

Technical Instruction For RF EAS 3920 Type Circuit Board

Thank you for choosing our company's 3920 Circuit Board, Please read the instructions carefully before use.

1.Feature:

- 1.Using advanced digital technology to perform signal processing,which is strong anti-interference.。
- 2.Modulating frequency to transmitter and receiver correspondingly ,which strengthened the anti-interference ability to stagger the frequency in the complex environment.。
3. Increase sensitivity automatically adjust function, No need debug.。
4. Increase still tag exclude function.When there is still have some tag inside the detect area , the antenna will exclude this signal;then other tags pass the area ,the antenna still work properly.。
- 5.Increase the power protection function, if you made mistake when you connect the power's positive and negative,will not cause any damage to the motherboard and power, power error indication red light, Re properly connect the power supply will be able to work properly.。

2.Basic parameters:

- 1、 This equipment adopts DC 24V, launch 0.3A, and receives 0.2A.
 - 2、 Center frequency:8.2Mhz (Except custom frequency)。
 - 3、 Modulation frequency:160Khz、 170Khz、 180Khz Three kinds for the user to selection.。
 - 4、 Scan bandwidth between 750hz to 1050hz
- 3、**  Pre-installation environment test methods
- ❖ Before the fixed antenna need to to test the installation location's electric field environment .
 - ❖ Connect the power supply, the device placed in the position to be installed.
 - ❖ Observed receiver board the upper left corner of DS1, DS2, DS3 three green interference indicator.;
 - ❖ DS1, DS2, DS3, DS4 is not illuminated, a good environment, and can be installed;
 - ❖ DS1 shiny, DS2, DS3, DS4 is not lit, a better environment, through simple

debugging sensitivity, can be installed;

- ❖ DS1, DS2, shiny, DS3 does not shine or three lights all light up, very bad environment , need to adjust frist then install.

- ❖ Adjustment Methods:

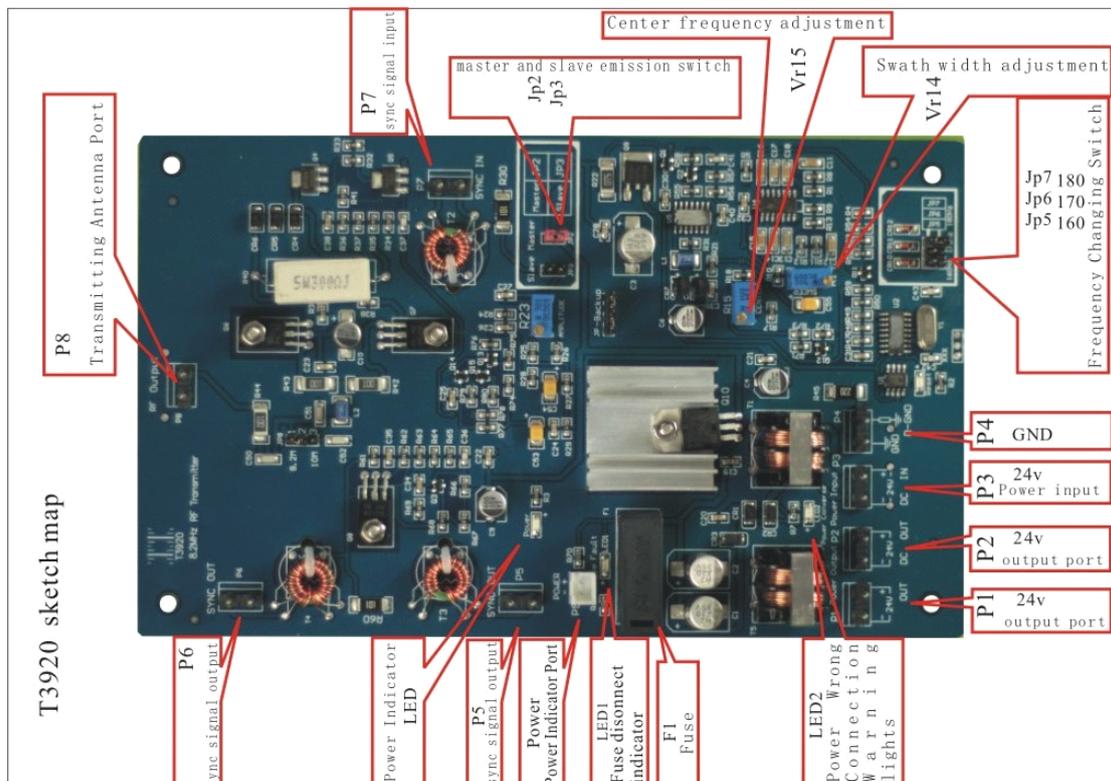
- A、 Reduce the install distance between the antenna.
- B、 To swap the position of the transmitter and the receiver.
- C、 Adjust the mounting position to avoid the interference source
- D、 Eliminate sources of interference

