# HDL-MSP08M.4C

# Ceiling Mount 8-in-1 Sensor

# User Manual

Version： V1.0.0

Published on July. 22, 2020

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# Update History

The form below contains the information of every update. The latest version contains all the updates of all former versions.

| No. | Version | Update Information | Date |
|---|---|---|---|
| 1 | V1.0.0 | Initial release | July 22, 2020 |
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# 1 Introduction

Ceiling Mount 8-in-1 Sensor (See Figure 1) includes PIR motion sensor, LUX sensor, dry contact, etc., which can form different logic functions by logic block according to users' requirements. The module supports HDL security mode and commands, and can download IR code from HDL Buspro Setup Tool and emit IR codes in order to control the targets. This manual offers the description of installation, wring and configuration of Ceiling Mount 8-in-1 in Buspro software Setup Tool 2.



Figure 1. Ceiling Mount 8-in-1 Sensor

## 1.1 Function

Built-in PIR sensor, LUX sensor, IR emitter, dry contact and universal switch.

(1) Logic inputs include LUX sensor, PIR sensor, 2 dry contact inputs, 2 universal switches .

(2) Two logic relations: OR, AND.

(3) Adjustable PIR sensitivity from 1 to 10.

(4) 12 logic blocks (2 switch numbers for each). 201-240 are assigned for universal switch, which has auto-off function with the delay time of 1-3600s.

(5) Logic can trigger different targets no matter it is true or false. Up to 10 targets can be triggered by each logic block.

(6) IR emission function of remote-control code, supports 240 infrared emission targets, corresponding to the universal switch number 1-240. When uploading infrared code, multiple infrared codes can be selected to upload at the same time.

(7) Online update supported via HDL Buspro Setup Tool.

(8) Constant LUX function.

Important Notes:

(1) Buspro cable - CAT5E or dedicated HDL Buspro cable.

(2) Buspro connection - Series connection (hand-in-hand recommended).

(3) Installation position - Ceiling mount.

(4) Check the connection, avoid any mistake.

(5) Installation position: Indoor, keep it away from AC outlet and heat source.

(6) Dry contact cable requirement: Applicable wire: 0.5~0.75mm$^2$, stripping wire length: 8.5~10mm, shield cable with length less than 20m recommended.

## 1.2 Production Information

(1) LED indicator and IR indicator

Flashes in blue when the module is in normal working mode

Keeps in red when sensor detects movement

Note: Indicators can be set via HDL Buspro Setup Tool 2

(2) Button for module address setting

Press for 3s, blue indicator turns on. Go to “Address management”→“Address modification” of HDL Buspro Setup Tool to read and modify the address setting.

(3) IR emitter

(4) Slot

(5) PIR sensor

(6) LUX sensor

(7) HDL Buspro, from right to left: DC24V, COM, DATA-,DATA+

(8) Screw holes

(9) Dry contact 1,2

(10) Ventilation hole

(11) Wiring channel, open it for wiring

(12) Pushrod

(13) Wiring hole

(14) Emitter outlet

(15) Fresnel lens

### 1.2.1 Dimensions - See Figure 2 - 4

### 1.2.2 Components - See Figure 5, 6, 8

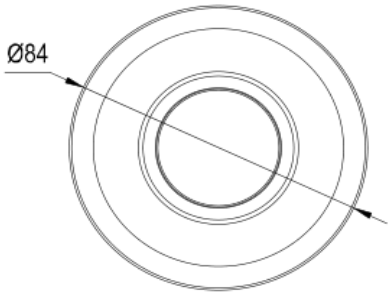



Figure 2. Dimensions-Front View

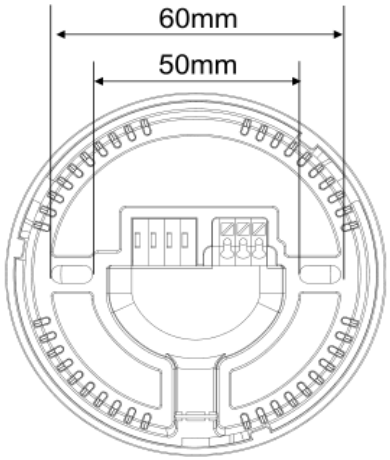



Figure 3. Dimensions-Back View

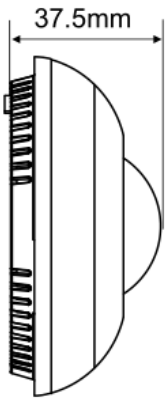



Figure 4. Dimensions-Side View

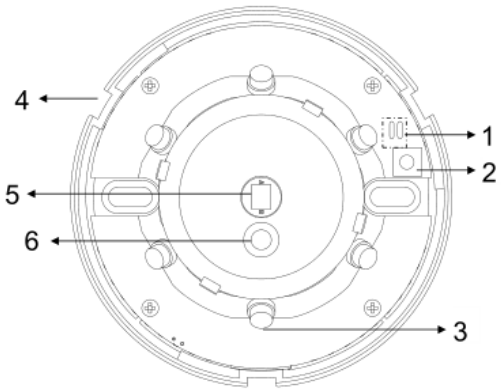



Figure 5. Components - Interior View

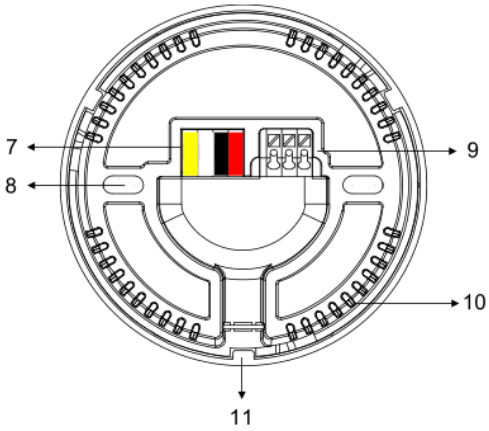



Figure 6. Components - Back View

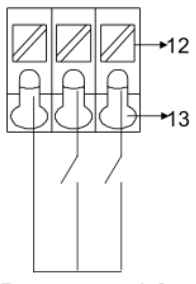



Figure 7. Dry contact wiring

### 1.2.3 Dry contact wiring - See Figure 7

1. The wires are put in the wiring hole, and then loosen the pushrod, the wires will be locked.
2. Put wires in the wiring hole, and loosen the pushrod to lock the wires.
3. Open the cover to install the sensor, then fix by screws.

