Specification

Product Name: **Network Controller (24G microwave version)**

Product Model: **MC182D 99 B/MC182D 99 1 B （2.4G RF)**

Versions	Release/ Change Date	Reason	Released by
V1.0	2025.02.07		James.Guo

【Product Features】

- Built-in installation presence sensor, comply with standard zhaga book20 dimension
- Adopt 24GHz patented microwave antenna technology, support 4m max. installation height
- With German RF technology, 5 years product warranty
- Motion, minor-motion, and daylight sensor function
- Applicable for washrooms, living rooms, kitchens and other environments where motion, minor motion detection required
- Grouping networking by 2.4G wireless, no need pairing or gateway.
- Output 0-10V dim or PWM dim, 2-step/3-step dim function.
- All sensor parameters can be set by remote control.

【Parameters】

Input		
Rated Voltage	12±1VDC	
Working Current	90±5mA	
Ripple Voltage	<100mVp-p	
Output		
Output Signal	MC182D 99 B1	MC182D 99 1 B1
	0-10VDC dimming signal	PWM dimming signal
Sensor Parameters		
Working Frequency	24GHz~24.25GHz，ISM band	
Transmitting Power	6dBm Max.	
Detection Area	100% /75%/50%/25%（MH17）；100% / 50%/25%（MH15）	
Hold Time	30s/1min/3min/5min/10min/20min/30min（MH17）； 30s/1min/3min（MH15） “Min. 1min is suggested for presence detecting”	
Stand-by Period	0s/10s/1min/3min/5min/10min/30min/+∞（MH17）； 5min/10min/ +∞（MH15）	
Stand-by DIM Level	10%/ 20%/ 30%/ 50% (MH17);10%/ 30%(MH15)	
Daylight Sensor	Daylight threshold	5Lux/15Lux/30Lux/50Lux/100Lux/150Lux/999Lux(Disable)(MH17) 15Lux/50Lux/(Disable)(MH15) （ Ambient light diffusing state)
	Daylight harvesting	100L/200L/300L/400L/500L/600L/Disable （MH17press“P”enter daylight harvesting mode）
Stand-by Dim Level	10%/ 20%/ 30%/ 50% (MH17);10%/ 30%(MH15)	
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 (4m Max)	
Wireless Parameters		

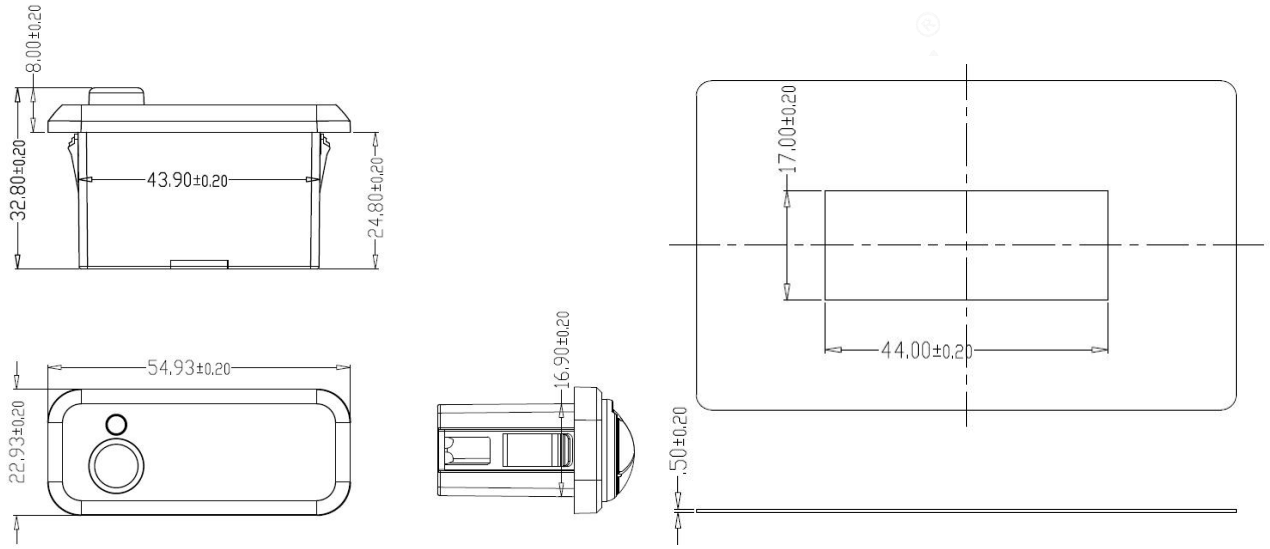
Operating Frequency	2.400-2.483GHz
Transmitting Power	6dBm
Group	One group max nodes 32 Pcs
Transmitting Distance	15m MAX(Point-to-point open area transmission distance)
Environment	
Working Temperature (Ta)	-35℃-60℃
Storage Temperature	-40℃~+80℃ humidity: ≤85% (non-condensing)
Certification Standards	
Certification	CE
Environmental Requirements	Comply with RoHS 2.0 , Reach requirements
IP Rating	IP20
Protection Class	Class II
Others	
Wiring	3 pin PH2.0 terminal
Installation Requirements	External zhaga book20 installation
Packaging Requirements	Clapboard + Carton (K=A)
Net Weight	±3g
Lifetime	5 years warranty @Ta