Ps: Sources of interference type:

- ✓ The equipment is too close to the wall (the wall have wires inside).
- ✓ Near the equipment have some wires in full rolls, such as lanterns, Christmas trees, etc.
- ✓ The equipment is too close to the electrical equipment, such as Distribution cabinet, High-voltage spotlights, etc.
- ✓ The RF label is too close to the equipment.
- ✓ The equipment is too close to some large metal object or metal railing, shopping cart, metal cashier.

4、 TX Circuit Board sketch map:

1、 TX board Pic.



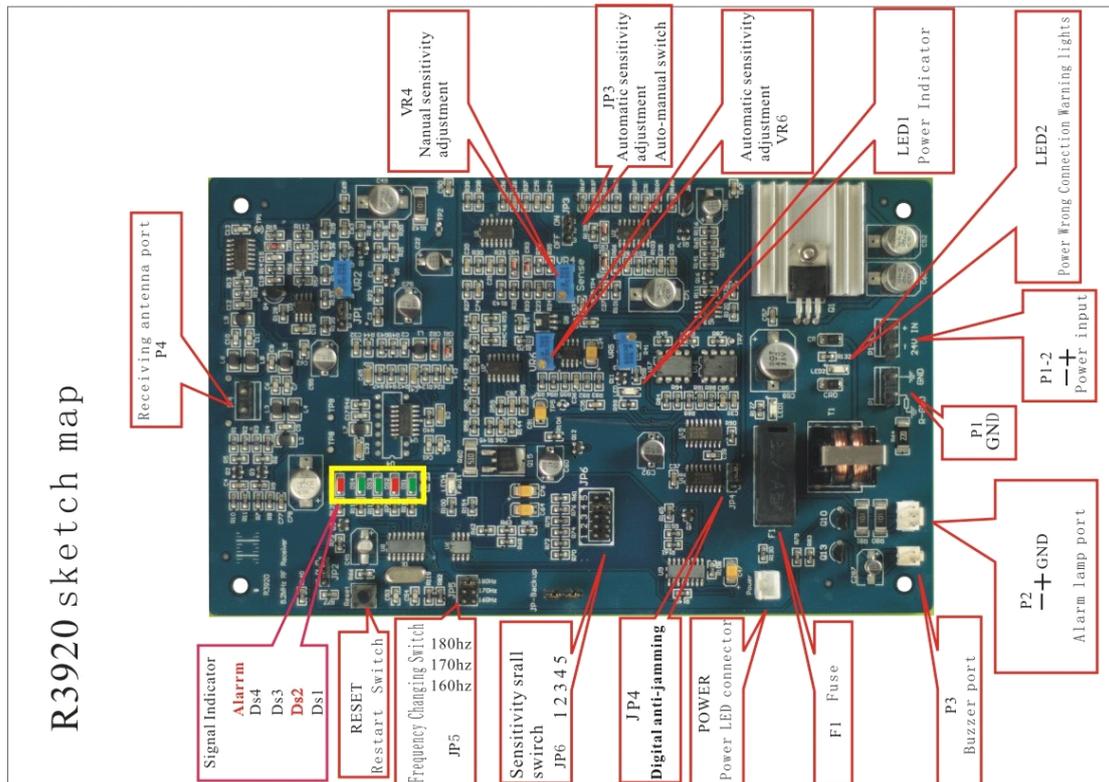
2、 Location Features:

- ❖ P8: Emission signal output ,connected transmitting antenna.