   ① **Open the cover - See Figure 8**: Rotate the cover counterclockwise to take off the cover.

   ② **Install the cover - See Figure 8:** Put the cover to the correct slot and rotate the cover clockwise.

**1.2.4 Accessory - See Figure 9**: Angle cover is used to shield PIR sensor signal from certain angle, in order to enlarge or narrow down detection zone according to users' preference.

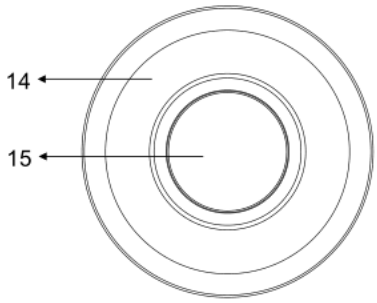



Figure 8. Components - Front View

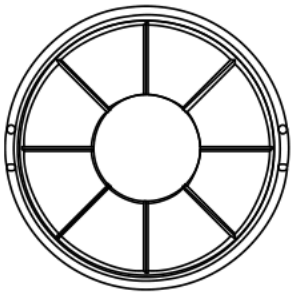
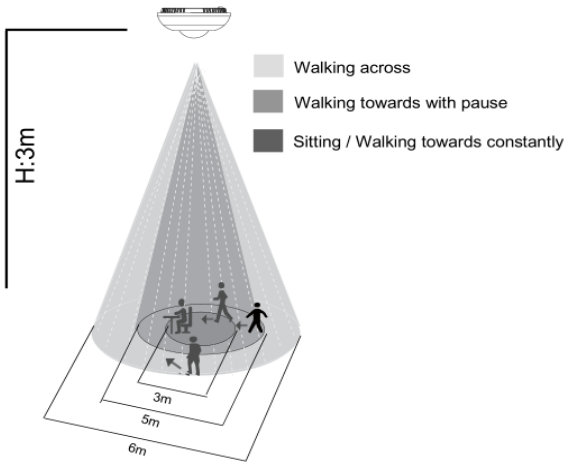


Figure 9. Accessory - Angle cover

### 1.2.5 Detection range - See Figure 10




Detection Range (At 25℃)

| Mounting height | Sitting / Walking towards constantly | Walking towards with pause | Walking across |
|---|---|---|---|
| 3m | 3m | 5m | 6m |

Figure 10. Detection range

### 1.2.6 Installation - See Figure 11 - 14

Step 1. Rotate and open the sensor.

Step 2. Fix the sensor base on the wall box with screws.

Step 3. Put the cover on the sensor.

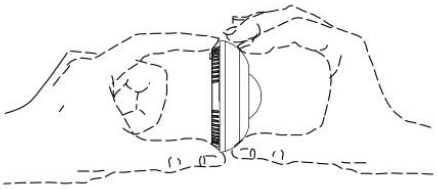


Figure 11



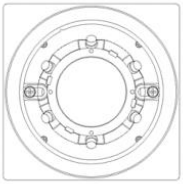


Figure 12



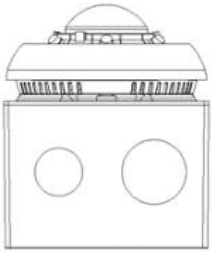


Figure 13



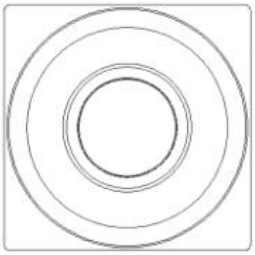


Figure 14

Figure 11 -14. Installation

# 2 Configuration

## 2.1 Infrared Code

Ceiling Mount 8-in-1 Sensor only supports the codes from IR learner. See Figure 2-1 - IR codes.

