Specification

Product Name: **DC Controller**

Product Model: **MC087D 99 series**

Version	Date	Reasons	Publishing
V1.0	2023.11.01		James. Guo

【Product Feature】

- 12V DC input, 0-10V dimming signal or PWM dimming signal output, suitable for DC systems or LED driver with 12V DC auxiliary power output.
- Three-step and two-step dimming is optional, detection area is adjustable.
- Patented antithetical dipoles antenna design and Adaptive Algorithm, which effectively solves the problem of low installation height of columnar antenna sensors and false triggering caused by side-lobe radiation of the antenna when installed in a metal room.
- Widely used in parking lots and other places, it solves the problem that traditional sensor cannot detect vehicles or the vehicle cannot be detected until it passes directly under the sensor.
- Sensor parameters can be set by remote control and DIP switches, easy to configured.

【Parameter】

Input				
Rated Voltage	12±1Vdc			
Working Current	20±3mA			
Ripple Voltage	<100mVp-p			
Output				
Output Signal	PWM dimming signal		0-10VDC dimming signal	
Daylight Sensor				
	ON	5Lux/15Lux/30Lux/50Lux	100Lux	150Lux
	OFF	150Lux	200Lux	300Lux
Daylight Priority	The daylight priority mode can be entered in the remote control/dial code state. Dial state: Stand-by period time+∞ and can enter the light control priority mode with any light control gear(Except Disable) Remote control state: DH Mode/stand-by period mode+∞ group and any light control gear can enter the light control priority mode.			
Sensor Parameters				
Working Frequency				
Transmitting Power	1mW Max.			
Detection Area(Radius)	Ceiling mounting 3m: r≥4m@0.3m/s, r≥2.5m@1m/s; Wall mounting: r≥5m@0.3m/s, r≥3m@1m/s Test condition: Set 100% sensitivity, open 60 ㎡ indoor area.			
Mounting Height	3m (6m Max)			
Environment				
Working Environment Temperature	-25~60℃			
Storage Temperature	-40~80℃ Humidity: ≤85% non-condensing			
Certificate Standards				
Certified	CE			
Environmental Requirements	RoHS 2.0, Reach			
IP Rating	IP20			

Other	
Wiring	3pin 2.0mm terminal
Installation	Built-in
Package	Clapboard + Carton(K=A)
Net Weight	Pending
Lifetime	5 years warranty@Ta

【Model】

Model No.	MC087D 99			
Set mode	Top dip	Bottom dip	Top dip	Bottom dip
Mounting structure	Clasp structure	Clasp structure	Screw installation structure	Screw installation structure
Output Signal	0-10VDC dimming signal	0-10VDC dimming signal	0-10VDC dimming signal	0-10VDC dimming signal
Product picture				

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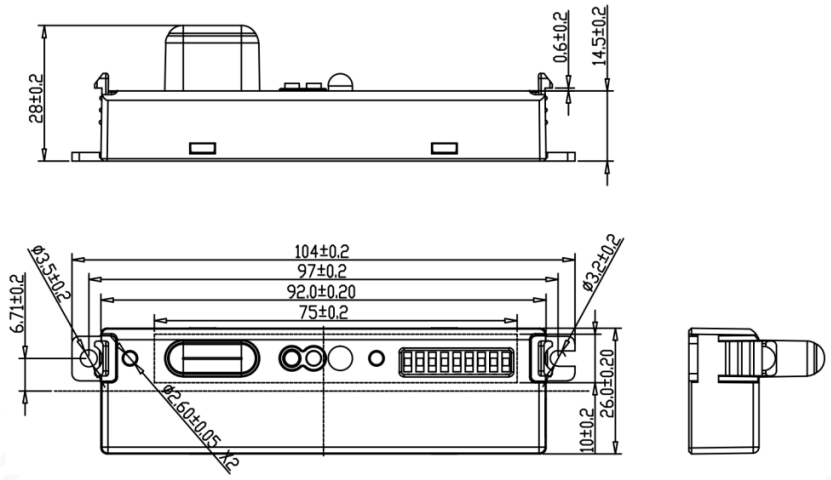
Product picture				