【Function description】

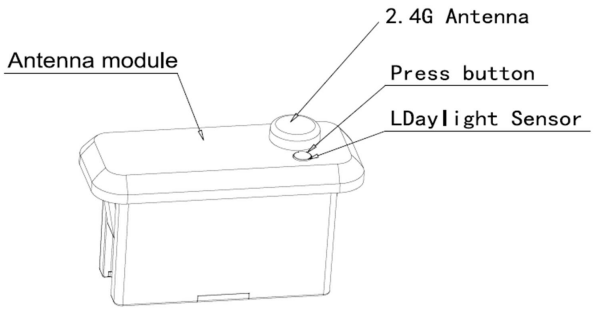
ⓥON-OFF function	Stand-by Period be set to “0s”
ⓥ2-step dimming	Stand-by Period be set to “+∞”, Daylight sensor be set to “High”
ⓥ3-step dimming	Stand-by Period be set to “5min/10min”
◯Daylight harvesting	N/A
ⓥDaylight priority	Stand-by Period be set to “+∞”, Daylight sensor be set to “LOW/MED”
ⓥGrouping	Remote group “1-8” and set Rx signal for sensor

【Diagram】

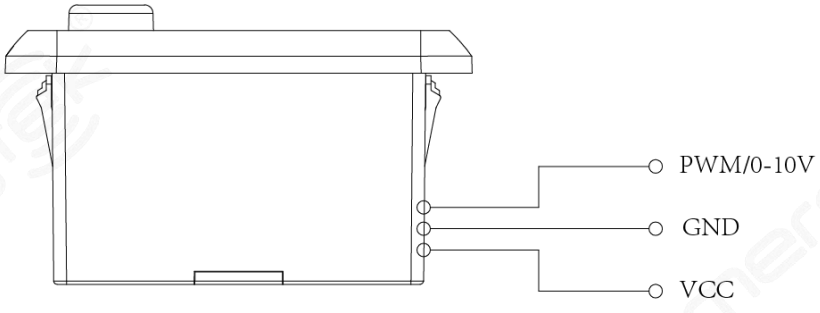
- Dimension (unit: mm)