- ❖ P6: Synchronization signal output , more than two transmitters need to install together then must set Signal synchronization.
- ❖ LED: power indicator,when the power connected in the right way , the light turned green.
- ❖ P5: same as P6, output sync signal to other slave emission board.
- ❖ Power: Power indicator port,DC 5V voltage,LED lights can be connected to the rack.
- ❖ LED1:Fuse disconnect indicator ,red light on, Prompt check F1 fuse.
- ❖ F1: open the box, install a 1A fuse.
- ❖ LED2: light on, means wrong power connected, please change the positive and negative.
- ❖ P1: 24V DC power output, can provides power to the RX board.。
- ❖ P2: 24V DC power output, can provides power to the RX board.
- ❖ P3: DC 24V power input, get power from the power adapter.。
- ❖ P4: Ground, on the left is a 22Ω resistor to ground, on the right directly to ground,can connect to the antenna shelf.
- ❖ JP5: Connect the JP5 modulation frequency is 160 KHZ
- ❖ JP6: Connect the JP6 modulation frequency is 170 KHZ
- ❖ JP7: Connect the JP7 modulation frequency is 180 KHZ
- ❖ VR14:Scan Bandwidth Adjustment,Clockwise to increase (Reference value:750~1050), the higher number ,the stronger label adaptability, but need more good installation environment,and Anti-jamming capability will reduce.
- ❖ VR15:Center frequency adjustment , Clockwise to increase (reference value:8180~8200Khz, according to the tag;s frequency)。
- ❖ JP2: Master emission , connect JP2 disconnect JP3,main board as master emission status.
- ❖ JP3: Slave emission,connect JP3 disconnect JP2, main board as slave emission status.
- ❖ P7: Sync signal input, when main board as slave emission status, get one signal form master emission output port .

5、RX Circuit Board sketch map

- 1、RX board Pic.



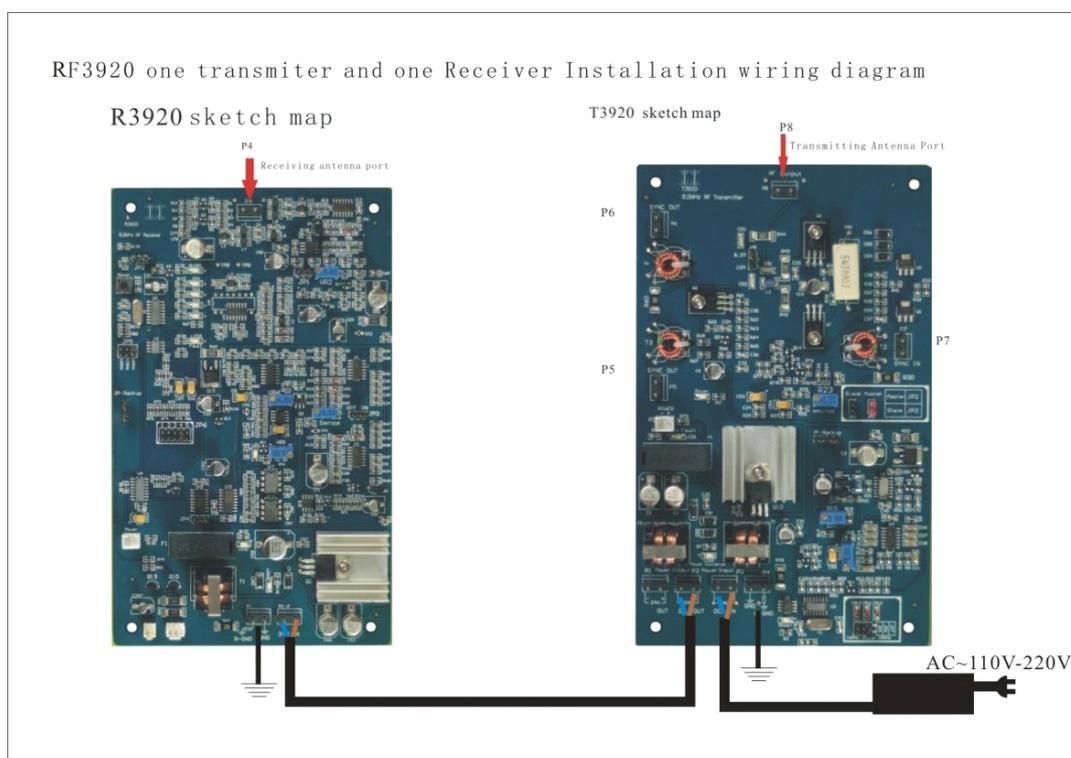
2、 Location:

- ❖ P4: Receiving antenna port.
- ❖ ALARM: Red light on --- Alarm Start.
 - A、Ds4: Gree light on ----Very Strong interference signals around or have tag near by.
 - B、Ds3: Gree light on ----Strong interference signals around or have tag near by.
 - C、Ds2: Red light on----Strong interference signals around .
 - E、Ds1: Green light on----Adjust the sensitivity until the light shiny or off,means the signal normal.
- ❖ RESET : Restart the main board.After the main board;s parameter are adjusted,,need restart the main board then can work properly.
- ❖ JP5: Frequency changing switch.Corresponding to the modulation frequency of the transmitter board, transmitter connect JP5 corresponding to receiver connect 160hz , transmitter connect JP6 corresponding to receiver connect 170hz , transmitter connect JP7 corresponding to receiver connect 180hz.When around 10 meters there is the same frequency equipment's interference ,we can avoid interference through different modulation frequencies.
- ❖ JP6: Automatic sensitivity stall switch(1-sensitivity is very low; 2-sensitivity is low; 3-sensitivity is moderate; 4-sensitivity is a little high; 5-high sensitivity)
- ❖ Digital anti-interference switch (connect left \middle , anti-interference on , connect right \middle, anti-interference off)
- ❖ Power: Power external .Left is positive electrode,right is negative electrode.
- ❖ F1: open the box, install a 1A fuse.
- ❖ P3: Alarm buzzer Interface, Left is positive electrode,right is negative electrode.
- ❖ P2: Alarm indicator Interface,Left is positive electrode,right is negative electrode.
- ❖ P1: Ground Interface, The left is 22Ω grounded, the right is 0Ω grounded.

- ❖ P1-2: DC 24V input.
- ❖ LED2: Red light on, means wrong power connected, please change the positive and negative.
- ❖ LED1: Green light on, means correct power connected
- ❖ VR6: Automatic sensitivity to fine-tune, clockwise to increase sensitivity.
- ❖ JP3: The automatic sensitivity or manual sensitivity Switch. Connect right side on position ,the main board as automatic sensitivity status ; connect left side off position,the main board as manual sensitivity status.
- ❖ VR4:In the manual adjustment of status, use VR4 to adjust the sensitivity.clockwise to increase the sensitivity .

