

Sensor + RF AC Triac Dimmer

Model No.: E1-S + ER, E1-S + EC, E1-S + ED, E1-S + ED(C), E1-S + EB, E1-S + EB(C), E1-S + EM1, E1-S + EM2, E1-S + EM3

9 sensor detector, RF dimming/Trailing edge/Min brightness settable/Wall junction box mounting



FC RED

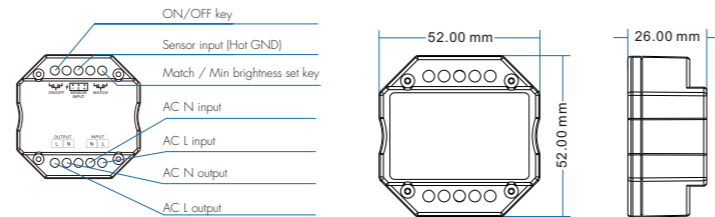
Features

- RF AC phase-cut trailing edge dimmer, to dim and switch single color dimmable LED lamps, traditional incandescent and halogen lights.
- Input connect with 9 kinds of sensor detector optional.
- Match with RF 2.4G dimming remote control optional, except PIR motion sensor input.
- Each triac dimmer can also work as Sensor - RF signal converter, control one or more other RF LED controller synchronously.
- PIR motion sensor: when people or objects enter the sensitive field, the light turn on; when these exit the sensitive field, the light turn off after 30 seconds.
- Touch sensor: short touch to turn on or turn off light; long touch to dimming up or down.
- Door sensor: when the door open, or no obstacle ahead, the light turn on gradually; when the door close, or obstacle ahead, the light turn off gradually.
- Hand sweep sensor: when hand sweep, the light turn on gradually; when hand sweep again, the light turn off gradually.
- 3 kinds of microwave motion detector: turn on the light upon detection of motion, and turn off after a pre-selected hold time when there is no movement, without dimming, with dimming and two-step dimming function respectively.
- All microwave motion detector, built-in daylight sensor, detection area, time delay and daylight threshold can be set via knob potentiometer for each specific application.
- Min brightness can be set by key.
- Light on/off fade time 3s selectable.
- Easy to be placed in standard wall junction box.
- Over-heat / Overload protection, recover automatically.

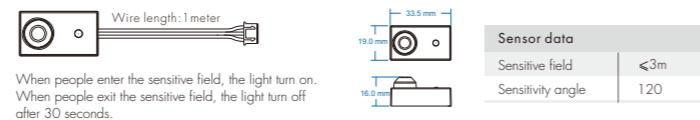
Technical Parameters

Input and Output		Dimming data	
Input voltage	AC100-240V	Input signal	Sensor + RF 2.4GHz
Output voltage	AC100-240V	RF Control distance	30m(Barrier-free space)
Output current	Max 1.5A	Dimming level	256 levels
Output power	150-360W	Dimming range	0-100%
Safety and EMC		Environment	
EMC standard(EMC)	ETSI EN 301 489-1 V2.2.3 ETSI EN 301 489-17 V3.2.4	Operation temperature	Ta: -30°C ~ +55°C
Safety standard(LVD)	EN 62368-1:2020+A11:2020	Case temperature (Max.)	Tc: +85°C
Radio Equipment(RED)	ETSI EN 300 328 V2.2.2	IP rating	IP20
Certification	CE, EMC, LVD, RED	Warranty	
		Warranty	5 years

Mechanical Structures and Installations

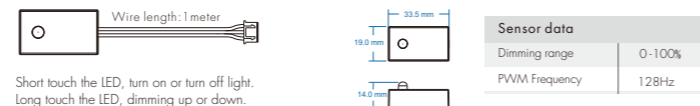


ER: PIR Motion Sensor



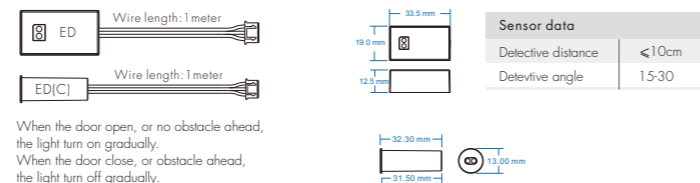
When people enter the sensitive field, the light turn on.
When people exit the sensitive field, the light turn off after 30 seconds.

EC: Touch Sensor



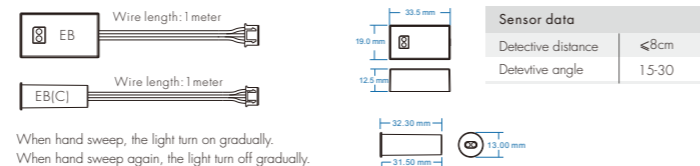
Short touch the LED, turn on or turn off light.
Long touch the LED, dimming up or down.

