Intelligent LED Driver (Constant Current)

- Dimming interface: 0-10V (1-10V/PWM/RX), Push DIM.
- T-PWM™ dimming technology allows continuous and flicker-free images under high-speed photography.
- With soft-on and fade-in dimming function, enhancing your visual comfort.
- Automatic recognition of 0-10V, 1-10V input signal.
- Ultra-low consumption of 0-10V ports: <0.05mA.
- Dimming from 0~100%, down to 0.01%.
- The whole dimming process is flicker-free with high frequency exemption level.
- Innovative thermal management technology, intelligent power life protection.
- Multi-current & wide voltage, suitable for different power LED.
- Non-load output voltage 0V to prevent damages to LED caused by poor contact.
- Suitable for internal lights application for Ⅰ/Ⅱ/Ⅲ.
- Up to 50,000-hour life time
- 5-year warranty (Rubycon capacitor).

T-PWM™
Dimming Technology

Flicker Free
IEEE 1789

Dimmable:
0.01%-100%

5 in 1 dimming
0-10V
1-10V
PWM
RX
Push DIM

UL E497951   FC   CE   RoHS SELV   Class 2

0-10V PUSH DIM   Over-heat Protection   Short Circuit Protection   Over Load Protection   Multiple Current

Specification

Model		AD-15-100-700-U1P1	AD-25-150-900-U1P1	AD-36-200-1200-U1P1
OUTPUT	Output Voltage	10-54Vdc		
	Max Output Voltage	58Vdc		
	Non-load Output Voltage	0Vdc		
	Output Current	100-700mA	150-900mA	200-1200mA
	Output Power	1~15W	1.5~25W	2~36W
	Fluctuation Depth	Almost flicker-free / High frequency exemption assessment level		
	Dimming Range:	0~100%, 0.01% dimming depth		
	PWM Dimming Frequency	≤3600Hz		
	Current Accuracy	±5%		
	Ripple & Noise	≤2V		
INPUT	Dimming Interface	0-10V(1-10V/PWM/RX), Push DIM		
	Input Voltage	100-277Vac ±10%, (Max. 90-305Vac)		
	Frequency	50/60Hz		
	Input Current	115Vac≤0.2A, 230Vac≤0.12A, 277Vac≤0.1A	115Vac≤0.3A, 230Vac≤0.2A, 277Vac≤0.15A	115Vac≤0.45A, 230Vac≤0.25A, 277Vac≤0.2A
	Power Factor	PF>0.97/115Vac, PF>0.9/230Vac, PF>0.88/277Vac (full load)	PF>0.97/115Vac, PF>0.93/230Vac, PF>0.85/277Vac (full load)	PF>0.95/115Vac, PF>0.9/230Vac, PF>0.85/277Vac (full load)
	THD	<16%/115Vac, <20%/230Vac, <29%/277Vac (full load)	<16%/115Vac, <20%/230Vac, <22%/277Vac (full load)	
	Efficiency(typ.)	82%	85%	88%
	Inrush Current(typ.)	Cold start 8A at 230Vac (twidth=75μs measured at 50% Ipeak)	Cold start 10A at 230Vac (twidth=75μs measured at 50% Ipeak)	Cold start 20A at 230Vac (twidth=75μs measured at 50% Ipeak)
	Anti Surge	L-N: 1kV		
	Leakage Current	<0.5mA/230Vac		
ENVIRONMENT	Working Temperature	ta: -30°C ~ 55°C tc: 75°C		
	Working Humidity	20 ~ 95%RH, non-condensing		
	Storage Temp., Humidity	-40°C ~ 80°C, 10~95%RH		
	Temp. Coefficient	±0.03%/°C (0-50°C)		
	Vibration	10~500Hz, 2G 12min./1cycle, period for 72min. each along X, Y, Z axes		
PROTECTION	Over-heat Protection	Intelligently adjusting or turning off the output current if the PCB temperature ≥110°C. And the output current will be restored automatically when the temperature comes normal		
	Over Load Protection	Shut down the output when current load ≥102%, auto recovers		
	Short Circuit Protection	Shut down automatically if short circuit occurs, auto recovers		
	Non-load Protection	Shut down the output if no load, auto recovers when load back to normal		
SAFETY & EMC	Withstand Voltage	I/P-O/P: 3750Vac		
	Isolation Resistance	I/P-O/P: 100MΩ/500VDC/25°C/70%RH		
	Safety Standards	CE European Union EN 61347-1, EN 61347-2-13, EN 62493		
		UL America UL 8750		
	EMC Emission	CE European Union EN IEC 55015, EN IEC 61000-3-2, EN 61000-3-3		
		UL America FCC part 15B		
	EMC Immunity	EN 61000-4-2,3,4,5,6,8,11 EN 61547		
	Strobe Test Standard	IEEE 1789		
OTHERS	Dimension	175×44×30mm(L×W×H)		
	Packing	178×48×33mm(L×W×H)		
	Weight(G.W.)	175g±10g		