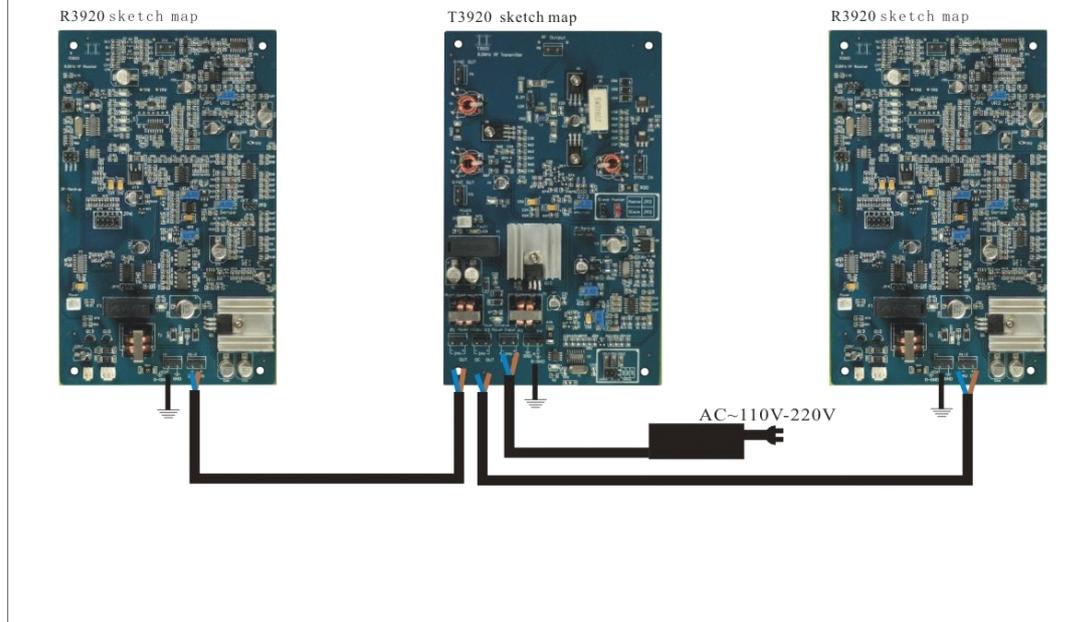
6、 Install sketch map

1、 One transmitter and one Receiver Installation diagram.

