HIKVISION

Auxiliary Care Radar

User Manual

Legal Information

About this Manual

The Manual includes instructions for using and managing the Product. Pictures, charts, images and all other information hereinafter are for description and explanation only. The information contained in the Manual is subject to change, without notice, due to firmware updates or other reasons. Please find the latest version of this Manual at the Hikvision website (https://www.hikvision.com/).

Please use this Manual with the guidance and assistance of professionals trained in supporting the Product.

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Disclaimer

Symbol Conventions

The symbols that may be found in this document are defined as follows.

Symbol	Description
Note	Provides additional information to emphasize or supplement important points of the main text.
Caution	Indicates a potentially hazardous situation, which if not avoided, could result in equipment damage, data loss, performance degradation, or unexpected results.
Danger	Indicates a hazard with a high level of risk, which if not avoided, will result in death or serious injury.

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Chapter 1 Product Introduction

1.1 Introduction

Based on the 60 GHz frequency band, auxiliary care radar (hereinafter referred to as "device") adopts FMCW, MIMO, beamforming, micro-Doppler feature extraction, and other technologies. It can detect the vital signs, including person, breath, heartbeat, etc.

The device can be installed above the bed in the bedroom, and the non-contact detection will cover the bed. It can obtain the information, including the time in the bed, the time out of the bed, breath rate, heart rate, times of movements, etc., and help to analyze the sleep quality and health of the human body.

1.2 Key Feature

- No privacy disclosure.
- Remote and non-contact detection.
- Outputs the real-time breath rate and heart rate of the human body.
- Detects and outputs the information that if the human body is in the bed to the connected client software. Counts the time in the bed and the time out of the bed.
- Detects and outputs the human body movements to the connected client software, and counts the times of movements.
- Small size, beautiful structure, and easy installation.

1.3 Specification

Refer to the table below for the device specification.

Table 1-1 Specification

Parameters	Values
Working Frequency	60 to 64 GHz
Modulation Wave	FMCW
Frequency Span	3.5 GHz
Horizontal FoV	-45° to +45°
Vertical FoV	-45° to +45°
Range Resolution	0.0435 m
Detection Range	0.2 to 2.7 m
Breath/Heart Rate Resolution	0.08 Hz

Data Cycle	50 ms
Communication Interface	RS-485/Wi-Fi
Working Voltage	9 to 12 VDC
Working Electric Current	≤ 200 mA @ 12 VDC
Consumption	< 2.4 W
Working Temperature	-40 °C to +50 °C (-40 °F to +122 °F)

1.4 Dimension and Appearance Overview

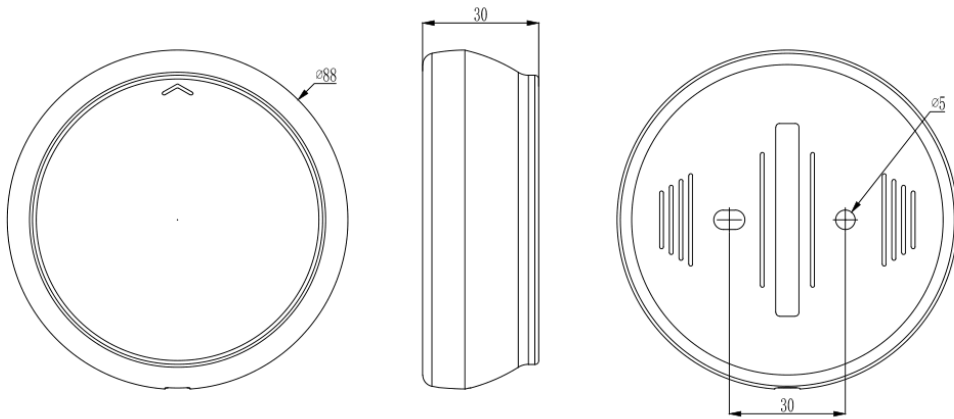Refer to the figures below for the device dimension and appearance overview.