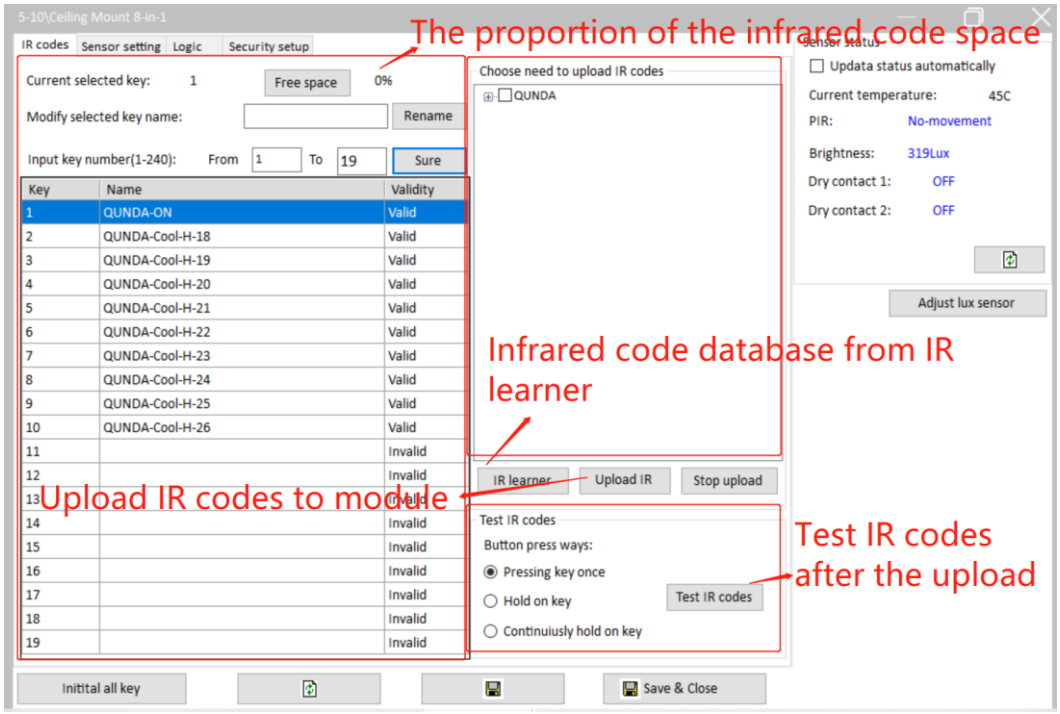



**Figure 2-1. IR codes**

### 2.1.1 Codes from IR learner

#### A. How to learn codes from IR learner?

Step 1: In Buspro Software Tool 2, go to Function->IR learner (See Figure 2-2) or in Ceiling Mount 8-in-1 Sensor, select IR learner.

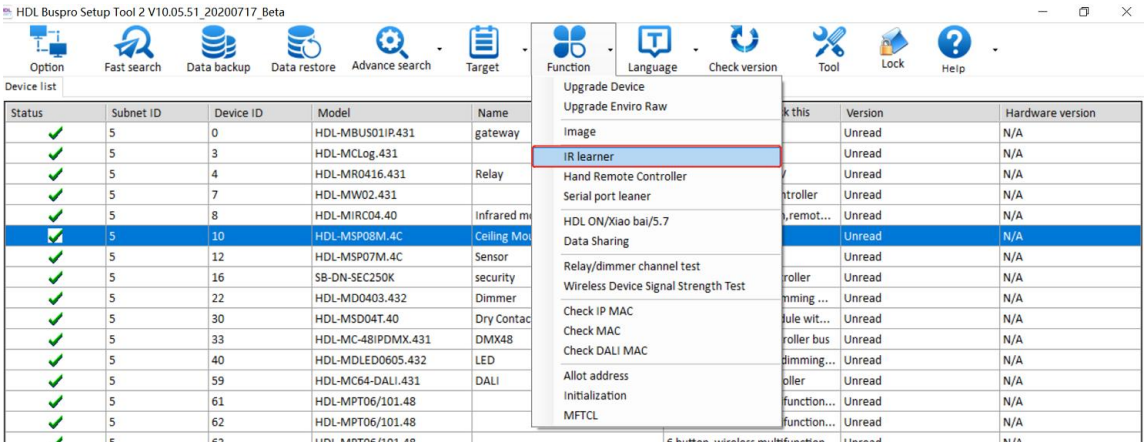



**Figure 2-2**

Step 2: Connect the IR learner to your computer. Click "Find USB", it will display the IR learner device. (Generation 2 IR learner does not need the USB driver, if cannot find the IR learner, re-plug in the IR learner to find again.)

Step 3: Click "Ready", IR learner red and blue light will be turned on. See Figure 2-3 – IR Learner Ready

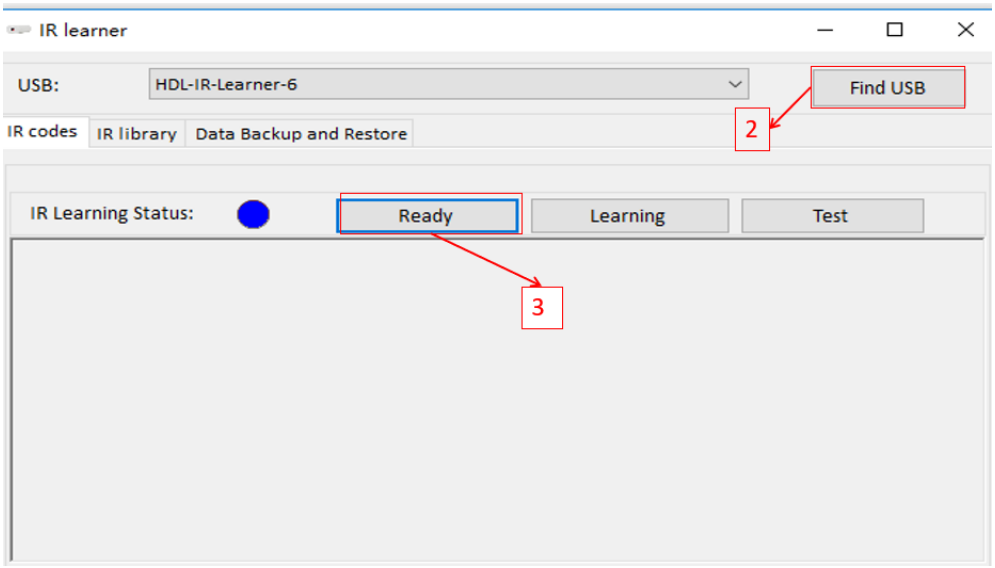



**Figure 2-3. IR Learner Ready**

Step 4: Aim the remote controller to IR learner and press the any key you want the IR learner to learn. See Figure 2-4.



**Figure 2-4**

Step 5: Click “Learning” to display the code you have learnt. Aim IR learner to IR device, click “Test” to verify the codes. If IR device does not work, need to learn the IR code again.

