

AMC-G58 Software V1.0 User Manual

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1 Introduction

AMC-G58 is the software works mainly with CAB58 Acoustic-Magnetic anti-theft antenna system. It is designed for easy and quick system configurations. The software also displays antenna status to ensure proper use of the system.

2 Function introduction

AMC-G58 software includes the following functions: antenna settings, global settings, signal amplitude, configuration saving, restore factory settings, etc.



图 2-1 AMC Configuration

Serial connection: Connect the antenna to the PC. Once the connection is established, users can check and operate the antenna by using the AMC-G58 software.

Network connection: After establishing the network connection, users can run remote antenna system testing and debugging via the network.

Antenna settings: Parameter configuration for selected antenna, including antenna sensitivity, anti-interference, the number of hits, detection slope, receive delay, the transmission switch.

Global setting: Configuration parameters for the overall antenna system.

Signal amplitude: Displays the antenna current working status.

Configuration saving: Save the parameter changes to the device.



Factory reset: Restore the adjustable parameters to the factory settings.

3 Operation Instruction

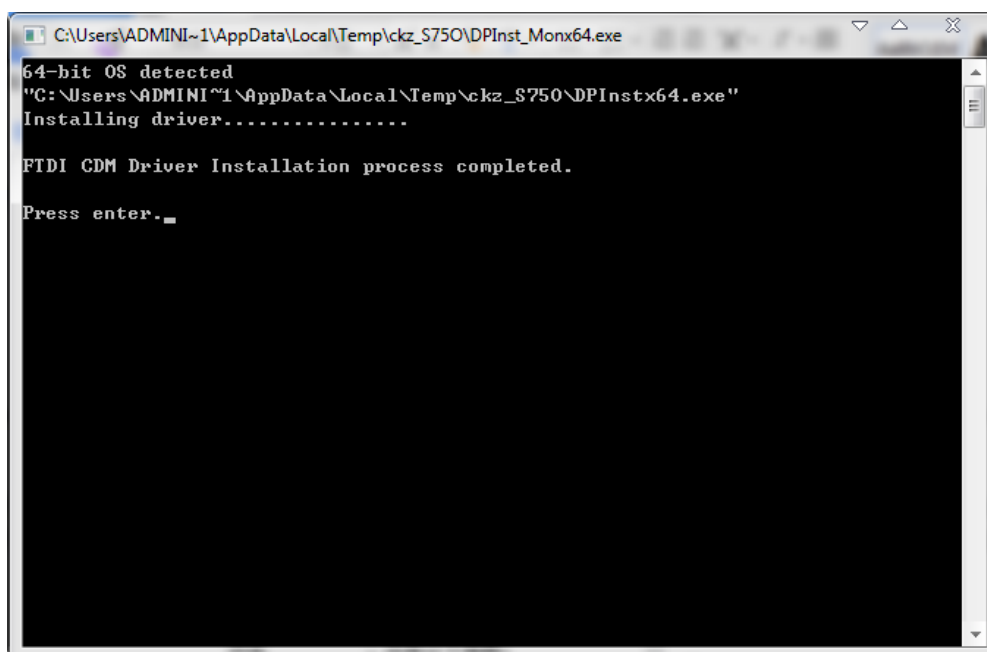
Before using the AMC-G58 software to set parameters for the antenna system, please ensure that the antenna is properly connected to the computer and is in normal status.

3.1 Install the tuning software

Install the USB driver before using the software.

(1) Double click the “setup”, the two folders are displayed.  tuning software  USB driver


(2) Click “USB driver”, double click  to install the driver.





- (3) Press “Enter”, USB driver finishes the installation.
- (4) Copy the AMC-G58 software to a designated file folder for easy installation.
- (5) Using the provided cable to connect the control antenna with other transceiver antennas. Make sure the cables are connected correctly.
- (6) After checking the cables are connected correctly, connect the power wire to the power source. The flashing indicator on the main board indicates the device works properly.
- (7) Use the tuning cable to connect the PC and antenna, launch the tuning software installed on the PC and configure the system parameter. The following pictures illustrate the steps to connect PC with the antenna.

Use USB/RS232 converter to connect the antenna and PC.



