

## HF Aisle Sensor

### HCD450VRC/RF

Tri-level Control with Synchronised and RF wireless Control

# HYTRONIK®

## Applications








Occupancy detector with tri-level dimming control suitable for below applications:

- Warehouse
- Large storage room

Use for retrofit and new luminaire designs/installations



## Features

-  Synchronised dimming with multiple sensor circuits
-  Tri-level dimming control based upon occupancy (also known as corridor function)
-  Optional 1-10V or DALI dimming control method
-  One-key commissioning via programmable remote control
-  One-touch daylight learning via remote control
-  Loop-in and loop-out terminal for efficient installation
-  5 Year, 50,000hr Warranty

## Technical Data

### Input Characteristics

Model No.	HCD450VRC/RF
Mains voltage	120~277VAC 50/60Hz
Stand-by power	<0.5W
Load ratings:	
Capacitive	2 x 400W @ 120VAC 2 x 1000W @ 220-277VAC
DALI switched power	Max. 20 devices
Warming-up	20s

### Safety and EMC

EMC standard (EMC)	EN55015, EN61000
Safety standard (LVD)	EN60669
Radio Equipment (RED)	EN300440, EN301489, EN62479
Certification	Semko, CB, CE, EMC, RED, RCM

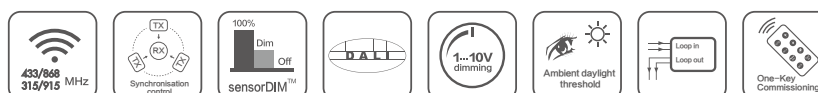
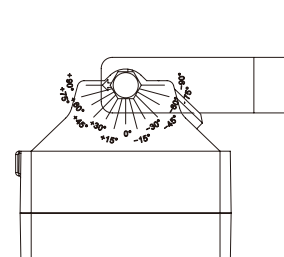
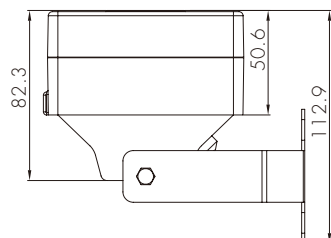
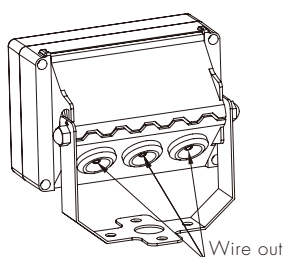
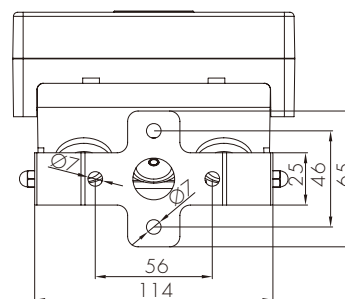
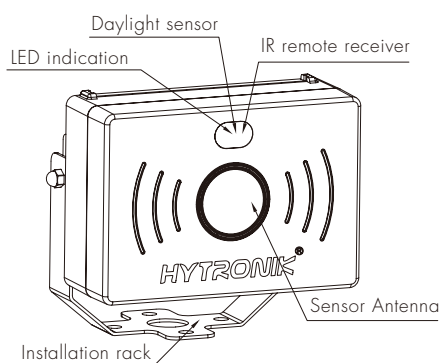
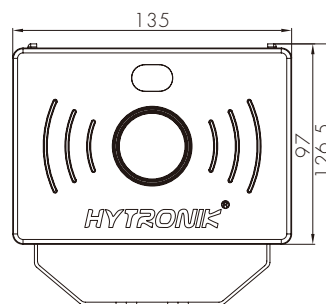
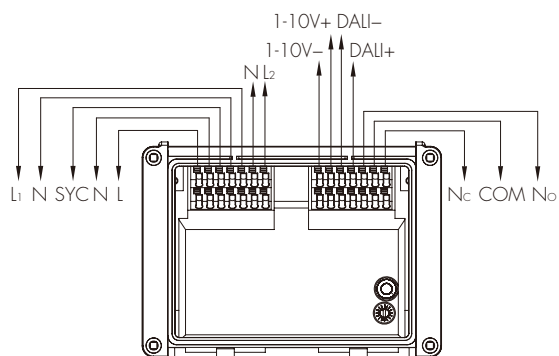
### Sensor & RF Data

