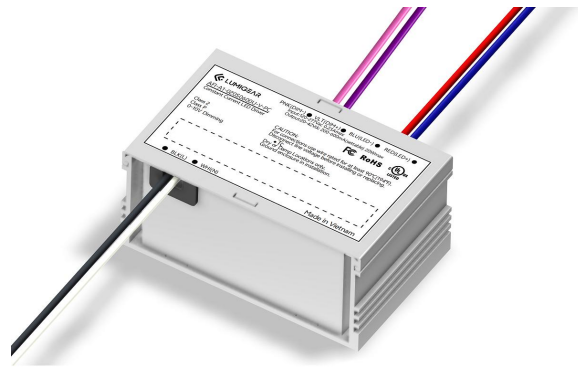


Features & Benefits

- Universal AC Input Voltage (120-277VAC)
- Compact design, silicone potted for better thermal performance
- Isolated 0-10V dimming, 1%
- Suitable for indoor use
- UL Class2, Class P
- Combination Wave 2KV, Ringwave 2.5KV
- Operating temperature: -25°C~+55°C
- Comply with Title 24, UL8750

Programmable features:

- ◆ Output current(1mA step)
- ◆ Enable/Disable Dim off
- ◆ Min Dimming Level
- ◆ Dimming curve: Log/linear/Square dim curves
- ◆ Over Temperature Protection: Foldback mode, Linear decrease
modetness

Model List

Model Name	Rated Input Voltage	Max Output Power(Total)	Output Current(Total)	Rated Output Voltage	Efficiency	Dimension
AFI-A1-010S0300U-V-PC	120-277VAC	10W max.	100-300mA	20-42VDC	87%	53*36*24.6 mm 2.1×1.4×0.9 in.
AFI-A1-020S0600U-V-PC	120-277VAC	20W max.	200-600mA	20-42VDC	89%	53*36*24.6 mm 2.1×1.4×0.9 in.

Approvals



CLASS P

Model name code

AFI-A1	-	010S	0300	U	-	V	-	PC
①		②	③	④		⑤		⑥
①	Series		AFI Series					
②	Output power		Maximum output power: 10W					
③	Output current(max)		Maximum output current: 300mA					
④	Input voltage		120-277VAC					
⑤	Dimming Control		0-10V					
⑥	Programmable		USB-PC					

Specification:

Parameters	Symbols	Test Conditions / Comment	Min	Typ	Max	Units
------------	---------	---------------------------	-----	-----	-----	-------

INPUT

Input Voltage	V_{IN}		108		305	V_{AC}
Rated Input Voltage	$V_{IN\ RATED}$		120		277	V_{AC}
	$V_{IN\ RATED_TRIAC}$	Phase Cut Dimming		120		V_{AC}
Input Frequency	f_{line}		47	50/60	63	Hz
Input Current	I_{IN}	AFI-A1-010, Full Load, $V_{IN} = 120V_{AC}$			0.12	A
		AFI-A1-020, Full Load, $V_{IN} = 120V_{AC}$			0.23	A
Inrush Current	I_{INRUSH}	Cold Start, $V_{IN} = 277V_{AC}$			20	A
Leakage Current	$I_{Leakage}$	$V_{IN} = 277V_{AC}$ 60Hz			0.75	mA
Number of Drivers per MCB(Circuit Breaker)	MCB type	B10 C10 D10 B13 C13 D13 B16 C16 D16 B20 C20 D20				
	120V _{AC}	16 18 21 21 24 28 26 30 34 32 37 43				
	277V _{AC}	15 25 50 19 32 65 24 40 81 30 50 101				



Input Voltage	Inrush Current	t(us)10%-10%
120VAC	8.0A	254
277VAC	15.8A	208
347VAC	NA	NA

General Characteristics

Power Factor	PF	20-100% load, $V_{IN} = 120V_{AC}$	0.9			PF
		50-100% load, $V_{IN} = 277V_{AC}$	0.9			
Total Harmonic Distortion	THD	20-100% load, $V_{IN} = 120V_{AC}$			20	%
		50-100% load, $V_{IN} = 277V_{AC}$			20	%
Turn On Delay Time	T_{on_delay}	Cold Start, Without Dimmer			0.5	S
		Cold Start, 1% Dimming, $V_{out}=36V$			1.5	S
Efficiency	η	AFI-A1-010, $I_{OUT}=300mA$, $V_{IN}=120V_{AC}$, Steady state	84	86		%
		AFI-A1-020, $I_{OUT}=600mA$, $V_{IN}=120V_{AC}$, Steady state	85	87		%
		AFI-A1-010, $I_{OUT}=300mA$, $V_{IN}=277V_{AC}$, Steady state	85	87		%
		AFI-A1-020, $I_{OUT}=600mA$, $V_{IN}=277V_{AC}$, Steady state	86	88		%