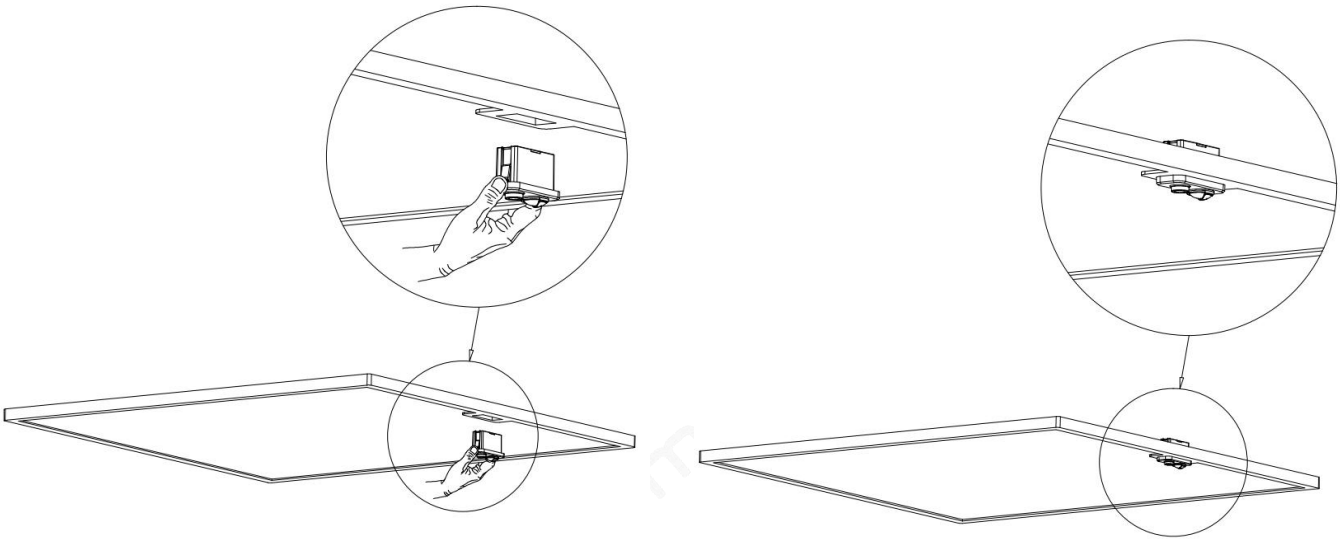
- Function



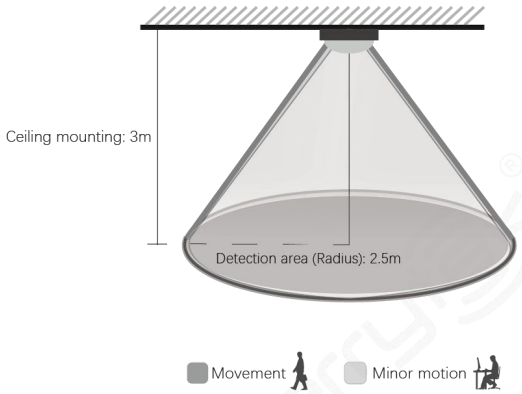
- Wiring



- Installation instruction



【Detection Range】



Big motion signal active

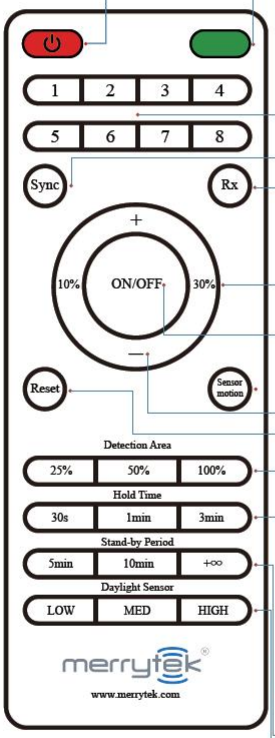
Minor motion signal maintain

Human presence: detect the human body in the detection area to carry out big movement signals (walking) to trigger the induction and output high level (such as control lights on and off), and then detect minor motion signals (body leaning forward, backward, limb swinging, shaking the head, typing, playing mobile phones and other minor motions.) as well as the detection of human respiratory vital signs caused by the abdominal cavity, chest expansion etc to maintain output high level (such as control lights always on)

Human absence: no signal detected in the detection area and output low level (control lamp off)

