SPECIFICATION

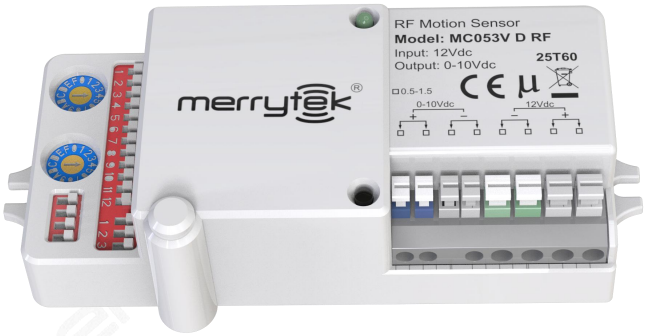
Product Name: **Group network sensor（5.8G Micro wave）**

Model No.: MC053V D RF（868MHZ）

Versions	Release/ Change Date	Reason	Released by
V1.0	2025.03.06		James. Guo

【Feature】

- Combined with 868MHz RF technology , realize wireless group networking function!
- Adopt Narrow frequency technology to solve the Co-Channel Interference
- The product has 32 different frequency channels, workable for more application
- With fixed address code, RF transmission is stable
- Max mounting 8m
- Long RF transmitting distance up to 30m indoor
- 5 years warranty



【Parameters】

Input		
Rated voltage	12±1VDC	
Operating current	<50mA	
Ripple voltage	<100mVp-p	
output		
Output signal	0-10V dimming	
Sensor parameters		
Working Frequency	5.8 GHz ±75 MHz，ISM Band	
Transmitting Power	1mW Max.	
Detection Area	100%/75%/50%/25%	
Hold Time	5S/30S/90S/3min/20min/30min/+∞	
Stand-by Period	0S/5S/5min/10min/30min/60min/+∞	
Daylight Sensor	Daylight threshold	5lux/15Lux/30Lux/50Lux/100lux/150lux/Disable
Stand-by DIM Level	10%/20%/30%/50%	
Detection Range (Radius)	Ceiling installation 3m high Motion and minor motion: r≥2.5m Test condition: 100% sensitivity, 60 ㎡ indoor open space	
Installation Height	3m （8m Max),	
Wireless Parameters		
Frequency	820MHz-880MHz Center Frequency：868MHz	
Transmission power	-5dBm…+20dBm	
Transmission distance	Max. 100m in the free field Max. 30m inside buildings	
Receiver sensitivity	-126dBm	
Modulation Mode	FSK	
Work mode	Broadcast: Hopping	
Environment		
Working Temperature (Ta)	-20℃-60℃	

Storage Temperature	-40℃~+80℃ Humidity: ：≤85% （Non-condensing）
Certificate Standards	
Safety standards	EN61058-1
EMC standards	EN300440; EN301489-1; EN55015; EN61547; EN61000-3-2; EN61000-3-3; EN62479
Environmental Requirement	Compliant to RoHS
Certificate	CE RED
Environmental Requirements	Comply with RoHS 2.0 , Reach requirements
IP Rating	IP20
Protection Class	Class II
Others	
Wiring	Press-in Type Terminals, wire diameter：0.75-1.5mm^2
Installation	Built-in
Package	Bubble bag + clapboard +carton(K=A)
净重	55±3g
Lifetime	5 years warranty@Ta

【Function description】

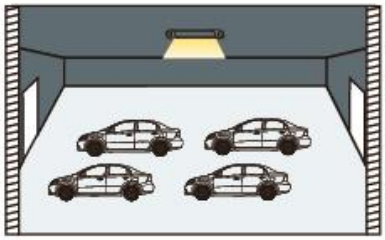
1.Switch on/off（Stand-by period at“0s”）, Please set other sensor data according to practical applications.

