

LED Intelligent Driver



- Dimming interface: 0-10V (1-10V/PWM/RX), Push DIM.
- T-PWM™ digital dimming.
- With soft-on and fade in function, visual more comfortable.
- Automatic recognition of 0-10V, 1-10V input signal.
- Dimming range: 0-100%, LED start at 0.01% possible.
- 0-100% flicker-free, High Frequency Exemption
- Innovative thermal management technology, intelligent power life protection.
- Multi-current & wide voltage, suitable for different power LED.
- Over load / Over-heat / Short circuit protection.
- Suitable for internal lights application for I/II/III.

T-PWM™
Super depth dimming technology

Flicker-free

IEEE 1789
CCC Certificate No.
2018011002096192 [15W/20W]
2018011002097190 [25W/30W]

5 in 1 dimming

0-10V
1-10V
PWM
RX
Push DIM

Dimmable:
■■■■■■■■■■
0.01% - 100%



SELV



RoHS



Class 2



Specification

Model		AD-15-150-700-F1A1	AD-20-200-700-F1A1	AD-25-200-900-F1A1	AD-30-300-900-F1A1
OUTPUT	Output Voltage	10-42Vdc			
	Max Output Voltage	48Vdc			
	Output Current	150-700mA	200-700mA	200-900mA	300-900mA
	Output Power Range	1.5W-15W	2W-20W	2W-25W	3W-30W
	Fluctuation Depth	Almost flicker-free / High frequency exemption assessment level.			
	Dimming Range:	0-100%, dimming depth: 0.01%			
	LF current ripple(<120Hz)	<1%			
	Current Accuracy	±5%			
	Ripple & Noise	≤2V			
PWM Frequency	≤3600Hz				
INPUT	Dimming Interface	0-10V(1-10V/10VPWM/RX), Push DIM			
	Input Voltage Range	100-240Vac, 127-250Vdc (Push Dim is unsupported for DC input)			
	Frequency	0/50/60Hz			
	Input Current	115Vac≤0.2A, 230Vac≤0.1A	115Vac≤0.21A, 230Vac≤0.13A	115Vac≤0.26A, 230Vac≤0.15A	115Vac≤0.31A, 230Vac≤0.18A
	Power Factor	115Vac>0.98, 230Vac>0.9	115Vac>0.98, 230Vac>0.91	PF>0.98/115Vac, PF>0.92/230Vac (full load)	
	THD	230Vac@THD≤15% (full load)	230Vac@THD≤14% (full load)		230Vac@THD≤12% (full load)
	Efficiency	>82%	>83%	>84%	>85%
	Inrush Current(typ.)	Cold start 3.6A at 230Vac (twidth=45μs measured at 50% Ipeak)	Cold start 4.9A at 230Vac (twidth=45μs measured at 50% Ipeak)	Cold start 6.4A at 230Vac (twidth=50μs measured at 50% Ipeak)	
	Control surge capability	L-N: 1kV			
Leakage Current	<0.5mA/230Vac				
ENVIRONMENT	Working Temperature	ta: -20°C ~ 50°C tc: 80°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	PCB temp.: >110°C, shut down; 100°C~110°C, output power reduces to 50% of current power; <90°C, normal.			
	Over Load Protection	Power limit when rated power ≥102%~125%, auto recovers when the load is reduced.			
	Short Circuit Protection	Shut down automatically if short circuit occurs, auto recovers after faulty condition is removed.			
SAFETY & EMC	Withstand Voltage	I/P-O/P: 3750Vac			
	Isolation 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	Dimension	167×41×32mm(L×W×H)			
	Packing	168×43×35mm(L×W×H)			
	Weight(G.W.)	165g±10g			

