
EAS System
RX Tuning Specification

1. Basic Description, Receiver Electronics

The receiver board consists of:

- Signal Receiving and Disposing Part
- Power / Alarm Part

1.1 Signal Receiving and Disposing Part

Mainly select out the signal in the frequency range of 7.7MHz to 8.7MHz, and identify the signal in the above frequency range, and dispose.

1.2 Power/Alarm Part

24VDC is supplied to the receiver electronics by power supply.

Power supply mainly realizes the switch of input voltage, which inputs 24V DC and can switch it into 15V, so as to supply voltage to each circuit.

The indicator light of power supply is used to indicate whether regular voltage is inputting or not, if it is normal, the red LED will shine.

Alarm part is an audivision alarm: when the tag is entering the detection range, the red light on the top of RX will be flicker, and the alarm will be sounded simultaneously.

Set jumper JP2 on 1&2(Default), the alarm and the light are in the synchronization, when the tag is entering the detection range, the alarm and light will last for 2 seconds;

Set jumper JP2 on 2&3, the alarm and the light are in the synchronization, when the tag is entering the detection range, the alarm and light will last for 2 seconds, and then the alarm will stop and the light still last for 3 seconds.

2. Tuning

2.1 Philosophy

A system will be put into operation as follows:

- First, all the TX(s) have to be prepared and then tuned.
- Second, all the RX(s) has to be prepared and then tuned.
- Third, set the alarm conditions and make a final check.

After this procedure, the system is ready for operation. If a system installed needs to be checked, the Quick Check Procedure will give a indication about the system status at first.

2.2 Tools Recommended

The following instruments are necessary for tuning:

- Multimeter
- High speed oscilloscope with 2 channels (minimum 20MHz bandwidth).
- 10:1 oscilloscope probes
- Mini flat tip screwdriver

2.3 Receiver Preparatory Steps

2.3.1 Preparation

- Check the Jumper, refer to the following table:

Jumper	Setting	Remark
JP1	2-3	Default, you may tune according to the installation condition
JP2	1-2	Default, you may tune according to the alarm requirements

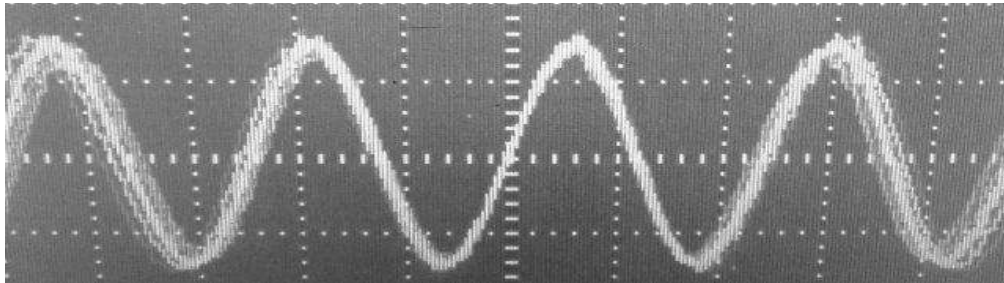
- Connect P4 with the connector from antenna loop, and connect P1 with power supply.

2.3.2 Power Supply Tuning

- Apply power to the RX receiver board
- Check if the power supply indicator light can work regularly, judging whether the power supplying is successful or not.
- Check the output voltage by using the Multimeter.

2.3.3 Signal Tuning

- Sweep Frequency signal test point TP1:



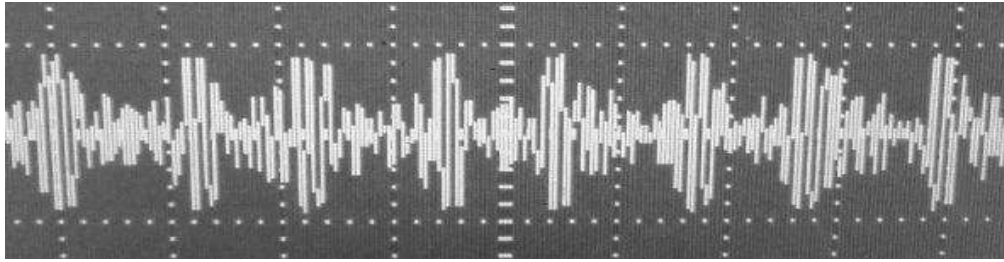
The above diagram is the favorite sweep signal, which is the signal in the frequency range of 7.7MHz to 8.7MHz selected by selectable network. Potentiometer VR2 is used to receive amplitude adjustment for TP1, clockwise for higher amplitude.

