ES3

Dual Sensor 3CH LED Controller

Sensor



CE RoHS

Features

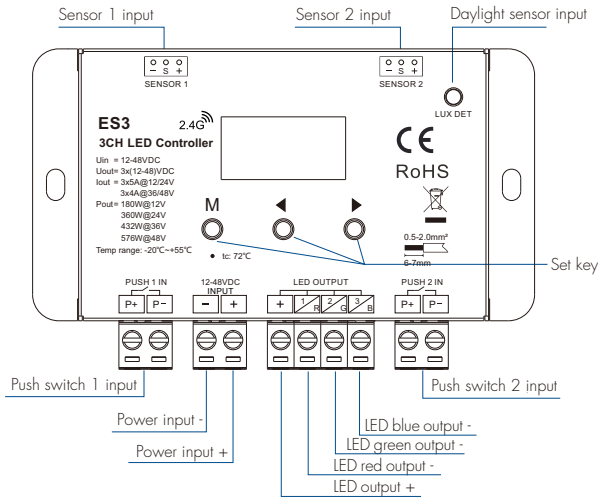
- Support dual sensor + dual push switch input LED controller, 3 channel constant voltage output.
- OLED display screen, 3 buttons operation, support setting light color, dynamic effects, brightness and speed.
- Compatible with single or dual sensor input, can connect a variety of sensing probes, including PIR human motion sensor, door sensor, hand sweep sensor, etc.
- Support daylight sensing.
- Connect single or dual push switch for on/off, brightness adjustment and color switch.
- Match with 2.4GHz RF single-zone or multi-zone DIM/CCT/RGB remote controls.
- 3 lighting types optional (DIM, CCT, RGB).
- 6 PWM output frequencies optional(500Hz, 1KHz, 2KHz, 4KHz, 8KHz, 16KHz).
- Logarithmic curve dimming (Gamma 0.1–9.9).
- Fade-in/fade-out time for switching lights on/off can be set (0–5s).

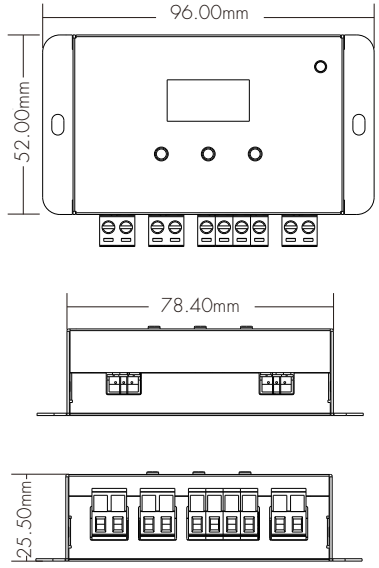
Technical Parameters

Input and Output	
Input voltage	12-48VDC
Output voltage	3x(12-48)VDC
Output current	3x5A@12/24V 3x4A@36/48V
Output power	180W@12V, 360W@24V 432W@36V, 576W@48V
PWM frequency	500Hz/1KHz/2KHz (default) / 4KHz/8KHz/16KHz
Input signal	PIR sensor + push swich + RF 2.4GHz
Output type	Constant voltage
Package	
Size	L100 x W65 x H35mm
Gross weight	0.165kg

Safety and EMC	
EMC standard	EN IEC 55015/ EN IEC 61547 ETSI EN 301 489-1/-3
Safety standard	EN 61347-1/-2
Radio equipment	ETSI EN 300 440
Certification	CE RoHS
Warranty	5 years
Protection	Short circuit, anti-reverse, overheat
Environment	
Operation temperature	Ta: -20°C ~ +55°C
Case temperature (Max.)	Tc: +72°C
IP rating	IP 20