1	Connect the USB / RS232 converter to the PC
	
2	Connect directly to a serial port or a USB / RS232 converter

	
3	<p>Connect to the RS232 port on the main board</p> 



注意

Acoustic Magnetic devices do not support hot plugging in, connecting the tuning cable to the PC while the system is powered on may cause the device to restart. Please connect the tuning cable and the computer before turn on the power.

3.2 Language Setting

Double click the AMC-G58 software icon, setting screen appears.



3-1 language setting

- Click the “Language” from the tool menu。
- Choose the desired language from the drop-down list.
- Language can be changed anytime during the tuning process.

3.3 Tuning port selection

Connection method:

- (1) Connect the crystal head of the RS232 tuning cable to the COM1 port on the antenna main board, plug the other end to the computer USB port.
- (2) Select the corresponding number of serial port in the AMC software interface, for example, COM1, COM2, COM3 and so on.
- (3) Select the baud rate: 19200, and then click "Connect".

3.4 Antenna setting

There are two options underneath the antenna setting which can select main antenna or auxiliary antenna, the settings for the main or the auxiliary antenna can be configured separately including sensitivity, anti-interference, hit times, the transmission switch.

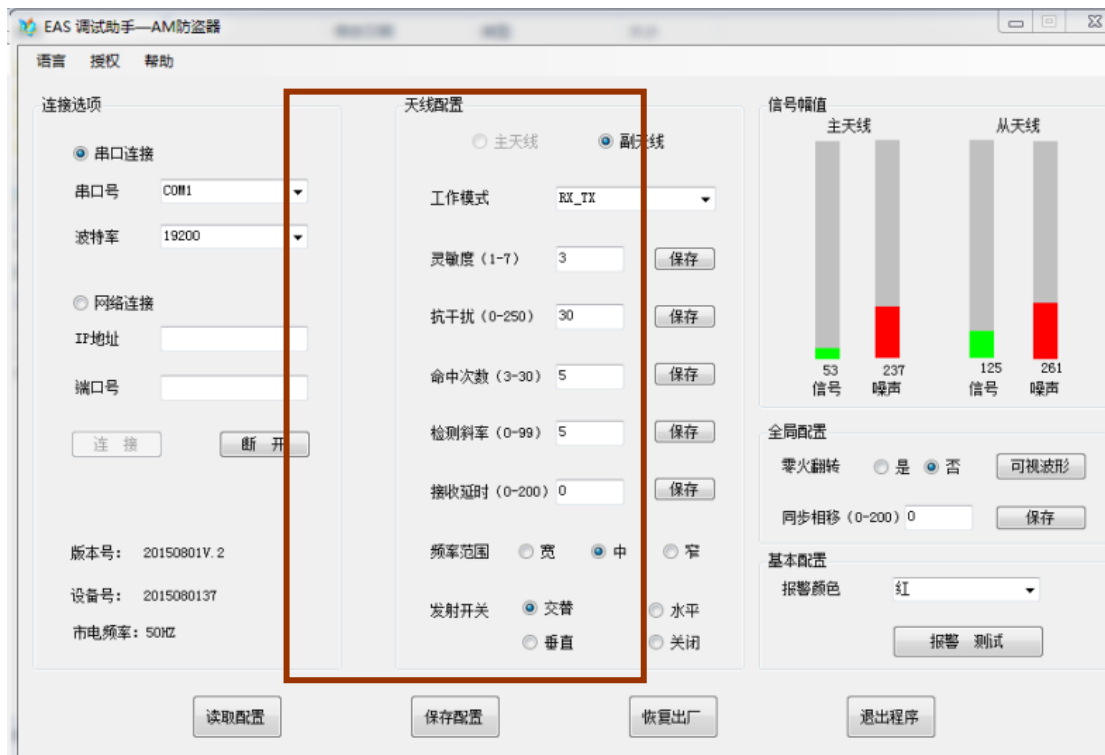


图 3-1 AMC Antenna Configuration

The steps of setting:

- Choose the antenna
- Change the setting value
- Click “Save” button
- Click the “Save Setting” button on the bottom of the screen to save any changes that need to be kept after restarting the device.

Setting description

1. Operation mode

Factory setting is Tc1_Tc2, there are some options as follows for operation mode:

A. Tc1 mode: Under this mode, only the main antenna works as a transceiver. This mode should only be used when the system has only one single main antenna in operation. The detection results when both left and right sides are main antennas are better than that when main and auxiliary antennas work together.

