

TX6934

Handheld Programmer Installation and Operation Manual



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I. General

The TX6934 handheld programmer is a portable auxiliary device for on-site construction and testing of the LoRa wireless alarm system developed by our company. It plays a decisive role in the site selection of the LoRa front-end device installation location, reduces redundant on-site installation and debugging work, and improves deployment efficiency.

II. Characteristics

1. The device adopts a hand-held structure, which is small in size and easy to carry.
2. Can read and write configuration information of LoRa front-end devices, assisting in the effective installation of front-end devices.
3. Black and white LCD display, adjustable screen backlight brightness, easy operation.
4. Automatic shutdown function, which increases battery life and reduces battery replacements times

III. Technical parameters

1. Power supply: 2 AA batteries (one 1.5V)
2. Working current: <15mA
3. Standby current: <1μA
4. Wireless communication standard: LoRa
5. Wireless communication frequency: 470~510MHz
6. Wireless transmission power: <17dBm
7. Maximum communication distance: 1000m in open space
8. Operating environment: temperature -10°C~+55°C; relative humidity ≤95%, no condensation
9. Size: 60mm×30mm×135mm

IV. Structural features

The appearance is shown in Figure 1 (dimensions in mm):

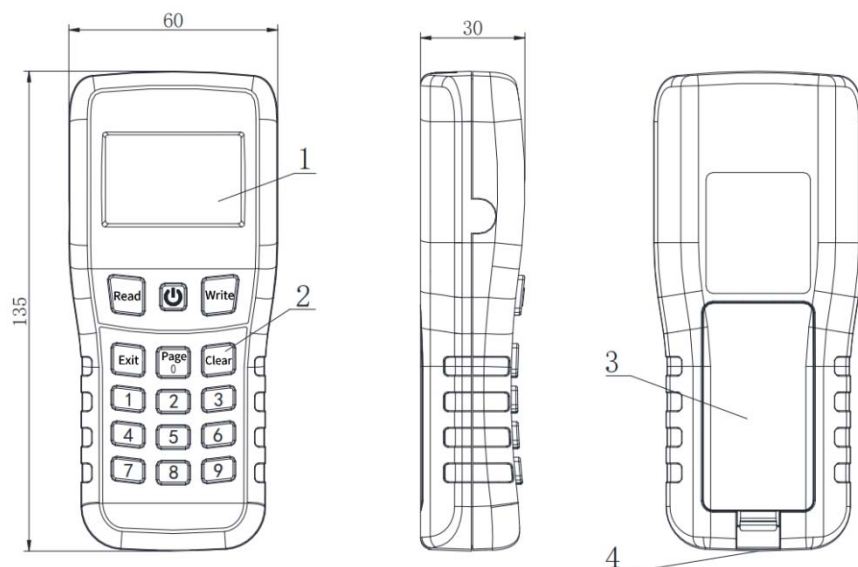


Figure 1 Schematic diagram of appearance

1— LCD Screen: Displays menus and operation prompts.

2— Keypad:

- Power Key: Long press for 4 seconds to turn the device on/off; when the device is on, short press to toggle the screen backlight.
- <Read> Key: Performs the operation indicated at the bottom left of the screen or returns to the previous menu.
- <Write> Key: Performs the operation indicated at the bottom right of the screen.
- <Exit> Key: Exits the current menu and returns to the previous menu. In the main menu, pressing "Exit" has no effect.
- <Clear> Key: Clears the entered content.
- <0/Page> Key: Scrolls through pages in a menu; when scrolling is possible, there will be ">" or "<" prompts.
- 0-9 Numeric Keys: Perform different functions in different menus, used for entering content or selecting the corresponding submenu.

3— Battery Compartment: Holds AA alkaline batteries.

4— Micro USB Port: Connects to a power bank or adapter.

V. Use and Operation

Press and hold the power button for 4 seconds to turn on the device and enter the local information network number, frequency, and power interface. If the network number and frequency of the handheld device are inconsistent with the network number and frequency of the gateway to be configured, you need to set the network number and frequency of the handheld device first, and press the "Read" key to modify according to the prompt in the lower left corner of the interface; if the network number and frequency of the handheld device are consistent with the network number and frequency of the gateway, press the "Write" key to skip according to the prompt in the lower right corner of the interface and enter the main interface.

If there is no operation (no button pressed) for 3 minutes, the device will automatically shut down.

1. Main Interface

The main interface is divided into two parts: one part is the menu list, and the other part is the battery level indicator. You can enter the corresponding submenu by pressing the numeric keys or by switching the selected item.

1) Query information

Used to query the current parameters of the handheld device and obtain basic information of the front end.

2) Parameter configuration

Configure the handheld device's own parameters and front-end parameters.

3) Command operation

Directly control the gateway, relay, and front end.

1.1 Query information

Enter the query information interface and press the number key to enter the submenu of the corresponding number.

1) Local information

View the current network number, frequency, and power parameters of the handheld device.

2) Monitoring device

The handheld device enters the monitoring mode, long presses the front-end device button, and after the front-end device indicator lights up, the interface prompts an update. After the update, the address, group, ID number, frequency, network number, RSSI, and SNR information of the front-end device can be obtained; long press the relay to obtain the relay parameters (relay address, ID, frequency, network number, etc.); short press the gateway to obtain the gateway parameters (frequency, network number, heartbeat time, etc.). After obtaining, press the prompt to save and set the monitored configuration information as the handheld device's own parameters.