Model No.	HCD450VRC/RF
Sensor principle	High Frequency (microwave)
Operation frequency	10.525GHz +/- 75MHz
Transmission power	<0.2mW
Mounting height:	Max. 15m
Detection angle	30° ~ 150°
RF frequency	868MHz (FSK mode, default)
RF transmission distance	30m indoor, 50m outdoor

### Environment

Operation temperature	Ta: -20°C ~ +50°C
Case temperature (Max.)	Tc: +80°C
IP rating	IP54

CE  RED   CB IP54



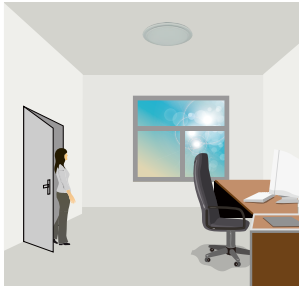
This is a combination of high bay motion sensor and RF radio wave wireless transmission. The motion detected by the 1st sensor (the transmitter unit) can pass onto other pre-defined individuals (the receiver unit) through RF transmission. The transmitter can trigger an unlimited number of receivers as long as they are within the transmission range (30m indoor and 50m in the open area).

With fixed address technology, it's easy to set up transmission groups. Unlimited groups can be made within the detection range, with a maximum of 30 devices paired to any individual unit.

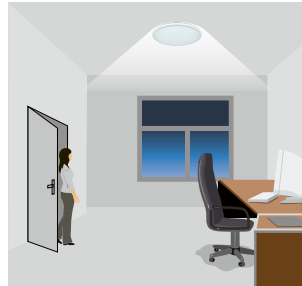
## Functions and Features

### 1 Tri-level Control (Corridor Function)

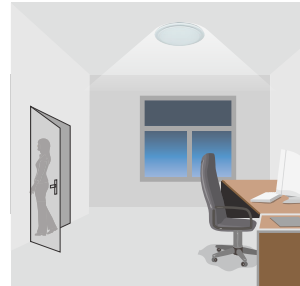
Hytronik builds this function inside the motion sensor to achieve tri-level control, for some areas which require a light change notice before switch-off. The sensor offers 3 levels of light: 100%-->dimmed light (natural light is insufficient) -->off; and 2 periods of selectable waiting time: motion hold-time and stand-by period; Selectable daylight threshold and freedom of detection area.



With sufficient natural light, the light does not switch on when presence is detected.



With insufficient natural light, the sensor switches on the light automatically when presence is detected.



After hold-time, the light dims to stand-by level if the surrounding natural light is below the daylight threshold.



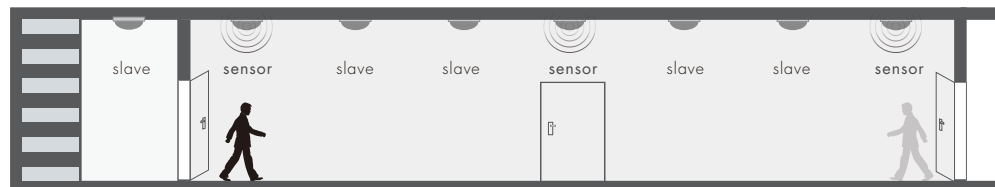
Light switches off automatically after the stand-by period elapses.

### 2 Synchronised Control

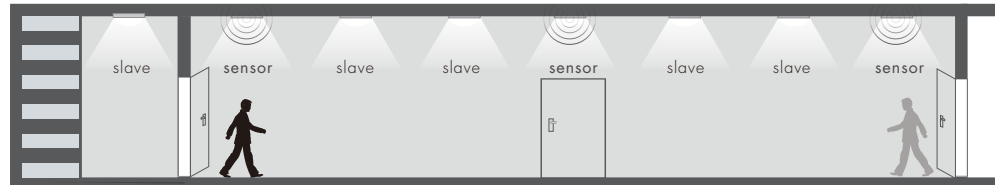
By connecting all HCD450VRC/RF, no matter which one detects motion, all members in the group will turn on the lights (ambient natural light is below daylight threshold).

*Note: to avoid fixtures turning on unnecessarily, daylight sensing takes priority on a point-by-point basis. Occupancy sensing (sync) is disabled on those units in which the ambient light exceeds the daylight threshold.*

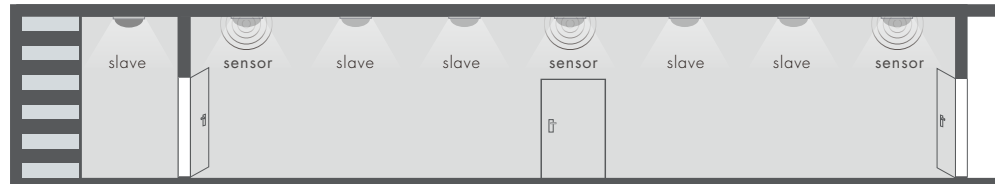
With sufficient natural light, the lights does not switch on when presence detected.