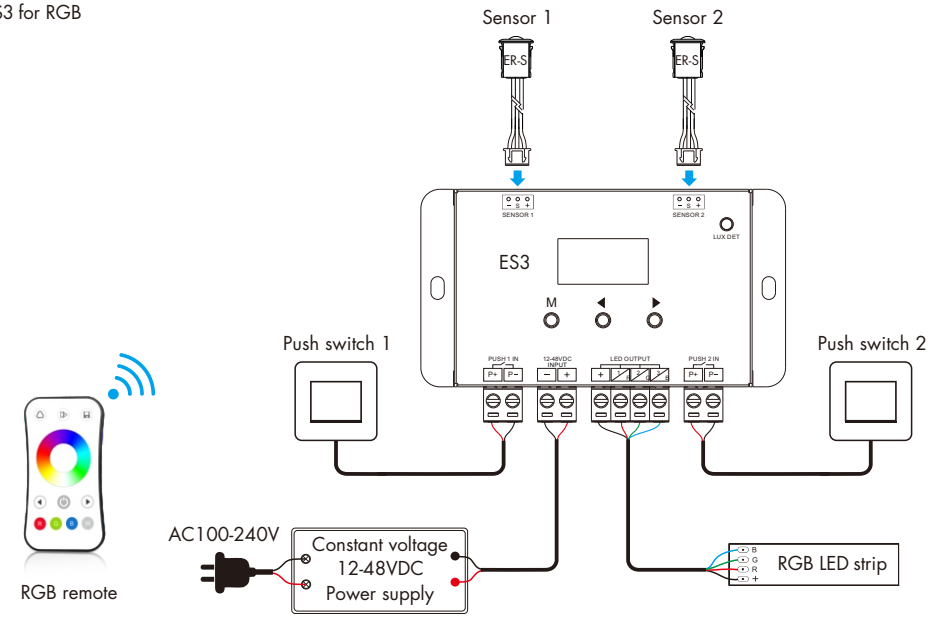
Mechanical Structures and Installations



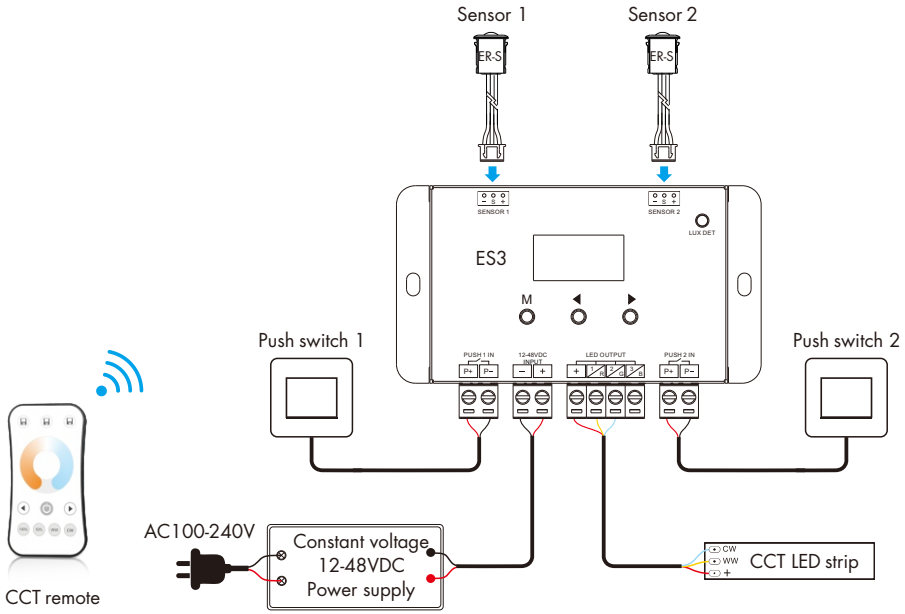


Wiring Diagram

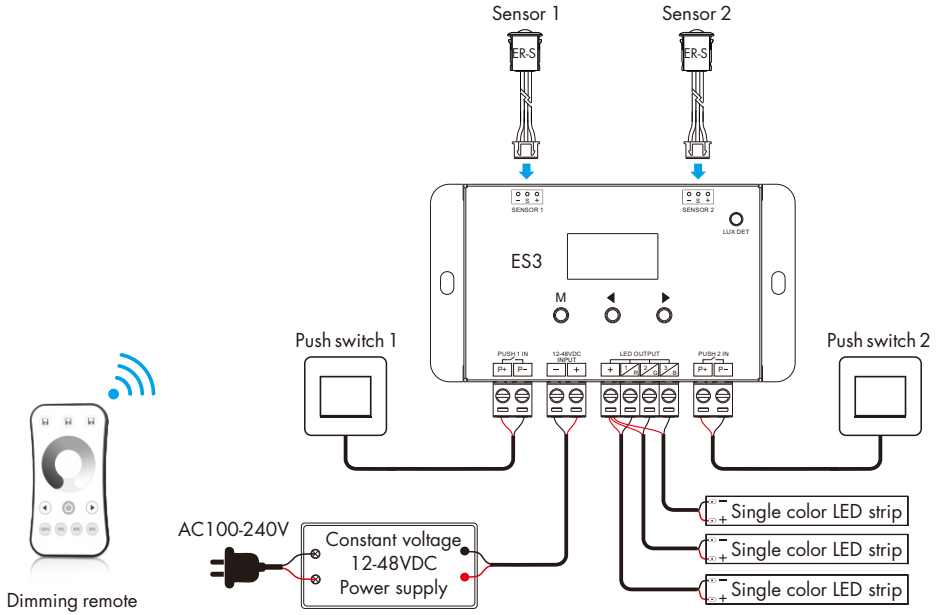
- ES3 for RGB



● ES3 for dual color



● ES3 for single color



OLED Screen and Button Operation

1. Main interface



Main interface(RGB/CCT) Main interface(DIM) Main interface(Sensor in) Main interface(Push switch in) Main interface(Light off)

Short press M key to switch color, mode, bright, speed each setting item. Short press ◀ or ▶ key to adjust each parameter value.

- Color: Switch various color modes (see table 1 and table 2, the DIM light type does not have this setting).
- Mode: Static/Gradient/Jump (when set to DIM, the gradient effect fade in and out).
- Bright: Adjustable from 5% to 100%.
- Speed: Adjustable from 1 to 10; 10 is the fastest speed (no speed adjustment in static mode).

The input status of the sensor or the push switch and light off status is displayed in the bottom-right corner of the screen.

