SE-20-250-1000-W2B3

LTECH
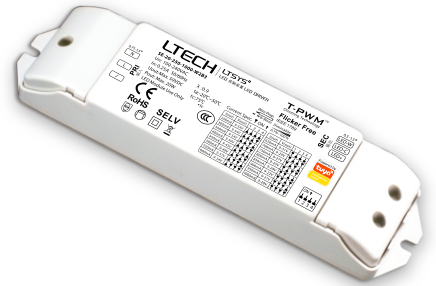
Tuya Bluetooth Mesh

LED Smart Tunable White Driver (Constant Current)

2.25~20W   250~1000mA   9~54Vdc

- Adopt SAMSUNG/COVESTRO V0 flame resistant polycarbonate protective housings with small size and light weight.
- Bluetooth Mesh & Tuya application protocol with high networking capability are reliable and stable.
- With soft-on and fade-in dimming function enhancing visual comfort.
- Adjust brightness levels when lights are turned on or go to the brightness level adjusted last time.
- T-PWM dimming technology allows continuous and flicker-free images under high-speed shooting.
- 0-100% flicker-free dimming with high frequency exemption level.
- Dimming from 0~100%, LED dimming starts at 0.1% possible.
- Color temperature unchanged as it dims, brightness also remains the same during color temperature adjustments.
- Innovative thermal management technology protects the power life intelligently.
- Overheat, over voltage , overload, short circuit protection and automatic recovery.
- Suitable for indoor light applications of Ⅰ/Ⅱ/Ⅲ.
- Up to 50000-hour life time.
- 5 -year warranty (Rubycon capacitor).

LTECH | Tuya
Strategic Partnership

T-PWM™
Super depth dimming technology

Flicker-free
IEEE 1789

Dimmable:
0.1%-100%

Dim/CT

5 Year Warranty

CCC   CE   SELV RoHS

Bluetooth | T-PWM Super depth dimming technology | Flicker-free IEEE 1789 | Short circuit protection | Overload protection | Overheat protection

Technical Specs

Wireless type:	Tuya Bluetooth Mesh	Input voltage:	100-240Vac (120-300Vdc)
Output voltage:	9-54Vdc	Frequency:	0/50/60Hz
Max output voltage:	59Vdc	Input current:	115Vac≤0.25A, 230Vac≤0.13A
Output power:	Max. 20W	Power factor:	PF>0.95/115Vac, PF>0.90/230Vac (Full load)
Output current:	250-1000mA	Efficiency:	83%
Flicker level:	No visible flicker/High frequency exemption level	Inrush current:	Cold start10A@230Vac (Test twidth=40 us tested under 50% Ipeak)
Dimming range:	0~100%, dimming down to 0.1%	Anti surge:	L-N: 2kV
LF current ripple(<120Hz):	<1%	Leakage current:	<0.24mA/230Vac
Current accuracy:	±5%	Working temperature:	ta: -20 ~ 50°C tc: 75°C
Ripple & noise:	≤2V	Working humidity:	20 ~ 95%RH, non-condensing
PWM dimming frequency:	≤3600Hz	Vibration:	10~500Hz, 2G 12min/1cycle, 72 min for X, Y and Z axes respectively

Protection

Overheat protection:	Intelligently adjust or turn off the output current if the PCB temperature ≥110°C, and recover automatically
Overload protection:	Shut down the output and recover automatically once it exceeds 1.02 times of the max load power.
Overvoltage protection:	Shut down the output and recover automatically once it exceeds no-load voltage.
Short circuit protection:	When short circuit occurs, shut down the output and recover automatically.