LED Current Selection

DIP switch for 8 optional currents' quick selection

DIP switch										ON OFF
AD-15-150-700-F1A1	Output Current	150mA	200mA	300mA	350mA	500mA	550mA	650mA	700mA	
	Output Voltage	10-42V	10-42V	10-42V	10-42V	10-30V	10-27V	10-23V	10-21.5V	
	Output Power	1.5-6.3W	2-8.4W	3-12.6W	3.5-14.7W	5-15W	5.5-14.85W	6.5-14.95W	7-15.05W	

DIP switch										ON OFF
AD-20-200-700-F1A1	Output Current	200mA	250mA	300mA	350mA	550mA	600mA	650mA	700mA	
	Output Voltage	10-42V	10-42V	10-42V	10-42V	10-36V	10-33V	10-31V	10-29V	
	Output Power	2-8.4W	2.5-10.5W	3-12.6W	3.5-14.7W	5.5-19.8W	6-19.8W	6.5-20.15W	7-20.3W	

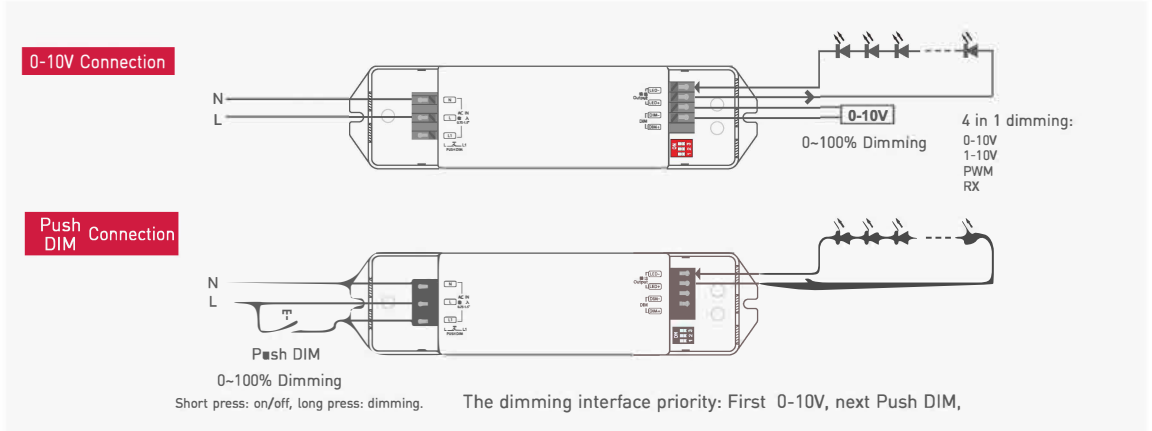
DIP switch										ON OFF
AD-25-200-900-F1A1	Output Current	200mA	300mA	400mA	500mA	600mA	700mA	800mA	900mA	
	Output Voltage	10-42V	10-42V	10-42V	10-42V	10-42V	10-36V	10-31V	10-28V	
	Output Power	2W-8.4W	3W-12.6W	4W-16.8W	5W-21W	6W-25.2W	7W-25.2W	8W-24.8W	9W-25.2W	

DIP switch										ON OFF
AD-30-300-900-F1A1	Output Current	300mA	350mA	450mA	500mA	700mA	750mA	850mA	900mA	
	Output Voltage	10-42V	10-42V	10-42V	10-42V	10-42V	10-40V	10-36V	10-34V	
	Output Power	3W-12.6W	3.5W-14.7W	4.5W-18.9W	5W-21W	7W-29.4W	7.5W-30W	8.5W-30.6W	9W-30.6W	

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

* E.g. LED 3.2V/pcs: 10-42V can power 3-13pcs LEDs in series, 10-21.5V can power 3-6pcs LEDs, the max quantity of LEDs in series will be subject to the actual voltage of LED.

