



# INSTRUCTION MANUAL

**AR430/AR450/FR430/FR450**

Repeater

**Kirisun Communications Co.,Ltd.**



**Notice to the User:**

- \* Before using this repeater, read this operating instruction carefully for safe and convenient usage. When you begin to use it, we deem that you have read this manual.
- \* Keep this manual in a safe place and make it available to other operators in case the product is passed on to other people.
- \* When purchasing our product, please fill in the WARRANTY CARD with truth information, and ask for the valid proof of purchase so as to protect your legal rights.
- \* Kirisun and our authorized partners own the intellectual property of all the parts of this product (include accessories). Any design and materials may not be modified, copied, extracted or translated without the authorization of Kirisun or its authorized parties.
- \* Due to the update or modification of the product, Kirisun owns the right to change the specifications of software and hardware described in this manual without further notice. Specifications and information contained in this manual are for reference only.
- \* Kirisun reserves the right to interpret the mistakes and errors occurring in this manual, though all the contents are checked carefully.

**Safety:**

Before using this product, read this operating instruction carefully for safe and convenient usage.

- \* This product can only be maintained by the professional technicians. Do not disassemble the radio by yourself.
- \* The installation authorization must be approved by the local Wireless Management Department.
- \* The antenna of the repeater must be lightning-proof, or it will cause serious personal and possessions damage.
- \* Please use the approved adapter, duplexer, antenna, arrester, feeder, power divider to correctly install the repeater, or it will damage the product.

**Kirisun Communications Co.,Ltd.**

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## ■ Definitions

### ◆ Short press:

Press and release the key instantly.

### ◆ Long press:

Press and hold the key for 2s, and then release it.

### ◆ Digital channel:

Only the digital signal can be used to communicate on this channel.

### ◆ Analog channel:

Only the analog signal can be used to communicate on this channel.

### ◆ Digital or Analog

Either digital or analog signal can be used to communicate on this channel (The repeater will judge the signal received on this channel to decide whether to use digital signal or analog signal, and then send out the signal the same as the receiving signal).

### ◆ FR450/FR430/AR450/AR430

FR450: Analog and Digital, output: 45-50W

FR430: Analog and Digital, output: 25W

AR450: Analog only, output: 45-50W

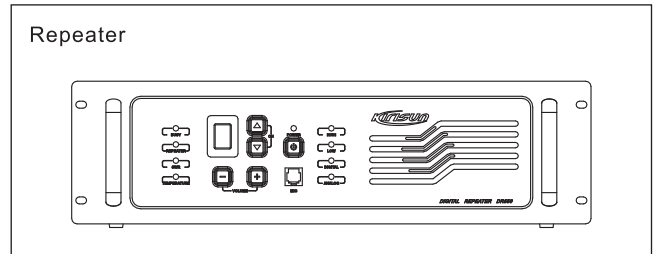
AR430: Analog only, output: 25W

## ■ Unpacking and Checking

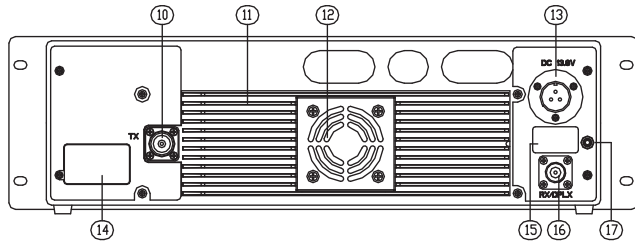
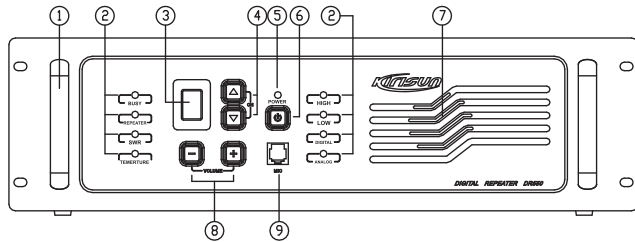
Unpack the radio carefully. We recommend that you check the radio and the supplied accessories listed in the following table before discarding the packing material. If any damage or loss has occurred during shipment, please contact the dealer without delay.