Safety & EMC

Withstand voltage:	I/P-O/P:3750Vac
Insulation resistance:	I/P-O/P:100MΩ/500VDC/25°C/70%RH
Safety standards:	IEC/EN61347-1, IEC/EN61347-2-13
EMC emission:	EN55015, EN61000-3-2 Class C, IEC61000-3-3
EMC immunity:	EN61000-4-2,3,4,5,6,8,11, EN61547
Strobe test standard:	IEEE 1789

Others

Dimensions(L×W×H):   167×41×32mm   Package size(L×W×H):   168×43×35mm   Gross weight: 160g±10g
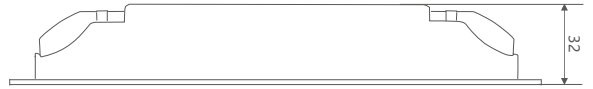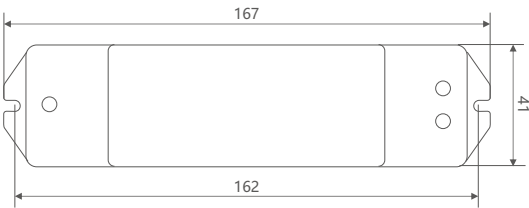
LED Current Selection

DIP switch quickly selects multiple current value(See the table below).　▲ Please set current value when the driver is power-off

DIP switch

	DIP switch									
SE-20-250-1000-W2B3	Output current	250mA	300mA	350mA	400mA	450mA	500mA	550mA	600mA	↑ ON
	Output voltage	9-54V	9-54V	9-54V	9-50V	9-45V	9-40V	9-37V	9-34V	
	Output power	2.25-13.5W	2.7-16.2W	3.15-18.9W	3.6-20W	4.05-20.25W	4.5-20W	4.95-20.35W	5.4-20.4W	
	DIP switch									
	Output current	650mA	700mA	750mA	800mA	850mA	900mA	950mA	1000mA	↓ OFF
	Output voltage	9-31V	9-29V	9-27V	9-25V	9-24V	9-22V	9-21V	9-20V	
	Output power	5.85-20.15W	6.3-20.3W	6.75-20.25W	7.2-20W	7.65-20.4W	8.1-19.8W	8.55-19.95W	9-20W	

Product Size

Unit: mm

Wiring Diagram

Wireless connection mode

W
C

DIM: 0~100%
CCT: 2700-6500K

Wire diameter: 0.75-1.5▫
Strip length: 8mm-9mm

Wire diameter: 0.5-1.5▫
Strip length: 8mm-9mm

Access the network to control through App and Bluetooth
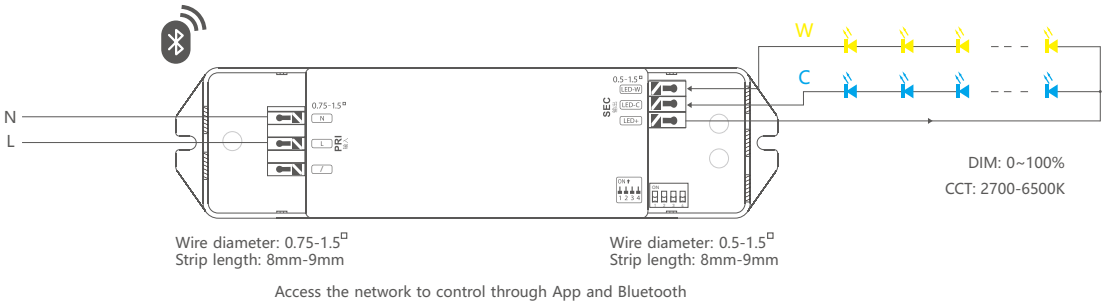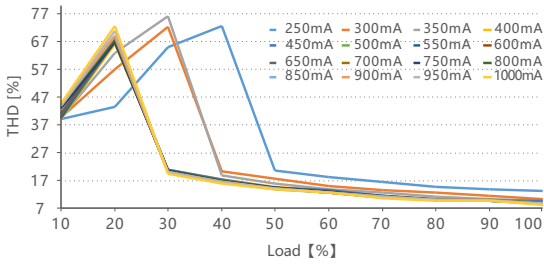
4-wire LED lamp connection
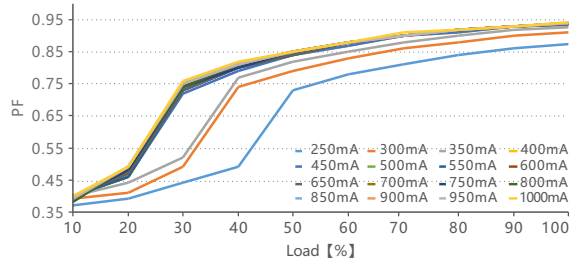