1 With sufficient ambient light, the light will not be switched on even if with motion signal.

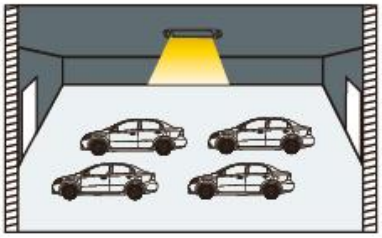
2 With insufficient ambient light, the sensor switches on the light when motion is detected.

3 After elapse of hold time, the sensor switches off the light when no motion is detected.

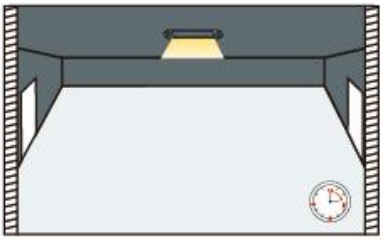
2. 2 step dimming（stand-by period at“+∞”）, Please set other sensor data according to practical applications.



1 If there is no motion detected, the light will be remained at a low light level all the time.

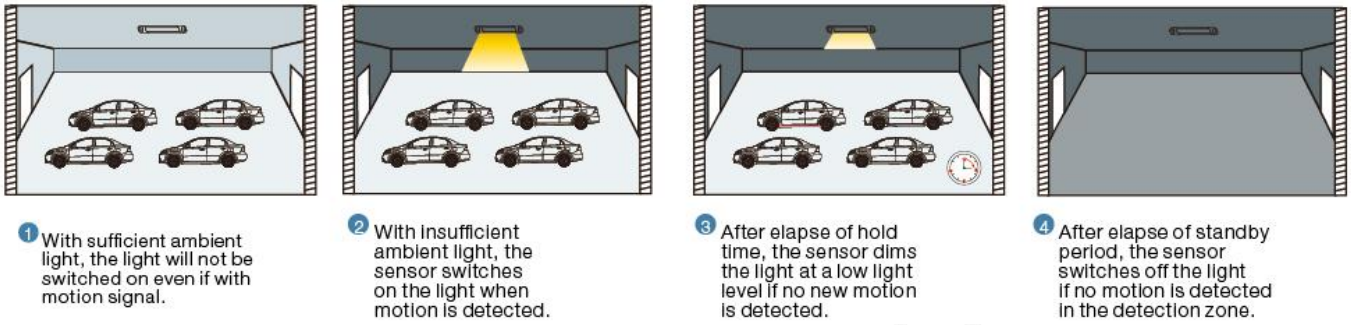


2 When motion is detected, the sensor will switch on the light to 100% brighteness



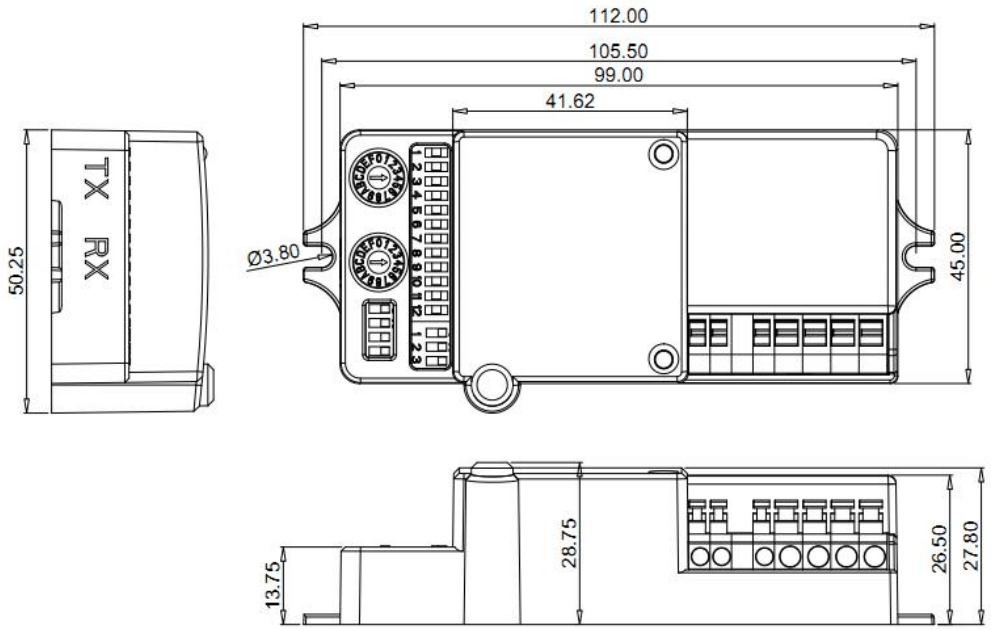
3 After elapse of hold time, the sensor dims the light at the present low light level if no motion is detected.