B. Tc2 mode: Under this mode, only the auxiliary antenna works as a transceiver. This mode is mainly used to judge whether there is any hardware fault or to judge the impact of environmental noise.

C. Tc1_Tc2 mode: Under this mode that both the main and auxiliary antennas operate as integrated transceivers. Both the left and right sides of the antennas can be used for tag detecting. This mode is usually the best antenna operation mode.

D. Tx1_Rx2/Tx2_Rx1: Under this mode, in Phase 1, one antenna transmits while another one receives; In Phase 2, it performs noise measurements; In Phase 3, the transmitting antenna and the receiving antenna swap roles. Through this mode, the interference caused by the noise of fixed phase to the receiving end can be avoided.

E. Tx1_Rx2: Under this mode, the main antenna transmits, and the auxiliary antenna receives as well as measures the noise. Under this mode, the fixed radiation interference on the main antenna side can be avoided. The alarming signal is

relatively weak on the outer side of both antennas.

F. Tx2_Rx1: Under this mode, the main antenna only receives as well as measures the noise, the auxiliary antenna only transmits. In this mode, the fixed radiation interference on the side of the auxiliary antenna can be avoided. The alarming signal is relatively weak on the outer side of both antennas.

2. Sensitivity

The factory setting is 1. The range of the parameter is from 1 to 7, the greater the sensitivity number is, the farther the distance and the worse anti-interference capability will be; and vice versa. This setting is to change the antenna's reception sensitivity to achieve different detection ranges. The longer the detection distance it is set to, the higher chances of getting false alarm it will be. Adjust this setting to appropriate sensitivity during installation and tuning based on the actual requirements.

3. Anti-interference

The factory setting is 30. Parameter range is from 0 to 250, the greater the anti-interference number is, the closer the distance and the better anti-interference capability will be, and vice versa. This setting is to adjust the system anti-interference alarming capability. The greater the anti-interference value is, the harder to trigger the antenna alarm will be, while the detection range is closer, and the anti-interference capability becomes stronger. The smaller anti-interference setting number is, the easier to trigger the antenna alarm and longer detecting distance will be, at the same time the anti-interference capability becomes weaker which may cause false alarms. This parameter should be set to an appropriate value during the tuning process.

4. Number of hits

The factory setting is 5. Parameter range is from 3 to 15, the greater the number is, the fewer possibilities of false alarms will be. On the contrary, the smaller the number is, the higher chances false alarms will be. This setting indicates the number of detected labels, the greater the number is, the less change for false alarm will be, but the detection time will be longer, the reaction speed becomes slower; On the contrary, the reaction speed becomes

faster, but the possibility of false alarms becomes higher.

5. Slope detection

The factory setting is 5. The parameter range is from 0 to 99, and the signal characteristic parameter is a parameter set according to the inherent characteristics of the antenna and the tag. The larger the value is, the worse the testing performance for the soft tags will be. It has little effect on the hard tag detecting performance. Therefore, it helps to improve the system anti-interference capability in a hard tag only environment.

6. Receive delay

The factory setting is 0. The parameter ranges is from 0 to 99. The smaller the value is, the higher sensitive the signal receiving will be, and vice versa. Increasing the value of this parameter is to adjust the emitted signal reflected by nearby metal objects.

7. Frequency Range

The factory setting is "medium". Parameter setting options are "Wide", "Medium", "Narrow", "Wide" frequency is from 57K to 59.5K; "medium" frequency is from 57K to 59K; "narrow" frequency is from 57.5K to 58.5K; This setting is for the system to be able to work with a larger variety of tags. The narrower the detection frequency range is, the less chance of interference by other devices will be, thus the anti-interference capability will also become stronger.

8. Transmission switch

The factory setting is "Alternate".

Alternate: It indicates that the emitted electromagnetic field alternates between the horizontal and vertical directions. The purpose of this setting is to resolve the uniformity of the tag response.

Horizontal: It indicates that the electromagnetic field will be emitted only in the horizontal direction. The purpose of this setting is to solve the passive interference effect in the vertical direction.

Vertical: It indicates that the electromagnetic field will be emitted only in the vertical direction. The purpose of this setting is to solve the passive interference effect in the horizontal direction.