ED / ED(C): Door Sensor



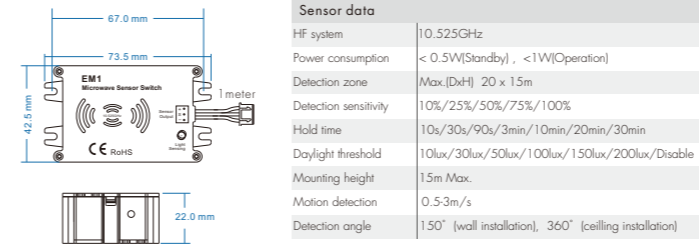
When the door open, or no obstacle ahead, the light turn on gradually.
When the door close, or obstacle ahead, the light turn off gradually.

EB / EB(C): Hand Sweep Sensor



When hand sweep, the light turn on gradually.
When hand sweep again, the light turn off gradually.

EM1: Microwave Sensor Switch

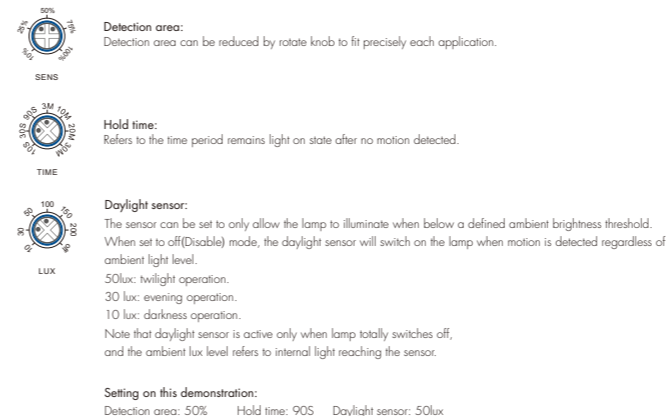


This sensor is a motion switch without dimming function, which turn on the light upon detection of motion, and turn off after a pre-selected hold time when there is no movement.

- With sufficient ambient light, the sensor does not turn on the light.
- With insufficient ambient light, the sensor turn on the light when motion is detected.
- After hold time, the light turns off if no motion detected.

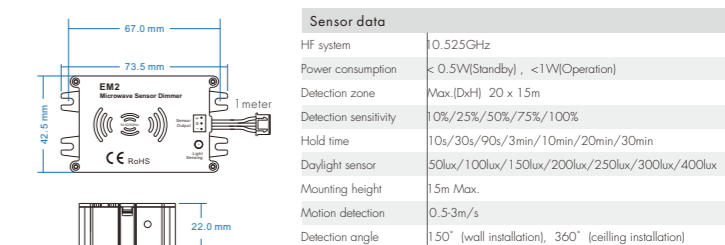
Sensor setting:

By selecting the combination on knob potentiometer, sensor data can be precisely set for each specific application.



EM2: Microwave Sensor Dimmer

E1-S Sensor + RF AC Triac LED Dimmer

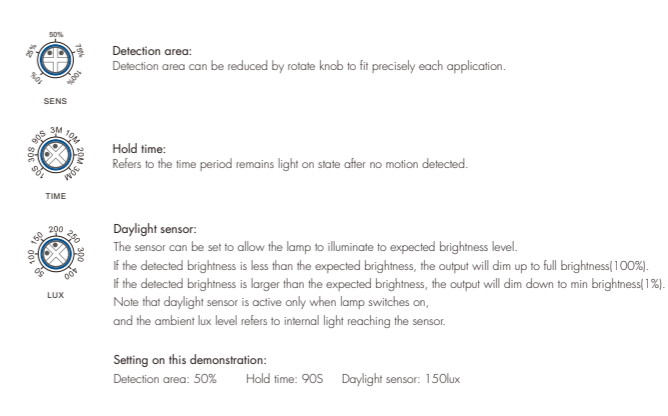


This sensor is a motion switch with dimming function, which turn on the light and dim up to expected brightness level upon detection of motion, and turn off after a pre-selected hold time when there is no movement.

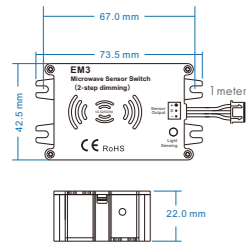
- The sensor turn on the light and dim up to expected brightness level when motion is detected.
- After hold time, the light turn off if no motion detected.