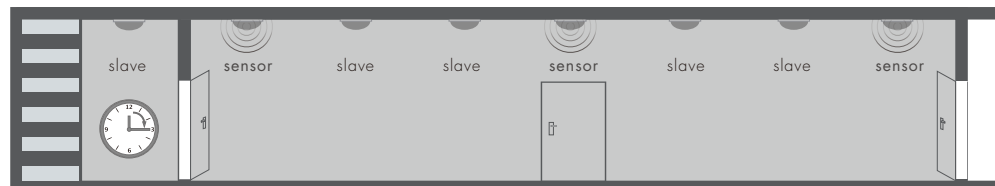
With insufficient natural light, the person comes from any direction, the whole group of lights switch on.



The lights dim to stand-by level after hold-time, or turn off completely if surrounding natural light is sufficient.



The lights switch off automatically after the stand-by period.



### 3 Lux Off Function

The built-in daylight sensor can read ambient natural light and switch off the fixture when artificial light is not needed, even there is motion detected during hold-time.

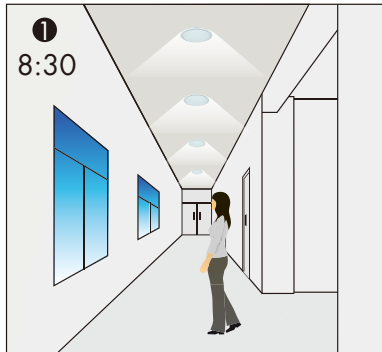
#### Settings on this demonstration:

Hold-time: 10min

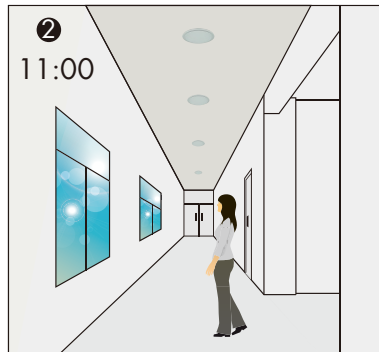
Daylight threshold: 50lux

Stand-by dimming level: 10%

Stand-by period: +∞



With insufficient natural light, the light switches on at 100% when there is motion detected.



The light turns off completely whenever natural light reaches above pre-set daylight threshold, even with presence.

### 4 DALI Control

This sensor contains an independent DALI power supply circuit, which broadcast command to the devices to achieve on/off and dimming function. Maximum 20 devices can be connected.

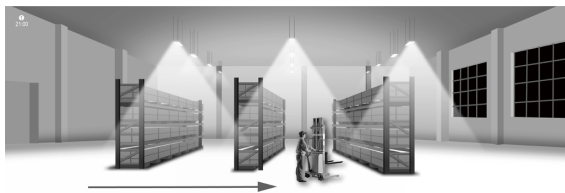
## Typical Applications

### 1 For warehouse

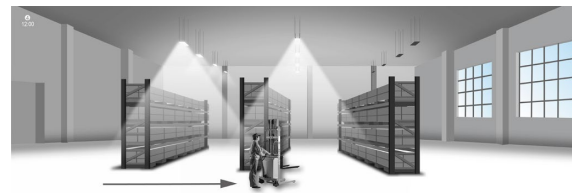
#### Settings on this demonstration:

Detection range: 100% Hold-time: 10min Daylight threshold: 100lux Stand-by dimming level: 30% Stand-by period: 10min RX: STBY%