LED Current Selection

DIP switch for 8 optional currents' quick selection(see the table below).

AD-15-100-700-U1P1	DIP Switch	⊥⊥⊥	⊥⊥T	⊥T⊥	⊥TT	T⊥⊥	T⊥T	TT⊥	TTT	ON OFF
	Output Current	100mA	180mA	300mA	350mA	450mA	500mA	600mA	700mA	
	Output Voltage	10-54V	10-54V	10-50V	10-43V	10-34V	10-30V	10-25V	10-22V	
	Output Power	1W-5.4W	1.8W-9.72W	3W-15W	3.5W-15.05W	4.5W-15.3W	5W-15W	6W-15W	7W-15.4W	

AD-25-150-900-U1P1	DIP Switch	⊥⊥⊥	⊥⊥T	⊥T⊥	⊥TT	T⊥⊥	T⊥T	TT⊥	TTT	ON OFF
	Output Current	150mA	250mA	300mA	350mA	500mA	600mA	700mA	900mA	
	Output Voltage	10-54V	10-54V	10-54V	10-54V	10-50V	10-42V	10-36V	10-28V	
	Output Power	1.5W-8.1W	2.5W-13.5W	3W-16.2W	3.5W-18.9W	5W-25W	6W-25.2W	7W-25.2W	9W-25.2W	

AD-36-200-1200-U1P1	DIP Switch	⊥⊥⊥	⊥⊥T	⊥T⊥	⊥TT	T⊥⊥	T⊥T	TT⊥	TTT	ON OFF
	Output Current	200mA	350mA	500mA	600mA	700mA	900mA	1050mA	1200mA	
	Output Voltage	10-54V	10-54V	10-54V	10-54V	10-52V	10-40V	10-35V	10-30V	
	Output Power	2W-10.8W	3.5W-18.9W	5W-27W	6W-32.4W	7W-36.4W	9W-36W	10.5W-36.75W	12W-36W	

✱ After current setting by DIP switch, power off and then power on to make the new current effective.

✱ E.g. LED 3.2V/pcs: 10-54V can power 3-16pcs LEDs in series, 10-22V can power 3-6pcs LEDs, the max quantity of LEDs in series will be subject to the actual voltage of LED.

Advanced options: connect ISET port with resistors of different values to set up currents

Connect to resistor

AD-15-100-700-U1P1 Connecting ISET with resistors can obtain the following typical currents.	Current(mA)	140mA	180mA	220mA	260mA	300mA	340mA	380mA	420mA	460mA	500mA
	Resistor(KΩ)	33.93 KΩ	27.78KΩ	23.19 KΩ	19.32KΩ	16.34 KΩ	14.05 KΩ	11.96KΩ	10.17 KΩ	8.57KΩ	7.16 KΩ
	Current(mA)	540mA	580mA	620mA	660mA						
	Resistor(KΩ)	5.98 KΩ	4.9 KΩ	3.87 KΩ	3 KΩ						

AD-25-150-900-U1P1 Connecting ISET with resistors can obtain the following typical currents.	Current(mA)	200mA	250mA	300mA	350mA	400mA	450mA	500mA	550mA	600mA	650mA
	Resistor(KΩ)	34KΩ	26.93KΩ	22.3KΩ	18.98 KΩ	15.93 KΩ	13.31 KΩ	11.45 KΩ	9.53KΩ	8.23 KΩ	6.72KΩ
	Current(mA)	700mA	750mA	800mA	850mA						
	Resistor(KΩ)	5.62 KΩ	4.58 KΩ	3.64 KΩ	2.81 KΩ						