Note: Different types of front-end devices have different buttons, as follows: For smoke and heat detectors, long press the "Self-Test/Mute" button until the indicator light comes on; for manual call points, input interfaces, sounder strobes, long press the base anti-detachment button until the indicator light comes on.

2 Parameter configuration

The parameter configuration interface is mainly used to set the parameters of the handheld device itself and configure the parameters of the front end.

1) Local configuration

Local configuration allows manual setting, automatic setting and default restoration.

When setting manually, the network number, frequency and power can be set separately;

When setting automatically, long press the front-end self-check button or long press the relay button or short press the gateway button, and the handheld device will set the monitored data as the local parameters;

When restoring the default, the handheld device will set its own network number, frequency and power to the default parameters.

2) Front-end configuration

According to the interface prompts, set the power and heartbeat parameters of the front-end device, or restore the specified device to factory settings.

3 Command operation

In the command operation interface, you can operate the gateway, relay and front end. Select the operation object and enter the corresponding submenu.

3.1 Gateway operation

The operation of the gateway is mainly related to the operation of the gateway, which has the functions of detecting the signal strength of the gateway, operating the front end through the gateway, and configuring the gateway parameters.

Before operating the gateway, it is necessary to ensure that the gateway works normally and the handheld device can communicate stably with the gateway (the network number and frequency of the handheld device and the gateway must be consistent).

- 1) Ping gateway: The handheld device sends a Ping command to the gateway to obtain the signal quality of the gateway. (The larger the RSSI and SNR values, the better the signal quality)
- 2) Installation location detection: Test the signal strength from the handheld device to the gateway, and provide installation suggestions based on the comprehensive signal quality and communication stability.

- 3) Find device: Enter the network address of the front-end device and send a command to find the device. After receiving the command, the front-end device lights up and makes a "beep" prompt sound (devices with silent indication will only light up).
- 4) Read device information: Enter the network address of the front-end device and obtain the basic information of the current device from the gateway. (Network address, ID number, signal strength, battery power, etc.)
- 5) Add device: The handheld device enters the monitoring mode. At this time, long press the front-end self-test button. The handheld device can obtain the device ID of the front-end. Enter the network address to be configured according to the prompts. Once it is successfully sent, it can be added to the gateway.
- 6) Delete device: Enter the device address to be deleted. Once the address is sent successfully, the device can be deleted from the gateway.
- 7) Register device: Control the gateway to enter the registration state. The gateway will perform networking operations on the added but unregistered devices.
- 8) Start the Device: Input the network address of the front-end device and issue a command to successfully start the front-end
- 9) Mute the Device: Input the network address of the front-end device and issue a command to successfully mute the front-end.
- 10) Reset the Device: Input the network address of the front-end device and issue a command to successfully reset the front-end.

Note: The following operations must be performed when the gateway and front-end devices are powered on normally and the communication environment is good. Otherwise, communication failures may occur after the configuration is completed.

- 11) Set the heartbeat: Set the heartbeat parameters according to the prompts. Once the parameters are sent successfully, the system heartbeat time can be modified (the front-end device will also be modified synchronously).
- 12) Set power: Set the transmit power according to the prompts. Once the transmission is successfully sent, the system's transmit power can be modified (the front-end device will also be modified synchronously).
- 13) Set frequency 1: Follow the prompts to set the normal frequency. Once the command is successfully sent, the normal frequency of the system can be modified (the front-end device will also be modified synchronously).
- 14) Set frequency 2: Follow the prompts to set the emergency frequency. Once the command is successfully sent, the system's emergency frequency can be modified (the front-end device will also be modified synchronously).

3.2 Loop relay module operation

The loop relay module operation is mainly used to check the signal strength from the handheld device to the loop relay module, so as to facilitate the determination of the loop relay module installation location. Before the operation, you need to ensure that the loop relay module is working properly, has been successfully registered to the gateway, and the handheld device can communicate stably with the loop relay module (the network number and frequency of the handheld device and the relay must be consistent)

- 1) Ping loop relay module

Enter the network address of the relay module, and the handheld device sends a Ping command to the device to obtain the current communication quality. (The larger the RSSI and SNR values, the better the communication quality)

2) Installation location detection

Enter the network address of the loop relay module, test the signal strength from the handheld device to the device, and provide installation suggestions based on the signal quality and communication stability.

3.1.3 Front-end device operation

The front-end device operation is mainly used to issue commands directly to the front end without notifying the gateway. It is usually used in scenarios where the front-end device needs to be controlled when the gateway fails or there is no gateway. Before communication, it is necessary to ensure that the front end is powered on normally, has been registered with the gateway, and can communicate stably with the handheld device (the network number and frequency of the handheld device and the front end device must be consistent)

1) Startup

Enter the network address of the device and press the "write" key to start the front-end device according to the interface prompts.

2) Mute

Enter the network address of the device and press the "write" key to mute the front-end device according to the interface prompts.

3) Reset

Enter the network address of the device and press the "write" key to reset the front-end device according to the interface prompts.

VI. Fault analysis and troubleshooting

Fault	Troubleshooting
No display on the interface	1. The battery voltage is low and needs to be replaced. 2. The battery contact is poor. Check whether the battery spring is rusted.