【Function】

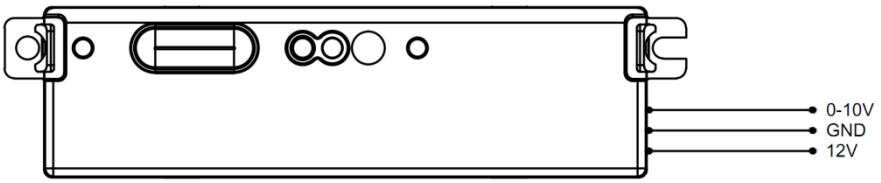
☑ON/OFF function	Stand-by Period set to “0s”
☑Two-step dimming function	Stand-by Period set to “+∞”, Daylight Sensor set to “Disable”
☑Three-step dimming function	Stand-by Period set to “1min/10min”, Daylight Sensor not set to “Disable”
☐Daylight harvesting	N/A
☑Daylight priority	Stand-by Period set to “+∞”, Daylight Sensor set to “10Lux/30Lux/50Lux”

【Product Information】

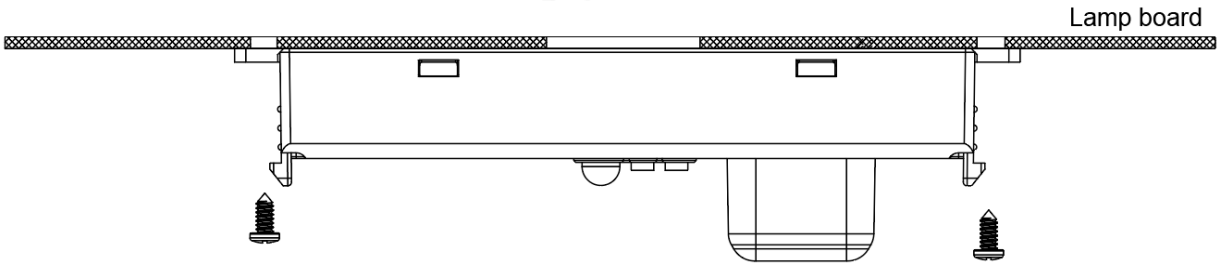
- Dimension(units: mm)



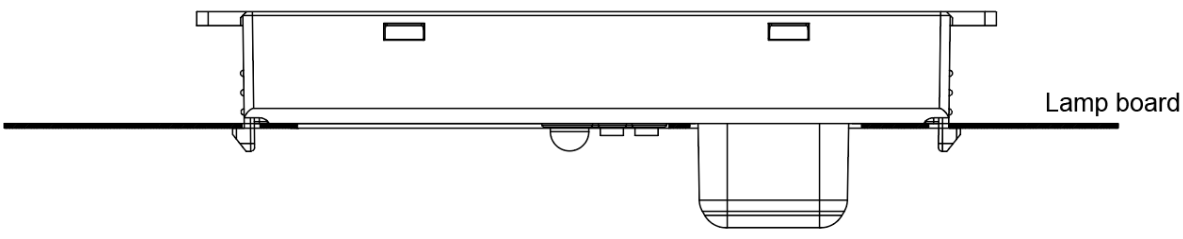
- Function & Wiring



- Installation



Screw installation



Clasp structure installation

Note:

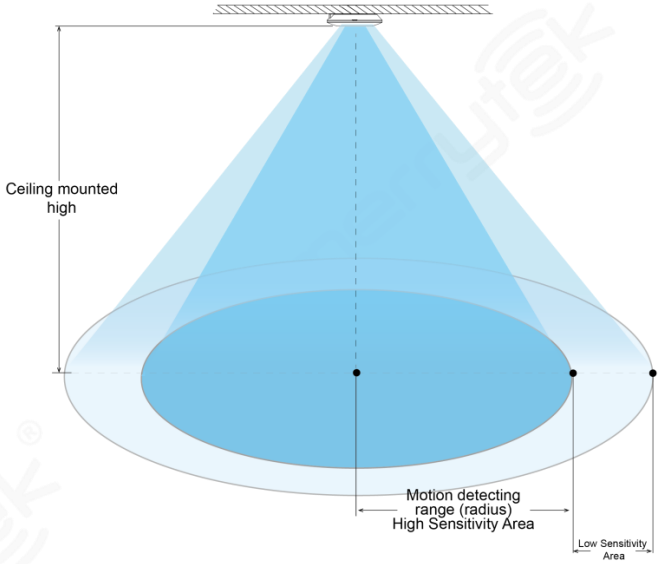
Note: The distance between microwave antenna and the metal plate and lamp housing must be greater than 3.2mm, and the metal plate step should not be higher than 2mm, otherwise it will affect the operation of the microwave antenna.