AD-36-200-1200-U1P1 Connecting ISET with resistors can obtain the following typical currents.	Current(mA)	250mA	300mA	350mA	400mA	450mA	500mA	550mA	600mA	650mA	700mA
	Resistor(KΩ)	41.6KΩ	34.7 KΩ	29.52KΩ	25.4 KΩ	21.9 KΩ	19 KΩ	16.66 KΩ	14.5KΩ	12.62 KΩ	11.19KΩ
	Current(mA)	750mA	800mA	850mA	900mA	950mA	1000mA	1050mA	1100mA	1150mA	
	Resistor(KΩ)	9.8 KΩ	8.57 KΩ	7.43 KΩ	6.42 KΩ	5.47 KΩ	4.65 KΩ	3.93 KΩ	3.2 KΩ	2.57 KΩ	

Dimensions

Unit: mm

175

44

170

30

Wiring Diagram

0-10V connection

N
L

Wire diameter: 0.75-1.5㎡ (20-16AWG)
Strip length: 8-9mm

Wire diameter: 0.75-1.5㎡ (20-16AWG)
Strip length: 8-9mm

0-10V
0~100% Dimming

Push DIM connection

N
L

Push DIM
0~100% Dimming
Short press: on/off, long press: dimming.
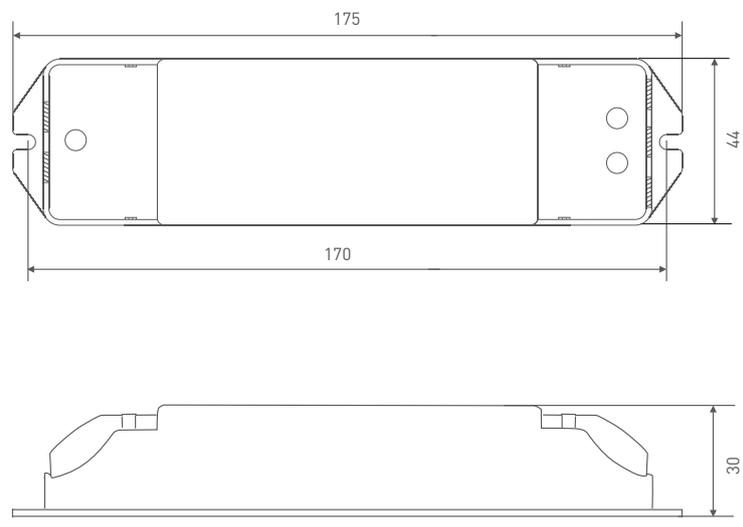
The dimming interface priority: First 0-10V, next Push DIM.
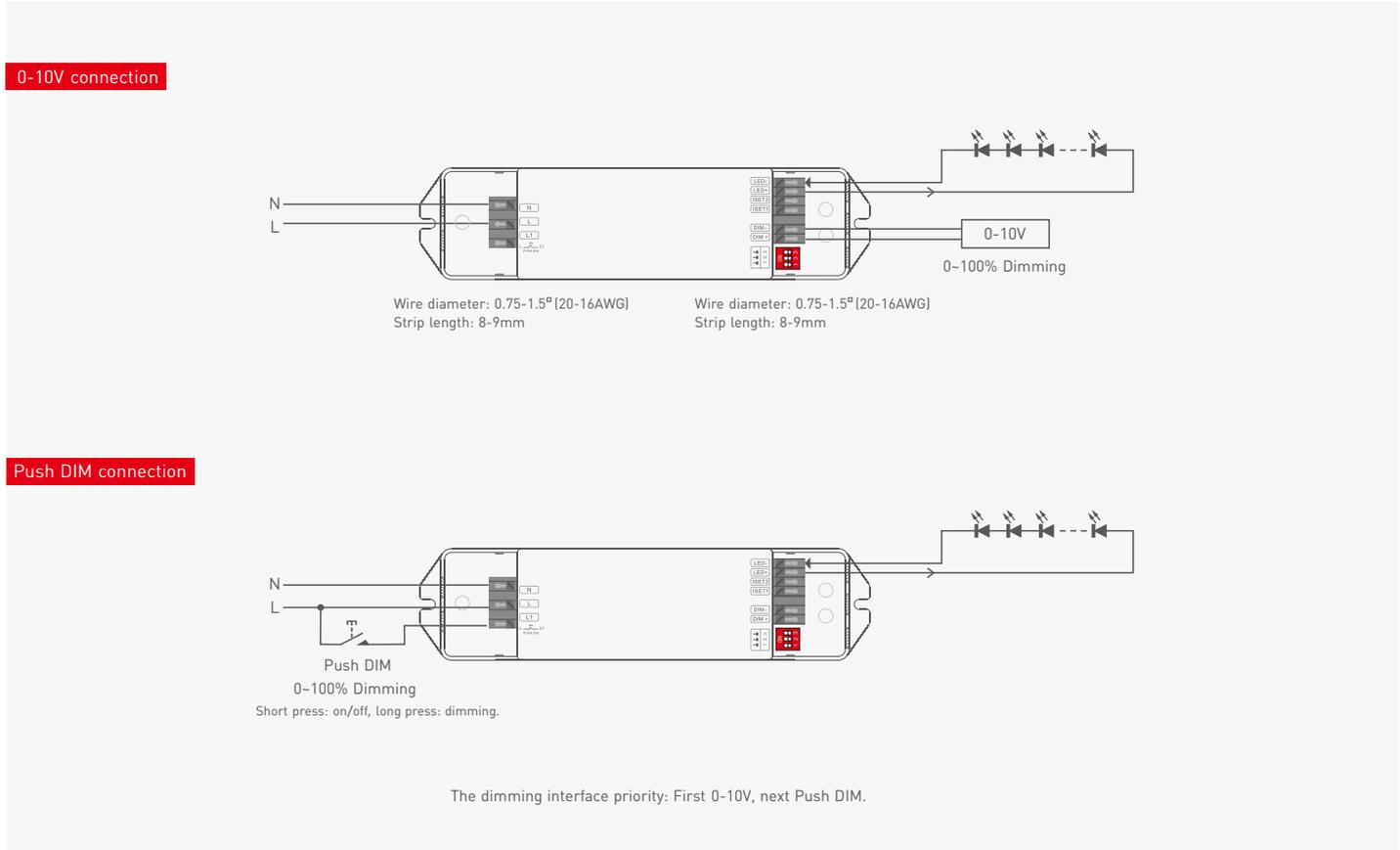
Push DIM