3. 3 step dimming（stand-by period at“5s/5min/10min/30min/60min”）, Please set other sensor data according to practical applications.

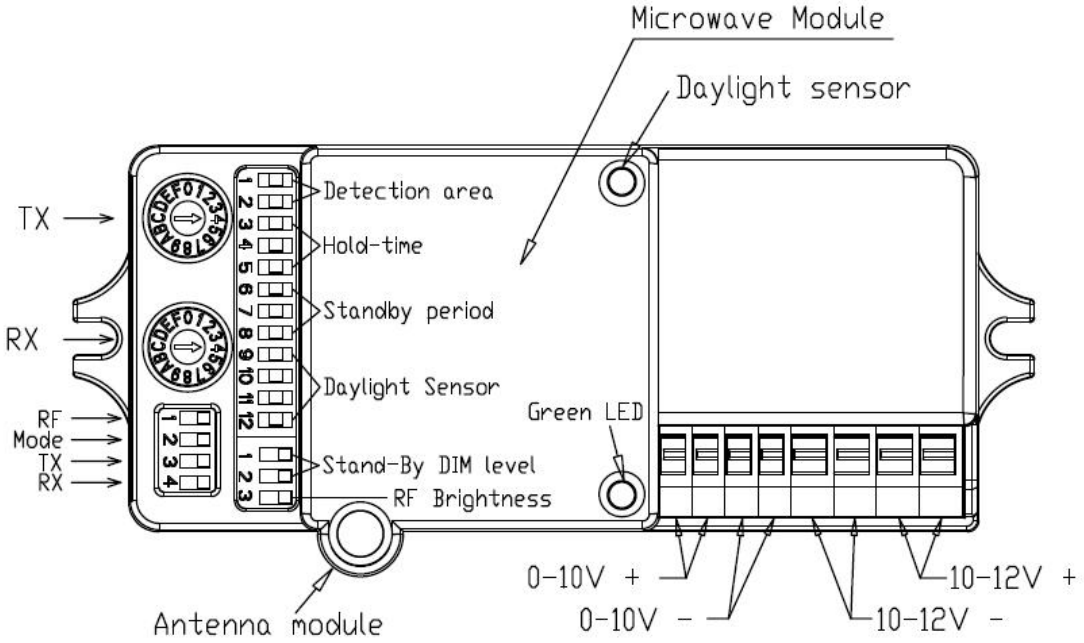


【Diagram】

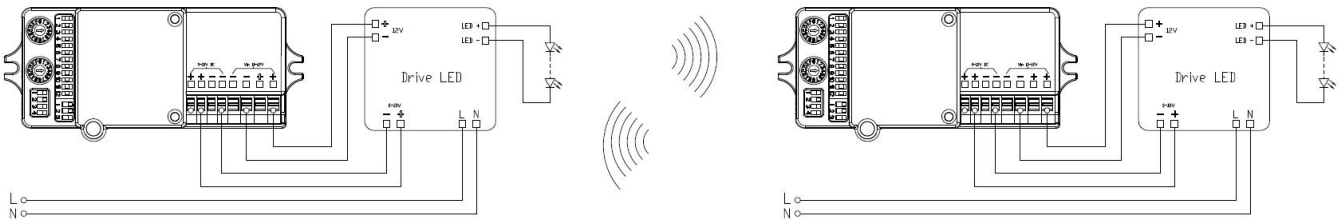
- **Dimension**（units：mm）



● Function



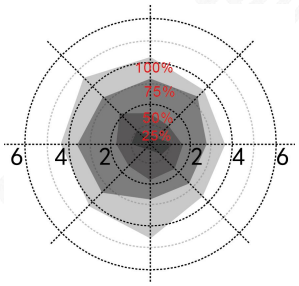
● Wiring



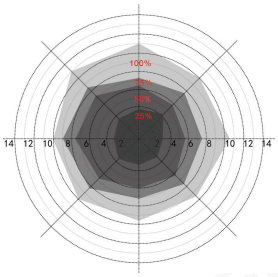
【Radiation Pattern】

1. Ceiling mounting

Ceiling mounted height：3m
Sensitivity：100%/75%/50%/25%

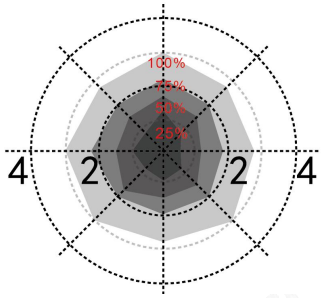


Normal moving (Speed:1m/s)

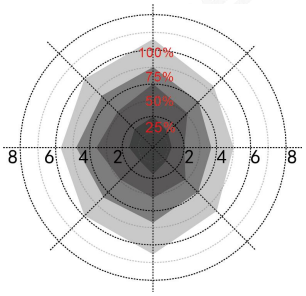


Slow moving (Speed 0.3m/s)

Ceiling mounted height：6m