1 - Sensor 1 input 2 - Sensor 2 input 1 - Push switch 1 input 2 - Push switch 2 input - Light off

RGB color mode:

No.	Name	No.	Name	No.	Name
01	DIY or DIY-RF	09	White	17	B/C(Blue-Cyan)
02	Red	10	R/G/B	18	B/P(Blue-Purple)
03	Orange	11	7 color	19	R/W(Red-White)
04	Yellow	12	Y/C/P(Yellow-Cyan-Purple)	20	Y/W(Yellow-White)
05	Green	13	R/Y(Red-Yellow)	21	G/W(Green-White)
06	Cyan	14	R/P(Red-purple)	22	C/W(Cyan-White)
07	Blue	15	G/Y(Green-Yellow)	23	B/W(Blue-White)
08	Purple	16	G/C(Green-Cyan)	24	P/W(Purple-White)

(Table 1)

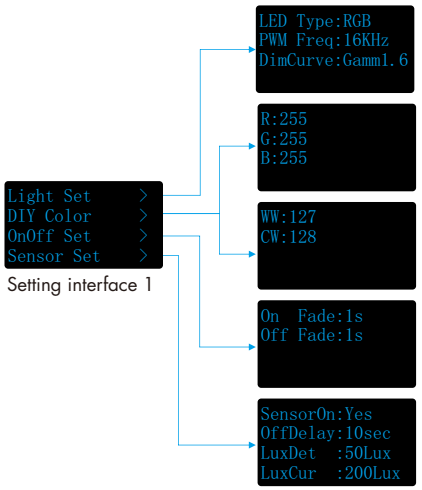
CCT color mode:

No.	Name
01	DIY or DIY-RF
02	WW
03	NW
04	CW
05	WW/CW
06	NW/WW
07	NW/CW
08	WW/NW/CW

(Table 2)

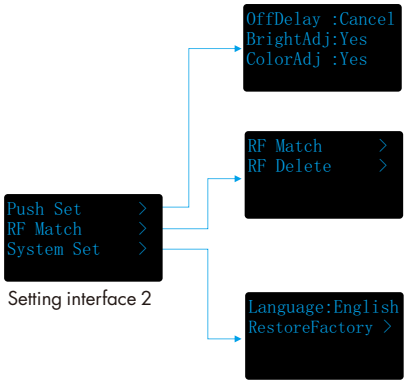
2. Setting interface

Long press M key 2s to enter the setting interface(2 pages).
Short press M key switch each setting item, short press ▶ key to enter the corresponding sub-interface, short press ◀ or ▶ key to set parameter value.
Long press M key 2s to exit setting or return to the previous interface.