See Figure 2-5 – IR Learner Learning.

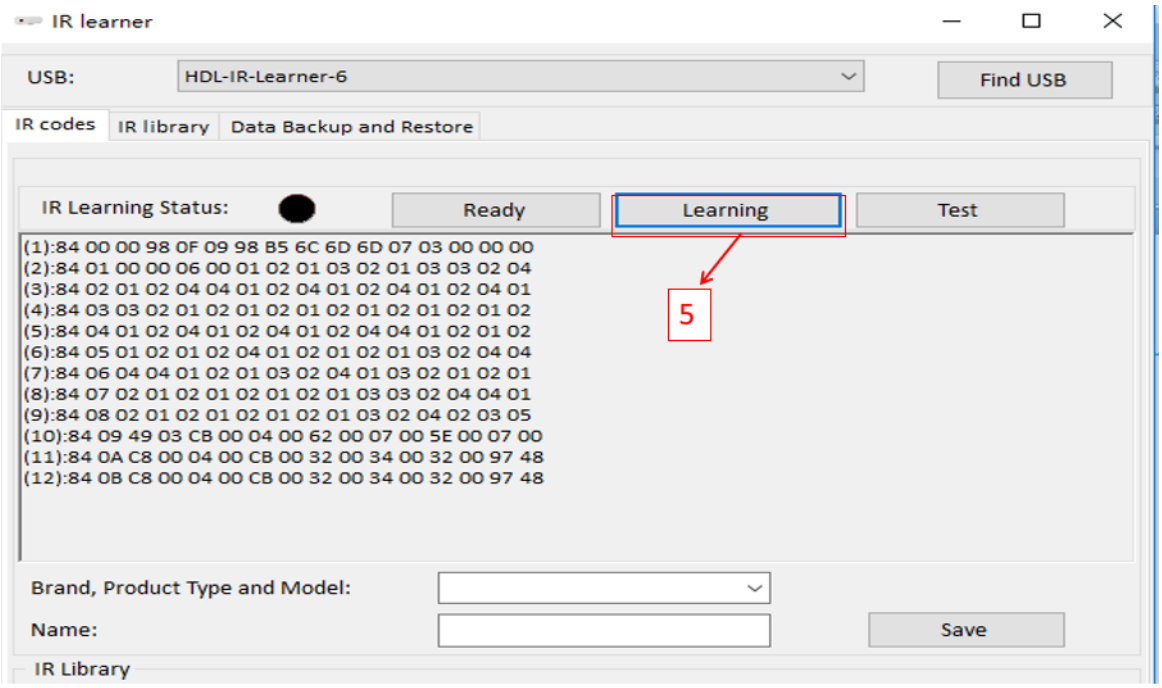



**Figure 2-5. IR Learner Learning**

Step 6: Fill a proper name for the device, for example, Media, AC, Haier TV, Samsung TV… And fill a proper name for this code. Then save it. (If you want to delete the code, go to IR learner-> IR library, select code, then press “Delete” button). See Figure 2-6 – IR learner Name.

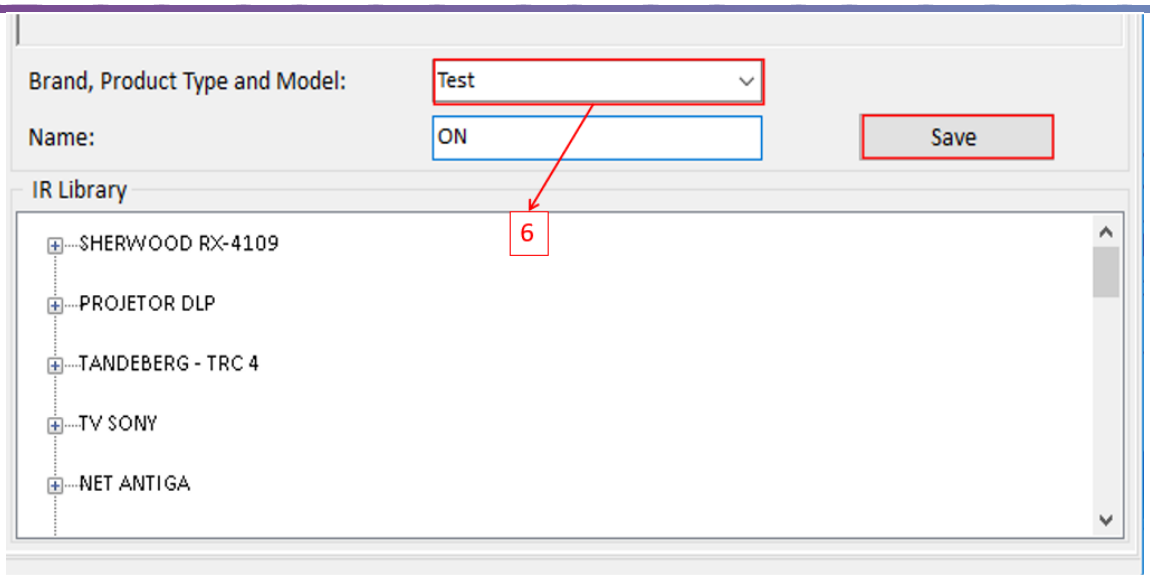



**Figure 2-6. IR learner Name**

Step 7: Select corresponding IR code, then click "Upload IR" to upload codes to IR page.

You can click "Test IR codes" to verify whether the code can work. See Figure 2-7 - Upload IR.