Set JP1 on 2, 3, the V_{p-p} for TP1 is 1~2V and the center frequency is 8.2MHz. You may adjust VP2 according to your requirements.

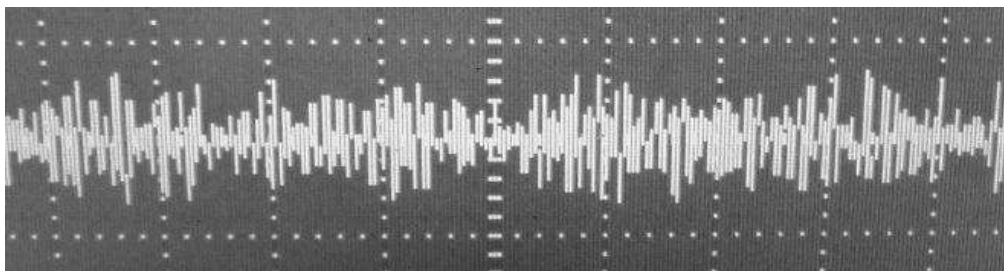
Set JP1 on 1, 2, the V_{p-p} for TP1 is 500~800Mv and the center frequency is 8.2MHz. At the moment, there is no need to adjust VR2.

Before delivering from factory, the TP1 has been adjusted.

- Primary tag signal test point TP4



The above diagram is the signal checked when there is tag in the detecting range. Adjusting the potentiometer VR4, clockwise for higher sensitivity.

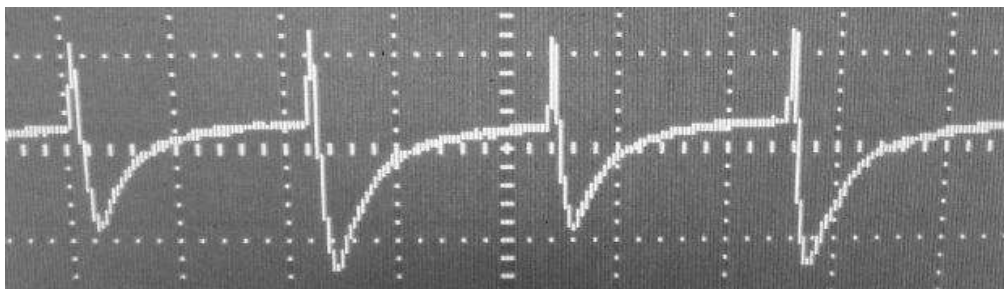


The above diagram is the signal checked when there is no tag in the detecting range. It means the noise signal.

During electronics tuning, you can adjust VR4 for the extent of noise and the primary tuning of Signal-to-Noise of the tag. Clockwise for bigger noise, anti clockwise for smaller noise.

When adjusting VR4, you can refer to the noise indicator light. When the interference of the external environment causes the noise high, you can adjust VR4 anticlockwise to make the noise achieve the reasonable level.

- Noise tuning test point TP6

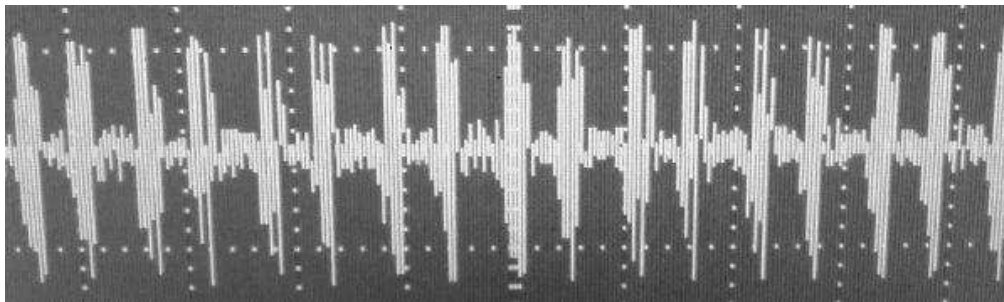


It is used to improve the Signal-to-Noise and make the test of signal of tag to get the best result.