Connections



Push Dimming

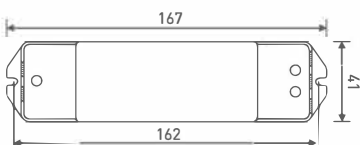


Reset Switch

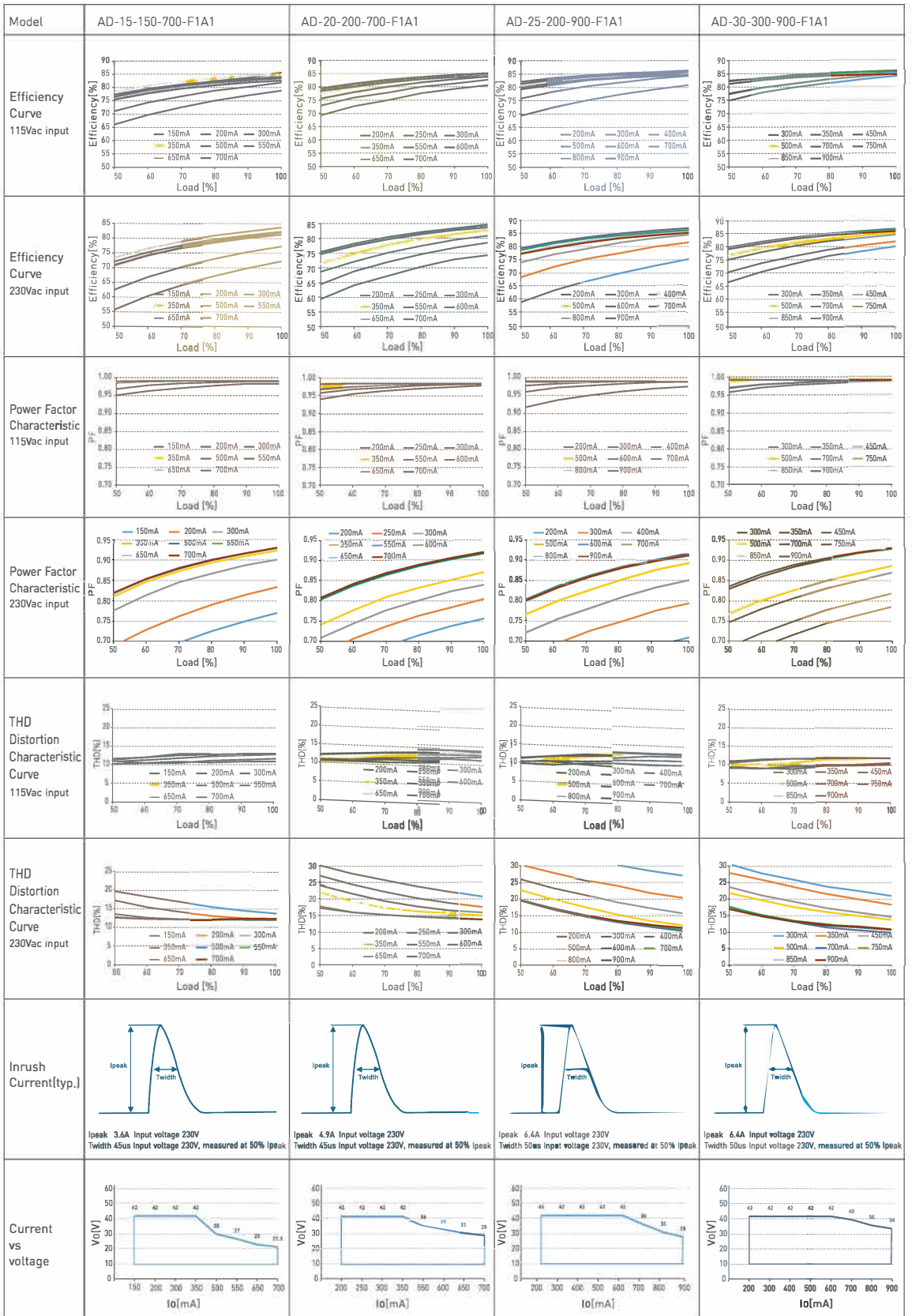
- On/off control: Short press.
- Stepless dimming: Long press.
- With every other long press, the light level goes to the opposite direction.
- Dimming memory: Brightness will be the same as previously adjusted when turning off and on again.