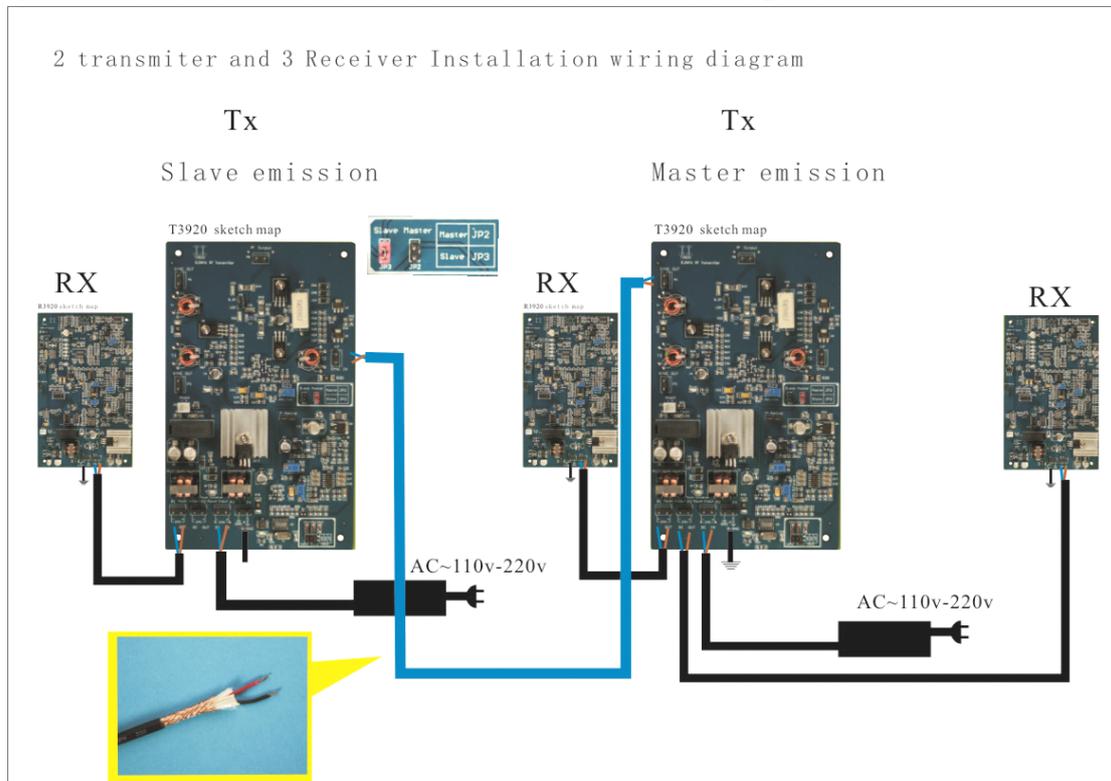


2、 One Transmitter And Two Receivers Installation Wiring Diagram

one transmitter and two Receiver Installation wiring diagram

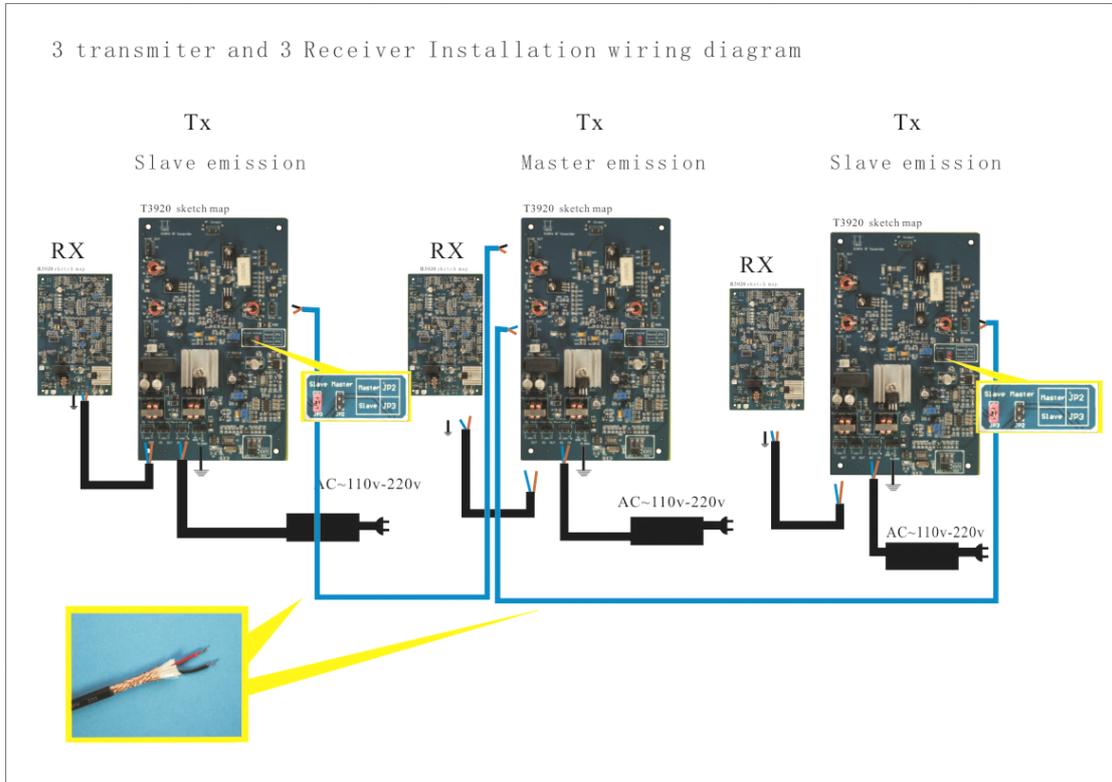


3、 Two Transmitters and Three Receivers Installation Wiring Diagram
(When two or more than two transmitters need to be installed together , Signal synchronization must be done, otherwise it will cause signal interference.)



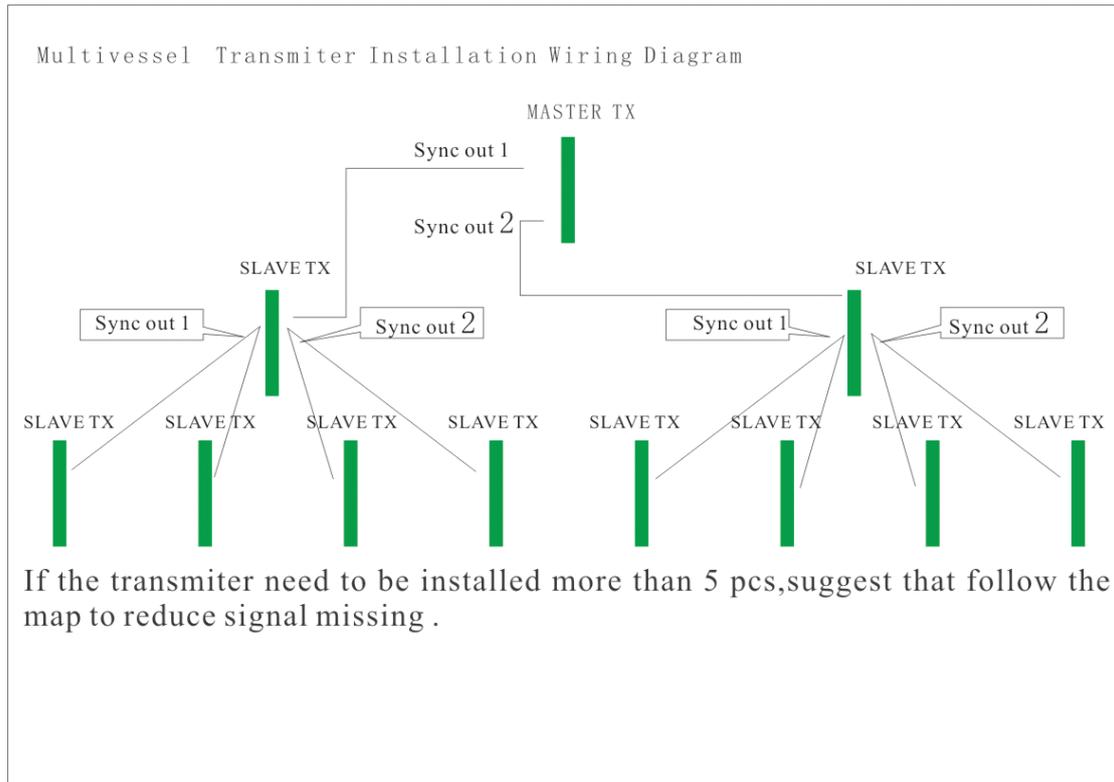
 Note: The synchronization signal line must be a two-core shielded cable (0.5 * 2 copper core, 75 knitting shielded network)