Sensitivity：100%/75%/50%/25%

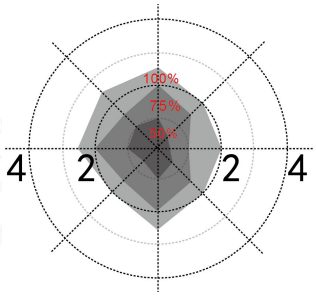


Normal moving (Speed:1m/s)

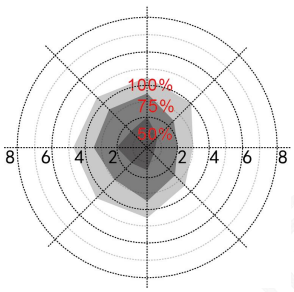


Slow moving (Speed 0.3m/s)

Ceiling mounted height：8m
Sensitivity：100%/75%/50%



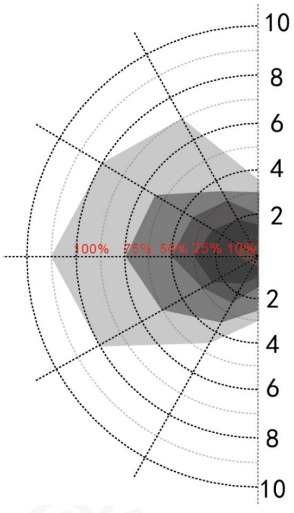
Normal moving(Speed:1m/s)



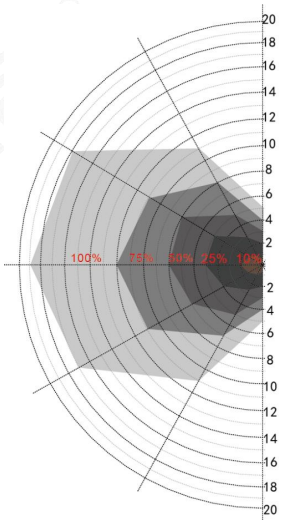
Slow moving (Speed 0.3m/s)

2.Wall mounting

Horizon mounted height：2m
Sensitivity：100%/75%/50%/25%/10%



Normal moving (Speed：1m/s)



Slow moving (Speed 0.3m/s)

【Dip switch settings】

Detection Area:

	1	2	
Ⅰ	ON	ON	100%
Ⅱ	ON	-	75%
Ⅲ	-	ON	50%
Ⅳ	-	-	25%

Hold Time:

	3	4	5	
Ⅰ	ON	ON	ON	5S
Ⅱ	ON	ON	-	30S
Ⅲ	ON	-	ON	90S
Ⅳ	ON	-	-	3Min
Ⅴ	-	ON	ON	20min
Ⅵ	-	ON	-	30min
Ⅶ	-	-	-	+∞

Stand-by Period:

	6	7	8	
Ⅰ	ON	ON	ON	0S
Ⅱ	ON	ON	-	5S
Ⅲ	ON	-	ON	5Min
Ⅳ	ON	-	-	10Min
Ⅴ	-	ON	ON	30min
Ⅵ	-	ON	-	60min
Ⅶ	-	-	-	+∞

Daylight Sensor:

	9	10	11	12	
Ⅰ	ON	ON	ON	ON	5LUX
Ⅱ	-	ON	ON	ON	15LUX
Ⅲ	ON	-	ON	ON	30LUX
Ⅳ	-	-	ON	ON	50LUX
Ⅴ	ON	ON	-	ON	100LUX
Ⅵ	ON	ON	ON	-	150LUX
Ⅶ	-	-	-	-	Disable

*When set to “disable” mode , The lamp will switch on when it detect the motion no matter the ambient light level

Stand-by DIM Level:

	1	2	
I	ON	ON	10%
II	ON	-	20%
III	-	ON	30%
IV	-	-	50%

RF Brightness:

	3	
I	ON	100%
II	-	10%-50%

Mode:

1	RF	2	Mode	3	TX(A/B)	4	RX(A/B)
ON	Open	ON	Broadcast	ON	A	ON	A
-	Close	-	Hopping	-	B	-	B

*When set RF to close , now the sensor only can receive signal ,cannot transmit signal ,but it still have sensor function.

【RF wireless networking】

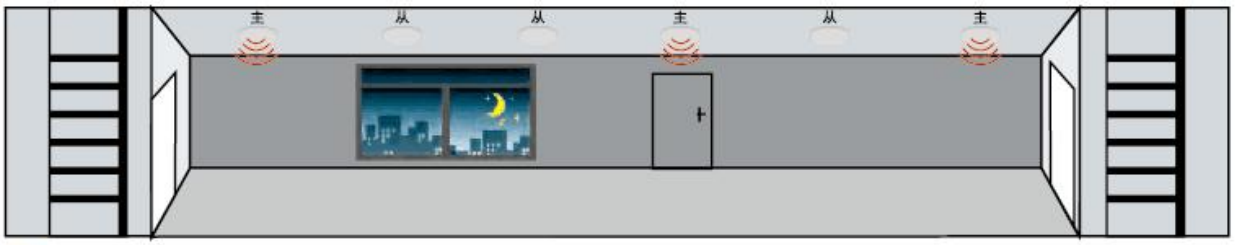
1) Broadcast:

All sensors set the same channel.

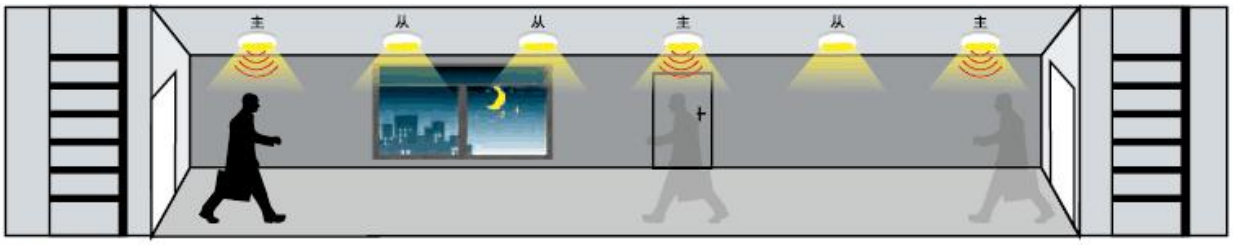
See below picture ,there Are several exits /entrances to the corridor ,Any Master sensor is triggered ,all lamps in the corridor will light up .