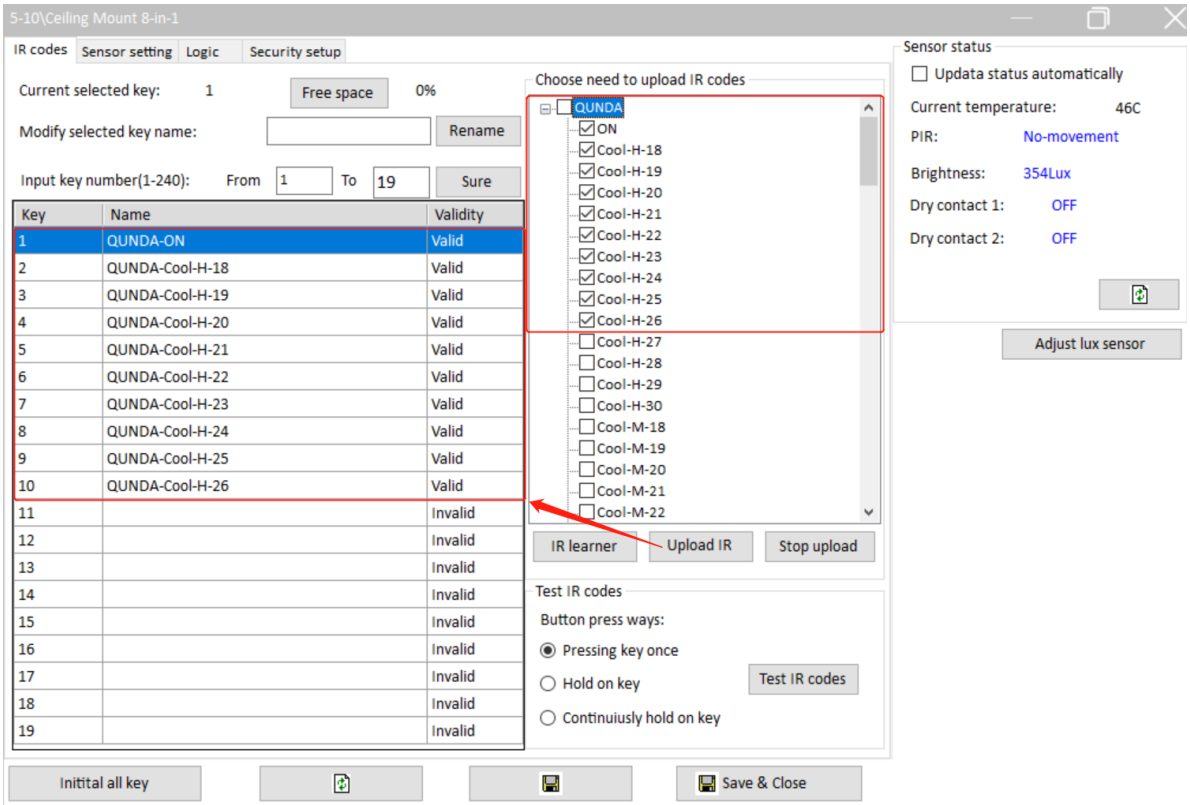



**Figure 2-7. Upload IR**

### B. How to use IR codes?

**Key number is the UV switch number.** We can only turn on the UV switch to send IR

code out. If you need to turn off the AC, use another button to turn off AC. See Figure 2-8 – IR Code Usage.