【Remote】MH15

Instruction

Remote Control Setting	Button	Remarks
		Turn off wireless transmission
		Recover wireless transmission
		Set the main channel number: Long press a channel number to group the sensors. One flash of the indicator indicates successful grouping. Up to 8 different groups can be established. Short press the channel number, and the light in the same group flashes 3 times. Each sensor can only be set to 1 main channel number at most, based on the most recently set main channel number. Note: Each channel number can be set to a maximum of 32 sensors.
		Short press the channel No. , the lights in the same group will flash 3 time. And then short press the sync button to synchronize sensor parameters to all lights in the same group, including detection area, hold time,stand-by period, daylight senor and stand-by dim level. After the synchronization is successful, the lights in the same group will flash 3 time.
		Set the secondary channel number: Press the Rx button first, and then press any button of groups 1-8 within 3s, and the sensor can receive the signal of the channel. Up to 4 groups of signals can be set to receive. For example: Device A first presses Rx and 1, and then presses Rx and 2, and the device can receive networking signals of groups 1 and 2. If all 4 groups of signals are set, and then a new secondary channel number is set, the first set channel will be removed. For example, device B has set secondary channel numbers of groups 1, 2, 3, and 4. At this time, press Rx and 5, and the sensor can receive secondary channel numbers of groups 2, 3, 4, and 5. Note: Each channel number can set up to 32 sensors.
		Short press this button to set the stand-by dim level, 10% or 30%.
		In any state, short press this button to turn on the current lamp, and the lamp is in a constant on state; long press this button to turn off the current lamp, and the lamp is in a constant off state (memory after power failure). Press the Sensor Motion button to exit and restore the sensing mode, and the parameters will remember the last setting.
		Detection Area (10%-100%)
		Long pressing for 3s to recover factory setting and clear groups. Detection Sensitivity: 100%, Hold time: 10s, Daylight sensor: disable, Stand-by period: 0s, stand-by dim level: 10%.
		Short press to select detection area, 25% is the shortest range. 100% is the maximum.
		Hold Time: 30s, 1min, 3min
		Stand-by Period: 5min, 10min, +∞
		Daylight sensor: 1. Stand-by period set to 5min or 10min or +∞. Enable daylight threshold mode. Light will turn on when ambient light level below the threshold value if with motion trigger. 2. Long press +∞, daylight priority is enabled. Light will automatically turn ON/OFF according to ambient light level against setting below. 3. Press "HIGH" button, Daylight sensor is disabled.

Daylight Harveting	Reference Daylight Threahold
LOW	200Lux
MED	300Lux
HIGH	Disable