Dimensions

Unit: mm



Graph



Flicker Test Form

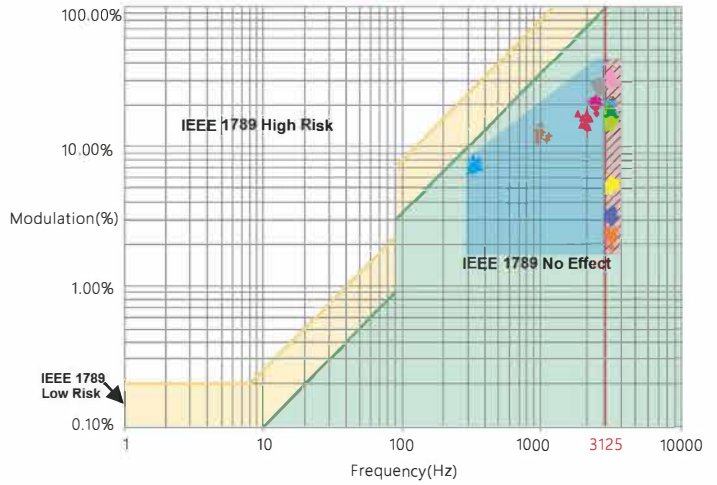
IEEE 1789

Limit of Modulation in low risk area	
Waveform frequency of Optical output	limit (%)
$f \leq 8\text{Hz}$	0.2
$8\text{Hz} < f \leq 90\text{Hz}$	$0.025 \times f$
$90\text{Hz} < f \leq 1250\text{Hz}$	$0.08 \times f$
$f > 1250\text{Hz}$	Exemption assessment
Limit of Modulation in no effect area	
Waveform frequency of Optical output	limit (%)
$f \leq 10\text{Hz}$	0.1
$10\text{Hz} < f \leq 90\text{Hz}$	$0.01 \times f$
$90\text{Hz} < f \leq 3125\text{Hz}$	$[0.08/2.5] \times f$
$f > 3125\text{Hz}$	Exemption assessment (High frequency eye adaptation)

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

LED 智能调光驱动器

- 调光接口：0-10V(1-10V/10VPWM/RX), Push DIM
- T-PWM™ 数字调光技术，呈现完美的视觉感受
- 带软启动渐亮功能，让人眼视觉更舒适
- 自动识别0-10V、1-10V输入
- 调光范围：0~100%，LED从0.01%开始调光
- 0-100%全程无频闪，高频豁免考核
- 创新的热管理技术，智能保护电源寿命
- 多电流、宽电压，适用不同功率的LED
- 过载、过温、短路保护，可自动恢复
- 适合室内 I、II、III类灯具应用



T-PWM™
超深度调光技术

Dimmable:
0.01%~100%

CCC认证编号：
2018011002096192 [15W/20W]
2018011002097190 [25W/30W]