LED-W
LED-C
LED+

W
C

W　Max. 20W
C　Max. 20W
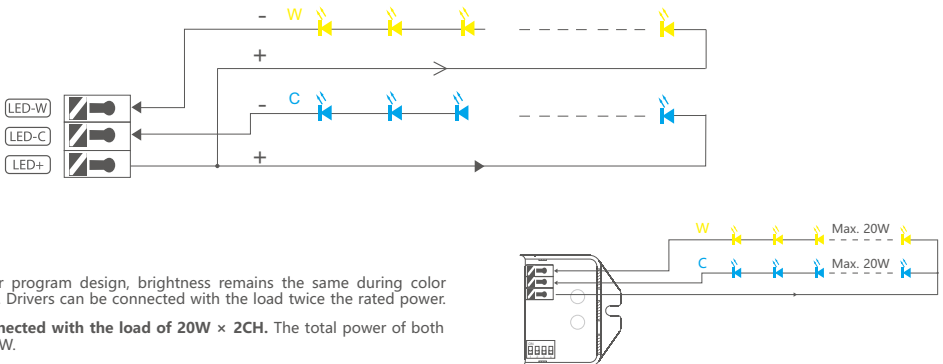
＊ With the constant power program design, brightness remains the same during color temperature adjustments. Drivers can be connected with the load twice the rated power.

20W drivers can be connected with the load of 20W × 2CH. The total power of both channels keeps within 20W.
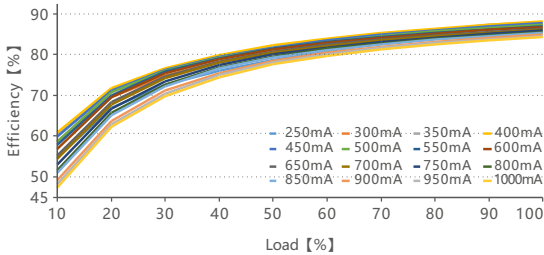
Relationship Diagrams

THD Characteristic Curve

Legend: 250mA, 300mA, 350mA, 400mA, 450mA, 500mA, 550mA, 600mA, 650mA, 700mA, 750mA, 800mA, 850mA, 900mA, 950mA, 1000mA

Y-axis: THD [%]
X-axis: Load [%]

Power Factor Characteristic Curve

Legend: 250mA, 300mA, 350mA, 400mA, 450mA, 500mA, 550mA, 600mA, 650mA, 700mA, 750mA, 800mA, 850mA, 900mA, 950mA, 1000mA

Y-axis: PF
X-axis: Load [%]

Efficiency VS Load

Legend: 250mA, 300mA, 350mA, 400mA, 450mA, 500mA, 550mA, 600mA, 650mA, 700mA, 750mA, 800mA, 850mA, 900mA, 950mA, 1000mA

Y-axis: Efficiency [%]
X-axis: Load [%]

Flicker Test Table

IEEE 1789

Limit Value of Modulation in Low Risk Areas	
Waveform frequency of Optical output	Limit value (%)
$f \leq 8Hz$	0.2
$8Hz < f \leq 90Hz$	$0.025 \times f$
$90Hz < f \leq 1250Hz$	$0.08 \times f$
$f > 1250Hz$	Exemption assessment
Limit Value of Modulation in No Effect Areas	
Waveform frequency of Optical output	Limit value (%)
$f \leq 10Hz$	0.1
$10Hz < f \leq 90Hz$	$0.01 \times f$
$90Hz < f \leq 3125Hz$	$(0.08/2.5) \times f$
$f > 3125Hz$	Exemption assessment (High frequency exemption)