MH17

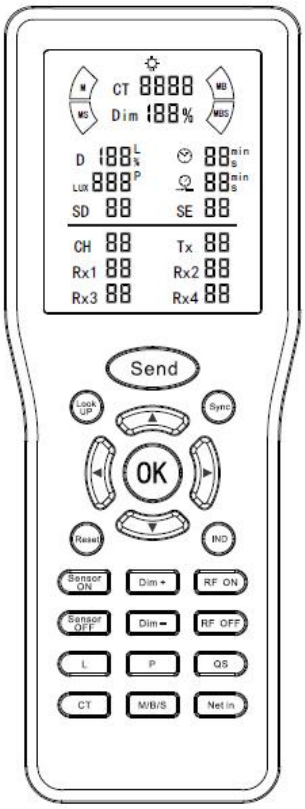
Remote Control Setting	Function	Button	Remarks
	Screen wake-up		Short press to wake the screen when off.
	One-click transmission of all parameters	Send	Short press to transmit the parameters displayed on the screen. The transmission will take 3-5 seconds, during this period, make sure the remote control is aimed at the sensor. The lamp will flash once if transmit successfully.
	Transmit a single parameter	OK	Short press to transmit the flashing parameter on the screen, and the light will flash once after successful transmission.
	Parameters & configuration		Press "▲▼" button to select parameter items, and press "◄►" to choose desired gear or value. 1. General parameters (see Figure 1) Icons / Parameter Items / Options D / Detection Sensitivity / 100%/75%/50%/25% LUX / Daylight Sensor / 5lux/15lux/30lux/50lux/100lux/150lux/999 (999: daylight sensor disable) SD / Stand-by Dim Level / 15%/20%/30%/50% Hold time / 5s/30s/1min/3min/5min/10min/20min/30min Stand-by Period / 0s/10s/1min/3min/5min/10min/30min/99(99: stand-by period +∞) 2. Wireless grouping parameters (see Figure 2, only available for sensors with wireless networking function) Icons / Parameter Items / Options Tx / Transceiver (Master device transmit group code) / A total of 16 groups can be set from 00 to 15, and sensors in the same group can network with each other Rx1 Rx2 Rx3 Rx4 / Receiver (Slave device receive group code) / 16 groups can be set from 00 to 15 respectively, and wireless signals with the same group code as Tx can be received 3. Other parameters (MC, MLC series products not applicable) Icons / Parameter Items / Options SE / Scene selection / A total of 10 scenes can be set from 01 to 10 CH / Channel setting / A total of 30 channels can be set from 01 to 30
	Enable low sensitivity mode	L	Short press to enable low sensitivity mode for a single product, the screen will display "L" and the lamp will flash once after successful setting. This mode can be applied in highly reflective environments where the sensor is unable to turn off the light.
	Enable daylight priority/ daylight harvesting mode	P	Short press and the screen display "P" to enable daylight harvesting mode, the lamp flashes once after successful setting. (see Figure 3). The target floor/desk illuminance can be selected and the lamp will adjust its brightness automatically according to natural light levels (see Figure 3). Optional settings are 5lux=100lux/15lux=200lux/30lux=300lux/50lux=400lux/100lux=500lux/150lux=600lux/999=Disable (999: target lux level is maximum, light will not dim). Short press "P" to quit daylight harvesting mode. The lamp flashes 1 time. "P" will not displayed on the screen.
	Dim level	Dim + / Dim −	Short press Dim + to increase the dim level by 2% each time. Long press to continuously increase the brightness. Short press Dim − to decrease dim level by 2% each time. Long press to continuously decrease the brightness, with a minimum brightness of 15% (The minimum brightness of some products can be adjusted to 50%. Please refer to the actual product for specific details).
	Quick setting	QS	Long press to save parameters displayed on the screen to the QS (Quick Setting) mode. When need to quickly set parameters for a single lamp, briefly press this button to recall the stored parameters, then short press Send to quickly configure each parameter, the light will flash once after successful setting.
	Disable sensor mode/ light permanently OFF	Sensor OFF	Short press to turn off the sensor function. The light will flash once after successful setting. If multiple products are in the same group, briefly press to turn off the sensor function for all products in the same group. Long press to turn off the light, which can be controlled to permanently OFF. If there are several lights in the same group, all lights will be OFF.
	Enable sensor mode/ light permanently ON	Sensor ON	Short press to restore the sensor function. The light will flash once after successful setting, and sensor parameters will be the last configured settings. If multiple products are in the same group, briefly press to turn on the sensor function for all products in the same group. Long press to turn ON the light, which can be controlled to permanently ON. If there are several lights in the same group, all lights will be ON.
	Reset	Reset	Briefly press to reset the sensor, and light flash once, restoring the sensor parameters to the default factory settings.
	Turn the screen backlight on/off	IND	Long press to turn the screen backlight on/off. Short press to turn the sensor indicator on/off (if available).
	Enable wireless settings options/ wireless networking function	RF ON	Long press to open the wireless settings options on the remote control. Briefly press to enable the wireless networking function. Upon successful setting, the light will flash once.
	Disable wireless settings options/ wireless networking function	RF OFF	Long press to close the wireless settings options on the remote control. Briefly press to disable the wireless networking function. Upon successful setting, the light will flash once.
	Look up	Look UP	Short press to query the specific parameter settings of the current wireless networking sensor. Upon successful query, the sensor will flash once, and the screen will display all sensing parameters and networking parameters of the sensor. Note: 1. After each query, wait 5 seconds before querying again. 2. Sensors without wireless networking function not available for parameter query.
	Synchronize	Sync	Short press to synchronize the current sensor parameter settings to other sensors in the same group (network settings cannot be synchronized). The synchronization process takes 3-5 seconds, during this period, make sure the remote control is aimed at the sensor. Upon successful synchronization, the lights in the same group will flash three times.
	Network pairing	Net in	For sensors with Bluetooth or ZigBee networking function, long press this button to put the sensor into pairing mode and the light flash.
	Color temperature control	CT	Briefly press to adjust the color temperature if the sensor supports color temperature control Color temperature option: 2700K/3000K/3500K/4000K/4500K/5000K
	Switch sensor mode	M/B/S	Short press to switch sensor modes (if the sensor supports the corresponding modes) M: motion mode MS: motion + minor motion MB: motion + breathing MBS: motion + minor motion + breathing