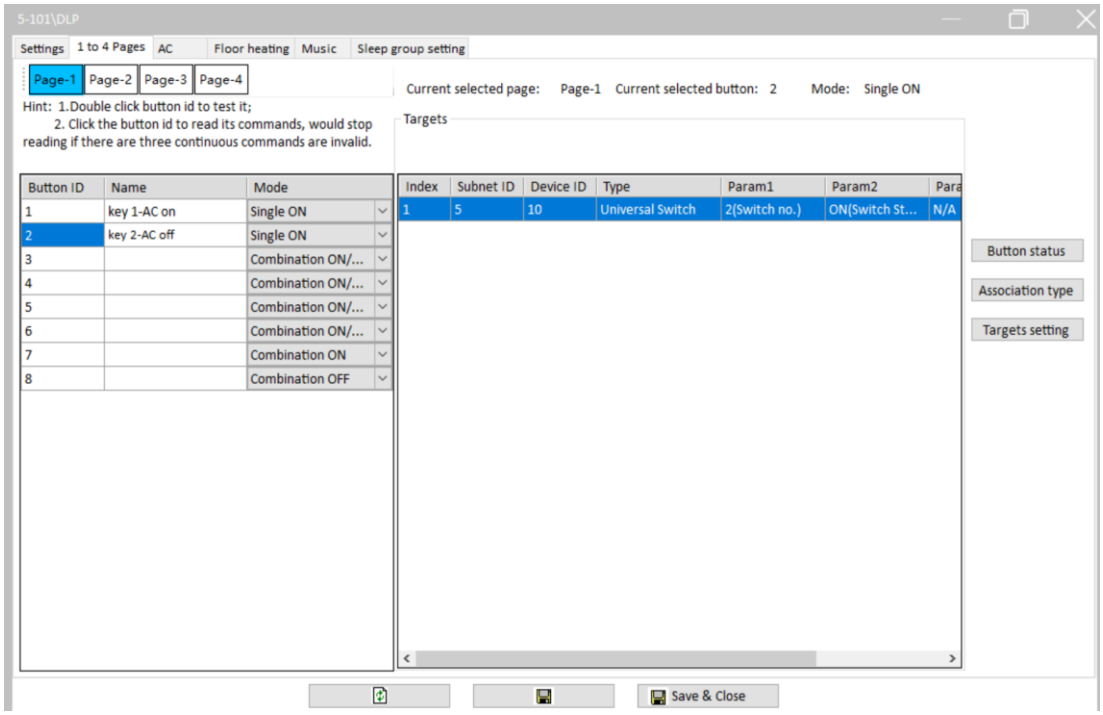



**Figure 2-8. IR Code Usage.**

## 2.2 Sensor Setting

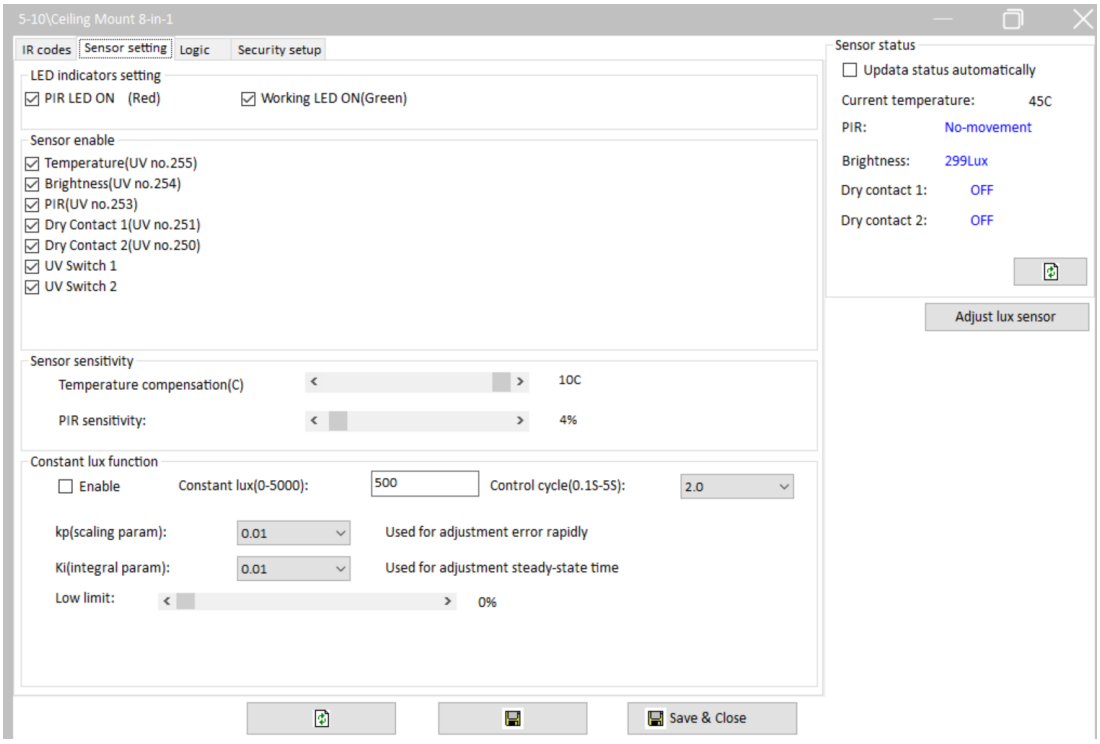



**Figure 2-9. Sensor Setting**

1. **LED indicators setting**: LED indicator can be enabled or disabled
2. **Sensor enable**: sensor、dry contact、UV switch can be enabled or disabled. For example, if shield the IR detection, you can disable the PIR or turn off UV no.253 in device target.
3. **Sensor sensitivity**: adjust sensor temperature compensation (range is between -10℃ and +10℃) and PIR sensitivity.
4. **Constant lux function**: When the brightness in sensor detecting area is lower or higher than constant lux value, sensor will adjust the brightness of dimming light in sensor target to setpoint value.