无频闪
IEEE 1789

5合1调光

0-10V
1-10V
PWM
RX
Push DIM



技术参数

型号	AD-15-150-700-F1A1	AD-20-200-700-F1A1	AD-25-200-900-F1A1	AD-30-300-900-F1A1	
输出	工作电压范围	10-42Vdc			
	最大输出电压	48Vdc			
	工作电流范围	150-700mA	200-700mA	200-900mA	300-900mA
	负载功率范围	1.5W-15W	2W-20W	2W-25W	3W-30W
	频闪级别	几乎无频闪/高频豁免级别			
	调光范围	0~100%，调光深度 0.01%			
	PWM频率	≤3600Hz			
	低频电流纹波(<120Hz)	<1%			
电流精度	±5%				
纹波与噪声	≤2V				
输入	调光接口	0-10V(1-10V/10VPWM/RX), Push DIM			
	输入电压	100-240Vac, 127-250Vdc [直流输入不支持Push Dim]			
	频率范围	0/50/60Hz			
	输入电流	115Vac≤0.2A, 230Vac≤0.1A	115Vac≤0.21A, 230Vac≤0.13A	115Vac≤0.26A, 230Vac≤0.15A	115Vac≤0.31A, 230Vac≤0.18A
	功率因数	115Vac>0.98, 230Vac>0.9	115Vac>0.98, 230Vac>0.91	PF>0.98/115Vac, PF>0.92/230Vac [满载]	
	谐波THD	230Vac@THD≤15% [满载]	230Vac@THD≤14% [满载]	230Vac@THD≤12% [满载]	
	效率	>82%	>83%	>84%	>85%
	浪涌电流	冷启动3.6A/230Vac [在50% Ipeak下测试,twidth=45us]	冷启动4.9A/230Vac [在50% Ipeak下测试,twidth=45us]	冷启动6.4A/230Vac [在50% Ipeak下测试,twidth=50us]	
	抗浪涌	L-N: 1kV			
漏电流	<0.5mA/230Vac				
环境	工作温度	ta: -20 ~ 50°C tc: 75°C			
	工作湿度	20 ~ 95%RH, 无冷凝			
	储存温度 湿度	-40 ~ 80°C, 10~95%RH			
	温度系数	±0.03%/°C[0-50°C]			
耐振动	10-500Hz, 2G 12分钟/周期, X,Y,Z轴各72分钟。				
保护	过载保护	负载超过额定功率≥1.02倍时自动保护, 减轻负载自动恢复			
	过温保护	根据PCB温度超标情况(≥110°C), 智能调节电流输出或关闭, 温度正常后可自动恢复。			
	短路保护	输出线路短路自动关闭, 检测正常后自动恢复			
安规和电磁规格	耐压	输入对输出: 3750Vac			
	绝缘阻抗	输入对输出: 100MΩ/500VDC/25°C/70%RH			
	安全规范	IEC/EN61347-1, IEC/EN61347-2-13			
	电磁兼容发射	EN55015, EN61000-3-2 Class C, IEC61000-3-3			
	电磁兼容抗扰度	EN61000-4-2,3,4,5,6,8,11, EN61547			
频闪测试标准	IEEE 1789				
其他	产品尺寸	167×41×32mm[L×W×H]			
	包装尺寸	168×43×35mm[L×W×H]			
	产品重量	165g±10g			

LED电流选择

DIP开关快速选择 8 档电流值

DIP开关										ON OFF
AD-15-150-700-F1A1	电流输出	150mA	200mA	300mA	350mA	500mA	550mA	650mA	700mA	
	电压输出	10-42V	10-42V	10-42V	10-42V	10-30V	10-27V	10-23V	10-21.5V	
	功率输出	1.5-6.3W	2-8.4W	3-12.6W	3.5-14.7W	5-15W	5.5-14.85W	6.5-14.95W	7-15.05W	

DIP开关										ON OFF
AD-20-200-700-F1A1	电流输出	200mA	250mA	300mA	350mA	550mA	600mA	650mA	700mA	
	电压输出	10-42V	10-42V	10-42V	10-42V	10-36V	10-33V	10-31V	10-29V	
	功率输出	2-8.4W	2.5-10.5W	3-12.6W	3.5-14.7W	5.5-19.8W	6-19.8W	6.5-20.15W	7-20.3W	