Off: It indicates that the antenna stops transmitting. The purpose of this setting is to judge whether there exists passive tag interference in the antenna surrounding area.

3.5 Global settings

The global configuration is used to configure the overall settings of the system. The configuration includes zero line/phase line alternating, synchronous phase shifting, and visualized wave forms.



图 3-2 AMC Global Configuration

Global configuration parameters descriptions

1. Zero/live line flip

The factory setting is "No". The options of this setting are "yes" and "no": "no" is 0 degree, "Yes" is 180 degrees. Usually, the position of the zero-live wire in the power socket is left-zero line and right-live line. A reversed zero-live line will lead to an asynchronous situation between the antennas. If this happens, no need to change the zero-live line position in the socket. Synchronization can be achieved by selecting "Yes" in the "Zero/live line flip". In

another situation, if phase adjustment is hard to achieve during synchronization, use the zero/live line flip to increase the range of phase shift to achieve synchronization between the antennas.

2. Synchronous phase shift

The factory setting is 0. The parameter ranges from 0 to 200.

This setting serves two purposes: To be able to work with other brands devices. Asynchronous devices will affect each other and cause system failure. Remove interference of the fixed phase from the antenna receiving area to eliminate noise.

3. Visualized waveform

Currently, this function is not available.

3.6 Basic settings

There is only one setting for alarming color in the basic settings. The factory setting is red. There will be multiple color options of alarming after upgrading in the future.



图 3-3 AMC basic setting

Alarm test: test the buzzer if it works properly.

3.7 Signal amplitude

The graphic in the red frame on the software debugging interface indicates the signal amplitude variation. This graphic show whether the antenna is in normal working condition and can also be used to check the antenna fault and the surrounding environment noise. The signal amplitude variation graphic contains the following elements:



图 3-4 AMC signal amplitude

➤ Signal amplitude display

The vertical signal status bars show the main and auxiliary antenna real-time signal / noise conditions. It helps users and engineers to analyze the site environment.

Signal: the signal bar shows the detected signal value when the antenna is in transmitting mode. The value underneath the bar is corresponding to the real time respondent value to the environment and tag signal changes.

Noise: This vertical status bar indicates the value of the ambient noise detected by the antenna when there is no emission from the antenna itself. Even there are tags exist in the antenna surrounding area, this status bar does not represent the response value of the tags.

The vertical signal bars on the left side of the frame display the main antenna signal and its noise variation. The signal bars for the auxiliary antenna signal and the noise variation are displayed on the right side of the frame.

Based on the changes displayed on the signal and noise amplitude value bar, the status of the antennas and their surrounding environment can be evaluated and a debugging solution can be decided.

➤ **Determine the antenna current**

Hold an acoustic magnetic hard tag closer to either the main or auxiliary antenna, the vertical signal bar in the red frame should move higher significantly. Turn off the transmission and move a hard tag closer to the antenna again. If the signal bar shows no change then it proves that the antenna emission current is working normally.

➤ **Determine the antenna passive tag interference**

If an antenna keeps reporting false alarm, the vertical signal bar is high, or even higher than the noise signal bar but no obvious change on the signal bar, If the signal bar becomes lower after transmission is turned off, it can be determined that interference objects exist. Find and remove the objects.

➤ **Determine surrounding environmental interference**

If the noise value changes greatly, the antenna has false alarms and the sensitivity is reduced, it is likely that there is noise generated by the surrounding environment. Need to eliminate the noise from the surrounding area.

➤ **determine the antenna is interfered by radiation**

If the antenna signal value and the noise amplitude is big, and the amplitude is stable, the amplitude value changes when the location of the antenna is changed, it can be determined there is radiation interference in the surrounding area.

Determine there is other acoustic magnetic interference

If the signal amplitude and / or noise amplitude of the antenna are constantly changing in size, and the maximum and minimum values of the amplitude are relatively fixed, it can be determined that the antenna is interfered by other similar devices in the periphery and the synchronization parameters needs to be adjusted to synchronize.

To determine the power supply interference

If the antenna signal and noise value is always within a certain range, and the amplitude is large, it can be determined the antenna has power supply interference or conducted interference from other power devices. Need to ground or change the power supplier.