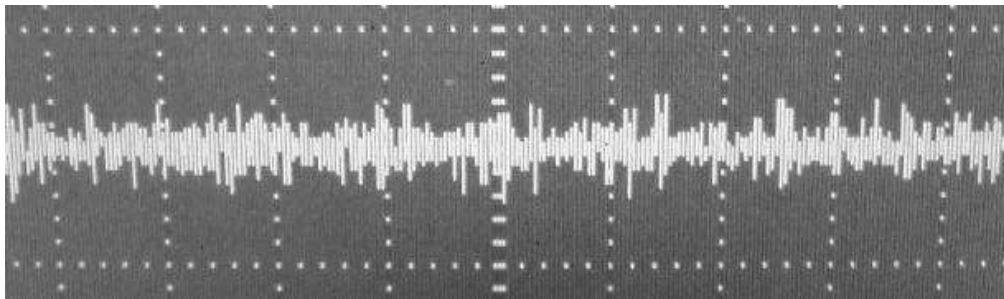
Potentiometer VR5 is used to tune TP6-the static noise of the signal of tag. It can improve the Signal-to-Noise of the tag, and symmetrical waveshape means the perfect status. You may adjust VR5 according to your requirements.

Before delivering from factory, the TP6 has been adjusted.

-
- Secondary tag signal test point TP5



For favorite signal of tag, adjusting the potentiometer VR6, clockwise for higher sensitivity. This signal is the signal of tag which will be disposed by DSP finally.



The above diagram is the signal checked when there is no tag in the detecting range. It means the noise signal.

During electronics tuning, you can adjust VR6 for the extent of noise. Clockwise for bigger noise, anti clockwise for smaller noise.

When adjusting VR6, you can refer to the noise indicator light. When the interference of the external environment causes the noise high, please adjust VR6 anticlockwise to make the noise achieve the reasonable level.

2.3.4 Simple Tuning Procedure

- Testing TP1, tune VR2 to make TP1 (receiving signal) to reach the requirement of factory setting, it means V_{pp} arrive to 1~2V.
- Testing TP6, tune VR5 to make the TP6 of primary signal of tag to present the symmetric waveshape.

Note: For the 1st and 2nd above step, if the JP1 is on 2, 3, it is suggested to use the digital oscillograph beyond 20M for checking the waveshape.

The 1st and 2nd steps have been finished before delivering from factory; you may tune the following steps at the actual installation situation:

- Tune VR6 to noise level, the critical point of indicator light shining and off totally .
- Tune VR4 to noise level, the indicator light DS1 flickers slightly, please refer to the signal/noise level diagram.

2.4 Alarm Tuning

Set JP2 on 1&2(Default), the alarm and the light are in the synchronization, when the tag is entering the detection range, the alarm and light will last 2 seconds.

Set jumper JP2 on 2&3, the alarm and the light are in the synchronization, when the tag is entering the detection range, the alarm and light will last for 2 seconds, and then the alarm will stop and the light still last for 3 seconds.

2.5 Noise Check

- Check the signal noise level according to the table below

LED (ON/Flicker)	Meaning
Green Light DS3	Strong interference or Alarm signal
Green Light DS2	Near to Alarm or Causing Alarm
Green Light DS1	Slight interference
Red Light Alarm	Alarm

Signal/Noise Level Table

The system owns advanced auto-control circuitry. To various environment, normally, just need to adjust the sensitivity of receiver: adjust VR4 clockwise for higher sensitivity, the green LED **DS1**、**DS2**、**DS3** may flicker. When adjusting, you can refer to LED indicator light which is OFF or few flickers under the static status. The static status reflected by indicator light is under the control of VR4, meanwhile, you should consider responding sensitivity, the green LED **DS1**、**DS2**、**DS3** all off is the best status.

To the interference from external environment, in the case of adjusting VR4 without good result, you can adjust VR6 properly (anticlockwise) to improve the anti-jamming ability of the system, meanwhile, adjust VR4 clockwise to improve the sensitivity of the system.

Hint: In a good installation, all three yellow LED's are OFF or the 1st LED sometimes is flickering.

For the system installed in the wide exit, the worst situation which still can be acceptable is: the 1st LED is on all the time and the 2nd one is flickering.

3. Appendix

3.1 Technical Specifications

Receiver Board

Electronics

RF Frequency Range

Modulated Frequency

7.7MHz-8.7MHz

RF Frequency Signal Input Range (Antenna)

180Hz(can be selected)

Antenna Input Impedance

10-70mVpp (30-210m Vpp with attenuator)

200Ω

Status Indicators

Power

Red LED

Alarm

Red LED

Levelmeter

3 green LED's

Alarm Controls

Buzzer

Volume, Max. 95dB

Sound Time, approx. 2 seconds

Light

Light Time, approx. 2 seconds

Connectors

P1

Power (DC 24V)

P2

Alarm Lamp of Antenna

P3

External Alarm

P4

Antenna

Power Voltage Range

DC Input

24VDC

Alarm Light Consumption

Max.500mA

Fuse

800mA, quick-acting F