Night



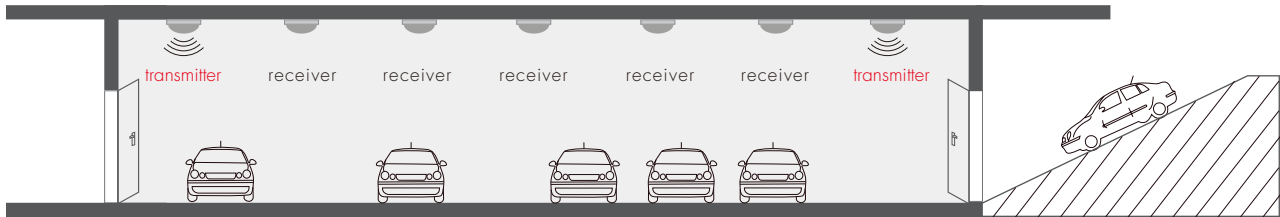
Daytime



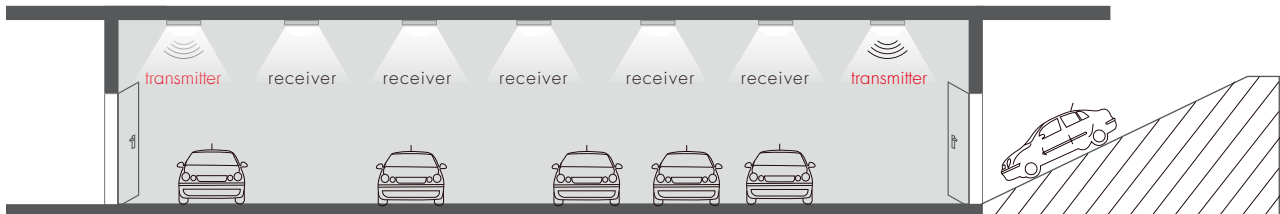
## 2 For carpark

### Settings on this demonstration:

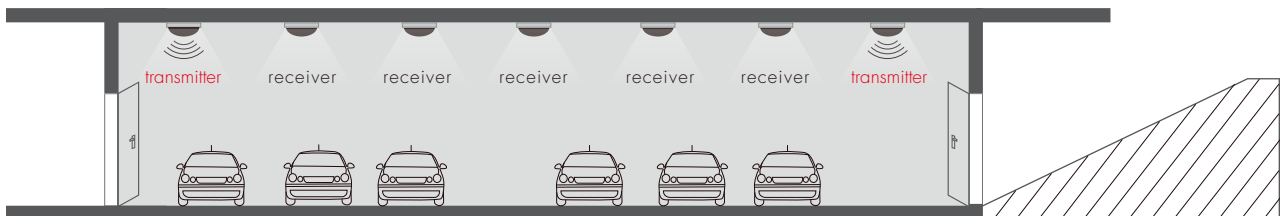
Detection range: 100% Hold-time: 10min Daylight threshold: 50lux Stand-by dimming level: 30% Stand-by period: 10min RX: 100%



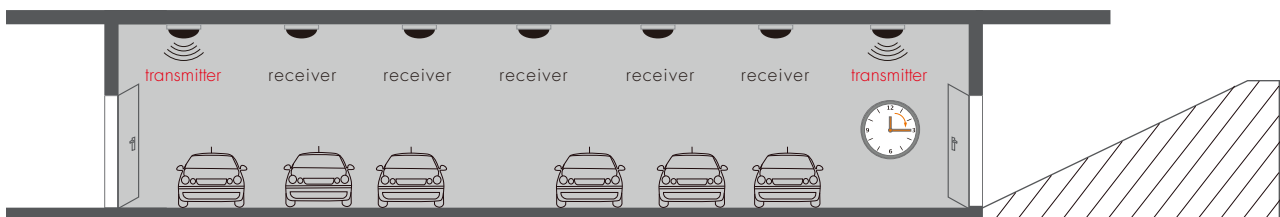
With sufficient natural light, the sensor is not triggered by motion.