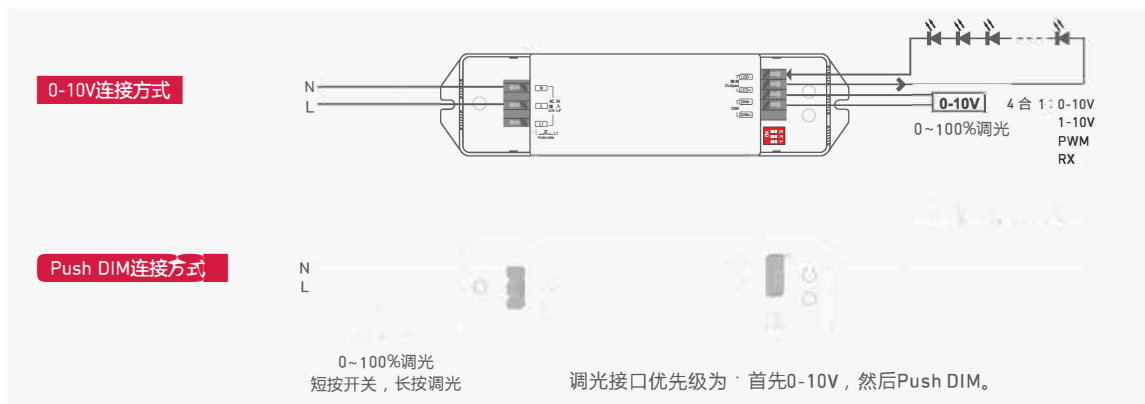
DIP开关										ON OFF
AD-25-200-900-F1A1	电流输出	200mA	300mA	400mA	500mA	600mA	700mA	800mA	900mA	
	电压输出	10-42V	10-42V	10-42V	10-42V	10-42V	10-36V	10-31V	10-28V	
	功率输出	2W-8.4W	3W-12.6W	4W-16.8W	5W-21W	6W-25.2W	7W-25.2W	8W-24.8W	9W-25.2W	

DIP开关										ON OFF
AD-30-300-900-F1A1	电流输出	300mA	350mA	450mA	500mA	700mA	750mA	850mA	900mA	
	电压输出	10-42V	10-42V	10-42V	10-42V	10-42V	10-40V	10-36V	10-34V	
	功率输出	3W-12.6W	3.5W-14.7W	4.5W-18.9W	5W-21W	7W-29.4W	7.5W-30W	8.5W-30.6W	9W-30.6W	

* DIP开关设置不同的电流后，需要断电后再通电，这样新设置的电流才有效。

* 假设LED的电压是3.2V/颗：电源10-42V的输出电压范围可串联3-13颗LED，10-21.5V的输出电压范围可串联3-6颗LED，最大串联数量以LED实际电压为准。