Brightness legend: 0.1%, 1%, 5%, 10%, 20%, 30%, 40%, 50%, 60%, 70%, 80%, 90%, 100%

Modulation Area

High Frequency Exemption Area

IEEE 1789 High Risk

IEEE 1789 No Effect

IEEE 1789 low Risk

Modulation(%)
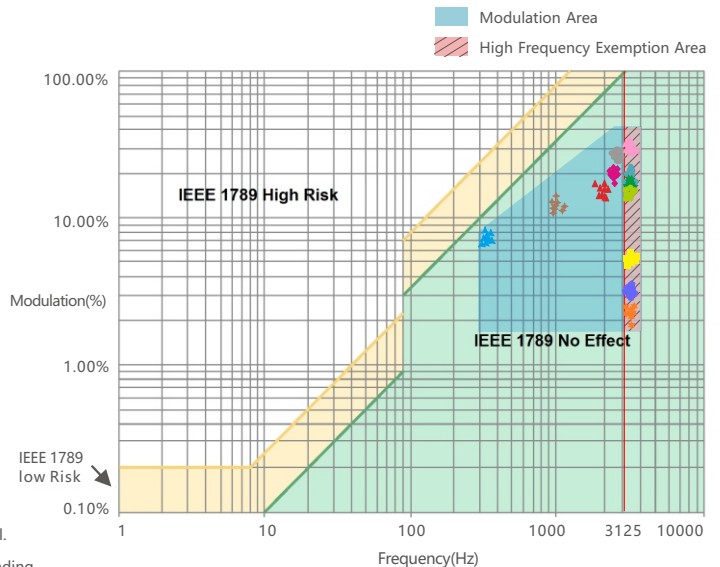
Frequency(Hz)

Marks in the right chart are tested results of different current level.

The output frequency is 0Hz in 100% brightness and its corresponding modulation is 0%, which could not be shown in the right chart.

Record Sheet of Color Temperature Testing

The parameters below are tested results conducted at 250mA current.

BRT \ CT	3000K	3500K	4000K	4500K	5000K	5500K	6000K
1%	46.5LX	47.8LX	49.2LX	50.5LX	51.6LX	52.6LX	57.3LX
	1.8mA	1.9mA	1.9mA	1.8mA	1.9mA	1.9mA	1.9mA
10%	506.9LX	528.7LX	541.7LX	556.2LX	569.7LX	581.4LX	600.5LX
	19.8mA	19.8mA	19.8mA	19.8mA	19.9mA	19.8mA	19.9mA
20%	1025.3LX	1062.7LX	1101.2LX	1130.2LX	1160.5LX	1182.2LX	1217.1LX
	41.1mA	41.1mA	41.2mA	41.1mA	41.1mA	41.1mA	41.2mA
30%	1570.4LX	1628.9LX	1685.1LX	1738.2LX	1779.6LX	1821.5LX	1873.3LX
	64.7mA	64.7mA	64.8mA	64.7mA	64.6mA	64.7mA	64.7mA
40%	2078.7LX	2171.5LX	2246.5LX	2306.7LX	2366.5LX	2421.6LX	2485.1LX
	89.5mA	89.5mA	89.5mA	89.5mA	89.5mA	89.5mA	89.5mA
50%	2512.6LX	2637.5LX	2723.2LX	2813.6LX	2894.7LX	2945.9LX	3028.7LX
	109.2mA	109.2mA	109.2mA	109.2mA	109.2mA	109.2mA	109.2mA
60%	3027.9LX	3172.4LX	3281.9LX	3394.4LX	3485.6LX	3577.7LX	3659.3LX
	135.4mA	135.4mA	135.5mA	135.4mA	135.4mA	135.5mA	135.4mA
70%	3587.8LX	3738.6LX	3919.1LX	4024.8LX	4143.3LX	4235.1LX	4348.7LX
	164.9mA	164.9mA	164.9mA	164.9mA	164.9mA	164.9mA	164.9mA
80%	4022.8LX	4225.0LX	4426.4LX	4550.3LX	4700.9LX	4785.7LX	4913.5LX
	190.6mA	190.6mA	190.6mA	190.6mA	190.5mA	190.6mA	190.6mA
90%	4519.6LX	4730.6LX	4934.6LX	5109.4LX	5241.7LX	5392.5LX	5497.7LX
	218.3mA	218.2mA	218.3mA	218.3mA	218.2mA	218.3mA	218.3mA
100%	5122.8LX	5343.5LX	5570.4LX	5776.6LX	5892.0LX	5950.8LX	6229.7LX
	248.2mA	248.1mA	248.1mA	248.1mA	248.1mA	248.1mA	248.2mA