Figure 1-1 Dimension (unit: mm)

Figure 1-2 Appearance

1.5 Cables Description

Refer to the table below for the cables description.

Table 1-2 Cables Description

No.	Color	Name	Function
1	Red	+12 V	12 VDC
2	Black	GND	Power ground
3	Green	RS-485A	RS-485 communication port
4	Blue	RS-485B	
5	Yellow	OC controlled signal	VOH/VOL controller
6	Brown	GND	Power ground

1.6 Installation Requirements

Install the device on the ceiling above the bed and point it to the chest of the person on the bed. The arrow on the front shell of the radar should point to the end of the bed. Attach the wires to the wall. The valid detection range is up to 2 × 2 m bed. Refer to the figure below for the device installation overview.
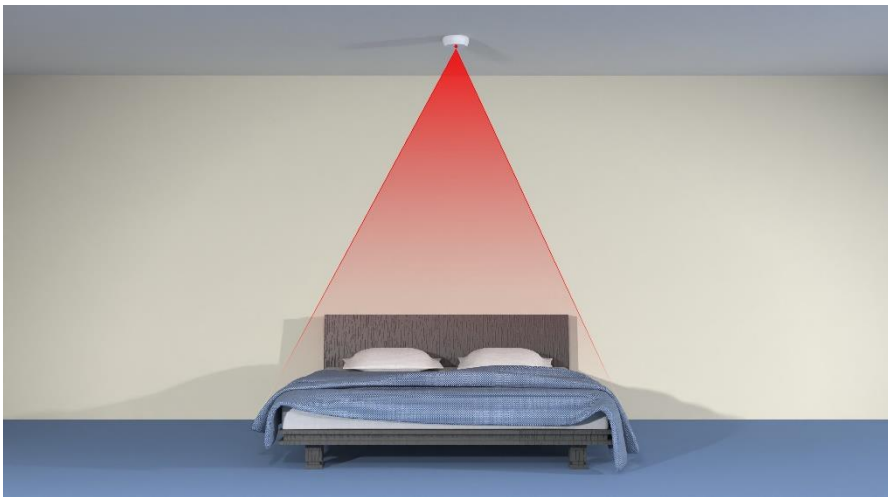

Figure 1-3 Installation Overview

Set the device parameters and adjust the radar cover range according to the actual ceiling height.

Chapter 2   Software Instruction

2.1 Device Connection

You can connect the device via Wi-Fi or RS-485. Enter the corresponding information according to different connection modes.

2.1.1 Connection via Wi-Fi

You can connect the radar via Wi-Fi.

Before You Start

Power on the radar (12 V).

Step 1 Connect your computer to the radar AP hotspot.

Note

- SSID format: IRS60_xxxx.
- Default password: abcd1234.

Step 2 Use "ping" command to test if the computer is connected to the radar Wi-Fi.

1) Press the WIN button and R button at the same time.
2) Enter "cmd" and click **OK**.
3) Enter "ping 192.168.4.1" in the command line.

Step 3 Open the IRS60-5 Radar PC tool and click **On/OFF**.

Step 4 Set the network port parameters.

Note

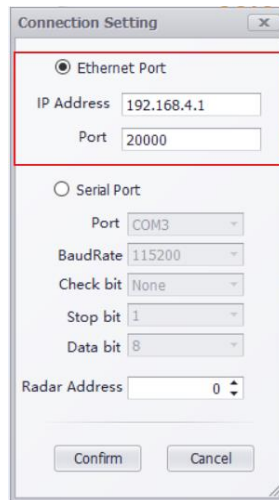- IP address: 192.168.4.1.
- Port: 20000.

Figure 2-1 Connection Setting

Step 5 Click **Confirm**.

2.1.2 Connection via RS-485

You can connect the radar via the serial port.

Step 1 Open the software.

Step 2 Enable **On/OFF**.

Step 3 Select **Serial Port**.

Step 4 Select **Port**.