## 2.3 Logic Function

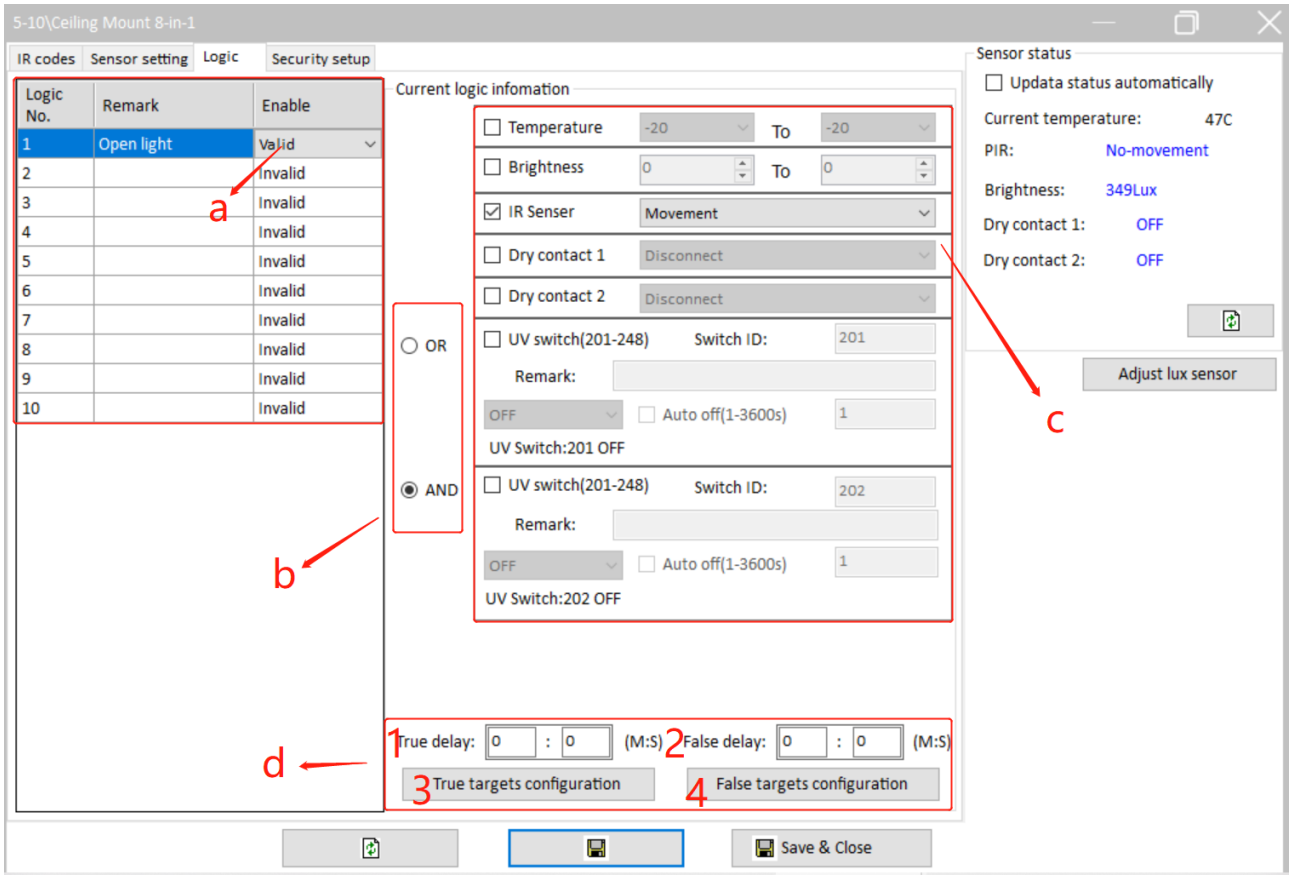



**Figure 2-10. Logic Function**

a- Logic table: ensure current logic is enabled before configure several logics to control different devices.

b- OR & AND: OR means if one of the conditions is met, the target can be triggered.

AND means if all the conditions are met, the target can be triggered.

c- Current logic information: enable or disable the current logic table conditions to trigger the target.

d- Target settings: 1. The delay time of executing target when the condition is true.

2. The delay time of executing target when the condition is false.

3. The target configuration when the condition is true.

4. The target configuration when the condition is false.

### 2.4 Security Setup

If use dry contact、IR sensor to trigger the alarm, You should use with security module. See Figure 2-11 – Security Setup.

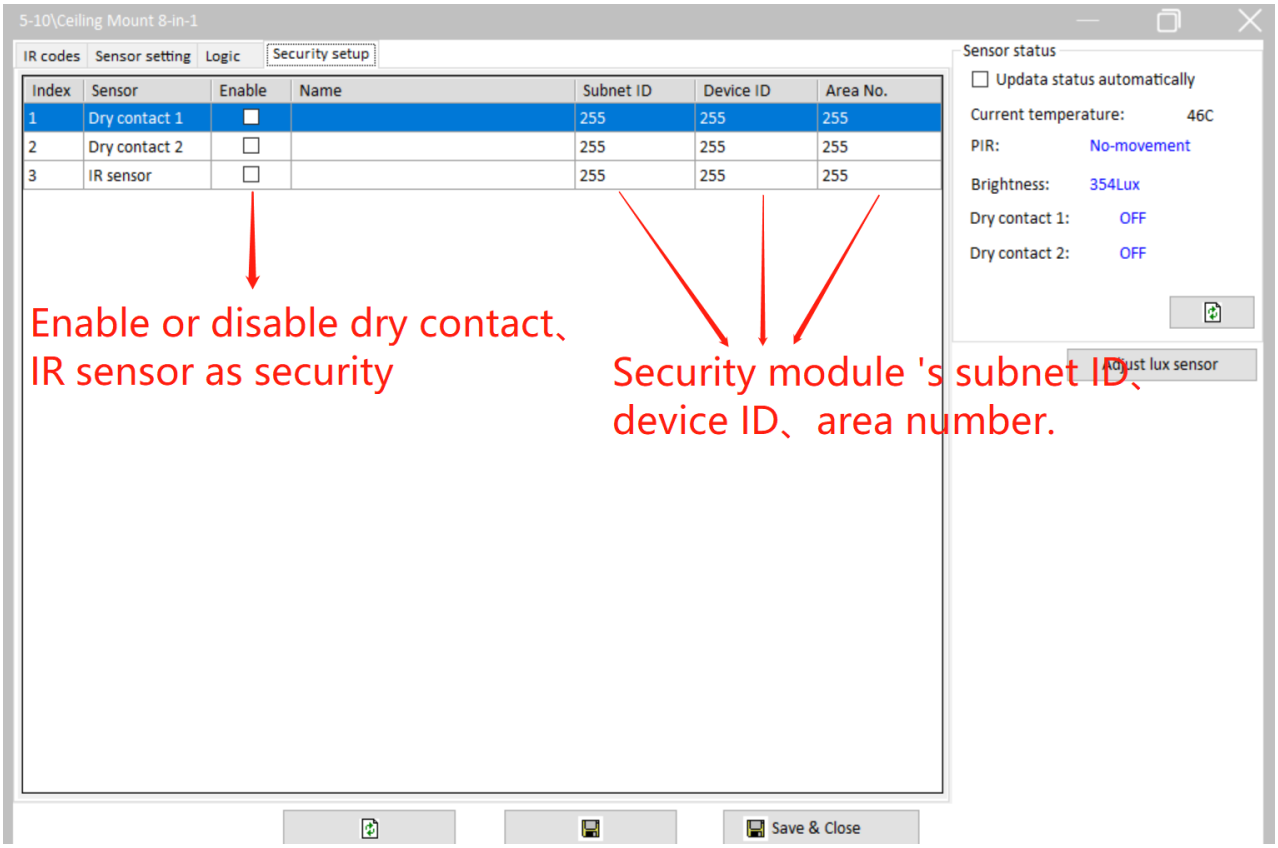



**Figure 2-11. Security Setup.**

# 3 Device Upgrade

### 3.1 Automatic Upgrade

Automatic upgrade is applicable for the devices searched out. Automatic upgrade page is as shown in **错误!未找到引用源。**.