【DIP Switch Setting】

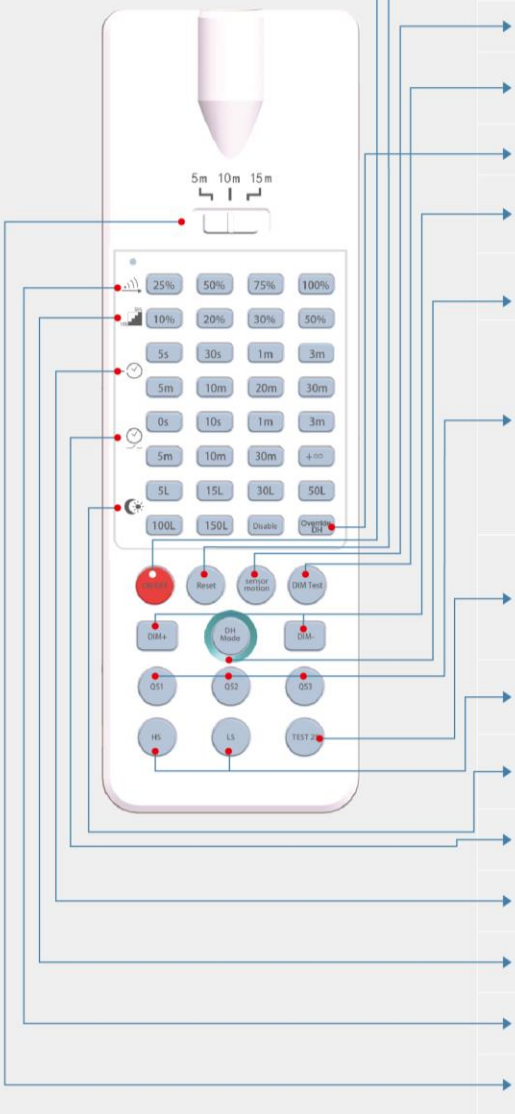
Function	Detection Area			Hold Time			Daylight Sensor			Standy- by period			Stand-by Dim Level	
Dial code	1	2	Detection area	3	4	Hold time	5	6	Light control value	7	8	Stand-by period	9	Stand-by dim level
Ⅰ	ON	ON	100%	ON	ON	5s	ON	ON	15Lux	ON	ON	0s	ON	20%
Ⅱ	ON	-	75%	ON	-	30s	ON	-	50Lux	ON	-	1min	-	30%
Ⅲ	-	ON	50%	-	ON	3min	-	ON	150Lux	-	ON	10min		
Ⅳ	-	-	25%	-	-	10min	-	-	Disable	-	-	+∞		

Note: when stand-by period dial code set to+∞, it will enter daylight priority, half-bright shutdown.

- Radiation Pattern



【Remote Control】

Remote Control Setting	Button	Remarks
		
		Press the "ON/OFF" button, the load light enters the normal on/off mode, and the sensing function is disabled. In the normal on/off mode, the "DIM+/DIM-" function can be used to maintain the load light brightness after powering on again. In the normal on / off mode, the load light enter ON after powering on again.
	Reset	Press "Reset" button, all parameters are same as setting of DIP switch or factory settings. Note: Only the product has DIP switch, it will revert to the current DIP setting.
	Sensor motion	Press "Sensor motion" button, the light quits from the normal on/off mode, and the sensor starts to work. (The latest setting stays in validity)
	DIM Test	Press "DIM Test" button, the 0-10V / PWM dimming works to test whether the 1-10Vdc dimming ports are connected properly. After 2s, it returns to the latest setting automatically.
	Override DH	Long Press 3s "Override DH" button to exit the Daylight priority mode, and then enter the Daylight Sensor mode. (The latest setting stays in validity)
	DIM+ DIM-	Short press "DIM+/DIM-" button to set occupancy light level, the brightness of the load light adjusts at 2% per unit. Dimming range: 15%-100%. (apply for normal on mode and sensor with daylight harvesting function)
	DH Mode	Long Press 3s to enter the Daylight priority function or Daylight harvesting function. Note: Short press "Disable" button will exit the Daylight priority mode and the Daylight Sensor is uncontrolled.
	QS1 QS2 QS3	<table><tr><th>Scence Options</th><th>Dection Area</th><th>Hold Time</th><th>Stand-by period</th><th>Stand-by dim level</th><th>Daylight Sensor</th><th>Induction way</th></tr><tr><td>QS1</td><td>100%</td><td>5min</td><td>10min</td><td>10%</td><td>30Lux</td><td>HS</td></tr><tr><td>QS2</td><td>100%</td><td>10min</td><td>30min</td><td>10%</td><td>Disable</td><td>HS</td></tr><tr><td>QS3</td><td>100%</td><td>20min</td><td>30min</td><td>10%</td><td>Disable</td><td>HS</td></tr></table> Note: The sensor parameters can be adjusted by pressing the corresponding button. When user press any button to change the sensor parameters, the last setting prevails. If the sensor doesn't have the function of the above parameters, that parameter is invalid. (Stand-by period and Stand-by DIM Level are not applicable to ON-OFF Sensor. Induction way is not applicable to low-mount sensor)
	TEST 2S	Press the "TEST 2s" botton can enter the test mode anytime. At test mode, the sensor parameters as below: Detection Area is 100%, Hold Time is 2s, Stand-by Dim Level is 10%, Stand-by Period is 0s, Daylight sensor is disabled. This function only for testing. Quit the test mode by pressing "RESET" or any other function buttons. This mode has no memory function. After powering on again, the parameters are restored to the last setting. Note: If the sensor have the wireless networking function, the botton provides the functions is entering the distribution network mode.
	HS LS	N/A
		Daylight Sensor Set up Daylight Sensor: 5Lux/15Lux/30Lux/50Lux/100Lux/150Lux/Disable
		Stand-by period Set up Stand-by period: 0s/10s/1min/3min/5min/10min/30min/+∞
		Hold time Set up Hold time: 5s/30s/1min/3min/5min/10min/20min/30min
	50% 10%	Stand-by dim level Set up stand-by dim level: 10%/20%/30%/50%
		Detection Area Set up Detection Area: 25%/50%/75%/100%
	5m 10m 15m	Remote Distance Toggle bottom can set the remote distance of remote control and sensor.