Fig.1

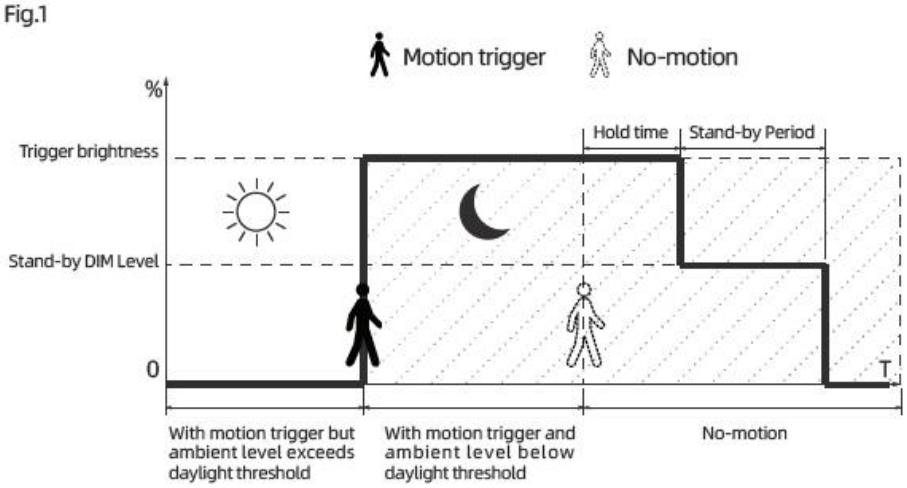
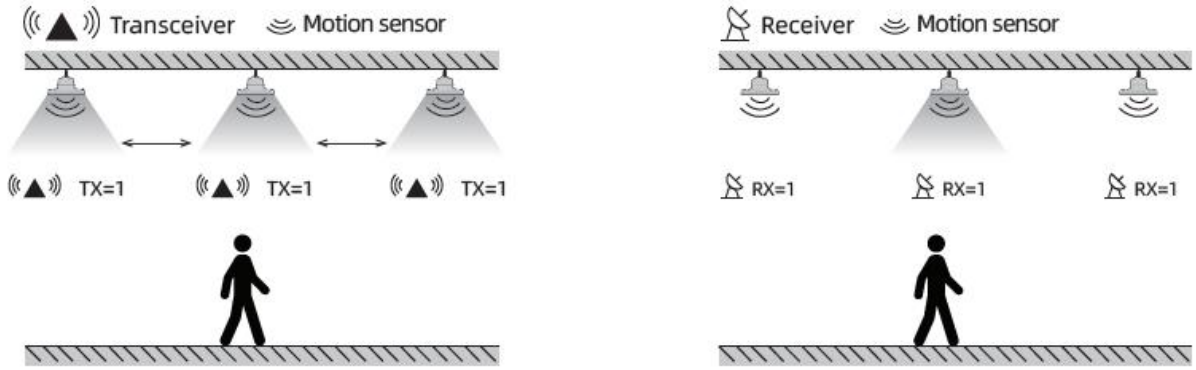