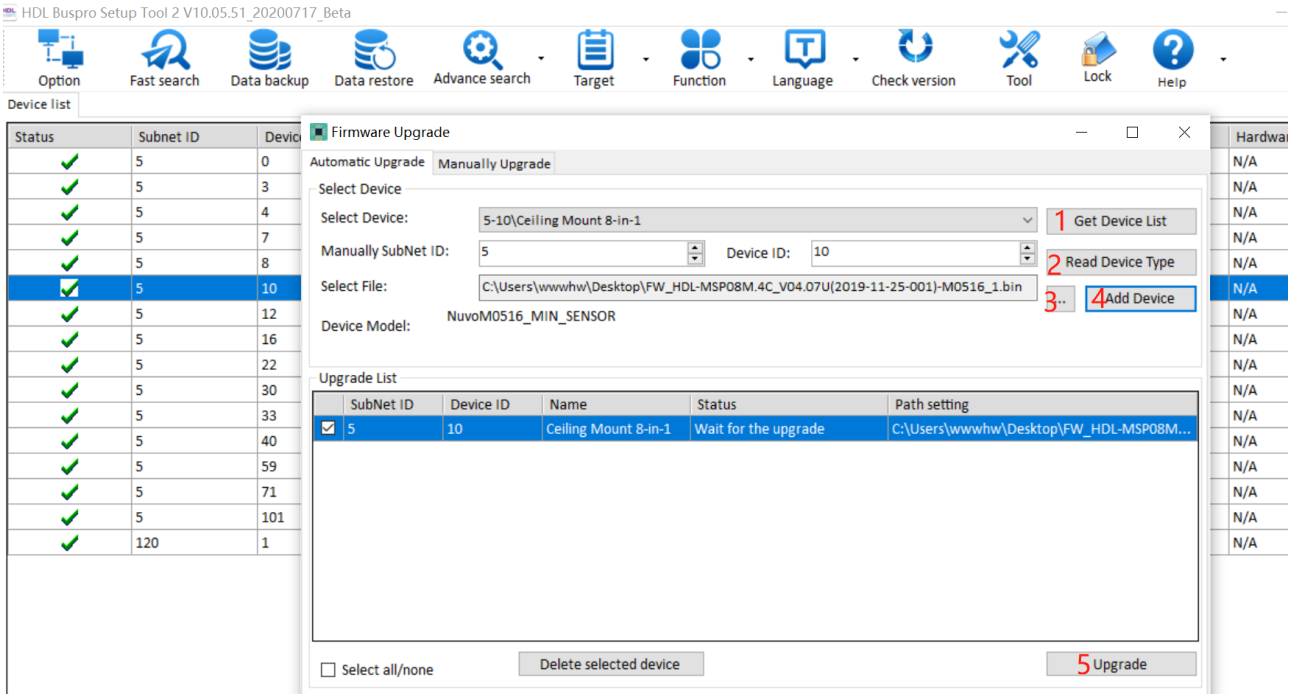



**Figure 3-1. Automatic Upgrade**

1. Select the device to upgrade.
2. Read device type.
3. Select the device firmware.
4. Add to upgrade list.
5. Begin the upgrade.

## 3.2 Manually Upgrade

If upgrade failure, select manually upgrade page, Refer to Figure 3-2.

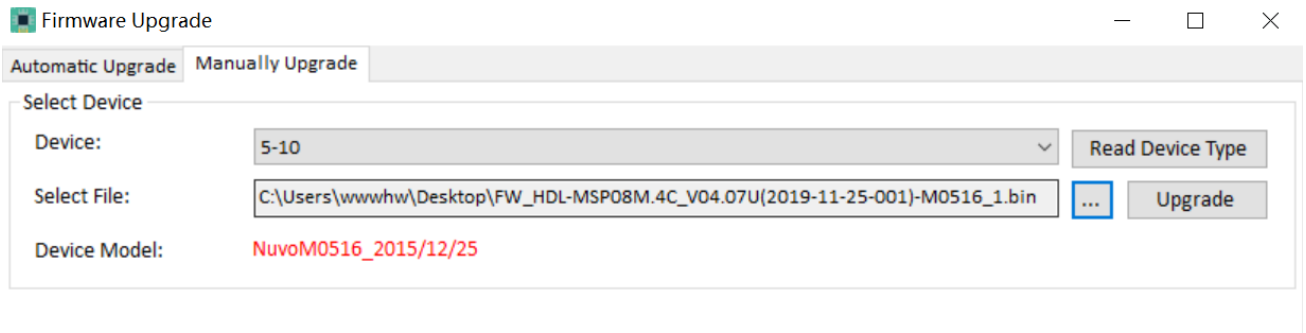



**Figure 3-2. Manually Upgrade**

1. If it shows Ceiling Mount 8-in-1 Sensor address and type, select the firmware.

2. Manually upgrade it.

### 3.3 Access in Manually Upgrade Mode

How to access in the manually upgrade mode:

1. Open the manually upgrade page.
2. Power off Ceiling Mount 8-in-1 Sensor, then long press its Prog button (you may take apart the cover) and power on it. See Figure 3-3.




**Figure 3-3**

3. In the manually upgrade page, you can see Ceiling Mount 8-in-1 Sensor address and model, select the firmware and upgrade.

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