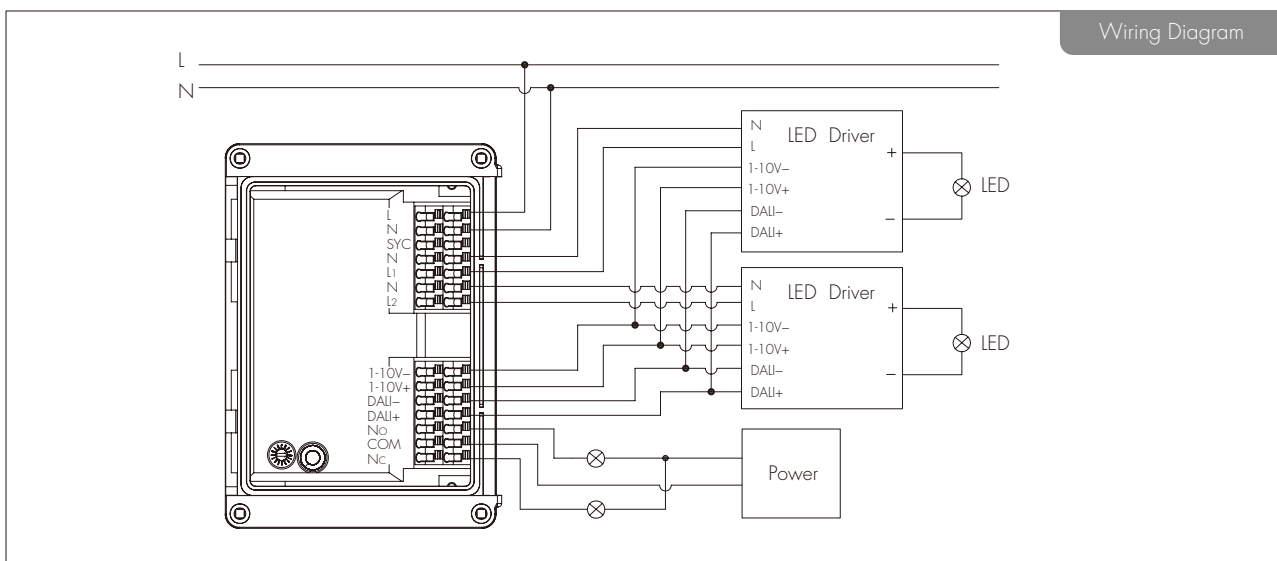
With insufficient natural light, the sensor is triggered by motion, the transmitter switches on the light and send RF signal to all receivers.

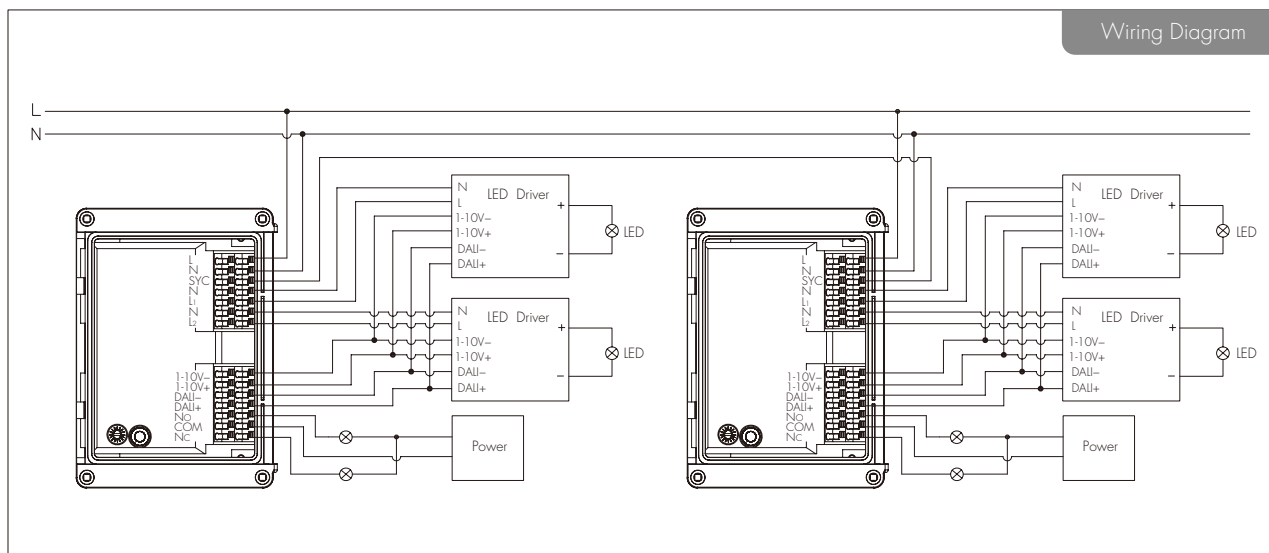


After the hold-time, the whole group of lamps dim to pre-defined dimming level when no movement detected.



The whole group of lamps switch off automatically after the stand-by period.





## Settings (Remote Control HRC-11)



## Permanent ON/OFF function

Press button "ON/OFF" to select permanent ON or permanent OFF mode.

\* Press button "AUTO", "RESET" or "Ambient" to quit this mode.



## AUTO/SEMI-AUTO mode

Press button "AUTO" to initiate automatic mode. The sensor starts working and all settings remain as before the light is switched ON/OFF.

*Note: the function of SEMI-AUTO is disabled.*



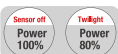
## Reset Settings

Press button "RESET", all settings go back to DIP switch settings.