连线图



Push Dimming

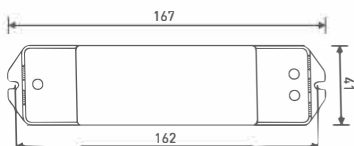


复位开关

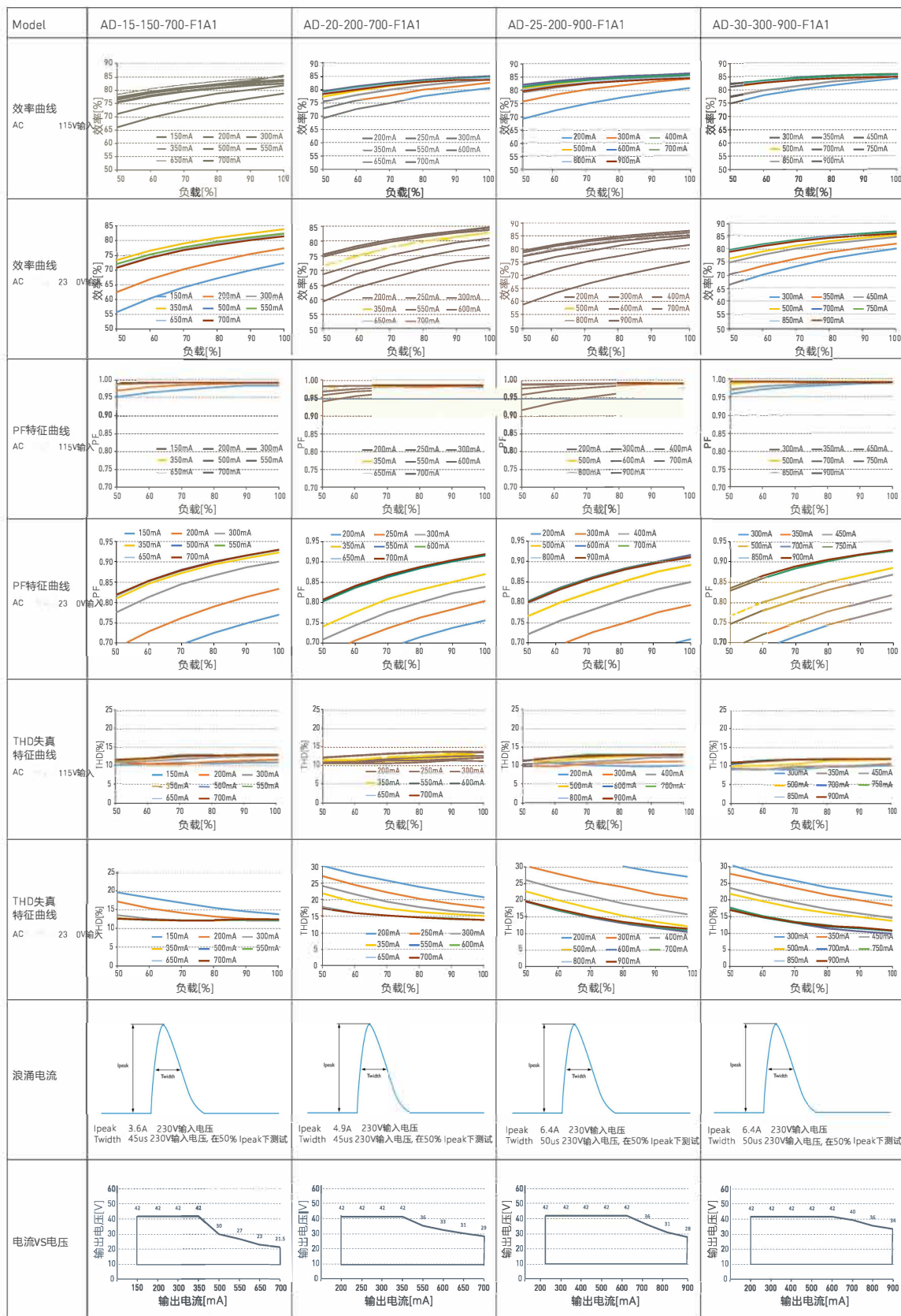
- 开关控制: 短按。
- 无级调光: 长按。
- 每隔一次长按，明暗度会向相反方向调整。
- 内置永久记忆: 当再次开关时，灯光会回到先前调整的亮度水平。

尺寸图

单位：mm



Graph



频闪测试表

IEEE 1789

低风险区域 (Low Risk) 的波动深度 (Modulation) 限值	
光输出频率 f	限值 (%)
$f \leq 8\text{Hz}$	0.2
$8\text{Hz} < f \leq 90\text{Hz}$	$0.025 \times f$
$90\text{Hz} < f \leq 1250\text{Hz}$	$0.08 \times f$
$f > 1250\text{Hz}$	免除考核
无风险区域 (No Effect) 的波动深度 (Modulation) 限值	
光输出频率 f	限值 (%)
$f \leq 10\text{Hz}$	0.1
$10\text{Hz} < f \leq 90\text{Hz}$	$0.01 \times f$
$90\text{Hz} < f \leq 3125\text{Hz}$	$(0.08/2.5) \times f$
$f > 3125\text{Hz}$	免除考核 (高频豁免)

- 亮度
- ▲ 0.1%
 - ▲ 1%
 - ▲ 5%
 - ▲ 10%
 - 20%
 - ▲ 30%
 - 40%
 - ★ 50%
 - 60%
 - 70%
 - 80%
 - ★ 90%
 - ◆ 100%

右图标识为不同电流档的测试结果。

100%亮度时输出频率为0Hz，对应波动深度为0%，无法在右图中示意。