Record Sheet of Different Brightness Level Testing

The parameters below are tested results conducted at 250mA current.

BRT \ CT	3000K	3500K	4000K	4500K	5000K	5500K	6000K
1%	3013K	3522K	4048K	4627K	5154K	5721K	6316K
10%	3018K	3498K	4034K	4570K	5100K	5674K	6268K
20%	3015K	3495K	4020K	4549K	5067K	5620K	6217K
30%	3018K	3490K	4013K	4544K	5048K	5602K	6182K
40%	3021K	3489K	4009K	4539K	5038K	5577K	6158K
50%	3028K	3493K	4006K	4536K	5030K	5571K	6135K
60%	3031K	3498K	4009K	4525K	5025K	5553K	6117K
70%	3035K	3520K	4010K	4529K	5016K	5541K	6101K
80%	3041K	3505K	4009K	4527K	5004K	5534K	6091K
90%	3046K	3509K	4007K	4523K	4996K	5526K	6074K
100%	3050K	3503K	4005K	4518K	4985K	5509K	6065K

App Operating Instructions

1. Register an account

TuyaSmart is compatible with IOS and Android systems. Scan the QR code below with you mobile phone and follow the prompts to complete the app installation. After installation completed, you can log in or register an account.

App support

App download

2. Paring instructions

A new user clicks "Me" → "Home Settings Management" → "Create Home Settings", confirm your home location and give names for all rooms of your home. Click "My Home Settings" and come to "Add Device" interface. After obtaining appropriate privileges for accessing devices, select "Auto-discovery" in "Add Devices" list to automatically search devices, and then Bluetooth/WIFI/Zigbee and other wired devices can be discovered. Follow the prompts to complete the device addition (Please make sure the devices are in the network configuration mode).

3. Lighting control settings

After paring the device, click the lighting added and adjust to the appropriate lighting status by controlling color temperature and dimming. There also exists lighting alarm clock(Tuya Bluetooth Gateway needs to be added) and countdown functions in "Settings".
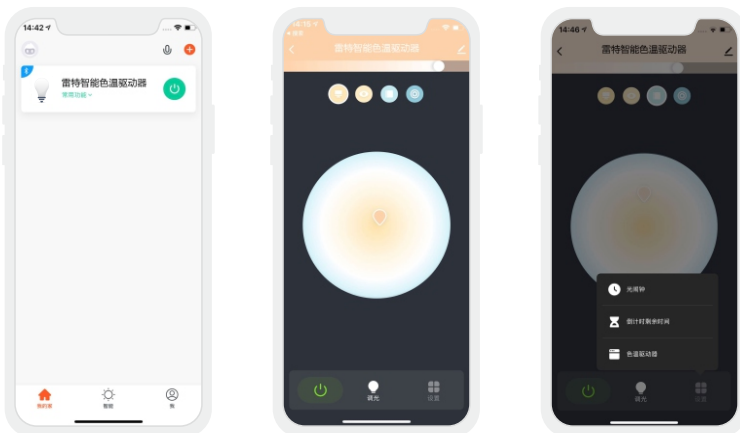
4. Remote control and automation