Sensor setting:

By selecting the combination on knob potentiometer, sensor data can be precisely set for each specific application.



EM3: Microwave Sensor Switch (2-step dimming)



Sensor data	
HF system	10.525GHz
Power consumption	< 0.5W(Standby) , <1W(Operation)
Detection zone	Max.(DxH) 20 x 15m
Detection sensitivity	10%/25%/50%/75%/100%
Hold time	10s/30s/90s/3min/10min/20min/30min
Stand-by time	10s/30s/90s/3min/10min/20min/30min
Daylight sensor	10lux/30lux/50lux/100lux/150lux/200lux/Disable
Mounting height	15m Max.
Motion detection	0.5-3m/s
Detection angle	150° (wall installation), 360° (ceiling installation)

This sensor is a motion switch with two-step dimming function, which turn on the light upon detection of motion, after a pre-selected hold time, dim to 20% brightness, and turn off after a pre-selected stand-by time when there is no movement.

1. With sufficient ambient light, the sensor does not turn on the light.
2. With insufficient ambient light, the sensor turn on the light and dim to 100% brightness when motion is detected.
3. After elapse of hold time, the sensor dim to 20% brightness if no new motion detected.
4. After elapse of stand-by time, the sensor turns off the light if no motion detected.

Sensor setting:

By selecting the combination on knob potentiometer, sensor data can be precisely set for each specific application.



Detection area:
Detection area can be reduced by rotate knob to fit precisely each application.

Hold time:
Refers to the time period remains light on and 100% brightness state after no motion is detected.

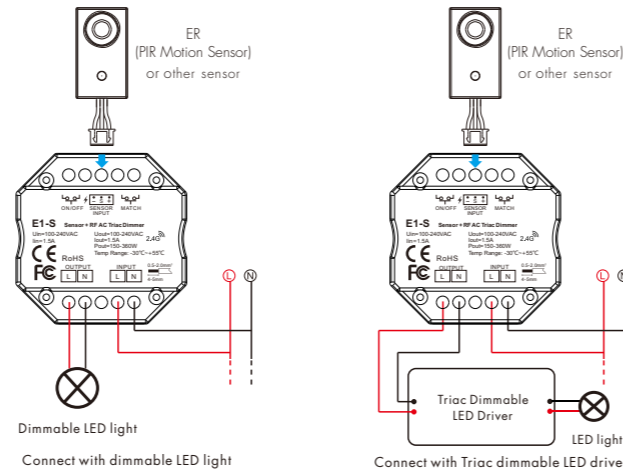
Stand-by time:
Refers to the time period remains light on and dim to 20% brightness state after elapse of hold time if no new motion is detected.
The stand-by time is same as the hold time.

Daylight sensor:
The sensor can be set to only allow the lamp to illuminate when below a defined ambient brightness threshold. When set to off(Disable) mode, the daylight sensor will switch on the lamp when motion is detected regardless of ambient light level.
50lux: twilight operation.
30 lux: evening operation.
10 lux: darkness operation.
Note that daylight sensor is active only when lamp totally switches off, and the ambient lux level refers to internal light reaching the sensor.

Setting on this demonstration:
Detection area: 50% Hold time & Stand-by time: 90S Daylight sensor: 50Lux

Wiring diagram

⚠ Caution: Please carefully ensure all wire connections and polarities are correct and secure before applying power, otherwise this dimmer will be damaged.



Note: When calculating the maximum number of load lamps or drivers, the input power or input current parameters of a single lamp or driver must be used, the output power parameters can not be used. In addition, the maximum surge current of the dimmer is 65A, the sum of surge current of multiple dimmable LED drivers should not exceed 2 times. otherwise, the product will be overloaded and damaged.

Min brightness setting

Long press MATCH key for 2s, the light blink 2 times, ready for min brightness set, then short press MATCH key 1-6 times, to get 6 min brightness: 5%, 10%, 15%, 20%, 25% or 30%, the light will output the current min brightness immediately, long press MATCH key for 2s or wait 8s, quit min brightness set, the light will output 100% brightness automatically.

Light on/off fade time

Long press MATCH key 5s, then short press match key 3 times, the light on/off time will be set to 3s, the indicator light blink 3 times.

Long press MATCH key 10s, restore factory default parameter, the light on/off time also restore to 0.5s.