Setting interface 1

- LED Type: Set up 3 light type(DIM, CCT, RGB).
- PWM Freq: Set up 6 output PWM frequencies (500Hz, 1KHz, 2KHz, 4KHz, 8KHz, 16KHz).
- DimCurve: Set up the gamma curve (Gamm 0.1–9.9).
- DIY Color: Set up the light colour in DIY mode, adjustable from 0 to 255. For RGB light type, set up the R/G/B brightness. For CCT light type, set up the WW/CW brightness.
- On Fade: Set up the fade-in time for the lights(0s, 1s, 2s, 3s, 5s).
- Off Fade: Set up the fade-out time for the lights(0s, 1s, 2s, 3s, 5s).
- SensorOn: Turn the sensor control on/off(Yes/No).
- OffDelay: Set up the delay time for the lights to switch off automatically after the sensor detection ends (5sec, 10sec, 15sec, 20sec, 30sec, 1min, 3min, 5min, 10min, Cancel).
- LuxDet: set up the light on when ambient light level less than the setting level (10Lux, 30Lux, 50Lux, 100Lux, 150Lux, 200Lux, Off). When set to off, the controller will switch the lights on when a motion is detected, regardless of the ambient light level.
- LuxCur: Display the current ambient light level.



Setting interface 2

- OffDelay: Set the delay time for the lights to switch off automatically after the push switch detection ends (5sec, 10sec, 15sec, 20sec, 30sec, 1min, 3min, 5min, 10min, Cancel).
- BrightAdj: Yes/No. Set whether to adjust brightness by long press the push switch.
- ColorAdj: Yes/No. Set whether to adjust color by double click and long press the push switch.
- RF Match: Short press ▶ key to enter RF Match condition, the interface will show "RF Matching...". Within 7s, short press the On/Off button on the remote control immediately, the interface shows "RF Match OK", return to the main interface automatically. Within 7s, if no match operation, exit the RF Match automatically.
- RF Delete: Short press ▶ key to delete all matched remotes, the interface shows"RF Delete OK" , return to the main interface automatically.
- Language: Short press◀ or ▶ key to switch the language(Chinese/English).
- RestoreFactory: Short press ▶ key to restore factory settings, the interface shows "Restore OK ", return to the interface automatically.

Factory default parameters: language set to English by default, RF remote unpaired, static mode, 100% brightness, no speed adjustment, RGB light type, PWM frequency is 2KHz, dimming curve is Gamma 1.6, 1s on/off fade time, motion sensor set to "Yes", 10s motion sensor delay before lights switch off, daylight sensor threshold set to 50 lux, push switch delay set to "Cancel", bright adjustment set to "Yes", color adjustment set to "Yes".

Push Switch Function

2 push switches can be used to switch the lights on/off, adjust the brightness and change the light color.

1. DIM light type

Short press: Turn the light on/off.
Double click: Switch between 10% and 100% brightness.
Long press(1-6s): Adjust light brightness continuously, dimming range 5-100%.

2. CCT light type

Short press: Turn the light on/off.
Double click: Switch 3 levels color temperature(WW-NW-CW), and enter the long-press color temperature adjustment mode. if no operation after 5s, return to the enter the long-press brightness adjustment mode automatically.
Long press(1-6s): Adjust the brightness or color temperature. Adjust the brightness by default, dimming range 5-100%.