OUTPUT

Output Current Tolerance	t	$I_{OUT}=(50-100\%)I_{MAX}$			5	%
		$I_{OUT}=(MIN.-49\%)I_{MAX}$			7	%
Output Current Range	I_{OUT}	AFI-A1-010	3		300	mA

		AFI-A1-020	6		600	mA
Output Voltage	V_{OUT}		20		42	V
Line Regulation	$V_{OUT-LINE}$				5	%
Load Regulation	$I_{OUT-LOAD}$	V_{OUT} from MIN. to MAX.			5	%
Ripple Current	$I_{OUT-RIPPLE}$	Full Load, $(I_{Omax}-I_{Omin})/(I_{Omax}+I_{Omin})$			30	%
Output Current Overshoot	$I_{OVERSHOOT}$	Turning Power ON			10	%

0~10V or Resistor Dimming

The 0~10V or resistor dimming can be used to dim the output current via a standard commercial wall dimmer (0~10V_{DC}) or an external control voltage source (0~10V_{DC}) or external resistor.

Dimming Curve	Linear. please see “Dimming curve”.				
Absolute Maximum Voltage on 0~10V Pin	V _{DIM}		0	300	V _{AC}
Source Current on 0~10V Dimming Pin	I _{DIM}		200		uA
Light On	V _{DIM-on}	Programmable	0.9		V
Light Off	V _{DIM-off}	Programmable	0.7		V
Dimming Voltage for Full Bright	V _{DIM-MAX}	Programmable	8		V
Standby power	P _{STANDBY}	Light Off, Vin=120VAC		0.5	W

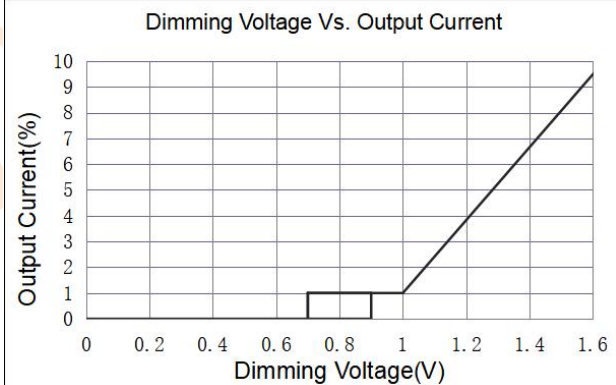
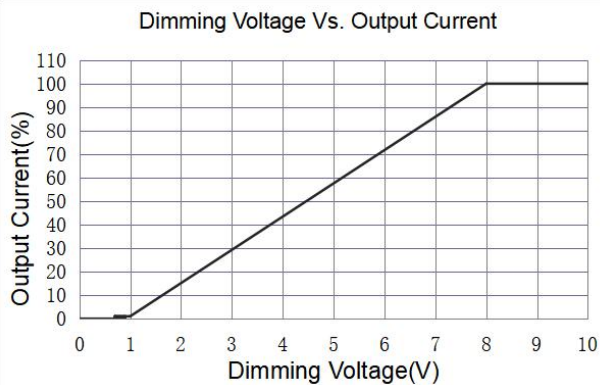
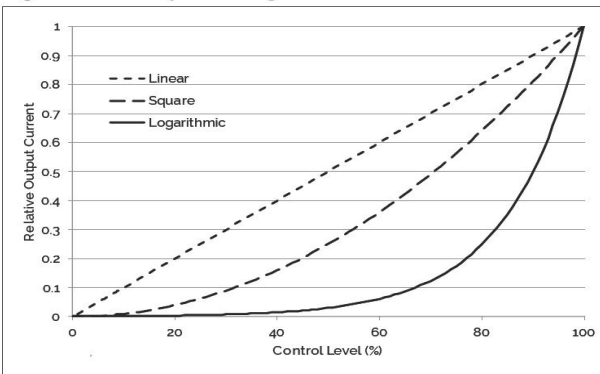