Reset Switch

- On/off control: Short press.
- Stepless dimming: Long press.
- With every other long press, the brightness goes to the opposite direction.
- Dimming memory: Brightness will be the same as previously adjusted when turning off and on again.

Installation Precautions

≥15cm
≥15cm
≥15cm
≥15cm
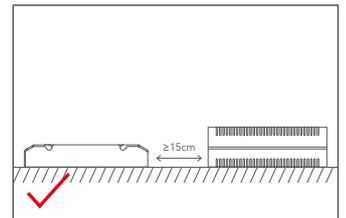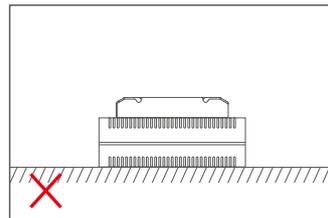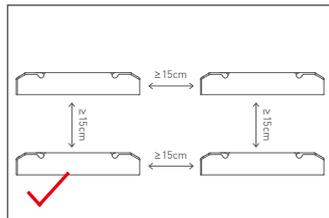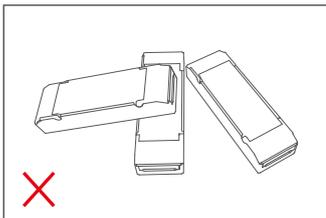
≥15cm

Please do not stack the products. The distance between two products should be≥15cm so as not to affect heat dissipation and the lifespan of the products.

Please not place the products on LED drivers. The distance between the product and the driver should be ≥15cm so as not to affect heat dissipation and shorten the lifespan of the products.