Step 5 Set **BaudRate** as **115200**, **Stop bit** as **1**, and **Data bit** as **8**. No parity.

Step 6 Set **Radar Address**.

Note

Radar Address refers to the RS-485 communication sub-device address. **0** refers to the broadcast address that covers all the sub-device.

Step 7 Click **Confirm**.

2.2 Parameter Settings

Click ⚙ to open the main page. You can read the radar firmware version, edit the RS-485 sub-device address, set the radar mode, algorithm parameters, and upload mode.

⌐i⌐Note

The parameter "00-2.10;" in algorithm parameters means that the distance from the radar to the bed is 2.1 m. Edit the value according to the actual using environment.
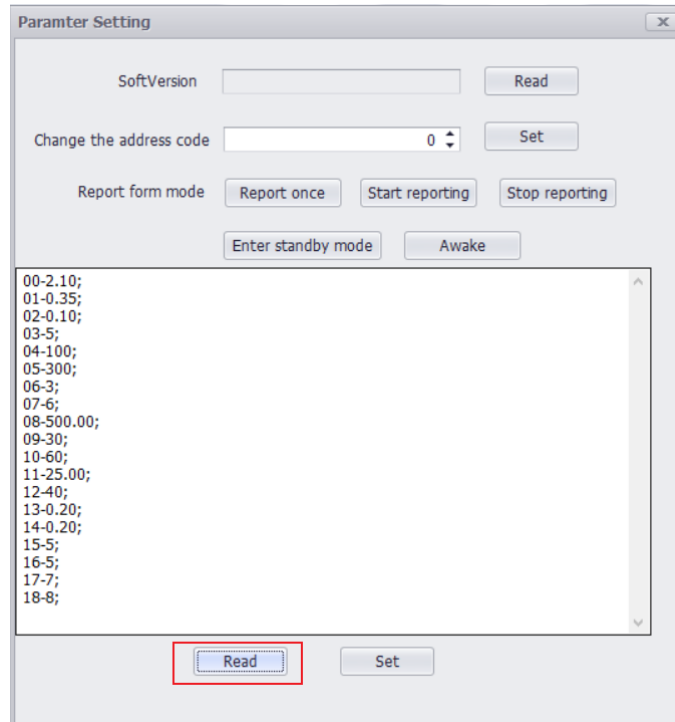

Figure 2-2 Parameter Settings

2.2.2 Read Software Version

Click ⚙ and click **Read** after **SoftVersion** to read the software version.

2.2.3 Edit Sub-Device Address

Click ⚙, set the address code, and click **Set** to edit the sub-device address.

⌐i⌐Note

The address code range is 1 to 255. Make sure the device connected address is the sub-device address or 0.

2.2.4 Select Report Mode

Click ⚙, select **Report form mode**, and click **Set**.

Start reporting

The radar will upload detection data for every 50 ms. This mode is for single radar debugging, and you do not need to search for every time.

Stop reporting

The radar will not upload the detection data.

Report once

The radar will only upload data once for sub-device data searching in the RS-485 network.

📖**Note**

The report mode will not be saved if the device is powered off. It will restore to the default mode after re-powered on. The default mode varies with different software version.

2.2.5 Set Radar Status

Click ⚙ to set the radar status.

Enter standby mode

The radar will be standby and stop transmitting. If the radar is powered off and does not receive wakeup command after powered on again, then it will still be standby mode.

Awake

If the radar is powered off, the awake mode will be kept after it is powered on again.