Figure 1: Intensity Dimming Profile Characteristics



Programming

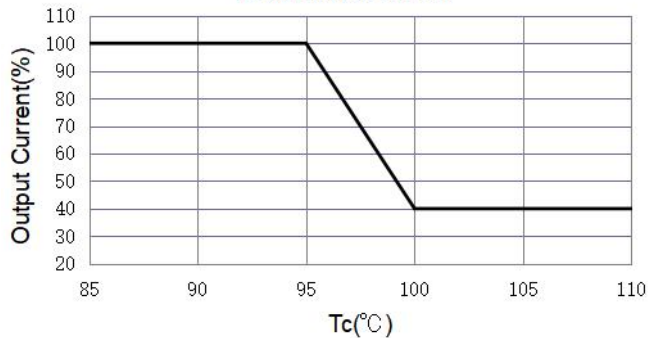
The driver is programmable , Please contact LUMIGEAR for details.

NO.	Item	Default Setting
1	Output current(1mA step)	See"Model list" for each model
2	Dim to off(0-10V)	Enable
3	Min Dimming Level	1%
4	Dimming curve: Log/linear/Square dim curves	See "0~10V or Resistor Dimming" section
5	Over Temperature Protection: Foldback mode, Linear decrease mode	See "Protection" section
P2.0 Female Plug	Programming software	"LUMIGEAR Programming Tool"
	Programming tool	"Lumigear tool box"
	Operating voltage	5 V

Protection

Over Voltage Protection	V_{OVP}	The unit will recover automatically after fault conditions is removed.		60		V
Over Temp. Protection	T_{OTP}	Current linear reduced when hotspot greater than T_{OTP}		90		°C
Short Circuit Protection	The unit will recover automatically after fault conditions is removed.					

Tc Vs. Output Current

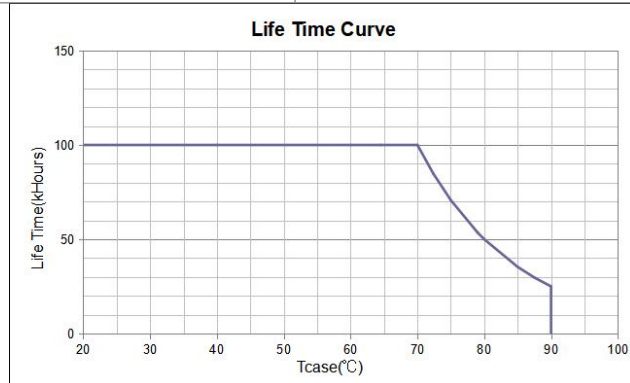


Environment

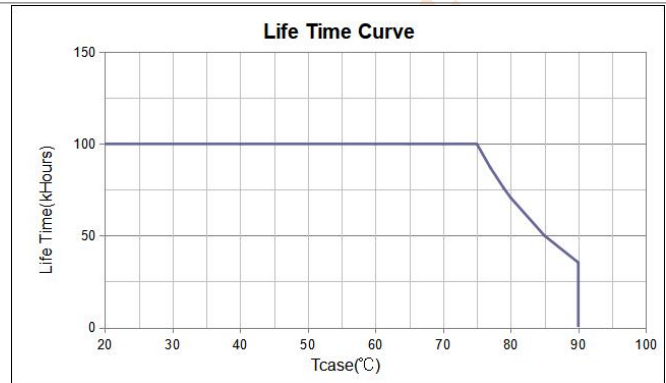
Storage Temperature	$T_{Storage}$	Humidity: 5% RH to 95% RH	-40	-	+85	°C
Ambient Operating Temperature	T_a		-25	-	+55	°C
Max. Case Temperature	T_c	Hot spot on case			90	°C
Operating Relative Humidity	H_a	Non-Condensing	10		90	%
Acoustic Noise		Measured from 1 meter			24	dBA
Cooling	Convection Cooling					
IP Rating	Dry and damp UL approved					

Others

Life Time	T_{Life}	AFI-A1-010, Full load, 80°C case temperature	50			kHrs
		AFI-A1-020, Full load, 85°C case temperature	50			kHrs
SVEF	T_{SVEF}	Full Load, 25°C ambient temperature	200			kHrs
Net Weight	W_{NET}			TBD		g
Warranty	AFI-A1-010, 5 Years Warranty at $T_c \leq 80^\circ\text{C}$					
	AFI-A1-020, 5 Years Warranty at $T_c \leq 85^\circ\text{C}$					
Flicker	Title 24					