4、 Three Transmitter And Three Receiver Installation Wiring Diagram
 (Signal synchronization can output from the slave emission supply the signal to another slave emission.)



⚠ Note: The synchronization signal line must be a two-core shielded cable (0.5 * 2 copper core, 75 knitting shielded network)

5、 Multivessel transmitters installation tips



7.Troubleshooting

1. RF detector is generally able to long-term stability of the normal work under normal use. Normally electronic component lose effectiveness caused the system failure is very little probability. Most failures are due to improper use, Power socket contact is not good, AC voltage fluctuation is too large, Connection cable connector is loose, electrical equipment or a radio wave interference, the wires, coils, metal frame interference. Carefully analyze the cause of the fault, and then one by one to exclude. Before found the cause of the malfunction, don't change system settings and parameters. Because the equipment at the factory when the indicators are debugging in good state, random debugging without the professional instruments, will more difficult to judge and exclude fault.

2. System is not working properly, such as the detection sensitivity is reduced, not alarm or frequent false alarms,

Usually the following steps should be checked:

(1) Checking the power.

a. Found that the system is not working properly, you should first check the

system power: Is the main board's power indicator on? Is the main board's fuse (F1) complete? Is input supply voltage correct (24VAC)? Is the power connection cable connector loose? Is the external power adapter working properly? Is the input AC voltage fluctuations too large? Is the power socket contact solid?;

b. Only after exclude the power failure, then can continue checking other failures in the system.

3. System detection sensitivity is reduced

Normally electronic component lose effectiveness caused the system failure is very little probability. Most failures are due to improper use, Power socket contact is not good, AC voltage fluctuation is too large, Connection cable connector is loose, electrical equipment or a radio wave interference, the wires, coils, metal frame interference. So should move the large metal subject or electronic equipment and make sure it far from the antenna equipment.

4. The system does not alarm

When you detect label, the warning lamp doesn't light up, no alarm sound. First check that is that label or tag have the same frequency as the transmitter's center frequency, then the alarm indicator and buzzer's connection is good or not, itself is complete or not. If all is fine then check the main board's ALARM indicator, "shiny" means the system already alarm, but the alarm signal didn't output, At this time should be considered part of the circuit failure (electronic component lose effectiveness or damaged).

Note: When the environment have very serious interference (all the indicator shiny), the system can not work.

5. System of false alarms

For radio frequency system, some false alarm phenomena caused by the radio waves or electrical switches spark broadband interference is allowed. Does not belong to the range of system failure. But frequent false alarms even continuous alarm by

itself phenomenon should be a serious failure 。 At this time, in addition to identify strong sources of interference and to be eliminated, the system itself should also need be checked, and troubleshooting. Can use staggered modulation frequency, signal synchronization, sensitivity adjustment, adjust the the scan bandwidth debug methods to solve the problem of false positives.

 Another common reason cause equipment false positives is near the power wire have hard tags..

Suggest to check near the power adapter's wire have hard tags or not .