### ◆ Supplied Accessories

Item	Quantity
Repeater	1
Power Supply Cable	1
Instruction Manual	1



## ■ Radio Overview



- ① Handles
- ② LED indicator

Name	Function
BUSY	Light on when receiving RF signal.
REPEATER	Light on when the signal is being transferred.
SWR	Standing wave indicator. Light on when the SWR exceeds the preset standard.
TEMPERATURE	High temperature alert indicator. Light on when the temperature exceeds the preset standard.
POWER	Power-on indicator. Light on after turning on the repeater.
HIGH	Light on when the channel transmits in high power.
LOW	Light on when the channel transmits in low power.
DIGITAL	Light on when the channel transmits on digital channel or digital/analog self-regulation channel. Flash when the channel is transferring digital signal.
ANALOG	Light on when the channel transmits on analog channel or digital/analog self-regulation channel. Flash when the channel is transferring analog signal.

## ③ Display tube

Display the current channel.

④  Up/Down key

Press the key to increase/decrease the channel number.

## ⑤ POWER indicator

Power-on indicator. Light on after turning on the repeater.

⑥  Power key

Press the key to power on/off the repeater.

## ⑦ Speaker

⑧  Volume key

Short press the key to increase/decrease the volume, and then the speaker sends out the voice volume you adjust. Long press these two keys to enable Monitor function.

## ⑨ Mic Jack

This connector is used to connect programming cable and hand Mic.

With programming cable connected, the repeater can be connected with PC to program the operating parameters, and to upgrade the internal software of the repeater.

With hand Mic connected, the repeater can make a call.

## ⑩ Tx out Jack

## ⑪ Cooler

## ⑫ Fan

## ⑬ DC socket

## ⑭ Nameplate

## ⑮ Warning paster

## ⑯ Tx in Jack

## ⑰ Screws (GND)

## ■ Basic Operation





### ◆ Turn on/off the repeater

In power-off state, press the Power key to turn on the repeater.

After the system works normally, POWER indicator lights on.

In power-on state, press the Power key for 3s to turn off the repeater.

### ◆ Select a channel

Your repeater can preset 9 channels through programming software by your dealer. Press the  key to increase the channel number, and press the  key to decrease the channel number. Long press the  or  key to quickly select the channel.

If the current channel is analog channel, ANALOG indicator lights on.

If the current channel is digital channel, DIGITAL indicator lights on.

And if the current channel is Digital/analog self-regulation channel, ANALOG and DIGITAL indicators light on simultaneously.

If your repeater has programmed Channel Lock function by your dealer, you cannot switch the channels.

### ◆ Transfer a signal

The Rx and Tx frequency is different on the repeater channel. When the signal is received on the current channel, it will be sent out to change the weak signal into strong signal. Then the communication distance is lengthened and the voice is played from the speaker. The Rx frequency, Tx frequency, and CTCSS/CDCSS can be programmed by your dealer.



An analog channel or a digital/analog self-regulation channel can be set 5 groups of CTCSS/CDCSS encoding/decoding lists. If the repeater receives the Rx CTCSS of any group on the channel, the repeater will transfer the CTCSS/CDCSS encoding/decoding lists corresponding to the Rx CTCSS.

### ◆ Voice communication



Insert the hand Mic into the external connector, and then you can make an analog/digital all call on analog/digital channel through the hand Mic. If there is CTCSS/CDCSS encoding/decoding lists preset on the channel, CTCSS/CDCSS sent out will be the first group of Tx CTCSS/CDCSS.

### ◆ Monitor

This function can be used to receive the weak signal on the channel. If this function is enabled and the repeater transmits on analog channel, the repeater turns on the speaker directly and you can hear the voice from the speaker. If this function is

enabled and the repeater transmits on digital channel, the repeater turns on the speaker directly when receiving the voice signal, regardless of the signal strength or other conditions. Long press the  key to enable the Monitor function, and long press the  key to disable this function.



### ◆ Adjust the volume



Short press the  key to increase the volume; short press the  key to decrease the volume.

### ◆ Alarm alert

When the repeater works abnormally, an alarm alert indicator will be lighted on. If the temperature of the repeater exceeds the preset temperature, TEMPERATURE indicator will be lighted on. If the SWR exceeds the preset standard and then affects the transmission, SWR indicator will be lighted on. And if any other abnormal condition occurs, please contact the professional technician for help.