Settings :

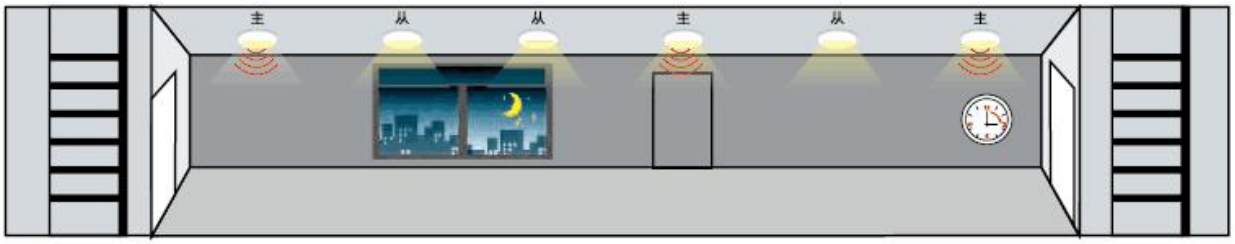
Master	TX	RX		Satellite	RX
1	A0	A0		1	A0
2	A0	A0		2	A0
...				...	
Any	A0	A0		Any	A0



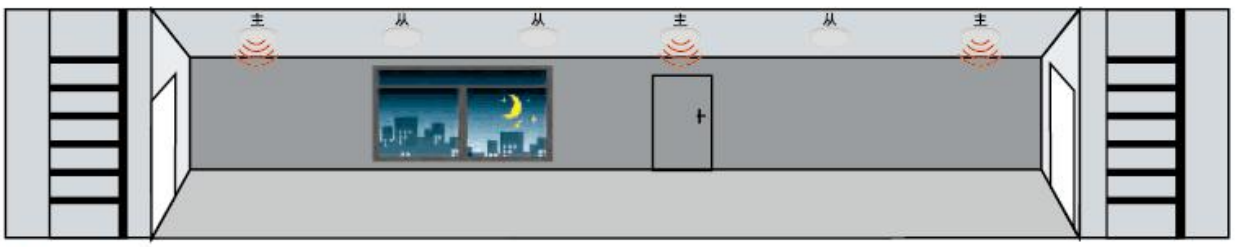
1 If no motion is detected, all lamps will be switched off.



2 If any movement is detected from any direction, all lamps will be synchronously switched on.



3 If no motion is detected in the detection zone, all lamps will be synchronously dimmed to a low light level after hold time.