2.3 Main Page

After selected **Report form mode** as **Start reporting**, you can view the uploaded information on the main page. It includes the information of times of movements, get up alarm, the time in the bed, the time out of the bed, breath rate (times/minute), heart rate (times/minute), times of movements and if the human body is in the bed.
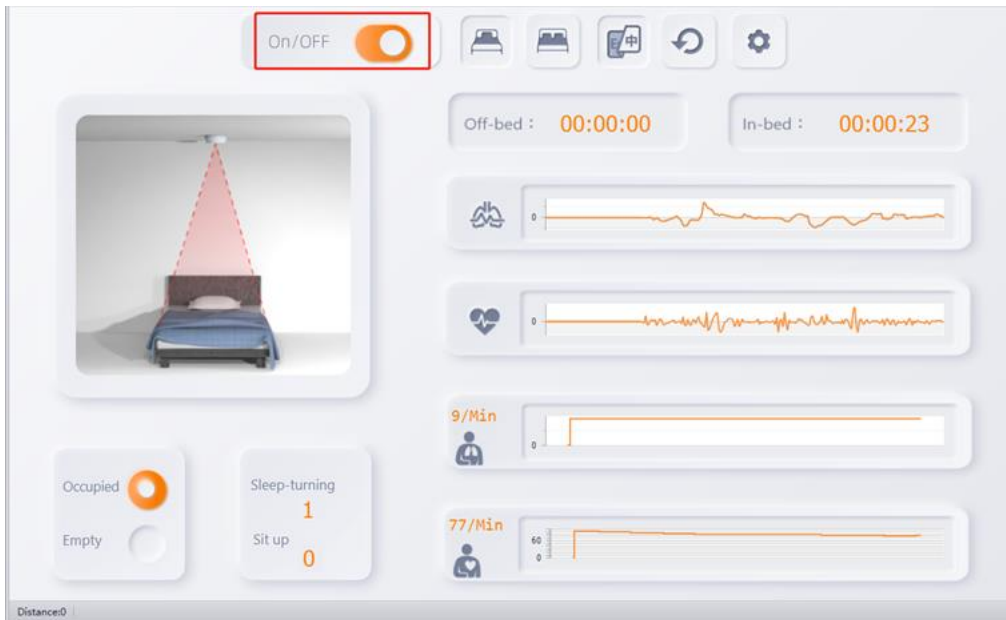

Figure 2-3 Main Page

2.4 Upgrade

You can upgrade the firmware version.

Step 1 Open the software.
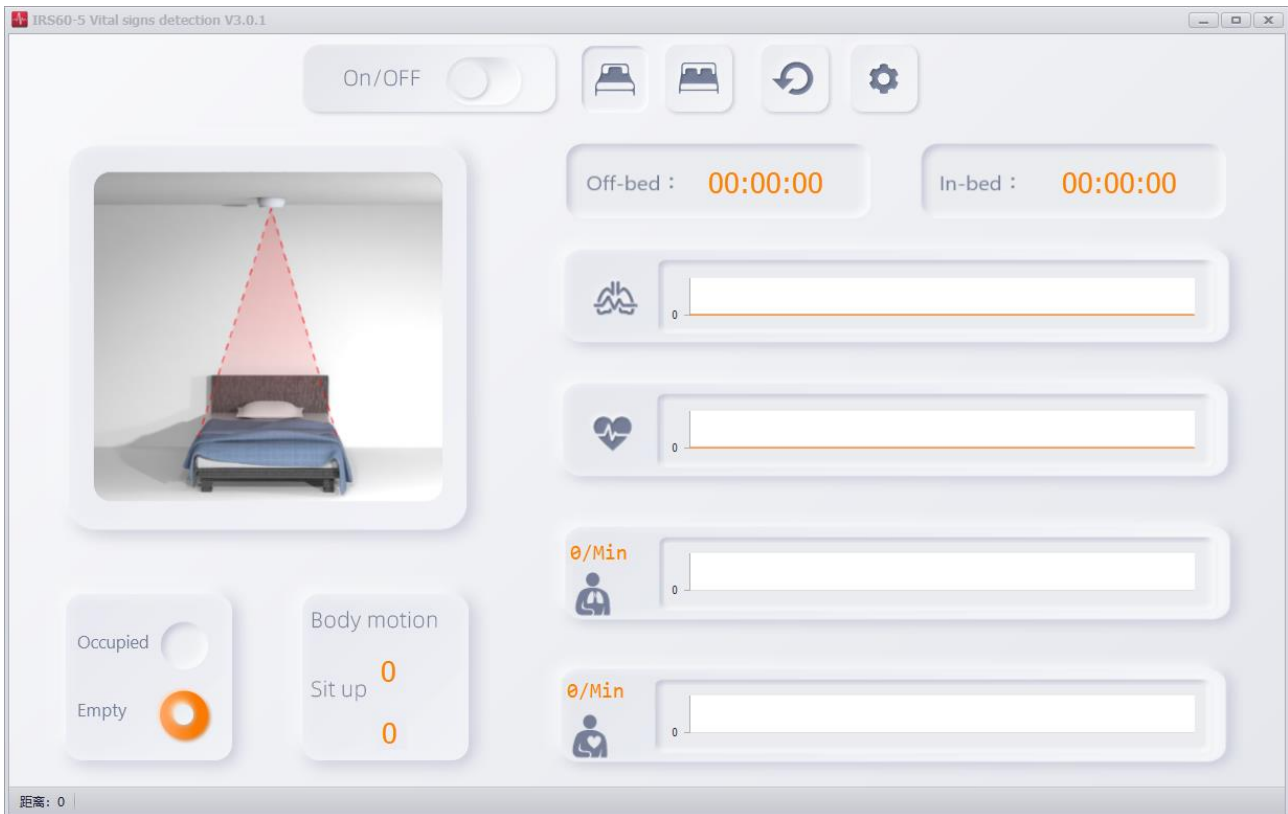
Step 2 Press F1 button on the keyboard.