4.1 Remote control：Add Tuya Bluetooth Gateway by searching bluetooth. After adding the gateway, follow the prompts to configure the gateway to the network. After configuring, access the gateway interface and click "Add in the list" or "Search new devices" to add the device to the gateway, and then the device can be controlled remotely.

4.2 Automation settings: After adding Tuya Bluetooth Gateway, control the lighting remotely by clicking "Automation" in the "Intelligence" interface. Set status changes for weather, location, timing and other equipment in "Automation" to trigger the lighting effects preset and realize the lighting automation.
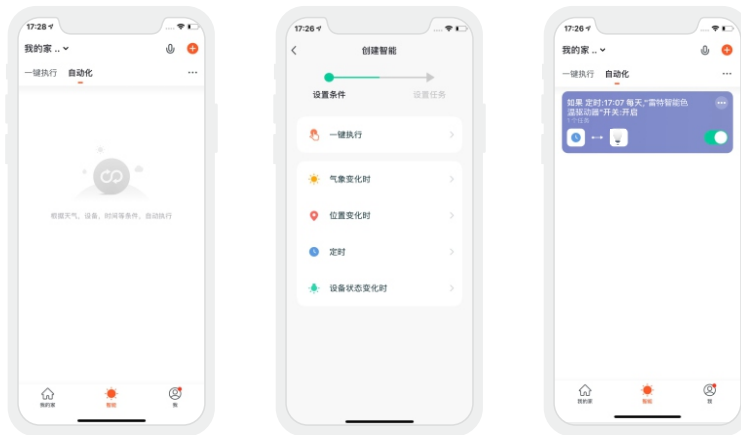
Reset the device (Reset to factory defaults)

When the driver is power-on, turn off it and after 10s turn it on. After 2s, turn it off again. Repeat the same operation 5 times and then turn on the driver again. When the lamp is flashing (2 flashes/s), reset the device successfully.

Turn it on   2s
Turn it off 10s

Under the driver being power-on

Turn it on —— 10s —— Turn it off —— 2s —— ……

(Repeat 5 times)
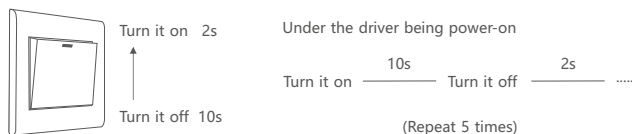
Attentions

• Please use in spacious and open space. Avoid metal obstructions above and in front of products.

• Please use in a cool and dry environment.

• No disassembly of products so as not to affect the warranty.

• Avoid direct contact with light and heat.

• Please do not open, modify, repair or maintain products without authorization , otherwise warranties are not allowed.

Warranty Agreement

Thanks for your purchasing. Our products offer a 5-year warranty and you can enjoy free maintenance services within 5 years from the date of receiving products. Please contact your suppliers before sending products back to repair.

Warranty exclusions below:

• Any failure or damage of products caused by improper installation, operation, maintenance and storage ,which results from failing to follow manuals.

• Beyond warranty periods.

• Alter or tear up product bar codes without authorization.

• Change configuration files of products or dismantle products for repair without authorization.

• Artificial damage of products, such as Improper voltage, high temperature, water damage, mechanical damage, smash, serious oxidation, and rust.

• Failures or damage of products caused by force majeure , such as earthquake, fire disaster, flood, and electric shock.

• Failures or damage of products not caused by product designs, technology, manufacturing, or quality.

＊ This manual is subject to changes without further notice. Product functions depend on the goods. Please feel free to contact our official distributors if you have any question.