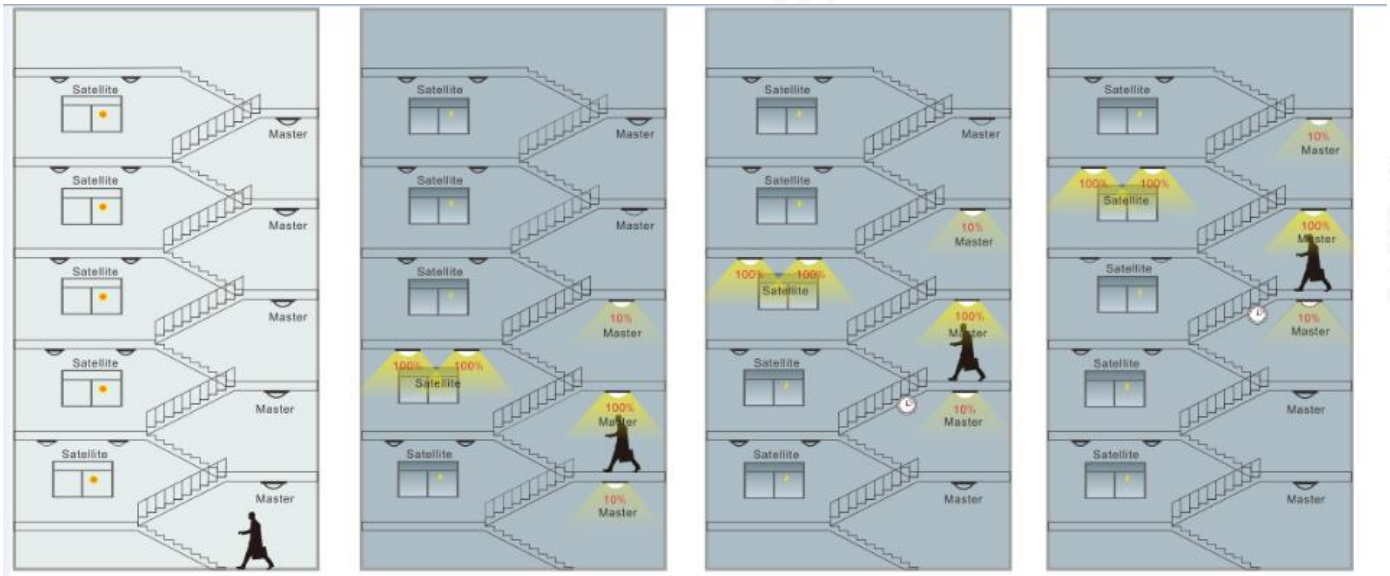
4 After stand-by period, the lamps will be switched off if no movement is detected in the detection zone.

2.) Broadcast + Hopping：

Once any Master motion is detected,the motion signal will be transmitted to other grouped sensors through RF transceiver ,See the pic below ,when the person walks to one of the floors ,the lamps in adjacent floors will switch on at a preset low light level synchronously .

Settings:

Master	TX	RX		Satellite	RX
1st floor	A0	A0		1st floor	A0
2nd floor	A1	A1		2nd floor	A1
...				...	
16th floor	AF	AF		16th floor	AF
17th floor	B0	B0		17th floor	B0
18th floor	B1	B1		18th floor	B1

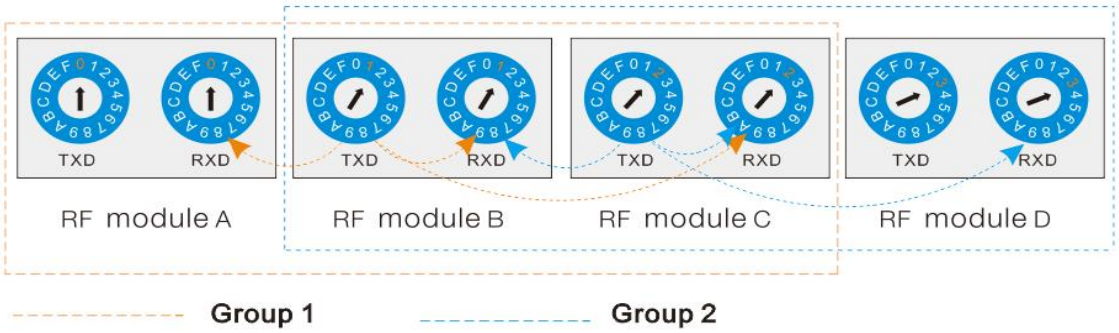


1 With sufficient ambient light , all lamps switch off even if there is motion.

2 With insufficient ambient light and the person walks to the 2nd floor ,all the 2nd lamp switch on at 100%,and the 1st and 3rd floor lamps switch on at a preset light.

3 The person walks to the 3rd floor ,all the 3rd floor lamps light up to 100% , and the 4th lamp switch on at a preset light ,the 2nd floor lamp dim to low light level after hold time.

4 The person walks to the 4th floor ,all the 4th floor lamp light up at 100% ,and the 5th floor lamp switch on at a low light level ,the 3rd floor lamp dims to a low light level after hold time ,the 2nd floor lamp switches off after a standby period .



