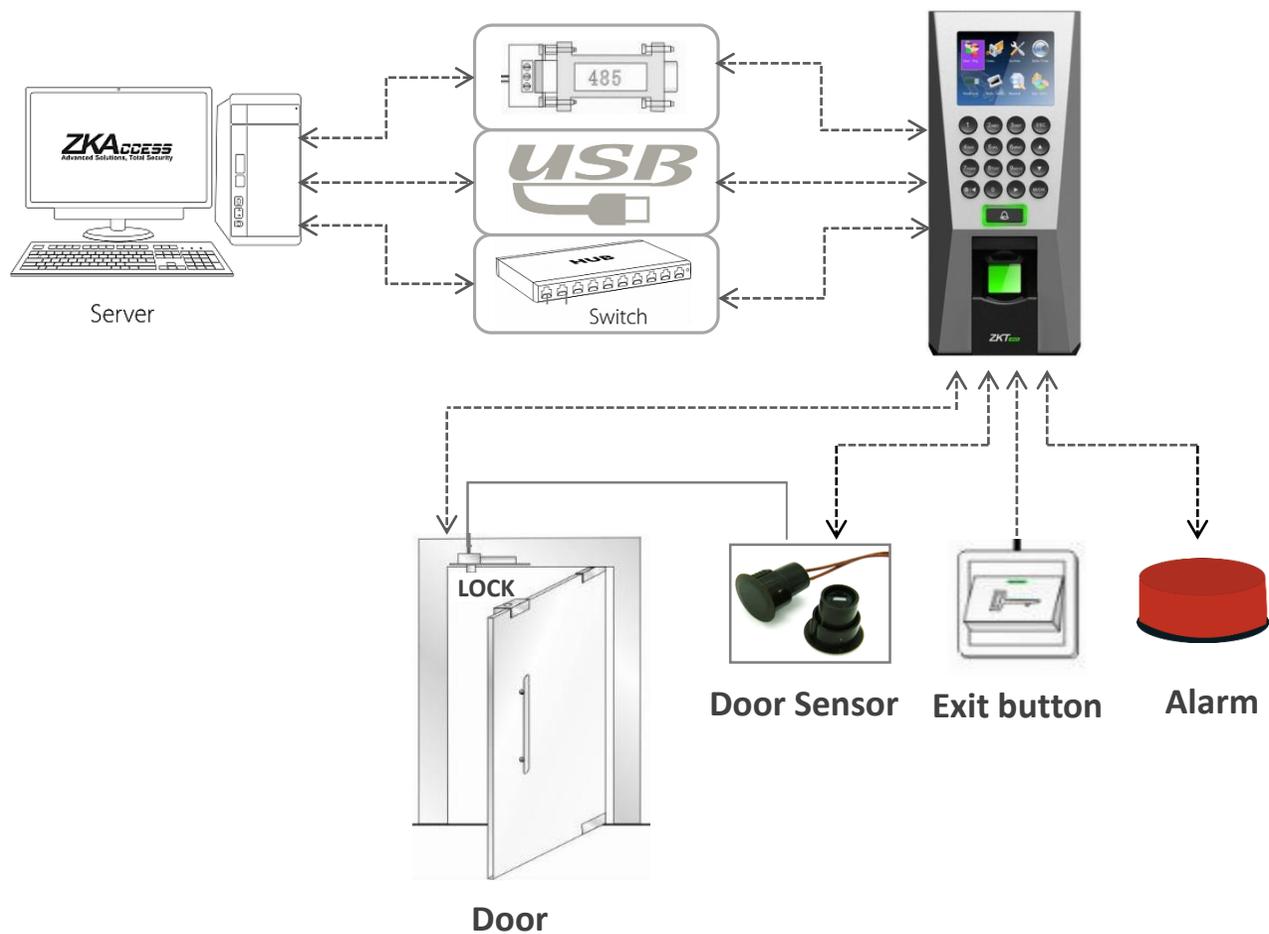
Access controller



F18

Installation Reference

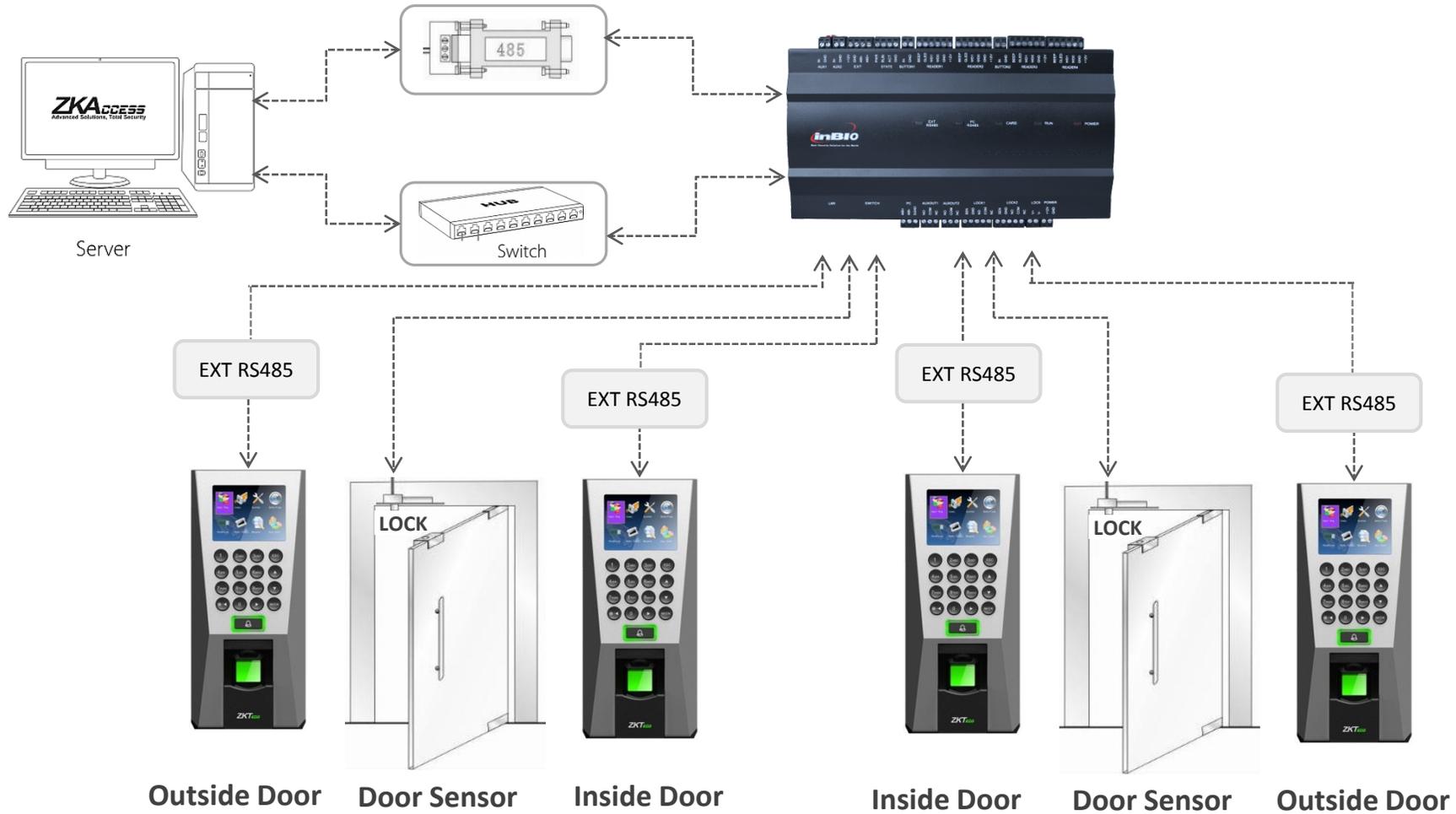
Standalone



Installation Reference

Third Party Controller

RS485 Connection



Specification

Item	Specification
Fingerprint capacity	3,000
Transaction capacity	100,000
Hardware Platform	ZEM720
CPU	ZK 6001, 400Mhz
Memory	64M Flash, 32MSDRAM
Fingerprint Sensor	ZK optical sensor
Display	2.8" TFT LCD color screen
LED Indicator	Red, Green
Communication	Ethernet (10/100M) , RS485, USB-HOST,
Weigand signal	Wiegand Input and Wiegand Output
Identification speed	≤2 sec
FAR	≤0.0001%
FRR	≤1%
Operating Temperature	0-45°C
Operating Humidity	20%-80%
Language	English, Spanish, Portuguese, French...
Power Supply	12V DC, 3A
Access control interfaces	Electric lock, alarm, exit button, wired door bell
Dimension	80*183*42mm (L*W*D)

Electrical Specification

	Min.	Typ.	Max.	Notes
Working power supply				
Voltage(V)	9.6	12	14.4	Use regulated DC power adaptor only
Current(A)			2	
Electronic lock relay output				
Switching voltage(V)			36V	Use regulated DC power adaptor only
Switching Current(A)			2	
Switch Aux. input				
V _{IH} (V)		TBD		
V _{IL} (V)		TBD		
Pull-up resistance (Ω)		4.7k		The input ports are pulled up with 4.7k resistors
WEIGAND Input				
Voltage(V)	10.8	12	13.5	
Current(mA)			500	
TTL/WEIGAND Output				
V _{oH} (V)		5		
V _{oL} (V)		0.8		
Pull-up resistance (Ω)		4.7K		The outputs ports are open drain type, pulled up with 4.7k resistors internally
ZK Electronic lock				
Voltage(V)	10.8	12	13.2	
Current(mA)			500	

- Fingerprint can not be read or it takes too long.
 - Check whether a finger or fingerprint sensor is stained with sweat, water, or dust
 - Retry after wiping off finger and fingerprint sensor with dry paper tissue or a mildly wet cloth.
 - If a fingerprint is way too dry, blow on the finger and retry.
- Fingerprint is verified but authorization keeps failing.
 - Check whether the user is restricted by door zone or time zone.
 - Check with administrator whether the enrolled fingerprint has been deleted from the device for some reason.
- Authorized but door does not open.
 - Check whether the lock duration is set to appropriate minutes which opens the lock.
 - Check whether anti-passback mode is in use. In anti-passback mode, only the person who has entered through that door can exit.
- Why device display “system broken“ and the alarm is ringing.
 - Check whether the device and back plate are securely connected to each other. If not, a tamper switch is activated which triggers the alarm and keeps it ringing.
- How to set F18 used as fingerprint reader on Inbio access controller.
 - Please contact our technical support department



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