Flicker Test Form

| IEEE 1789	
Limit of Modulation in low risk area	
Waveform frequency of Optical output	limit (%)
$f \leqslant 8Hz$	0.2
$8Hz < f \leqslant 90Hz$	$0.025 \times f$
$90Hz < f \leqslant 1250Hz$	$0.08 \times f$
$f > 1250Hz$	Exemption assessment
Limit of Modulation in no effect area	
Waveform frequency of Optical output	limit (%)
$f \leqslant 10Hz$	0.1
$10Hz < f \leqslant 90Hz$	$0.01 \times f$
$90Hz < f \leqslant 3125Hz$	$(0.08/2.5) \times f$
$f > 3125Hz$	Exemption assessment (High frequency exemption)

Brightness
▲ 0.1%
✦ 1%
▲ 5%
◆ 10%
● 20%
▲ 30%
● 40%
★ 50%
● 60%
■ 70%
⬟ 80%
✶ 90%
◆ 100%

Modulation Area Diagram
High Frequency Exemption Area Diagram

Marks in the right chart were tested results of different current ranges.

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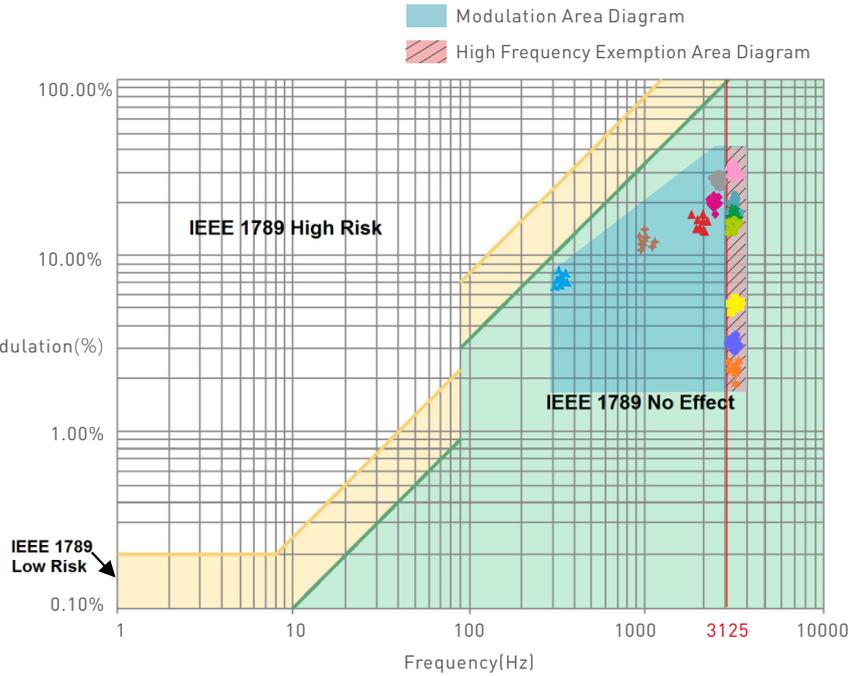
Attentions

- Products shall be installed by qualified professionals.
- LTECH products are non-waterproof (special models excepted). Please avoid the sun and rain. When installed outdoors, please ensure it is mounted in a water proof enclosure.
- Good heat dissipation will extend the working life of products. Please ensure good ventilation.
- Please check if the working voltage used complies with the parameter requirements of products.
- The diameter of wire used must be able to load the light fixtures you connect and ensure the firm wiring.
- Before you power on products, please make sure all the wiring is correct in case of incorrect connection that causes damage to light fixtures.
- If a fault occurs, please do not attempt to fix products by yourself. If you have any question, please contact your suppliers.

✳ 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.

Warranty Agreement

- Warranty periods from the date of delivery: 5 years.
- Free repair or replacement services for quality problems are provided within warranty periods.

Warranty exclusions below:

- Beyond warranty periods.
- Any artificial damage caused by high voltage, overload, or improper operations.
- Products with severe physical damage.
- Damage caused by natural disasters and force majeure.
- Warranty labels and barcodes have been damaged.
- No any contract signed by LTECH.

1. Repair or replacement provided is the only remedy for customers. LTECH is not liable for any incidental or consequential damage unless it is within the law.

2. LTECH has the right to amend or adjust the terms of this warranty, and release in written form shall prevail

Update Log

Version	Updated Time	Update Content	Updated by
A0	2018.03.16	Original version	Huang Yunting
A1	2019.05.10	Update product silkscreen	Huang Yunting
A2	2019.12.20	Update product certification icons	Huang Yunting
A3	2020.06.10	Update product description	Huang Yunting
A4	2022.04.21	Added attentions and warranty agreement	Liu Weili