Figure 2-4 Menu Page

Step 3 Enter **IP Address** and **Radar Port** (IP address: 192.168.4.1; radar port: 6666).

Step 4 Click **Connect**.

Step 5 Click **Browse** to select the firmware to be upgraded.

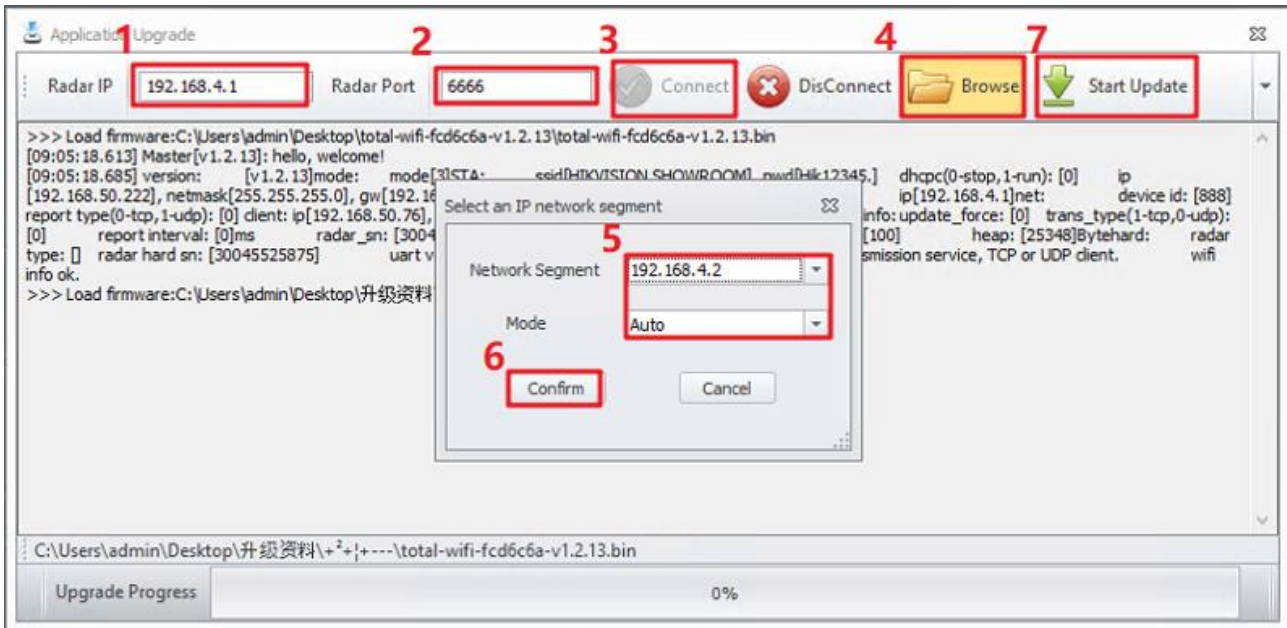Step 6 Select **Network Segment** as the same network segment **with radar** and **Mode** as **Auto**.