Remote controland code setting conversion

1.DIP switch setting convert to remote control

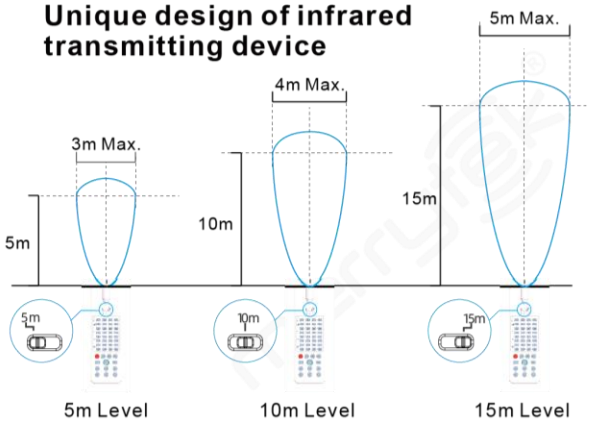
Press any bottom except "RESET" on the remote control, and the sensor settings convert to the function currently selected by the remote control. (No function button settings invalid)

2.remote control convert to DIP switch setting

a.Press the "RESET" button on the remote control, and all settings return to the DIP switch settings of the sensor.

b.Turn off the power, toggle any DIP switch, connect to the power, and all settings return to the DIP switch settings when supply power again.

Unique design of infrared transmitting device



【Initialization】

The light will be turned on 100% brightness after power on, and will be turned off after 10 seconds. During initialization, no external motion sensing signal will be detected.

【Default Setting】

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

Stand-by dim level: 10%

【Application Notice】

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

● Sensitivity area is related to moving speed of objects, size of moving objects, mounting height, mounting angle, working environment, reflecting materials and etc.. Given detecting area is typical value that was measured by 165cm/65kg testers in an indoor open environment.

● The detection area of the microwave sensor when installed on the wall will be greatly increased compared to when installed on the ceiling. If adopts wall ceiling, please reduce the sensitivity or contact our company to confirm the usage settings. The daylight thresholds are measured on a sunny day without shadow and in an ambient light diffuse reflection status. Different environment and climate cause different brightness values that daylight sensor measures.

● Sensor parameters may need to be reconfigured in different installation environments, please refer to the following instructions or contact the manufacturer.

● Sensor is for indoor use only. The waterproof effect for outdoor or half-outdoor use will be affected. Wind, rain, and moving objects may cause false triggering.

● The installation height of the sensor product cannot exceed 6 meters, and the optimal height is 3 meters. The distance between the two sensors should be greater than 3m.

● When the sensor is installed in a metal lamp, on a metal reflective surface, or in a small closed environment, the microwave will be reflected multiple times and cause false triggering. Please reduce the sensitivity of the sensor or contact the manufacturer for technical support.

● Please make sure that there are no moving signals such as fans, DC motors, sewer pipes, air outlets, etc. around the sensor, otherwise the sensor may cause false triggering.

● Microwaves cannot penetrate metal. Do not place product in a closed or a half-closed metal lamp. Neither metal nor glass is not allowed to cover above the product.

● Sensor are equipped with different PWM drivers, and the low-brightness effect may be different.

● DC regulated power supply with stable output voltage and low ripple coefficient must be used. The ripple of the power supply should be less than 100mV ; the load current should be greater than 25mA