AFI-A1-010 life time curve



AFI-A1-020 life time curve

Safety Compliance

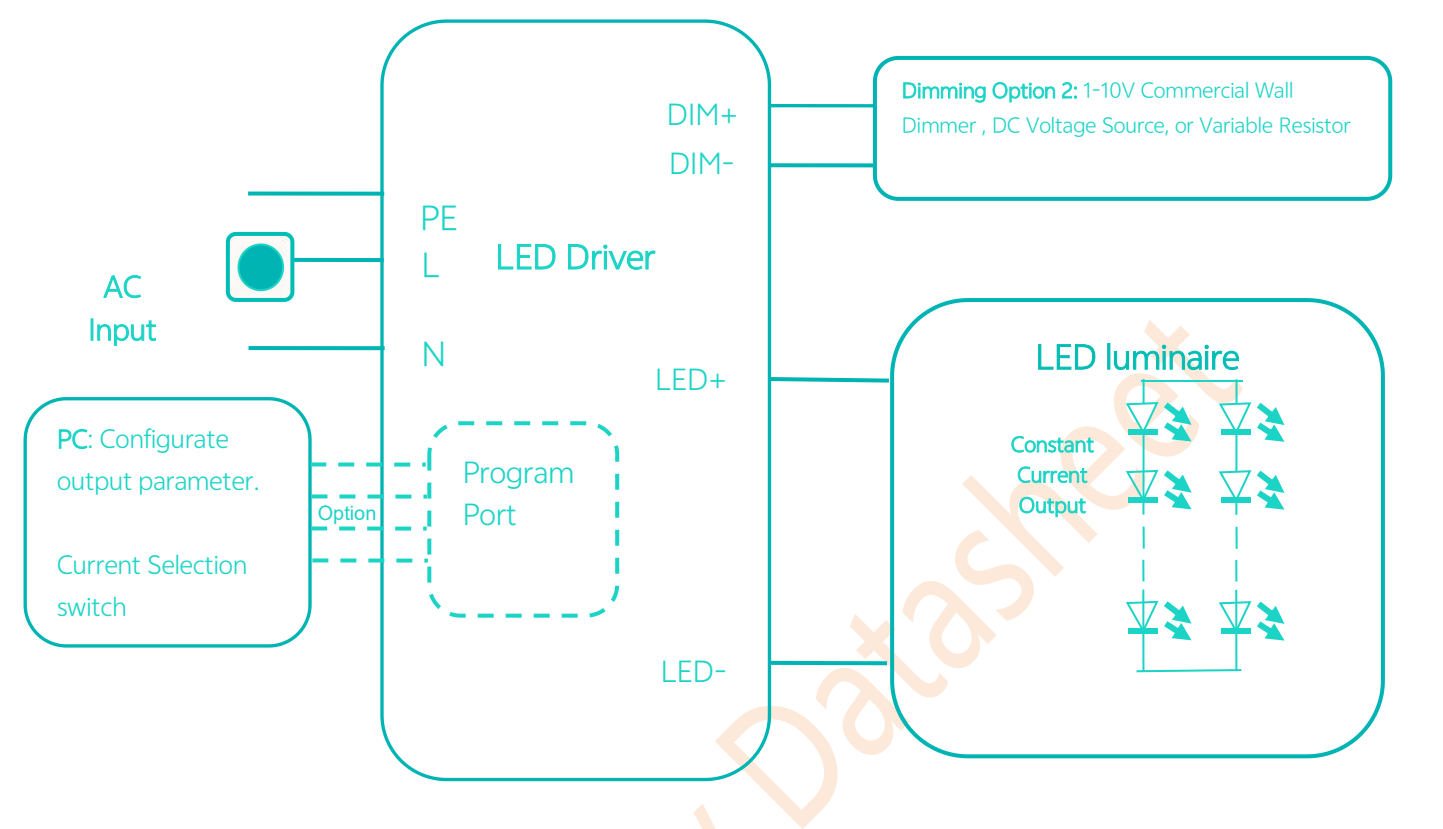
CUL/UL	UL8750, CAN/CSA-C22.2 No. 250.13
--------	----------------------------------