Figure 2-5 Application Upgrade

Step 7 Click **Confirm.**
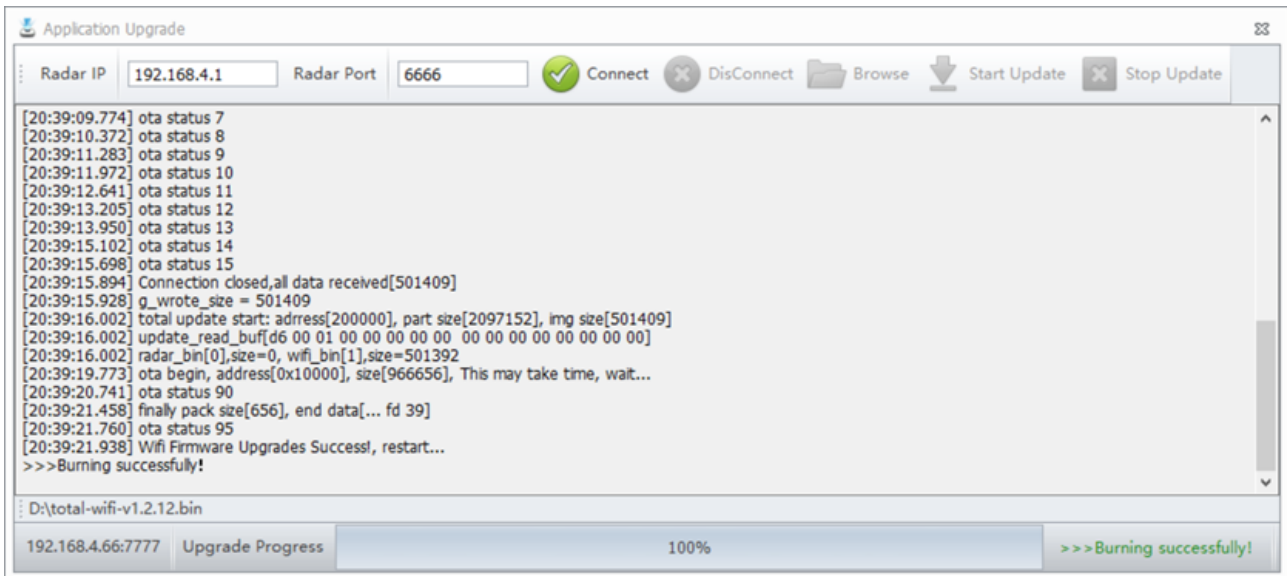
Step 8 Click **Start Update**.

Figure 2-6 Upgrade

2.5 Radar Network Configuration

You can set the radar network.

Step 1 Open IRS60-5 Radar PC tool.

Step 2 Press F2 button on the keyboard.