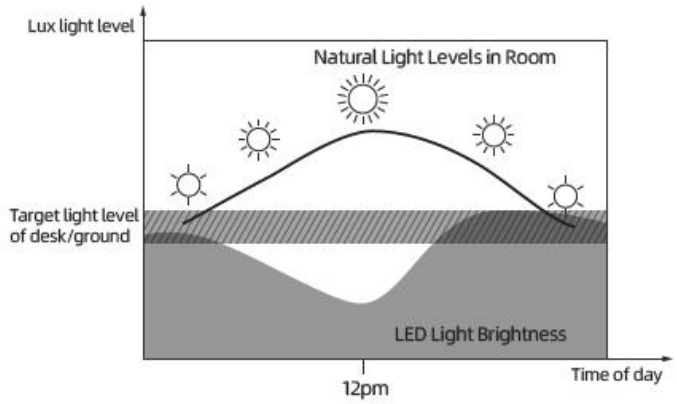
Fig.2



Tx has both transmitting and receiving function

Rx has only receiving function. The lamp with Rx mode only can be lighted up with motion trigger.

Fig.3



【Initialization】

After power on, the sensor automatically turns on light at 100% brightness and self-check for 45s-60s. During the initialization, the sensor is not able to detect movement. It enters sensing mode after initialization, and during which, the lamp maintains at 100% brightness.

【Factory Setting】

Sensitivity: 100%, Hold time: 5s, Daylight sensor: Disable, Stand-by period: 0s, Stand-by dim level: 20%

【Application Notice】

● The sensor should be installed by a professional electrician. Please turn off the power before installing, wiring, changing the configuration.

● The product has good penetration ability to plastic, wood, etc., but the microwave module antenna should not have metal accessories or metal shells, glass shells, etc.in direct front or nearby, otherwise it will affect the antenna transmission and reception.

● The sensing distance will be affected by the installation height, the size of the object to be detected, the speed of movement, the impact of the installation environment, and the sensing distance in different directions will have a certain degree of variability.

● The daylight threshold is in a sunny environment, no shadows, and ambient light diffuse reflection conditions. In different periods, climates, and environments, the daylight value detected by the light sensor may be different.

● The installation distance of the product is recommended to be more than 1.5m; the installation distance between the product and the router should be more than 1.5m, so as not to cause interference to the normal operation of the microwave sensor.

● The mounting plane of the product (e.g. aluminium substrate, PCB board) needs to be at a certain height difference from the antenna plane of the microwave module, and the antenna plane of the microwave module should be higher than the nearby plane by more than 5mm in order to achieve the best detection effect.

● DC regulated power supply with stable output voltage, low current and ripple coefficient must be used, the ripple of the power supply should be less than 50mV, and the minimum load current of the power supply should be more than 120mA, and it is also recommended to set up an electrolytic capacitor of not less than 100uF at input power supply VCC terminal.

● Product installation as far away as possible from large metal equipment, pipelines, air conditioning vents, exhaust vents, smoke machines and other scenes, so as to avoid equipment vibration affect the detection effect.

● Microwave module should avoid close to the AC drive power supply, be away from the drive power supply rectifier bridge, transformer, switching tubes and other high power devices, to avoid high frequency signals interference to normal operation of the microwave module.

● Product design: the antenna surface of the microwave module and its nearby circuits to avoid the flow of large currents, avoiding transformers or high frequency components nearby, distance should be more than 10mm as far as possible.

● When wiring, the antenna side and the component side on the back of the product should not be

covered by wires or have large currents flowing through, so as not to affect the normal operation of the sensor.

● The front of the product and nearby can not be equipped with metal accessories or glass block, so as not to affect the normal operation of the sensor, while the thickness of the plastic as far as possible to choose less than 1mm, too thick will affect the detection of microwave modules and directionality; microwave antenna plane and the shell distance should be greater than 3.2mm

● The antenna surface of the product and the metal plane (aluminium substrate, iron shell) need to be a certain height difference, the recommended distance is more than 0.5mm.

When product structure, power supply mode/circuit, sensor antenna front cover, etc. changes, pls notify the sensor manufacturer to confirm, so as not to cause the product to work improperly. Otherwise, the manufacturer does not bear any corresponding responsibility for the abnormality.