Electromagnetic Compliance

EMC Requirements	Standard	Conditions
EMI Emissions	FCC Title 47 Part 15	Class B at 120V _{AC} , Class A at 277V _{AC}
Voltage Fluctuations and Flicker	IEC61000-3-3	
Immunity Compliance	IEC 61000-4-2	±8kV air Discharge, ±6kV Contact Discharge
	ANSI/IEEE C62.41-2002	± 2kV Common and Differential Mode, test at 2 Ω, 5 strikes/1minute interval (40 total strikes)
	ANSI/IEEE C62.41.1-2002	2.5kV Ring Wave, test at 30Ω 7 Strikes/1 minute interval, Common and Differential mode, 56 total strikes
	IEC 61000-4-11	>95% dip, 5 period; 30% dip, 25 periods; 95% reduction, 250 periods
	IEC 61000-4-4	± 2kV Direct couple to Line input, 5kHz repetition rate, 15mS duration, 300mS period. 7 coupling paths, 1 minute per path (14 total combinations)

Note: Unless otherwise specified, all the above parameters are measured at ambient temperature of 25°C and rated voltage.

Typical Application



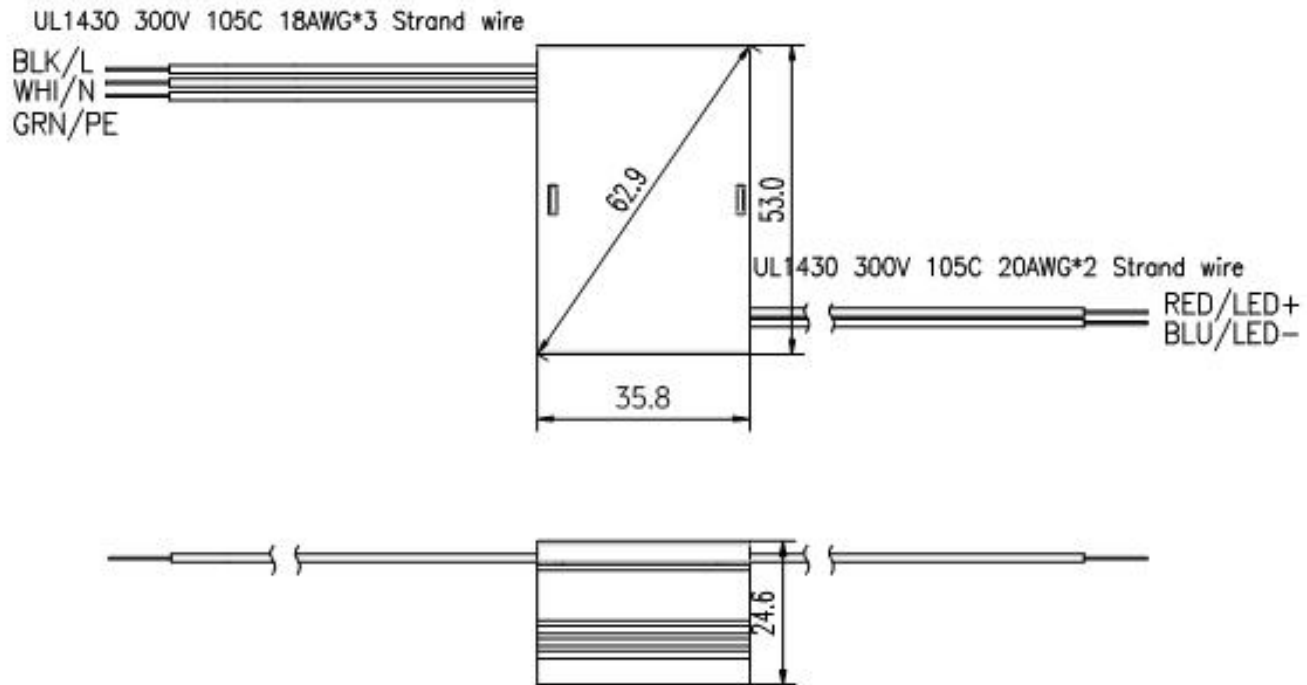
Packaging

Driver quantity (pcs)	Layer	Weight (kg)	Outer dimensions of Carton L*W*H(mm)
TBD	TBD	TBD	TBD

Mechanical Drawing: (53*36*24.6 mm2.1×1.4×0.9 in.)

Dimensions(Unit:mm)

Default tolerance:±1mm



Preliminary