Group 1: Module B TXD ,send signal to Module A RXD and Module C RXD and itself
Group 2: Module C TXD ,send signal to Module B RXD and Module D RXD and itself

AO－A1－A2－A3－A4－A5－A6－A7－A8－A9－AA－AB－AC－AD－AE－AF
I I
BF－BE－BD－BC－BB－BA－B9－B8－B7－B6－B5－B4－B3－B2－B1－B0

RF grouping(up to 32 different groups possible)

MC053V D RF have one TX channel and RX channel .the TX channel is used for transmitting RF signal and the RX channel is used for receiving RF signal. Use a small screwdriver to rotate switches and keep them pointed to the same channel,groups will be created automatically

【Initialization】

The light will turn on 100% brightness in the initial energizing sensor, and turn off after 10 seconds. During initialization, no external motion sensing signal will be detected.

【Default settings】

Detection Area: 100%, Hold Time: 5S,Stand-by period:0s, Daylight Sensor: Disable,Stand-by DIM level:10%,RF Brightness:10%-50%,RF:Open ,Mode:Broadcast ,TX:A, RX:A

【Note】

1) The sensor should be installed by a professional electrician, please cut off the power before installing, wiring, changing settings, etc.
2) The product has good penetrating ability to plastic, wood, etc., but metal accessories or metal casings should not be installed directly in front of and near the antenna of the microwave module, otherwise it will affect the transmission and reception ability of the microwave antenna.
3) This product is designed for indoor use only.
4) The detection range of the sensor is related to the moving speed and size of moving object, mounting height, installation height and angle, installation site, reflectors around the sensor etc. The data in the document is typical value and tested by a 165cm person in an open indoor area.
The detection range at wall mounting will be longer at ceiling mounting. Please reduce detection sensitivity at wall mounting or contact us to confirm the sensor data settings.

5) Avoid long-term vibrating equipment or moving objects around the sensor. The vibration signal will be regarded as the motion signal to trigger the sensor.
6) If a pet passes by in the detection area, it may trigger the sensor.
7) The light threshold is detected value in a sunny environment, no shadows, and in an ambient light diffuse reflection condition. In different time periods, climates and environments, the illuminance values detected by the light sensor may be different.
8) The installation distance between products or the distance between the product and the router is recommended to be greater than 1.5m.
9) The installation plane of a product (for example: aluminum base plate, PCB board) needs to be different from the antenna plane of the microwave module by a certain height, and the antenna plane of the microwave module should be higher than the nearby plane by more than 5mm to achieve the best detection effect.
10) MC053V RF & MW05 with override function, Quick switch on/off 3 times within 2s can cancel sensor function
11) Work mode：Broadcast & Hopping
12) TX: is for signal Transmitting, with 0-F 16 different channels. 1 DIP to set Group A or group B. Group A with16 channels, Group B also with 16 groups, total can set 32 groups .
13) RX: is for signal Receiving, with 0-F 16 different channels. 1 DIP to set Group A or group B . Group A with16 channels, Group B also with 16 groups ,total can set 32 groups.
14) When Master and Master set under broadcast work mode, that means ,all sensors set the same channel, Any Master sensor is triggered, it will transmit the RF signal to all the lamps in the group
15) When Master and Master set under hopping work mode, that means ,when any master is triggered, it will send RF signal to 3 channels (the adjacent channel before and after the TX channel and the channel set by master itself. For example, when the master set the TX channel for "1", it will launch "0" "1" "2" three different channel signal, if other different RX channel set with"0" "1" "2", at this time will receive the corresponding channel signals, this kind of work mode is mainly applied to corridor application , note: TX "F" to launch the channel group A and B group "0" RX receives channels can connect network.
16) Master to Satellite only work as broadcast mode, that means the satellite only receive the signal from master , not affect by the master work mode.
17) Satellite receive RF signal from Master, the “hold time” is determined by Master, keep the same with master’s “hold time” .
18) Sensor will not transmit or receive RF signal during the Initialization time. only can transmit RF signal after the Initialization period.
19) Group A and group B of RX require the corresponding Master group A and group B of TX .