### ◆ Check the software version

Press and hold the  key, and then press the  key to turn on the repeater, the software version will be displayed on the display tube.

Press and hold the  key, and then press the  key to turn on the repeater, the programmable data version will be displayed on the display tube.



### ◆ Programming settings

The operating parameters can be set by your dealer through the programming software. It includes CH Tx frequency, Tx power, Rx frequency, Squelch level, CTCSS and etc. You can also set the threshold of alarm alert and channel lock functions. Details please contact your local dealer.

## ■ Programming Software Introduction

First run the programming software of DR550 to enter the main interface. Select the relevant functions on the menu bar or in the navigation list at the left of the interface.

### ■ Menu bar

#### ◆ Program

There are Basic Information, Basic Setting, Digital Setting, Monitor and Control and Channel Information, the functions of which can also be found in the navigation list.

#### ● Basic Information

The contents of this drop-down menu include frequency range, serial number, radio information, program version and data version. All of the parameters are fixed except the frequency range.

Frequency range: [136-174MHz], [400-470MHz];  
default setting is [400-470MHz].

#### ● Basic Setting

The contents of this drop-down menu include Tx delay time, alert tone, key alert, channel lock, call out tone and call in tone. Tx delay time: 0-2000ms, the step value is 100ms; default setting is 100ms.

Alert tone: mute/unmute; default setting is unmute.

Key alert: default setting is enabled.

Channel lock: default setting is disabled.

Call out tone: default setting is disabled.

Call in tone: default setting is disabled.

#### ● Digital Setting

The contents of this drop-down menu include radio ID, group hold time, individual hold time, allow kill, allow active, initiate all call and initiate group call.

Radio ID: 7 digits is available; default setting is 0000001.

Group hold time: 0-10000ms, the step value is 500ms; default setting is 0.

Individual hold time: 0-10000ms, the step value is 500ms; default setting is 0.

Allow kill: default setting is disabled.

Allow active: default setting is disabled.

Initiate all call: default setting is enabled.

Initiate group call: default setting is enabled.

## ● Monitor and Control

The contents of this drop-down menu include fan switch, stand wave rate, high temperature alarm, temperature control fan, system voltage low and system voltage high.

Fan switch: always on/always off/high temperature control/radio control; default setting is radio control.

Stand wave rate: 2.0-20.0, the step value is 0.1; default setting is 5.0.

Temperature control fan: 60-110, the step value is 1; default setting is 60.

Voltage low threshold: OFF and 7.0-12.0, the step value is 0.1; default setting is 9.0.

Voltage high threshold: 7.0-18.0, the step value is 0.1; default setting is 16.0.

Note: The range of voltage high threshold changes as the voltage low threshold changes. For example, if the voltage low threshold is 10.0, the range of the voltage high threshold is 13.0-18.0.

## ● Channel Information

The contents of this drop-down menu include channel setting, channel name, channel spacing, Rx frequency, Tx frequency, Tx power, squelch level, tail reversal, Tx CTC/DCS mode and 5 groups of CTC.

Channel setting: digital/analog/digital or analog; default

setting is digital.

Channel spacing: 6.25/12.5/20/25kHz; default setting is 12.5kHz.

Rx frequency: depend on the frequency range.

Tx frequency: depend on the frequency range.

Tx power: high/low; default setting is high.

Squelch level 0-9; default setting is 3.

Tail reversal: 120 °/180°, default setting is 180°.

Tx CTC/DCS mode: main/current; default setting is current.

Rx CTC/DCS type: none/CTCSS/CDCSS/CDCSS invert; default setting is none.

Tx CTC/DCS type: none/CTCSS/CDCSS/CDCSS invert; default setting is none.

Rx CTC/DCS: 50 groups of CTCSS encode and 104 groups of CDCSS encode; default setting is none.

Tx CTC/DCS: 50 groups of CTCSS encode and 104 groups of CDCSS encode; default setting is none.

Transfer: default setting is none.

## ◆ Setting

You can read data, write data and change password under this menu.

## ◆ Language

You can select Chinese or English under this menu.