3. RGB light type

Short press: Turn the light on/off.
Double click: Switch between color light and mixed white light (current color +50% saturation), and enter the long-press adjusting color or saturation mode at the same time. if no operation after 5s, return to the enter the long-press brightness adjustment mode automatically.
Long press(1-6s): Adjust the brightness, color or saturation. Adjust the brightness by default, dimming range 5-100%.

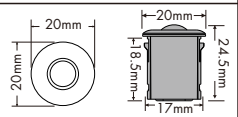
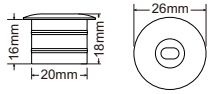
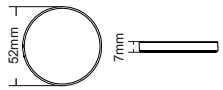
Notes:
1. If the brightness adjustment set to "No", it can not long press to adjust the brightness.
2. If the color adjustment set to "No", it can not double click to switch color.
3. When using push switch double click or long press to adjust color, the device will switch to DIY static color mode automatically, and the DIY color values will be updated immediately.

PWM Frequency and Output Current Mapping

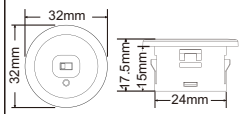
Iout / PWM / Uin	500Hz	1KHz	2KHz	4KHz	8KHz	16KHz
12/24V	3x5A	3x5A	3x5A	3x4A	3x4A	3x4A
36/48V	3x4A	3x4A	3x4A	3x3A	3x3A	3x2.5A

Note: Higher PWM frequency, will cause lower output current, higher power noise, but more suitable for camera(No Flickers for video). The factory default PWM frequency is 2KHz.

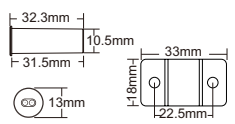
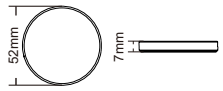
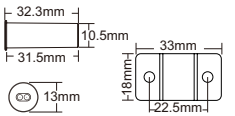
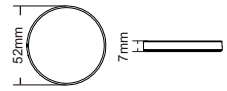
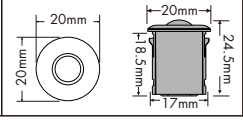
Available Sensor Heads

Type	Model / name	Product pictrue	Size	Sensor data	Feature
Motion sensing	ER-S PIR motion sensor			Sensitive field: 3-4m Sensitivity angle: 120°	When people enters the sensor's detection range, the light is on; when people leaves the sensor's detection range, the light is off after a delay.
	ER-C PIR motion sensor			Sensitive field: ⩽1.5m Sensitivity angle: 30° Delay-off time: 2s	
	E1-M Contactless human motion sensor			Sensitive field: 0.5-5m Sensitivity angle: 120° Delay-off time: 10-300s	

Note: Total delayed light off time = Controller delay off time + Sensor head delay off time.

Type	Model / name	Product pictrue	Size	Sensor data	Feature
Laser sensing	EL-C Laser sensors			Sensitive field: 0.05-2.5m Sensitivity angle: 20° Delay-off time: 0-60s	When people enters the sensor's detection range, the light is on; when people leaves the sensor's detection range, the light is off after a delay.

Note: The delay-off time of the laser sensor itself must be set to 0s.

Type	Model / name	Product pictrue	Size	Sensor data	Feature
Door control sensing	ED(C) Door sensor			Sensitive field: ⩽8cm Sensitive angle: 15-30°	When the door open or no obstruction is detected ahead, the light gradually brightened; When the door close or an obstruction is detected ahead, the light gradually go out.
Hand-sweep sensing	E1-W Contactless hand sweep sensor			Sensitive field: ⩽5 cm Dimming range: 5-100%	Hand sweep once the light fade on, sweep again the light fade off.
	EB(C) Hand sweep sensor			Sensitive field: ⩽10cm Sensitive angle: 15-30°	
Touch sensing	E1-T Contactless Touch sensor			Dimming range:5-100% Sensitive field: Surface-mounted: 0–1cm Recessed-mounted: 3–4cm	Short press to turn lights on/off; long press to adjust brightness.
	EC-A Touch sensor			Dimming range:0-100%	

Note: Set the sensor controller's delay-off time to Cancel to cancel delayed off, for dimmable motion-sensing headers, the controller must be set to a PWM frequency of ≤2 kHz, LuxDet is set to Off.