## Shift Button

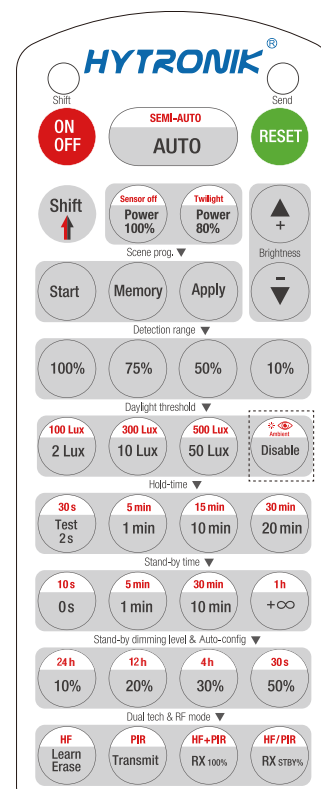
Press button "Shift", the LED on the top left corner is on to indicate mode selection. All values / settings in RED are valid for 20 seconds.



## Power output

Press the buttons to select light output at 80% (at initial 10,000 hours) or 100%.

*Note: "Sensor off" and "Twilight" functions are disabled.*



HRC-11



## Brightness +/-

Press the buttons to adjust the light brightness during hold-time.



## Scene program - 1-key commissioning

1. Press button "Start" to program.
2. Select the buttons in "Detection range", "Daylight threshold", "Hold-time", "Stand-by time", "Stand-by dimming level" to set all parameters.
3. Press button "Memory" to save all the settings programmed in the remote control.
4. Press button "Apply" to set the settings to each sensor unit(s).

*For example, to set detection range 100%, daylight threshold Disable, hold-time 5min, stand-by time  $+\infty$ , stand-by dimming level 30%, the steps should be: Press button "Start", button "100%", "Disable", "Shift", "5min", "Shift", " $+\infty$ ", "30%", "Memory". By pointing to the sensor unit(s) and pressing "Apply", all settings are passed on the sensor(s).*

### Detection range

Press buttons in zone "Detection range" to set detection range at 100% / 75% / 50% / 10%.

### Daylight threshold

Press buttons in zone "Daylight threshold" to set daylight sensor at 2Lux / 10Lux / 50Lux / 100Lux / 300Lux / 500Lux / Disable.

*Note: To set daylight sensor at 100Lux / 300Lux / 500Lux, press "Shift" button first.*

### Ambient daylight threshold

1. Press button "Shift", the red LED starts to flash.
2. Press button "Ambient", the surrounding lux level is sampled and set as the new daylight threshold.

### Hold-time

Press buttons in zone "hold-time" to set the hold-time at 2s / 30s / 1min / 5min / 10min / 15min / 20min / 30min.

*Note: 1. To set hold-time at 30s / 5min / 15min / 30min, press "Shift" button first.*

*2. 2s is for testing purpose only, stand-by period and daylight sensor settings are disabled in this mode.*

\* To exit from Test mode, press button "RESET" or any button in "Hold-time".

### Stand-by time (corridor function)

Press buttons in zone "stand-by time" to set the stand-by period at 0s / 10s / 1min / 5min / 10min / 30min / 1h /  $+\infty$ .

*Note: "0s" means on/off control; " $+\infty$ " means bi-level control, the fixture is 100% on when there is motion detected, and remains at the stand-by dimming level when no presence after motion hold-time.*

### Stand-by dimming level

Press the button in zone "stand-by dimming level" to set the stand-by dimming level at 10% / 20% / 30% / 50%.

### Auto-configuration function

All buttons in this zone are disabled.

### Dual tech & RF mode

"HF", "PIR", "HF+PIR", "HF/PIR" are disabled.

For RF grouping via remote control, please refer to steps on next page:

## RF grouping by HRC-11

Short press "Learn/Erase" button on RC to activate pairing mode, and the receiver unit starts to beep once every second for 3min.

**Note:** the unit can only pair up to 30 units.

Short press "Transmit" button on RC, the commander unit (master unit) beeps one time to send the transmission signal.

Upon receiving the transmission signal, the receiver unit (slave unit) rapidly beeps 3 times in 1s to indicate the success of pairing. Repeat this step to pair more units.

One more short press on "Learn/Erase" button to the receiver unit to complete the pairing process, the receiver unit will quit the pairing mode.

**Note:** Press button *RX100%*, the light on receiver unit is 100% on upon receiving RF on signal; Press *"RX STBY%"* button, the light(s) goes to preset stand-by dimming level directly.

Erase:

Long press "Learn/Erase" button for 3s to the sensor unit. The beeper beeps rapidly for about 5s. All commands received before are erased.