Match Remote Control (Optional)

The triac dimmer can match with RF 2.4G dimming remote control optional, except PIR motion sensor input. For PIR motion sensor input, please long press the MATCH key 10s to disable the RF remote match function. For other sensor input, please long press the Match key 5s to enable the RF remote match function. End user can choose the suitable match/delete ways. Two options are offered for selection:

Use the MATCH key

Match:
Short press MATCH key, immediately press on/off key (single zone remote) or zone key (multiple zone remote) of the remote.

Delete:
Press and hold MATCH key for 5s to delete all match, The light blinks 5 times means all matched remotes were deleted.

Use Power Restart

Match:
Switch off the power, then switch on power, repeat again. Immediately short press on/off key (single zone remote) or zone key (multiple zone remote) 3 times on the remote.

Delete:
Switch off the power, then switch on power, repeat again. Immediately short press on/off key (single zone remote) or zone key (multiple zone remote) 5 times on the remote.

Work as Sensor-RF signal converter to match other RF LED controller (Optional)

The triac dimmer can also work as Sensor - RF signal converter, control one or more other RF LED controller synchronously. When short press the ON/OFF key on the triac dimmer, the output turn on or turn off, also send out RF on/off signal. End user can choose the suitable match/delete ways. Two options are offered for selection. When the match is done, the sensor signal will also control the matched RF LED controller.

Use the controller's Match key

Match:
Short press Match key of the controller, immediately press ON/OFF key on the triac dimmer. The LED indicator fast flash a few times means match is successful.

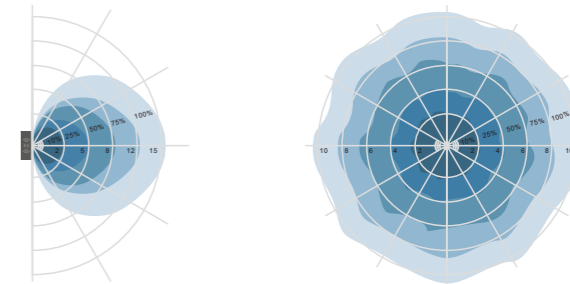
Delete:
Press and hold Match key of the controller for 5s, The LED indicator fast flash a few times means match was deleted.

Use Power Restart

Match:
Switch off the power of the controller, then switch on power, repeat again. Immediately short press ON/OFF key 3 times on the triac dimmer. The light blinks 3 times means match is successful.

Delete:
Switch off the power of the controller, then switch on power, repeat again. Immediately short press ON/OFF key 5 times on the triac dimmer. The light blinks 5 times means match was deleted.

Microwave Sensor Detection Pattern



Wall mounting pattern(Unit:m)
Suggested installation height: 1-1.8m

Ceiling mounting pattern(Unit:m)
Suggested installation height: 2.5-15m

Microwave Sensor User recommended settings

Scenarios	Settings	Detection distance	Hold time	Daylight sensor
Passage, staircase		4-6m	10s	Twilight(50lux) / Darkness(10lux)
Balcony, corridor		4-6m	10s	Twilight(50lux) / Darkness(10lux)
Cloakroom, storeroom		2-3m	90s	Evening(30lux)
Garage		2-3m	90s	Evening(30lux)
Kitchen		3-4m	90s	Evening(30lux)
Dinning room		3-4m	3min	Evening(30lux) / Twilight(50lux)
Toilet		2-3m	3min	Daytime(>50lux) / Evening(30lux)
Meeting room		2-3m	10min	Evening(30lux)
Indoor public access		4-6m	10min	Daytime(>50lux)
Underground public access		4-6m	10min	Daytime(>50lux)

Microwave Application Notice

1. The sensor is designed for indoor use only. The raining or wind blowing may trigger the microwave sensor even if without human motion when outdoor use.
2. The sensor should be installed by a professional electrician. please turn off the power before installing, wiring and changing setting of the knob.
3. The distance between any two sensors should be at least 3m to avoid interference each other.
4. When the microwave sensor is installed in a metal lighting fixture or space with large reflector, for example a warehouse with metal roof, the microwave signal will be reflected and cause the lights permanent illuminated even if without motion signal. Please reduce the detection area to solve the problems.
5. Make sure the sensor not close to or be blocked by high density materials, such as metal, glass, concrete walls etc. The materials will reduce or block microwave signal and cause false trigger.
6. The sensor which installed in the plastic and glass lampshade will reduce th sensitivity. For every 3mm increase in thickness, the sensitivity will reduced by 20%.
7. The light sensitivity threshold is in a sunny environment, no shadow and ambient light diffuse reflection. Ambient lux level could be different in different environment, weather, climate, time-of-delay and season.
8. Make sure there are no fans, DC motor, or other vibrating objects in installation area. The movement will trigger sensor as well.