Step 3 Enter **IP Address** and **Port** (IP address: 192.168.4.1; port: 6666).
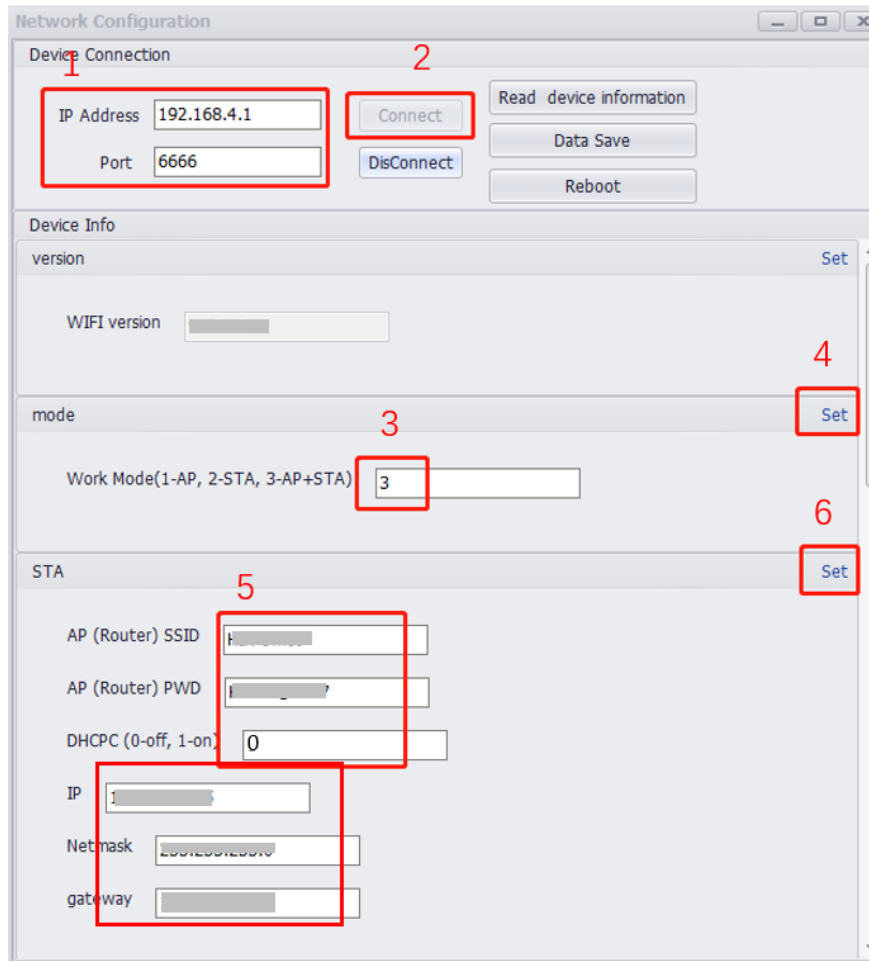
Figure 2-7 Network Configuration

Step 4 Click **Connect**.

Step 5 Set **Work Mode** as **3**.

Step 6 Click **Set**.

Step 7 Set **AP (Router) SSID** and **AP (Router) PWD**.

☐**i**Note

AP (Router) SSID means the router name. **AP (Router) PWD** means the router password.

Step 8 Set **DHCPC** as **0 (off)**.

Step 9 Set **IP**, **Netmask**, and **gateway**.

Step 10 Click **Set**.

Step 11 Set **AP SSID** and **AP PWD**.

Note

AP SSID means the Wi-Fi name. AP PWD means the Wi-Fi password.
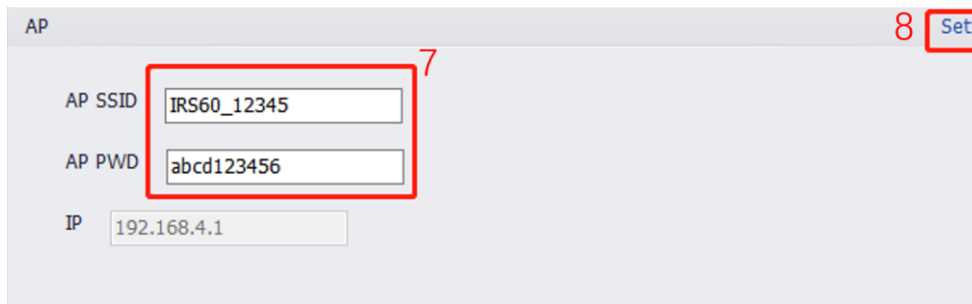

Figure 2-8 Set AP

Step 12 Click **Set**.

Step 13 Set **Device ID** as an integer (range: 1 to 999999999).
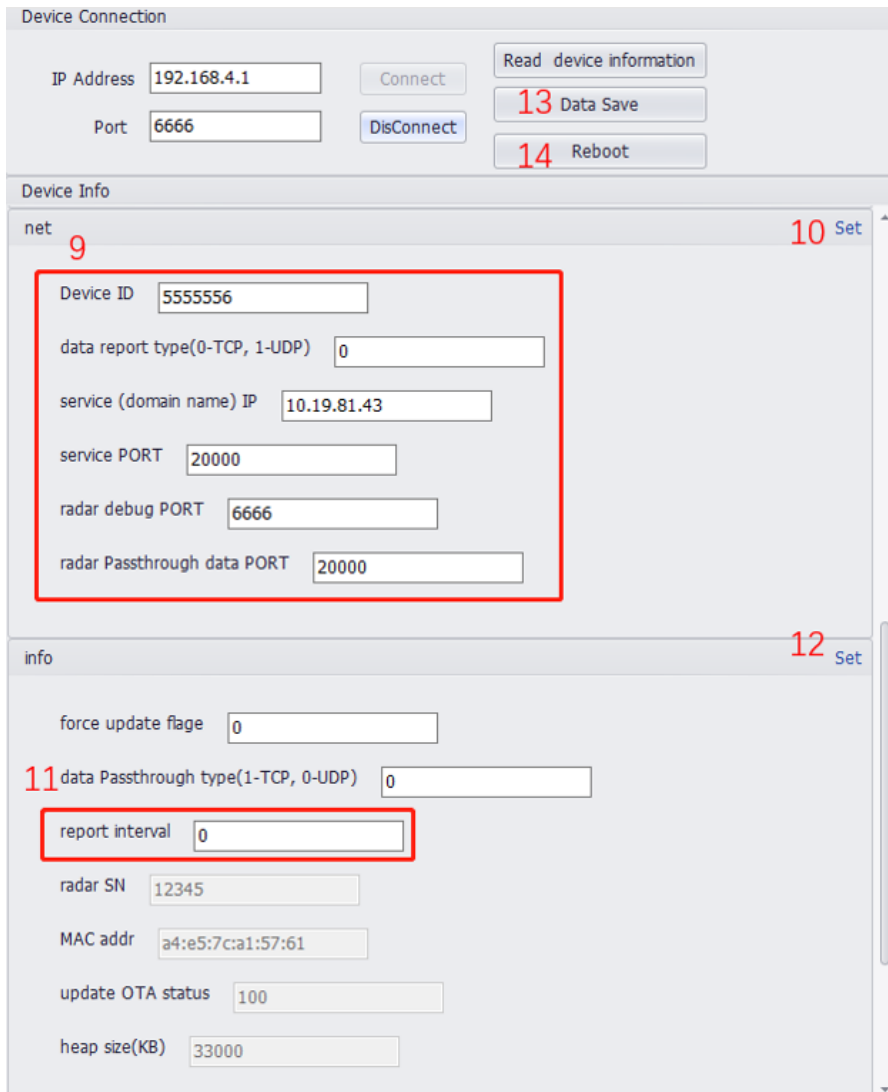

Figure 2-9 Set Device Information

Step 14 Set **data report type** as **0**.

Step 15 Set **service IP** as Hikcentral Pro service IP.

Step 16 Set **service PORT** as **20000**.

Step 17 Set **radar debug PORT** as **6666**.

Step 18 Set **radar Passthrough data PORT** as **20000**.

Step 19 Set **report interval** as **0**.

Step 20 Click **Data Save**.

Step 21 Click **Reboot**.

See Far, Go Further